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Thomas Telios

Introduction: Is the Poststructuralist Feminist Episteme in Crisis?

Katarina Kolozova and Vera Bühlmann

Departing from the premise that the poststructuralist paradigm still reigns supreme in feminist and gender theory, that is, despite the niche efforts made in the past two decades to challenge it linked to the so called “speculative” turn or the materialisms (and realisms) emerging from the feminist field itself (such as the Utrecht School, inspired by Rosi Braidotti), we set the call for papers for the issue before you in terms that would invite authors ready to challenge the dominant epistemic framework. We invited papers that engage with materialism(s), realism(s), sciences and projects engaged in rethinking the post-human beyond the poststructuralist (and, we dare say, postmodern/ist) norm. The invitation included as its special focus the only strand of gender theory that has defined itself as an open feminist provocation to the epistemic mainstream—xenofeminism. We admit the fact that there are individual authors who may pose a direct challenge, but that they have also been paradoxically coopted by poststructuralist interpretations, such as Luce Irigaray or Isabelle Stengers. Our initial premise was that all these trends, notwithstanding the fact they represent serious provocations to the poststructuralist paradigm, do not seriously threaten it, but instead further saturate it: for example, xenofeminism remains grounded in a subjectivity and identity centered model of thought and in the poststructuralist regurgitation of nominalist metaphysics. “Vibrant materialism” (Jane Bennett) is also subjectivity centered, Irigaray is turned on her head, Marxism from her expunged and canonized as poststructuralist, Karen Barad’s opposition to using humanities to offer commentary on sciences rather does the opposite, something that seems to have remained ignored or misunderstood by feminist theorists.¹

The structural straightjacketing of thought into the *form* of Subjectivity—which is always modeled after the Human even if it is called Hegel’s Spirit or “the Posthuman”—or which speaks from and of a certain position of an “I,” precludes other models of centering thought or, what’s more, a truly decentered thought. Is it possible to mime the posture of scientific thought which could or could not accept accountability for its own subjectiveness and which attempts to center itself around the object of study (without inadvertently imitating subjectivity, without perverting the object into a subject as OOO does)? Is it possible, asks this special issue of *Technophany*, to implement the “correlationist” (Meillassoux) or “non-

1 Rick Dolphijn and Iris van der Tuin, “Interview with Karen Barad,” in Rick Dolphijn and Iris van der Tuin (eds.), *New Materialism: Interviews & Cartographies* (Open Humanities Press, 2012). available at <http://tinyurl.com/5d4pn2hx>, accessed on 11 February 2024.

thetic” (François Laruelle) critique in feminist and gender theory? Some have tried before,² but the effect of those attempts come down to rather niche impacts influencing perhaps changes in idiolects, styles, mannerisms and perhaps some topical shift while still falling back into the poststructuralist epistemic norm. Objectivism or object centered thought as conceptualized by Marx who, in opposition to Auguste Comte, advocates miming a third-party perspective without the arrogance of attempting a *sub specie aeternitatis* position, is one of the possibilities that even feminist Marxism has never truly explored.³

This ambition, set by the call for submissions to “Technē and Feminism,” is more audaciously accepted by the new generation of authors, such as the group of young scholars who discovered and put on the map of feminist scholarship a Laruellian philosopher Sophie Lesueur and her paper from 2005 in the issue before you. The ambition to challenge the subjectivity centered episteme is perhaps most bravely attempted in the experimental paper by Luara Karlson-Carp and Geoffrey Hondroudakis “Scale and Sexuation: Towards a Multi-Scalar (Techno)Feminism.” In a somewhat different manner yet with a similar ambition in mind, “Somatophilic Rationality for Reproductive Justice” by Rodante van der Waal, Inge van Nistelrooij, Deborah Fox and Elizabeth Newnham is inspired by the second wave Marxist feminism in its conceptualizing reproductive justice in terms of a feminist critique of the very constitution of the institutions and institutionalist medicine (attempt similar to the Foucauldian ambition but fulfilled through the route of systemic rather than individuality centered critique). “Quantum Feminicity: Modes of Countermanding Time” by Felicity Colman uses quantum theory epistemic precepts or implications to reinvent historicity and temporality from a feminist standpoint that in and of itself represents a bold and inspiring provocation to the poststructuralist dogma. “Emilie du Châtelet—On Knowledge and Matter: A Precursor to Posthuman Feminism’s Approach to Science Making” by Tal Bar resuscitates the feminist tradition of archiving and safeguarding women’s contributions to the history of ideas which every tradition and canon seems to almost spontaneously forget about, while proposing an intriguing thesis: du Châtelet is the pre-enlightenment precursor of posthumanism, through an experimental episteme and intuition embedded in her philosophical-mathematical work. Thomas Telios in “Karen Barad and the Unresolved Challenge of Collectivity: A Case for New Materialisms,” seeks to unravel the potential for a collectivist political episteme something which, nonetheless,

2 Eileen Joy and Katerina Kolozova (eds.), *After the “Speculative Turn”: Realism, Philosophy, and Feminism* (Brooklyn NY: Punctum Books, 2016). The volume contains contributions discussing speculative realism, OOO, Marxism, and all of the other stands mentioned above, including xenofeminsm and a realist radicalization of Lacan via Freud.

3 Karl Marx, “Critique of Hegel’s Philosophy in General,” in Karl Marx, *Economic and Philosophical Manuscripts of 1844* (Moscow: Progress Publishers, 1959), available at <https://www.marxists.org/archive/marx/works/1844/manuscripts/hegel.htm>, accessed on 11 February 2024; note this is an online version without pagination.

still falls prey to the poststructuralist siren song of coming up with some form of subjectivity, and thus fails to heed to Barad's invitation to see agency as an enactment rather than (human) self. The paper nonetheless contributes in an important way to the challenging of the subject/individual centered dogma of poststructuralism amounting to culturalized selfhoods called identities. Nandita Biswas Mellamphy, a feminist scholar who has contributed in important ways to the institutional mainstreaming of François Laruelle's non-philosophy, in this issue of *Technophany*, without resort to Laruelle and the Laruellean notion of the "non-human, offers a radical decoupling of posthumanism and poststructuralism, making a case for a feminist anthropocentrism.

Such a decoupling of posthumanism and poststructuralism would allow us to keep with both at their best; we dare to imagine. Let's again stress and collect our points of argumentation in yet another make-up. This issue of *Technophany* understands itself literally as a report on some novel manifestations of techno-kindred natures. We think that Donna Haraway's call for *making-kin* would gain strength and proportionality from learning to calibrate with a non-individual centric notion of *mimesis* that might help to decentralize models of thought. How can making-kin succeed in undermining the structural straightjacketing of normative subject-centric tendencies by activating not merely the *form* of humanism, but also any animated and material organicity of form as *soma*, as lived varieties of embodiments, consonant as well as dissonant with one another? How could such a notion of materialist mimesis involve both abstraction and empathic "tunings," and hence employ form as formality to model thought while alienating the very notions of form from that of identity, and that of identity from those of form—and this by way of a third-party stance, a mimed *object* stance?

Our interest was to think of the *materialism* at large as quick and active, as intellectual and practical. Space and its formality need to be fathomed and sounded too—mimetically, spiritually and emphatically—it cannot only be constructed formalistically. The philosophical constellation of notions of intelligence and time, which Henri Bergson and others were keen in liberating from the dominance of form and space, need not fight the latter but include them in their very "zodiac signs"! A key operational term for such a chiastically performative practice of *alienating-mimesis* would be a notion of *scale* dissociated not from space but from any metrics in particular of spatial dimensionality: for such a notion of scale, space is as tempered as time is spacious. Both in their entangled interplay act as host and accommodation to unseen and unimagined varieties of *made* and *kindred* embodiments of universal articulations. The *making* of such kinship articulations among things is political and public. It devotes itself not just to one's own life but also to a public service of modelling thought in its universality—hence an *ethical* manner of modelling that acts from a self-confident position of relative strength, and hence is committed to its own moderateness and situatedness at the same time as to its irreducible

communality and socialiality.

Perhaps—this at least is what we dream of—such a feminist non-anthropocentric viewpoint (in the sense of non-philosophy) could clear the air a bit and let some sunlight in, such as to significantly dust out and unsettle the poststructuralist comfort zones of sedimented normativities. Roshni Babu, in her contribution to this issue titled “Coyote Figurations, Techné and Feminism” muses on how the privilege of a “partial perspective” could play a role in expanding the epistemic horizon of feminist thought by joining forces with the elements of the fantastic, in an espousal of plasticity and being (as propagated by Catherine Malabou), and on how the tasks of emancipation could be coupled with a liberating kind of energetisation as well. Her text points out the problematics of opening up interiority–exteriority boundaries, which is also the key interest of Coco Kanter’s contribution, “The Physiology of Money.” Kanter exposes the dominant metaphors of money in terms of fluidity and corporeality and considers how one might perhaps think of the novel designs of money in the computational and crypto-fabric manner towards forms of political institutionalization, rather than mere corporate economics. Her proposal is to think of money in the evanescent and animating, fertilising terms of air or light that would render the monetary “body” less self-contained and instead more porous and open. In “Feminism and Finitude,” Alessandra Mularoni strikes a similar chord when suggesting that a historical materialist approach to a posthuman theory of death (inspired by Rosi Braidotti) would need to think about the vital–fatal entanglements in the body’s recuperative capacities, in order to cultivate a certain tendency to build upon explicit or latent eugenic principles that are, perhaps inevitably, at work in the discursive emphasis on anti-naturalisms. What would a notion of nature be conceivable as, if it were to inherently and irreducibly welcome a certain technicality itself as being at work in it? The article “Irigaray’s Two and Plato’s Indefinite Dyad” appears like a zooming-in on this aspect as well. Danielle A. Layne revisits the Platonic legacy of protological principles, those of the One and the indeterminate Dyad. Her approach is through the optics not only of a certain Neo-Platonist tradition, with its emphasis on the spherical constitution of concepts that involve circulation, re-currence, and circuitry at large, but also through the literally *inter-ventive* proposal of Luce Irigaray’s “dative mode of love,” in her text *I Love to You* (and elsewhere), according to which a giving birth to the self not only involves but also depends upon giving birth to “the others.” Could the legacy of such proto-logicism ground perhaps a transformation of the political order of things? she asks. Another article in this issue, “Going Sibylline” by Jordi Vivaldi, pushes strongly into the direction of revisiting the abstract domains of circularity. His proposal is to evoke the legacy of sphere-thinking in terms of acoustics, and its physics that are, ultimately, not only that of noise but also that of harmonics. Going Sibylline not only involves a certain affirmation of prophetic voices, but also the inevitable dressing-up or figuring-out of the “appearance” of these voices by “wrapping ‘true things with uncertainty.” “Constitutive for such “cryptic prophetism”

comes to be the exposition and socialisation of vulnerabilities rather than the sharing of convictions—and hence Vivaldi asks for a socialism that depends upon “tempering in a sonic key.” How could the stance of a historical materialism realise itself, perhaps, through *syntonization*, through the inevitable and ethically grounding calibration of attunement processes that work through modelling thought universally, in a manner that involves, as Vivaldi puts it, “both gymnastic training” of thought and its “cosmetic fashioning”? How to involve registers of aesthetics into the modelling of thought and being is the main question also of the contribution mentioned last here, “Ontopolitics of Equality and Xenoaesthetics of Abstraction” by Gonzalo Vaillo. While it must be said that Vaillo’s text is somewhat at odds with our own commitment to feminist interests in accommodating more difference, in that the text argues for a totalisation of the scope of “ontopolitics” around a formalist notion of equality, Vaillo’s concern with “ontopolitics” is pertinent insofar as it demonstrates how the real conspiracy of forces between metaphysical, political, and aesthetical speculation at work in contemporary manifestations of technē could be rationalised (that is, in the non-vibrant, non-intellectual sense of “de-limited.”) In tune with OOO movements, Vaillo proposes such a notion of rationalisation as a process of *reasonable purification of aesthetics* itself. The xenofeminist promise of a kinship between strangeness and abstraction is deployed here for the purpose of constraining and crystallising the filth and messiness that non-somatophbic abstraction inevitably gets dirty with. How could such “objectivity” trigger ethics and politics, rather than more consumerist and self-centred comfort stances, would be our question? To irrigate and invite discussions like these is the very ambition and hope of our co-edited guest issue. We hope many find as much inspiration in the collected contributions as we do.

Machine-Thought and the Political Order

Sophie Lesueur¹

Translated by Brynn McNab, Jeremy R. Smith, and Luka Stojanovic

Abstract:

The most widespread statement of political philosophy is presented here in the simplified and trivialised form of “man is X; he must become Y.” Man must do so at the same time for himself, for his own survival, but also for the good of all, of the Community, of the City: the plurality must absolutely, in any way whatsoever, give way to unity, subject to [sous peine] and under threat of chaos. The essential question found confronting political doctrines, moreover since the prominence of the idea of democracy is the following: how to bring about the existence of a united society across a heterogeneous social body? The response from philosophy articulates itself around three principle schemas: the theoretical construction of a unified community under the order of similar laws to those of nature (Platonic schema); the search for the best regime, which will have as its ultimate end the moderation and perpetual regulation of conflicts, by an optimal combination of freedom and stability (Aristotelian schema); and the theorisation of the “end of politics” by the locating of a “social wrong” inscribed in a structure doomed to collapse by the practical negation of its ideological foundations (Marxian schema and derivatives). The mode of thought which imposes itself here is decisional. Beyond the third schema which constitutes in some way a meta-political critique, and necessitates that it alone has a particular analysis, in the two preceding, man constitutes a kind of material – raw or primary, depending – that philosophy will work on, and sculpt to give it a form that harmonises fully with the Whole that it prescribes. In political philosophy, we always turn more or less around the “Let’s make man” of Hobbes, that is, around the technical transformation of a material given. Or to say it otherwise: the creation of an oeuvre from crude and imperfect elements, an oeuvre thought like a masterpiece – that is to say, one that contains within it an idea of perfection and permanence – but doomed here to serial reproduction.

Keywords:

Community, City, political philosophy, Political Machine, cybernetics, democracy

1 Originally published as “Pensée-machine et ordre politique,” in *Homo ex machina*, ed. François Laruelle (Paris: L’Harmattan, “Nous, les sans-philosophie” 2005), 251–274. The translators wish to thank Sophie Lesueur for her support and encouragement, as well as Gilles Grelet for his approval. All footnotes are Lesueur’s unless noted otherwise. – Trans.

Introduction

The most widespread statement of political philosophy is presented here in the simplified and trivialised form of “man is X; he *must* become Y.” Man must do so at the same time for himself, for his own survival, but also for the good of all, of the Community, of the City: the plurality must absolutely, in any way whatsoever, give way to unity, subject to [*sous peine*] and under threat of chaos. The essential question found confronting political doctrines, moreover since the prominence of the idea of democracy, is the following: how to bring about the existence of a united society across a heterogeneous social body? The response from philosophy articulates itself around three principle schemas²: the theoretical construction of a unified community under the order of similar laws to those of nature (Platonic schema); the search for the best regime, which will have as its ultimate end the moderation and perpetual regulation of conflicts, by an optimal combination of freedom and stability (Aristotelian schema); and the theorisation of the “end of politics” by the locating of a “social wrong” inscribed in a structure doomed to collapse by the practical negation of its ideological foundations (Marxian schema and derivatives). The mode of thought which imposes itself here is decisional. Beyond the third schema which constitutes in some way a *meta-political* critique, and necessitates that it alone has a particular analysis, in the two preceding, man constitutes a kind of material—raw or primary, depending—that philosophy will work on, and sculpt to give it a form that harmonises fully with the Whole that it prescribes. In political philosophy, we always turn more or less around the “*Let’s make man*”³ of Hobbes, that is, around the technical transformation of a material given. Or to say it otherwise: the creation of an oeuvre from crude and imperfect elements, an oeuvre thought like a masterpiece – that is to say, one that contains within it an idea of perfection and permanence—but doomed here to serial reproduction.

The notion of finality is thus omnipresent in the statements of political philosophy: whether explicitly or implicitly, the declared goal is to describe and to put in place the best form of government possible with a view to install an enduring safe and pacifist social order. Most political theories are rooted in the background of the Greek Cosmos where disorder is voluntarily outlawed. Nothing is left to chance, to the aleatory on the

2 Let us note that the self-proclaimed discipline “political science” demands, for its part, the suspension of these aspects of closure and the foreclosure of the concrete, in its analysis that it broadly wants to issue from the realised studies by disciplines such as sociology, social psychology, political economy, the history of institutions and social or international relations, etc. It could be demonstrated that, thanks to the non-philosophical approach, this claim to scientificity and independence vis-à-vis any philosophical characteristic of the discipline are theoretically and practically invalid – but this will be the object of another work.

3 In English in the original. – Trans.

earth of philosophy, and what is more, in all that concerns thought and the organisation of the City. In addition, before any synonym of fossilisation and efficient determination of relations of forces, under the permanent alibi of necessity, the government of men in this framework transforms human existence into destiny. A destiny that has no name other than progress: man evolves in a prefixed framework, by degrees, towards an ideal and desired eternal term. It is always the community which takes precedence over the individual in a conception of time where the present is totally subordinate to the future, until this ultimate term is reached; so time will have to stop in one way or another. Thus, in politics, if philosophy collides with degeneration – of regimes or of institutions – and intends to treat it, it forecloses regression only to consider progress, which contradicts a great part of historical, social, and cultural human experience.

Moving from general philosophy to political philosophy is a movement from *knowing* [*savoir*] the definition of what is Good, to *willing* [*vouloir*] to ensure that it reigns at all times and theorises the means to reach its goal. But this movement requires the unification of the diversity of the human society in question with the view of giving it a global orientation, the direction [*sens*] which will lead to its harmonious development. Political philosophical thought is thus, like all philosophy, desiring of the One. This quest for identity is in large part issued from the heritage of the Western theological and monotheistic approach, which postulates that the idea of man is in the image of God; the plurality of men is therefore steered back towards an identity. And to achieve this end that it gives itself, it constitutes itself doubly as *metaphysics*. On the one hand, because it begins by reflecting on its object and establishing laws which account for it. Then, after having also studied the forces at work in the society in question and decided on a point of equilibrium from which they can be mastered, it reaches towards a control of these parameters in a theoretical response that it wants to be definitive. This is what allows it to reorient them in the service of the fabrication of a new community doomed to the ends which it itself has fixed. On the other hand, because the “cement” of this unifying edifice is none other than value, value which must become the blood of man and more than his blood: it must distil in him in the form of a permanent infusion so that he becomes one with philosophy, that he incorporates in his body politic the values of any such doctrine that will have been pre-determinately decided as fundamental.

We can only think the decisive evolution that is carried out in the comprehension of the relation of man with the World and with Being because the Greek origins had consequences for the specifically political aspects. The tendency towards the standardisation of the Western system of thought, inseparable from the advent of representation as a guiding and constitutive scheme of this thought, has progressively reduced multiplicity. This tendency has been lived in the political field as the necessity for a better management of the City. Therefore, it has imposed itself all the more, for it brings to light the intrinsic

link between the notion of representation and the efficiency that it hopes ensues. Behind all representative thought hides the shadow of finality and the relation of the two meanings of this term, namely that of the product [*compte rendu*] (or to produce [*à rendre*]) and that of productivity [*rendement*] of production. Efficiency constitutes the keystone of the edifice of Western political philosophy from its Greek origins: the abstraction of ideal forms, built on models, are projected upon the world and the will seizes them as a goal to be realised. This traditional thought is that of the plan drawn up in advance, of a combat strategy, where the heroism of action plays a fundamental role. Philosophy here is revealed more specifically as the thought of causality, that of the relation means-end or theory-practice.

I. On the Political as a Machine

This schema is likely constitutive of our vision, which we are unable to let go of unless by—precisely—radically changing terrain or the posture of thought. In the submissive relation of practice to theory, the aim for perfection is the supreme norm that determines all others, instituting a systematic modelling extended to all domains, including politics, where it would paradoxically seem unable to intervene, considering the unpredictability of the Radical Immanence of human relations. However, this datum is far from hindering the machinic progression of philosophy.

It is machinic and calculative, for we are here in the presence of all the constitutive elements of a System: a gathering of objects or parts of reality that are *presented* and that must be *grasped* in their *reciprocal* articulation, and wherein each acquires the *significance* of the place that it occupies in this whole. The *relation* in question is then defined exactly: these elements are related to one another according to *the order* of a *circular interdependency*. The nuance that is most commonly attached to the use of the term “system” is that of an *enclosure* together with a *prevalence of the theoretical and perfectly specified dimension* over the suppleness and instability of concrete experience. Moreover, the system is presented as a rational construction, as an ensemble of *norms* that is imposed within their *complete figure*, *willed* dispositions, and *programmed procedures towards reaching an end*. From a particularly political point of view, this concept reflects an ensemble of functions: these functions define the needs and exigencies that constitute the identity of the system. The particularity of political doctrines overall is to conceive it as the most autonomous one possible vis-à-vis the constraints and exchanges with the outside, namely with concrete society. The social environment is only accounted for under the form of *information* that it emits from the system address; the whole objective is to construct it in a way that it can maintain itself, notwithstanding the tensions, demands or critiques to which effects it is susceptible.

From that moment on, it concerns a schema of generalised foreclosure, one recognised as such, for it is voluntarily conceived to give order the absolute primacy over any other consideration of life in society. Order is, in a plurality of terms, the emergence of an intelligible relation through a classing and hierarchy of these terms according to the principles of causality and finality, in view of the elaboration of a norm, injunction, and rules. The narrow link that unites the system with order in philosophy, and, moreover, when it is declared political, results directly from what we have previously described as its abhorrence of chaos; thus, the system-form is quite naturally the only way in which philosophy can apprehend the Real, taking account of its intrinsic—obviously unacknowledged—presuppositions. For us, the stakes are to give ourselves the theoretical conditions to be able to envisage and think politics and/or the political—we do not decide on this question of kind for the moment, for it is also the bearer of heavy presuppositions—otherwise than under the philosophical mode, that is, under the system-form. We start from the refusal to define the political term, essential in this approach, and we maintain this refusal. We now utter a first hypothesis issued from the overall previous observations:

Hypothesis 1: The system-form is symptomatic of the primacy of a certain type of thought over politics/the political, namely a thought in the heart of which the desire for order, issued by the fear of chaos, exercises a Tyranny: this is its theoretical angle. The essential characteristic of this thought, its practical angle, is that it can *only* generate politics on the overriding mode of order, under its Tyranny, that is, where any other consideration—for example distribution [*partage*] or solidarity—even theoretically stated and reclaimed is immediately and definitively second, even excluded. Hence the following formulation: there is a convertibility between the thought that imposes order in politics/the political and the way in which order appears in politics, the overriding place that is assigned to it; or, said otherwise: philosophical thought in politics intrinsically contains the Tyranny(-form).⁴

We call this particular configuration of philosophical thought “machine” due to all the criteria that we deduced previously: the theoretical and practical arrangement of elements with a view to, on the one hand, an overall functioning with a precise finality in order to respond to a necessity – here considered as vital – and, on the other hand, the creation of a work [*oeuvre*] that can be reproduced as identical in a sustainable fashion thanks to a technical procedure. In order to be able to decrypt the functioning and implications of this machine, in order to render them explicit for those who are submitted to it; and in order to have the posture to discover a new relation to it, and thus a new mode of political being, we postulate that we must be “within and outside of the system.” This signifies

4 The first consequence stating this hypothesis concerns the possibility of a Democracy—a real Democracy—that we hold as untenable in the mode of philosophical thought.

the utilisation of this machine as the material for a disposition of thought that could also appear as the order of the machine, but that is radically foreclosed, and stranger, to it. We are still *within* the philosophical system to the extent that we work from its structure and its presuppositions. The automatism of philosophy can only be carried out through the hierarchy issued by the permanent invocation of a transcendence *qua* exterior determination, whether it be of the order of some pseudo-divine will or power or the order of a political contract between individuals. In the framework of social and political organisation, it is the occupied position that dictates the propensity towards obedience. Philosophy does not address life in society uniquely as a problem to which it must bring about a solution. It is entirely blended with thought and calculation. It is the notion of performance or efficacy that is imposed as the criterion of identification of two terms by reducing the first to the second: to predict so as not to be surprised by disorder and caught up by chaos. All of philosophical thoughts' mechanisms are here tribute to the service of performance. That our path to discovery through hypotheses seems, in the same way and according to its vocabulary, also in the machinic form, would not be more than an appearance. Non-Philosophy, only thinking "once each time," renders the mechanism of reproduction that subtends the idea of performance impossible. Substituting the radicality of the Lived Experience for the concept—calculation is supposed to enclose and determine the probability of a phenomenon—thought according to the One is practised outside of any principle superior to experience. It is the Lived-in-Man that makes the difference between non-philosophical practice and the machine: humanity escapes from any automatisisation whose most essential *raison d'être* is the systematic reproduction or recurrent procuring of such and such an effect through such and such cause. And it is the Lived-in-Man that escapes from it all the more so because it is the Lived that is being written at all times and, because of this fact, it is radically unpredictable.

Therein, Non-Philosophy is the uni-maton—and not the automaton. If Non-Philosophy simulates something, it is only the system-form of philosophy, which allows it: on the one hand, to disassemble the system by establishing the same type of relation that it has with the object but through a completely different Vision; and, on the other hand, to disengage the Real-in-person, the Existent-Stranger-Subject, the one who simulates the machine all by being the enunciator of their theory—differently from the philosophical Subject. Simulation always remains the philosopher's perspective over an entirely other type of thought than their own because philosophy is incapable of seeing a thing other than itself in any kind of object of its analysis or contemplation: it copies exactly its own (concept-) form.

Therefore, what is the style of the theoretical (calculative) response given to the problem that philosophy poses in politics? It is the globalising unitarianism of the social plurality in view of an effective government of the City. This response is inscribed in the framework

of the general evolution of the system of Western thought under two essential aspects: on the one hand, the exacerbation of a desire for perfection in the image of the scientific advancements at the end of the 17th century, which favoured the idea, along with the great universal cosmological cogs, of immovable laws that could be valuable for all levels and in all domains, particularly in politics (which largely explains the omnipresence of the term “law” in the corpus of political philosophy); and, on the other hand, the uniformisation of this system, indissociable from the advent of representation as the directing schema of this thought, tending towards the progressive reabsorption of multiplicities. In order to get out of this system of thought, we must go further in the analysis of terms that constitute and subtend it, and the relations that they maintain with them in a declared or more obscure fashion. Let us take these two essential terms of political philosophy: law and representation. One like the other establishes itself [*s’impose*] as mechanisms aiming for the maximal reduction of the Multiple to the One.

The law brings into play the notion of reasoned order *qua* rule imposed by the “force of things” (the circumstances), or according to a certain noted logic (the necessity or the property of a body, of a being...), or willed logic (conforming to an established object, notably in political philosophy). As a result, what is more or less indirectly conforming to reason is legitimate, hence the notion of Right—or, if we want to go further, ortho-dox. Precisely from its political angle, the law is thus an ensemble of technical procedures, a dispositive established by the sovereign authority of a society, a mechanism necessary for the realisation of its “work” [*oeuvre*] and the obtaining of the result that it fixes for itself, and which is nothing other than maintaining order and its preeminence in the best possible conditions. Thus, the law turns out to be one of the keys for the passage from philosophical *knowing* to philosophico-political *doing* through the intermediary of the will fully oriented towards a *telos*.

As for representation, it has occupied a central place in political reflection due to the impossibility of *philosophically* thinking the social unity without it. Indeed, representation has appeared as the only way of making an invisible being (the unity of the political body) appear thanks to a being visible in the public sphere (the representatives, who are less numerous, are potentially more likely to extricate a common will). It has also appeared as the only way of making the social whole pass into a reductive funnel that allows one to better control the relations of force, the step towards the postulated and sought-for unity. Nevertheless, even under the most general sense of the term, there always remains a distance between what one represents and the represented thing. We are in the register of Alterity, but always in tension towards a desired and impossible Identity; because to reach this Identity, philosophy still superposes the mechanisms of the definition of the represented to its own mechanisms of representation in order to make sure that representation would be possible. Why mechanisms? Because here, what is in priority

is the possibility of an overall functioning that is in play. Behind every representative thought hides the shadow of a finality – here the efficacy and interest of the reduction of the Multiple to the One – and relation, in both senses of the term, namely as the product [*compte rendu*] (or to produce [*à rendre*]) and that of productivity [*rendement*] of production in view of reproduction. This leads us to consider the pragmatic aspect of this notion. In effect, what is representation in politics if it is not the substitution of one person for another, because they are allegedly more qualified or wiser, at the very least more effective from the perspective of the functioning and objectives of the system? Thus, there is also a notion of know-how [*savoir-faire*] within representation, a notion derived from representation, but one to which it is intrinsically bound.

The proclaimed necessity in which any society is found giving itself a certain image, in which it can “identify itself,” or represent itself in a model, is the foundation of any socio-political creation. The institution of such a society is the creation of a World, one that is more or less restrained, with its own particular rules, its reality, its language, values, and its mode of life. This creation is a whole position—the auto-position—of meaning and essence, form and place. It constitutes a new fundamental determination of society translated first and foremost by the laws of a certain mode of representation. Why? Because a society, whatever it may be, conveys with it a collective way of thinking and acting so that it rests upon a certain vision of the world—*Weltanschauung*— that is supposed to be shared by the members of this community. This involves the obligatory ways of acting in the social and physical world. The absolute priority of any auto-constituted society is, from the raw material [*matériau brut*] of the human being, the creation of an individual in which the institution of society is “massively incorporated.”⁵ It is for this reason, and all reasons that we have previously stated, that the principle of Sovereignty is imposed as the coronation of the development of political thought of the philosophical type. It condenses into a single synthesised term the whole ontology of the unifying One that is the reducer of multiplicities, under which the relations of force *must* organise themselves harmoniously, that they exercise among individuals (the Subject-People dyad) or among powers at work in social relations and phenomena (the Law-Representation dyad). If I read “Sovereignty,” I know for sure that I situate myself in a scheme of thought within which one cause can produce one effect alone. Sovereignty is The Principle of Subjection, more or less finely elaborated, according to the concerned doctrines: the name of domination by the authority of philosophy in politics; even in human institutions, philosophy has brought its fear of death to its climax.

5 Cf., on this point, Cornelius Castoriadis, *Domaines de l’homme, Les carrefours du labyrinthe II* (Paris: Éditions du Seuil, 1986), 264.

II. The Political Machine and *Technē*

These notions and principles in the service of the reduction of the Multiple to the One, therefore, make reference (to) politics *qua technē*—the art of the use of things or know-how, what we have envisaged above under the more general term creation. The appearance here of the term *technē* is not random: it has been imposed in political philosophy since Hobbes. Hobbesian philosophy is the archetype of the will to surmount finitude by ontology and art; the problematic of space, common to aesthetics and political philosophy, finds here its most complete expression. For Hobbes, reason is attained through art; the only way to surmount finitude or death is the “artifice,” namely the constitution of an entirely artificial man constituted in the Sovereign Body. This conception remains predominant even in the contemporary epoch where it begins to encounter some detractors (Arendt, Strauss)⁶ without ceasing from developing itself in different directions. And this is because of one essential reason: the reduction of the Multiple to the One is nothing but a second finality in relation to what consists in preventing the destruction and death of humanity. If the fear of chaos haunts the whole history of political philosophy since its origins, then moreover, in the background, the *raison d'être* and the perpetuation of the modern State is its finitude. Like any other living being, the modern State seeks to keep itself alive and constantly attempts to defeat what could cause its demise. The Modern State is constantly confronted with the possibility of its violent death from internal or external causes; in the minds of men who found it, as in the minds of those who conserve it, the State is the means of force that one historical group gives itself to strongly maintain its existence. In this sense, the State is human through and through, it is a human institution. Hence, our second hypothesis:

Hypothesis 2: There is a convertibility between Man and the State in modern political philosophy, subsisting in contemporary political philosophy under the creation/representation form, within which the human is foreclosed, reduced to the state of a procedure or mechanism. For we utter the hypothesis according to which there is an In-Man that escapes from any convertibility, in the same way that it escapes from any systemic thought of the philosophical type, escaping from any thought according to order, finding its apogee in the principle of Sovereignty. Said otherwise: this In-Man or Stranger, the Identity of the Last Instance of the Man of philosophy, is a non-representable *political Real*, the Rebel to any attempt at unitary or globalising appropriation and manipulation.

The possibility that is offered to us here is double: on the one hand, it breaks with the omnipresence of convertibility in philosophical political systems—the convertibility

⁶ The very controversial Arendtian position seems to me to be effectively not devoid of certain “obscurities” as to the development of its path of thought and puts her philosophy in the service of the *a posteriori* legitimation of a certain type of political practice, parliamentary so as to not name it.

of Man with either a principle that is unitary or a positioning principle, depending on the doctrines; and, on the other hand, it proposes an opening towards another political thought within which the totalising uniformisation would be absent to leave place neither to the Multiple nor the One exclusively, but to their Last-Identity. Non-Philosophy sets an end to the reign of terror in politics such that it has been imposed tyrannically in a philosophical mode; it picks out “the worm from the fruit” by breaking both the circle and the system. Non-Philosophy substitutes thought according to the Real for thought according to order. We have made the hypothesis of an In-Man or Rebel-Stranger towards any possession, globalisation, or manipulation. Hence:

First Theorem: The Force-(of)-Rebellion is the specification of the Stranger in the non-philosophical political mode; if politics must be defined subsequently, it will be so determined in the Last-Identity through this Uni-versal Rebel-Stranger, another name for the Existent-in-struggle, Uni-versal according to the Vision-in-One.

The Rebel-Stranger is a rupture with any hegemonic order; they are so, not through decision, but because they are radically indifferent to any ortho-dox, to any system of Right such that it was previously defined. Non-Philosophically “in heresy” does not mean that they are an anarchist. What is at play in a political thought according to the Real is a space of thought in which the multiple, movement, evolution and the aleatory would no longer be foreclosed, and this does not necessarily mean chaos, war, or incoherence. It is a matter of a new illumination of the exploitation of Man where philosophical theory claims to serve him; by breaking the monopoly of philosophy in the domain of political thought, we make the hypothesis that it will be possible to undermine the foundations of all variants of absolutism and totalitarianism that it generates in part through its machine-structure, but also the perverse effects that no philosopher today can boast of knowing how to curb.

Let us now see what the operative validity of our hypotheses can be through all the points that we have stated previously and what has allowed us to make the overriding theoretical bond that philosophy establishes between art-*technē*, creation and politics appear. We take as material different assertions from Deleuze on this same subject. According to our progression, what has been updated, on the one hand recurrent in political philosophy, is a fear [*hantise*] of death, the fear of the end of humanity by destruction, the victory of the darkest aspects of Man over his benevolent qualities. To sum up pithily, Evil over Good. To alleviate this danger, philosophy has put in place different systems across the elaboration of doctrines but whose form and finality remain identical to one another: order. It has little by little constituted a world of ideal forms, archetypes or pure essences, separated from reality but having the power to inform it. Order ultimately passes through the supremacy of the unitary and passes through the creation of an individual in which the philosophical system is incarnated, physically incorporated by the intermediary of a know-how or

technē. The particular social environment, therefore, is only taken into account under the form of information that it emits by a system address. The first objective is that the system address can be maintained, notwithstanding all that is likely to affect it. To do this, it will send back to the social environment its own information, always oriented towards the same double end: order and its sustainability. In a system, information thus makes a circle: but if the first flow of the environment (E) towards the system (S) is multiple, varied and aleatory, the second flow, from S towards E, is unified and finalised. In this sense, we follow Deleuze in his definition of the term “information” as an ensemble of orderwords, but towards what the second flow is concerned with alone.⁷ Information is the means for the system to pass the predominant message to society about what it is supposed to believe. According to Deleuze, this is the essential spring that has allowed us to pass from societies of discipline – primarily repressive societies – to societies of control (both also described by Foucault). Then, Deleuze continues his remarks in the following way: the only possible act of resistance vis-à-vis this system (the primacy of the order and control of its persistence) would be the work of art, for it is not the instrument of communication; it does not convey information. The work of art would be the only effective counter-information *qua* act of resistance because “the work of art has a fundamental affinity with the act of resistance” and Deleuze cites Malraux: “art is the only thing that resists death.”⁸

Let us stop for a moment to consider what is at play here, precisely in the field that concerns us and that consists in discovering a posture that allows for us to suspend the primacy of the system-form over the thought of/from politics. We have seen at what point the creation of “another man” as a work, here, of a *technē* is perfectly inserted into the scheme of political philosophical thought and moreover the thought of Modernity. Moreover, resistance consists in opposing one force with another or not yielding under the effect of a force. This term seems rather inappropriate when facing death, for if there is something in which one does not resist, it is death; we can resist illness, predict dangers that we know endanger our life – acts of resistance vis-à-vis inconsiderate or passionate behaviours—but death, no. Death is the Real *par excellence*: what we speak of, what we attempt to avoid the pangs of—suffering—but what is and will remain for any human unknowable, unrepresentable, and unavoidable. We can just as well write “philosophy fears death” as “philosophy fears the Real”: death and the Real, despite their if not semantic, at least latent omnipresence, are victims to philosophical foreclosure. By contrast, intrinsically bound to this foreclosure of the Real-One, there is a resistance of a philosophical origin imposed by Non-Philosophy *qua* heretical thought. Therefore, the

7 We do not think we betray Deleuze’s thought because he himself in his development – at his talk on May 17, 1987, on “Qu’est-ce que la création ?” [“What is the Creative Act?”, trans. Ames Hodge and Mike Taormina, in *Two Regimes of Madness: Texts and Interviews 1975-1995*, ed. David Lapoujade (New York: Semiotext(e), 2006), 312–324. – Trans.] – defines information as a system of control.

8 Deleuze, “What is the Creative Act,” 323 – Trans.

term resistance employed here by Deleuze is symptomatic for us, and following this path, we formulate the following hypothesis:

Hypothesis 3: There is the Real-death [*Il y a du Réel-mort*]. Philosophy flees in the face of it or forecloses it. It subjugates Man and makes him the Subject by taking advantage of the risk of death. Breaking with this mode of thought implies thinking through the Real-death, not resisting it, but welcoming it without wanting to grasp it, which is, in any case, totally vain. This means leaving place for the potential of the discovery and creation of the In-Man, radically heterogenous to the system-form, and therefore a vector of Real Rebellion.

For us, the term resistance evokes nothing other than an entirely relative autonomy for a thought that will still circle with philosophy and its presuppositions. The thought according to the Real takes account of this resistance faced with the One and determines it, far from seeking to annul it. In this case, it is much more the Force-(of)-Rebellion than an act of resistance, for the Rebel-Stranger is the one who simply does not recognise authority. The Stranger, indifferent to the World and all the hinter-worlds of philosophy, is this Rebel who is always and already directly engaged and in-Struggle, rather than the possible resistor of the first or last hour.

Deleuze continues:

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. It seems to me that the act of resistance has two faces: it is human, and it is also the act of art.⁹

These remarks corroborate our own intuition, namely, on the one hand, that there is art, in politics notably, that does not exclusively emerge from the art-ificial and technical know-how, and, on the other hand, a Force-(of)-Rebellion that also emerges no longer from reaction but from creation, precisely in the same sense; that there thus exists an Identity of the Last-Instance between an act of resistance and a work of art, that we thus formulate:

Hypothesis 4: The Force-(of)-Rebellion of the Stranger or the In-Man is the Identity of the Last-Instance of the act of creation (the art angle) and the act of resistance (the political angle). The Force-(of)-Rebellion is the aspect of a resource of Man that political philosophy voluntarily forecloses because it is unpredictable and irreducible to the institutional

9 Deleuze, "What is the Creative Act," 323 – Trans.

incorporation and any will to systematic control.

As Deleuze foresees it, there will be two faces in the act of resistance as in the act of art. The first face is directly inscribed in a systemic perspective of order. This is the face of the technical procedure, the method, fabrication, and this is so even if the point is to oppose ourselves to the system, in the case of the act of resistance, but the system itself entails an aspect of intrinsic resistance and one that makes up a part of its functioning. And there is a second face, what we rather name Rebellion and that we recognise as the face of Inspiration whose particularity is to be in rupture with any form of domination. If Inspiration appears to us as evident in creative activity, it can be less so in what concerns the Force-(of)-Rebellion; nevertheless, Rebellion is Inspiration as much to the extent where it does not ground its acting upon certainties as to the issue of its engagement. The discovery-form precedes and determines resistance and art, as well as their reciprocal relations, in the Last-Identity. What the theoretical presuppositions of philosophy prevent us from formulating is that the work of art has no potential of real resistance, that is, of a heretical posture, except under the Inspiration of the In-Man, on this creative and rebellious part of the Human who is radically indifferent and foreign to any system-form, order and technical procedure in view of a *telos*. Hence:

Second theorem: The Inspired is the other name of the Rebel-Stranger, the Source-(of)-Identity and discovery of a non-philosophical *political* thought.

This non-philosophical *political* thought is radically foreign and indifferent to the system-form of political philosophy and any Tyranny of order. Man is no longer reduced to the state of the mechanism and the technical procedure in the view of a determined, reproducible and therefore exchangeable end.

And Deleuze ends his lecture on these words:

Paul Klee said, "You know, the people are missing." The people are missing and at the same time, they are not. The people are missing means that this fundamental affinity between the work of art and a people does not yet exist, is not, and will never be clear. There is no work of art that does not call on a people who do not yet exist.¹⁰

The Inspired- or Rebel-Stranger awakens us to the Vision-in-One of what Deleuze names "the fundamental affinity between a work of art and a people," the one that for us would emerge rather from an Identity of the Last-Instance.

10 Deleuze, "What is the Creative Act," 324 – Trans.

III. The Hero, this Machine-Subject

“This fundamental affinity between the work of art and a people that does not exist yet, is not, will never be clear” affirms Deleuze,¹¹ for philosophy perhaps, perhaps not for Non-Philosophy. Since the Greeks, the thought of the act is bound to the abstraction of Being and to a certain conception of the Subject. In his thought of action, Aristotle highlights the will of the Subject who chooses their action through deliberation. Descartes will make this line of thought the foundation of the freedom of this same subject. Thus, the effective action, resulting from a Decision on the use of such means in the service of such an end, refers to the whole Western theory of the Subject. In other words, there is no Subject without a theory-practice relationship and without supremacy of the first term over the second. Any break with this fundamental schema - that is to say, any previously conceived evolution - dissolves *a contrario* this conception of Man in society. In fact, the Subject constituted by action but fixed in its constitution of submission to the *telos*, only appears as a paradox. For ends and means do not depend on the same faculty: the end, as a goal of perfection, is of a moral as much as a political nature, while the efficiency of the means is a choice of a technical order. It is the *telos* which, at first sight, makes the Subject an institution and a fixed political reference point. However, the relationship of the submission of practice to theory, according to a modelling technique dedicated to identical reproduction, locks out both the possibility of choice of the means and the potential of effective action of the Subject. For at the heart of its theory, the Subject is largely as much a means as an end. It is the instrument, the theoretical vector by which philosophy anchors its authority and its presuppositions in human social life, remaining the guarantor of the stability of the whole System. There is no possible institutional support without a conception of the Subject. It is The Solution found by Western thought to solve “the great Equation,”¹² the problem of the permanent threat that weighs on the equilibrium of human actions. However, as Aristotle already recognised, this model cannot be totally adequate to Man for three essential reasons: first of all, human action takes place in an irreversible time which, unlike mathematical reversibility, does not allow us to indifferently go through the series of moments in one or the other direction (the past is, in the Last-Instance, the radical determining moment); on the other hand, between the means and the end aimed for, unforeseeable events can be interposed at any moment which come to hinder the expected performance of the means and to suspend the realisation of the objective; finally, since the means remain partly unknowable and unrepresentable, there is always the risk of overflow or diversion from the intended ends. The emergence, the unanticipated surge of destabilising factors for the System, is the unconquerable enemy of Western theory. It calls it indetermination, chance, or chaos. In

11 Deleuze, “What is the Creative Act,” 324 – Trans.

12 *The Matrix Revolutions*, the third entry of the cinematographic trilogy from the Wachowskis, 2003.

all Greek tragedies and epics, the *technē* constantly tries to compensate the *tuchē* without being able to totally exclude it. Clausewitz humbly recognised that chance could not be eliminated from war, considering the persistent and insurmountable gap between real war and absolute war - according to his conceptual model.

In spite of this obstacle, Western thought perpetuates its automatism and confirms its will to reproduce such an effect from such a cause and its choice to interpret the Real in terms of action. It always constructs its schema from the thought of human conduct as a specific know-how, but which will try to include indetermination, both as a risk and an unpredictability. The Hero (mythological or Judeo-Christian) will take their functions in this context and to substitute themselves momentarily, when necessary, for the Subject in order to finally re-establish the latter in its foundation. The sudden Inspiration of the Agent-Subject in a crisis situation, elevates the latter into the momentary Creator-Hero of a new order. Since the uncertainties of events cannot be eradicated, Western thought, according to its structural mode of functioning, develops the theoretical means to reappropriate them, to dissolve them in order to ultimately transform them back into a System. Plato and Aristotle make room for chance and the inspiration of the Subject; Machiavelli made his *Prince* a praise of risky intervention, marking a turning point in philosophy that would henceforth give a growing place to the indetermination of facts in political theories. All our representations are built on a schema of the Hero who makes their mark on the World by confronting it. History is teeming with such moments: so are children's stories, many novels and films of yesterday and today. The Man-Subject-Hero is thus elevated to the rank of creator of order by an act of political foundation. But, do they leave the system of thought to which they were subjected? Nothing is less certain. This interference of the action of the Subject, now potentially, but not effectively, author of its own theory, represents a great risk for philosophical thought. It remains an untimely and dangerous intruder for the balance of the whole. The spectre of the death of humanity then returns. The intervention of the Hero is certainly necessary and saving, but it disrupts the internal coherence of the process of returning to equilibrium. And for a moment, it also carries the risk of arousing possible but undesirable rebellions to the authority system that generates all political power. The time of heroic intervention must thus be clearly indicated as a punctual moment, frighteningly effective but decisively more effective than frightening. This is how, in order to think the definitively efficient and safe action, philosophy has invented the *kairos*, the occasion, this necessary point that also constitutes a bridge between *tuchē* and *technē*, a junction between chance and technique. It is only thanks to *kairos* that the heroic intervention can remain limited to a simple intrusion in the course of events without becoming part of them in a lasting way. It is this "opportune moment", or time as it is good, that re-establishes, once again, the endorsement of theory over practice.

The importance of the time factor in the Western philosophical system is now taking on a new scope. It is proving to be the essential element to seize for success. Without the ontological background of the opposition between Being and becoming, stable and moving, the opportune moment does not exist. In the same way, the adaptation of instability to the norm, the permanent insertion of theory to practice is unthinkable without this happy encounter between time and action, which re-establishes harmony, the *summetros*, joining the Greek ideal of number, measure, and cosmos. Thus, there is no possible *telos* of the action of a Subject without *kairos*. The intervention being conceived only as punctual, it certainly opens to the event but also to the possibility that we call History. However, this History, far from representing the chronicle of a flow of chaotic episodes, is much more the reading always oriented towards a goal of harmonisation and comprehension - in the double meaning of the terms - of the facts, aiming ultimately at tuning [*accorder*] the interpretations and attenuating the dissonances.

IV. The Analogy Between the Philosophical Treatment of Man and the Work [*Oeuvre*] through History

It is as if philosophy thought of man exclusively as the means to his end, as an “acting” Subject, essential to his historicization and institutionalisation, but as if this acting Subject did not transform under the repeated fire of his actions, as if he did not evolve. Western philosophy is incapable of thinking about transformation. For in fact, if it were to include this notion, it would be to renounce its claim to grasp the Real, which it cannot do without becoming radically other than itself: a non-philosophy. It is in action that man is said to be *autonomous*, but we have seen how much the structure of philosophy intrinsically denies what it pretends to grant: with one hand, it withdraws what it has given with the other. For what constitutes a philosophical Subject is as much the action as the theory/practice relation in which philosophical authority inscribes it and the *telos* of order and performance in the direction toward which it is oriented. In reality, the philosophical Subject only has autonomy in the exact moment when it is confronted by chaos for philosophy. It is individually the Subject-Hero or collectively the “heroic people” (Michelet), who, by their sacrifice and offering themselves, for the cause or a work, comes to restore order, to re-stabilize a risky situation, that History, tradition, and education will then come to establish in time, to try again to inscribe it in timelessness. Whether it is individual or collective, the important thing is that it is a creator of order, that is, from a concrete social point of view, a political founder. Philosophy, by perpetually fighting against chaos, generates the position of the Subject in the founding action, but also the interruptions, the rebellions that make History. But it is this History which, in return, comes to resupply the possibility of a gift of Identity to Man. Thus revolutions

are revolutions only in the strict sense, “returns to”, movements in a closed curve and not radical changes.

So it seems that the *telos* of action, as of creation, would entirely be a *history of time* [*histoire de temps*]. No work can be read or looked at without reference to tradition either, in order to situate it in the history of a register or a movement. Even more so if it concerns a philosophical work. Better still, each author spontaneously refers, either at the beginning or during their work, to other authors, to their predecessors, as a guarantee of their seriousness, of the solidity and theoretical validity of their reflection. In the same way, can Man, within the framework of Western thought, be thought outside of History? Is there a conception of humanity that would not be historical? A priori, no. From birth, we are even caught up in History, to get out of it only at our death, and yet... Everything contributes to making us aware of it and to orient our actions according to this knowledge, by the weight of traditions and education, the transcendence of values, with responsibility in the forefront. Whether it is man or a work, the philosophical authority is the one that donates identity by reinserting them in the course of history; by giving them a role on stage, which not only flattens them, indifferentiates them, but also “linearises” them, gives them a temporal meaning, to be able to distinguish currents, schools of thought, socio-political types, etc., where one could be tempted to see individualities, with all the danger that this could involve. Danger, because philosophy associates the multiple with chaos, disorder, and the risk of destruction. Philosophy can only think of the multiple under the dogma of union, under the same banner, that of order, harmony, and the quest for perfection. But this donation seems to be organised around a temporal paradox. In fact, on the one hand, a part of the Real is reduced in the discourse of a common *transhistorical* concept, with an appeal to stabilise observed reality, to systematise it, to frame it, in order to better control it; any notion of an arrow of time is excluded here, in favour of a conception of *neutral time*, as in classical or Einsteinian physics, sine qua non of the foundation of any certainty. But on the other hand, this practice induces an insertion of any work in a history—thus a time-oriented arrow, past-present-future—by the possibility of a thematic follow-up of each notion, stable and perennial. Hence the simultaneous non-temporal and temporal character of this donation of the Real. From this observation, we formulate the following hypothesis:

Hypothesis 5: In philosophy, we are in the presence of a double conception of time: a historical time (means) at the service of a “meta-historical” eternity (end)- the ultimate avatar of the means-end relationship. A historical perspective that allows us to envisage a progress of thought, the permanent reinsertion in a rigid framework that leaves little room for novelty or, in any case, a non-conformist thought.

However, let us not forget the essential role of *kairos*, such that we were able to analyse it.

So it seems that we are dealing here with a triad and not only a dyad of time; a triad, but one that would no longer cover the traditional past-present-future conception. This triad is organised around an eternal presence which is the spontaneous time of philosophical thought. It is the time inherited from religion, the time of perpetual perfection, reversible and neutral, the “father of every truth” (Machiavelli). It is divided into two other temporal spaces: on the one hand, the *chronos*, the ordered, determined, and predictable time eminently controllable because irreversible, and, on the other hand, the *kairos*, the chaotic, hazardous time where nothing can be calculated. Philosophy never ceases to want to appropriate the *kairos*, in order to make it “come back” into the *chronos*, the sine qua non of the Greek *cosmos*. Even recognising its inestimable value of potential, even knowing full well that there is no creation strictly speaking in its absence; however, granting it all the virtues of the sublime and luminous ecstasy, the philosophical thought forecloses this very eccentric and dangerous time with regard to its *telos* of order. Fixing the present to determine the future: philosophy wants to grasp everything, even time. “We lack resistance to the present,” says Deleuze.¹³ Yes, because Western thought develops in the belief that things will stabilise at a given moment and that one must also seize this opportunity that may not present itself again. From this point of view, History would essentially have a legitimising function, in the sense that any thought that finds its place in its framework is declared legitimate. If there was no historical perspective, there would be no discipline in the double sense of the term: orthodoxy of/order within thought and the constitution of a field, of a domain of its own knowledge.

Third Theorem: Philosophy is inscribed within a temporal paradox, where History appears as a constitutional means of any donation of identity, that is to say, as an unavoidable and essential source of the constitution of a Subject.

Here, it is History that dictates law. The paradox would then be only apparent: History comes to reinforce the internal structure of philosophy or vice versa. With a common *telos*, not only a donation of identity, but especially with an ultimate horizon, the inscription in a unitary framework, with an orientation, a unique destination, decided on beforehand in the very heart of its presupposed philosophy: progress. Both for Man and for the Work, there resides a strong will of determination, source of appropriation, of control, of aggregation, and, finally, of servitude, for these two entities - which are only two examples. The usurpation reaches its climax or its refinement when the donation of identity becomes omnipresent at all levels of the existence of the Subject, when it insinuates itself in an immanent manner in its very way of life, literally the eco-nomy, the administration, the law of the house. From the top (philosophy and its major transcendent mode) to the

13 Gilles Deleuze and Félix Guattari, *What is Philosophy?* trans. Hugh Tomlinson and Graham Burchell (New York: Columbia University Press, 1994), 108. – Trans.

bottom (the economy today, predominantly capitalist, whose vocation is to substitute the identity it sells for the real Identity of humans), the loop of subjugation is looped. Thus, Man as with the Work constitute kinds of “occupied territories,” permanently as objects of colonisation. According to this optic, the Vision-in-One, there would indeed be, by the ordered representation of knowledge headed by philosophy, a *government of thought*, by which this one is constantly oriented, as above – History, Education, hierarchy of disciplines –, so below – criticism of the works, evaluation vis a vis orthodoxy. It is also oriented according to the dogma of progress, to which the present is always right over the past according to a totally arbitrary imperialist presupposition. The problem is that if we think constantly under the dominance of the *telos* imposed by philosophy, we are unable to think it, except within a thought which, precisely, would no longer be of the philosophical structure.

V. Identity of the Last-Instance of the People and the Work: What Is a Non-Subjugated People?

Hypothesis 6: The government as a structure of political power is the mode of philosophical political thought’s being.

Whether the government be of one alone, a group or—solely theoretically—of everyone, modifies nothing in this structure that is intrinsically bound to the structure of philosophy itself and to the hegemony of theory over practice. However, the term that designates the action of governing comes from the Greek *kubernêsis*: this is cybernetics. And this term was employed for the first time by Ampère to signify the art of government, before being used in its current sense in the field of mathematics and technology in the last 40 years. Cybernetics is now a science formed by an ensemble of theories pertaining to communication, the regulation of the living being and the machine. It is the discipline under which the analogy Man-Machine is enshrined. In the manner of philosophy, cybernetics is only interested in the functioning logical structure of a concrete system, not in its own identity. In particular, it is curious to note that an automaton is a *quintuplet* according to the principles of cybernetics. However, five is the figure of completion of all philosophical foundations: “As soon as philosophy undertakes to destroy the false unity of opinion, to regain the founding unity of thought, transcendent to its own grasp, it must substitute for the latter the inequality of the triad, or of the *pentad* characteristic of the dialectical approach.”¹⁴ Logos functions from Plato to Heidegger and even in some contemporary work, around the closure of five. The link between cybernetics, automation, and politics appears thus very clearly, through the term government. However, the

14 J.F. Mattéi, *L'étranger et le simulacre* (Paris: PUF, « Epiméthée », 1983), 373.

governed is the Subject: the one who is subjected to authority, to power, to force or to strength, depending on the context. In this sense, each People is a collective subjected-Subject. In fact, the volatility and the equivocity of this notion are symptomatic: here again, it is History which determines, together with People who localise and define it, responding to the requirement of unity in Western thought. The People are disposable, made available or exploitable at will to ultimately serve the *telos* of the performance and relation of theory/practice.

Hypothesis 7: It is the gaze of philosophy on Man which historically makes him Subject: at one and the same time the People-Subject. (In the same way, is it not also the gaze of philosophy on the work of art that makes it capable of style in History?)

“The people are missing,” said Klee. But “at the same time, they are not missing,” adds Deleuze.¹⁵ And certainly, the People is the banner waved by any political regime, whether it be democratic or totalitarian. It is the alibi of legitimacy, of conformity, of orthodoxy, but an alibi only. Because, yes, the people are missing; or rather we barely know where to find them. Alongside a historical people—organicist in its fetishistic use but with barely a trace of reality—there co-exist at least two much more concrete aspects than the people that haunt the political: the people as a citizen Body, that remains phantom enough given the number of those who do not wish to participate or who simply do not have access to it; and precisely the people, the invisible of the excluded, whose political power is only remembered if it is conjuncturally obliged. So, more exactly, the People-Identity is missing. The violence that is done to its heterogeneous reality by the donation of a global identity, is obviously anything but truly democratic.¹⁶ To hear the diverse, and to respect it, is not the prerogative of philosophy or its derivative disciplines. It is always this same gaze that decides a priori which among the people is the People, without leaving their identity any right to speech [*parole*], if not any right to existence. It is the mediation of politics, as a joint project of philosophy and History, which forecloses the People-Identity. This is because any point of view that wants to think about a People must necessarily pass through the state, the highest level of fossilisation of relations of forces and the negation of diversity. The difference between political doctrines often originates from the solution to the question: what kind of knowledge is the most efficient for the government of the City, rational or contingent knowledge? The two sources of political philosophy are held to be that of human experience and theoretical reflection; as we have seen, both are summed up in a single word, History, whether of humanity or of philosophy. On either side, it is the same relation between theory/practice to the work, the same automation of thought that generates subjugating institutions for the Human. Politics

15 Deleuze, “What is the Creative Act?” 324. – Trans.

16 Sophie Lesueur, *Non-philosophie du sujet politique*, “L’alibi démocratique au service de l’assujettissement,” (Paris: L’Harmattan, 2022), 165. – Trans.

essentially consists in constituting the People (however it may be defined) in a Sovereign Body, that is, to create from scratch an art-ifice, whose function is to close once and for all the lived (the foreclosure of the Lived) and to lock on a single basis alone the potential of the future. However, this operation is not any more concretely realisable for the People as it was for Man. In this, we agree with Deleuze to say that a fundamental affinity probably exists between the work of art and people. We try to clarify this by repeating what our "Hypothesis 4" and our "Second Theorem" have put forward.

Fourth Theorem: The Inspired is the other name of the People-Identity, as much as the Rebel-Stranger. It is foreclosed by philosophical thought, always, still and already radically imprevisible and irreducible to any institutional incorporation, and to any will of systematic appropriation.

The People-Identity defeats this mythology constructed by supposedly objective reason (the History-Philosophy dyad), entirely preoccupied with "machining" the Real and based on precise mechanisms, the principal of which, as we have seen, is that of the representation through which Man, by servi-tude [a-service-ment] becomes the object of theoretical exploitation, leaving far behind the illusion born from the philosophical claim of being a service to humanity.

We hoped to show that all social formations and even more so political philosophical systems contain machinic processes and mechanisms; that philosophy, both by its unspoken assumptions and its structure, comes to reinforce them, and makes it impossible to overcome certain theoretical and practical impasses, which today concretely pose humanly crucial problems. The non-philosophical approach or posture, by its operation, has the look of a machine of this type; it has the look, simply of being able to penetrate and use the system as material, in order to dismantle it and stop its perverse effects. We cannot have a just vision of a system, and even less a critique of it, if we do not know it – in the sense of making use of, or practising – if in some way, we do not have the competence of it. However, Non-Philosophy has this very particular, unique way of knowing [*connaitre*]: it has the theoretical means of a practice that is certainly within competence and has a certain form of use but never that of manipulation. The Vision-in-One, this thought according to Identity, is the posture that radically suspends the participation in any mechanism of power and subjugation; in this, Non-Philosophy is and remains radically foreign and indifferent to what constitutes the essence of a mechanical process. If it is a machine, it is only in the transcendental sense of the term, that is to say, as a "tool" that allows both the integration of the elements essential to the comprehension of one/many system(s), but also and above all to discover – precisely from the Inspired as a Source, an elsewhere of the political that no longer belongs to the tyrannically ordered topos of the philosophical.

Besides, the use of the term “politics”, open without any precision to all the spheres of our existence, gives way to a totalitarian slip that the nebulous semantics and etymology of the word already makes us fear. There is no politics without philosophy, such is our conviction. Also, the use of this term in Non-Philosophy seems to us at present largely compromised. It seems to us essential to explore the possibility that is offered to us here: that of an opening to a Vision-in-One of Man in society, within which the totalising uniformity would be absent to make space for a multiple order of difference but also of the same from certain angles, that is to say of their Identity-in-the-Last-Instance; a multiple order of movement and the aleatory, but not anarchy or incoherence. It is a thought which moreover allows the recognition of the “blind spot” that representative technique entails and thus to put an end to the foreclosure of certain phenomena or aspects of the reality of human behaviour in society that continue to be problematic, and *that philosophical thinking remains globally incapable of considering*.

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The Physiology of Money: Containment and Circulation in the Alternative Economy

Coco Kanters

Abstract:

This article presents an ethnography of alternative currencies that foregrounds the notion of “circulation”. Building upon a long legacy wherein money is equated with a primary life force—being either water or blood—that is contained within a body, “circulation” became a dominant metaphor for the use of money from the mid-seventeenth century onwards. Imagining money as a liquid that flows and circulates means that remedying economic inequalities and injustice is often reduced to a matter of redistribution. Instead, money is itself an institutional project engineered to distribute resources and authority based on a philosophy of growth and accumulation. Alternative currency initiatives aim to re-design, rather than re-distribute, money. Importantly, they believe the technological fix of a circular software system effectively does away with the inequalities of the capitalist mode of production. What happens when on-going practices towards systemic change converge on money and the economic “body” of a local community is imagined as software?

Keywords:

Alternative money, Algorithms, Europe, Ethnography of Organisations

1. Introduction

Money is like water; and the economy of a city is like a bucket. A full bucket means that local residents have plenty of resources to be able to buy what they need for a good quality of life. The bucket of the conventional monetary system leaks, significantly so. Because for every pound or euro spent, 80 cent flows away towards global financial centres and off shore tax havens. What remains, is a monetary desert.¹

The growing alternative currency community of Europe produces this money-as-water metaphor time and again on websites, YouTube videos, press releases, performance reports, and during interviews. My interlocutors call this the “leaky bucket” argument, as presented in the practitioner handbook *Plugging the Leaks*,² and use it to explain why money needs to be actively bordered, walled in as it were, in order for it to “work for the local economy”. In this paper, I explore, ethnographically, what emerges when money is imagined as a liquid and the economic “body” of a local community is bounded through software. The presented research is based on over two years of fieldwork I conducted between January 2016 to April 2018 with three key alternative currency organisations in the Netherlands and the United Kingdom: the Social Trade Organisation (STRO), Qoin, and the Bristol Pound.³

I refer to the people populating these organisations as “the Money Makers”, precisely because they aim to re-make money according to an alternate set of rules.

The leaky bucket argument is instructive for how, to my interlocutors, money should function. What, specifically, is the work money is supposed to do in society? What are the design flaws in the current system that an alternative currency might remedy? And, consequently, how can this be done? Such questions highlight the distribution of power in contemporary economies and the ways in which the concept of money is increasingly interrogated.⁴ The algorithmic technologies of cryptocurrencies on the blockchain have, for example, been heralded as feminist weapons able to challenge patriarchal norms⁵ – possibly a belated resolution to Luce Irigaray’s question, “where are the traces

1 Bernie Ward and Julie Lewis, “Plugging the Leaks: Make the Most of Every Pound that Enters Your Local Economy,” (The New Economics Foundation, Esmée Fairbairn Foundation, and the Neighbourhood Renewal Unit, September 2002), accessed October 26, 2022,

2 Ward and Lewis, *Plugging the Leaks*.

3 Coco Kanter, “‘The Money Makers’: The Institutionalisation of Alternative Currencies in North-West Europe.” PhD diss., Leiden University. 2021.

4 Lisa Adkins. “What Can Money Do? Feminist Theory in Austere Times,” *Feminist Review* 109 no. 1 (2015): 31–48.

5 Jenny Aysgarth, “Bitcoin as a Feminist Weapon,” *Forklog.net*. (2016). Accessed May 20, 2023. <http://forklog.net/bitcoin-as-feminist-weapon/>, quoted in Allon, *Money after Blockchain*, 223.

of a currency amongst women?"⁶ Yet any claim of a technological fix for the disparate production of power relations and intersectional subjectivities requires careful scrutiny.⁷ In this paper, I work to "unbox" complex financial processes and economic imaginations by revealing the work of metaphor empirically, as constructed and put to use in practice. The notion of "plugging the leaks" employed by my interlocutors emphasises that the main monetary intervention of alternative currencies is not to create *more* money or even—for that matter—*another* money. Instead, the intervention is to prevent it from leaking away from the community. This is, as I will show, a question of control. In building what they term a "monetary ecosystem", the Money Makers emphasise that, rather than a linear in-and-out motion over which local communities have lost control, there should be circularity in the way money flows. Much like the water cycle of an ecosystem, they design currencies to travel in a circular motion within the boundaries of the bucket so that they do not—uncontrollably—leak away. The management of money's movement is at the core of a feminist perspective on economies I call "the political physiology of money". I borrow the phrase "political physiology" from socialist-feminist theory⁸ and put it to work ethnographically to uncover the perspective that guides the purposeful management of money.

Whenever we talk about money, we are often concerned with its movement. Moreover, in describing how money moves, both the English and Dutch languages are rife with aquatic expressions. In English, for example, money flows, circulates, or stagnates. We might be flushed with cash, swimming in money, dip into our savings, or, conversely, our bank account is drained when our funds dry up. Companies are liquidated or might have their assets frozen. Like ebb and flow, money comes, and it goes. The conceptual "money as water" metaphor has a long history in philosophy and economic thought and is deeply entrenched in our everyday discourse on money. Such metaphors are a way to make sense of abstract, complex systems or concepts. They also reveal something about our mode of being and acting in the world; cognitive linguists claim that metaphors are not just expressions, as language characterises thought and structures action.⁹ The conceptualisation of money as water and the emphasis on circularity is not arbitrary; it reveals something about the way the Money Makers also think about and act upon money.

"Circulation" became a dominant metaphor for the use of money from the mid-seventeenth

6 Luce Irigaray, "Women, the sacred and money," *Paraphrase* 8 (1986): 6-18, 10.

7 Fiona Allon, "Money after Blockchain: Gold, Decentralised Politics and the New Libertarianism," *Australian Feminist Studies* 33, no. 96 (2018): 223-243.

8 Donna Haraway, "Animal sociology and a natural economy of the body politic, part I: a political physiology of dominance," *Signs: Journal of Women in Culture and Society* 4 no. 1 (1978): 21-36.

9 George Lakoff and Mark Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980).

century onwards. Political philosopher John Locke first used the word “currency” to denote the circulation of money in 1699. The Latin present participle *currens* means “running”, which also extends to “running water”, embedding a sense of circulation or flowing. Currency is, therefore, sometimes defined in etymology databases as a “condition of flowing”. Some centuries earlier, the notion of circulation directly compared the movement of money with the circulation of blood in a body. Take, for example, the fourteenth-century French philosopher Nicholas Oresme (1320–82), who described the force of money within the state as the flow of humours in the body politic.¹⁰ Hence the “leaky bucket” view of the economy builds upon a long legacy wherein money is equated with a primary life force—being either water or blood—that is contained within a body. Money circulates, and it is vital that it does so, yet its circulation is contingent upon an inside, a boundary, and an outside. As such, money’s connection to the body politic emerges.

In her paper on domination, Donna Haraway writes about the notion of the body politic as an organism; “political physiology” describes how human groups, in this projection, come to mirror natural forms¹¹—such as, indeed, bodies of water or ecologies—and the consequences this has for the distribution of control. This paper examines the political physiology of money. Though it is tempting to contribute to discussions about its nature,¹² my aim here is not to develop an ontology of money. Instead, I am concerned with two fundamentally political questions that the Money Makers bring to the fore: “What should money do?” and “How should it be done?” with the ideal on the one hand and the pragmatics on the other. These questions are political not only because both the ideal and the pragmatics are in constant dialogue with each other but because they are guided by the stakes of a group. An alternative currency is framed as a matter of collective action in the interests of that collective—a body of sorts. Hence it is not only important what type(s) of money fills “the bucket” and how it leaks or circles around, but also which people, organisations and institutions float in there and who gets to determine its boundaries. The development of such a payment system with a political physiology different from state-sanctioned fiat currencies cannot be sufficiently analysed through the well-established “diverse economies” perspective.¹³ Rather than understanding alternative currencies

10 Jerah Johnson, “The money= blood metaphor, 1300-1800,” *The Journal of Finance* 21, no. 1 (1966): 119–22.

11 Haraway, *Animal sociology*, 21.

12 Delineating what money is remains an ongoing task, as it is something even the Bank of England refuses to irrefutably and categorically define: “Despite its importance and widespread use, there is no universal agreement on what money actually is”. Quoted in Michael McLeay, Radia Amar, and Thomas Ryland, “Money in the Modern Economy: An Introduction.” *Bank of England Quarterly Bulletin* 54, no. 1 (2014): 4–13.

13 J.K. Gibson-Graham, *The end of capitalism (as we knew it): a feminist critique of political economy* (Oxford: Blackwell, 1996).

outside of a “Capitalocentric” frame¹⁴, it is key to dissect the existence and power of the manifold financial, political and technological institutions regulating (alternative) economic life, as well as the consequences by which people make sense of the abstractions of finance.

My interlocutors employ a discourse of regaining authority and control over the local economy through their currencies. For example, the slogan of the Bristol Pound is “Our City, Our Money”. Yet the contours of this new form of control initiated by the Money Makers remain opaque, as I will show; the new regulator is the software system Cyclos, designed by STRO. Ian Lowrie notes that “the financial system is probably the most thoroughly computationally automated terrain in contemporary society”.¹⁵ Alternative currencies form no exception. The Money Makers all firmly hold that a central feature of professional currencies is that they are (also) digital. To them, the structure of authority, power and control embedded in the global monetary system is fundamentally problematic; the digitalisation of local money is a way to regain this control. But who, then, gains control? This question of authority is clouded by the veil of a technology that steers the money flows rather than democratic community decisions as suggested by the discourse of community ownership. Fiona Allon writes that “technical systems...inevitably reproduce the context that governs their development and constitution.”¹⁶ This reproduction happens through various ways and scales, such as technologies’ design and management,¹⁷ but certainly also through the projection of hopes, dreams and utopian faith in their power to effect change. Alternative digital payment systems can be a canvas on which projections of the economy are made graspable *and* black-boxed at the same time.

The architecture of Cyclos quite literally determines the scope, uses, and exchange experiences of the currencies by STRO, Qoin, and the Bristol Pound. It is through this software that communities are created, and visions of the economy are articulated. In this paper, I introduce the term “algorithmic reason” to argue that in such computational realities, authority is enfolded into the performance of the system. There is a transposition of agency from the Money Makers onto the technology. I use Friedrich Engels’ tale of a cotton mill,¹⁸ where he states that the fully automated system of “the steam” holds

14 See also Luce Irigaray’s *critique of phallogentrism in Speculum of the other woman*, Gillian G. Gill, trans. (Ithaca: Cornell University Press, 1985) for J.K. Gibson-Graham’s inspiration in coining Capitalocentrism.

15 Ian Lowrie, “Algorithms and Automation: An Introduction,” *Cultural Anthropology* 33, no. 3 (2018): 349–59.

16 Allon, *Money after Blockchain*, 236.

17 Nick Seaver, “Algorithms as Culture: Some Tactics for the Ethnography of Algorithmic Systems,” *Big Data & Society* 4, no. 2 (2017): 1–12.

18 Friedrich Engels, “On Authority,” in *The Marx-Engels Reader*, trans. Robert Tucker (Norton: New York, [1872] 1978): 730–733.

authority over the operation of the mill; the agency of capitalism becomes naturalised in the machine. The ethnography that follows heeds to what Lila Abu-Lughod calls in *Writing Women's Worlds* an "ethnography of the particular"¹⁹; working, as such, against generalisations as well as conceptual closures and instead showing the specificities of lived reality without employing these realities a priori for theoretical or political agendas.²⁰ Through *being there*,²¹ I ask, if money is a political design of power from the state and banks, what is the political design of alternative money?

2. What Should Money Do?

Tobias²² draws a large, somewhat wobbly, circle at the heart of a flip chart [Figure 1, image 1]: "Imagine this is an economy. Any economy. It could be a country or a region. But for now, it represents the economy of Utrecht." Drawing a thick arrow into the imaginary urban economy [Figure 1, image 2], he goes on, "So there is money flowing into this economy. For example, when I receive my salary." The second arrow he draws extends from the core of the circle towards the empty blank space of the chart [Figure 1, image 3]:

Most of the time, this money coming in leaves the area really quickly. Not only when I pay for a mortgage, also when I buy groceries at the Albert Heijn [a large Dutch supermarket chain store]. You see: this business spends only a small percentage of its income locally, like on salaries for cashiers. The bulk is sent to its headquarters in Zaandam, or even across the [national] border.²³²⁴

His audience is nodding. It is about eight pm and already dark outside; the reflection in the bare windows gives the illusion there are more than ten heads bobbing up and down. From my vantage point, forward-facing the small meeting room, I can tell Tobias' presentation is going well. The local entrepreneurs that have gathered to learn about STRO's recent alternative currency in the Dutch city Utrecht, called the *Utrechtse Euro*, are

19 Lila Abu-Lughod, *Writing Women's Worlds* (Berkeley: University of California Press, 1993)

20 See also Nancy Scheper-Hughes "The Primacy of the Ethical: Propositions for a Militant Anthropology", *Current Anthropology* 36, no. 3 (1995): 409–440 on how critical analyses of power structures and imbalances do not necessarily have to be purely theoretical matters.

21 Conrad W. Watson (ed.), *Being There: Fieldwork in Anthropology* (London: Pluto Press, 1999).

22 I have substituted all real names of individuals participating in this research with first-name pseudonyms.

23 Meeting - STRO 171107.

24 These quotation references throughout the ethnography refer to the type of interaction, organisation or pseudonym and the year (here: 2017) month (here: November) and day (here: 7th) the interaction took place.

listening attentively. The notion of an economy as a bounded circle, where money flows in and out, seems to land well. Encouraged, Tobias goes on:

Money leaks away from the community. Shopping at a chain store, the impact of my spending is only once. With a local currency, we aim to keep money inside the circle. So we put it inside software and make it travel in loops six or seven times. If I spend my money at a local supermarket, who then spends it at a local wholesaler, who uses it to buy batches of bread from the bakery, the baker all of a sudden has money to pay for new business cards at, say, my print shop.²⁵

This flow of transactions is illustrated with a few dots inside the economic sphere. Tobias connects the dots with a series of arrows to represent the monetary transactions [Figure 1, image 4]. One entrepreneur speaks up: “But why do we need another money for this? Can’t people just choose to shop at independent shops with euros?” He leans back in his chair and crosses his arms. It is a common question for informative gatherings like this one. I catch myself in a moment of ethnographic laziness; absently gazing into the reflection of the room in anticipation of what I know will be Tobias’ answer. “Sure,” he says, “but it doesn’t only matter where *you* spend your money, it also matters where the people you give it to spend it.” He continues:

If I shop with euros I have no idea what happens after I’ve spent it. With the Utrechtse Euro I am certain the business will re-invest this money in the local economy. To facilitate a circular economy, you need a different kind of money. You need money with a purpose.

“Money with a purpose” is STRO’s catchphrase to describe the particular type of currency they offer. This purpose is to make money available to local entrepreneurs, who are seen to be struggling in the face of crisis and globalisation, whereas multinational corporations and monopolists are thriving. And the purpose is to make money work for communities. As Tobias explained visually during the entrepreneurs’ meeting, the justification for “purposeful money” is that communities have no control over the flows of mainstream money. It leaves smaller cities or poor neighbourhoods quickly; this means there is always a lack of money (a “monetary desert”) in precisely the places where it needs to circulate. Documents, conversations, opinions: all are seeped through and through with this logic. This explicit desire for localised monetary circularity is also prominent across (and beyond) Qoin and the Bristol Pound alike. The Bristol Pound even depicts Bristol (UK) as an island in their promotional material. The island has steep cliffs and conveys the image of local money as unable to leave the city. The accompanying text—“Our city, our money,

25 Meeting - STRO 171107.

our future”—conveys a strong sense of regaining ownership.

To understand better this desire for control and what it is that, according to my interlocutors, money *should* do, as well as why this is different from conventional money—it is instructive to examine how the Money Makers understand money. Knowledge of how the current financial system operates is vital in grasping the logic of alternative currencies. This system is, after all, the current authority in managing its flows. The Money Makers poured much time and effort into economic education and knowledge dissemination. To them, one beneficial effect of alternative currencies, beyond their practical use, is that they teach people about what money is and how the monetary structure is governed. “It is difficult for people to understand money,” Bristol Pound director Caleb told²⁶ me one afternoon, “It’s like how fish think about water: they don’t.” The first step in regaining control, then, is becoming aware of the “water”.

Monetary orthodoxy holds that money has three functions: as a “unit of account”, a “medium of exchange”, and a “store of value”.²⁷ These functions describe what money does rather than define its nature or origin. Key to the Money Makers is money’s function as a medium of exchange: this means that money acts as an intermediary in transactions by providing a way to translate the value of products and services in relation to each other. Following the economist Irving Fisher, and particularly the book *Stamp Scrip*,²⁸ the Money Makers actively work to increase the function of money as a medium of exchange. At Qoin and STRO, they say in Dutch *geld moet rollen* (money must roll or move around). Note the closeness here of seeing money as rolling, running, or flowing.

Alternative currencies intentionally alter the rules of exchange by limiting *what* the currency might be exchanged for (only local produce or services) and *where* it circulates (a defined geographical region, or “protected space”, as ecological economist Richard Douthwaite says).²⁹ Chain stores are not welcome as a member of alternative currency schemes, and for example, Bristol Pounds cannot be spent in London. Moreover, altering money to function more effectively as a medium of exchange and diminishing its capacity to store value over time is at the core of alternative currency designs. I will examine the way Money Makers relate the “medium of exchange” function to the “store of value” function in more detail because it speaks to the centrality of movement in the political physiology of money.

26 Conversation - Caleb 180428.

27 Richard Douthwaite, *Short Circuit: Strengthening Local Economies for Security in an Unstable World* (Devon: Green Books, 1996); Peter North, *Local Money: How to Make it Happen in your Community* (Totnes: Transition Books, 2010).

28 Irving Fisher, *Stamp scrip*. Assisted by Hans Cohnssen and H.W. Fisher (Adelphi, 1933).

29 Douthwaite, *Short Circuit*, 64.

Money moves from payer to acceptor. It continues to move if this action is carried out regularly. However, because conventional money has the capacity to retain or potentially increase its value, it can be stored for later use. Such “immobile money” is highly undesirable in the eyes of my interlocutors. “To properly work as a medium of exchange,” STRO’s frontman Theo says, “money must move around.” The “medium of exchange” function epitomises the desired circularity of monetary flows. Yet money’s capacity to be potted up, and stored so that it accumulates over time distorts this principle purpose of money. So, the fact that money might act as a store of value is highly problematic to Theo and his currency colleagues because it negatively impacts upon money’s function as a medium of exchange. In one of STRO’s publications, he says:

Money is used for two incommensurable goals: the trader wants to trade and the rent seeker³⁰ wants to become rich. The first would like plenty of money in circulation to be able to trade easily, the other’s interest is best served by having less money in circulation. This increases the value of money. Because the rent seeker prefers to keep his money close, store it, there is less money circulating in the economy. Money becomes scarce.³¹

Removing money from the realm of exchange ensures scarcity; money, therefore, is artificially made scarce.³² For Qoin, STRO and the Bristol Pound scarcity in money supply is undesirable; this creates “monetary deserts” since—as the leaky bucket argument illustrates—money leaks away to the financial centres where it is stored, because of the inherent power dynamics I described above.

So the ways in which the Money Makers do away with scarcity by altering its functionality reveals two key differences with conventional money. For one, the Money Makers seek to limit the area of circulation so the “medium of exchange” function is normatively altered by directing money flows to local businesses and away from multinational corporations. Second, alternative currencies are interest-free and aim to do away with the “store of value” function.³³ Sometimes they even introduce a negative interest, called “demurrage”, in order to speed up the velocity of exchange. In short, the bucket leaks and its content

30 Note on translation: I translated the Dutch term *rentenier* with an economic term that refers to a person that seeks to increase their existing wealth without creating new wealth.

31 Documentary analysis - STRO 171022.

32 North, *Local Money*, 51.

33 To be sure, lowering interest rates is also a key tactic of central banks in times of recession in order to encourage spending. Yet the option that interest might be raised again is inherent in the monetary design of the euro and the pound.

seeps away too quickly so that it does not benefit localities. This is a systemic design over which even governments have lost authority.³⁴ The power to control money, then, should in the eyes of the Money Makers be in the hands of the communities in which it circulates. Moreover, the computational approach of Qoin is telling of *how* the Money Makers seek to regain control over the movement of money. This is the focal point of the next section.

3. How Should It Be Done?

A key element, says Bernard Lietaer in *The Future of Money*, of “the new money frontier” is the “cybersphere”.³⁵ To quote Lietaer at length:

The future of money therefore lies not only with the further computerization of our conventional currencies—such as dollars, euros or yen via smart cards and other new information technologies. Such changes will happen. But these same information technologies also make it possible for new non-conventional complementary currencies to enter the mainstream and provide new tools for addressing some of our most pressing challenges, both locally and globally.³⁶

The emergence of the internet was instrumental in the continuous spread and popularity of alternative currencies, starting with basic online ledgers. STRO has subsequently made the most significant contribution to the digitization of alternative money through their software, Cyclos. The currencies of STRO, Qoin, and the Bristol Pound all run on Cyclos; their purpose of localising money as a way of controlling its movements, then, is made actionable by having money enter a closed software system. In the words of STRO, the algorithm of Cyclos “conditions money to circulate in a defined area”.³⁷ And Qoin calls Cyclos a “transaction engine”.³⁸

STRO started to develop Cyclos in the 1990s. The first stable version of Cyclos was released and published, open source, in 2005. Since then, currency initiatives around the world have adopted the system as their means of materialising a different economy. Both Qoin and the Bristol Pound use this particular software to operate their digital currencies—though Qoin repackaged the open-source version by programming a different interface, rebranding it “Qoinware”. Cyclos, then, is central in answering the question of *how* monetary innovation

34 North, *Local Money*, 63.

35 Bernard Lietaer, *The Future of Money: A New Way to Create Wealth, Work and a Wiser World* (London: Century, 2001), 39.

36 Lietaer, *The Future of Money*, 25.

37 Documentary analysis - STRO 171111.

38 Documentary analysis - Qoin 170608.

should be attained. Thus far, I have shown the central ideal of controlling circularity in talking and thinking through various facets of what money should do, according to STRO, Qoin, and the Bristol Pound. This section interrogates Cyclos as the primary way through which this goal is achieved. For alternative, professional currencies, the software sets the terms for the way money moves as well as the boundaries of the bucket. Indeed, the notion of “control” is key here: there is a particular “algorithmic reason” ascribed to Cyclos as being the authoritative agent in creating alternative economies.

Pablo Velasco González³⁹ examines the Bitcoin Blockchain and the power relations that are enfolded into this system. In many ways, his analysis is applicable to the local currencies using Cyclos. I build on his use of Friedrich Engels’s essay “On Authority”.⁴⁰ Engels questions which shape authority might take in a fully automated system of a cotton mill. He describes a hypothetical arrangement of cooperative labour, where capitalism has been overthrown so that the means of production are held collectively, and power is decentralised. “Will authority have disappeared,” Engels asks, “or will it only have changed its form? Let us see.”⁴¹ The question is rhetorical. Engels argues that the operation of the cotton mill, like many factories of “modern industry”, falls increasingly “under the dominion of the machine and of steam.”⁴² Once the machine takes over, a certain sequence and rationale in its operations, as well as a rhythm of work, becomes enforced. The mill does not require a recognisable leader but is nonetheless an authoritarian system because it functions through “the authority of the steam.”⁴³ Authority, here, is not external but embedded within the very operational work of the machine itself. After the workers of the factory have, albeit collectively, set the rules for its functioning, once the system is operational, the authority of the steam takes over.

Engels’ story of the cotton mill is a pertinent allegory for the digital machine the Money Makers designed (the software Cyclos) and for the steam that runs it (its computational procedures and algorithms *built by them*). In *The Ethics of Coding*, Colman, Bühlmann, O’Donnell, and Van der Tuin define algorithms as “[...] a finite set of instructive steps that can be followed mechanically, without comprehension, and that is used to organise, calculate, control, shape, and sometimes predict outcomes, applied across various fields.”⁴⁴ I argue that particular meanings of control, trust, and authority are enfolded into

39 Pablo Velasco González, “‘The Authority of the Steam’: Power Dynamics of Digital Production in the Bitcoin Blockchain,” Phd diss., University of Warwick, 2017.

40 Engels, *On Authority*, 730.

41 Engels, *On Authority*, 730.

42 Engels, *On Authority*, 730.

43 Engels, *On Authority*, 731.

44 Colman, Felicity, Vera Bühlmann, Aislinn O’Donnell, and Iris van der Tuin, “*Ethics of coding: A report on the algorithmic condition*,” (Brussels: European Commission 2018): 8.

the instrumental operation of production and recording of Cyclos' digital ledger—which are “followed mechanically”. This “algorithmic reason” remains obscure, clouded, by the validation of currency software as democratic, community ownership over money. The intention of Cyclos is the displacement of control in social and political relationships from the production and recording of global markets to localised computational production and recording. As such, control, trust, and authority are built into the system. Transfer conventional money into Cyclos, and it will, almost magically, transform itself into community money—with all the values of solidarity, locality, and sustainability attached. As such, Cyclos becomes an “object endowed with agency”.⁴⁵

Anthropologists of digital systems and algorithms have revealed the social processes behind this naturalisation of the ‘countable’ and have uncovered how they embed and are embedded in values and cultural meanings.⁴⁶ Nick Seaver, for example, points to the value-laden subjectivity of software. Conway's Law, a well-known axiom amongst programmers, holds that software systems mirror the organisations that make them.⁴⁷ It is equally true, however, that organisations—their ideals, their pragmatics—take the shape of software systems. And not only organisations: these systems also impact society and the actors they interact with. There is a growing body of work in anthropology on the power of code. Steiner,⁴⁸ for example, argues that algorithms “rule our world” and other critical scholarship of algorithms emphasize their “inhumanity” and all-encompassing power over human judgement and decision-making.⁴⁹ Meeting these positions somewhere in the middle, Seaver⁵⁰ writes against the view of algorithms purported “technical rationality” and “killing blow to what remains of the free, serendipitous spirit of human existence”. Instead, he observes the individuals that are constantly “tweaking and tuning, repairing and refactoring” the complex responsive software we have come to interact with on a daily basis: “social structures emboss themselves onto digital substrates; software is a kind of print left by inky institutions.”⁵¹ Seaver thus argues for a view of algorithms in software as complex sociotechnical systems. Building on these theories, in what follows, I ethnographically unravel the algorithmic reason of Cyclos in order to reveal the structures of power and control that are enfolded within its operations.

45 Colman et al., *Ethics of Coding*, 8.

46 Nick Seaver, *Algorithms as Culture*, 1–12

47 Nick Seaver, “What should an anthropology of algorithms do?” *Cultural anthropology* 33, no. 3 (2018): 375–385.

48 Christopher Steiner, *Automate This: How Algorithms Took Over Our Markets, Our Jobs, and the World* (London: Penguin Books, 2012).

49 John Cheney-Lippold, *We Are Data* (New York: New York University Press, 2017); Hallinan, Blake, and Ted Striphas, “Recommended for You: The Netflix Prize and the Production of Algorithmic Culture,” *New Media and Society* 18 no. 1 (2016): 117–37.

50 Seaver, *What should an anthropology of algorithms do?*

51 Seaver, 375.

One time during lunch at STRO's office, I asked Theo why they decided to call the payment platform "Cyclos." The flash of surprise crossing his face was brief but unmistakable; I could imagine him thinking, "this anthropologist is fishing for obvious answers again." He said no such thing. Instead, he smiled and said, "Well, uhm, we thought of Cyclos because we want money to circulate, you know, it being cyclical."⁵² This is all I managed to find out about the etymology of STRO's leading payment software. At the time, Theo's one-sentence reply was somewhat of an anti-climax. I'd asked Cyclos manager Stefan earlier about the origin of the name; he had replied he wasn't there when the software was born, so I should ask Theo about it. After this, I had secretly hoped for a captivating origin story. Back then, I failed to grasp the beauty of the plain, straightforward answer Theo had given me: they want money to circulate, and Cyclos makes this happen.

As I have made clear, technology is central to the Money Makers' approach in innovating money to attain its circular purpose. In fact, all financial innovations have been technological innovations,⁵³ and advances in technology have been central to the dissemination and development of multiple currency forms. This connection is not just inspired by practical functionality; for the Money Makers, the possibilities of online interconnections encompass ideals of freedom and autonomy. In the mid-1990s, about the time when the Canadian-born Local Exchange and Trading Systems landed in Europe, the internet materialised a network of communications throughout society. Lawrence Lessig writes about this emergence of cyberspace and the utopia of freedom it inspired:

The space seemed to promise a kind of society that real space would never allow—freedom without anarchy, control without government, consensus without power. In the words of a manifesto that defined this ideal: 'We reject: kings, presidents and voting. We believe in: rough consensus and running code'.⁵⁴

Important to note here is how the notion of organised freedom as sovereignty without a state became entwined with the promises of digitization. So too for the currency pioneers of STRO. In one of STRO's mainstream publications, they discuss the realisation that led to developing Cyclos:

I recognized how well computers are able to communicate with each other. I realised how successfully those beeps could transfer information about debt relations—hence be a type of money. Intuitively I was convinced this was the way

52 Conversation - Theo 171025.

53 For example, the credit card system, the Dutch iDeal payment method, automatic teller machines (ATMs), sub-prime mortgages, high-frequency trading, or blockchain currencies.

54 Lawrence Lessig, *Code and other Laws of Cyberspace* (New York: Basic Books, 1999).

to create a kind of money that couldn't be disqualified by the law and banking monopolies. Bits and bytes of information about transactions can circulate within a closed administration, as long as there is no formal exchange of money [...] The key to the alternatives we are developing, is that you can organise trade based on claims.⁵⁵

As a software program, Cyclos brings into being a different type of money and directs its flows. How does its digital dynamic enable or constrain the space in which new economic behaviours might emerge? And what happens when the desire for decentralised monetary governance and community ownership is apparently embedded in software?

There are not a lot of software programs that allow for the design, implementation, and management of digital money. Banking software needs to be secure, safe, easy to use, flexible as well as free or cheap. Developed as a poverty amelioration programme in Latin America, Cyclos is now used all over the world as software for regional banking, barter, LETS, timebanks, and microfinance institutions. Customers, for example, include MobiCash, which is licensed by Banque de la République du Burundi, Centrale Bank du Congo, National Bank of Rwanda, Bank of Uganda and Bank of Botswana. The practicalities of maintaining the software or adding new rules to the code are also global: the team of about ten programmers is based in Porto Alegre and Montevideo. This is because the development of Cyclos started in the early 2000s as a subsidised project in Latin America, and STRO decided to localise its creation there as much as possible. The activities or names of these programmers are rarely, if ever, mentioned at the office in Utrecht. Even the commonly shared personnel file with names and functions of all paid staff and volunteers just notes the vague collective term "programming team Cyclos", whose function consists of "programming Cyclos". The only way these people enter STRO's headquarters—though inaudible—is through ongoing Skype and Google Hangout chats with Stefan. This tangible absence of those who actually *program* is intriguing for an organisation that holds FinTech innovation at its core.

The software product consists of three versions: Cyclos 4 PRO; Cyclos 4 Communities, Cyclos 3 Open Source. I focus exclusively on the latter two because these are used by communities creating their own currency. Bristol uses a free social license for Cyclos 4 Communities, and STRO's currencies do as well. Qoin uses Cyclos 3.7 open source with a user interface for web and smartphone usage they built themselves, relabelling the software to "QoinWare". The core of all Cyclos activity consists of users making payments to other users. Hence according to STRO's Cyclos manager Stefan, the software is, at its core, "just a score board." What I have come to learn about Cyclos is that it is basically a

55 Helen Toxopeus, *Een @nder Soort Geld* (Utrecht: Jan van Arkel. 2014), 196.

huge ledger that keeps track of the currency accounts within the community. Cyclos thus works from a closed database; therefore—different from decentralised cryptocurrencies like blockchain—there is necessarily a central agent that manages the infrastructure. In the final section of this paper, I show how this works in practice for one particular currency, the Bristol Pound, particularly how meanings of control, trust, and authority are enfolded into the instrumental operation and recording of Cyclos’ digital ledger.

4. The Monetary Ecosystem of the Bristol Pound

Bristol Pounds come into circulation when sterling, in the form of fiat currency (coins and notes) or bank deposits (online funds), are exchanged for the local currency. Once these pounds are converted into Bristol Pounds, they are, as one Bristolian using the local currency put it, “locked” into “the system”. As I have shown, this move of “locking in” and “creating boundaries” is crucial to the ideals and pragmatics of alternative money. Yet, to almost all of Bristol Pounds’ users and the majority of its employees, “the system” and how it succeeds at creating circular local money—keeping money in the bucket—is somewhat of a black box.

Digital Bristol Pounds only come into circulation when someone opens a specific account at the Bristol Credit Union (BCU). This local financial institution has agreed to partner with the Bristol Pound by operating the online reconciliation of sterling and Bristol Pounds within the existing legal frameworks. Therefore, in this particular currency and legal context, the first step in the birth of online alternative money is opening a sterling account at a local bank. This ensures membership in the BCU cooperation (there is a one-pound membership fee) and requires members to abide by the BCU terms and agreements. Next, in order to be able to trade with Bristol Pounds, a *separate membership* of the Bristol Pound CIC⁵⁶ is required. With both memberships in place, the pounds sterling on the BCU bank account are transferred, by the BCU, to a deposit fund under their management.

The transformation into Bristol Pounds happens when the deposited amount travels, *as information*, into the banking software Cyclos. This is executed and monitored by the credit union. Jack describes the work of Cyclos as “creating a shell of data keeping track of the exchanges in the Bristol Pound accounts.” All the pounds sterling that have been converted into Bristol Pounds then sit together in a fund—depicted in the model as a pool of water—and Cyclos tracks the movement of the corresponding alternative currency in a

56 Following the Money Makers, I use the organisational abbreviation “CIC” (pronounced as ‘kick’) when referring to the Bristol Pound Community Interest Company. I use the term “BCU” to refer to the Bristol Credit Union. This is because “the Bristol Pound” as an organisational noun is confusing since it is run by two entirely separate legal organisations.

huge ledger. So that, administratively, the amount of sterling allocated to each member's BCU account is correct at any given time. Users can transact and keep track of their digital Bristol Pounds through the website, an app, and through text messages. Digital Bristol Pounds thus exist as a set of data in software.

The credit union owns, monitors and keeps track of the digital money as a set of data, and the CIC stipulates the central rule of transaction (namely that the currency can only circulate locally) by setting the terms of membership to the Bristol Pound. Because the Bristol Pound CIC decided that membership in the Bristol Pound is restricted to residents and businesses of the Bristol postal code alone, they can only do so within that particular area and with other members of the Bristol Pound. Cyclos can also be used to program conversion rules. For example, in the Netherlands, STRO works towards integrating a timer-function so that the alternative currencies can be converted back into fiat currency only after they have circulated for a set period of time within the software. The Bristol Pound CIC at first instituted a conversion fee to discourage businesses and individuals from exchanging Bristol Pounds back into pounds sterling. However, per the decree of financial regulators, the "data" travelling into the Cyclos environment to become Bristol Pounds can be exchanged back into fiat at any time without a conversion charge. Hence the monetary design, made practicable through Cyclos, is crafted by the Money Makers, and implemented in conversation with other institutions.

However, this infrastructure, with managing agents and distributed responsibility, is decidedly not how Cyclos is understood, portrayed, and communicated. "Using Cyclos," the Money Makers repeatedly stress, "money can be reprogrammed to circulate longer in a region." This point is made prominently and visibly in the communications and advertising of local currencies.⁵⁷ For example, it is mentioned on the website of Cyclos itself, and it is part of the argument that a local currency ensures that the person you give it to will also invest locally—as Tobias mentioned during the entrepreneurs' meeting. The digitisation of alternative currencies also speaks to funders, as evidenced by the DigiPay4Growth project that piloted Cyclos across a range of European currencies. Within this project, Cyclos is explained as creating "a system where purchasing power is 'trapped' within a local system."⁵⁸ This view of *reprogramming money* which, by virtue of its new features, aids the local economy, is echoed by the users of the Bristol Pound. The owner of a cafe, a longtime member of the Bristol Pound, mentioned during an interview how he "is very

57 Yannick Lung, Léo Malherbe and Matthieu Montalban, "Between territorial and virtual proximities. The digitization process of the French ecosystem of complementary local currencies," *Paper 5th Biennial RAMICS International Congress in Japan* (September 11–15, 2019).

58 Ornella Martinello. "DigiPay4Growth: how digital payments can stimulate local and regional growth," *The Urban Media Lab*. (February 2, 2017), accessed September 3 2020. <https://labgov.city/theurbanmedialab/digipay4growth-how-digital-payments-can-stimulate-local-and-regional-growth/>

much in favour of a system that keeps money in Bristol.” He described the digital currency as “an advanced app and payment system that keeps money flowing around here.”⁵⁹ In all these instances, Cyclos is portrayed as a dam or a bucket. As such, the software itself, being key in how money should be stopped from “leaking away,” becomes imbued with agentive powers.

In this image, regaining control over the local economy thus entails relinquishing this control to a software program. Like in Engels’ parable on the authority of the steam, automation takes over the running of the economy (in Engels’s example, the factory) but then naturalises the operation of an alternative currency into the logic of machinery—rather than revealing the organisations that design and manage the software. This understanding of Cyclos, whether it, in fact, uses algorithms or not, is an instance of what I call “algorithmic reason.” Digital infrastructures tend to be somewhat of a black box.⁶⁰ In talking about the way a software programme functions, neither programmers, developers, nor its users can identify what, exactly, creates digital money. Yet, it is Cyclos that ultimately creates the alternative economy. Judith Butler has noted that an economy “only becomes singular and monolithic by virtue of the convergence of certain kinds of processes and practices that produce the ‘effect’ of the knowable and unified economy.”⁶¹ These processes and practices, in the case of Cyclos, are made legitimate through its automation. Clouded within its mechanics is an “authority of the steam,” whereby, in fact, a system is created over which the Money Makers preside both as central banks and ministries of finance. They determine the borders of the currency and track its movement meticulously by means of software. Cyclos hosts the alternative currency, steers its flows, and logs the social pathways it intersects.

This algorithmic reason, for a large part, propels the imaginative power of alternative currencies. The political design of an alternative currency is different from the design of conventional money by virtue of its existence in Cyclos. In effect, because the locus of power and control is clouded in automation, this transposes the uncontrollability of global markets into a new shape. There is still “a system” at work that “makes an economy,” yet how it does so and who makes these decisions remains opaque in the way Cyclos is understood and spoken about. Even though the money in digital Bristol Pound accounts is essentially re-labelled pounds sterling, there is a different measure of control over the monetary flows: the money is designed to circulate within a limited geographical area, and it does not, like sterling does, bear interest. The Bristol Pound CIC wanted to institute a conversion fee but was not allowed to do so. Where the paper money, as non-redeemable vouchers, cannot be exchanged back into pounds sterling, the digital money

59 Interview - business user Bristol Pound 180309.

60 Seaver, *What should an anthropology of algorithms do?*

61 Judith Butler, “Performative agency,” *Journal of Cultural Economy* 3, no 2 (2010): 147–61.

under the auspices of the credit union is, by law, free to travel back into a “regular” bank account at any time. This means that the borders of the alternative currency are easily crossed. Yet, still, while it exists in Cyclos, money cannot “leak” away to financial centres—which are extending loans and commanding interest—because it is tethered to Bristol as much as it is incentivised to flow. These are conscious and purposeful decisions made by the Money Makers in dialogue with institutions and regulators rather than with a community of users.

5. Conclusion

The political physiology of money provides a perspective on money that uncovers ideas about what money should do and how it should be done. Using widely read practitioner literature, I showed why the Money Makers think the current monetary system is at fault and how it should be remedied. Likening this system to the natural form of a body of water, they hold that when money works well, it flows and does not stagnate. Specifically, it should flow within a contained basin to prevent it from leaking away. In the second part of the paper, I focused on Cyclos and the monetary ecosystem of the Bristol Pound. I highlighted how the agency of the Money Makers is enfolded into Cyclos to show ethnographically what the consequences are of the theoretical framing of “algorithmic reason.” Money, the Money Makers hold, is automatically reprogrammed to work for the community as soon as it is “poured” into the black box of the machine, Cyclos. The software is imagined and portrayed as a dam, or a bucket, keeping the flows of money within the city. I showed how the agency of the Money Makers becomes embedded in the rules of a software system and how this is premised on a political physiology of money that is encompassed in the powerful water metaphor, which the Money Makers use to communicate their ambition to “make money circulate” in a controlled way in a controlled space.

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Feminism and Finitude

Alessandra Mularoni

Abstract:

This essay examines the ideological parallels between the transhuman pursuit for immortality and xenofeminism's call for biological manipulation. Paying particular attention to the patriarchal legacy of technoscience, I identify eugenic principles embedded in the discursive emphasis on anti-naturalism, freedom, and alienation. My intention is to recuperate xenofeminism's more radical manoeuvres by resituating its aims through a historical materialist approach. Specifically, I suggest a reinterpretation of nature as inherently technological. In so doing, I argue for an alliance between xenofeminism and ecofeminist political economy to engage a discursive redirection toward degrowth and dealienation. I then build on Rosi Braidotti's (2013) posthuman theory of death to suggest an uncomfortable biopolitical expansion: a biopolitics for the Anthropocene should seek not only an equal right to live but also an equal predisposition to death. My countervailing materialism centres on a politics of finitude through an analysis of the vital-fatal entanglement in the body's reproductive capacities.

Keywords:

Transhumanism, xenofeminism, ecofeminism, eugenics, biopolitics, immortality, finitude

Our lot is cast with technoscience, where nothing is so sacred that it cannot be reengineered and transformed so as to widen our aperture of freedom, extending to gender and the human.... There is nothing, we claim, that cannot be studied scientifically and manipulated technologically.

—Laboria Cuboniks, “Xenofeminism: A Politics for Alienation”

Introduction

On the cusp of a new millennium, transhumanist Ray Kurzweil published what he described as a guide to the twenty-first century. *The Age of Spiritual Machines* maps the terrain of philosophical questions arising from advanced computation, including the potential for a “post-biological future.”¹ The argument for such a future has been propagated by transhumanism, equal parts philosophy and technoscientific practice that seek to “overcome many of the limitations of human biology.”² Although fantasies of immortality are intrinsic to the human condition—the Fountain of Youth and Elixir of Life date back to antiquity, and major religions espouse the promise of an afterlife—transhumanism has long identified death as a problem to be solved through technological advancement. As the epigraph of this essay reveals, xenofeminism (XF) is similarly preoccupied with the means of science and technology for supposedly liberatory ends.

My intervention begins by focusing on the discursive collisions between transhumanism and xenofeminism. Both projects marshal anti-naturalism to call attention to the social conventions inscribed on the human body and, in their broad formulations, emphasise a discourse of freedom that centres on autonomy and alienation. To be sure, they are also comprised of many iterations, sometimes conflicting. For instance, prominent transhumanist Max More argues that “religion acts as an entropic force, standing against our advancement into transhumanity and our future as posthumans.”³ On the other hand, the development of Mormon transhumanism “illustrate[s] how theology and technology overlap and intertwine in the deserts of the American West.”⁴ The regional locus, however,

1 Ray Kurzweil, *The Age of Spiritual Machines* (New York: Viking, 1999), 14.

2 Jenny Huberman, “Old Men, Young Blood: Transhumanism and the Promise and Peril of Immortality,” in *The New Death: Mortality and Death Care in the Twenty-First Century*, eds. Shannon Lee Dawdy and Tamara Kneese (Carol Stream: University of New Mexico Press, 2022), 55. Accessed December 16, 2022. ProQuest Ebook Central.

3 Max More, “Transhumanism: Towards a Futurist Philosophy,” 1996, <https://ildodopensiero.it/wp-content/uploads/2019/03/max-more-transhumanism-towards-a-futurist-philosophy.pdf>.

4 Tamara Kneese and Benjamin Peters, “Mormon Mommies Will Never Die,” *Logic*, August 3, 2019, <https://logicmag.io/bodies/mormon-mommies-will-never-die/>.

is worth noting; organised religion and commercial “new age” pursuits in the sciences (e.g., biohacking and cryonics) have both benefited from Silicon Valley philanthropy. Tensions imbue the XF movement as well: some xenofeminist currents emphasise the emancipatory potential in alienation, whereas others highlight the importance of building coalitions and “being in and of [a] world” marked by crisis.⁵ And, although XF brands itself as a gender abolitionist movement, its origins lie in accelerationist thinking. Notwithstanding these ideological entanglements and contestations, the overarching principles of xenofeminism and transhumanism embrace faith in technoscientific rationalism. Both movements thus reinforce a cybernetic logic that “reconfigure[s] the body as an informational system.”⁶ As historical examinations of science and technology reveal, this body-as-data rhetoric is entwined with capitalism.⁷

This essay begins with a deeper exploration of the ideological overlaps between transhumanism and xenofeminism. I take the work of Helen Hester, a founding member of Laboria Cuboniks and lead thinker on xenofeminism, as an entry point into challenging the presuppositions that threaten the project’s more radical manoeuvres. Following this critique, I survey the potential for a dealienating means of production in ecofeminist political economy and degrowth movements. I then develop what I call a vital-fatal politics through an examination of life/death and human/nonhuman entanglements in gestation. My investment in finitude engages what Rosi Braidotti refers to as a posthuman theory of death, one that resists the twinned dreams of capital accumulation and immortality. Transhumanism continues to propagate visions of eternal life made possible by advanced computation despite ongoing global climate and health crises. I argue that the emphasis on alienation and technological manipulation in XF risks the reappropriation of transhuman values. My formulation of a vital-fatal framework advances an uncomfortable biopolitical reframing: a feminist politics for the Anthropocene should seek not only an equal right to live but also an equal predisposition to die. Taken together, my emphasis on feminism, ecology, and finitude intends to resituate the fragility of the body as fundamental to responsible world-building.

5 Patricia Reed, “What is Care at Planetary Dimensions?” (Lecture, Floating University, Berlin, August 6, 2019). https://laboriacuboniks.net/wp-content/uploads/2020/05/Reed-What_is_Care_Lecture-2019.pdf.

6 N. Katherine Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: The University of Chicago Press, 1999), 85. <https://hdl-handle-net.proxy1.lib.uwo.ca/2027/heb05711.0001.001>. EPUB.s

7 See Michelle Murphy, *The Economization of Life* (Durham, NC: Duke University Press, 2017) and Jacqueline Wernimont, *Numbered Lives: Life and Death in Quantum Media* (Cambridge, MA: The MIT Press, 2018).

We Have Never Been Natural

To begin with some words of clarification, there is much to be redeemed from xenofeminism, particularly in Hester's account. First, any movement that troubles the naturalisation of gender follows the feminist tradition of dismantling supposedly "given" systems and structures, although it seems that the XF manifesto is at odds with itself in this respect when it ardently declares that "xenofeminism is a rationalism."⁸ Notwithstanding this tension, I find Hester's criticism of ecofeminism convincing; a feminist politics that romanticises nature should not do so at the expense of bodily sovereignty. Equally compelling is Hester's expansion of reproductive justice to include "support for having and raising children in conditions of safety."⁹ And, for her part, Hester does acknowledge the limits of an accelerationist Prometheanism in envisioning radical gender politics.¹⁰

However, where xenofeminism highlights the historical association of nature with oppression—insofar as Western colonialism has sought to master nature at every turn and subsequently construct it through the lens of normativity—my understanding of nature is inextricably tied to the technological. We see the co-shaping of biological and technological forces, particularly in the medical context: hormone therapy mobilises the body's own molecular functioning in a variety of medical uses, including trans health; insulin treatment engages biological processes necessary for sustaining life; Botox mimics the microbe that causes botulism, but more efficiently. A feminist politics should, then, acknowledge the imbrication of the biological and the technological in political transformation. In other words, it should account for an understanding of nature as an episteme in its own right. This point has been elaborated by ecofeminism, which has centred on an ecological approach to knowledge production. I will explore contemporary ecofeminist and ecosocialist debates more deeply in the following section.

My critique of anti-naturalism, which is again sympathetic to the ecofeminist orientation, locates a eugenic thread in the will to master the body. Historically, the political project of relegating the body to the order of the technological has limited the procreative freedom for persons who have been categorised as less desirable. Feminist philosophers of science and medical anthropologists have illuminated the structural inequalities embedded in the regulation of life, particularly as they manifest in reproductive technologies. Michelle Murphy reveals how the technoscientific approach to reproduction beginning in the post-

8 Laboria Cuboniks, "Xenofeminism: A Politics for Alienation," accessed December 17, 2022, <https://laboriacuboniks.net/manifesto/xenofeminism-a-politics-for-alienation/>.

9 Helen Hester, *Xenofeminism* (Cambridge, UK: Polity Press, 2018), 126.

10 Helen Hester, "Promethean Labors and Domestic Realism," *e-flux*, September 2017, <https://www.e-flux.com/architecture/artificial-labor/140680/promethean-labors-and-domestic-realism/>.

war period advanced “the genocidal project of eugenics.”¹¹ Treatments like egg freezing, IVF, and surrogacy—while they may upend historically determined dimensions of reproductive labour—are not widely available. In fact, limited access to such reproductive technologies tends to reinforce racial capitalism. White, wealthy women can afford the high price of having children later in life with assisted reproduction. Meanwhile, Black mothers of all ages are “twice as likely to receive late or no prenatal care” whatsoever.¹² Sophia Roosth argues that commercial sperm banks “advance genetic essentialism,” thus reinforcing a biopolitical model that privileges the white, cis-heteronormative phenotype.¹³ We continue to see the eugenic regulation of life at the hands of the state in the practice of forced sterilisation on incarcerated and Indigenous women.

Returning to the problem of rationalism, to determine that nature is unjust, and to subsequently call for its manipulation—something that both xenofeminism and transhumanism enthusiastically support—is a decidedly anthropocentric gesture to the extent that it once again affirms certain “truths” associated with human nature.¹⁴ I am thinking here of liberty as a right endowed exclusively to the human and only to some humans at that. A major pillar in the XF manifesto is the construction of freedom through *more* alienation. But, as any historical materialist would remind us, alienation has always benefited the aims of capital by reducing the human subject to an instrument of labour. Silvia Federici identifies in the capitalist work-relation the emergence of “the conflict between Reason and the Passions of the Body,” which is to say, a contention between what is socially coded as “masculine” and what is coded as “feminine.”¹⁵ The privileging of the mind has valorised the individual male genius, in turn subjugating the supposedly passive (nonhuman, feminine) body. This sentiment is inscribed in political world-making, specifically in the construction of liberal humanism. Szymon Wróbel observes that even advocates of supposedly “Left” politics have “submitted to the temptations of individualism, consumerism, competition, privilege, and proceeded as if there were no alternatives to state that rule in the interests of markets.”¹⁶ For these reasons, I am not

11 Michelle Murphy, *The Economization of Life* (Durham, NC: Duke University Press, 2017), 32.

12 U.S. Department of Health and Human Services Office of Minority Health, “Infant Mortality and African Americans,” last modified July 8, 2021, <https://www.minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvlid=23>.

13 Sophia Roosth, “The Right Stuff,” *Triple Canopy*, no. 28, October 27, 2022, https://canopycanopy-canopy.com/contents/the-right-stuff?tcapi:all_people=tc:person_sophia-roosth&ui.definition=tc:person_sophia-roosth.

14 It is worth noting that philosopher Catia Faria, by all accounts convinced by the XF argument, identifies a species bias in the movement’s deficient description of what constitutes the “alien.” See Catia Faria, “Xenozoopolis: Unnatural Solidarity,” *Medium*, January 3, 2021, <https://catiafaria.medium.com/xenozoopolis-unnatural-solidarity-4ea29b061247>.

15 Sylvia Federici, *Caliban and the Witch* (Brooklyn, NY: Autonomedia, 2014), 134.

16 Szymon Wróbel, “Biocommunitism and its Role in Overcoming Biopolitics,” *Polish Sociological*

convinced that the XF reinterpretation of alienation can be extracted from its corollaries: privatisation, estrangement, accumulation, and whiteness. Perhaps it is for this reason that Hester abandons the tenet of alienation in her book.

Scholars across disciplines have called attention to this troubling discursive entanglement. Rosi Braidotti illuminates how anti-humanism, a framework upon which both transhumanism and xenofeminism heavily rely, “often end[s] up espousing humanist ideals,” freedom in particular.¹⁷ Abou Farman argues that the fantasy of transhuman immortality reinforces “old, white, American ideals and rhetorics of pioneering, frontierism” and “limitless expansion.”¹⁸ Similarly, Achille Mbembe identifies in the tradition of Western metaphysics the tendency to ground relations between humans and objects through the discourse of freedom.¹⁹ According to Mbembe, “[t]his tradition assumes that there is a division between the technical world of humans and the natural world of nonhuman animals.”²⁰ This is indeed a position Marx unsettles when discussing the interconnections between Nature and labourers as they manifest in the means of production; everything (human and nonhuman, living and non-living) becomes a source of extraction in the service of capital. In her examination of labour as a condition of life, Hannah Arendt writes, “[b]ecause men were dominated by the necessities of life, they could win their freedom only through the domination of those whom they subjected to necessity by force.”²¹ The condition of one’s freedom, then, hinges on the domination of another’s. This paradigm is particularly apparent in the discourse of reproductive freedom. As Dorothy Roberts reveals, such thinking is framed almost exclusively as “the protection of an individual [white, middle-class, European or American] woman’s choice to end her pregnancy.”²² These positions reveal that the discourse of freedom is inherently imbued with white bourgeois privilege. Not only have we never been natural, but most of the world has never been free.

The aims of xenofeminism may stop short of achieving eternal life, but an emphasis on alienation (from nature, and by extension, from the body) reaffirms liberal humanist values embedded in technoscience. The movement’s accelerationist lineage further problematises the emancipatory interpretation of alienation; as a theory invested in legitimizing white

Review, no. 211 (2020), 302.

17 Rosi Braidotti, *The Posthuman* (Oxford: Polity Press, 2013), 29.

18 Abou Farman, *On Not Dying: Secular Immortality in the Age of Technoscience* (Minneapolis: University of Minnesota Press, 2020), 121, 150.

19 Achille Mbembe, *Necropolitics* (Durham, NC: Duke University Press, 2019), 94.

20 Mbembe, *Necropolitics*, 94.

21 Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958), 84.

22 Dorothy Roberts, *Killing the Black Body: Race, Reproduction, and the Meaning of Liberty* (New York: Vintage Books, 1999), 6.

supremacy, it is difficult to “strip accelerationism for parts.”²³ Sophie Lewis remarks that in an age of increasing xenophobia, the xeno- prefix should give us pause: whose bodies are served by *more* alienation? If the teleology of transhumanism and XF is at best limited to abstraction and, at worst, based on individual freedom, even the most progressive agenda will fail to scale to planetary survival. Gender abolitionism must be accompanied by collective practices of care attuned to the precarious planetary condition.

The following section revisits Marx’s concept of the means of production to sketch the contemporary ecofeminist developments invested in degrowth and dealienation. As a political strategy, ecofeminist political economy argues for “the much-needed decrease in social metabolism.”²⁴ How might we reimagine ecofeminism in ways that avoid the glorification of nature and, at the same time, steer xenofeminism in a direction that attends to the ecological crisis? What possibilities emerge from a framework of slowness rather than techno-fetishism and alienation? I suggest a move toward a feminist biocommunity to take charge of this era of planetary precarity.

Dealienating the Means of (Re)production

Marxist theory has long held the belief that capital functions through a regime of acceleration and growth.²⁵ Brian Massumi interprets the “future-looking” condition of capital as a *time-function* that revolves around potential.²⁶ Potential is intrinsic to the concept of exploitation insofar as capital operates by gambling on the successful extraction of human labour power. Under the conditions of capital, the human being is a source of potential, and one that must always be maximised to create a continuous, accelerating circuit of social metabolism. Capital’s insatiable appetite for growth hinges on living labour, which is to say, labour that is predisposed to mortality. It can then be said that an economy of speculation underlines the accumulation process.

Capitalism is entwined with the rhetoric of potential; Marx’s metaphorical use of the

23 Sophie Lewis, “Cyborg Sentiments,” *Red Pepper*, March 27, 2019, <https://www.redpepper.org.uk/cyborg-sentiments/>.

24 Stefania Barca, “The Labor(s) of Degrowth,” *Capitalism Nature Socialism* 30, no. 2 (2019): 207, <https://doi.org/10.1080/10455752.2017.1373300>.

25 See Nick Dyer-Witheford, *Cyber-Proletariat: Global Labour in the Digital Vortex* (Pluto Press, 2015); Alexander Galloway, “Bromethanism,” *Culture and Communication* (blog), June 16, 2017, <http://culture-andcommunication.org/galloway/bromethanism>; Paul Virilio, *Speed and Politics: An Essay on Dromology* (New York: Semiotext(e), 1986).

26 Brian Massumi, 99 *Theses on the Revaluation of Value: A Postcapitalist Manifesto* (Minneapolis, MN: University of Minnesota Press, 2018), 17, original emphasis.

vampire and werewolf animate the eldritch desire for perpetuity.²⁷ The politics of potential, as they manifest as insatiability and endlessness, legitimise the techno-utopian fantasy of immortality. We see the secularised techniques of endless accumulation in the transhuman investment in post-biological existence. The prospect of eternal life by way of brain-computer interfacing has been propagated by the Effective Altruism movement and its emphasis on longtermist ideology. According to Émile P. Torres, as a worldview longtermism:

asserts that there could be so many digital people living in vast computer simulations millions or billions of years in the future that one of our most important moral obligations today is to take actions that ensure as many of these digital people come into existence as possible.²⁸

Longtermists claim to be focused on “safeguarding and improving humanity’s long-term prospects,”²⁹ but Torres notes that their position is fuelled by self-interested libertarianism and eugenics. Although longtermism has faced recent controversy because of its associations with FTX, a now-defunct cryptocurrency empire, its advocates have always been polemical, if not extremist. Prominent longtermist Nick Beckstead, a researcher at the Future of Humanity Institute, believes that “[s]aving lives in poor countries may have significantly smaller ripple effects than saving and improving lives in rich countries [because] [r]icher countries have substantially more innovation, and their workers are much more economically productive.”³⁰ More troubling is longtermist-transhumanist Nick Bostrom’s position that “we ought to transfer all our resources [to the development of digital minds] and let humanity perish if we are no longer instrumentally useful.”³¹ Potential post-biological life is thus accorded more value than existing biological life—that is, life which is already predisposed to precarity and oppression.

A feminist politics invested in equitable world-making must aim to circumvent the

27 There are a few instances in Volume I of *Capital* in which these terms are invoked. See Karl Marx, *Capital: A Critique of Political Economy, Volume I* (1867), trans. Samuel Moore and Edward Aveling (Moscow, 1906), 163.

28 Émile P. Torres, “Understanding ‘longtermism’: Why this suddenly influential philosophy is so toxic,” *Salon*, August 20, 2022, <https://www.salon.com/2022/08/20/understanding-longtermism-why-this-suddenly-influential-philosophy-is-so/>.

29 Fin Moorhouse, “Longtermism: An Introduction,” *Effective Altruism*, January 27, 2021, <https://www.effectivealtruism.org/articles/longtermism>.

30 Nicholas Beckstead, “**On the Overwhelming Importance of Shaping the Far Future**” (doctoral thesis, Rutgers University, 2013), 11.

31 Carl Shulman and Nick Bostrom, “Sharing the World with Digital Minds”, chapter in Clarke, Steven et al. (eds), *Rethinking Moral Status* (Oxford: Oxford University Press, 2021), 318. <https://doi.org/10.1093/oso/9780192894076.003.0018>.

patriarchal, colonial legacy of technoscience. To this end, I suggest a redirection from XF's call for *more* alienation to *dealienation*. I am motivated by Stefania Barca's ecofeminist political economy framework predicated on a paradigm of degrowth. She describes dealienation as "the process by which Marx's four forms of estrangement—from the products of labor and the natural world, from the labor process, from species-being and from other humans—are actively reversed through collective action."³² Unlike xenofeminism, an ecofeminist engagement with degrowth is particularly attuned to the struggles of working-class people in the shaping of ecological class consciousness. Barca locates labour as a site of and for democratic decision-making. Specifically, she argues that a political strategy based on degrowth and dealienation decreases the space between workers and the products of their labour. As Barca's investigation documents, degrowth initiatives concretise the relationship between feminism and ecological justice. The combined framework identifies "the gendered division of labor" as a primary cause of ecological crisis and for this reason, situates "reproduction as a crucial terrain for anti-capitalist struggle and ecological revolution."³³ We can trace the origins of this orientation from the shift from pagan society to capitalism. Federici reveals how land privatisation in the 17th century coincided with the feminisation of labour, leaving many women with few options to work for a wage (prostitution being a common one). Land expropriation created a power relationship in which employers could cut workers' pay and lengthen the working day, all while prices for foodstuffs were increasing.³⁴ Women, who paid the highest price under this new regime, participated in anti-enclosure riots, facing imprisonment and further marginalisation as a result. Today, women-led movements like the Global Women's Strike continue to underscore the connection between work and environmental sustainability at great personal risk.

As Barca's and Federici's examinations demonstrate, women have long been engaged in social protest. Crucially, their discursive emphasis on social reproduction illustrates how the value of nature, in every manifestation, is measured in terms of extractability. The body is the primary link between nature and the production process; the body is a conduit for capital. For Barca, exposing the hard, nonfungible line of the human body renders the forces of reproduction visible. These forces are the "(racialized, feminized, dispossessed) subjects who reproduce humanity by taking care of the physical environment that makes life itself possible."³⁵ From Barca's account, we learn of the brutal murders of Brazilian forest defenders Zé Claudio Ribeiro da Silva and Maria do Espirito Santo. Barca's narrative proximity to these human subjects, and the natural resources they

32 Barca, "The Labor(s) of Degrowth," 209.

33 Barca, "The Labor(s) of Degrowth," 214.

34 Federici, *Caliban and the Witch*, 72.

35 Stefania Barca, *Forces of Reproduction: Notes for a Counter-Hegemonic Anthropocene* (Cambridge, UK: Cambridge University Press, 2020), 1.

sometimes die defending, reminds us of “the fragility of the material world.”³⁶ Despite the interdependency between the relations of production, “capitalism . . . diminishes or annihilates the life-enhancing potentialities of the forces of reproduction.”³⁷ Economic growth is contingent on a condition of chronic precarity, but precarity eventually gives way to collapse. As the past two decades have viscerally verified, bubbles always burst. If alienation is a “distinguishing trait of the capitalist work-relation”, then dealienation and degrowth offer a counter manoeuvre.³⁸ A dealienation of re/production recognises that the forces of production are finite. Bodies, in their present incarnation, eventually die; machines wear out from abiotic stress; natural resources are depleted. All matter—mortal or machinic—is subject to the irreversibility of time.

To imagine a degrowth model along the lines suggested by ecofeminist socialism, I draw on Nick Dyer-Witheford’s “prospectus for biocommunity, a communism emerging from the catastrophes capital now inflicts throughout the *bios*, the realm of life itself.”³⁹ Dyer-Witheford’s formulation envisions six elements essential to biocommunist organisation: “new disaster relief systems; opening borders to migrants fleeing calamity; expropriation of capital from crisis-critical industries; rationing of consumption; mobilization of emergency labour; and ecological and economic planning.”⁴⁰ As Dyer-Witheford reveals, the current construction of emergency infrastructure is “shot through with authoritarianism and discrimination” to the extent that vital systems cater to commerce.⁴¹ Both Hurricane Sandy and Covid-19 evidence how low-income populations are further marginalised in times of disaster. As a collectivist mode of social reproduction, biocommunity emphasises what Nancy Fraser terms a “politics of care” that resists the ways in which capitalism instrumentalizes crisis.⁴² Dyer-Witheford suggests both state-led initiatives and communal mutual aid practices to this end. The discursive emphasis on care continues in biocommunity’s recognition of the “proletarian nature of global migration.”⁴³ The solution to the refugee crisis is not simply a matter of permitting the “right to move,” but also one that enforces a “right to stay.” The opening of borders must be accompanied by the termination of conditions, like military interventions and ecological malpractice, that

36 Hayles, *How We Became Posthuman*, 49.

37 Barca, *Forces of Reproduction*, 6.

38 Federici, *Caliban and the Witch*, 135.

39 Nick Dyer-Witheford, “Biocommie: Power and Catastrophe,” *Platforms, Populisms, Pandemics, Riots*, June 6, 2022, <https://projectpppr.org/populisms/biocommie-power-and-catastrophe>.

40 Nick Dyer-Witheford, “Biocommie: Power and Catastrophe.”

41 Nick Dyer-Witheford, “Biocommie: Power and Catastrophe.”

42 Nancy Fraser, “Contradictions of Capital and Care,” *New Left Review*, no. 100, July/August 2016, <https://newleftreview.org/issues/ii100/articles/nancy-fraser-contradictions-of-capital-and-care>.

43 Dyer-Witheford, “Biocommie,” 2022.

motivate migrant flight in the first place.⁴⁴

Dealienation is baked into biocommunist insofar as it advocates for “new forms of communal ownership [and] the abolition of privatised ownership and production.”⁴⁵ This emphasis on social equalisation also manifests in biocommunist’s call for rationing as both a limit *and* a promise, as well as in a radical rethinking of labour. In a biocommunist framing, “essential work” is part and parcel of “a system whose prime directive [is] the social and ecological well-being of its population.”⁴⁶ In this vision, the elements involved in social reproduction—in Barca’s formulation, the “forces of reproduction”—are essential to the means of production. Within a biocommunist framework, domestic labour is refigured as a collective endeavour toward ecological stability. The final element in biocommunist, planning, foregrounds the possibilities in a degrowth model. Specifically, it suggests “a mode of production beyond capital” that would “[trade] off high consumerism for free time, environmental plenitude, social solidarity and species-survival.”⁴⁷

To further propel a politics of care, I suggest injecting an anti-eugenic component into the biocommunist framework. I am particularly inspired by Szymon Wróbel’s orientation to biocommunist as a process of “population empowerment” in which “power over life is transformed into the power of life itself.”⁴⁸ A feminist biocommunist, I argue, engages a biopolitics that resists the eugenic principles in technoscientific reproduction. My addition to Barca’s and Dyer-Witthford’s formulations narrows in on the body’s reproductive capacities. Expanding on the biocommunist elements sketched above, a feminist biocommunist seeks to 1) resist the heteronormativity embedded in reproductive technology, 2) cultivate a framework of reproductive justice that endows an equal right to reproduce on one’s terms, 3) de-commodify reproductive technology like IVF and egg freezing so that it is financially accessible, 4) advance a rationing of resources rather than a Malthusian approach to population control, 5) envision domestic work and social reproduction as essential work, and 6) marshal a biopolitics that underscores the importance of finitude—that is, a model of planning that attends to the fragility of the material world. Together, these feminist inflexions in biocommunist intend to reckon with both ecological and corporeal limits. If, as Abou Farman remarks, “[i]mmortality . . . saves posthuman lives”, then an emphasis on degrowth and decay endeavours to save life as we know it—that is, life that is predisposed to mortality.⁴⁹

44 Dyer-Witthford, “Biocommie,” 2022.

45 Dyer-Witthford, “Biocommie,” 2022.

46 Dyer-Witthford, “Biocommie,” 2022.

47 Dyer-Witthford, “Biocommie,” 2022.

48 Wróbel, “Biocommunist and its Role in Overcoming Biopolitics,” *Polish Sociological Review*, no. 211 (2020), 301–321.

49 Farman, *On Not Dying*, 248.

To reiterate, there is no degrowth without dealienation.⁵⁰ Inasmuch as any feminist politics strives to engage anti-capitalist practices, it must also strive to “[overcome] the existing state of affairs”, specifically the strategies dedicated to the regulation of life.⁵¹ This is, according to Wróbel, the charge of biocommunism. My engagement with Wróbel’s conception of population empowerment is invested in resisting the longtermist embrace of Malthusianism and in anti-natalist arguments on the Left that see no recourse to ecological preservation.⁵² These fatalistic orientations neglect the fact that food security was an issue long before overpopulation emerged as a political ideology. In fact, earlier historical records underscore the problem of low birth rates, compounded by pandemic conditions, particularly as it materialised in the political economy of accumulation and extraction. In the 16th century, Europe began to experience population decline because of “the reluctance of the poor to reproduce themselves.”⁵³ The population crisis coincided with an economic crisis resulting from labour shortages and dwindling trade, for it was not the ruling class that perished at higher rates but rather the day-laborers. According to Federici, this period of demographic and economic plight sets in motion “the first elements of a population policy and a ‘bio-power’ regime,” including disciplinary methods for procreation.⁵⁴

This is all to say that capital, as an always-accelerating deathless phenomenon, cannot help but create conditions under which the population is inherently beset by crisis. A move toward degrowth refigures population empowerment as part of the process of social equalisation. A biocommunist approach to population affirms Marx’s “hatred for Malthusianism” insofar as it affirms the proletariat’s “right to love.”⁵⁵ Although Henri Lefebvre argues “this hatred was not motivated by a moral principle, and even less by any populationist policy,” he admits that Marxist thought is concerned with “the intensification and broadening of life.”⁵⁶ But the broadening of life seems to suggest very much an interest in population ethics, or at least a social metabolism that takes the issue of reproduction into account. To underscore Wróbel’s formulation of a biocommunism as an overcoming of state-enforced biopolitics, a broadening of life—a vision of life that is shared with others—resists the eugenic principles embedded in the management of life.

50 Barca, “The Labor(s) of Degrowth,” 207.

51 Wróbel, “Biocommunism and its Role in Overcoming Biopolitics,” 302.

52 Arguments for zero population growth, voluntary human extinction, and “childfree by choice” have been largely associated with radical environmentalism. It is reasonable to include antispeciesism and the antisocial turn in queer theory in such thinking, as well. See Donna Haraway, *Staying with the Trouble: Making Kin in the Chthulucene* (Durham, NC: Duke University Press, 2016) and Lee Edelman, *No Future: Queer Theory and the Death Drive* (Durham, NC: Duke University Press, 2004).

53 Federici, *Caliban and the Witch*, 86.

54 Federici, *Caliban and the Witch*, 86.

55 Henri Lefebvre, *Introduction to Modernity*, trans. John Moore (London: Verso, 1995), 140.

56 Lefebvre, *Introduction to Modernity*, 140.

To cultivate “the power of life itself,” feminist politics must enforce both degrowth and dealienation. The preservation of life thus hinges on an economy of finitude.

Towards a Vital-Fatal Politics

“Mortal” is a curious word. As a noun, it denotes a human being; as an adjective, it describes the condition of said noun as causing death or fatality.⁵⁷ Etymologically speaking, life can only exist in a reciprocal tension with death. According to Donna McCormack, being is always already haunted precisely because it is conditioned by time.⁵⁸ This haunted quality in ontology is especially apparent in organ transplantation, where the dead “other” is incorporated into a living body.⁵⁹ We witness a similar haunting in autoimmune disease, where a once-healthy body fails to cohere with the subjectivity it envelops. Even under optimal conditions, there is something already unfamiliar in the relationship between the body and the self. For example, I cannot discern my internal organs from those of someone whose age and lifestyle are proximal to mine. That we are not necessarily privy to our own bodies makes manifest the complex relationship between biology and subjectivity and between vitality and death.

If the line between life and death is already tenuous, how are we to psychically navigate the terms of living? I find an unlikely ally in Benjamin Bratton, who argues for a *positive biopolitics* that “accepts death as part of life.”⁶⁰ Similarly, Rosi Braidotti suggests “an affirmative posthuman theory of death” to expand an understanding of life as one that is interconnected rather than discrete.⁶¹ In other words, a posthuman theory of death advances ecological, rather than individualistic, thinking and practice. As my analysis of the politics of alienation and potential has intended to demonstrate, to engage in such thinking is to engage in a biopolitical model of degrowth and destruction. Specifically, it is to respond to Mbembe’s question, “[if], ultimately, humanity exists only through being in and of the world, can we found a relation with others based on the reciprocal recognition of our common vulnerability and finitude?”⁶² My wager is that such ethical

57 Merriam-Webster.com Dictionary, s.v. “mortal,” accessed December 18, 2022, <https://www.merriam-webster.com/dictionary/mortal>.

58 Donna McCormack, “The Haunting Temporalities of Transplantation,” *Body & Society* 27, no. 2 (June 1, 2021): 60. <https://doi.org/10.1177/1357034X21998729>.

59 McCormack, “The Haunted Temporalities of Transplantation,” 59.

60 Benjamin Bratton, “Agamben WTF, or How Philosophy Failed the Pandemic,” *Verso Blog*, July 28, 2021, <https://www.versobooks.com/blogs/5125-agamben-wtf-or-how-philosophy-failed-the-pandemic>.

61 Braidotti, *The Posthuman*, 110.

62 Mbembe, *Necropolitics*, 3.

thinking hinges on the body's fragility precisely because flesh creates responsibility⁶³; it binds us to the Other.⁶⁴ I now turn my attention to the comingling of life and death as it manifests in the mortal gestating body to develop a vital-fatal body politics. I focus on the body's capacity to gestate to elaborate on gender and sex-specific social and health conditions. My intention is to identify a thread between XF and ecofeminism in thinking of the body-as-technē.

Pregnancy is a violent process; it is unequivocally much more dangerous to the future (or would-be) mother than abortion.⁶⁵ Gestation and delivery involve myriad health risks, including hypertension and diabetes, as well as ectopic pregnancy and excessive bleeding, both of which can be life-threatening. Such risks are disproportionately magnified for low-income mothers and even more so for Black mothers. This insight is not meant to reduce the psychic and physical pain of those gestators who face difficulty when attempting to conceive. However, it is intended to expose the destruction inherent to reproduction, particularly as it develops under the conditions of privatised healthcare.

In addition to the biopolitical violence embedded in pregnancy, the biological (but not necessarily human) process responsible for the creation of life is an inherently violent ordeal. In order to conceive and carry a foetus to term, the gestator's immune system must be defeated by the placenta, a temporary foetal (and, therefore, foreign) organ that begins to develop after implantation. In the process of downregulating the immune system, the placenta's tendrils attach themselves to the uterus to transfer blood between mother and foetus (such an image conjures the cosmic Cthulhu). This process demonstrates the technological capacities inherent to the human body, in turn animating what Braidotti calls the "immanent force of *zoē*, or life in its nonhuman aspects."⁶⁶ Considering that mammals likely evolved from egg-laying to live birth because of an ancient retrovirus, we might begin to think of the placenta as the original prosthesis, or even the original mother.⁶⁷ The nonhuman martyr, as it were, marshals destructive methods for life-giving ends. And yet, the cultural fetishisation of the child as a symbol of (and for) the future conceals the destruction essential to the creation of life. Like transhuman immortality, we see a logic predicated on endless potentiality rather than finitude in the puritanical vision of procreation.

63 Vivian Sobchack, *Carnal Thoughts: Embodiment and Moving Image Culture* (Berkeley: University of California Press, 2004), 178.

64 McCormack, "The Haunted Temporalities of Transplantation," 67.

65 I use "mother" in addition to "gestator" to acknowledge the history between women's bodies and the social constructions of reproduction.

66 Braidotti, *The Posthuman*, 66.

67 Heather Radke and Becca Bressler, "Everybody's Got One," August 20, 2021, *Radiolab*, podcast, <https://radiolab.org/episodes/everybodys-got-one>.

I turn to Sophie Lewis, who builds on the feminist Marxist call for family abolition to disengage from the discursive emphasis on potential as it manifests in reproduction. Lewis examines surrogacy to identify the myriad ways in which the gestational body is alienated from the product(s) of its labour, but gestation in all forms (whether surrogated or not) is oftentimes an alienating experience. As engagements with Foucault's biopolitical framework demonstrate, the clinic is responsible for both medicalizing pregnancy and pathologizing women's bodies.⁶⁸ For this reason, medicine and public health participate in the social construction of the child-as-future metaphor, often at the expense of maternal wellbeing. Lewis suggests we shift our ideological orientation toward gestation from one that reinforces privatisation to one that takes a decolonial approach. Full surrogacy describes the "[cultivation of] non-oedipal kinship and sharing reciprocal mothering labors between many individuals and generations."⁶⁹ Lewis identifies queer co-parenting, mutual aid, and open adoption as methods for resistance against the commercialised, heteronormative model of familial relationships. I see such methods as manifestations of feminist biocommunism, particularly in the way they radically re-envision parenting models and domestic labour.

In addition to illuminating the systemic injustice embedded in commercial gestation, I am interested in exposing the ways contraceptive technologies have reinforced a politics of potential to serve the interest of the market. Different forms of birth control have been widely deployed as methods for population control while espousing a discourse of freedom. Inasmuch as birth control affords women reproductive agency, it also reinforces a biopolitical model that endeavours to spare the state from unplanned (i.e., undesirable) pregnancies. In other words, contraceptive technologies have aided the biopolitical project that prevents some lives from being born "so that future others might live more prosperously."⁷⁰ Michelle Murphy pointedly remarks that "birth control, in its military function, work[ed] to stem the tide of Communism."⁷¹ Once again, an emphasis on individualism and agency in technoscience serves the aims of capital.

Returning to Lewis, whose argument is structured primarily around abolition rather than destruction, I find her somewhat throwaway remark that considers the world-destroying potential in gestation particularly motivating.⁷² What politics and world-making arise from dreams of destruction? Can a greater focus on death and degrowth create more

68 See Adele Clarke, *Disciplining Reproduction: Modernity, American Life Sciences, and "the Problems of Sex"* (Berkeley: University of California Press, 1998) and Kyla Schuller, *The Biopolitics of Feeling: Race, Sex, and Science in the Nineteenth Century* (Durham, NC: Duke University Press, 2018).

69 Lewis, *Full Surrogacy Now*, 314.

70 Michelle Murphy, *The Economization of Life*, 114.

71 Murphy, *The Economization of Life*, 35.

72 Sophie Lewis, *Full Surrogacy Now: Feminism Against Family* (London, UK: Verso, 2019), 167.

equitable living conditions for humans and nonhumans? Such questions begin to carve paths for what Bratton calls *positive biopolitics* that resists the trap of techno-utopianism (a major flaw in much of Bratton's thinking). To this end, I suggest a reconfiguration of procreation as not only a human right but inextricably tied to death insofar as it is conditioned by the mortal body. Although procreation has historically sustained labour power (in turn, sustaining capital), the combination of social reproduction and class struggle has advanced social infrastructure like healthcare and welfare programs.⁷³ In this way, social reproduction sustains life itself through the politics of care. Gestation is, therefore, always concerned with the means of reproduction. We come into the world because *somebody* goes into labour.

The Left's embrace of anti-natalism as both a moral and ecological imperative, aside from its turn toward a self-imposed eugenic fatalism (as opposed to a vital-fatalism), neglects both the gestating body's world-destroying capabilities and the role that gestation plays in health. In an interview with *Time* magazine, Toni Morrison exposes the discontinuity between the body's reproductive phases and the socially accepted age at which people ought to reproduce.⁷⁴ Morrison laments that the body's reproductive capacity is tethered to the economy: the body's "nature"—that is, its *technē*—can only be realised if a person's income can afford to procreate. The social imagination around reproduction, as Morrison underscores, is driven by ruling-class interests. Morrison's vision, in which she describes the possibility for young mothers to also lead fulfilling professional lives, animates the destructive potential in gestation. To dissociate the body, and the process of reproduction, from the market, is both life-affirming and world-destroying. To reinterpret an XF refrain, let the proletariat—in all its gender configurations—bloom!

My argument for a vital-fatal body politics also recognises that gestation and birth play parts in reproductive health. For women who suffer from autoimmune disease, pregnancy has been shown to alleviate symptoms by downregulating the immune system. New research reveals that nulliparity, the medical term to describe a woman who has never given birth, increases women's risk of developing uterine fibroids and certain cancers.⁷⁵ To be sure, and as I mentioned earlier in this section, the process of bringing life into this world is not without risk. But it is a risk that underlines our feeling of responsibility to

73 Elise Thorburn, "Human-Machinic Assemblages: Technologies, Bodies, and the Recuperation of Social Reproduction in the Crisis Era" (doctoral thesis, University of Western Ontario, 2015), 10.

74 Bonnie Angelo and Toni Morrison, "Toni Morrison: The Pain of Being Black," *Time*, May 22, 1989, <https://content.time.com/time/subscriber/article/0,33009,957724-4,00.html>.

75 See Caroline Bologna, "What are Uterine Fibroids? Symptoms and Risk Factors You Should Know," *Huffington Post*, May 13, 2022, https://www.huffpost.com/entry/uterine-fibroids-symptoms-risk-factors_l_627aa5e7e4b00fbab634b988; Jessica Jondle, "What Are the Health Risks for Nulliparous Women?," *Healthline*, May 29, 2020, <https://www.healthline.com/health/pregnancy/nulliparous>.

others and the world.⁷⁶ An equal emphasis on vitality and finitude reinforces the temporal, collective condition of life. Inasmuch as reproduction grounds humanity's "right to stay," it also sets the finite terms of life. For this reason, life-affirming principles and practices must strive to secure both an equal right to live and an equal predisposition to die.

As the entanglement of life and destruction in pregnancy demonstrate, the body is always already technological to the extent that it is natural (which is to say that it is socially constructed). The body's natural, technological capacity, however, suggests new ways of thinking about nature beyond human construction and entrapment. For this reason, we might begin to reconsider nature as a force of *zoē* and as such, also a means for destabilising presuppositions associated with the "human." Against the metanarrative suggested by discourse that separates nature from culture, Braidotti urges us to engage with "a materialist, vitalist, embodied and embedded" theory of posthumanism.⁷⁷ This iteration of posthumanism "avoid[s] the contempt for the flesh and the trans-humanist fantasy of escape from the finite materiality of the enfleshed self."⁷⁸ Along this line of thinking, a vital-fatal body politics understands nature as an instrument for population empowerment. It finds the largely automatic and somewhat nonhuman processes in gestation both destructive and life-affirming.

Conclusion

Part of the work of what has been historically described as "intellectual labour" is reinterpreting and stewarding ageing ideas so that they continue to generate meaning. Some ideas age better than others; as I have demonstrated, critics of transhumanism have revealed its political baggage, particularly its eugenic lineage and apparent trajectory. I realise that my application of feminist politics aligns with earlier waves of feminist scholarship that emphasise embodiment as much as it does with thinkers associated with xenofeminism—or perhaps it is more accurate to say that I find xenofeminism and earlier feminisms equally problematic. As much as I am moved by Arendt's framing of natality "as a miracle that saves the world," I realise that this sentiment could be wielded by political reactionaries who value women only for their reproductive power.⁷⁹ Moreover, Arendt, like many Western philosophers, places stock in a dialectics of freedom through action (made manifest "by virtue of being born") without much attention to the social

76 For an extensive discussion on the relationship between finitude and responsibility, see Martin Hägglund, *This Life: Secular Faith and Spiritual Freedom* (New York: Pantheon Books, 2019).

77 Braidotti, *The Posthuman*, 50.

78 Braidotti, *The Posthuman*, 90.

79 Arendt, *The Human Condition*, 247.

construction of gender and the way it manifests in labour practices and politics in general.⁸⁰ In the same spirit of critique, we would do well to remember that anti-naturalism has also leveraged political decisions permitting the widespread use of forever chemicals insofar as gambles on the body's adaptability for the purpose of prolonged extraction. And while I see emancipatory potential in gender hacktivism, my fidelity lies with corporeality—not the corporatisation of life materials. Historically, imperial, colonial, and patriarchal powers reap the rewards of biological manipulation. For this reason, we ought to seek and demand grounds for mutual responsibility rather than claiming territories of freedom.

I am tempted to further distance myself from the conservative pro-life agenda, but I hope my devout allegiance to the Communist cause has proven that my argument is not sympathetic to puritanical thinking. Rather, I have endeavoured to articulate a natalism against the eugenic pro-life ideology that continues to imbue political and moral structures. My understanding of life as intimately tied to death has intended to combat the neoliberal emphasis on potential and alienation embedded in technoscience. In other words, it has sought to underscore "the expressive intensity of a Life we share with multiple others, here and now."⁸¹ My lot is cast with those who share a sense of responsibility to the material world.

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⁸⁰ Arendt, *The Human Condition*, 247.

⁸¹ Braidotti, *The Posthuman*, 190.

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Edge{s} of the “Anthropocene”: Standard and Non-standard Post-humanisms

Nandita Biswas Mellamphy

Abstract:

This article examines three distinct onto-political modes: the human-centric onto-politics of “centring the human”, the post-human onto-politics of “de-centring the human,” and a third mode that rejects and argues against these options in favour of jettisoning the human/non-human dyad altogether. Instead of placing humans “in or on the loop” with other species, a third model would place humans “out of the loop” of command. I argue that contrary to claims, the post-human declaration of “de-centring the human” cannot be considered “*post-anthropocentric*” (implying the abolition of anthropocentrism), though it can be considered “*anti-anthropocentric*”. Only the onto-politics of abolition would truly be post-anthropocentric because only it would eliminate the human/non-human conceptual dualism upon which the onto-politics of centring and de-centring is based.

Keywords:

Anthropocentrism, Human-centrism, Post-humanism, Feminisms, Ontopolitics, Political Ontology, the Anthropocene, Post-Anthropocentrism.

1. Introduction: The Onto-politics¹ of “Centring” & “De-centring”

Human-centrism positions humans at the centre of agency, cognition, and broader relations or networks of exchange/communication. The idea that humans possess unique capacities that make them exceptional and superior as a species is used as a justification for the view that posits that humans should have command over non-humans. The human capacities for reason, autonomy, impartiality, and universality are used as a defence for the mastery, stewardship and/or management of non-humans. Humans are conceptualised as being in the loop of control, justifying mastery and superiority over those who are deemed to be incapable of reaching “full potential” (presupposing a teleological state of being “fully human”). Strong human-centrism affirms the achievement of human control using the instruments of reason and by using reason as an instrument; those who do not fit this standard are relegated to an instrumental status. Since Plato and Aristotle, theories of “human nature” have been used to make claims that view “rational” humans as the only appropriate subjects for moral consideration. The “human” has been portrayed as a creator of cultures and technologies, a bearer of rights and responsibilities, and a cultivating force that forges civilisations and political societies using other-life forms, including animals, plants, machines, and so-called “sub-humans” (e.g., women, children, slaves, and colonised subjects)—those who, historically, have been regarded as deficient in rationality and intrinsic moral worth, and hence treated as less than human. Technologies/techniques² are means by which human exceptionalism is further externalised and instrumentalised. The human-centric frame, in which humans transcend their animal roots through intellect, and instrumentalise nature’s resources for the benefit of humankind, places humans “in the loop” and at the epicentre of command, sanctioning sexism, racism, slavery, colonialism, and bio-spheric degradation/exploitation by conceptualising control in terms of an oppositional dualism between rational humans and those lacking the full measure of agency, rationality or culture. The master/slave dichotomy at the heart of this version of human control views domination as natural and befitting.³

1 Onto-politics is defined as a “set of grounding ontological claims that form the basis of discussions about what it means to know, to govern and to be a human subject”. David Chandler, *Onto-politics in the Anthropocene: An Introduction to Mapping. Sensing and Hacking* (New York: Routledge, 2018), xiii.

2 As Max Weber has argued in *The Theory of Social and Economic Organization*: “The term ‘technology’ applied to an action refers to the totality of means employed as opposed to the meaning or end to which the action is, in the last analysis, oriented...What is concretely to be treated as a ‘technology’ is thus variable. The ultimate significance of a concrete act may, seen in the context of the total system of action, be of a ‘technical’ order; that is, it may be significant only as a means in this broader context. Then concretely the meaning of the particular act lies in its technical result; and conversely the means which are applied in order to accomplish this are its ‘techniques’.” (New York: Oxford UP, 1947), 160–161. According to Jacques Ellul, technique includes (but is not limited to) machines, and technologies are merely part of vaster technical phenomena; see *The Technological Society* (NY: Knopf, 1964), xxv.

3 Nandita Biswas Mellamphy. “Humans ‘in the Loop’? Human-Centrism, Post-humanism, and A.I.”

It is not surprising, then, that this model has served as the backdrop for the concept of the “Anthropocene”, which makes tangible the unequal consequences of the worldview that centres the human ontologically within the loop of command and control. The concept of the “Anthropocene” designates a “human-dominated, geological epoch, supplanting the Holocene,”⁴ and while for some the concept represents the vindication of human-centrism, meaningful human control, and the path to progress, for others, the concept has led to the challenging of human-centric, modernist, and capitalist assumptions.

Nature can no longer be understood as operating on fixed or natural laws, while politics and culture can no longer be understood as operating in a separate sphere of autonomy and freedom. [...] [T]he Anthropocene appears to bring to a close the human-centred, subject-centred or anthropocentric understandings of power and governmental agency.⁵

The onto-politics of “centring the human” represents the prevalent view that humans possess unique capacities that make them exceptional and entails putting humans “in the loop” of control over all other species and expressions of intelligence, emphasising human superiority and treating non-human intelligences as means to achieve human ends. The onto-politics of human-centrism prioritises human oversight and conceptualises humans as beings governed by *nomos* or law while pursuing whatever means necessary (such as the instrumentalisation and de-humanisation of other life forms) to achieve desired outcomes. Within this mastery-driven model, humans govern unpredictability through the instrumentalisation of their rationality and their normative and norm-making capacities. By contrast, the onto-politics of de-centring human-centrism focus on taking the human out of the centre and *on* to the ontological loop of control with other species:

While the perspective of the Anthropocene centres human beings and their agency and interventions in geo-epochal transformations through technological developments and bio-chemical products, post-human perspectives de-centre the idea of humankind being in charge of technical and ideological mastery over nature.⁶

Post-humanism provides a strong theoretical basis for deprioritising and displacing the onto-politics of human mastery, emphasising embodiment (instead of abstraction), entanglement (instead of autonomy), and trans-individuation (instead of individualism)

Nature and Culture, 16, no. 1 (2021): 11–27. <https://doi.org/10.3167/nc.2020.160102>.

4 Paul J. Crutzen, “Geology of Mankind,” *Nature* 415, no. 6867 (2002), 23. <https://doi.org/10.1038/415023a>.

5 Chandler, *Onto-politics in the Anthropocene*, 5, 21.

6 Kornelia Engert and Christiane Schürkmann, “Introduction,” *Nature and Culture*, 16, no. 1 (2021): 3. <https://doi.org/10.3167/nc.2020.160101>.

or the affirmation of transversal, cross-modal, and multispecies connections and compatibilities between human animals, non-human animals and machines.

In the following, I set out to examine three distinct onto-political modes: *human-centric* onto-politics on the one hand; the “post-human” onto-politics of *de-centring the human* on the other; and a third mode that *rejects* these first two positions arguing against the politics of repair, care, new possibilities and entanglement, in favour of *jettisoning* and *abolishing* the human/non-human dyad altogether. Instead of placing humans *in* or *on* the loop with other species, a third model would place humans *out* of the loop of command, entailing the phasing-out of the categories of “human” and “non-human” as such. I argue that contrary to the claims of critical feminist post-humanists, the post-human politics of de-centring the human cannot be considered “*post-anthropocentric*” (implying the abolition of anthropocentrism), although it *can* be considered “*anti-anthropocentric*.” I argue only the onto-politics of *abolition* can be called and considered post-anthropocentric because it conceptually eliminates the human/non-human dualism upon which the onto-politics of centring and de-centring humans is based.

2. The Onto-politics of “Centring”: Humans *In* the Loop

The human-centric “in-the-loop” onto-politics of control has centred on the human intellect—especially the activity of deliberating about human ends, which requires mental and practical capacities to discern the worthy ends of human life. Human oversight is prioritised, and privilege is given to scientific knowledge-processes that concentrate on the judicious application of human mastery to technologically transform nature. Human command is dualistically and hierarchically conceptualised as a superior order in control of a distinct but inferior one, following “a model of domination and transcendence” “in which freedom and virtue are construed in terms of control over, and distance from, the sphere of nature”.⁷ Humans are conceptualised as a civilising force that presides over an unpredictable order that has, historically speaking, included plants, animals, machines and even other humans such as women, children, slaves and the colonised who have been denied consideration as subjects with intrinsic moral worth. Liberal normative theories of human rights are grounded in this human-centric representation of the individual who is expected to take ownership over its own self—this self-mastery thereby sanctioning the exercise of mastery over others who are incapable of such self-legislation. The classical liberal vision of moral autonomy imagines human rationality in the role of sovereign commander of the self and of animals and machine entities. Theories that filter conceptions of cognition through mirror metaphors, such as measuring self-awareness through the mirror recognition test or theorising empathy through mirror neurons,

7 Val Plumwood, *Feminism and the Mastery of Nature* (New York: Routledge Press, 1993), 41.

emphasise atomistic models of the self as autonomous and bounded.⁸ This perspective privileges the production of knowledge that is human-centred, producing knowledge that stresses human mastery over non-human entities, including the use of animals in scientific testing.⁹ Within this human-centric framework, automation and A.I. are viewed in terms of human autonomy and oversight over non-humans. For instance, applications of A.I. today that provoke notions of speed, quantity, flexibility, scalability and extensity are portrayed as judicious human interventions navigating the contingencies of unpredictable change.

Historically, advocacy for the rights and welfare of those deemed to lack reason (and thus considered non-rational) arose amongst liberal sentimentalists who argued that protection of non-rational dependents should be extended not based on rational capacities and claims to freedom and equality but on the shared capacities for sentience, sympathy, and suffering. As the argument goes, the non-rational—*e.g.*, women, animals and slaves—are vulnerable and are owed limited human protection and sympathy. Liberal sentimentalism (and its contemporary variants like the Capabilities approach) retools classical liberalism's aim of protecting individual freedom while importing 18th and 19th-century notions of social equality in terms of minimal capabilities that are extended to those previously deemed vulnerable and guaranteed by the state.¹⁰ In contemporary research on animal and human cognition, scientific discourse and liberal sentimentalism dovetail. Overturning the classical liberal emphasis on rationality, Jonathan Haidt argues that there is scientific basis for viewing reason as the "slave of the passions" and that moral feelings (or intuitions) and empathy play pivotal roles in understanding human morality.¹¹ Sentiment, not rationality, is the driving force of human cognition as well as the common denominator linking humans and non-humans. Liberal concepts of human agency, even those that reject possessive individualism, tend to assess the worth of non-humans in terms of human-centric standards that do not overturn the assumption that what makes non-humans worthy of moral consideration is their commonality and resemblance with humans.

In contemporary A.I. ethics debates, the dominant formulation frames artificial intelligence in terms of human oversight and human power over non-humans (*e.g.*, robots¹² and machine

8 Willett, *Interspecies Ethics*, 6.

9 For a scathing criticism of this view, see Katerina Kolozova, *Capitalism's Holocaust of Animals A Non-Marxist Critique of Capital, Philosophy and Patriarchy* (UK: Bloomsbury Academic, 2019).

10 C. Willett, *Interspecies Ethics* (New York: Columbia University Press, 2014), 36.

11 Jonathan Haidt, *The Happiness Hypothesis* (New York: Basic Books, 2006), 17.

12 The word "robot" comes via Old Czech from the Old Church Slavonic *rabota*, meaning "servitude," and from *rabu* or "slave." See the etymology of the word on <https://www.etymonline.com/search?q=robot>

intelligence¹³). For instance, while some A.I. ethicists argue that robots should be slaves that we own and never viewed as persons or companions,¹⁴ others disagree with this vision of robots as nothing more than slaves/instruments, arguing instead that robots, machines, nonhuman animals, and even extraterrestrials might be conceived as an “other” for which humans may be morally responsible. In this view, humans may have moral obligations to robots based on moral patience, a sentimentalism-based theory that non-humans are vulnerable and are owed limited human protection and sympathy:

Developing and debating the rights of robots does not necessarily take anything away from human beings and what (presumably) makes us special; it offers a critical tool for doing work in moral theory, making available new opportunities for us to be more precise and scientific about these distinguishing characteristics and their limits.¹⁵

Thus, regardless of whether it is classic or sentimentalist, liberal positions reinforce some degree of human exceptionalism. From self-driving cars and artificial neural networks to advertising and earthquake predictions, humanity is portrayed as beings who take control of the tools that will enable them to navigate uncertainty and change. A human-centric narrative that many find appealing depicts “cutting-edge” technologies that are harnessed by the power of human ingenuity involving humanitarian narratives (e.g., “Human Rights by Design”), practices for “the benefit of humanity,” the protection of human rights and democratic governance, and retaining “meaningful human control” in order to find ways to instrumentalise and exploit non-human potentialities while also shielding humanity from risks. Such a vision narrates a future in which humans govern unpredictability through the instrumentalisation of their technical/technological rationality and their normative and norm-making capacities. Governance is conceptualised as a relational mode of ordering, arranging, and overseeing other biological and technical entities, retaining human control of unpredictable technological changes that threaten to untether humans from their traditional position as governors. Technologies are instrumental, and lesser beings and machines remain tools of their human masters. Drawing on theories of human nature and moral autonomy that posit the sovereignty of human rationality, the onto-politics of “centring” the human privileges the production of knowledge that is overseen by humans

13 In 2019, Lee Se-dol, a master player of the Chinese strategy game Go and the only human to ever beat AlphaGo developed by Google’s Deepmind, decided to retire due to the rise of artificial intelligence that “cannot be defeated”. “Go Master Quits Because AI ‘Cannot be Defeated.’” BBC News, November 27, 2023. <https://www.bbc.com/news/technology-50573071>

14 J. Bryson, “Robots Should Be Slaves,” in *Close Engagements with Artificial Companions: Key Social, Psychological, Ethical and Design Issues*, (ed.) Y. Wilks (Amsterdam: Benjamins Publishing Company, 2010), 1–12.

15 David J. Gunkel, *Robot Rights* (Massachusetts: MIT Press, 2018), 12.

and prioritises human mastery over non-human entities and justifies practices that lead to the instrumentalisation of the “non-human”. Governance of human/non-human relations is used to manage issues pertaining to the global regulation of economic, political, and social processes¹⁶.

In efforts to respond to the challenges of governing emergent technologies, scientific discourses merge with human-centrism. The onto-politics of human-centrism “draws together some ubiquitous features of late modernity—uncertainty, power, knowledge, technology, and rapid, destabilizing change—and renders them coherent, orderly, and controllable. It is a simple fable for a complex age, one that promises predictability when the future is uncertain and renders uncertainty governable without friction.”¹⁷ Threats and risks are managed by normative constructions of human control and containment of risk, and scientific self-regulation is established as being the main vehicle for achieving a beneficent human future. Data-driven scientific imaginaries portray data science as sets of techniques and methods, but also as a powerful force that must be harnessed and made to serve human needs:

It is in this mutual relation between expert knowledge and the epistemic authority of states that imaginaries of big data are having performative effects [...] the force of big data imaginaries is not simply about whether data produced by private technology corporations has been or will be used to make official statistics. Rather, it is how such imaginaries are simultaneously reconfiguring cultures and practices of data production on the part of both statistical professions and their institutes. To speak of dominant imaginaries then is to underscore that they not only shape what is thinkable but also the practices through which actors perform them.¹⁸

The onto-politics of “emergent governability” prioritises human involvement in the critical functions of technology and shapes how sciences/scientists and laws/lawmakers envision and apportion roles and responsibilities in managing global problems. The principle of “emergent governability” has served as a normative tool for the production, implementation, and regulation of human-friendly or so-called “beneficial” emergent

16 For a critique of this worldview in international relations scholarship, see David Chandler, Franziska Müller, & Delf Rothe (Eds.), *International Relations in the Anthropocene: New Agendas, New Agencies and New Approaches* (Basingstoke: Palgrave MacMillan, 2021).

17 J. B. Hurlbut, “Remembering the Future: Science, Law, and the Legacy of Asilomar,” in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, eds. S. Jasanoff and S-H. Kim (Chicago: University of Chicago Press, 2018), 147.

18 Ruppert, Evelyn. *Sociotechnical Imaginaries of Different Data Futures: An Experiment in Citizen Data* (Rotterdam: Rotterdam University, 2018), 16, 18–19.

technologies. The “Asilomar imaginary” of emergent governability and its idea of “beneficial intelligence” has been developing since the 1975 conference in Asilomar California, when scientists and public officials assessed the risks of biotechnologies and discussed standards for the governance of bioindustries.¹⁹ Through the discourses of “emergent governability” and “beneficial intelligence,” the governance of artificial intelligence is asserted as the human mastery over non-human entities and is being used to manage issues pertaining to the global regulation of economic, political, and social processes, “calculations and tactics that allow the exercise of this very specific albeit complex form of power, which has as its target population, as its principal form of knowledge, political economy, and as its essential technical means, apparatuses of security.”²⁰ The future of stability is understood as the management of unpredictability and uncertainty through the coalescing of institutional governance and technologies of governance, namely the workings of the nation and interactions between nation-states. The “nation” is imagined to be the most “legitimate” actor on the world stage,²¹ where a “widely shared sense of legitimacy”²² can be found for the preservation of an ordered human future. This was the model of international political cooperation formed after the Second World War, which was founded on this imagined idea of political stability in which the cooperation of nation-states solved international problems like inter- and intra-state conflict.

Over time however, the centrality of the nation-state has dwindled with the emergence of global discourses that imagine legitimacy in terms of supra- and trans-national expert institutions that can oversee and respond to real-time global problems. The figures of globalism and emergent governability are based on a supranational model of sociotechnical surveillance and response. Circumventing rather than maintaining boundaries extends the jurisdictional power of surveillance systems (and the power of those that design and implement them) and leads to the emergence and consolidation of a new information infrastructure, that is, a planet-wide technical system of informational capture and control that are not territorially assigned but technologically constructed.²³ Globalism thus transforms the “nomos of the earth” from the physical space of national territory to a conglomeration of global flows that people inhabit and shape and that, in turn,

19 P. Berg, “Asilomar 1975: DNA Modification Secured,” *Nature*, no. 455 (September 2008): 290–291.

20 M. Foucault, “Governmentality,” in *The Foucault Effect*, ed. G. Burchell, C. Gordon and P. Miller (Chicago: University of Chicago, 1991), 102.

21 Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1991).

22 Charles Taylor, *Modern Social Imaginaries* (Durham: Duke University Press, 2003).

23 See Philip Howard, *Pax Technica: How the Internet of Things May Set Us Free or Lock Us Up* (New Haven: Yale University Press, 2015), 145–146.

constrain the spectrum of future actions.²⁴ The socio-technical imaginary²⁵ of globalism and emergent governability prioritises "meaningful human control" and human oversight over human/non-human co-productions. The discourse of governance shifts from being outrightly conceptualised in terms of the centrality of humans (in accordance with classical modernist and rationalist theories of human intelligence) to the emergence of a precarious and risky governability that is conceived in terms of "planetary governance," a broader and more complex model of shared existence in the Anthropocene characterised by the entanglement of humanity and nature.²⁶

The notion of nature is a complex field of multiple meanings, hierarchies, and exclusions where racial, sexual, ethnic, and other differences have been cast in terms that distinguish higher forms of humanity from lesser ones deemed to lack some degree of rationality or cultivation. The master/slave dichotomy at the heart of this version of human control reproduces a cluster of other familiar dualisms: mind/body, self/other, culture/nature, human/animal, human/machine, male/female, coloniser/colonised.²⁷ This logic of mastery/subjugation views domination as natural and appropriate, and within this model of control, "the multiple, complex cultural identity of the master [is] formed in the context of class, race, species and gender domination. [...] [T]he assumptions in the master model are not seen as such, because this model is taken for granted as simply a human model".²⁸ For many, the concept of the Anthropocene is said to fundamentally challenge this strongly human-centric paradigm:

[T]he Anthropocene is understood to pose fundamentally different questions about how we can know and how we can govern without the certainties and signposts of modernity. In this sense, the declaration of the Anthropocene marks

24 Clark A. Miller, "Globalizing Security: Science and the Transformation of Contemporary Political Imagination," in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, eds. S. Jasanoff and S-H. Kim (Chicago: University of Chicago Press, 2018), 278–9.

25 Jasanoff and Kim define *socio-technical imaginaries* as "collectively held, institutionally stabilized, and publicly performed visions of desirable futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology". Socio-technical imaginaries serve as vehicles by which to understand how "scientific and technological visions enter into the assemblages of materiality, meaning, and morality that constitute forms of social life" S. Jasanoff and S.H. Kim, "Future Imperfect: Science, Technology, and the Imaginations in Modernity", in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, eds. S. Jasanoff and S.H. Kim (Chicago, University of Chicago Press, 2018), 4.

26 For example, see Chandler *et al.*, 2021.

27 Nandita Biswas Mellamphy, "Challenging the Humanist Genre of Gender: Post-humanisms and Feminisms," in *Different Voices: Gender and Post-humanism*, eds. Paola Partenza, Ozlem Karadag, and Emanuela Ettore (Leiden: Brill Publishers), 15–27.

28 Plumwood, 5, 22.

a very different moment to the Club of Rome's report that launched concerns of environmentalism and over the exhaustion of natural resources in 1974.²⁹

Emergent governability thus shapes not only how scientists and lawmakers envision their own roles and responsibilities in managing global problems but also explains why human-centrism and in-the-loop frameworks posit scientific self-regulation as key to a future benevolent to humans in which the threats and risks of artificial intelligence are managed and reduced by normative constructions of human control and containment of risk (otherwise known as “meaningful human control”—that is, the degree of human involvement in the critical functions of technology).

3. The Onto-politics of “De-centring”: Post-humans *On* the Loop

The onto-politics of “centring” the human involves presuming the mastery model of agency and of governance (i.e., “command and control”), that is, self-legislation and legislation of others based on hierarchy, centralisation, universalisation and linearity. The concept of gender inherited from this legacy is dualistic and hierarchical as well. The hierarchy of humans and non-humans expands into a conceptual network of hierarchies connecting various other hierarchies together, such as the human domination of nature, male domination over females, the master's domination over the slave, and Reason's domination of the body and emotions.

The need for an alternative perspective arises when understanding the limitations of the onto-politics of human-centrism. While the Anthropocene narrative of “centring the human” has been a dominant socio-technical imaginary, counter-narratives are emerging that challenge, decentre, and overturn human-centrism. Turning away from subjects of power to focus on *objects* of governance, the onto-politics of “de-centring” the human pursues and adopts non-linearity, non-universality, and non-rationality, as well as *autopoiesis* (self-making) and adaptation, *homeostasis* (interdependency) and responsiveness, as well as *sympoiesis* (making altogether) and entanglement. The onto-politics of de-centring rejects the onto-politics of strong human-centrism (involving narratives of progress and universality as well as the modernist binary divide of culture and nature) in favour of views that conceive of “the human subject as relationally embedded or entangled rather than as an autonomous rational subject distinct from the world.”³⁰

Human-centred designs imagine humans as distinct individual subjects, as consumers

²⁹ Chandler, 8.

³⁰ Chandler, 23.

with the power to choose and as users of goods, services, and technologies. Human-centric and user-centric design has been wedded to neoliberal, capitalistic economic models where the individual is equated with the consumer-user.³¹ Until recently, the field of HCI (Human Computer Interfaces) was dominated by a human-centred user-based paradigm based on functionalist, rationalist, industrialist—not to mention extractive and exploitative—humanistic values. HCI scholars are seeking to “de-centre” human-centred design by turning to post-humanist theories that call out human exceptionalism and portray human agency as interconnected to non-human agencies/sentience within assemblages that humans participate in but do not control. In particular, Sustainable Human Computer Interaction (SHCI) has paid attention to co-constitutive relationships between humans and non-humans, and more-than-human research has pursued “post-capitalist” and “post-anthropocentric” orientations in an effort to resist and overturn the dominant human-centric paradigm.³² HCI scholars have drawn on different theoretical orientations like Science and Technology Studies (STS) and Actor-Network Theory (ANT) that approach complex socio-technical systems in terms of networks that involve human and non-human actors,³³ object-oriented ontologies that put “things at the centre of being,”³⁴ as well as feminist new materialisms³⁵ and critical feminist post-humanisms³⁶ that expand “the circle of moral concern, extending subjectivities beyond the human

31 Laura Forlano, “Post-humanism and Design,” *She Ji: The Journal of Design, Economics, and Innovation*, 3 (1): (2017): 16–29. <https://doi.org/10.1016/j.sheji.2017.08.001>.

32 Cayla Key, Cally Gatehouse and Nick Taylor. “Feminist Care in the Anthropocene: Packing and Unpacking Tensions in Post-humanist HCI,” in *Designing Interactive Systems Conference* (New York, ACM). <https://doi.org/10.1145/3532106.3533540>

33 See Bruno Latour, *Reassembling the Social: An Introduction To Actor-Network Theory* (Oxford New York: Oxford University Press, 2005). Also see “Where Are the Missing Masses?: The Sociology of a Few Mundane Artifacts,” in *Shaping Technology/Building Society: Studies in Sociotechnical Change* eds. Wiebe E Bijker and John Law (Cambridge: MIT Press, 1992), 225–258.

34 Ian Bogost, *Alien Phenomenology, or What It’s Like to Be a Thing* (Minneapolis: University of Minnesota Press, 2012), 6.

35 See, for example, Donna Haraway, *Simians, Cyborgs and Women: The Reinvention of Nature* (New York: Routledge, 1991); and *When Species Meet* (Minneapolis: University of Minnesota Press, 2007). Also see Karen Barad, “Post-humanist Performativity: Toward an Understanding of How Matter Comes to Matter,” *Signs: Journal of Women in Culture and Society* 28, 3 (2003): 801–831; and “Quantum Entanglements and Hauntological Relations of Inheritance: Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come,” *Derrida Today* 3, no. 2(2010): 240–268.

36 See for example, R. Braidotti, *The Post-human* (Massachusetts: Polity, 2013). María Puig de la Bellacasa. *Matters Of Care: Speculative Ethics in More Than Human Worlds* (University of Minnesota Press, Minneapolis, 2017).

species.”³⁷ HCI scholars have seen the need for ontological repositioning.³⁸

While human-centrism asserts that the human is the centre of all things and non-humans lack various uniquely human capacities like language, reason, tool-use, temporal sense, and awareness of morality,³⁹ philosophical and critical post-humanisms seek to challenge the anthropocentric assumptions that have been inherited from the legacies of humanistic traditions by questioning human exceptionalism and by expanding the realm of moral and ethical concern to non-human forms.⁴⁰ Dominant human-centric epistemologies have ignored the agential potentials of the non-human (including animals, plants, minerals, bacteria, objects, machines, ecosystems, and atmospheres). This exclusion has led to a narrow conception of political community, resulting in significant policy gaps (e.g., limited inter-governmental collaboration efforts to tackle climate change or mass species extinction). Moreover, some argue that machines gain greater importance in the era of late-stage capitalism when they should be seen as meaningful social actors. Instead of viewing machines and objects as “dead labour” and working humans as “living labour,” the ontological boundaries should be blurred by recognising humans and machines as hybrids of “living” and “dead” elements.⁴¹ The term “post-humanism,” as such, is deployed to “cope with the urgency for the integral redefinition of the notion of the human, following the onto-epistemological as well as scientific and bio-technological developments of the twentieth and twenty-first centuries.”⁴²

Against this backdrop, post-humanism:

names a historical moment in which the de-centring of the human by its imbrication in technical, medical, informatic and economic networks is increasingly impossible to ignore, a historical development that points towards the necessity of new theoretical paradigms (but also thrusts them on us), a new mode of thought that comes after the cultural repressions and fantasies, the philosophical protocols and evasions, of humanism as a historically specific

37 Jeffrey Bardzell, Shaowen Bardzell, and Ann Light. “Wanting To Live Here: Design After Anthropocentric Functionalism,” in *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems* (New York: Association for Computing Machinery, 2021), 1–24. <https://doi.org/10.1145/3411764.3445167>

38 Key 2022.

39 Christopher Peterson, *Monkey Trouble: The Scandal of Post-humanism* (New York: Fordham University Press, 2018).

40 Smart Alan and Josephine Smart, “Multispecies Ethnography,” in *Post-humanism* (Toronto, ON: University of Toronto Press, 2017), 43–64.

41 Magdalena Zolkos, “Life as a Political Problem: The Post-human Turn in Political Theory,” *Political Studies Review* 16, no. 3 (April 21, 2017): 202. <https://doi.org/10.1177/1478929917720431>, 202.

42 Francesca Ferrando, “Post-humanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms: Differences and Relations,” *Existenz* 8, no. 2 (2013): 26.

phenomenon.⁴³

Described "as a continuing critique of humanism that drops the starker anti-humanist overtones,"⁴⁴ philosophical post-humanisms present post-humanism as a new way of rethinking the relationship between humans and non-humans. To emerge from environmental crises, and fix broken ecosystemic relations and crumbling institutions, the argument is that humans must repair their relationships with the biosphere by recognising non-human beings' capacity for agency and acting to limit their exposure to harm. Philosophical post-humanisms thus champion networks of caring relations and ecologies of repair,⁴⁵ as well as eco-centric approaches that call for the removal of human exceptionalism, which will reconnect humans with nature.⁴⁶

By contrast, medical post-humanism coming from the medical humanities (and tied to the history of transhumanism and futurism⁴⁷) considers how humanity has already been changed and will continue to be altered by medical and technological interventions in a future populated by enhanced or hybrid humans.⁴⁸ In an effort to challenge the onto-politics of humanism, contemporary feminist trans-humanism claims to offer a post-gender and gender-liberationist argument that through the application of neuro-technology, bio-technology, and assistive reproductive technologies, gendering can be eliminated and human potential can truly be realised. Trans-humanism, which is a term said to have been coined in the 1950s by Julian Huxley to mean the transitional human who is moving beyond its human limits, is a movement that seeks to transform humans through technological augmentation to invert the humanistic hierarchy of human over machine and liberate humans from gender-oppression. Sometimes touted as "fourth-wave feminists" "defined by technology" and even "post-feminists," feminist trans-humanists retain the first-wave feminist assumption that mind is a superior path to liberation than body, which is inferior and limiting; and that "technology" is the instrument, the means towards the end of transforming the human. Retaining the humanist dualism favouring liberation through mastery, technological progress and exceptionalism, the trans-humanist argument for gender-liberation ultimately and ironically affirms the

43 Cary Wolfe, *What Is Post-humanism?* (Minneapolis: University of Minnesota Press, 2010), xv–xvi.

44 Anne Phillips, *The Politics of the Human* (Cambridge: Cambridge University Press, 2015), 111.

45 Gustavo Blanco-Wells, "Ecologies of Repair: A Post-Human Approach to Other-Than-Human Natures," *Frontiers in Psychology* 12 (April 8, 2021): 2. <https://doi.org/10.3389/fpsyg.2021.633737>.

46 Aura-Elena Schussler, "Post-humanism and Ecofeminist Theology: Toward a Nondualist Spirituality," *Journal for the Study of Religions and Ideologies* 19, no. 57 (2020): 35.

47 See for example Patrick W. McCray, *The Visioneers: How a Group of Elite Scientists Pursued Space Colonies, Nanotechnologies, and a Limitless Future* (Princeton: Princeton University Press, 2012).

48 Anna McFarlane, "Medical Humanities," *Critical Post-humanism Network: Genealogy of the Post-human*, August 1, 2017, <https://criticalPost-humanism.net/medical-humanities/#:~:text=By%20using%20medicine%20as%20a,possibilities%20of%20a%20critical%20Post-humanism>

humanist logic of control. Trans-humanism and liberal feminism both have intellectual roots in Enlightenment positivism and rationalism and technological progressivism. Like its historical predecessor, liberal sentimentalism, trans-humanism shares with liberal feminism a deep commitment to universality framed as “the well-being of all sentience.”⁴⁹ In this case, it is the shared capacity to feel, and not the capacity to think rationally, that undergirds this brand of sentimentalist trans-humanism. What started out as discontent with the onto-politics of classical human-centrism still leads back to anthropocentrism and humanistic assumptions.

Alternatively, critical post-humanisms (including critical feminist post-humanisms) are concerned with deconstructing humanism and speculating about what it means to be human in the age of globalisation, climate change, increasing automatisisation, and late-stage capitalism.⁵⁰ Critical feminist post-humanisms have been an important resource for gaining alternative perspectives on the tensions between the politics of “de-centring” and of “re-centring the human.” Broadly referring to theories influenced variously by Kantian critique, critical theory, post-colonialism, feminism, and post-structuralism that criticise imagined futures that embrace the assimilation of the human into the suprahuman (e.g., extropianism and transhumanism).⁵¹ Critical feminist post-humanists argue for a rejection of the principle of human mastery in favour of conceptualisations that bridge divides between humans and non-humans. Reminiscent of liberal sentimentalism, critical post-humanism pursues mapping, sensing, and hacking of the similarities between human and nonhuman agencies, embodiments and subjectivities. Critical post-humanisms have made significant efforts to contest philosophical dualisms and have expanded thinking about life, intelligence, and agency beyond the figure of the human, looking to multiplicity, difference, interconnection and affect to ground new political ontologies. Critical feminist post-humanisms, in particular, have sought to deprioritise human-centric assumptions of mastery and hierarchy, instead emphasising co-evolution and/or co-individuation of humans and non-humans (e.g., affirming compatibilities and affinities between human animals, non-human animals and machines). Post-humanisms seek to deprioritise human-centrism, reject atomism, and underscore the affinities (rather than the differences) between human animals, non-human animals, and machines. Humans are viewed as co-producing with non-humans, rather than as ontologically superior to them. Prioritising connectionism as a way of deprioritising humanism while simultaneously avoiding

49 Humanity Plus “Transhumanist Declaration,” <http://humanityplus.org/philosophy/trans-humanist-declaration>. Accessed February 24, 2023.

50 Stefan Herbrechter, “Critical Post-humanism,” in *Post-human Glossary*, eds. Rosi Braidotti and Maria Hlavajova (London, UK: Bloomsbury Academic, 2018), 94.

51 Debashish Banerji and Makarand Paranjape, “The Critical Turn in Post-humanism and Post-colonial Interventions,” in *Critical Post-humanism and Planetary Futures* (India: Springer, 2016), 2.

pessimistic anti-humanism, these critical feminist post-humanisms strive to transform the "human" into an open-ended category and to re-conceptualize it as a product of ongoing processes of collective bio-socio-technical interactions. This vitalist interconnectionism avoids human-centric species-ism and favours multi-species-ism and interspecies-ism.⁵² Contrary, however, to humanists and trans-humanist feminists who instrumentalize non-humanity and even seek to accelerate the technological transformation of the human, post-humanist feminisms de-centre the human, making it cede its historical ties to the dialectics of domination and transcendence. Whereas the humanistic conception of gender is strongly human-centred, binary, and hierarchical, the post-humanistic alternative pursues the *undoing* of human-centrism in an effort to open-up multiple pathways and possibilities of relationality between humans and non-humans.

Drawing together anti-humanism's rejection of anthropocentrism (*i.e.*, of Man as a universal ideal) and post-structuralist feminism's critique of phallogocentrism, critical feminist post-humanisms, in embracing new materials and materialisms as the basis for displacing humanism, claim to be "post-anthropocentric." Calling for a post-humanities to develop as a "humanities without the human" alongside a "feminism without gender," some critical feminist post-humanists argue that instead of the term Anthropocene, we should consider our present epoch as "post-natural," that is, beyond the naturalism of the nature/culture dichotomy.⁵³ Critical feminist post-humanisms reject gender essentialism and endeavour to map, sense, and hack into "notions of sex, gender and sexuality as they traverse the borders of internality and externality, revealing their entanglement in a complex web of sociocultural meanings and biological imperatives."⁵⁴ Instead of negating gender, such post-humanist feminisms seek instead to experiment with and even simulate gender.⁵⁵ Whereas within the onto-politics of human-centrism, gender is conceptualised as binary and hierarchical (in which humans are central and superior to non-humans, and males are central and superior to females), in the onto-politics of post-humanism, gender is theorised as non-binary and power is meant to be shared between humans and non-humans. While anti-humanist, post-structuralist, and post-humanist feminisms have opened up avenues for de-centring the human and embracing the non-human, many point out that they remain troubled by gender despite the rejection of gender essentialism.⁵⁶

52 See for example, Willett 2015; Bellacasa 2017; and Christine Daigle and Terrance H. McDonald (eds.), *From Deleuze and Guattari to Post-humanism: Philosophies of Immanence* (London: Bloomsbury Academic, 2022).

53 Cecilia Åsberg, "Feminist Post-humanities in the Anthropocene: Forays into The Post-natural," *Journal of Post-human Studies* 1, no. 2 (2017): 185–204.

54 Elden Yungblut, "Sex in Post-human Futures: Rethinking Gendered Embodiment in the Anthropocene," *Gnosis* 17, no. 1 (2018): 7.

55 Kim Toffoletti, "Catastrophic Subjects: Feminism, the Post-human and Difference." *Thirdspace: A Journal of Feminist Theory & Culture* 3, no. 2 (2004).

56 See for example, Francesca Ferrando, "Is the Post-Human a Post-Woman?—Cyborgs, Robots,

In an effort to deterritorialise gender, some scholars warn that post-humanism does not posit a genderless body: “sex/gender, race, sexuality is not a difference from other bodies, but is a difference that emerges from within the individuating body as material discursive process.”⁵⁷

Despite many appealing features of critical feminist post-humanisms, they appear to continue to preserve commitments to human-centrism, however weakly. While such post-humanisms might de-centre the human, they have not shed anthropocentrism completely because they do not sever or abolish the binary/dualistic distinctions between “human” and “non-human.” Critical feminist-inspired post-humanisms seek to displace humanist premises by inverting the logic of dualism and colonisation at their core. Instead of privileging mind over body, the body is prioritised, becoming the locus of sentience and connection to other bodies, this interconnectivity spilling beyond the boundaries of human subjects into new realms of non-human subjectivity. But the embroilment with (liberal) sentimentalism remains, as does the potential for perpetuating a weak onto-politics of human exceptionalism. The post-human politics of de-centring the human cannot be considered “post-anthropocentric” (implying the abolition of anthropocentrism), though it can be considered “anti-anthropocentric.” Remaining wedded to conceptions of relationality, vitalism, and connectionism does not abolish human-centric preoccupations with being(s), subjectivity, agency, and embodiment, concepts that are intractably “human-all-too-human.” From a conceptual point of view, critical feminist post-humanisms could be a kind of “non-humanist humanism”,⁵⁸ and for this reason, they can be considered a more standard form of post-humanism.

4. Abolishing the Human/Non-Human: Humans *Out of the Loop*

What would a “post-anthropocentric” post-humanism look like? This is where most contemporary thinking fails to provide an adequate framework. It would be the task of speculative rather than normative thinking to conceptualise post-anthropocentrism since speculation would have to be disconnected from previous human-centred approaches (both strong and weak types). A “post-anthropocentric” post-humanism would, I argue,

Artificial Intelligence and the Futures of Gender: A Case Study,” *European Journal of Futures Research* 2, no. 1 (2014): 1–17, <https://doi.org/10.1007/s40309-014-0043-8>. Nicole Falkenhayner, “The Ship Who Sang: Feminism, the Post-human, and Similarity,” *Open Library of Humanities* 6, no. 2 (2020), <https://doi.org/10.16995/olh.598>.

57 Silvia Gherardi. “If We Practice Post-humanist Research, Do We Need ‘Gender’ Any Longer?” *Gender, Work & Organization* 26, no. 1 (2019), <https://doi.org/10.1111/gwao.12328>.

58 See William V. Spanos, “Post-humanism in the Age of Globalization: Rethinking the End of Education,” in *Toward a Non-Humanist Humanism* (Albany: State University of New York Press, 2017).

entertain possibilities that are not defined by the resonances and/or differences between humans and non-humans. In distinction with previous standard post-humanisms, this "human out-of-the-loop" model could be provisionally called a "non-standard" post-humanism, even a "speculative post-humanism" based on a "disconnection thesis" that humans should not be conceptualised in terms personhood at all (that is, the presence or absence of some essential human property, or as "Lockean or Kantian persons"), but rather as "an emergent disconnection between individuals [that] should not be conceived in narrow biological terms."⁵⁹ Instead of positing any anthropocentric baseline (not even a weakly constrained one), the disconnectionist model would begin with the assumption that "our current technical practice could precipitate a non-human world that we cannot yet understand, in which 'our' values may have no place."⁶⁰ Here, "human" would not refer primarily to the human-centric portrait equated with biological and cognitive embodiments (i.e., neither as a "real" organism nor as the phenomenological "self" that has subjective experiences), but to a view that is disconnected from and independent of any human-centrism, somewhat akin to a "queer inhumanity"⁶¹ that is incommensurate and incommensurable with existing taxonomies, valuations, and modes of relationality. From this point of view, standard post-humanisms belie a crypto-human-centrism that turns queerness's non-standard potential for post-anthropocentrism against itself, returning it to a state of weak anthropocentrism. Instead, the queer labour of a veritable post-anthropocentric conception of gender demands thinking not in terms of *relation*, but rather *non-relation* and *disconnection* from standard modes of being and thinking.

Object-Oriented Feminisms (OOF) and Xeno-Feminisms (XF) are two contemporary discourses that, like standard post-humanisms, are based on the affirmation of technomaterialities, anti-naturalism and inter-sectionality, but unlike the standard post-humanisms, both OOF and XF cut ties with ideals like subjectivity and agency, focusing instead on non-standard notions of withdrawal (without emergence), objects (without subjects), alienation (without agency) and gender-abolition (instead of gender-essentialism or gender-performativity). For example, Object-Oriented Feminisms are critical of standard Object-Oriented Ontology (OOO) for remaining silent about the tensions between feminism (the critique of female objectification) and object-orientation. OOO privileges liveliness and connectivity, which is problematic "because the imperative to connect is detrimental to individuals who suffer from the over-connection compulsions of neoliberal subjectivity."⁶² The withdrawal of the object—its "self-contained-ness" is viewed as a kind

59 David Roden, *Post-human Life: Philosophy at the Edge of the Human* (London: Routledge, 2015), 105.

60 Roden, 125.

61 José Esteban Muñoz, "Theorizing Queer Inhumanisms: The Sense of Brownness," *GLQ: A Journal of Lesbian and Gay Studies* 21, no. 2-3 (2015): DOI 10.1215/10642684-2843323.

62 Katherine Behar, "Facing Necrophilia, or 'Botox Ethics,' in *Object-oriented Feminism*, ed. Katherine Behar (Minnesota: University of Minnesota Press, 2016), 26.

of objection *qua* resistance: “OOO’s conception of objects as fundamentally withdrawn and self-contained resonates with feminist objects that resist us, and the feminist notion that as objects, we resist”; but instead of connection, what is offered is commonality and continuity: “our common status as matter makes way for continuity between all objects, whether human or nonhuman, organic or inorganic, animate or inanimate.”⁶³ Building on Laboria Kuboniks’s “Xeno-Feminist Manifesto,” Xeno-Feminism (XF) names four technological principles of *circumnavigation of gatekeepers, repurposing, scalability, and intersectionality*: “Through these principles, the master’s tools can dismantle the master’s house.”⁶⁴ Offering a problematic appropriation of Audre Lorde’s famous statement that the epistemological tools inherited by the histories of colonialism and racism could not be used to dismantle oppression against Black people, XF’s suggestion that the “master’s tools *can* dismantle the master’s house” threatens to extend mastery as the driving force of XF’s technological mandate. While such post-humanisms go beyond trying to de-centre agency and strongly renounce the humanistic ontotheology at the heart of the onto-politics of human-centrism, the attempt to bring about new configurations of relationality/continuity based on alter-ontologies loosens anthropocentrism but does not eliminate it altogether. Ultimately, Queer, Xeno-Feminist, and Object-Oriented Feminisms are in danger of reverting to the “standard” post-humanisms insofar as they do not abandon connectionism (whether strong or weak) prioritising relation, communication, continuity, and exchangeability, thus operationalising the age-old standard of defining at least two terms and the differences that connect them.⁶⁵ “These procedures of making equal, calculable and knowable are articulated in processes of converting worlds into the grammars of the human”; [...] “an end of the human would be nothing less than abolitionist.”⁶⁶ As Liu reminds us: abolitionism does not equal post-humanism.

Rather than recuperating abolitionist and de-colonial thought for a connectionist post-humanism, a post-anthropocentric perspective is concerned with thinking about how to incapacitate the conceptual and structural apparatus of relation that makes distinction possible in the first place. Post-anthropocentrism, it would seem, requires reckoning with the end of the human/non-human dichotomy. Disconnection and non-relation, in other words, become important concepts to consider when making claims about post-anthropocentrism. “[T]he continuing damage of the human as an invention of the Western philosophical tradition” suggests “that its orders of transcendence, overcoming

63 Behar, 19.

64 Helen Hester, *Xeno-Feminism Theory Redux* (Cambridge: Polity Press, 2018), 137, 97–8.

65 See François Laruelle, *Philosophies of Difference: A Critical Introduction to Non-Philosophy*, trans. Rocco Gangle (UK: Bloomsbury Academic, 2011).

66 Michelle Liu, *Com-posing ‘Abolitionist+Post-humanism’: Notes on Incommensurability, Incomputability and Incognita Syn-aesthetics*, MA dissertation, Western University, 2020), 8. <https://ir.lib.uwo.ca/etd/7016>.

and resolution proceed in philosophies of relation and difference that lacerate-into-rivenness and vanish-by-equivalency a structural violence that is at once constitutive and irreparable. [...] Where abolitionist thought elicits an end of a carceral paradigm which the post-human may also inhabit, post-humanism may leave intact the racial, sexual, colonial, ontological underpinning the human."⁶⁷

What has been called "post-anthropocentrism" by standard post-humanisms ends up getting caught in the backdraft of anthropocentrism, however weakly. Post-anthropocentrism strongly implies disconnection with human-centrism; without such a move, declarations of so-called "post-anthropocentrism" end-up being caught in the endless differential circuits of human-centrism. Along with disconnection and non-relation, post-anthropocentrism entails a rethinking of incommensurability, particularly the incommensurability of thinking post-anthropocentrically (since speculative post-humanism permits speculating what it is impossible to know). Standard post-humanism prioritises narratives that privilege inter-species co-evolution and co-production, emphasising connectionism and framed around convergences between human/non-human, and this connection is what retains vestiges of anthropocentrism. While standard post-humanisms challenge the modernist, humanistic portrait of the human as master based on myths of rationality and progress, what they offer as alternatives—*autopoiesis* (self-creation based on non-linearity and myths of adaptation), *homeostasis* (correlationism based on myths of responsiveness), and *sympoiesis* (entanglement or "becoming with" based on myths of radical openness)—de-centre and shift power away from strongly anthropocentric onto-politics but retain commitments to discourses of emergent governability.

The onto-politics of "de-centring the human" does not go far enough to overcome the binary and dualistic model of the human agent inherited from Humanism. De-centring the "human/non-human" binary is not the same thing as abolishing distinctions between human and non-human. Standard post-humanisms, as such, fail to sustain possibilities that are not defined by the affinities and/or differences between "humans" and "non-humans." Non-standard post-humanisms would focus on refusing personalism and relationism by abolishing the human/non-human conceptual connection/divide. In disconnecting from and conceptually eliminating human/non-human relationalities, the starting point of non-standard post-humanisms is the end of the human as we know it.

67 Liu, 5. Also see Frank B. Wilderson, *Red, White & Black Cinema and the Structure of U.S. Antagonisms* (Durham: Duke UP, 2010), 36.

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Going Sibylline: On Fortune and Technique

Jordi Vivaldi

Abstract:

Throughout the sixth chapter of the *Aeneid*, Virgil conjugates the zigzagging temper of the Cumaean Sibyl as the probabilistic ambivalence of the cosmos itself rather than as its playful or inaccurate duplication. By wrapping “true things with uncertainty”, the Sibyl’s chants cultivate more sensibilities regarding the “paths of fortune” branching the cosmos, thus engaging with the given in multi-linear and inconclusive terms. This essay suggests that, by conceiving such a cosmic fortuity as a public form of subjectivity to be tempered in a sonic key (*persona* (L.)), the Sibyl’s oracular set-up might be enlivening more ways of engaging with Donna Haraway’s philosophical challenge: the quest for notions of objectivity and subjectivity that constitute one another without abandoning their own purpose. I would like to contend that such a sibylline engagement is an invitation to deploy more feminist lines of flight when it comes to technique’s intertwining with nature. It might offer us instruments to think of the technical and natural as always already enfleshed, yet not so much in keeping with the Promethean claim for “making the given” as in pursuit of enlivening unfamiliar forms of coexistence with the given’s probabilistic ambivalence—a conceptualisation making room for thinking of the technical in terms of syntonization, the calibration of attunement processes involving both gymnastic training and cosmetic fashioning.

Keywords:

Cumaean Sibyl, Fortune, Technique, Soundings, Cosmos, Donna Haraway, Subjectivity, Objectivity.

Introduction:

The Cumaean Sybil tangles true things with the uncertain: *involvens vera obscuris*, as Virgil famously writes.¹ Yet, how to think of such entanglement, such a notion of truth? The Sybil is a Sybil insofar as her chants engage with the given cosmos in ambivalent terms; she accommodates things and events into probabilistic proportions, *ratios* that are always already interlaced with nature and its inconclusive character. Is there something to be made of such a sibylline approach, in which contingency and rationality are integral to the given? If we think of it in the context of today's feminist engagements with reason and technology, could the Sibyl's probabilistic temper help us think in emancipatory terms about the interplay between *bios* and *techné* without invigorating nature-culture dualities? Is it possible to conceive nature's givenness in more foliated manners, in manners where technology is not meant so much to change or make the given but to enliven more forms of coexistence with its probabilistic ambivalence? In brief, could the Sibyl's oracular set-up help us deploy more feminist lines of flight regarding the interplay between the technical and the natural with respect to how givens come to be given?

In welcoming rationality and thus embracing the emancipatory figures promised by technical innovation, much of today's feminist affiliations with technology engage with what Donna Haraway considered the philosophical challenge of feminism as follows:

So, I think my problem, and "our" problem, is how to have simultaneously an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own "semiotic technologies" for making meanings, and a no-nonsense commitment to faithful accounts of a "real" world, one that can be partially shared and that is friendly to earthwide projects of finite freedom, adequate material abundance, modest meaning in suffering, and limited happiness.²

Knowing subjects and historical contingency, real worlds and faithful accounts. Isn't Haraway's quest an invitation to think of subjectivity and objectivity as constituting each other without abandoning their own purpose? And is it utter nonsense to cultivate more variations of Haraway's crisscrossing gesture by pitching camp on the probabilistic givenness sung by the Sibyl so as to accommodate more biophilic—and perhaps less heroic—notions of technology?

1 Virgil, *Aeneid (Students Interlinear Translation)*, trans. Frederick Holland Dewey (New York: Translation Publishing Company, 1917), 263.

2 Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective" *Feminist Studies* 14, no. 3 (1988): 575–599: doi: 10.2307/3178066.

I would like to catch up with the directionality that these questions draw by circling around to how and whether the Sibyl's *involvens vera obscuris* might be engaging with the question of truth in terms of *sensibilia*: the cultivation of a *sensorium of the rational* enlivening more manners of engaging with "whatever (way) thy *fortune* shall allow,"³ to put it in the Sibyl's words. Yet, if we think of "fortune" in connection to a public subjectivity that bears (*fors* (L.)) the ratios of the cosmos across all bodies and fleshs in a sonic key, could we conceive technical objects as holding a subjective agency or persona (*personare*)? And, if they are always already enfleshed with nature and its rationality, how to think of their emancipatory dimensions? Perhaps this amalgamation could be considered not so much in keeping with the Promethean claim for making the given but in pursuit of tuning the strings of the given to unfamiliar or even unknown scales. Making things appropriate without appropriating them: what could it mean to think of technology as a material activity propelling processes of syntonisation through and between things and events? And, if we were to propose, in light of Plato's discussion of the four *technai* in the *Gorgias*, conceiving the mechanics at work in such attunements as gymnastic training and cosmetic fashioning, what biophilic articulations with respect to the technical might emerge?

1. *Involvens vera obscuris*

With this short yet evocative expression, Virgil enlivenes the oracular gesture of the Cumaean Sibyl, the narrative motor of the *Aeneid*'s sixth book. "Tangling truths with mysteries,"⁴ "mingling true things with uncertainty,"⁵ or "wrapping truth in obscurity"⁶ are some of the various translations that, in their diverging formulations, bathe Virgil's Latin expression within multiple *imaginaría*. One term, however, remains stable: *vera*, the Latin for "truth." How to think of it with respect to the Sibyl's chants? Having just set foot on the Hesperian shores of Cumas after a turbulent journey across the Tyrrhenian sea, the Trojan hero Aeneas is led to the heights of the Euboean cliff. Among spiky boulders and swirling winds, a wide flank has been cut into an immense cavity: the retreat of the Cumaean Sibyl, priestess and prophetess presiding over the Apollonian oracle at Cumae. Aeneas is thus received in the Sibyl's cavern, a resounding grotto whose wide volume ramifies into a hundred tunnels driving as many voices: the Sibyl's replies, the chants with which she "wraps true things with the uncertain." *Involvens vera obscuris*; rather than distilling truth from veils of truth, the Sibyl affiliates them: she mingles them, she makes

3 Virgil, *Aeneid*, 263. (my emphasis)

4 Virgil, *Aeneid*, trans. Henry Rushton Fairclough (London: Roman Roads Editions, 2015), 104.

5 Virgil, *Aeneid* (*Students Interlinear Translation*), trans. Frederick Holland Dewey (New York: Translation Publishing Company, 1917), 263.

6 Virgil, *Aeneid*, trans. John William Mackail (London: Project Gutenberg, 2021), 123.

them dance, she puts them into orbit as if they were twin planets, galactic bodies turning around each other in a prophetic ballet swirling across Aeneas' life world.

This spiralling vocation pervades the Latin term *involvens*. *Involvere*, "to roll into," from *volvere*, "to roll", connected to the PIE root *wel-*, "to turn, to revolve." Is it possible to conceive the Sibyl's gesture as an instrument of revolution, of mobilisation? Could we think of her verses as whirling truth and uncertainty through a circulative motion of probabilities engendering transient equilibriums? A motion working in cycles, a variation of the same. *Da capo*. *Involvens* as turning, turning around and turning inside out, circulation and rebirth, recreation. In what ways does the Sibyl's oracular setup instantiate such a turning motion? How might Virgil's allusion to truth be read in their light? Is there not at work a probabilistic form of givenness foliating the notion of "biological fate", which most of today's feminist engagements with technology aim at overcoming?

Aeneas' vows to the Sybil take effect. With a great bang, the hundred doors of the cave burst open on their own. Flowering from a body in frenzy, the Sibyl's voice quickly pours through the hundred tunnels piercing the Euboean rock. The intersecting rhythms, speeds, temperatures and pressures with which the cavernous winds blow through openings "bear the answers of the priestess through the air,"⁷ forming a sonic bouquet of crossings and overlaps hardly integrable into a definitive whole. Mightn't Plato's economy of light and shadows adopt, in the Sibyl's grotto, the form of an ecology of wind? Wind, from the PIE *wendth-*, "to turn, to weave", connected to "wander", to round, to walk around, in rounds. Wind as a sliding element moving in cycles—a cyclone?—in no need of assuming an obscurity that is neither seen nor mimed in truth. Couldn't we think of these verbose airstreams as breathing organs extending the Sibyl's oracular gesture? For aren't they fueling her chant's ambivalence by branching her voice into *ebolic* millefeuilles of sound? Sonic kaleidoscopes remain nevertheless intelligible, for sound's distinguishability in synchrony keeps words from "flying in confusion, the sports of the swift winds",⁸ as Aeneas feared if the verses had been written on fluttering leaves.

Listening is unlike reading: its practice is of a diffuse and contingent materiality demanding reciprocation. "Only do not entrust (thy) verses to leaves," asks Aeneas, "do thou chant (them) thyself, I pray."⁹ The Sibyl's verses are shared in *conversational* terms. "Verse" and "conversation"; from the Latin "*versare*", connected to the PIE *wer-*, "to turn, to bend". Isn't it a kairotic coincidence that the PIE roots of the Latin "*versare*" (*wer-*) and "*involvere*" (*wel-*) both invoke the idea of "turning"? What could it mean to chant "in turns"? In revolutions and in cycles, in *verses* circulating in *conversation*, "turning together

7 Virgil, *Aeneid*, 262.

8 Virgil, *Aeneid*, 262.

9 Virgil, *Aeneid*, 262.

with" (*con-versare*). Together with whom? Together with Aeneas' life-world, of course, but also together with herself, with Apollo, with the cosmos. Rather than performing a clinical experiment *in vitro*, the Sibyl circularises truths and uncertainties through a conversational praxis in which the interlocutors are not neutralised for the benefit of an indifferent truth. Far from claiming prescription and authority, the multi-voiced and internally dialogised structure of her chants branches the syntax of conventional logical thought, conceiving truth not so much as the light-bringing dissolvent of uncertainty but as a material praxis that is inconceivable without it. Circulating on several planes at once, verses are immediately re-versed, and revelations instantly re-veiled: "O (thou) at length escaped the mighty perils of the sea! But worse remain on land... The Trojans shall come into the kingdoms of Lavinium, dismiss this anxiety from (thy) heart; but they will wish (that) they had not come."¹⁰

This zigzagging temperament unsettles definitive truths, yet not in pursuit of the breezy playfulness propelling the collage or the pastiche, but of a material engagement with the cosmos that still considers the spectrum. The Sibyl's talk holds *cosmological* valences: it is of a public vocation, irreducible to an individual's expressiveness to be contended in solipsistic terms. Aren't the Trojans indeed arriving in Lavinium? Aren't they indeed suffering defeats there? Despite being varied, according to her interlocutors, the Sibyl's verses are shareable: they turn with the universal, they "verse towards the one", they potentially participate in the reality of all things and events, yet without saying it all, without exhaustion. Lacunar yet exuberant, the Sibyl's talk integrates by remaining vulnerable; its inconclusiveness engages with the cosmos by sponging and oxygenating things, by foaming what is taken for granted, by calling for more imaginal worlds.

After silence seizes the conversation, "Aeneas advances casting down his eyes, leaving the cave, and he *turns over in mind* (with himself) the mysterious issues."¹¹ The Sibyl's *ecolic*, *conversational* and *cosmological* turns keep "turning over" in Aeneas' mind. They didn't begin with her chants, however: the Sibyl does not expose Aeneas to something allegedly veiled, an enigma requiring elucidation. Everything was there before the encounter: "No form of news rises before me, strange or unexpected, oh maiden," murmurs Aeneas. "I have anticipated all things and gone through (them) beforehand with myself in mind (in my mind)."¹² What, then, does the Sibyl facilitate?

I propose to conceive the Sibyl's engagement with truth not so much in terms of disclosure (*aletheia*) or correspondence (*adequatio*), but in terms of sensibility (*sensibilia*): the enlivening of more sensory registers regarding the ratios that articulate the cosmos'

10 Virgil, *Aeneid*, 262.

11 Virgil, *Aeneid*, (my emphasis)

12 Virgil, *Aeneid*, 264.

material contingency. *Involvens vera obscuris*, the cultivation of a *sensorium of the rational* that is not enriched—how could it ever be?—through sanitised statements, but through material involvement. It macerates in cycles and revolutions, in turns, in the *verses* that the Sibyl puts into eolic, conversational and cosmological circulation: in her voice's foliation through an ecology of winds; in her chants' conversational temper; in her engagement with the universal, with the cosmos' material contingency, with everything that can be considered, yet without saying it all, without exhaustion. Truth neither as untruth nor post-truth nor as the definitive elucidation of an enigma, but as the cultivation of uncharted sensibilities that are not acquired in one sitting; they begin at any point, skip, repeat themselves, go backwards, insist, branch in divergent yet kindred forms, get lost, turn, return.

Thinking of the Sibyl's engagement with truth and uncertainty as the cultivation of a *sensorium of the rational* is an invitation to conceive rationality as integral to nature. For Aeneas does not bring things into unheard-of proportions by projecting a given set of pre-established ratios on a cosmos allegedly void of them; how could a straightforward projection suffice if they are invoked by the Sibyl in the form of scattered pieces of time-space whose connections are not determined in advance? The Sibyl's chants require manual joining *bricolage*. They need the hands of others, the mediation of tactile values longing not so much for pasteurised descriptions duplicating the cosmos but for sensibilities getting in touch with its ratios. But then, if her verses remain slippery, if they find their voice, their articulation, by giving variations and working out pressures between them, it is perhaps not so much in light of a cynical playfulness irresponsibly celebrating riddle and enigma nor of a cognitive clumsiness threatening the representations of a definite and definitive reality. The sinuosity of the Sibyl's verses might perhaps be better read in this context as embodying the very fact that the multiple and overlapping sets of proportions articulating the cosmos involve the contingency of its materiality. In short: the probabilistic ambivalence of the Sibyl's *fatum* is not so much comic or epistemic but cosmic.

A "cosmic *fatum*"—destiny and fate, yes, but also bifurcation and instability, possibility. Could we conjugate its probabilistic ambivalence in feminist terms? More specifically: could the Sibyl's cosmic *fatum* help us think of more foliated notions of givenness in the context of today's feminist engagements with technology? And could it offer us more footholds from which to attend to what Donna Haraway considers to be the "philosophical challenge" of feminism: the quest for notions of subjectivity and objectivity that constitute each other without abandoning their own purpose? For, in consonance with Haraway's rejection of "Western productionism", the Sibyl's cosmos is not mediated by the "relations of reification and possession" characterising the "human nature" that Haraway leaves behind. It neither appears as "a matrix, resource or tool for the reproduction of man", nor

“mother, nurse”, nor “a treasure to fence in or bank, [...] an essence to be saved or violated”.¹³ Haraway’s claim that “nature is not hidden and so does not need to be unveiled” could be subscribed by Aeneas word for word when he affirms that there is nothing in the Sibyl’s chants that he has not “already anticipated”. Yet is this a two-way street? Could Aeneas’ claim be endorsed from Harawayan coordinates? This might certainly be a more laborious endeavour: doesn’t “anticipation” imply the very givenness of what is anticipated? And, if, troping on Simone de Beauvoir, Haraway’s nature “is made, as both fiction and fact”,¹⁴ if it is a “co-construction among humans and non humans”,¹⁵ isn’t it nonsense to cultivate notions of givenness in such Promethean lands? Contemporary allies of Haraway’s engagement with technology such as Rosi Braidotti, Beatriz Preciado or Xenofeminism explicitly endorse Haraway’s gesture by committing, albeit in different ways, to the claim that “nothing should be accepted as fixed, permanent, or ‘given.’”¹⁶

Yet, the givenness at work in the Sibyl’s *fata* is neither fixed nor permanent. For, if givenness, commonly associated with a univocal and thus oppressive nature to be eventually overcome through technical beings, is now connected to a cosmos whose materiality is unstable and thus inconclusive in itself, not only is there no archetypal way in which givens come to be given, but what is given is always bathed in ambivalence. It is precisely by virtue of this ambivalence that the Sibyl’s *involvens vera obscuris* does not catapult a naked truth to be later witnessed by Aeneas but grows a seed of truth with Aeneas’ life-world, a sensorium of the rational. Thus, in the Sibyl’s setup, the cosmos is not a construction in which organisms are made rather than born, nor is it anchored in one single form of expression waiting for a salvific being providing change through its technicality. Rather, it is determined in its indetermination, given in probabilistic and heteroclitic proportionalities that are hospitable to multiple forms of coexistence. But then, if Aeneas’ life-world participates in the latter’s cultivation rather than merely witness how givens come to be given, aren’t the Sibyl’s words invoking forms of objectivity always already enfolded with Aeneas’ intimate life-world? And, in turn, isn’t Aeneas’ subjectivity hardly maintainable in individual terms? Couldn’t there be space to deploy unheard-of lines of flight regarding Haraway’s quest for crisscrossing “the historical contingency of knowing subjects” and “the faithful accounts of real worlds”? And what biophilic articulations of the technical could such sibylline lines of flight enliven?

13 Donna Haraway, “The Promises of Monsters: A Regenerative Politics for Inappropriate Others”, in *Cultural Studies*, ed. Lawrence Grossberg, Cary Nelson, Paula Treichler (New York: Routledge, 1992), 65.

14 Haraway, “The Promises of Monsters,” 65.

15 Haraway, “The Promises of Monsters,” 66.

16 Laboria Cuboniks, “Xenofeminism: A Politics of Alienation,” in *Dea Ex Machina*, ed. Armen Avanessian and Helen Hester (Berlin: Merve, 2015).

2. A Fortuitous Carrier

"Another Achilles has been born in Latium, himself also goddess-born," utters the Sibyl addressing Aeneas again, "nor will Juno be wanting anywhere devoted against the Trojans when as a suppliant in needy crises, what races or what cities of Italy will thou not have entreated!"¹⁷ Who is "another Achilles"? What are Juno's intentions? Aeneas never calls for a more definite talk, one whose objectivity would operate as an ultimate court of appeal, for the Sibyl's chants are not supposed to be made the object of an individual subject's enlightening gaze. If their probabilistic ambivalence is not only a motor enlivening more sensibilities but, more generally, the cosmos' givenness at work, their objectivity can hardly take the form of an exhaustive and disembodied foundation to be later folklorised by individual subjects. If what is given is neither "this nor that" nor even something "between this and that", but a dense bouquet of material probabilities involving "both this and that", wouldn't it be possible to think of the Sybil's objectivity as engaging with the generosity of doubt (*habere duo*) in more enfleshed or even intimate manners? And, in turn, if the cosmos is integral to rationality, if its material inconclusiveness is inextricable—yet irreducible—to the atmospheres of proportionality in which it breathes, couldn't we think of it as suffused with an open or trans-individual subjectivity?

Objectivity, subjectivity; thinking of them as constituting each other without abandoning their own purpose is, in Haraway's words, feminism's philosophical challenge, an oxymoronic need for "a successor science project and the Postmodern insistence on irreducible difference and radical multiplicity of local knowledges."¹⁸ Since it is, of course, difficult to "climb when you are holding on to both ends of a pole,"¹⁹ Haraway switches metaphors and invokes another *imaginarium*: the multiple ways of embodying the sense of vision, offering footholds for thinking of *situated* knowledges where objectivity and subjectivity operate in more spectral terms. Aren't the Sibyl's chants sharing such an attention to locality? For aren't they emerging in conversation with Aeneas' local life-world? Yet, situatedness is here just a departure point: upon entering into a logic where bifurcations bush out around the Sibyl's talk, a space of possibilities widens around Aeneas' universe. One in which it is possible to turn over, where a plethora of paths flourish embodying as many choices: "do not thou give way to ills, but go against (them) the bolder by *whatever (way) thy fortune* shall allow," sings the Sibyl, and she continues, "the first path of safety which thou the least mayest think will be opened by a Grecian city."²⁰ The paths of fortune, the branches of the given. "Fortune", from the Latin *fors*, "chance",

17 Virgil, *Aeneid*, 262.

18 Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective", 575–599.

19 Haraway, "Situated Knowledges," 575–599.

20 Virgil, *Aeneid*, 263. (my emphasis)

connected to the PIE *bher-*, “carrying” or “bearing children”.²¹ Instability and destiny, but also fruitfulness, fertility, perhaps even *disfrute* or *fruïció*.²² Through the Sibyl’s chants, Virgil bathes the cosmos within a trans-individual reasoning, a distributed instance that tempers the given by bearing or “voicing” its ratios in probabilistic and inconclusive terms, in terms amalgamating both rationality and indetermination. But then, who or what utters such ratios? In other words: how to think of the fortuitous carrier that the Sibyl invokes? As an arboreal and multi-coloured rational propensity? As a diffused impetus? As an elementary breathing, perhaps? I propose to engage with these lines of thought by conceiving such a cosmic carrier as an uttering instance distributed across the given: a fortuitous subjectivity through which givens are given in public terms, that is, in terms of holding a rational spirit that certainly does not exhaust things, but that remains loquacious to everything and everybody, that addresses all what can be considered, yet without saying it all, without exhausting things. A public instance that, nonetheless, is ultimately empty of ego or identity, of being: all bodies and fleshs might talk to it, but none of them is or even identifies with it. How, otherwise, could it remain public and shareable?

The publicness of such a fortuitous subjectivity might perhaps be more vividly brought up by conceiving it in connection to the figure of the mask. In the theatres of Ancient Greece, masks were often conjured up not so much as veils that cover and hide but as interfaces that amplify: by channelling the actors’ voice through one single opening, masks increased the strength, the vibration, of the sound, making it easier for the public to hear. The Latin for mask, “*persona*,” is in this sense revealing: to sound or to be sounded, to sound through (*per sonare*). In its sonic amplification, the mask facilitates the perception of the actor’s fictional character by the audience. In other words: by tempering a persona or personality, the mask “sounds” in public terms the character that the actor embodies. The private goes into the public by becoming personal; it just needs “to be sounded.”

It is in analogy to this amplifying gesture that I propose to conceive the fortuitous subjectivity invoked by the Sibyl. For by “sounding” or engaging with the ratios that it carries, things, all material bodies at large, are invited to become active agents in the public arena, talking subjects reducible neither to ventriloquised derivations of a pre-existing unit nor to private voices composing it a posteriori. Just that this public tenor is also personal. Or even: it is public in virtue of being personal, that is, in virtue of vivifying a persona through the “sounding” of fortune’s subjectivity. Yet such a sonic

21 The semantic shift from “carrying or bearing a child” to “chance” is not obvious. As the linguist and Indo-Europeanist Michiel Arnaud Cor de Vann contends, the sense might be “that which is brought”.

22 The Spanish term “*disfrute*” and the Catalan term “*fruïció*” translate approximately into “to enjoy” in English.

interplay or personification does not occur in a vacuum or *in vitro*, but on stage, under the multi-coloured lights of those things that happen to lie in front of subjects: objects. And precisely because such objects are “thrown in front of” subjects rather than adrift in the open night sky, they have a saying regarding the sounding of fortune’s subjectivity: objects calibrate themselves in varying forms with the ratios uttered by the latter, which, in turn, can be opened up again by the unstable materiality of the corresponding subjects.

All bodies and fleshed might then behave as talking subjects in the public space by vivifying a persona, that is, by sounding fortune’s subjectivity in the interaction with the objects with which they happen to be involved. Their personality or subjective particularities are then not defined *a priori*, in a soliloquy, but to the sound of fortune’s subjectivity, that is, of the inconclusive and probabilistic ratios that it utters or carries. And it is true: such fortuitous soundings might be highly disturbing for the insurgent spirit. Doesn’t their pervasive nature risk entirely suffusing those beings that engage with it? Isn’t its promise to extend the latter’s voices across the public arena a subterfuge to ventriloquise them? Conceiving the sonic engagement with fortune’s subjectivity in connection to the figure of the mask might extend some lines of flight regarding these concerns. Such an engagement is certainly intelligible, conceptually treatable, but in its sonic tenor, it remains incomplete and lacunar, in motion, as if dancing between vanishing points. Isn’t the ephemeral presence and undulatory nature of sound inherently uncertain or unsettled in transit? Doesn’t its invisible mobility and distinguishability in synchrony favour the simultaneity of many voices reverberating in the gap between call and response? Sound invites us to a “quasi-medieval view of the relationship between reality and reason,” writes Salomé Voegelin, “where reality is not a visible status but an invisible zone within which perception passes through imagination and emotions and is touched by the possibility of phantasms, which deliver it not into trivial fiction, but into the power of creative desire and hope.”²³ Imagination and emotions, the touch of phantasms. The loss of anchorage in an univocal rationality does not fade but reemerges in the contingent plurality of the audible. Isn’t Aeneas’ subjectivity shifting on par with the cosmic ratios in whose ambivalence he moves in and out to the sound of the Sibyl’s chants? And doesn’t this motion take place by questioning its own obviousness, by both attending and departing from its situatedness, by actively not identifying with its own local or private life-world, with the articulations of its individual cogito? Subjectivity: a hydraulic course that ramifies here, that connects and converges there, that stops here and goes back elsewhere, that repeats itself here and there, that swirls in simultaneous and divergent countercurrents mixing everywhere.

Despite the Sybil’s chants blossoming in conversation with Aeneas’ local life-world, her verses remain shareable and public: they can be maintained beyond the individual subject

23 Salomé Voegelin, *The Political Possibility of Sound*, (London: Bloomsbury Academic, 2018), 62.

uttering them. After all, aren't they "turning with" the physical materiality of things and events? If, by sounding fortune's public subjectivity—which does not exist outside these very soundings—subjects participate in domains that must count as cosmic, trans-individual, by being enfolded with the private or local life-world of subjects, objectivity acquires intimacy. Rather than thinning out reality through distance and reduction, the objectivity of the Sibyl's verses keeps things rich by actively not comprehending—compressing—Aeneas' universe. Her words orchestrate forms of objectivity, enlivening a floral pitch-complex of resonating elements that remains lucid yet integrable into more than one single stability. For, in its ramifying inconclusiveness, the objectivity of the Sibyl's chants is impregnated—yet not constructed—by these very subjects; it appears as a cloud of sensorial probabilities that are engendered again and again, on the spot, in situ, together in difference with the contingency of uncertain subjects in motion.

By sounding fortune's subjectivity in their interaction with objects, subjects cultivate a public persona; by flowering in conversation with the subjects' local or private life-world, objectivity acquires intimacy. Subjectivity and publicness, intimacy and objectivity—isn't this criss-crossing gesture akin to Haraway's claim for interweaving "the historical contingency of knowing subjects" and "the faithful accounts of real worlds"? A claim that, in the fortuity of the Sibyl's setup, would perhaps be enlivened not so much in light of the Promethean call for changing the given but in pursuit of stimulating unheard-of forms of coexistence with the given and its probabilistic ambivalence. Where contemporary feminisms attending to Haraway's work often engage with Prometheism by privileging "the technical over the natural, the synthetic over the organic and the mediated over the immediate",²⁴ could the Sibyl's fortuity help us to deploy notions of technology that are more enfolded with the given cosmos? For, in its wish for "making the given" and thus "participat[ing] in the creation of the world without having to defer to a divine blueprint",²⁵ isn't Prometheism reinvigorating the culture–nature dualities that Haraway's claim for crisscrossing objectivity and subjectivity aims precisely to circumvent? By stealing fire and *techné* from the gods in order to endow humans with technical ability—with abstraction—Prometheus fosters narratives predicated upon the assumption that the technical is not borne on the body but external to it. Yet, if technical beings, as all material entities at large, are subjective agents cultivating their persona by sounding fortune's subjectivity, would it be possible to think about technicality in more biophilic terms by articulating it as material agency making things appropriate without appropriating them?

24 Helen Hester, "Promethean Labours and Domestic Realism" in *e-flux Architecture* (2017), accessed December 20, 2022, <https://www.e-flux.com/architecture/artificial-labor/140680/promethean-labors-and-domestic-realism/>

25 Ray Brassier, "Prometheism and its Critics" in *#Accelerate. The Accelerationist Reader*, ed. Robin Mackay, Armen Avanessian (London: Urbanomic, 2014), 485.

3. Getting in Tone: Gymnastics and Cosmetics

By thinking of appropriation in terms of adequation, have we made any progress? For a different question now comes to the forefront: what does it mean to adequate things? Or, more critically: when do things become adequate? *Adaequare*, “to equalise, to level with”. To synchronise, to bring things into proportion. Yet, how to think of it regarding the Sibyl’s set-up? Doesn’t her oracular gesture assume that things are always already in proportion? Couldn’t we even claim that, in their fortuity, things potentially participate in many proportionalities at once? If the probabilistic ambivalence of the Sibyl’s chants is not the result of a playful or clumsy representation of the cosmos, but the very cosmos at work, the ratios carried by fortune’s subjectivity are indeed multitudinous, arboreal: they do not flatten things down to a definite and definitive rational background, but rather underpin the possibility of bringing them into multiple stabilities. And getting in touch with unfamiliar or unknown stabilities is, as we have seen, the horizon towards which the Sibyl cultivates more sensibilities together with Aeneas’s local life-world. Yet, does her *involvens vera obscuris* suffice to bring things into adequate proportions, to render things appropriate? Her chants certainly deploy more lines of flight regarding the relations of proportionality with which one can potentially engage, but they do not carry out the engagement itself. For, wouldn’t this render things more appropriate at the cost of appropriating them? In other words: wouldn’t bringing things into proportion through a position that is exterior to those very things colonise the material agency with which things sound fortune’s subjectivity? It is rather *in medias res*, in the midst of the cosmos’ inconclusiveness, that Aeneas’ local life-world gets in sync with some of the atmospheres of proportionality enlivened together with the Sibyl, rational stabilities gaining more cosmic traction than others regarding the course of certain things and events.

A quest for synchronisation is thus a quest for cultivating some of the multiple proportionalities through which givens come to be given. Yet, this does not oppose the given to an allegedly non-given, for, *stricto sensu*, neither making nor change is at work here. If the cosmos’ ambivalence is given in a probabilistic millefeuille of rational stabilities void of archetypal coordinates regarding how givens come to be given, the sedimentation of certain stabilities does not abandon the given but tunes its strings to unheard-of scales. Couldn’t we then conceive technology as the subjective embodiment of these tuning processes? In other words, wouldn’t technology hold material agency by being integral to nature’s ambivalent givenness rather than contending it from the outside or in pursuit of an outside? Then, perhaps, we could articulate technology’s affiliation to nature not so much in terms of change or creation, but in terms of resonance and reverberation, in terms of syntonisation. To syntonise: to calibrate two or more circuits to the same frequency. More generally, to be jointly in tone (*syn-tonos*). In tone and in tune, in tension. What could it mean to think of technology as collective processes of toning up

always already enfleshed with nature and its rationality?

“The body *perd* or leaks like an old tapped cask,” writes Michel Serres. “We populate the world with tools in the form of a fist: sledges or hammers; of an elbow: levers or pulleys; of an eye: magnifying glasses or telescopes; then of a thousand combinations of functions become, outside, unrecognisable; we even measured them with *pouces*, *coudées* or *brasses* without ever wondering how these machines left our organisms.”²⁶ The body leaks. It transmutes its parts into technological objects that form a world evolving outside our bodies. In turn, the world tempers us: it presses on the bodies’ physical and cognitive performances, “hominising them in time”.²⁷ Bodies extend into the cosmos; the cosmos deeply affects bodies. Aren’t we enlivening, albeit from different coordinates, André Leroi-Gourhan and Yuk Hui’s consideration that, as a general human activity, technics can be understood “as the exteriorization of organs and memory and the interiorization of prostheses”?²⁸

Spinning over and over again in a whirling dance requiring dexterity and skill, body and cosmos tune up together in search of more stabilities. Instead of being invoked to change or make one another—as though they originally belonged to disparate realms only to be affiliated later—technology syntonises them into more frequencies by propelling a ceaseless loop that feeds back into itself, not by unbinding our rationality from nature, from the given, but by circulating across the probabilistic ambivalence of nature’s givenness and its rationality. Being-with rather than being-as, the momentary attunement of tempos and rhythms, of resonances, of varying pulsations, but also tenacity and discipline, dedication, the need for cultivating certain masteries, a sense of finesse. Aren’t we circling around the very notion of gymnastics? For doesn’t gymnastics consist precisely in toning up bodies by *training* them, by enlivening certain proportionalities transitorily considered to be more appropriate than others in terms of the cosmos’ inhabitation? “Nothing can withstand training,” Serres tells us again. “I continually place my body before the unknown; suddenly, it shows itself; it lets itself be known. Therefore training invents.”²⁹ *Inventionem*, to get close, to let something come near. Training behaves not so much as the creation of something new regarding the given but as an intervention taking the form of an *inter-invention*: the collective enlivening of stabilities that are unknown or unfamiliar yet always already interwoven with the given’s probabilistic fabric.

Thinking of technology in terms of gymnastics is an invitation to conceive it not only as facilitating more manners of syntonising body and cosmos by way of training a set of skills

26 Michel Serres, *Hominescence*, trans. Randolph Burks (London: Bloomsbury Academic, 2019), 187.

27 Serres, *Hominescence*, 187.

28 Yuk Hui, *The Question Concerning Technology in China* (London: Urbanomic, 2016), 10.

29 Hui, *The Question Concerning Technology in China*, 31.

but also as endowed with material agency by sounding fortune's general subjectivity. Yet, conjuring up the notion of gymnastics in the context of technology brings forth the notion of abstraction. For, despite attending different purposes in light of different horizons, technical objects, similarly to the training of bodily skills, can perform in any corner of the globe: their abstract technicality works regardless of the cultural set-up in which it is activated. If we think of it through the etymology of the term "gymnastics", the "training of the *naked* body", couldn't we conceive the universality of technical apparatuses in terms of nudity? Nudity not so much in terms of Christianity's paradisiacal nudity—nudity always already intertwined with grace—but as the carnal biological functioning of the body, of the Greek *gymnos*, of what is collectively or individually trained in gymnastics. Yet, is nudity ever possible if conceived as the definitive exposure of an allegedly primordial flesh? "Inasmuch as [nudity] is the obscure presupposition of the addition of a piece of clothing or the sudden result of its removal—an unexpected gift or an unexpected loss—nudity belongs to *time and history*, not to being and form."³⁰ If, with Giorgio Agamben, we think of nudity not in relation to an original state, to a form or a stable possession, but as an "event that never reaches its completed form, as a form that does not allow itself to be entirely seized as it occurs, [then] nudity is, literally, infinite: it never stops occurring."³¹ Perhaps then, in light of the *gymnos* of gymnastics, technology's technicality can be thought of as always already interwoven or garnished with "time and history," like the nudity of a naked dancer, for example, is inevitably "covered" by a plethora of gestures. Gymnastics thus invites us to conjugate technical objects in terms of syntonisation by attending to the abstraction of their technicality as the training of the naked body, but it also indicates, in the unattainability of nudity as a definitive state, that something else is at work. The impossibility of attending nudity in its absolute flesh is the impossibility of attending the technical in its absolute abstraction, of stripping it from the materiality of "time and history".

Throughout his discussion of the relations between body and *techné* in the *Gorgias*, Plato distinguishes the notion of gymnastics from that of cosmetics. After differentiating *techné* from a knack, which "can give no rational explanation for the thing it is catering for, nor of the things it is providing,"³² he differentiates those *technai* concerning political life from those concerning bodily life. He further divides them into those dealing with maintenance—legislation and gymnastics—and those dealing with curing—justice and medicine. Then, Plato matches each one with a "false counterpart." What does this imply? Commonly, the "falseness" of these counterparts has been associated with the Platonic distinction between appearance and reality. In the case of gymnastics, the false counterpart would be cosmetics: while gymnastics is the body's healthy maintenance,

30 Giorgio Agamben, *Nudities* (Stanford: Stanford University Press, 2011), 65. (my emphasis)

31 Agamben, *Nudities*, 65.

32 Plato. *Gorgias*, trans. Tom Griffith (Cambridge: Cambridge University Press, 2010), 465a.

cosmetics *appears to be* the body's healthy maintenance. However, the rhetorical theorist Robin Reames proposes another interpretation. By associating the Greek term *kommôtikê* with *kommi*, an Egyptian term referring to exotic gums and unguents, rather than with the Greek *komaô*, which refers to hair care and self-adornment, Reames contends that Plato's differentiation between gymnastics and cosmetics is not so much a distinction between seeming and being, but "a distinction between foreign profligacy and domestic austerity."³³

Reames' unorthodox reading of Plato's articulation of gymnastics and cosmetics in the context of *technê* might help us set in motion what in gymnastics remains merely insinuated. For, while in its attention to the "training of the naked body," gymnastics accentuates the abstraction at work in technology by attending to the "decorum" of the technical in terms of extroversion rather than of falseness, cosmetics addresses the concreteness of technology's social space. Technology's enlivening of more ways of being "jointly in tone," of making things appropriate without appropriating them, might then be not just a matter of gymnastic training but also of cosmetic fashioning; cosmetics as the staging of technical objects, as the scenario where technicality incarnates its "time and history," its socio-political articulation, but also as the plot or storyline performing its abstraction in light of a talk and a narrative, of a cosmology. The Greek *kosmetike*, "the art of beautifying, of anointing or embellishing the human body," of toning it up, of bringing forth a decorum that, nevertheless, exists in virtue of bearing a sense of order however camouflaged might it appear. Isn't *kosmetike* derived from *kósmos*, "to order or dispose"? The structure of celestial motion, the allure of the cosmos. Order and decorum. Cosmetics, extroversion and public concreteness, the cultivation of a socio-political materiality that, however, is predicated on a sense of order that remains implicit, insinuated.

Yet thinking of technical beings as tuning the strings of the given to more scales does not convoke gymnastics and cosmetics as two autonomous modes of syntonisation that would be at work simultaneously or alternatively. Rather, they contain each other *in nuce* through what perhaps we could best characterise as a *double-crossed duplication*: gymnastics accommodates the abstraction of the technical by *training* the body in its nudity; yet, in the impossibility of nakedness as such, it also signals the impossibility of stripping the technical from "time and history," from its decorum. In turn, cosmetics accommodates the decorum of the technical by *fashioning* the body with respect to a cosmological stage; yet, in the impossibility of performing such a stage without gripping onto a more general sense of order, it signals the impossibility of stripping the technical from abstraction. Gymnastics and cosmetics: a chiasmatic motion through which each

33 Robin Reames, *Seeming and Being in Plato's Rhetorical Theory* (Chicago: University of Chicago Press, 2018), 23.

gains traction from the other by crisscrossing their diverging temper in manners that are diffractively specular. Couldn't we think of this circulative motion, of this double-crossed duplication, as the spiralling mechanics through which technology's syntonisation takes place? In other words, isn't technology "getting things jointly in tone" by involving their subjective agency in the circulative motion that the braided activity of gymnastic training and cosmetic fashioning propels? For then perhaps it is through this chiasmatic motion that technology, when articulated in terms of syntonisation, might be considered as *native* to the cosmos, as belonging to the nature of the universe; for if there is something here connected to our initial interest—namely to think of the technical in biophilic terms by engaging with Haraway's philosophical quest from sibylline coordinates, then to the degree that, in pursuit of syntonizing things into more frequencies, gymnastic training and cosmetic fashioning limit each other by flourishing from each other, technology might be read more as an exciter than as an alienator: it fluctuates the equilibrium or the energetic distribution of the given, stimulating it, irritating it, inflaming it. But then, its emancipatory potential perhaps does not reside in the promise for a heroic transgression of natural borders but in the subtle navigation across its liminality, whose foliated consistency is irreducible to a single indivisible line; as a Harlequin's cloak mosaic, it rather takes the form of a colourful and repeatedly folded frontier, one expanding and stretching without tearing, one that is void of a single opposing side, one whose hues and motif can be attended to in many more ways than we could possibly imagine.

Coda

The lines of thought that I aimed to point out in my appreciations here might perhaps evoke a certain pessimism regarding the emancipatory prospects of technology. If, in its syntonising vocation, in its gymnastic training and cosmetic fashioning, the technical is not meant to change or make the given, but to "tune its strings into more scales", aren't we risking the reduction of technology's field of action to a palliative role? If, by sounding a fortuitous mode of subjectivity, technical beings hold subjective agency and thus are always already enfolded with nature and its rationality, how can we even consider getting closer to what some strands of feminism have recently defined as "technology's ultimate cultural goal: the building of the ideal in the real world"³⁴? Yet if the Sibyl's setup is relevant in this context, it is precisely because, in the probabilistic ambivalence with which it considers the cosmos and its fortuity, it assumes that the present constitution of the cosmos' fabric is not univocal but always already foliated, branched into numerous facets. Multiplicity is not something that technical objects bring to nature as a gift or a promise, but it belongs to the very fabric of nature itself. Does this mean that the "ideal," albeit

34 Helen Hester, "Promethean Labours and Domestic Realism."

in an embryonic state, is always already inscribed in the “real world”? For then, Franco “Bifo” Berardi’s notion of “futurability” might be helpful to think of the emancipatory role of technology in this context. Futurability: “the multiplicity of imminent possible futures: becoming other which is already inscribed in the present”.³⁵ A present reality thus contains the future as a wide range of possibilities that technology might help activate in the form of a tendency, “a sort of premonition, a vibrational movement of particles that are taken in a uncertain process of continuous recombination”³⁶.

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35 Franco “Bifo” Berardi, *Futurability* (London: Verso, 2017), 12.

36 Berardi, *Futurability*, 13.

Irigaray's Two and Plato's Indefinite Dyad: The Space of Thinking

Danielle A. Layne

The nostalgia of the one has always supplanted desire between two. This nostalgia takes different paths. It can aspire to fusion: with nature, with a divine figure, with the energy of the other, others. At times, it corresponds to the self-love of Narcissus. Often, it is equivalent to the desire to be or to possess the whole. To remain between two requires the renunciation of this sort of unity: fusional, regressive, autistic, narcissistic. To abide between two is to accept the fact that the whole can never be reached either through progression or regression, annihilation or possession.

Irigaray, *To Be Two* (trs. Rhodes and Cocito-Monoc)

Aristotle was wont to relate that most of those who heard Plato's Discourse *On the Good* had the following experience. Each came thinking he would be told something about one of the recognized human goods, such as Wealth, Health or Strength, or, in sum, some marvelous Happiness. But when it appeared that Plato was to talk on Mathematics and Number and Geometry and Astronomy, leading up to the statement there exists a Good, a One, they were overwhelmed by the paradox of the whole matter. Some then thought little of the whole thing and others pooh-poohed it.

Aristoxenus, *The Elements of History II* (tr. Findlay)

"Failure"...not a word upon which we often think when we contemplate the life of Plato. Yet, in his infamous lecture, *On the Good*, where he gathered together individuals attuned to practical goods and yet proceeded to do a little math, he failed to seduce his auditors. They remained aloof to the point, settled by a conception of the Good as a *thing* to be embodied in applied sciences like economics, medicine or, at the very least, something productive of power. For most, the Good should be obtainable and graspable, not something transcendent and idle like the intellectual and heady idea of unity or the One. Even without the math, Plato's attempt to think the One *with others*, to dialogue and communicate, on the face of things, turned out to be a pathetic endeavour; the mad ravings of a solipsistic philosopher out of step with concrete lived experience.

In tune with this criticism of Plato's One, French feminist philosopher and psychoanalyst, Luce Irigaray, in texts like *I love to you* and *To be Two* asserts the priority of the concrete Two. Thinking not of abstract metaphysical or mathematical origins but the natural genesis of the human being, Irigaray focuses her thought on the fleshy Two embodied in human natality:

[Man] has imagined that spiritual becoming can be realized on the basis of one and not two, even genealogically. In this perspective, we might indeed be going towards one but we do not come from one: we are engendered by two and Man as a man is born of another. From the time he is born he is thus in relation with another [...].¹

For Irigaray, life fundamentally begins in relation—a relation that, if properly respected, can enrich what it means to be with others, a dynamic communal project of truly productive others, irreducible to the pursuit of or desire for wholeness or sameness. In other words, for Irigaray, philosophies like Plato's fail because his obsession with the One ignores the real need to hold space for difference, something other (Two) that constitutes genuine reproduction, i.e., a third. Said differently, if the One is thought to be the goal of all things, Plato's mathematics would be incoherent. $1 + 2$ would become $1 + 1$, i.e., simply unit affixed to unit, and, further, that $1 + 1$ would not produce 2 but another 1, but another unit, as any sum is just another whole. If all addition, all striving, equals 1, all things are the same and, as such, there is no real relation, no concrete productive good. Like Plato's auditors, Irigaray would likely, have "pooh-poohed" the *whole* thing, i.e., the thing that is a whole—be it the desire for the One or his seemingly abstract discussion of number.

Nonetheless, the discussion of number, geometry and astronomy in Plato's lecture should give readers pause, particularly when reports indicate that these sciences were derivative from Plato's other protological principle—the indefinite Dyad or the principle of the great and small.² As Sextus Empiricus reports on Platonic mathematics, which extends to the production of corporeal reality, i.e., to the astronomy consequent upon the arithmetic and geometry reported in Plato's lecture:

[The Platonist] generated Numbers from two Principles, the One and the indefinite Dyad, and from Numbers Points, Lines, Surfaces and Solids. These later thinkers build up all from one Point from which a Line arises, from the Line a Surface, from the Surface a Body. Except on this view, Solid Bodies are constructed under

1 Luce Irigaray, *I Love to You*, trans. by Alison Murphey (Taylor and Francis, 1996): 39–40.

2 see *Metaph.* 1091a25, *EE* 1218a, *Aristox.*, *Harm*, II, 30–1, Kramer, *Plato and the Foundations of Metaphysics*, 86, Szlezak, "The Idea of the Good as Arkhe in Plato's Republic," 131, Findlay, *Plato: The Written and Unwritten Doctrines*, 62, 74–75.

the hegemony of Numbers. And from them lastly sensible things arise, Earth and Water and Air and Fire, and the Cosmos as a whole. The Cosmos, they say, is arranged in harmony, again following upon Numbers, whose Ratios are the concords which introduce perfect harmony, the Fourth and the Fifth and the Octave, the first being a Ratio of $4/3$, the second of $3/2$, the last of $2/1$.³

In other words, contrary to popular opinion and according to the commentary tradition beginning with Aristotle,⁴ for Plato there are *Two* principles, not one (or, at least, the principle is *Two* rather than one): One *and* Indefinite Dyad or, simply put, a kind of *Two*. Furthermore, the indefinite Dyad does not appear to be a mere privation of the One, i.e., something derivative of the One. Indeed, as shall be made clear, it will be the contention of this paper that once the role of the indefinite Dyad is taken seriously as co-constitutive and productive of all things, like Irigaray's conception of the *Two*, Plato's own failure becomes a living embodiment of what Irigaray calls the *thought* that thinks the *Two* or, in Plato's case, the Dyad. Such a *Two*—such relation—entails for Irigaray, an authentic desire expressed by her through a rethinking of the phrase “I love you” and transforming it into “I love *to* you.” The former focuses on the state of being (of a seemingly unitary subject) while the latter highlights the movement and space between (subjects derivative of said movement), making love less of a thing and more an ambiguous *site*, i.e., a *space* for doubt/negation, which allows for relation between *Two*, as tension demands working to understand and think said relation. As she writes:

[I] love *to* you and, in this “to,” provide space for thought, for thought of you, of me, of us, of what brings us together and distances us, of the distance that

3 Sext. Emp., *Math*, X 270-283. (tr. Findlay)

4 The following paper will not throw itself into the debates concerning the historical reality of whether the unwritten doctrines (ἀγράφα δόγματα), as Aristotle describes them (*Phys.* 209b15), were truly held by Plato nor will it do the work of unpacking how the unwritten doctrines can be found in Plato's dialogues. Rather, it will proceed to examine, for the sake of time, the implications of taking seriously the Dyad as a co-constitutive cause alongside the One. See Sayre (1983 and 2011) for research that attempts to unpack how the unwritten doctrines may be found in the dialogues without being explicitly named and for my own attempt to show how the Dyad and its equality/strength of power to the One show up in dialogues like the *Timaeus*, *Symposium* and the *Republic*. See For my own contribution to the literature, see: Danielle Layne “The Indefinite Dyad and the Equality of the Male and Female Ruling Principles,” in *Soul Matters: Essays in honor of J. Finamore*, eds. Layne, D., Ahbel-Rappe, S., and Addey, C. (Atlanta: Society for Biblical Literature Publishing, 2023). See Cherniss, *The Riddle of the Early Academy*, for the classical criticisms of those who advocate for the unwritten doctrines. See Kramer, *Plato and the Foundations of Metaphysics*, Szlezak, “The Idea of the Good as Arkhe in Plato's *Republic*,” Halfwassen, *Der Aufstieg zum Einen: Untersuchungen zu Platon und Plotin* and “Monism and Dualism in Plato's Doctrine of the Principles” in *The Other Plato: The Tubingen Interpretation of Plato's Inner-Academic Teachings* and Findlay, *Plato: The Written and Unwritten Doctrines* and *Plato and Platonism* for proponents of the unwritten doctrines.

enables us to become, of the spacing necessary for coming together, of the transubstantiation of energy, of the oeuvre.⁵

Love is here highlighted as an activity of thought that allows for ceaseless transformation, for the composition and oeuvre of ever-shifting and organic complex conversations and realities. This is a form of thinking that will fail to make all things One, but this failure or tension/negation/confusion stimulates the movement between, creating the site/space for love toward the Two (moving asymptotically with the desperate hope of *connection* between Two rather than *consumption* into One). One might then say that in failing to make things One, it thereby succeeds in unmaking *things*. Likewise, as shall be argued, Plato's Dyad is productive of *thought* and, moreover, a *thought* that does not produce or reproduce sameness. In other words, the following hopes to bring Plato's Dyad into proximity with Irigaray's Two so as to show how Plato, too, demanded his auditors move toward the One, which is not One (a kind of Two), creating or acknowledging the space between *things*, the space of the Dyad. In this Dyadic space, we will find a movement that actually adds up to a $2 + 1$ that equals 3 or another other. This fecund offspring is, as in Irigaray, like and unlike the original terms, but in its unlikeness, its failure to be 1, it possesses its own productive and destructive power *to love toward* the One/Good that is not One. Finally, it should be highlighted that Irigaray's conception of the Two has dramatic social implications for her as a feminist, grounding a transformation of our politics focused on women's equality (whereby equality is based on the myth of the One). Due to this political import, the final section will shift to questioning whether Plato's reported protological principles, the One and the indefinite Dyad, could do similar work.

I. The Two which becomes One

Outside of specialist discourses, mention of Plato's unwritten doctrines⁶ often leads to furled brows and blank stares. For centuries the dominant entry into Plato's thought was, of course, the dialogues themselves, all yielding a seemingly infinite variety of schools and interpretations and therein testifying to the dialogues' power to inspire centuries of philosophical inquiry. Nonetheless, as many ancient commentators augment, Plato had an esoteric teaching he refused to put in writing or, more accurately, to put definitively in writing. The unwritten doctrines, reflected in quotes like the one above, reportedly followed from Plato's attempt to establish the absolute causes of all existents, be it mathematical, intelligible, psychic, or sensible reality. In short, the One and the indefinite Dyad were reportedly the Platonic principles which were themselves *beyond being* as the

⁵ Irigaray, *I Love to You*, 149.

⁶ See n.3.

ground of being. A perplexing theory on its face, but one that nonetheless held sway in Platonic circles directly after Plato's death and survived until the present age (albeit its contemporary iteration is less dominant than it was in antiquity) and, so, it is rather odd that in juxtaposition to the dizzying variety of interpretations we encounter with the dialogues, the reception of Plato's protological principles has been more uniform. Particularly for the purposes of this paper, commentary and scholarship on the unwritten doctrines have unfortunately tended to focus on the "superiority" of the One. For most, the One is the principle of determination or limit, and as such, it grounds virtue and the good, while the Dyad is often regarded as the impotent indeterminate principle responsible for the precarity of existence. Indeed, many prominent scholars of the unwritten doctrines, insist on the asymmetry of the One and the indefinite Dyad. For instance, D. Nikulin argues "the one does not excel or transcend the dyad in its function. And yet, the one and the dyad are not altogether symmetrical or equal in their effect," while for J. Halfwassen the Dyad is dependent on the One insofar as it is derivative of the One, implying, for him, that it cannot exist without the One.⁷

This dismissal of the Dyad has a longstanding history, beginning with Aristotle, who, nonetheless, preserves in his own criticism the weight Plato actually gave to the power of the Dyad. Decrying as absurd the power of "matter," Aristotle argues against such productivity on the basis of his own image of concrete sexual generation:

For the Platonists make many things out of their single matter, and the *eidos* generates once only, but evidently one table is made out of one lot of matter, while the man who imposes the *eidos* on matter makes many tables. The same holds in the case of male and female. For the female is fecundated in a single connection, while the male fecundates many females.⁸

Here, Aristotle has concentrated the activity of the One to the principle that establishes Form, while the indefinite Dyad is the *mere* material cause. Yet, in this argument against Plato's material cause, i.e., against the Dyad, Aristotle hopes to render absurd Plato's arguments that the Dyad's function or power results in infinite generation while the One has but a single act. Aristotle's appeal to the fecundity of men in relation to women (or the limit of corporeal material) neglects to actually analyse this fecund Dyad insofar as Aristotle continuously identifies it with his own (i.e., the Aristotelian) conception of matter as a passive receptacle lying in wait for determinative form.

Acutely focusing on lambasting Plato's Dyad by identifying it with matter thought of as

⁷ See Halfwassen *Der Aufstieg zum Einen: Untersuchungen zu Platon und Plotin*, 10-11 and Nikulin, *The Other Plato: The Tübingen Interpretation of Plato's Inner-Academic Teachings*, 21.

⁸ *Metaph.*, 988a, (tr. Findlay).

Aristotelian receptacle, as nothing but a placeholder for potential predication, Aristotle ultimately reveals in his inability to accept a fecund Dyad that Plato's principle is not akin to his own. Plato's Dyad is decidedly not passive stuff, and this is what Aristotle finds absurd. Rather, as he indicates, Plato's Dyad is the participating principle that conditions the activities of spacing and placing:

For this reason Plato identified matter and space in the *Timaeus*. For the *participating principle* and space were one and the same. He talked in a different manner regarding the participating principle in the so-called unwritten doctrines, but none the less identified place and space.⁹

In other words, Plato associated the indefinite Dyad with a kind of underlying power (ὑποκείμενον) to grasp or take hold (μεταληπτικός) or participate (μεθεκτικός) in/with its other, the One, becoming what Aristotle refers to as the all-containing element. Aristotle's inability to accept this conception of the opposing principle to the One is recorded when discussing the Dyad as the principle of the Great and Small:

If the Great and Small is the all-containing element in the case of sensible things, it should also be all-containing in the case of intelligible things. But it is bizarre and impossible that what is unknowable and indefinite should contain and bound things.¹⁰

In other words, even for Aristotle, Plato's indefinite Dyad cannot be reduced to sensible materiality. Rather, as principle for both intelligible and sensible realities including the material condition for number itself, the Dyad—like the Good—is no-thing. Rather, as shall be clarified, Dyadic “matter” or *space* arises, i.e., it is *emergent*, from its indefinite as well as definite *relation* with the One. The indefinite Dyad, in contrast to the One, is not the privation of the One. Rather it is the paradoxical space emergent from the Dyadic activity whereby the Dyad is, as Sextus Empiricus records, *relation itself* constituted by the Dyad's actual difference and opposition to the One. As the *force* or power of difference, opposition, and relation (τὰ μὲν κατὰ διαφορὰν νοεῖται, τὰ δὲ κατ' ἐναντίωσιν, τὰ δὲ πρὸς τι) the Dyad is not a “being” relative to the One. Rather, as the dynamism of relation, of participation, the Dyad exhibits an inexplicable or paradoxical ability to relate to “its” unrelating Other, the One, in such a way that it does so without transgressing the One's otherness to the Dyad—the One's aloneness, its absolute separation. In short, between the One and the indefinite Dyad, there is a fundamental tension of opposites caused by the *activity*, rather than passivity, of the Dyad. Yet, this opposition cannot then be, as most

9 *Ph.* 209b11–17, (tr. Findlay).

10 *Ph.* 207a, (tr. Findlay).

commentators have assumed, an opposition where the One is clearly superior to the Dyad. Rather the One *does nothing* besides be itself—as Aristotle ridiculed above, it acts only once—all other activity, including all the various levels of thought and forms of life, arise from the Dyadic space between the One and the Dyad itself, the participatory/connecting principle.

Furthermore, as dyadic, the Dyad's activity is itself dyadic insofar as it is simultaneously moving infinitely toward its other, the One, but also away from it. The Dyad is both receptive or in relation to its other, like the One, but also that which rejects being One. The One does not relate, and so the Dyad must necessarily fail to fully grasp the One or become absolutely One: it cannot consume the One, the Dyad respects, so to speak, the One's aloneness. Due to this seeming failure or weakness via not becoming the Absolute One, the Dyad as relation *ipso facto* internalises the One—possessing the capacity to touch or grasp the unrelated One as the measure or principle of limit within the unlimited space of the Dyad. This activity of the Dyad therein establishes the first number—two—the definite Dyad within the indefinite.¹¹ To be clear, this limit or measure, the principle that conditions intelligibility, form, and concrete self-existents, is not the One in itself. Rather, the existence of these categories arises from the participating principle's receptive capacity to grasp and internalise, paradoxically, the One without tainting the One of its simplicity. The One is properly unrelated so that the Dyad does not “take-hold” of the One *qua* the One itself but *internalises* it, reproducing “ones” that are “not One” but always a combination of being (ones) and relations (dyadic activities). In other words, all things that come to be, whether number, form, or particulars, are in fact two. In short, as Irigaray desires, all ones are two for Plato, a two that desires or relates to the one, but strikingly also to the itself *qua* indefinite Dyad because the ground for all forms of intellection and perception is the dyadic movement between self and other that can, when aware of its other, find itself in relation to infinitely many horizons of possibility. Interestingly, Aristotle records how intellectual activities correspond to the Dyad's production of magnitude via movement toward and away from the One. As he recounts, the Dyad produces “first Length, Breadth and Depth”, which correspondences to 1) knowledge since “it proceeds in a single line to one point,” 2) opinion since it deals with the “surface,” and 3) sensation since sensation requires body.¹² In short, the beautiful implication of this identification highlights how the body itself is the space or place for the activities/powers of the human soul which resemble the Dyad's own power of relation. In other words, the soul in sensing, opining, knowing resembles the Dyad in its reaching infinitely toward and away from its other and in so doing manifests creative power. So, like the Dyad, individual souls always relate to the other, creating tension/confusion/negation allowing our thoughts, beliefs and

11 *Metaph.* 987b.

12 *De an.* 404b., see also *Metaph.* 1085a.

feelings to birth something new – something both like the One and the Dyad, new realities possessing dyadic transformative power.

In sum, the Dyad is not equal to the One because it is not comparable to it as a moving, fluctuating space of infinite relation. As the indeterminate participating power the Dyad is both/and and neither/nor, which thinks not sameness, not one without the other, but difference itself in its beautiful failure to be “equal” to the One. Yet, in point of fact, the Dyad is greater and smaller than the One, more and less than the One. As such, in this failure or weakness we see the Dyad’s dynamism to move and transform, a power that all things evidence even in their independence, separation and being. In short, from first to last all things infinitely strive or move toward the One but also, via love, away from the One, loving like the Dyad, the transcendence of the other, creating the space for all thought that can never consume or fully grasp its other. This failure bespeaks the infinite and powerful creativity of the philosophical life.

II. Irigaray’s Politics of the Two

For Irigaray, identity must always be held in check by the limit of the Two that is not derivative of the One. Under her purview, the Two which is derivative supports a normative dualism whereby the One *appears* better or superior than the copy, the bastard image. Likewise, if we conceive of Plato’s Dyad as the negation of the One, it would not itself be an active power, i.e. a real principle. If it were derivative of the One, it too would be like the One and therein would not move towards its other – it, indeed, would be passive. As Irigaray writes of the Two conceived as the negation of the One,

And if this dimension is discussed, it is treated in the passive-active, or agent-object mode, a method that still does not deal with the interactions between two free subjects. Which gives rise to this paradox in our thought: it leaves passion solitary. Is it surprising if our reason is content with a single subject? It goes round in circles in its auto-affection, all else being related, assimilated to it.¹³

For Irigaray the failure to acknowledge the power of the Two empties reason of authentic relation. As she writes, “The horizon of understanding we have debars us from that thought. We discuss, we reason, but we do not think. We finish back at square one, having produced natural and spiritual entropy along the way.”¹⁴ This *unthinking* thought of the One ultimately leads to a God estranged from what constitutes itself, i.e., relative being, relational being, dyadic being. Ultimately, for Irigaray, this leaves the embodied and

¹³ Irigaray, *I Love to You*, 37.

¹⁴ Irigaray, *I Love to You*, 36–37.

sensible “unthought” which “endlessly taints reason with dogmatism, with madness and prevents it from realising itself as the *measure* of the spirit.”¹⁵

To be clear, Irigaray's project is not a project of equality—that would be the artifice of careless reason bent on reducing wisdom to sameness, to unity. So rather than living the tension existing between negations, most individuals submit to egalitarian politics, which estranges them from each other, reducing individuals to an unshared and non-existent humanity—to the aloneness of the One. What is left but “conform to an idea of what it is to be human, of what the human being is.”¹⁶ Of course, this is part of Irigaray's feminist agenda. With a politics of Two, like with the Dyadic space of Plato where infinite new identities and relations emerge, for Irigaray, a politics of the Two substantiates new discourses and communities that may not reproduce, that fails to reproduce, antagonistic dualisms wherein only one side matters—rather, like the Dyad, such a politics would note tensions constituting real thought and corresponding lives of productive and ceaseless growth. For Irigaray, such relations conscious of productive Twoness cannot be subdued or consumed but only measured. Like the Dyad, which receives, and takes hold of its other, the limit, the Two can only be *thought* of in its complexity, its relation, which in itself should not be simplified into a whole. Reason, instead of fleeing such an economy of complexity, must attune itself to its capacity to *relate* and participate (to use Platonic language) via both living but also genuinely thinking the other, their independence but also the *space* of a connection that does not reduce all things to the same. In short, for Irigaray, like Plato's conception of reason/intellect that reflects the Dyad's creative power of relation, *thought* would and should allow for the emergence of new spaces of relation between the seemingly powerful and great with what we often regard as weak or less than. When the Two or the Dyad becomes the One,

...so-called passivity would not then be part of an active/passive pair of opposites but would signify a different economy, a different relation to nature and to the self that would amount to attentiveness and to fidelity rather than passivity. A matter, therefore, not of pure receptivity but of a movement of growth that never ultimately estranges itself from corporeal existence in a natural milieu. In which case, becoming is not cut off from life or its placing. It is not extrapolated from the living nor founded in a deadly character. It remains attentive to growth: physiological, spiritual, relational. In this way it masters nothing in a definitive fashion, and reason is no more than a measure, not an appropriation.¹⁷

Undone by the ideology of mastery, the *thought* that *thinks* the Two, or in Plato's case, the

15 Irigaray, *I Love to You*, 37.

16 Irigaray, *I Love to You*, 38.

17 Irigaray, *I Love to You*, 38–39.

Dyad would then express a different spiritual game altogether, one liberated from the demand for empty equality. Since the political game of equality confines each individual to their sameness, this counter-world of unequal differences means that subjects can be more or less, weaker and stronger, many and one and, as such, there are real relations and possibilities for “exchange with no pre-constituted object—vital exchange, cultural exchange, of words, gestures, etc., an exchange thus able to communicate at times, to commune (...).”¹⁸In short, Irigaray rather ironically juxtapositions two models of thought based on the One and the Two. The first, which seeks unity as the original, demands historical and essential dependency—a dependency which is operative and oppressive for both terms insofar as it stifles duality and relation for each set. Everything is always ever alone, in this sense, very much like the classical conception of the One. Further, said principle of thought would not communicate or listen to the other *qua* other, but, rather if such a One listens, it eradicates communion by only hearing shared sameness, equality as if there were really such a thing. The second model, for Irigaray, “offers itself as an opening to a field of communication, as a world of the creation and exchange of thought and culture” where stability is not sought. Rather, the Two offers a “groundless ground of communication, the creative and generative locus, which is natural and spiritual, passive and active at the same time.”¹⁹ Irigaray thus concludes that identity must include the *we* of nature, the Two that constitutes the good of inequality, as such inequality makes it possible that the other bears within, like the Dyad, something unique and beautiful, a divine one which is not the One. As a one that is not One, this concrete something can, like the Dyad, move toward its other or away, living in tension with itself, failing fully to grasp the other and in such breakdowns/divisions, finds itself compelled to create anew in thought and in flesh. For Irigaray, such a valorisation of difference would require a social order that is not characterised by “...the form of one plus one plus one, a sort of undifferentiated magma under the monarchical or oligarchic authority (even in supposedly democratic systems)”²⁰ but something that sounds much more like the activity of Plato’s Dyad, the principle that grounds life always ever philosophising much like Socrates via admitting doubt and ignorance. The life that does not hope to consume others, to make everyone the same, or even to profess the same thoughts, beliefs, or like the Dyad, fail to be One and as such can only relate or participate in what Irigaray deems a kind of touching of the other, the activity of the one which is Two. As Irigaray eloquently, dare one even say Platonically, argues:

This touching upon does not take place without a syntax constituting or bringing about the relation with the other. It is a grammar which *prefers the question* to the imperative; it chooses *predicates manifesting an intentionality* compatible with that

18 Irigaray, *I Love to You*, 45.

19 Irigaray, *I Love to You*, 46.

20 Irigaray, *I Love to You*, 48.

of the other; it *privileges verbs expressing dialogue*, doing together; it uses *to, between, with, together*, rather than transitive forms, which always risk reducing the other to an object. The *touching upon* cannot be appropriation, capture, seduction—to me, toward me, in me—nor envelopment. Rather it is to be the other's awakening to him/her and a call to co-exist, to act together and dialogue.²¹

Ultimately, while Plato and Irigaray appear to make unlikely bedfellows, the dialectic constitutive of knowing and not-knowing, of endless questioning and repeatedly starting over, of manifest care for the beloved caused by erotic madness or divine pregnancy (see *Phaedrus* and/or *Symposium*) that cause us to ascend and descend, seems to have a point or a line of contact. As most can recall, Socrates' teacher, Diotima, described the erotic power of the soul as that which ever lives and dies (204b-c), moves amongst the indefinite space between eternal and temporal being, a process conducted with and for others, ending not in an Aristophanic consumption of one's other half but a bedazzling vision, the amorous activity of seeing the other in its divine beauty, pregnant and in need of the other through its labour—an image of philosophical ascension that demands we think the Two, the power of the Dyad. So, returning to Plato's failure before his peers and countrymen, he too acted, attempted to move, to think the perplexing other and, despite being misunderstood, even this failure, this miscarriage of thought with others caused by their/his confusion, evidences the erotic paradox of being a unique *one* able to touch, communicate and relate to others in the space of perplexity – the powerful transformative site for our thoughts, beliefs and feelings to be brought to bear in relationship with others who are both *one* and Two.

21 Irigaray, *I Love to You*, 125.

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Quantum Feminicity: Modes of Countermanding Time

Felicity Colman

Abstract:

This article proposes the novel concept of quantum feminicity as a way to consider the modal engagement of feminist theory (a social and political movement) with quantum theory (a technological branch of physics). Engaging the modal logics of this intersection, the article explores one aspect of quantum literacy; the shift in the notion of the quiddity of time. With the quantum mode comes a countermanding of standard frameworks for measuring and discussing time; as quantum causes the observer not only to refigure systems of the temporal orders of things, but in the countering, new ways of thinking about systems and new conceptual models are opened. Focussing on quantum modalities that are being practised in relation to the situated nature of technological platforms, the article proposes that modelling a quantum feminicity can assist in disengaging modes of difference that are used to gender all kinds of bodies through a countermanding of the temporal, consideration of modes of superposition, and thinking through the differences between the experiences of bodies and experimental modes that use quantum vectors for feminist actions.

Keywords:

afrofuturism, body, cognition, ecofeminism, experience, experiment, feminism, feminicity, interdisciplinary, new materialism, modes, modality, quantum philosophy, time

Introduction: Modal Politics

What have quantum physics and feminist philosophy got in common? They are both practice-oriented sciences; naturally pragmatic, socially constructed, and both are contingent upon their contemporaneous technological platforms. Both are methodologically grounded in the observation of material artefacts, physical phenomenon, and committed to the development of conceptual frameworks that seek to find solutions to the modal problems of their respective worlds. In describing the nature of those modes (including the concept of “reality” held in their respective responsive and critical models), they have challenged classical assumptions about causality, measurement, and the meaning of matter and have overturned the historical frameworks that mandate certain forms of reality as “truths” of the world. As I argue elsewhere, modal logics are a branch of philosophy usually engaged in constructing and defending moral structures and methods concerning the judgement of notions of the “truth.”¹ While modal logics are usefully employed for deductive reasoning in systems design (the “facts” and the “possibilities”), here I am engaging the reverse of those forms of modal logics used for determining a moral or qualifying “truth” of a judgment.² Instead of positing an absolute position, I am interested to explore the *conditions* that contribute to the different ethos of modal frameworks—which I believe must be discussed in relation to the technological platform that is supportive of that framework—whether it is analogue, digital, or quantum in nature.³

This article uses the concept of quantum feminicity as an interdisciplinary modal form comprised of two distinctive disciplinary fields, each with their own histories, yet having overlapping modal genealogies in their questioning of the construction of reality, and critique or rejection of inherited classical temporal frameworks. When quantum modes are considered, knowledge becomes more than a question of epistemology. Focussing on the mode and modality of any system necessarily invokes a consideration of time—as a modal that is used to define the property of a substance; it is a method for something that comes into being through conventions; the forms of knowledge acquired, and types of knowledge that are contingent upon other modes (such as aesthetics, information, or science). Consider the modal forms of the quiddity of time that Indo-European languages use; this is the “whatness” of time.⁴ Time is typically described and used as a framework

1 See F.J. Colman, “Modality,” *Philosophy Today* 63, no. 4 “New Concepts for Materialism” (2019): 983–998.

2 For discussion of modal logics, see Kenneth J. Konyndik, *Introductory Modal Logic* (Notre Dame: University of Notre Dame Press, 1986).

3 For further discussion of technology and modality, see Hans Poser. “Technology and Modality,” in *Applied Virtuality Book Series Printed Physics—Metalithikum I*, eds. Vera Bühlmann and Ludger Hovest (Springer: Vienna, 2013): 72–112.

4 The Latdict dictionary gives 303 possibilities for the English word “time” in Latin. For example:

that measures, standardises, organises, and gives value to activities. In the physical sciences, with the discoveries of quantum, the classical and canonic scientific formulas and the standardised measurements of time have been called into question, and with that expressions of temporal notions reach for other forms to articulate the movement of bodies, and duration.⁵ Across feminist texts, there can be discerned a similar critique, but with a focus on the androcentric organisation of time, those value frameworks are questioned. Directed by different twentieth-century theoretical frameworks, feminist philosophy describes systems ruptures but often the applied modality is not identified, and thus limited in its critical iteration of a condition. In particular, feminist-informed new materialism takes an approach that is complementary to the investigations of quantum physics, in that new materialism takes things in the world as relational yet dynamic, and knowledge is something that is constructed from observation techniques. This feminist position, as I discuss below, is no straight metaphorical adoption of the language of quantum physics, rather, the identification and engagement with the philosophy of physics by feminism reveal a modal overlap; a superposition of the mobilisation of experimental thinking; where the feminist modality that engages the core algorithmic coda: *what if*. While each disciplinary field (of feminism and quantum physics) works with different aspects and implications of the modal narratives used for describing their worlds, it is the potential of quantum feminicity as a worldmaking modal register of countermanded time; as a transformative technological platform that this article explores.

The article is divided into sections; firstly, considering what quantum modes are, and the implications of their modal operations, then sketching out feminist and quantum physics's respective modal phases and considering how these contribute to our understanding of the shift in the quiddity of time. As the article moves through the address of what constitutes the temporal, quantum, and feminist modal registers, the various conceptions of "time" and its places within an androcentric, classical framework are considered in terms of how adequate it is as an expression, and consideration of the scales of quiddity and haecceity⁶

aevum; dies; hora, memoria; locus; maturitas; numerus; percussio; tempus; seculum; <https://latin-dictionary.net/search/english/time>

5 See the discussion of the philosophical and scientific variations and change in the conception and expression of "time" in Ilya Prigogine, with Isabelle Stengers, *The End of Certainty: Time, Chaos and the New Laws of Nature* (New York: The Free Press, 1997); Giovannetti, Vittorio, Seth Lloyd, and Lorenzo Maccone, "Quantum time," *Physical Review D* 92, no. 4 (August, 2015): 045033. DOI: 10.1103/PhysRevD.92.045033; Maccone, Lorenzo, and Krzysztof Sacha, "Quantum measurements of time," *Physical Review Letters* 124, no. 11 (2020): 110402; Reydams-Schils, Gretchen J. *Plato's Timaeus as cultural icon* (Notre Dame, IN: University of Notre Dame Press, 2002).

6 Quiddity refers to the universal qualities of a thing and haecceity to the particular qualities of a thing. These terms are attributed to Duns Scotus's use, which is in relation to a humanist and Christian modal account—which I do not go into in this article for the sake of economy but which present as useful categories for further discussion of modal properties. See, for example, the discussion in

of different modal registers are posited as more expressive paradigmatic frameworks. The article pivots around the feminist quest for the dissolution of androcentric modalities.

1. Quantum Modes: Information and Transformation

Quantum physics is a branch of physics that deals with the behaviour of matter and energy on a very small scale, such as individual atoms and subatomic particles. It describes the strange and seemingly paradoxical behaviour of particles called qubits⁷ that can entangle with other particles, leading to multiple, superpositioned states and fields of information. This entangled behaviour of microscopic particles has implications for how the act of measurement itself influences the state of a system and vice versa. This is the significant point for a change in classical conceptions of time; where “time” is measured by the movement of a body.⁸ In quantum observations, the measurement of any body is uncertain and unstable and also contingent upon the technological platform enabling the observation of that body. Physicists have observed that the properties of one particle change the property of the other. For larger numbers of particles, not only can each pair be entangled, but all of them can be entangled with each of the others as well. While invisible to most, the implications of quantum physics suggest that there are many possible outcomes for a given physical system, contingent upon how a system is being measured and that the actual outcome is just one of these possibilities. The state of superposition; the multiple possible combinations of states of particles, hold the quiddity of modal forms that medieval cosmologists (Fakhr Al-din Al-razi) and classical philosophers (Aristotle) spoke of; there are no certainties; there are actualities (particles, matter), and possibilities, and a lot of uncertainty (contingency). It is the specificities of things that are dynamic and contemporaneously contingent.

While quantum physics is still in a developmental stage, quantum descriptions of the physical world have been circulating across a range of media forms; from pure science journals to popular culture magazines, since the start of the 19th Century. In his Nobel lecture on 100 years of light quanta, Glauber notes that light interference phenomena

Nicole Wyatt. “Did Duns Scotus Invent Possible Worlds Semantics?” *Australasian Journal of Philosophy* 78, no.2, (2000): 196–212, DOI: 10.1080/00048400012349481

7 Qubits are quantum particles (rendered as data) that can be entangled together where all possible states can perform a computation. See the use of the term in Karmela Padavic-Callaghan, “Record-Breaking Number of Qubits Entangled in a Quantum Computer,” *New Scientist*, (July 12, 2023). <https://www.newscientist.com/article/2382022-record-breaking-number-of-qubits-entangled-in-a-quantum-computer/>

8 Cf. Francis MacDonald Cornford, *Plato’s cosmology: The Timaeus of Plato* (New York: Routledge, 2014); David A. Kolb, “Time and the timeless in Greek thought,” *Philosophy East and West* 24, no.2 (1974): 137–143.

were very well understood by about 1820.⁹ Disproving Newton's theory that light is a constant stream of particles, Thomas Young's double-slit experiment (1801) showed light to be acting in a wave-like manner which, similar to the movement of water, is subject to the interference of other waves. This led to a series of thought and physics experiments that conceptualised this movement of light-wave actions in terms of how waves might overlay each other, enabling a narrativisation of light as diffracted.¹⁰ Observation of the movements of light particles develops into quantum theories of superposition, oscillation, displacement, "destructive interference,"¹¹ and conceptions of decoherence and uncertainty.¹² Such words and their descriptions of the physical nature of the particles of things, are entering into common parlance and are part of the growing lexicon of quantum.¹³

Quantum concepts have captured the attention of a wide array of disciplines outside of the natural sciences, including education, security studies, gaming theory, international relations, and different branches of social science, theory and philosophy.¹⁴ What is emerging through these connections of the physical science concept of quantum through the disciplines of physics (Bohr, Einstein, Heisenberg), philosophy (Everett, Whitehead, Foucault, Plotnitsky), semantics (Peirce), and the humanities social science of feminist ethics (Foucault, Haraway, Barad) is an interdisciplinary genealogy for engaging the critical

9 Roy J. Glauber, "One hundred years of light quanta," *Nobel Lecture* 8 [2005], *ChemPhysChem* i7, (2006): 1618–1639. DOI: 10.1002/cphc.200600329.

10 Thomas Young, "II. The Bakerian Lecture. On the theory of light and colours," *Philosophical transactions of the Royal Society of London* 92, (1802): 12–48. <http://doi.org/10.1098/rstl.1802.0004>

11 Glauber, "One hundred years of light quanta," 1619.

12 Stacey Moran, "Quantum Decoherence," *Philosophy Today* 63, no.4 "New Concepts for New Materialism" (Fall 2019): 1051–1068, doi: 10.5840/philtoday20191220295

13 Interdisciplinary discussion of quantum implications for the arts, humanities and social sciences include; for example, Ilya Prigogine and Isabelle Stengers, *The end of certainty* (New York: Simon and Schuster, 1997); James Der Derian, and Alexander Wendt, eds., *Quantum International Relations: A Human Science for World Politics* (Oxford: Oxford University Press, 2022); Rasheedah Phillips, "Black Quantum Futurism," *Journal of Architectural Education* 77, no. 1 (2023): 9–19.

14 A small selection of such interdisciplinary work: Elise M. Crull, "Exploring philosophical implications of quantum decoherence," *Philosophy Compass* 8, no. 9 (2013): 875–885; Indranil Ghosh, "Quantum Game Theory—I: A Comprehensive Study," *Resonance* 26, no. 5 (2021): 671–684. Murphy, Michael PA. "Entangled observers? A quantum perspective on authority in critical security studies," *Critical Studies on Security* 10, no. 3 (2022): 119–131; Fox, Michael F.J, Benjamin M. Zwickl, and H. J. Lewandowski, "Preparing for the quantum revolution: What is the role of higher education?" *Physical Review Physics Education Research* 16, no. 2 (2020): 020131; James Der Derian and Alexander Wendt, "'Quantizing international relations': The case for quantum approaches to international theory and security practice," *Security Dialogue* 51, no. 5 (2020): 399–413; and a literature review done in 2021: Zeki C Seskir, and Arsev U. Aydinoglu, "The landscape of academic literature in quantum technologies," *International Journal of Quantum Information* 19, no. 02 (2021): 2150012.

implications of quantum mechanics for knowledge systems and metaphysical processes. While the memes of Einstein's "spooky entanglement" and "Schrödinger's cat" circulate in the popular science media, it has been the work of Karen Barad who brought together a number of feminist and physics philosophical positions to generate her concept of "agential realism."¹⁵ Barad's narrative of a feminist physics-informed quantum philosophy has accessibly articulated the decentring of "the universalist man" and "the human" as the centrality of knowledge. Building upon other feminist thinkers, Barad's work mobilised a vigorous period of feminist and new materialist modal re-thinking that considers the material and virtual worlds and all that inhabit them as comprised of entangled phenomena.¹⁶ Rather than just observing these worlds, there is an active engagement with them by their communities, who engage in activist interventions into the neoliberal materialist drivers of consumption. Their critique is directed at the information-driven society of the 21st century, which operates within the value systems generated by data infrastructures that are designed to generate "successful" outcomes.¹⁷ What does success look like when generated by computing power? As Katherine N. Hayles argues: "we see only what our systemic organization allows us to see."¹⁸ Hayles identifies the question of *what modes* form and direct perception and knowledge of worlds, comprised of sets of values and beliefs, and these are subject to measurement of realisation, acquisition, and completion.

Here I want to pause for a caveat about scientific measurement and the cultural conditions it creates. As Isabelle Stengers and other thinkers such as Bruno Latour caution,¹⁹ novelty plays a significant part in the controlled paradigms and hierarchies of disciplinary knowledge. Because quantum theory is enabled by a formal method in the manner of scientific modelling, it is thus also a "mobilizing model;" enabling a disciplinary field, but also giving rise to novel modes of the theory.²⁰ As Stengers points out, while many

15 Barad specifically engages the work of physicist Niels Bohr and discusses it through the lens of feminist science and humanities philosophy, including Judith Butler, Donna Haraway, Sandra Harding, Evelyn Keller, and Helen Longino in Karen Barad, *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning* (Durham, NC: Duke University Press, 2007), 44.

16 See also the discussion on decentring the universal man in Rosi Braidotti, *Posthuman knowledge* (Cambridge: Polity Press, 2019).

17 The various strands of new materialist theory and activists are charted in Felicity Colman, and Iris Van der Tuin, eds., *Methods and Genealogies of New Materialisms* (Edinburgh: Edinburgh University Press, 2024).

18 Katherine N. Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*, (Chicago: The University of Chicago Press, 1999), 11.

19 Bruno Latour, "Why has critique run out of steam? From matters of fact to matters of concern," *Critical Inquiry* 30, no. 2, 2004: 225–248.

20 Isabelle Stengers, *The Invention of Modern Science*, trans. Daniel W. Smith (Minneapolis & London: University of Minnesota Press, 2000), 114–19.

scientific concepts remain of a speculative nature until such a time that they made become practised, then the experimental becomes a production of theory; one that is “recognized by the claims of its representatives.”²¹ Further, we should consider Sylvia Wynter’s considered critique of European scholasticism, where she argues how systems of Western knowledge are based upon colonialist repressive and extractive economies whose goal is the maintenance and continuity of the hierarchical stability of the “contemporary Western world-system.”²²

Outside of the pure domains of science, the conception and language of theoretical quantum theory and quantum mechanics have been taken up by non-scientific domains and disciplines; generating a disciplinary field of quantum philosophy.²³ Across the arts and humanities, the non-Boolean logic and language of quantum concerning the description of the constitution of the material world has enabled a rich interdisciplinary field to address the topics of political agency and social justice and the acceleration of the climate emergency because of continued extractive colonial economic operations.²⁴ Reflecting and exploring the nature of this philosophy, the call for the creation of a quantum literacy that could be active and adequate to its communities was begun within a group of scholars investigating feminist new materialism. From the activist interest in the political nature of matter, the group came to the conclusion that the metaphysics they were investigating could only be adequately expressed through quantum phenomena²⁵

21 Stengers, *The Invention of Modern Science*, 106–08.

22 Sylvia Wynter, “Unsettling the coloniality of being/power/truth/freedom: Towards the human, after man, its overrepresentation—An argument,” *CR: The new centennial review* 3, no. 3 (2003): 257–337, 270. <https://www.jstor.org/stable/41949874>

23 The span of which is outside of the focus of this article, however, would include the diverse commentaries of Whitehead, such as Timothy E. Eastman and Hank Keeton, eds., *Physics and Whitehead: Quantum, Process, and Experience* (State University of New York Press, 2012).

24 Some of the work that addresses global political and cultural concerns and draws upon the materialist aspects of quantum to do philosophy, for example, cf. Stacy Alaimo, *Bodily Natures: Science, Environment, and the Material Self* (Indiana University Press, 2010); Brigitte Bargetz, “Longing for agency: New materialisms’ wrestling with despair,” *European Journal of Women’s Studies* 26, no.2 (2019): 181–94; Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC and London: Duke University Press, 2010).

25 See discussions on quantum in Vera Bühlmann, Felicity Colman, and Iris Van Der Tuin, “Introduction to new materialist genealogies: New materialisms, novel mentalities, quantum literacy,” *Minnesota Review* 88, no. 1 (2017): 47–58; see also the expanded version of this essay, and an account of the reasons behind use of the term “literacy” in Vera Bühlmann, Felicity Colman, and Iris van der Tuin, “New Materialisms: Quantum Ideation across Dissonance,” in Felicity Colman and Iris Van der Tuin, eds., *Methods and Genealogies of New Materialisms*, (Edinburgh: Edinburgh University Press, 2024), ch.01; and on modal systems, see Felicity Colman, “Feminising politics: notes on material and temporal feminist modal logics in action,” *Matter: Journal of New Materialist Research* 1, (2020): 1–22.

and then, as I argue, each evaluated through specific modal frameworks.²⁶ As Stengers bluntly states: “the quantum theory of measure is addressed in principle to humanity in its entirety.”²⁷ The term “quantum literacy” is also put to use in relation to the requirement for educational literacy to incorporate the findings of quantum mechanics and its implications for knowledge construction.²⁸

Critics of the interdisciplinary use of quantum display what Stengers describes as the “strange” “anxiety of the scientific world,”²⁹ in some cases becoming downright hostile with a paper published in 2021 discussing a “case” and issuing “a general warning against the other attempts to use quantum mechanics in social theorizing.”³⁰ This blatant ontologising of what constitutes a normative “scientific” community and its objects appears as outmoded in the twenty-first century but is redolent of the censorship and objectification tactics of institutions.³¹ However, in 2023, a modal framework must incorporate vast shifts in technological, scientific, and cultural knowledge since the kinds of modals that Kant and Hegel discussed.³² Dominating current global politics is how the conditions of power emerge from the ways in which physical materials and concepts of the physical forms of things are given shape and actioned by modal frameworks; variously described as democracy, social justice issues, and the dynamics of climate change as

26 Colman, “Modality,” 982–985.

27 Stengers, *The invention of modern science*, 114.

28 Nita Laurentiu, Laura Mazzoli Smith, Nicholas Chancellor, and Helen Cramman, “The challenge and opportunities of quantum literacy for future education and transdisciplinary problem-solving,” *Research in Science & Technological Education*, (2021): 1–17; and see Colman, F., Bühlmann, V., O'Donnell, A. and van der Tuin, I., “Ethics of Coding: A Report on the Algorithmic Condition,” [EoC]. H2020-EU.2.1.1, Brussels: European Commission. 732407, https://cordis.europa.eu/project/rcn/207025_en.html pp.1–54, (2018): 8; 40–41. The report finds that a new form of literacy is required to be able to speak to and be expressive of various domains being generated by the algorithmic condition, which the report describes as the need for “quantum literacy.”

29 Stengers, *The invention of modern science*, 4.

30 Jan Faye and Rasmus Jakslund, “Barad, Bohr, and quantum mechanics,” *Synthese* 199, no. 3–4 (2021): 8231–8255.

31 Critiques of the arts, humanities, and social sciences engaging with “pure science” by purist scientists who wish to preserve their mimetic orders are numerous. Arkady Plotnitsky discusses the 20th century-long debates on quantum, and the science wars, in Arkady Plotnitsky, *The Knowable and in the Unknowable: Modern Science, Nonclassical Thought, and the “Two Cultures”* (Ann Arbor: University of Michigan Press, 2002).

32 Revisions of both philosophers’ respective work on modality are ongoing, but these works have no “body” except for the universal normative one; no one is engaging with the feminist ramifications of modal thinking. Cf. Nathum Brown discusses Hegel’s theory of modality as a measurement schema in Nathum Brown, *Hegel on Possibility, Dialectics, Contradiction, and Modality* (London: Bloomsbury Academic, 2020). Kant’s modal theory has received attention in Nicholas F. Stang, *Kant’s Modal Metaphysics* (Oxford University Press, 2016); and in Uygur Abaci, *Kant’s Revolutionary Theory of Modality* (Oxford: Oxford University Press, 2019).

leading social principals,³³ and an insistence on siloed thinking is not going to provide the answers for future political models.

2. Modelling Quantum Femininity

Quantum physics describes its activities of the measurement of matter, with terms such as complementarity, entanglement, superposition, uncertainty, and diffraction—and this language has been co-opted by feminist texts investigating the politics of matter (for example, in new materialism and or posthumanism).³⁴ The fields share a quantum literacy, signalling the modal overlaps of quantum physics and feminist theory: both contribute to the destabilisation of the classical androcentric world over a shared historical period, and over similar concerns about the construction of “reality.”

As findings from the James Webb telescope confirm,³⁵ the universe that Earth finds itself in is not singular, and the models used to articulate it in quantum physics and in feminist practices are plural and dynamic. Causal narratives are not adequate in their account of the ways in which the world is experienced within the duration of a life of a living entity. Feminist-informed work uses a range of modalities which respond to and critique the androcentrism of teleological time narratives, offering different world (social, cultural, political) systems, and in doing so, they point out the acquired nature of time as an imposed structure, and seek to render androcentric frameworks transparent. This involves—and requires—an examination of the material systems (including representational activities), as well as the processual possibilities of every modal framework in operation.

If we compare the current approaches in the philosophy of physics with current practices in the philosophy of feminism and then evaluate the modal tributaries that are available, or dormant, then the trans-disciplinary modal convergences become clearer. The diachronic period during which both critical feminism and quantum theory developed concurrently is not inconsequential. Significant technological developments concerning activities of

33 Refer to the discussion in Maria Kaika, Angelos Varvarousis, Federico Demaria, and Hug March, “Urbanizing Degrowth: Five Steps towards a Radical Spatial Degrowth Agenda for Planning in the Face of Climate Emergency,” *Urban Studies* 60, no. 7 (2023): 1191–1211.

34 Cf. Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC and London: Duke University Press, 2010); Karen Barad, *Meeting the Universe*; Diana Coole and Samantha Frost, eds., *New materialisms: Ontology, Agency, and Politics* (Durham: Duke University Press, 2010); Vicki Kirby, *Quantum Anthropologies: Life at Large* (Durham: Duke University Press, 2013); Stacey Moran, “Quantum Decoherence,” *Philosophy Today* 63, no.4 “New Concepts for New Materialism” (Fall 2019): 1051–1068, 10.5840/philtoday20191220295

35 Jason Kalirai, “Scientific discovery with the James Webb space telescope,” *Contemporary Physics* 59, no. 3 (2018): 251–290.

militarism and communications, with the datafication of society, had profound changes for all social-political realms.

First, technological platforms of the twentieth and early twenty-first century enabled a faster progression for feminist philosophy, with identifiable core methodological approaches within the discipline where there is engagement with modalities of: 1) political feminisms (movements such as ecofeminism, suffrage, black, women's liberation, postnational; afrofuturist feminisms); 2) lived feminisms: science and practice (using methodologies such as affect theory, intersectionality, new materialism, social sciences); and 3) the genealogical analyses of events in feminism (not historical—but intergenerational, revisionist accounts of feminist praxes; “waves”; liberal, radical, digital, post-structural, posthuman).³⁶

Second, across the same era, a philosophy of physics can be categorised by its methodological approaches to phenomena and materials, using modalities of: 1) the metaphysics of physics (movements such as rationalist, naturalist); 2) the technical “proofing” of the topics of physics (methods such as axiomatisation; differential equations); and 3) the historical analyses of events in physics (topical debates such as general relativity and quantum mechanics).³⁷

From a problem-solving perspective, quantum investigations have been characterised as a theoretical dream and a practical nightmare.³⁸ Current descriptions of quantum physics are thus also akin to that of cosmology theories of multiple universes, or the multiverse, and the philosophy of modal realism, which holds that there are a multitude of possible worlds that exist simultaneously, each with its own set of laws and properties, and the actual world is just one of these possibilities.³⁹ Feminist forms of modal realism is a philosophical

36 For a discussion of the feminist movements as waves, see Iris Van der Tuin, *Generational feminism: New materialist introduction to a generative approach* (Lexington Books, 2014).

37 Exploring the philosophy of physics and its relationship to possible feminist philosophies of science, Maralee Harrell does not engage with modal frameworks or implications but uses a similar set of three categories to summarise current research into the philosophy of physics in Maralee Harrell, “On the possibility of feminist philosophy of physics,” in *Meta-Philosophical Reflection on Feminist Philosophies of Science*, ed. Amoretti, Maria Cristina, and Nicla Vassallo, 15–34. (Boston Studies in the Philosophy and History of Science 317, 2016), 17. Alistair Wilson describes the details of the current debates in the metaphysics of quantum theoretical debates in Alastair Wilson, *The Nature of Contingency: Quantum Physics as Modal Realism* (Oxford: Oxford University Press, 2020). Current historical debates concerning the history of physics are summarised in Carlo Rovelli, *Reality is Not What it Seems: The Journey to Quantum Gravity* (Great Britain: Penguin, 2018).

38 Serge Haroche and Jean-Michel Raimond, “Quantum Computing: Dream or Nightmare?” *Physics Today* 49, no. 8 (1996): 51–52, <https://doi.org/10.1063/1.881512>

39 Beyond the scope of this article, there are comparisons to be made with Indian cosmology, and

theory that takes the idea of possibility and necessity as fundamental to reality. It holds that possible worlds—that is, other ways the world could have been—are just as real as the actual world.⁴⁰ Quantum physics can be seen as echoing the experiments and narratives of feminist modal realism in that it suggests that the physical world is not deterministic, but rather that the outcome of certain events is inherently uncertain and depends on the observer. In this sense, quantum physics and feminist modal realism share the idea that reality is not fixed, but that it is open to different possibilities and that the nature of reality is contingent upon the *participant situation and the technological platform engaged to affirm the mode of reality*. Focussing on the particle as a participant situation that controls the collective ecology of a modal field and considering this collective mode moves us theoretically away from a humanist, embodied narrative of individuated affective feeling; as a human observer's perspective on their constitution toward a posthumanist decentred human narrative, where all components are considered.⁴¹ The particle/ participant must be considered as an entangled part of the technology of the observation platform. By focusing on where the modalities of the respective disciplines of physics and feminism converge, interdisciplinary community creation through intra-action can occur.⁴² The teleological narrativisation of androcentric progress is undone by quantum theories—where Newtonian and Einsteinian conceptions of time (as absolute or relative) are proved inaccurate by quantum physics and by feminist theory that rejects the androcentric organisation of time that is based upon the economic productivity of a socially gendered body. As feminism advocates—demands—a disassembling of androcentric systems is required to countermand time in favour of more ethically designed worlds.

The *what-if* of feminist actions commands a mode of possibility, and its manifestations

medieval Islamic structural realist models, for example, the philosophical position of Fakhr al-Din al-Razi on physics see Adi Setia, "Fakhr al-Din al-Razi on physics and the nature of the physical world: a preliminary survey," *Islam & Science* 2, no. 2 (2004): 161–181. <https://link.gale.com/apps/doc/A128606463/AONE?u=anon~53653369&sid=googleScholar&xid=756a53d2>.

On modal realism, see David K. Lewis, *On the plurality of worlds*. Oxford: Blackwell, 1986.

40 Cf. discussions of modal realism as worldmaking in Helen Palmer, *Queer Defamiliarisation: Writing, Mattering, Making Strange* (Edinburgh: Edinburgh University Press, 2020): 67–8; 77; 83; Donna Haraway, "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin," *Environmental Humanities* 6, no. 1 (2015): 159–65. doi:10.1215/22011919-3615934.

41 Modal realism is still a minority view in philosophy, and the interpretation of quantum physics is still a matter of ongoing debate among physicists. Arkady Plotnitsky has put forward his thesis in Arkady Plotnitsky, *Reality without Realism: Matter, Thought, and Technology in Quantum Physics* (Switzerland: Springer Nature, 2021).

42 For posthumanist definitions, see Rosi Braidotti and Maria Hlavajova, eds., *Posthuman glossary* (London and New York: Bloomsbury, 2018), and for the address of the political implications for community and identity through quantum and feminist connections, see Whitney Stark, "Assembled bodies: Reconfiguring quantum identities," *The Minnesota Review*, no. 88 (2017): 69–82.

appeal to the social and political institutions that govern and police biologically and culturally determined bodies. The mode of possibility engages the contextual past, the situated present, and the future-in-information as it asks: what if things were different in terms of the equality of labour, unstable economic systems, the discriminatory attitudes toward the non-androcentric? The what-if is a transformational modality; a space of activity (feminist active points), but also requires reflexive metaphysical drivers for change. Possibility today infers a site where something could happen, could have already happened, but a body's entanglement with that other possible body or condition is situated in a time that has not yet arrived; or into which the actuality is not yet positioned. Claire Colebrook has noted that: "Rehearsing feminism's past is [. . .] an awareness that the past may harbour potentials to which we are not yet attuned."⁴³ The modality of quantum femininity is one of possibility but is also a form subject to the necessities and contingencies of life on this planet; in this universe, within other galaxies and universes.

My argument for the recognition of the modality of quantum femininity is that the principles of feminism already provide the modal tools with which to think through the dynamic infrastructure that quantum theoretical physics makes available for the expression of our vernacular and long-term existences. Vector-points emerge in key feminist texts which offer critiques of the gendering of the temporal, but they often stop short of naming the rupture – describing it instead in the critical terms post-structuralist critique relied upon; the liminal space, the void, a beyond, a sublime, etc.⁴⁴ Comparing the modal questions used in philosophy of physics with philosophy of feminism can be productive of certain parallel genealogies of the strands of critical methods and modes which are now entangled. In the following section, I focus in on the modality of the temporal and how that is a useful starting point for further developing this critique with quantum femininity.

3. Life Modals: Analogue to Quantum

One of the constituent narratives producing "life" or "reality" is the localised operationalisation of time. Time is a concept that is ascribed a value in a user system; finding form in the cultural narratives of the social and political worlds that produce and govern the system. Western and Eastern philosophy provide a number of different models for comprehending and assessing knowledge through temporal frameworks of experience, perception, and the observation of movement. The experience of "time passing," the

43 Claire Colebrook, "Stratigraphic time, women's time," *Australian Feminist Studies* 24, no. 59 (March 2009): 11–16; 12. doi.org/10.1080/08164640802645125

44 see Zakiyyah Iman Jackson, "Theorizing in a Void: Sublimity, Matter, and Physics in Black Feminist Poetics," *South Atlantic Quarterly* 117, no. 3 (2018): 617–648; Marisol De la Cadena and Mario Blaser, eds., *A World of Many Worlds* (Durham and London: Duke University Press, 2018).

“lifetime” of an entity, or of “a time” is variously described through images and stories of the natural world, planetary and agricultural cycles, events, and epochal time frames. The perception of time is granted value through measurement tools and their narrativization: sundials, clocks, analogue, digital, chronons.⁴⁵ The cognition of these tools is accorded value through scales of speed of attainment, computational achievement, and fiscal implications.⁴⁶ The observation action of time propels movements: we set our alarm clock to wake us from a nightly restorative slumber in order to go and perform another day of labour for a tiny minority-controlled profit market system that is exploitative of all of its resources. Time organisation involves the computation and control of the physical human body and the natural environment by the current market system to which the majority submit. However, perhaps Spinoza’s question in his *Theological-Political Treatise*; *Why do people fight for their servitude as if it were their salvation?* is no longer adequate to address the concept of time in a quantum state.

If we flip the androcentric notions of “time” as the temporal organisation of human servitude and experiential driver of life as a service provider for capitalist economies (internally regulated by gender, race, and class hierarchisations) to a quantum philosophical perspective, then an opportunity to change contemporary neoliberal market and governance systems’ political agendas is opened, and their associate values and impacts challenged. These systems’ goals of financial profit for an entitled minority work through violent and destructive processes that continue to have devastating effects upon communities and the planet.⁴⁷ Identification of the systems in play enables intervention to occur, but epochal change is not always rapid. However, the reformation of social justice⁴⁸

45 Chronons are a proposed unit of noncontinuous quantum “time”. The conception of a “quantum time” is still under debate by physicists. See, for example, discussions in Yakir Aharonov and David Bohm, “Time in the quantum theory and the uncertainty relation for time and energy” *Physical Review* 122, no. 5 (1961): 1649; and Ruy AH Farias and Erasmo Recami, “Introduction of a Quantum of Time (‘chronon’), and its Consequences for Quantum Mechanics,” *arXiv preprint quant-ph/9706059*, (1997).

46 Here, I refer the reader to Paul Ricoeur’s three volumes on *Time and Narrative* (1984–88), in which he argues that narratives are what constitute the historical time that is situated between the phenomenological and cosmological time that thinkers such as Husserl or Heidegger frame. Paul Ricoeur, *Time and Narrative, Volume 3*, trans. Kathleen Blamey and David Pellauer (Chicago: University of Chicago, 2014): 11f.

47 I am referring here to all forms of colonialist and capitalist drives and their effects on the planet and communities. See Vandana Shiva and Maria Mies, *Ecofeminism* (London and New York: Zed books, [1993] 2014); and discussion in Matthias Schmelzer, Andrea Vetter, and Aaron Vansintjan, *The Future is Degrowth: A Guide to a World Beyond Capitalism* (London: Verso Books, 2022).

48 By social justice I refer to the feminist call for the end of activities of militarism that cause political fundamentalism, violence against women and non-majoritarian bodies, and the equitable distribution of resources. See discussions in: Maria Mies, *Patriarchy and Accumulation on a World Scale: Women in the International Division of Labour* (London and Atlantic Heights, NJ.: Zed Books, 1986); Akwugo Emejulu, *Community Development as Micropolitics: Comparing Theories, Policies and Politics in America*

and the generation of the necessary planetary ethics⁴⁹ require change to rapidly occur, making ethics a time-based priority. This ethics is based on achieving a feminist ethos, not a moralistic modal framework for living. In moving from the theological to the digital and quantum technological modes, the critique is moved beyond the singular (individual; pathology) to the collective (communities of bodies, including sentient and non-sentient entities), and the urgent question is: *What are the conditions motivating community and planetary destruction?* How is the modal logic of temporality to be thought if the duration of communities is finite, and the planetary conditions supporting that resource is unstable.

Most societies place a temporal measurement into a material body so that its parameters can be readily identified. This kind of measurement is performing a political physics. Analogue temporal measures have long histories: the sundial, the town crier, the clock, the celestial bodies, the temperature of a body (sentient or non-sentient, air, land, or sea living creatures), and the life of a body or thing. The digital requires a linearity for reckoning events, and sequencing of command chains for operations to progress. Quantum information theory and quantum physics have shifted the quiddity of the values and the measurements that societies use to speak of time. How this change manifests in daily life is a question that constantly emerges in experimental modes that seek other ways of expressing and bringing to form in the worlds they inhabit and recognize as a reality. While the method of computation of the temporal-physicality of the labour market radically changed in the technological shift from analogue to digital calculations, both still assemble and perform measurement modalities that engage medieval and classical knowledge paradigms that are absolute in their counting of labour time—either by diachronous, or synchronous methods.⁵⁰ Within this temporal control of bodies by the market, we know that the historically politically marginalised bodies are the ones most exploited, in both analogue and in algorithmic frameworks (service industry construction

and Britain (Bristol: Policy Press, 2015); Tithi Bhattacharya, ed., *Social Reproduction Theory: Remapping Class, Recentering Oppression* (London: Pluto Press, 2017); Nancy Fraser, *Cannibal Capitalism: How our System is Devouring Democracy, Care, and the Planet and What We Can Do About It* (London & New York: Verso Books, 2022).

49 A planetary ethics calls for an end to the destruction of environments and communities through extractive processes, and invasive agricultural methods, and the use instead of sustainable use of the planetary resource. See Shiva and Mies, *Ecofeminism* (2014); Vandana Shiva, *The violence of the Green Revolution: Third World Agriculture, Ecology and Politics* (London and New York: Zed Books, 1991); Vandana Shiva, *Earth Democracy: Justice, Sustainability and Peace* (Berkeley, California: North Atlantic Books, 2005).

50 Cf. Arno Borst, *The Ordering of Time: From the Ancient Computus to the Modern Computer* (Chicago: University of Chicago Press, 1993), 126; I also engage with Foucault's conception of the epistemes of the temporal control of the body in Felicity Colman, "Digital Biopolitics: The Image of Life", in *Resisting Biopolitics: Philosophical, Political and Performative Strategies*, eds., S. Wilmer and A. Žukauskaitė (London & New York: Routledge, 2016):189–201.

labour market; algorithms of oppressions).⁵¹

The classical modal political frameworks of cyclical and linear time are generally organised by three approaches aimed to measure and define temporal notions; space (the physics; and territorial control); re/productive modes (governance of the labouring body); and matter (resource control). In other words, existence is predicated by androcentric practices of subjectivation of all things in the world (through practices of colonialism, enslavement, extraction, and exploitation of resources). With quantum theories concerned with measurement, came the awareness that the laws of general relativity allow for a coordination and observation of measurement of the temporal movement of a thing (making concrete the abstract conception of time), however, observations dissolve the notion of a linear movement, and highlight the role that technology plays in any form of measurement.⁵²

The physical discontinuity that Heisenberg's uncertainty principal and Bohr's indefiniteness principle show is the discontinuity of and between phenomena.⁵³ With these features comes the awareness that any event can be either an a priori predicated observation, or an experimental interaction, with any number of contingent outcomes; or a simultaneous superposition of multiple states. With the informational ideation of quantum philosophy, the temporal Aristotelian linear narrativisation of *arche* to *telos* is refigured; released from the classical Euclidean configuration of people and their places; and by implication the science data of theoretical physics (special relativity; quantum mechanics; quantum gravity) disrupt normative social conceptions of the constructs of "reality."⁵⁴

51 Cf. Maria Mies has written extensively on the problems associated with asymmetric division of labour by biological difference, in Mies, *Patriarchy and Accumulation on a World Scale: Women in the International Division of Labour* (London and Atlantic Heights, NJ., Zed Books, 1986, 44–47); Nancy Fraser describes the ongoing problems inherent with the division of economic production and social reproduction in Fraser, *Cannibal Capitalism*, 55–58, Safiya Umoja Noble describes the racialisation of algorithmic governance in Safiya Umoja Noble, *Algorithms of Oppression* (New York: New York University Press, 2018, 24–6; 179).

52 Giovannetti, Lloyd, and Maccone, "Quantum time," 4.

53 The implications of this are still under debate. See the discussions by Arkady Plotnitsky, "A Toss Without a Coin: Information, Discontinuity, and Mathematics in Quantum Theory," *Entropy* 24, no. 4 (2022): 532; and Maralee Harrell, "On the possibility of feminist philosophy of physics," in *Meta-Philosophical Reflection on Feminist Philosophies of Science*, eds., Maria Cristina Amoretti and Nicla Vassallo (Boston Studies in the Philosophy and History of Science 317, 2016), 28.

54 Cf. Both physicists and philosophers' descriptions of this change, including Carlo Rovelli, *Reality is Not What it Seems: The Journey to Quantum Gravity* (Great Britain: Penguin, 2018); Arkady Plotnitsky, "Nature has no elementary particles and makes no measurements or predictions: Quantum measurement and quantum theory, from Bohr to Bell and from Bell to Bohr," *Entropy* 23, no. 9 (2021): 1197. doi.org/10.3390/e23091197

In quantum mechanics, and in the early twenty-first century philosophy of physics, “time” as an object and as a concept has been shown to be not a singular monolithic continuous thing. Rather, in quantum, an entity cannot be described in terms of a “time” rather, objects observed within a field are described as localised, relational, possibly multiple, gravitationally contingent, and the notion of causality—as we understand it in classical physics—is indeterminate at any given moment. Through the conception of quantum, we begin to glean that “time” as a narration of a continuous flowing thing is a false narrative. If light is a particle (photon) and the flow of photons is a wave, then it follows that the measurement of light is a contextualised frame of something. “Time” in and of this quantum world is actually not the correct expression as quantum mechanics demonstrates. While time is used as a quantification measure (e.g., what is the time of the sunrise; the prayer; the stockmarket), its qualification within different modal worlds is variable, and imprecise; and as a quantitative method, a classical time measure is bound to the political dimensions of that world (as Foucault describes of the epistemic models of human organisation).⁵⁵

How does engaging a quantum modal change the notion of the measurement of duration; and with it the very conception of time? Linear time modalities are intrinsically bound with patriarchal systems that govern the production and control of all resources. Within these systems, what is contextually comprehensible is made normative, with rationales and epistemic evidence provided for the stable governance of that normativity. Further, different modal frameworks are durational experiences which are narrativised through perspectives which may or may not be ethical in their motivation; and within their contextual ecology.⁵⁶ In the face of all such reflections, “time” is an inadequate expression to incorporate all such known shifts in comprehension, but a radical shift in the temporal control of resources has significant economic implications, as we have already seen through the transformation of the working week brought by technological and biological social organisational changes.⁵⁷

Why is it important to question if time is the most appropriate expression? For feminist

55 Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, trans. Alan Sheridan (New York: Vintage, 1973).

56 I am thinking here of the ethical ecology of a non-human animal that kills other animals to consume for survival as opposed to the moralist ecology of a human that kills other humans for political reasons. For a considered discussion of how to approach a posthuman ethics, see Patricia MacCormack, *Posthuman Ethics: Embodiment and Cultural Theory* (London & New York: Routledge, 2016).

57 E.g., see discussion of changes in worker time due to Covid-19 in Naila Kabeer, Shahra Raza-vi, and Yana van der Meulen Rodgers “Feminist economic perspectives on the COVID-19 pandemic,” *Feminist Economics* 27, no. 1–2 (2021): 1–29.

scholars who have engaged with the implications of quantum mechanics and the field of quantum philosophy, the possibilities of an ethical future society are opened by the unmaking of normative epistemic and ontological fields. The implications of this reform contribute to the countermanding modes of quantum feminicity; where a reconceptualization of the previous frameworks enable a freedom from an object based foundational narrative (Barad); or empower an activist or previously framed “revolutionary” sense of the implications of space-time-matter governance (Shiva); and or reconfigure completely the notion of human cognition (Hayles); in all, transmuting or mutating normative notions of “reality” and worlds.

Engaging with the pluralities of worlds (variously named aspects and sites of human-centric life; *experience, reality, the metaverse*), feminist activities always involve invoking and or engaging different temporal modes. Feminist thinkers are quick to point out the reproductive and service labour-time associated with a gendered and racialised “woman-body” as a problematic biological and essentialist politically linear-time framework: Federici, Grosz, Jackson, Mies, Keeling, Butler, Haraway, Harding, Keller, Longino, Barad—to name but a few—all address this problem in different ways. Why should bodies named as “women” be fixed within the domestic labour-producer agendas mandated by all kinds of institutional governance? Time within current patriarchal capitalist systems is relegated to the economic agendas of the productivity of a politically and culturally biologically determined body; what it literally can and cannot produce in its time-sensitive activities of child production, rearing, and related service, and largely un-paid labour structures. The biopolitics of a body is regulated by the economic time agendas of the market system of its lived existence. With the advent of datafied society, digital processes had the effect of increasing labour work-time frameworks, some shifts occurred; other possibilities came into those frameworks, but still the governing androcentric paradigms remain; adhering to linear service time.⁵⁸

Twentieth century critical philosophy has done much to critique the binary coding of time, which renders absent those bodies not engaged in narrativising and governing the canonic progression of performing (procreating and “progressing” humanity), producing (the labour required for the production of things (Derrida; Irigaray; Kristeva; Federici), and governing (dissemination of the “correct” epistemic modes and their effective implementation and impact). The measurement of something implies there is a value system ascribed to making meaning from the quality, quantity of information and data

58 see Liberty Chee, “Being of Use: Diffraction and an Ethics of Truth-Telling in Post-Cartesian IR,” *Global Studies Quarterly* 2, no. 3 (2022): 1–10, <https://doi.org/10.1093/isagsq/ksac049>; Phoebe V. Moore, “Tracking affective labour for agility in the quantified workplace,” *Body & Society* 24, no. 3 (2018): 39–67, <https://doi.org/10.1177/1357034X187752>; and Judy Wajcman, *Feminism Confronts Technology* (University Park: Pennsylvania State Press, 1991).

of all kinds; for example, the inclusion of sentient lived experience, and planetary health measures (all of which have their own modal frameworks for value continuity.⁵⁹) The measurement of something also involves a technological platform, medium, or framework; whether that is mechanical (physical), informatic (analogue, digital, or qubit data), or conceptual (modal) which mediates the participant and the situation. The metaphysical, philosophical implications of entangled qubits offer a countermanding of time as we currently describe it: where an entanglement of things leads to the creation of something novel, or a superposition can create uncertainty, or decoherence, and destruction of the parts or whole. With quantum, the linear temporal narrative is undone.

In considering the countermanding of classical time, how do we best express the varied senses of time in a quantum mode, as a quanta or qubit of an entity in its entangled relationality? While this is a field still under debate, the classical conception of “time” is dissolved by quantum technology for a number of physics probabilities, measured by mathematical problems, the quantum algorithm has been shown to be calculating an unstable, unpredictable, and uncertain state.⁶⁰ As a result, the expression of a quantum algorithm of an entity is through the observed actions of qubit, leading to expressions of their movements of entanglement as states of quantum decoherence, and superposition, and a quest to measure these movements.

For all of these reasons, consideration of the quantum realm is resonant with feminist objectives. Following this, we can begin to describe what might constitute a quantum of time (chronon) *renamed more generally as quantum mode*; and begin to articulate this in the terms that the scope of quantum feminicity conceptualises. The following (and final) sections of the article explore three different quantum modal aspects; countermanding (not linear); superposition (not gender); and experimentation (not only experiential).

4. Quantum Feminicity: Countermanding Time

To countermand something is to not only refigure the systems of the temporal order of things, but in the countering, new systems thinking, and new conceptual models are opened. The etymology of countermand indicates the possible modalities the word opens: to counter or go against [L: *contra*] a command [L: *mandare*] is about intervention into

59 Modal frameworks are a topic I have addressed in two other papers to which I refer the reader: F.J. Colman, “Modality,” *Philosophy Today* 63: no.4 “New Concepts for Materialism”, (2019): 983–998; Felicity Colman, “Feminising politics: notes on material and temporal feminist modal logics in action,” *Matter: Journal of New Materialist Research* 1, (2020): 1–22.

60 See footnote 5 references.

an existing; actual political domain.⁶¹ If we tease apart the actions of experiences of countermanding the temporal by disengaging the gender and sex difference emphasis of the feminists' field work, we can instead refocus on the methods and modalities that are being practiced in relation to the situated nature of technological platforms invoked. Engaging the framework of quantum as a technology that has radically countermanded the classical notions of time, through the physical awareness of the movement of sub-atomic particles, effects the understanding of material properties, systems, and modal possibilities. There is a difference to be explored between classical and capitalist time as a mode of production, and quantum modes that offer ways to express worlds and their dynamic movements.

The broad feminist ambition is to critically examine and change temporal narratives and their cultural and social frameworks. Feminists push back against their (historically sexed and gendered) bodies being placed as temporal objects as the gendered time-bound producers of the patriarchal lineages. No wonder the description of the physical nature of reality is of interest to feminist, and more broadly, posthumanist thinkers. The conceptual schemas posited by numerous feminist texts consistently engage with or address the issues of a constructed reality: the technicalities of a measurement system and a measurement process that determines value of objects and subjects in that system, but further, ranks them according to the durational hierarchies in that system. *A room of one's own* (Woolf 1929), *Ecofeminism* (Mies and Shiva 1993), and *Empire's Endgame: Racism and the British State* (Bhattacharyya et al, 2021) each summon the political matter of the female gendered object in terms of spatial cardinals (Woolf's situation/ requirement for privacy), the calendric (the ecofeminist movement of Verdana Shiva's protest against agricultural extractive techniques and control of reproductive cycles), and the economic politics of their physical material situation (of the colonial timeline that engenders a continual scale of racism that is sustained by global capitalism, digital environments, poorly managed nation states discussed in *Endgame*).

Each of these works express temporal modes of determination, describing a local experience in and of that situation and generating a different perception of a durationally lived event. Some narratives will engage a gendering, class, racializing, or ableist mode to describe a linear or genealogical account of events-in-time, but additionally identify where perceptual awareness changes. These are *vector-points* of quantum feminicity: a mode of production that enables engagement with the materially produced situation in its culturally political situation and in its social political biological predications and flips it, countermanding the meaning of the dissonant matters brought into form.⁶²

61 Countermand came to English in the 1400s, via Anglo-Norman, where the prefix *cuntre* ("against") was combined with the Latin verb *mandare* (Eng. verb *mander*); ("to command").

62 I use the term "vector" in the mathematical quantum sense—meaning it is the movement of mat-

There are numerous philosophical and cultural contexts where countermanding time refers to the idea that time is not of the androcentric capitalist mode—fixed, linear and progressive—but is instead understood in different contexts and by different social worlds as multi-layered, folded, subject to deontic manipulation or biological modal influence. Another example is Hayles’s use of the speculative mode to explore the nature of a technologized subject. Her work repeatedly returns to critique science-fiction worlds that use patriarchal modalities that objectify non-masculinist body-tropes. Hayles acknowledges quantum mechanics as a part of simulation modelling that occurs in the fictive texts she analyses. She does not engage with the language of quantum per se but is clearly drawn to the temporal states of superposition, and material entanglement. For her, the key points in her speculation on such texts is her interest in cognitive and non-cognitive consciousness as generated by technological possibilities that require a user (or observer) to interact/ activate them, “recognising that multiple causalities simultaneously interact with one another as both means and method.”⁶³

In the essay “Digital Feminicity,” I pointed out that “Experience is a temporal marker of the technological conditions of gender’s ability to perform itself.”⁶⁴ Thinking with quantum modes signals more than an awareness marker: the perception of that performative action and of the movement of an experiment itself. First, second, and third-wave feminist narrative modes describe “experience” using classical temporal properties including affective, deontic, phenomenological, and pedagogic modes.⁶⁵ With quantum feminicity a countermanding of classical time occurs where the individuated embodiment of humanism—and its insistence upon “knowledge”—is dispelled, and the notions of understanding, and experience-as-encounter that exceed cognitive and noncognitive consciousness can be activated through possibilities afforded by situations and contingent events that change things. Situations and events may be lived through by individual bodies and these may contribute to the narrativisation of experience; given form through different modalities (such as we see in the popularity of time-travel media forms—tv—film—literature). Some objects and concepts coalesce and can be described through

ter between an action and a resultant condition (x moves diffractively, or in waves; we get sound and or light images). Describing the concept of superposition, François Laruelle says the “quantum model is a vector model,” noted in François Laruelle, and Katerina Kolozova, “Non-Standard Marxism: A Quantum Theory Approach: Не-стандарден марксизам: Квантно-теоретски приод,” *Identities: Journal for Politics, Gender and Culture* 12, no. 1–2 (2015): 7–21, 9.

63 Katherine N. Hayles, *My Mother was a Computer* (Chicago: University of Chicago Press, 2010), 217.

64 Felicity Colman, “Digital Feminicity.”

65 Claire Colebrook describes the first, second, and third feminist waves in terms of their proposals for a “different future”—and thus offering a different possibility for ethics, in Claire Colebrook, “Stratigraphic Time, Women’s Time,” *Australian Feminist Studies* 24, no. 59 (March 2009): 11–16; 13. doi.org/10.1080/08164640802645125

experimental modes (like light quanta); as agential, informational, and imaginative,⁶⁶ but some remain in experiential modes (some might say phenomenological or affective), and while they act as vector-points (marking the moment of change), they generally do not countermand the standard temporal narrative.

For example, we could say that media forms such as afrofuturism (where modalities of race and technology conglomerate) act like qubits: entanglements of different bits of information. There is an energy that disassembles the quantifiable temporal framework (music is an easy exemplar here: Alice Coltrane: Janelle Monáe), and it is generative of new forms for a community to coalesce through entangled modes of participation and content. We listen to music, and if it is percussively persuasive, we become immersed in it and new worlds appear, and the music moves in and out of situations and changeable states. That is, at least upon the first or second listening, or in a “live” improvised situation that is dynamic and not static.

But a dilemma arises with the decoherence afforded by the vectors of any form of difference—whether it is presented as novelty, framed as a form of futurism, or described as a theory of change. In some of her stage and recorded performances, the American pop-singer, Beyoncé (b.1981) adopts the visual presentation of her musician’s body as a disaffected worker of Fritz Lang’s highly sexualised robotic body of the “woman” Maria from the film *Metropolis* (1927). Using the guise of a technologically dislocated body to be expressive of the collective worker/slave/woman experience, Beyoncé presents her performing body as “afrofuturist,” but is the transformative process of dis-assemblage in fact rendered static through the repetition of the pop industry capitalist framework? Media forms can be novel in their countermanding of currencies but then re-synthesised for mass market consumptive desires. Beyond the modernist appropriation of the sense of a disaffected political state is what Kodwo Eshun identifies as proleptic to describe what the afrofuturist work is doing. Eshun identifies an unease in the afrofuturist temporal state, describing it as “a cultural moment when digitopian futures are routinely invoked to hide the present in all of its unhappiness.” He continues that the significance of afrofuturism is that it aims to “extend the tradition” of countermemory “by reorienting the intercultural vectors of Black Atlantic temporality towards the proleptic as much as the retrospective.”⁶⁷ Beyoncé’s prolepsis, as Eshun identifies of afrofuturism, acts in the

66 For a discussion of the different methods for addressing light quanta, see Roy J. Glauber, “One hundred years of light quanta,” *Nobel Lecture 8, ChemPhysChem* i7, (2006 [2005]): 1618–1639. DOI: 10.1002/cphc.200600329. Some of the different modalities engaged today are mapped in F. J. Colman, “Modality,” *Philosophy Today* 63; no.4 “New Concepts for Materialism” (Fall 2019): 983–998, Table 1: Fragment of a Modalities Map. DOI: 10.5840/philtoday2020124307

67 Kodwo Eshun, “Further considerations of Afrofuturism,” *CR: The New Centennial Review* 3, no. 2 (2003): 287–302, 289.

media realm as a utopic site. Although its processes move through a disruptive mode, its modernist gesture ends up becoming the perfect capitalist mode of production of a product, although of course with the previously minoritized body being the recipient of profit from their labour. The retro-performance of Maria the utopic female-gendered sex-robot is less of an experiment but offers a collective and affirmative visual experience for its target audience,⁶⁸ situating it as a mode of digital feminicity where a range of bodies perform through a particular set of digital technological conditions. The quantum mode is, perhaps, found in the experiential movement of the sound, not in the image.

5. Quantum Feminicity: Modes of Superposition (not gender)

Unlike neoliberal feminists, whose objective is focussed on achieving an individuated economic equality, rather than a collective or community, the left feminist objective is to examine how forms of power and agency are given to bodies of differing abilities, classes, ethnicities and neurodiversities.⁶⁹ Feminists of non-neoliberal persuasion—according to their local situation—work to show, intervene, and change all forms of exploitation and oppression that non-majoritarian bodies endure.⁷⁰ Feminists argue that the heterogeneity of subjects, communities, kinships, and all sentient beings must be recognised rather than being exploited as an innate, object-for-profit for use by the dominant governance framework: the family, the education system, the state, and global governance systems. According to the World Economic Forum [WEC] (2022) benchmarks for gender parity across four key dimensions (Economic Participation and Opportunity, Educational Attainment, Health and Survival, and Political Empowerment), the current global gender parity gap remains at 68%.⁷¹ Engaging a breadth of feminist modalities, critical feminist theory is not limited to a single ideology or methodology, but encompass a wide range of views and practices that are concerned with challenging and transforming those four broad arenas identified by the WEC; systems of patriarchy, oppression, and inequality based on gender.

68 Nahum Welang argues that Beyoncé's performance of different temporal states of the American black woman's experience is an exorcism that results in a "new reimagined self," in Nahum Welang, "Triple consciousness: The reimagination of Black female identities in contemporary American culture," *Open Cultural Studies* 2, no. 1 (2018): 296–306, 302. Welung's use of a journey narrative engages rituals, and iconography, engaging a deontic modal framework.

69 Cf. the work of Tithi Bhattacharya ed., *Social Reproduction Theory: Remapping Class, Recentring Oppression*, (London: Pluto Press, 2017).

70 By "non-neoliberal" or "left feminism," I am focussing here on those feminist actions that are not in the service of neo-liberal capitalism, such as Catherine Rottenberg describes in "The rise of neoliberal feminism" *Cultural studies* 28, no. 3 (2014): 418–437. <https://doi.org/10.1080/09502386.2013.857361>

71 World Economic Forum, "Global Gender Gap Report 2022," (2022). Available at <https://www.weforum.org/reports/global-gender-gap-report-2022/>

Feminists provide models of activism against oppression and exploitation at their local levels that pinpoint the problems that this kind of systematic androcentric bias generates against the bodies under duress, including (but not exhaustively), intersectional racial and sexual discrimination (discussed in Crenshaw, McKittrick, Tate) from absolute fear of difference by an aggressive militarised patriarchal process (Frederici) to accounts of the current women's revolutionary movement in rural India (Ghandy, Shiva), where caste-based violence against women combine with patriarchal systems of oppressions and cycles of poverty continue to be exploited by capitalist labour forms (Fernandes).⁷² Their interventions are points of life (which I describe below as feminist quantum-vectors), demonstrating and demanding change.

Nancy Fraser proposes approaching gender "bifocally," identifying two ways that gender is commonly viewed. First by class distribution and second by status recognition, Fraser advocates for viewing the two approaches viewed "simultaneously."⁷³ Gendered classes are identified by paid productive labour forms (majority of jobs allocated by historical androcentric systems that determine the economic structures within paid labour: higher pay for "hard," professional career work for the men, lower pay for "soft," service industry work for the women). Fraser argues that only when these two lenses are "superimposed" will we have a "viable feminist politics in the present era."⁷⁴

However, contra Fraser, quantum femininity argues that feminist demands cannot achieve their objectives by concentrating solely on the problem of gender structures. Feminist activities all conceptualise the illusory, false, limiting, and poorly conceived aspects of temporal linear conformity. With the proliferation of digital communications platforms, there is more access to information about the multiple voices and narratives where the patriarchal colonial world determines its progressive economic minoritarian

72 Cf. Kimberlé Crenshaw, "Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics," *University of Chicago Legal Forum*, no. 1, Article 8, (1989): 139–167. <http://chicagounbound.uchicago.edu/uclf/vol1989/iss1/8>; Katherine McKittrick, ed., *Sylvia Wynter: On being human as praxis* (Durham and London: Duke University Press, 2015): 16–24; Shirley Anne Tate, *From Post-Intersectionality to Black Decolonial Feminism: Black Skin Affections* (New York: Routledge, 2023); Vandana Shiva, *The violence of the green revolution: third world agriculture, ecology and politics* (London and New York: Zed Books, 1991); Vandana Shiva, *Earth democracy: Justice, sustainability and peace* (Berkeley, California: North Atlantic Books, 2005); Anuradha Ghandy, whose teachings to women's groups in Dandakaranya region that covers tribal Bastar in rural India, are collected in Anuradha Ghandy, *Philosophical Trends in the Feminist Movement* (Beijing: Foreign languages Press, 2021); Fernandes, Leela. *Producing workers: The politics of gender, class, and culture in the Calcutta jute mills* (Philadelphia: University of Pennsylvania Press, 1997).

73 Nancy Fraser, *Fortunes of feminism: From state-managed capitalism to neoliberal crisis* (London and New York: Verso, 2013), 162–3.

74 Fraser, *Fortunes of Feminism*, 162.

success. Campaigns are run; interventions are staged. But the unsustainable resource consumption model remains with the social reproduction model of body control (the constant requirement for the various working-class bodies to deliver the service and care industries' needs and engage in information governance, education, and resource control). What quantum thinking enables us to do is to not just articulate but to engage more deeply with the problems that Fraser identifies since quantum enables us to think of this superimposition as actually a superposition.⁷⁵ Superposition is a quantum term, describing the ways in which matter can exist in overlapping states with other matter, making its entangled state become something else. We acknowledge that a cause of "something" can never be attributed to a singular cause; there are always multiple states of things. Superposition, as Stacy Moran describes, is a useful complementary quantum concept to think with in relation to the agential realist conception of the entanglement of matter, as it asks us to consider entanglement as interference that can be destructive and constructive.⁷⁶ How we can begin to articulate the experience of what a body can and could be, imagining the superpositioned states of things in a world, for example, describing the sensations and processes and systems of layers of water, plant, and chemical particles, will lead us to different accounts of life.

6. Quantum Feminicity: Experimental Modes (and Experiential Movement)

The quantum mode refigures the androcentric use of "women"—of being subjects that are matter-object-tools for the service-delivery of the capitalist system. Time-based technology forms show this awareness of possibility, and quite explicitly, demonstrate the time of cultural violence: the tedium of gender specific social and cultural requirements, the laborious time of the day of a housewife or mother, the tedium of time of gendered adolescence, of institutionalised education, domestic labour and neocapitalist work, and the care and service roles for the vulnerable.⁷⁷

Some interpretations of quantum mechanics suggest that time is not a fundamental aspect of reality but is instead emergent from other underlying physical processes. In this sense,

75 On superposition's relevance for feminist work on how power structures are maintained and organised, see discussions in Pothos, Emmanuel M., and Jerome R. Busemeyer, "Can Quantum Probability Provide a New Direction for Cognitive Modeling?" *Behavioral and Brain Sciences* 36, no. 3 (2013): 255–74. doi:10.1017/S0140525X12001525; Stacey Moran, "Quantum Decoherence," 1052.

76 Feminists might also reach for the concept of intersectionality here; but that is a specific diagrammatisation of the redress required for racialised, gendered, and hierarchised bodies. Coming from a poststructuralist condition; its fixed historical situation (of specific cases) holds a different meaning that the multiple worlds modal experiment of superposition.

77 Contemporaneous screen media forms such as television and the cinema are particularly adept as mirroring the political positions of bodies.

countermanding time is disruptive of the normatively perceived flow of time.

Arkady Plotnitsky argues that the concept of a quantum field—as a mode of what he describes as “reality without realism,” “makes the terms “observation” and “measurement,” as conventionally understood, inapplicable in considering quantum phenomena.”⁷⁸ Plotnitsky broadly proposes the term “experiment” as preferable to “measurement,” and I agree; following that the implications of the term experiment is central for quantum literacy, as it enables to all kinds of creative generative concepts and forms,⁷⁹ as well as producing failures, and the possibility of the destruction of things.

With quantum feminicity, the experimental is the mode of activation, of a change of the state of things. Quantum physics describe things as contingent thereby changing what were thought to be unconditional laws of “nature.” Similarly, feminist work strives to describe the physical, spatial and temporal nature of the constructed reality that they find their bodies located in and by: just because of the governance of their corporeal visible embodiment of a genealogy of ethnicity, gender, and or social class—through androcentric modals. Feminist theories (of whichever methodological inclination) describe how the production of a gendered body is contingent upon the referential values of the observer of (the body), and protest at the implications this observation holds. While this description might seem resonant with the theory of relativity,⁸⁰ actions now described as diffracted, entangled, decoherent (Barad; Plotnitsky) lead us to think quantum modes for framing our contingently fragile, and slippery existence in the worlds we inhabit.

I am not arguing that there has been a “quantum turn” in the same way that theorists have advocated for a “material,” “affective” or “intersectional” turn.⁸¹ While quantum concepts

78 Arkady Plotnitsky, “Nature has no elementary particles and makes no measurements or predictions: Quantum measurement and quantum theory, from Bohr to Bell and from Bell to Bohr,” *Entropy* (23, no. 9 (2021): 1197, doi.org/10.3390/e23091197

79 For example, see Laurie Anderson’s creative use of the concept of quantum in her essay, “Quantum Listening is Full of Space and Questions,” in Pauline Oliveros, *Quantum Listening*. Ignota.org. 2022: 1–6.

80 Arkady Plotnitsky demonstrates that: “Relativity was the first physical theory that defeated our ability to form a phenomenal conception of individual physical behaviour, and as such, it was a radical change in the history of physics.” In Arkady Plotnitsky, “Nature has no elementary particles and makes no measurements or predictions: Quantum measurement and quantum theory, from Bohr to Bell and from Bell to Bohr,” 6.

81 Cf. Maria Carbin and Sara Edenheim, “The intersectional turn in feminist theory: A dream of a common language?” *European Journal of Women’s Studies* 20, no. 3 (2013): 233–248; Patricia Ticineto Clough and Jean O’Malley Halley, eds., *The Affective Turn Theorizing the Social* (Durham: Duke University Press, 2007): 1–22; Iris Van der Tuin, “New feminist materialisms,” *Women’s Studies International Forum* 34, no. 4, (2011): 271–277.

are undoubtedly in their early stages, they are nevertheless being used as methodological tools and modal metaphysics.⁸² I am interested to surface the idea that thinking with quantum modes is a feminist philosophical action, which I describe here as quantum feminicity to infer the condition of quantum as a potential transformative mode and the condition of feminism. Feminist activism seeks to achieve change through processes of systematic and transparent ethically minded equitable ways of being. I want to consider how engaging quantum is to reach through the “what is reality” question that Latour examined, to the emergence and naming of (an) existence as a mode that examines how existence itself, as a “reality,” is constructed, and by what narratives, material artefacts, and technological platforms is it constituted.⁸³ Quantum feminicity, as such, is a part of the modal realist philosophical movement, engaging with modal metaphysics to engage with the concepts that given our everyday lives form actuality, possibility, and contingency. Meanings of the modalities for life (or paradigmatic realities as situated knowledges) are, however, crafted according to community and individual experiences. Life-duration involves the conditions of events (sometimes called experiences or phenomena), cognition of events (sometimes named as awareness, “intelligence”), and assemblages of information (counterfactual reasoning). These each entail different registers as different bodies trigger different quantum-vectors, but their meaning is generated by their modalities that are bound through their historical governance and limited to the contemporary situation—as Jackson cautions, “do not assume the transparent difference of the human.”⁸⁴

Adopting this cautious, contingent approach, feminist philosophy can no longer define

82 Cf. Karen L. O’Brien, “Climate change and social transformations: is it time for a quantum leap?” *Wiley Interdisciplinary Reviews: Climate Change* 7, no. 5 (2016): 618–626; Jay Gambetta, “IBM’s Roadmap for Scaling Quantum Technology,” IBM Research Blog, (September 13, 2022), <https://research.ibm.com/blog/ibm-quantum-roadmap>.

83 Beyond the economy of this article, but contributing to my thoughts, is the question of modes of existence as it has been addressed in recent philosophy, cf; Étienne Souriau, *The different modes of existence*, trans Erik Beranek and Tim Howles (Minneapolis & London: University of Minnesota Press, 2016). The metaphysical implications of specific modal frameworks discussed by Bruno Latour, *We have never been modern*, trans. Catherine Porter (Cambridge, Massachusetts: Harvard University Press, 1993); Bruno Latour, *Pandora’s hope: Essays on the reality of science studies* (Cambridge, Massachusetts: Harvard University Press, 1999); Bruno Latour, *An inquiry into modes of existence: An anthropology of the Moderns*, trans. Catherine Porter (Cambridge, Massachusetts: Harvard University Press, 2013); Graham Harman’s discussion of Latour’s contribution to the debates on the metaphysics of reality in Graham Harman, *Prince of networks: Bruno Latour and metaphysics* (Melbourne: re. press, 2009). See also Gilbert Simondon, *On the mode of existence of technical objects*, trans. Cecile Malaspina and John Rogove (Minneapolis: Univocal Publishing, 2017); and Yuk Hui, *On the Existence of Digital Objects* (University of Minnesota Press, Minneapolis, 2016).

84 Zakiyyah Iman Jackson, “On Race, Species and Becoming Human,” *More-Than-Human Encounters*, collaboration of Vrije Universiteit Brussels Crosstalks and Kaaitheatre. (livestreamed March 25, 2021), last accessed 12/12/2022, <https://www.youtube.com/watch?v=7YNJn0h4gCo>

“experience” as a counter point to “knowledge”. Or to put this another way, the feminist project of critical epistemological excavation of the conditions of their gendered experience are no longer the defining problem-to-be -solved. Rather, feminist philosophy that engages the quantum modal framework approaches existence-as-reality is formed by different modes through which a subject and their community are co-constituted.⁸⁵ Recognising this co-constitution as an entangled state are quantum-vectors, which can be described by their modal organisation (such as we see with Beyoncé’s reclamation of her black woman’s body through a deontic modal framework).⁸⁶ These are subject to and constituted by not only possibilities that are opened through any countermanding temporal actions, but also the factors of contingency and actuality. How do we address then, the situated nature of the production of a communally emergent subjectivity? Can “a body” be accounted for within a quantum feminist register?

There are multiple modes of styles and forms of existence, but by way of heading toward a conclusion for this article, I want to briefly focus further on the formation of a quantum field, through experimentation, perhaps alongside an experiential mode. Instead of deferring to Kant or James’s definition of experience to think about “reality,”⁸⁷ or Merleau-Ponty or Deleuze to talk about phenomenological human-centred affect, I connect with the work of new materialist scholars who are committed to investigating, as Barad defines, the “material nature of practices and how they come to matter.”⁸⁸ The “reality” that quantum femininity is generative of is through the haecceitistical attunement with the material practices of their condition. Feminists create different modes of being by rejecting androcentric structures and demanding not only a change, but as Jackson argues, what is urgently required is the “redress” of the notion of people—in all of their differences.⁸⁹ We see these modes of experience called into practices of all kinds—they may be autoethnographic or community in formation (Afrofuturist; Climate Emergency; Social justice work)—with different outcomes.

In Vandana Shiva’s work, the pressing issues of climate justice, and just transitions

85 An exemplar of the kind of community practice I have in mind here is described in Dagmar Lorenz-Meyer, “Becoming responsible with solar power? Extending feminist imaginings of community, participation and care,” *Australian Feminist Studies* 32, (2017): 427–44.

86 See fn 61.

87 William James, “A world of pure experience,” *The Journal of Philosophy, Psychology and Scientific Methods* 1, no. 20 (1904): 533–543.

88 Barad, *Meeting the Universe*, 45. For a feminist new materialist discussion that argues with a post-humanist phenomenological thesis, see Astrida Neimanis. *Bodies of water: Posthuman feminist phenomenology* (London: Bloomsbury Academic, 2017).

89 Zakiyyah Iman Jackson discusses the issue of redress in relation to racialised subject constructions throughout Zakiyyah Iman Jackson, *Becoming Human* (New York: New York University Press, 2020).

for women's struggle against a violent and unequal cycle of overlapping systems are described in terms that draw upon simultaneous and superimposed temporal layers of a biopoliticised, gendered community body. Shiva's work on the women's liberation movement in rural India describes what Mohanty noted as a part of the feminist politics of experience, where a:

temporality of struggle, which disrupts and challenges the logic of linearity, development and progress that are the hallmarks of European modernity... [the struggle is] an insistent, simultaneous, nonsynchronous, process characterised by multiple locations, rather than the search for origins and endings.⁹⁰

Modernism leads to a mode of production identified by Silva as a mode of experience that can only be changed when community switches to experiment with actions that might actually change things.

On a completely different political register, but nonetheless actively experimenting with the issue of vernacular temporal realities, Kristeva's essay *Le Temps des femmes* (1979) is regularly cited as such a vector-point text, meaning that its publication shifted thinking about a number of pressing political strands: that of the nation-state and its conception in Europe at the end of the 1970s. At the time of its publication, the issue of sexual equality is at the forefront of feminist interventions, as unpaid but economically required reproductive labour is required for the continuation of the monumental histories that economies rely upon, more bodies to service the economy through reproductive modes of labour. Against this background, Kristeva invokes the difficult political positions of the dominant feminist movements and methods of this era, particularly thinking on the notion of a "female subjectivity" in terms of its constitution by temporal narratives that deploy biological tropes to convey a modal gendering of time as it might pertain to the time-span of the biology of that human body with reproductive facilities: "cycles, gestation..."⁹¹ Putting aside her focus on reading the 1970s feminist critique of psychoanalytic modal frameworks that forever condemn the subject to a life defined by psychosis (the phallogentric Freudian social and symbolic predication of "woman" as-deficit-narrative), what is striking in this article is Kristeva's characterisation of how we might think of societies as "sociocultural formations" that can be perceived in terms of the "multiple modalities of time known through the history of civilization."⁹² This contrasts a notion of monumental time with a cyclical time, which instead refers to the past as a site of potential difference. Coming at

90 Chandra Talpade Mohanty, *Feminism without borders: Decolonizing theory, practicing solidarity* (Durham, N.C., Duke University Press, 2003), 120.

91 Julia Kristeva, "Women's time," trans. Alice Jardine and Harry Blake, *Signs: Journal of women in culture and society* 7, no. 1 (1981 [1979]): 16. <https://doi.org/10.1086/493855>

92 Kristeva, "Women's time," 16.

the beginning of a new cycle of inflated global economic activity (1980s) and the start of the neo-capitalist imperative for progress, Kristeva's situation of her discussion on the "reproduction" required by the human species in order to maintain the "tributary of time" equates the patriarchal framework as a repressive technology where women's bodies are treated like nature: to be organised and controlled. This social time is controlled and maintained by "sociosymbolic" contracts to which gendered bodies must submit, a form of measurement which is rendered "objective" by androcentrist frameworks). Colebrook notes that: "Kristeva's 'women's time' functions as a potentiality for a break with sequence, series and the progress of a self-developing subject in favour of a creative event that is nevertheless inflected by the past."⁹³ Kristeva's identification of the gestation time and the political problems of her historical time are couched within the analogue-time social frameworks. Recognising that Kristeva has described a "potentiality for a break" Colebrook identified the active-point of critique as intervention: the potential opened by the feminist articulation—as a point where change can occur. *This potential is the quantum mode; it is the possibility of experimentation, and the name for a countermanded way to speak of experience more specifically in its modal operational form or system.* I would argue that this recognition is what opens community into a quantum mode where the androcentric temporal order (and its normative narratives) is countermanded not as a collective of androcentric time modals, but as empathetic, lived, experimental quantum-vectors that singularly provide access-to other conglomerates, or join-with, thereby generating a communal mode.

Concluding Remarks: The (Contingent) Modal Ends of Time

As we appreciate the notion of calculability in the current capitalist system of work and organisation, then any measurement is also a marker of epistemic categorisations, or as Bergson would have it, a measurement marks out the value system. If x value system = the mode of ethics, then when considering what form of temporal mode is being used in any given situation clues us into the ethos.

Experience can be conceptualised by the concept of time. Within and over time, actions, events occur, modal frameworks change. The impetus for change in societies is propelled by technology, requiring new design solutions. The technological changes in militaristic activities—from the invention of gunpowder, atomic power, information warfare, etc—generate new experiences, new worlds. But people generally detest change. They hold onto the structures they think they know and while they may be quick to adapt to a situational external change, they hold on to their learned behavioural systems. *This is a*

93 Claire Colebrook, "Stratigraphic time, women's time," 15.

modal reality of androcentrism that is without the lived, experiential pluralism of the majority of life. Philosophical and creative modes provide vectors to imagine how things could be otherwise (experimental possibilities = quantum mode), and or express how things are (actuality).

Jackson argues that “imagining a new world then, demands the reimagining of the body.”⁹⁴ How do we achieve this requirement within the current contingencies of life; how to bring these ideations into forms that are not Frankensteinian. Feminism is nothing if not a critical metaphysics; one which not only examines the posited epistemic points of knowledge frameworks devised by the natural sciences, technology, theology, legal systems—including the familial, educational, national, and economic systems of governance, access, and human rights.

Thinking forms and experimenting through the lens of the work of feminists in community and joining with their identification of lived action-points cause an intervention into the status quo (through technology, through actions), and can generate a change in the dimensions of worlding conditions. The intervention engages the quantum paradigmatic—in that the feminist work has opened up access to the modes of their calculative production and lead to a deeper understanding of a quantum femininity. Heeding Stenger’s caution, this term is not intended to invoke another theoretical movement, rather it forms part of quantum literacy through a recognition of the work that is being done in instances of quantum feminism, moving actualities of androcentricism to possibilities for a different community of existence through experimentation. This paper has named just a few durational vectors in this transformational mode of production of feminist worlds, where the quiddity of modal systems narrativise their various states and processes (such as countermanding, superposition and experimental practice) through the naming of—the never singular—modalities of feminism. What quantum ideation of the constitution of forms and concepts in worlds provides for us is perception of the ways in which different measurement modalities engender different forms of material knowledge to be produced – and also the possibility of different modes of participation, as new technologies open different platforms for experimentation, data collection, observation and analysis of the dust that we are.

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94 Zakiyyah Iman Jackson, “On Race, Species and Becoming Human.”

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Ontopolitics of Equality and Xenoaesthetics of Abstraction

Gonzalo Vaíllo

Abstract:

This article explores the relationship between metaphysics, politics, and aesthetics in relation to *technē* within the context of equality. It presents two interconnected arguments. Firstly, it emphasises that equality is situated within the framework of ontopolitics, understood as the convergence of metaphysics and politics. This fusion is grounded in a shared systematic structure within the object's internal dynamics. Secondly, the article underlines the importance of the mode of human cognition and object presentation in implementing equality. It proposes the xenoaesthetics of abstraction as a regime of action for perception to effectively establish the ontopolitical framework of equality. By challenging prevailing notions of transcendence, the article advocates for a non-hierarchical interior of the object that embraces the mutual constitution of object and subject. It recognises the thing's capacity to reveal itself to us and be realised through us, emphasising the mobilisation of subjectivities as additional manifestations of the object. This perspective offers a complementary pathway to contemporary critical and activist discourses, promoting the advancement of equality through an ontopolitical focus on objects.

Keywords:

technē, object-oriented ontology, aesthetics, metaphysics, politics, transcendence

1. Introduction

The concept of *technē* has traditionally been approached from a human-centred perspective, focusing on the skills and techniques used by us in conjunction with instruments and devices, namely, technology. Unlike the pre-modern era, when the term was associated with artisans and craftsmen who fused technical expertise and artistic creativity, the modern era has prioritised efficiency and control over aesthetics. In this way, scientists and engineers have gradually become the standard-bearers of *technē*, emphasising problem-solving knowledge. Critiques of this functional approach prompted alternative perspectives. Notably, Martin Heidegger's interpretation returned to its Greek origins, elaborating an idea of *technē* that extends beyond a mere collection of techniques for manipulating the material world but as a way of revealing it.¹ On another note, *technē* has also been examined for its role in informing social relations and cultural development.² On this front, feminist studies have extensively explored technology's contribution to shaping society, emphasising liberation and challenging power structures through more inclusive and collaborative uses of technological tools.³

This overview offers three preliminary scenarios of *technē* as procedures concerning utilitarian production, deep revelation, and socio-political emancipation. The first scenario aligns with modern pragmatism in so far as it seeks to fulfil prescribed standards and functional requirements. The second engages in ontological studies, acknowledging the gap between reality and appearance while revealing the depth of things in experience. The third scenario, especially on its current feminist neo-materialist front, employs alternative uses of technology to empower marginalised actors, allowing them to forge new connections and relationships free from culturally imposed norms.

In light of this, the third scenario's techno-scientific feminist approaches strive to challenge the directives of the first scenario. Critics argue that the technological positivism and functionalism of the first scenario disregard social and ecological concerns,

1 Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. Wililam Lovitt (New York and London: Garland Publishing, 1977). For another notorious critique of the modern concept of technology in its utilitarian and effective orientation, see Jacques Ellul, *The Technological Society*, trans. John Wilkinson (New York: Vintage Books, 1964).

2 See, for example, the milestone works: Walter Benjamin, *The Work of Art in the Age of Its Technological Reproducibility, and Other Writings on Media* (Cambridge, MA: Harvard University Press, 2008) and Marshall McLuhan, *Understanding Media: The Extensions of Man* (Cambridge, MA: The MIT Press, 1994).

3 For example, Donna J. Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York, NY: Routledge, 1991), 149–81; and Laboria Cuboniks, *The Xenofeminist Manifesto: A Politics for Alienation*, eBook (London: Verso Books, 2018).

prioritising economic objectives over environmental well-being and favouring select elites who determine the worth and significance of goals pursued through technology. On a more specific note, techno-scientific feminism also critiques current realist ontologies inherited from the second scenario, particularly Object-Oriented Ontology (OOO), for their indifference and neglect of urgent socio-political and ecological issues of our time.⁴

Techno-scientific feminist critiques have played a vital role in challenging the biases and power imbalances inherent in certain historical understandings of *technē*, advancing the promotion of equality by proposing alternative conceptualisations and practices of the term. However, it is important also to recognise that, despite their significant impact, these critiques have not completely abandoned the anthropocentric framework. Their methods often rely on moral and rational approaches to constructing and implementing new senses of justice, inclusion and equality that, while expanding human-centred perspectives, still operate within them. In view of this, one possibility to overcome these limitations and explore new avenues on the question of equality is to address the question of *technē* from the point of view of the objects themselves. How does shifting the focus of *technē* from an anthropocentric perspective to considering the autonomy and transformative potential of objects contribute to exploring political equality beyond the human realm? Within that, what is the role of the human subject in this schema, and how does this shift affect the human quest for equality? Furthermore, do ontological realist concepts really lack political scope as the feminist new-materialism claims? Is it really so that the *technē* of revelation of the second scenario, which underpins OOO's cognitive approach through aesthetics, have no chance of making any meaningful contribution towards achieving conditions of equality?

To address these questions, the article first hypothesises that the condition of equality lies in the overlapping of metaphysics and politics, here termed *ontopolitics*, within the framework of the object. Therein, it posits that *technē* refers to the thing's internal dynamics, which may include human and non-human participation depending on the object at stake. Secondly, the article identifies that the mode of human cognition and presentation of the object plays a crucial role in activating the condition of equality within

4 For example, Rosi Braidotti laments that "ontological realists," in reference to Object-Oriented Ontology authors, "...ignore and dismiss feminism, post-colonialism, race and ecological thinking." Rosi Braidotti, *Posthuman Knowledge*, eBook (Hoboken, NJ: Wiley, 2019), chap. 2. A similar critique, albeit with a milder tone, can be found in Francesca Ferrando, *Philosophical Posthumanism* (London: Bloomsbury Academic, 2019), 164. Or Marko Jobst and Hélène Frichot warn of the influence of this realist philosophy on architectural theory and its apparent lack of political scope, describing it as "a third wave of depoliticised phenomenological work [that] risks overcoming our field via object-oriented ontologies." Marko Jobst and Hélène Frichot, *Architectural Affects After Deleuze and Guattari* (Routledge, Taylor & Francis Group, 2021), 1.

this interdisciplinary fusion and introduces the notion of *xenoaesthetics of abstraction* for such purposes.

Certainly, exploring the connection between a metaphysics of objects and politics within the framework of equality and pluralism is not without challenges. The current scholarly emphasis on egalitarian and pluralist political models predominantly revolves around direct and tangible dispositions, mostly framed in the neo-materialist paradigm. These approaches rely on activism and criticism derived from meticulous analyses of specific sociological imbalances. While recognising the significance of these methods and their indispensable role, this article contends that alternative routes exist for advancing socio-political goals of equality. One of these ways is ontological realism, which is admittedly interpreted in a particular way here.

The article is structured into two main parts. The first part will explore the concept of *ontopolitics of equality*, focusing on how democratic and pluralist aspects are embedded within an ontological model that views objects as diverse and abundant manifestations unified by a singular being, i.e., as One/Many structures that span vertically and horizontally simultaneously.⁵ The connection between metaphysics and politics will be found in a *systematic structure* shared between the two fields. Defining such a structure will require re-evaluating the object's interior, for which four strategies will be proposed. In this context, by considering the inner heterogeneity and differences of the object, which we will capture through the prefix *xeno-* as "stranger" in Greek, the article will conceptualise the object's internal dynamics as simultaneous relationships of fellowship and disagreement. This oxymoronic or xenological schema will result in an ontopolitical pluralism characterised by exchange and agonism. Moreover, the general notion of *technē* will attend to the object's inner vertical movements along the One and horizontal movements along the multiple coordinates of the Many. In this regard, the article will identify that the *technē* of revelation of the second scenario is also one of revelation: it is not only that the object reveals *to* us, but it also realises *through* us. This point of view will result in a *technē* in which the object and the subject instrumentalise each other.

The second part of the article will focus on *xenoaesthetics* as a cognitive or relational regime operating within the object's internal movements. As a *technē* of revelation/realisation, this regime of perception and action will demonstrate a capacity to simultaneously address the thing's vertical and horizontal developments as a means to implement ontopolitical equality. To this end, *abstraction* will be claimed as a mode of presentation best suited to

5 Although argued differently, my idea of "ontopolitics" as an overlap of metaphysics and politics resembles that of David Chandler, who instrumentalises the term to move beyond a human-centred politics. See, David Chandler, *Ontopolitics in the Anthropocene: An Introduction to Mapping, Sensing and Hacking* (Abingdon and New York: Routledge, 2018).

elicit the xenoaesthetic cognitive mode.

The conclusion will underline the reciprocal relationship between metaphysics and politics, highlighting the human anti-exceptionalist vocation of ontopolitics for the purpose of equality. It will also stress the emancipatory potential of the xenoaesthetics of abstraction as a regime of perception and action based on the mobilisation of subjectivities.

2. Ontopolitics of Equality

A politics of equality takes place in activating the object's multiplicity.

Justifying this statement that highlights the centrality of the object and its inherent diversity in the political requires defining a framework where the role of the object's ontological multiplicity coincides with the political concerning equality and pluralism. To detail this framework, we have first to open the pathway of the possibility of a general relationship between metaphysics and politics.

Carl Schmitt's theory of political theology is a notable example in this regard. His argument for connecting the two disciplines lies in identifying the analogy that modern political concepts have to theological ones, both in their historical development and "systematic structure."⁶ For instance, just as God holds ultimate authority in theology, the sovereign occupies a comparable position in politics. By highlighting this similar "systematic structure" between politics and theology (which extends to metaphysics), Schmitt suggests that understanding the metaphysical foundations of political concepts and practices—the "metaphysical kernel of all politics," as he terms it—is key to understanding the nature and dynamics of politics, even in ostensibly secular contexts. He writes: "The metaphysical image that a definite epoch forges of the world has the same structure as what the world immediately understands to be appropriate as a form of its political organization."⁷

It is from the general framework provided by Schmitt regarding the possibility of connecting a specific socio-political structure with its corresponding metaphysical worldview that an ontopolitical argument can be developed. In our case, the achievement of this connection relies on elaborating a "systemic structure" centred around the concept of *multiplicity* as the foundation of equality. To this end, the following question arises: how does multiplicity contribute to the realisation of equality in ontology and politics? The answer lies in recognising the concept of multiplicity as a means of embracing egalitarian

6 Carl Schmitt, *Political Theology: Four Chapters on the Concept of Sovereignty*, trans. George Schwab (Chicago and London: The University of Chicago Press, 2005), 36.

7 Schmitt, *Political Theology*, 46.

pluralism without imposing homogeneity or erasing differences. By valuing diversity, multiplicity creates an egalitarian milieu in which manifold manifestations—and the individuals upholding them—coexist, engage and participate in the issues or objects at stake but also oppose each other, as each contributes differently.

Against this background, our proposed metaphysics for multiplicity embraces the One/Many concept from a discrete perspective.⁸ In its broad sense, this approach involves the relationship between a singular and unified existence developed vertically (the One) and the plurality of individual instances developed horizontally (the Many). Certainly, most traditional interpretations of this model adopt theological perspectives, emphasising the supremacy of the One over the Many by placing being beyond tangible apprehension. This view is thus immediately consistent with Schmitt's arguments connecting metaphysics and politics. However, upon closer examination, the issue of equality remains unresolved, and the nature of politics is diminished. These problems stem primarily from the hierarchical nature of any theological disposition, which contradicts any possible principle of equality. Rhetorically asked: if, as hypothesised, metaphysics and politics resemble the same "systematic structure," how is it possible to arrive at a condition of political equality based on an inherently hierarchical metaphysical proposition? Moreover, prevailing notions of transcendence—which underpin every theological proposition that attributes superiority to domains, entities, and realities beyond the material and sensuous realm—tend to neglect politics, perceiving it as symbolic or ontologically unreal because of its focus on tangible, pragmatic, and worldly aspects. Therefore, politics cannot attain a status of reality within the traditional metaphysics of transcendence.

To address these flaws, it is then necessary to seek a One/Many schema that refrains from relying on an ultimate and concealed authority to legitimise events that are seen as purely symbolic or referential on the "surface" of the world; otherwise, "that would make it an idealism," as Lars Spuybroek points out.⁹ In other words, to arrive at a multiplicity of equality while retaining the realist One/Many system, the hierarchical foundations of this model need to be overturned. Drawing on some of Spuybroek's concepts, we introduce the prefix *xeno-* (Greek for "stranger") as an instrument to capture the relation of familiarity and otherness both on the front of the vertical and horizontal development of the thing, as well as between the multiple manifestations of the latter axis. To elaborate on this perspective, we propose four strategies for rethinking the interior of the object in order to establish an ontopolitical framework of equality. First, we advocate an equal distribution of the real between the domains of being and manifestations. Second, we emphasise the equal importance of each manifestation by considering them as the object's fragments

8 For an alternative approach to the notion of multiplicity, see Gilles Deleuze, *Difference and Repetition* (London: Continuum, 2001).

9 Lars Spuybroek, *Grace and Gravity: Architectures of the Figure* (London: Bloomsbury, 2020), 242.

that are both real and referential. Third, we recognise that our experiences, actions and decisions are themselves object's expressions. Fourth, we conceptualise the relationships between manifestations, including our impressions, as one of fellowship and disagreement, two opposites resulting in a simultaneous politics of exchange and conflict.

2.1. The Internal Xeno-distribution of Reality

The first departure from theological perspectives involves establishing an ontology that is not holistic but discrete. Following Graham Harman's insights, the world is seen not as a singular One/Many structure, like Heidegger's Being/beings system, but populated by a myriad of discrete and autonomous One/Many entities.¹⁰ On this basis, we subscribe to one of the general lines of Object-Oriented Ontology (OOO), whereby, although not always explicitly formulated in these terms, entities are seen as a vastly finite and particular constellation of manifestations (the Many) unified by an immaterial and singular being (the One).¹¹ But unlike the authors that defend this view, we do not situate reality in an asymmetrical internal distribution between these two domains, as if reality only involves the vertical axis. Instead, we conceptualise the object as an indivisible conjunction where both the One and the Many intervene *equally* in its ontological definition. Such a distribution is the basis for building a metaphysical argument for a politics of equality.

For example, unlike Levi Bryant, our proposition does not attribute the object's reality solely to its "virtual proper being" (here called the One), thereby relegating its "local manifestations" (or Many) to mere instruments of inference.¹² As a result, Bryant's theory explicitly marginalises the political sphere as an epistemological concern devoid of any ontological significance for the object.¹³ Similarly, in contrast to Harman, our proposition does not endorse the notion of *essence* as a selective set of genuine or "real qualities" that dismiss the implications of "sensual qualities" in constituting the object's reality.¹⁴ Such an internal ontological hierarchy hampers any endeavour to connect metaphysics and politics within a framework of equality. In other words, while these approaches ground

10 The world as a myriad of discrete objects is one of the points of departure that Harman draws between his theory and that of Heidegger; see Graham Harman, *Tool-Being: Heidegger and the Metaphysics of Objects* (Chicago and La Salle, IL: Open Court Publishing, 2002).

11 Graham Harman, *The Quadruple Object* (Alresford, UK: Zero Books, 2011), 86–87; Levi R. Bryant, *The Democracy of Objects* (Ann Arbor, MI: Open Humanities Press, 2011), 69; Ian Bogost, *Alien Phenomenology, or What It's Like to Be a Thing* (Minneapolis, MN: University of Minnesota Press, 2012), 12; and Timothy Morton, *Hyperobjects: Philosophy and Ecology after the End of the World* (Minneapolis, MN: University of Minnesota Press, 2013), 1–24.

12 Bryant, *The Democracy of Objects*, 88.

13 Bryant, *The Democracy of Objects*, 16–17.

14 See Harman, *The Quadruple Object*, 99–102.

equality through the concept of *flat ontology*, which recognises the same ontological status for each entity, the path to equality goes halfway as it operates exclusively from the object to its outside. There is equality *between* objects, but not *within* the object. In light of this, we applaud the (new)materialist view of recognising the entire horizontal development of the Many as real. But we disagree with their view that reality involves only the horizontal axis and, consequently, their rejection of the unifying One and its participation in the real.

In the face of these internal imbalances that prevent any complete ontological attempt at equality, we espouse not only through the concept of flat ontology a state of existence equal to everything in the world. In addition, we acknowledge the same importance of both the domain of the One and that of the Many in the construction of things' interior, situating reality in the multiple and irreducible connections between being and each of its manifestations. In this respect, the connections between the One and the Many are seen as *xenological* in character.¹⁵ This relationship entails a simultaneous condition of familiarity and otherness: despite being completely alien to each other, these domains are united by the same object, coming together to construct the thing's internal bonds.

In this context, the object's reality appears in the *whole* object—rather than some selected corner of its being or some essential features—with the One and the Many as domains of the same importance in its ontological constitution. We can illustrate this xenological perspective through Joseph Kosuth's renowned installation *One and Three Chairs* (1965), which consists of a physical chair, a photograph of it and a textual description of the word "chair."¹⁶ Reading it from a realist ontological perspective rather than from the American conceptualist artist's semantic and linguistic motivations, we reject the idea that the Chair as an object equates with the One and the three chairs are some of its floating and referential expressions without any constitutive role, as well as its opposite where the chairs lack a common ontological unifying framework in a One. In contrast to these positions, redistributing the object's reality equally in its interior implies that the Chair finds its self-ness in two opposing poles entitled to coordination: that of the singular being and that of the multiple expressions. In this view, the three chairs are three exposed coordinates of the largest Many of the Chair, with the One serving as the unifying element—rather than the Chair-in-itself—of such a Chair's multiplicity.

15 For an alternative and complementary treatment of the notion of *xenos*, see Jordi Vivaldi, "Xenological Subjectivity: Rosi Braidotti and Object-Oriented Ontology," *Open Philosophy* 4 (2021): 311–34, <https://doi.org/10.1515/opphil-2020-0187>.

16 Joseph Kosuth, *One and Three Chairs*, 1965, <https://shorturl.at/tyST3>.

2.2. Fragmentation and Flatness

Nevertheless, ensuring an even allocation of reality within the object involves recognising not only the equal importance of the One and Many domains on a general level. It also requires extending some of the object's conditions to its specific being/manifestation connections—in this case, that of inseparability, equality and reality. In doing so, the object becomes the sum of disparate *fragments* with equal standing, in which each one is both real and referential for the same reason: because of being a portion of the object as a whole.¹⁷ Let us argue why.

Applying the inseparability of the One and Many domains to the particular connections entails that no manifestation exists without a corresponding being, and vice versa. There are neither orphan images nor isolated beings. In this view, and regardless of the subject's awareness, each of Kosuth's three chairs is argued to be inextricably linked to its immaterial One, a condition extensible to the rest of the Chair's abundance. At the same time, we agree with realist and transcendent theories that the Chair cannot fully manifest itself in the world via any of its embodiments. However, unlike most of them, this incompleteness does not imply a retreat of the Chair into a shadowy core, leaving referential expressions devoid of any sense of genuine reality. Such an approach would reintroduce the theological stance of unequal reality distribution within the object. Instead of condensing the thing's reality leading again to a hierarchical transcendence, we arrive at a non-theological or flat transcendence by extending it equally vertically and horizontally (i.e., xenologically) within the object. In this scenario, the Chair transcends not because of its concealed but *excessive presence*: it surpasses its capacity to manifest all its profiles simultaneously. The thing is "a presence beyond the present," as Spuybroek describes.¹⁸ In this schema, the thing's reserve that is not present, yet is real, constitutes its horizon of the possible.¹⁹

This excessive presence of the object in each appearance—always accompanied by its being—makes the fragment both real and referential. Like cake slices, Kosuth's

17 In this sense, the notion of emergence does not apply to the object's reality, where its totality is the sum of its fragments. Instead, it applies to the formalisation of its instances, where, for example, the physical chair emerges from the various wooden pieces and their assembly process, standing as a fragment of the Chair.

18 Lars Spuybroek, "Charis and Radiance: The Ontological Dimensions of Beauty," in *Giving and Taking: Antidotes to a Culture of Greed*, ed. J. Brouwer S. Van Tuinen (Rotterdam: V2_Publishing, 2014), 136, [emphasis removed].

19 Here, I follow Spuybroek in acknowledging that this reserve beyond the present is not virtual à la Deleuze in a relation between inexistence and existence. On the contrary, the reserve already exists in what he called the "superactual," in which the possible or the potential is the relation between existence in the not-present and coexistence in the present. Spuybroek, "Charis and Radiance," 136–37.

three chairs are real insofar as the Chair's presence is fragmentarily in each of them. Simultaneously, they are referential insofar as the Chair's totality exceeds each of them precisely because they are fragments. In other words, the manifestation—together with its inseparable being—is not only phenomenal and symbolic, but also ontological, whether we are or not conscious of it. Put provocatively, all the object's manifestations are "real qualities," relocating Harman's essentialist terminology into our anti-essentialist proposition. But this ontological gain of phenomena in no way invalidates the condition of being transcended, that is, referential to that which transcends it. As we shall see in a moment, what transcends the fragment is precisely the One and the Many that house it. In this way, we arrive at an internal system of simultaneous passages or turnings of transcendence and referentiality between ontologically real fragments.

It is precisely in these passages that we situate the notion of *technē*. These turnings are mechanisms that gear the internal movements of the object. It is important to note that these dynamics do not need human mediation to function, so the scope of *technē* broadens from subject to object, including non-human connections. Like any other coordinate, humans only intervene in those transitions in which the object requests them as instruments. Moreover, these internal dynamics of transcendence operate at the same time vertically and horizontally due to the One/Many structure. In the vertical, each fragment is equally transcended by the object towards its wholeness. The Chair's totality exceeds each of its chairs in the same way. In turn, this means that each fragment equally represents the object as a totality. Some might see a return to a hierarchical ontology between the whole and the parts. However, the proposed verticality remains flat in that both poles of the part-whole relation have the same real ontological status concerning the object, with the difference that the object is itself completely in the whole and is itself fragmentary in each part.

In the horizontal, insofar as the object is seen as a collective of fragments, each fragment is also transcended by all the other fragments within the object. In turn, each fragment represents and embodies all the others.²⁰ Extensible to the rest of the Many, we observe that each Kosuth's chair stretches threads towards the others forming two-way channels. In one direction of the channel between coordinates, each one (let us say the physical chair) acts as a *gateway* or portal: it has the capacity to trigger all the others, giving transcendence a productive dimension. Each fragment is then part of a pushing or turning mechanism, a *technē* that requires the participation of other instruments (a person, a camera, a typewriter, etc., as the case may be) coordinated in design ecologies to jump between the object's manifestations. In the other direction of the channel between two fragments, the

20 Somewhere else, I refer to this internal condition of the object as "flat representativity." Gonzalo Vaíllo, "Superficiality and Representation: Adding Aesthetics to 'Knowledge without Truth,'" *Open Philosophy* 4, no. 1 (2021): 48, <https://doi.org/10.1515/opphil-2020-0150>.

physical chair is “thickened” in that it embodies all the other chairs. It pulls its neighbours towards itself in an act of representation. Accommodating Spuybroek’s terminology to this bidirectionality between fragments, each one emits or “radiates” towards the others but also receives the others, shaping itself as a “thickened appearance.”²¹ When all these interconnections are considered, we can identify an inner *matrix of exchanges* between fragments based on production and representation (or triggering-embodying) dynamics.

2.3. Experiences as Fragments

By object’s manifestations, we should not exclude the subject’s impressions. When “we understand [our] impression to be the *expression* of the object,” as Heinrich Wölfflin puts it, experiences—in their broadest cognitive sense, encompassing reflective, sensory, and bodily actions—are part of the object’s abundance, thus fragments of it.²² From this standpoint, how somebody sits in Kosuth’s physical chair, understands the textual chair or engages in any other form of experience as impressions, feelings, thoughts, judgments, and performances with the Chair are not exclusively personal. Like the three chairs and the rest of their Many, this activity of the human subject also pertains to the Chair as an object, a view already held by some OOO authors.²³ Such inclusion makes all that was said about manifestations in the previous point equally applicable to experiences. This means that experiences as fragments are, together with the instruments that endow them, also turning mechanisms or passages. Thus, our experiences, actions, thoughts, and cognitions are *technē* in themselves, fostering movements from one coordinate to another within the object, while being additional coordinates themselves.

This perspective allows us to situate phenomenology within the framework of realist metaphysics. That is, phenomenological experience is not solely a mechanism employed by the subject to unveil the thing. These experiences are also real fragments that participate in defining the thing’s reality. In doing so, we also become a mechanism through which the thing realises itself fragmentarily in the world. This means that cognitive processes occur within the object, being an instrument, a technology, of it. Spuybroek terms this condition *phenotechnology*, where “things do not [only] appear phenomenologically for us, they [also] appear phenotechnically for themselves.”²⁴

21 Spuybroek, “Charis and Radiance,” 136.

22 Heinrich Wölfflin, “Prolegomena to a Psychology of Architecture,” in *Empathy, Form, and Space*, ed. Harry Francis Mallgrave and Eleftherios Ikononou (Santa Monica, CA: Getty Center for the History of Art and the Humanities, 1994), 150.

23 Bryant, *The Democracy of Objects*, 69; and Morton, *Hyperobjects*, 82.

24 Spuybroek, *Grace and Gravity*, x, [emphasis removed].

2.4. The Xenological Character of Fellowship and Disagreement Among the Fragments

The undeniable connection between politics and experience, coupled with the integration of experiences within the object manifestations discussed above, leads to the *merging* of metaphysics and politics under the same systematic structure.²⁵ This intradisciplinary relationship goes beyond being a mere “analogy,” as Schmitt suggests, highlighting the vital and not merely referential interaction between the two fields.²⁶ In our case, the concept of multiplicity captures the equality condition within this ontopolitical systematic structure, where experiences have been argued as both real and referential fragments with the same ontological relevance to the object’s reality and have been inscribed in a non-hierarchical, hence flat, matrix of representation and production.

Further elaborating on the object’s ontopolitical character, the dynamics between its fragments can be understood as simultaneous relationships of *fellowship* and *disagreement*. To demonstrate this dichotomy, we reintroduce the concept of *xenos* to cast the tension between familiarity and otherness, this time not between the vertical and horizontal axes but between the object’s multiple coordinates. In other words, the idea of the Many as strangers living together highlights the coexistence and interplay of heterogeneous positions inside the object, resulting in an ontopolitics of equality characterised by exchange and conflict.

On the one hand, fellowship characterises the vertical unity and commonality shared by each manifestation towards the same One, as well as their equal fragmentary involvement in the constitution and exercise of the object’s wholeness. Horizontally, fellowship sets the “thickened” condition of the fragments, which, as noted, embody and trigger each other within the object’s internal matrix of exchange. From our human perspective, if each of my experiences encompasses all possible expressions of the Chair, just like any of Kosuth’s three chairs does, it implies that other people’s impressions about something are also within mine. This “ability to truly *see* topics from various sides—that is, politically,” Hannah Arendt writes, “results in people understanding how to assume the many possible perspectives provided by the real world.”²⁷ In our case, this politics of gaining consciousness of the others’ positions becomes effective ontophenomenologically in gaining consciousness of the thickness of the object’s manifestations (starting with noticing the thickness of my own experience), which means gaining consciousness of the

25 As almost all philosophical schools have explored, experience and politics are interdependent, as our individual and collective experiences shape our political beliefs and actions, while politics, in turn, influences and shapes our experiences through the policies and decisions it implements.

26 Schmitt, *Political Theology*, 36.

27 Hannah Arendt, *The Promise of Politics* (New York: Schocken Books, 2005), 167, [grammar adapted].

thing's amplitude and existence, i.e., of its xenological being/multiplicity or One/Many structure as a whole. Here is where the opening statement of this section that "a politics of equality takes place in the activation of the object's multiplicity" finds its full meaning.

On the other hand, while fellowship among manifestations is found in the commonality of these vertical and horizontal endeavours, there is also a state of disagreement in the way each fragment carries them out. Vertically, the physical, the photographed, and the verbal chairs—and along them, the entire Many, including our impressions and actions—offer different, even contradictory, standings of the Chair. Stripped of their assumed semantic interplay, these expressions are certainly strangers to each other, to the point that each fragment can be seen as a "hegemony" towards the thing's totality. Introducing Chantal Mouffe's notion of agonistics into this framework, the conflicting aspects of the object's vertical dynamics are marked by the irreconcilable "hegemonic struggles" in how each fragment exerts its equal excessive presence differently.²⁸ Attached to that is the establishment of particular horizontal orders or masks by which each chair determines its own routes and processes particularised to every subject to reach the other manifestations. In other words, relocating Jacques Rancière's famous ideas on "disagreement" and the "redistribution of the sensible" within the object, the conflict in the horizontal development lies in the different *experientable gradients* that a fragment's mask of exchange offers.²⁹ Although each chair is "thickened" in the sense that it "radiates" or spans routes to all of its colleagues, each of these routes may be more direct, convoluted, or even blocked depending on both the manifestation's and the subject's characteristics to transit them together—a transit or turning which, as a reminder, has been argued to be a *technē* of both revelation for the subject and realisation for the object. For example, it is evident that for a human subject as an activator instrument of turnings, the passage from the physical to the textual chair differs from the one leading to the photographed chair. Each passage requires different conditions for its execution. If particularised to the extreme, this means that each fragment, together with each subject, establishes unique pathways towards particularised horizons of the possible within the same object, a possible or reserve that we already know from Spuybroek to be an exceeding reality that is always there. In short, the conflicting character between fragments rests in their distinct postures to facilitate or hinder representational and triggering functions for each different subject.

28 Chantal Mouffe advocates for embracing conflict in politics and proposes a pluralistic view of hegemony as temporary power relations. See Chantal Mouffe, *Agonistics: Thinking the World Politically* (London and New York: Verso, 2013).

29 Rancière argues that disagreement plays a crucial role in politics, as it disrupts the established order and creates spaces for political transformation. These disruptions are political in that they reconfigure what is considered visible, thinkable and possible in society. See Jacques Rancière, *Disagreement. Politics and Philosophy* (Minneapolis, MN: University of Minnesota Press, 1999); and Jacques Rancière, *The Politics of Aesthetics* (London: Continuum, 2004).

3. The Xenoaesthetics of Abstraction

Within this framework, inequality stems from the fixation and normalisation of certain experiential routes or masks as the only possible and true ones of the object, with the consequent empowerment of those who authorise such fixations. In turn, this reduction neglects all other pathways and turnings, hampering—or more directly, nullifying—both the subject's navigation and revelation capacity and the object's realisation possibilities. From a socio-political point of view, predefined routes ground inequality in forcing a subject to assume others' modes of experience. As a result, the subject is oppressed in that their bodily and mental ability to perform the object's existence and abundance in their own way is suppressed. When so, the subject's possibility of awareness of the object's existence and amplitude, i.e., of seeing it politically in its One/Many dimension, vanishes. Whether imposed or consensual, these fixed masks turn cognition into *recognition*. In this context, the *technē* of revelatory exploration becomes institutionalised and canonised in a reduced set of automatisms that systematically use the same coordinates to arrive at the same coordinates. From an ontological point of view, the reductions of experienceable trajectories lead to inequality by preventing the realisation of the object's richness and diversity. Such an approach is often accompanied by the annulment of the sense and awareness of the object's autonomous existence in the subject, who unfortunately confuses the thing as their unilateral, anthropocentric construction.

To counteract these scenarios, it is worth asking how the ontopolitical framework of equality discussed above can be made effectively present. We noted earlier that, from a human perspective, the implementation of this framework hinges on the subject's awareness and activation of the thing's singular existence and its multiple coordinates. We have also seen that there are multiple ways to achieve this, so many as different subjects involved in the object to exploit the maximum of what the object's amplitude offers. Moreover, these ways have been characterised by a condition of fellowship as they occur inside and about the same object and by a condition of disagreement insofar as they occur in each case differently. Thus, is there a cognitive or relational mode capable of this? Additionally, is it possible to identify characteristics of manifestations that are more effectively conducive to such a regime of action, thereby enacting the development of the subject's capacities of revelation as well as those of realisation of the object? Our proposition in this regard is the *xenoaesthetics of abstraction*. Before giving a joint definition, let us look at their terms separately.

3.1. Aesthetics

In this context, aesthetics extends beyond stylistic and calligraphic analyses of appearances, encompassing the object's internal relational dynamics. These dynamics, described above as the "mechanisms [or *technē*] that gear the internal movements of the object," involve fragments of disparate nature. Consequently, aesthetics applies not only to the human realm and the arts but more ambitiously to the sphere of life. We thus side with those positions for which aesthetics permeates non-human interactions and our everyday experiences, underlining the broader scope and ontological importance of aesthetics.³⁰ Within this framework, one may question the implications of this account of aesthetics for the human subject.

It is argued that aesthetics establishes a cognitive mode or regime of action to engage with the object's being and abundance. It is a *technē* of the object's vertical and horizontal movements. As fragments, we actively participate in and from the object by encountering its exposed phenomena. These encounters become aesthetic when they go beyond the tangible and presentational characteristics of phenomena. In other words, the exposed manifestations that serve as the basis of our cognition evidence their radiant and thickened condition when acting as gateways or triggers for our navigation through the object's interior. Aesthetic relationships are thus not passive observations but active mechanisms that require emotional, intellectual, sensory, and bodily mobilisation. Our affective sensibilities and capacities enact personal explorations of the object and, in the process, also of our own subjectivity, as we have conceptualised our personal experiences not only as ours but also as other coordinates or manifestations of the object (Section 2.3).

3.2. Xenoaesthetics

In this context, the turn from aesthetics to xenoaesthetics resides in recognising, first, the capacity of aesthetic experience to embrace the xenological One/Many condition of the object (Section 2.1) in the same cognitive act, and within this, secondly, the familiarity and otherness of the forms and executions of each of these aesthetic cognitions—and by

30 Among the authors mentioned in this article, Spuybroek, Morton, or Harman acknowledge in some way or another the aesthetic relationality beyond the human, no less than its presence in ordinary human experience. Timothy Morton, *Ecology Without Nature: Rethinking Environmental Aesthetics* (Cambridge, MA: Harvard University Press, 2007); Lars Spuybroek, *The Sympathy of Things: Ruskin and the Ecology of Design*, 2nd edition (London: Bloomsbury, 2016), 214; and Graham Harman, *Object-Oriented Ontology: A New Theory of Everything* (London: Penguin UK, 2017), chap. 2. For an extensive treatment of the aesthetics of the ordinary, see Yuriko Saito, *Everyday Aesthetics* (Oxford, UK: Oxford University Press, 2007).

extension of the subjects who carry them out (Section 2.4). In other words, xenoaesthetics is claimed as the relational mode that operates simultaneously in the verticality and horizontality of the object for each experience of and with the object differently. In this conception, formalist aesthetic theories that pursue aesthetic judgement as an end in itself situated in the One (e.g., Kant, Fiedler, Greenberg, Fried, or Harman) meet those with a vocation for openness found in the Many (e.g., Eco, Calvino, or Rancière) for the same aesthetic act.

The general aesthetic approach of the first group pivots on feeling the thing's singular existence and reality beyond its appearance and material effects. This experience is typically discussed as immaterial in that it escapes any accurate qualitative formulation, which matches our case because the One has been defined as singular and non-articulated. However, it is important to recall that, unlike these formalist theorists, our concept of being does not refer to the thing-in-itself-as concentrating the object's reality at some point(s). On the contrary, we have referred to being as an internal unifying element. Thus, as I think Kosuth's installation explicitly points out, the verticality of aesthetics is characterised by the sensation of the *unity* of the thing rather than of the thing as such. In this context, the vertical aesthetic axis is claimed to be xenological and, with it, ontopolitical: while the result of the unitary sensation is common to all aesthetic experiences of and within an entity, the trajectories and subjectivities that invoke it are disparate, or more precisely, agonistic, as described above.

This celebration of a myriad of subjectivities under a single unity, which can be found in Harman's aesthetic theory, is opposed to the aesthetic formalism of the eighteenth, nineteenth and twentieth centuries.³¹ Against these traditional stances, the xenological character surrounding the One is, for example, particularly evident in Franz West's installation *Passtücke* (or *Adaptives*), where, also in line with our expanded scope of aesthetics, the artist considered the plaster and metal pieces not only as works of art but, more generally, as everyday objects.³² It is argued that by inviting users to interact intuitively with them without prescribing correct forms of manipulation, the pieces elicit aesthetic experiences performed in contrasting ways that nonetheless immaterially reveal

31 The dissolution of subjectivity is especially present in the formalist aesthetic theories of Fiedler, Greenberg or Fried. These authors homogenise or universalise the subject by neglecting the diversity of subjective-aesthetic possibilities for arriving at the same unitary sensation of an object's being. See their positions in Conrad Fiedler, *On Judging Works of Visual Art*, trans. Henry Schaefer-Simmern and Fulmer Mood, 2nd ed. (Berkeley, CA: University of California Press, 1957); Michael Fried, *Absorption and Theatricality: Painting and Beholder in the Age of Diderot* (Chicago, IL: University of Chicago Press, 1988); and Clement Greenberg, *Homemade Esthetics: Observations on Art and Taste* (Oxford, UK: Oxford University Press, 2000). For a formalist aesthetic approach in which subjectivity as theatricality is celebrated, see Graham Harman, *Art and Objects* (Medford, MA: Polity Press, 2020).

32 Franz West, *Passtücke Mit Box Und Video*, 1996, <https://shorturl.at/uFMV9>.

a common being. Consequently, the paths leading to the sensation of the One of the Adaptives are as varied as the individuals engaging with them, highlighting the shared yet diverse, i.e., xenological, vertical nature of these experiences.

On the other hand, the second group of authors adopts a general aesthetic approach that also incorporates the diversity of experiences. However, in this case, their emphasis is on horizontal development, wherein the abundance of the Many assumes importance as the prevailing aesthetic currency. In this regard, the value of a manifestation or appearance lies in its ability to function as a gateway, that is, in making its inherent radiance that offers multiple pathways to other fragments evident and effective. Umberto Eco aptly expresses this notion when he asserts that “the work of art gains aesthetic validity precisely in proportion to the number of different perspectives from which it can be viewed and understood.”³³ The active and creative participation of a heterogeneous audience is then necessary to activate the thing’s inherent multiplicity. As fostered in West’s pieces, where each manipulation is different as each user handles them in their own way, the apparatus of material revelation undergoes a process of pluralisation that, in turn, expands the object’s possibilities of material realisation. Consequently, a thing’s experiential gradient, masking, or horizon of the possible is constantly reconfigured according to each performance. It adapts to each subject’s different cognitive capacities, while each of these xenoaesthetic experiences is another coordinate that becomes excessively present in the world.

In light of this, xenoaesthetics is a cognitive mode or regime of action that experientially accounts for the object’s totality by engaging with its vertical and horizontal domains in the same encounter. Xenoaesthetics is considered as *technē* insofar as it reveals to us the double One/Many condition of the object, while at the same time realising it or making it excessively present through us. Moreover, it does so from within, since the xenoaesthetic process is another fragment in the constitution and representation of the object’s reality.

3.3. Abstraction

Yet as we know, not every phenomenon can bring us backstage beyond its factual presence, that is, of acting as a gateway exercising its radiance and thickness. It is, therefore, worth asking what can be the postures or coordinates in what we encounter a thing for a subject to engage with its One and the Many. If we have previously identified that recognition is a form of perceiving and acting that repeats itself mechanically without extending

33 Umberto Eco, *The Open Work*, trans. Anna Cancogni (Cambridge, MA: Harvard University Press, 1989), 3.

previous or imposed experiences, i.e., that it always uses the same coordinates to arrive at the same object's coordinate, a cognition free from such a limiting and standardised framework can be achieved through the mobilisation of subjectivities. Learning from West's Adaptives, *abstraction* stands for such a possibility. This approach assumes that the less specific a manifestation is, the more difficult it will be to achieve any predefined objective. Therefore, the more personal and intimate the subject's approach to the thing, the wider the access to its horizon of the possible.

In this way, *asemicism* and *asyntacticism* characterise abstract phenomena as gateways. For example, West's pieces are asemantic in that they lack any semantic prescription in evaluating or using them. Their structure is concrete, but their reception is vague and open. Abstract phenomena thus lack any predefined meaning or valuation category to bias experience or determine its validity. In parallel, Adaptives are also asyntactic in that they do not point to their presentational qualities and compositional aspects as their *raison d'être*. Unlike many understandings and critiques of formalism in the arts that focus attention on the structural features of the work, the asyntactic expression performs its excessive presence precisely by renouncing its own presence to attend to its excess, i.e., to make evident to the subject the One and the Many that it embodies. Nevertheless, this standpoint of abstraction is not exempt from risks. Its central paradox is, perhaps, to be too abstract. In such cases, an overly distant presentation may not elicit the thing's abundance and existence but will lead to indifference. Hence, the design challenge lies in articulating abstract expressions appealing enough to engage the user with maximum intensity without recognition techniques, while keeping the encounter on the brink of disengagement collapse.

3.4. The Xenoaesthetics of Abstraction

In this context, the xenoaesthetics of abstraction stands as a deep and transformative cognitive or relational mode that operates within the object's ontological framework. This mode acknowledges and engages with the thing's singular existence and its multiple manifestations, embracing the inherent heterogeneity and diversity present in aesthetic encounters. By spanning across both the vertical and horizontal development, the xenoaesthetics of abstraction offers a holistic sense of the object's existence and richness. Drawing on the object's xenological condition characterised by fellowship and disagreement within the realms of the One and the Many, as well as between the object's fragments, xenoaesthetics enacts the interconnectedness and interplay between the object's diverse coordinates. It recognises that each experience can engage with the object's being and abundance in multiple ways by establishing particular organisations of pathways and routes among fragments. By rejecting fixed and normalised routes, which

limit the cognitive encounter, the xenoaesthetics of abstraction encourages an open and personalised exploration of the object through interaction with its abstract phenomena. Therefore, special attention is paid to asemic and asyntactic phenomena as gateways to the thing's interior. These phenomena do not rely on prescribed forms and meanings but instead create spaces for individual interpretation and engagement.

For this reason, the xenoaesthetics of abstraction opens up the thing's excess beyond its past and present condition, enabling individuals to access the object's horizon of possibilities in their own unique and personal ways. The emphasis on individualisation and personal engagement within the xenoaesthetics of abstraction leads to constantly reconfiguring the thing's experiential gradient, masking, or horizon of possibilities. In other words, the xenoaesthetics of abstraction promotes the mobilization of subjectivities beyond recognition-based presentations. This call aims to uncover the maximum extent of the object's complexity and diversity for a given subject.

At the same time, each performance and aesthetic encounter, as it is a fragment of the object, possesses an inherent capacity for excessive presence in the world. It thus functions as a *technē* of revelation and realisation of the object's unity and diversity. As seen in the performances with West's pieces, abstract phenomena act as gateways, triggering a cascade of xenoaesthetic experiences. Each of these xenoaesthetic experiences, if sufficiently abstract in someone else's eyes, becomes a catalyst for further engagements with the thing. This chain of multiplicity rooted in interconnected interpretations and involvements expands the object's realisation, thus exposing its intricate matrix of exchange.

4. Conclusion

The article has examined the intersection between metaphysics and politics in relation to the question of equality based on the concept of multiplicity and has proposed a cognitive regime for implementing such an ontopolitical framework. From there, the first concluding point highlights the reciprocal interplay between the disciplines and practices of metaphysics and politics. Our approach refutes the notion that metaphysics unilaterally grounds and legitimises all other practices, including politics, as evident, for example, in Schmitt's view that politics functions as an "analogy" of metaphysics. Adopting such a perspective leads to the unconditional elevation of metaphysics as the governor of all other discourses while at the same time exempting itself from critical scrutiny. It would paradoxically be the only discourse that legitimises itself, as it would be the only one authorised to deal with the question of the real. Similarly, we reject the counter-proposal that material practices, including politics, are the exclusive foundation of metaphysical

concerns. Instead, we acknowledge the complex interactions between metaphysics and politics in shaping each other on the basis of a shared systematic structure of the object's reality, which has been characterised by vertical and horizontal movements.

The second concluding point emphasises a complete commitment of ontopolitics to human subject anti-exceptionalism by addressing the object on its own terms without neglecting the subject's condition and needs. As in the previous point, this approach does not imply subjugation, in this case, of the subject to the object. On the contrary, it foregrounds the reciprocal interaction between the two entities in their respective constitutions. This metaphysical perspective on the socio-politics of equality then responds to feminist posthumanist and neo-materialist critiques of an alleged passivity of object-oriented approaches to such questions. Indeed, critics and activists within these frameworks typically fall short of fully embracing a non-anthropocentric discourse as they continue to elaborate maxims of justice and equality from subject-based moral and rational positions. In this sense, such a difference in approach also extends to non-human entities. The shift from politics to ontopolitics includes *by default*, rather than by moral and rational compulsion, non-human actors in the object's construction of reality and its political sphere. This expansion is made possible by recognising the heterogeneous and disparate population in the thing's multiplicity. In any case, it is crucial to underline that the ontopolitical approach is not intended to replace contemporary critical and activist positions. It rather offers a complementary perspective that opens up additional avenues for achieving the shared goal of equality, despite differences in method.

This point brings us to the third and final observation, which focuses on the emancipatory capacity of the *technē* of revelation, which has also been argued to be one of realisation for the object. Within the framework of ontopolitics and the quest for equality, the xenoaesthetics of abstraction has been presented as a mechanism for achieving this goal. Rather than attempting to rectify specific imbalances or address predefined notions of inequality, this approach relies on enacting the object's inherent egalitarian condition. Practically speaking, it does so through insertions of abstract revelations/realisations into the ubiquitous situations of inequality of our time without any objective other than the activation of multiplicity. This strategy allows personalised, hence multiple, reconfigurations of the horizon of the possible of the confronted entity. In other words, through disseminating abstract propositions, xenoaesthetics establishes a framework of perception and action that encourages individuals to engage with the object on their own terms. The mobilisation of their unique perspectives and capacities activates the thing's abundance and accounts for its singular existence. The multiplicity of the object calls for a multiplicity of approaches, which not only acknowledges the object's reality but actively contributes to its formation. In this context, the thing's singularity and diversity become evident and acquire a political significance through xenoaesthetics by pluralising

the subjective encounters as expressions of the object. The fellowship and disagreement not only between such human manifestations but also between all the other non-human coordinates of the object mark the thing's internal dynamic operations, which in its verticality and horizontality, articulates the ontopolitical systematic structure of equality.

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Scale and Sexuation: Toward a Multi-Scalar (Techno)Feminism

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Abstract:

Technofeminism has long known that it must be a multi-scalar feminism, that is, able to think, encounter, and negotiate the scalar complexity of our increasingly technically mediated forms of life. In this paper, we examine two recent technofeminist formations, “newmaterialism” and “xenofeminism,” from the perspective of contemporary theorisations of scale. We find that neither of these forms of technofeminism can, however, adequately think multi-scalarity—each fall into respective versions of what theorist of scale Zachary Horton has termed “scalar collapse,” a reduction in the last instance to a “master-scale” or trans-scalar logic that subsumes scalar difference and multiplicity. We claim that a multi-scalar feminism would, conversely, be able to both mediate across complex and non-hierarchical scalar topologies of difference, *and* do justice to the real and insuperable differences, disjunctions, rifts, and cuts between scalar domains. Such a desire is shared by xenofeminists, though we query whether their neo-rationalist account of rational mediation can adequately account for the form of difference we take to be necessary for a multi-scalar approach. This form of difference has been described by contemporary theorists of scale as a difference of “at least two,” a figure for which we find crucial resources in the philosophies of Luce Irigaray and Gilbert Simondon. Against readings of Irigaray’s concept of sexuate difference as reductive or essentialist, we deploy Simondon’s account of individuation to understand this sexuate “at least two” as ontogenetic—that is, as a claim to a *generative limit* that enables scalar becomings to unfold in indeterminate ways. This allows us to fulfil the requirements we take to be necessary for any multi-scalar account: to have fidelity to the real differences between scalar domains without forgoing their mediation; and to mediate those differences without relying upon one determining ground or totalising form of transitivity. A multi-scalar feminism would not only be able to better negotiate multi-scalar phenomena, but ultimately realise a new form of mediation—one that does not determine the world in its image but is rather open to and makes possible an opening toward radical indeterminacy and transformation.

Keywords:

Sexual Difference, Scale, Irigaray, Simondon, Technics, Xenofeminism

Introduction: Scale and Contemporary Technofeminism

Today's technofeminist is confronted by a world composed of ever-more densely layered abstractions: informatized scales of technoscientific address pile up on the philosophical terrain. What theorists today hazard to call the material and the ideal converge and depart at ever-more extreme angles across an ongoing proliferation of scales, from the pharmacological¹ to the planetary-computational.² Technofeminism has long known that it must be a multi-scalar feminism, that is, able to think, encounter, and negotiate this increasing scalar complexity. In response to multi-scalar issues such as global climate change, planetary computation, and the ever-evolving formations of capitalism, Laboria Cuboniks have claimed that a feminism which exclusively valorises the local, both philosophically and politically, "in the guise of subverting currents of global abstraction," is thoroughly insufficient.³ Feminist theory must rather be willing to engage in "constant modulation between different scales of comprehension and intervention—connecting micro, meso and macro levels of complexity".⁴ Product of our increasingly technically mediated forms of life, this complexity demands requisite innovations in feminist thought—our ever-more astonishingly multi-scalar reality requires a multi-scalar feminism, a feminist theoretical apparatus capable of mediating disparate scales of life both in their relation and discontinuity.

Our paper responds to this challenge, taking seriously the question of what theoretical tools such a multi-scalar technofeminism might require. Technofeminism, as we use the term here, covers the diversity of attempts at theorising science and technology from a centrally feminist position,⁵ including but not limited to "Feminist technoscience studies,"⁶ "Feminist Science and Technology Studies"⁷, cyberfeminisms⁸, and, the foci of this paper, "new materialisms" and "xenofeminism." Within these various technofeminisms, scale emerges as a crucial technofeminist concern because contemporary technics itself constitutes the organisation and systematization of multi-scalar relations, which inevitably point to mediations beyond the social and linguistic. Inasmuch as any contemporary feminism wishes to engage with the *technicity* of sex—in all its valences—it must negotiate the hyper speeds at which multiple domains of difference emerge and transform

1 Preciado, *Testo Junkie: Sex, Drugs, and Biopolitics in the Pharmacopornographic Era*.

2 Parisi and da Silva, "Black Feminist Tools, Critique, and Techno-Poethics."

3 Cuboniks, *The Xenofeminist Manifesto*, 2018.

4 Cuboniks, "New Vectors from Xenofeminism," 2022.

5 While we use the term in a slightly different way, we acknowledge the influence of Judy Wajcman's *Technofeminism* in coining the term to describe feminist theorisations of the relationship between technics and gender. Wajcman, *TechnoFeminism*.

6 Åsberg and Lykke, "Feminist Technoscience Studies."

7 Schumann, "Feminist STS and the Sciences of the Artificial."

8 Lê, "The Most Radical Philosopher: Putting the Cyber Back in Sadie Plant's Cyberfeminism."

identities, bodies, economies, affects, norms, social relations, and technoscientific codifications. Such domains of difference entail their own translations, vocabularies, and processes, which each interact in non-trivially distinctive ways. Following recent media-philosophical work on the concept,⁹ we call these domains “scales.”

We claim in this paper that a feminism adequate to *techne* is one that can embrace the real and irreducible differences that exist across complex and non-hierarchical topologies of scale, whilst also deploying a form of mediation that treats these as transformable, non-essential, and non-deterministic. It is this form of difference and its mediation that is key for thinking through the possibility of a multi-scalar feminism, one that can both maintain epistemological and ontological fidelity to the real differences and tensions between scalar domains, without reducing these differences to essentialist, determining grounds. However, this simultaneous negotiation of and fidelity to difference involves addressing difficult internal tensions within feminist engagements with technics. Attention to technical objects has motivated technofeminists to bridge the domains of the material and ideal, the inscriptive and abstract, whose linking has long been a site of contestation within Post-Kantian thought. Whilst on account of its foundational anti-essentialism the feminist project in general has tended to be sceptical of traditional technoscientific accounts of objectivity or universal truth, technofeminisms have not merely critiqued false universals and false objectivities, but boldly and speculatively constructed “hyperstitional”¹⁰ innovations for grappling with the “‘real’ world”¹¹ of technoscience, that patchwork of regularities and systems, empirical relations, and materially effective activities. To adequately engage technics, science, and the political milieu of an increasingly technically mediated world, technofeminism has therefore needed to become a *realist* anti-essentialism.¹² Donna Haraway articulates this technofeminist tension like so:

9 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021; DiCaglio, *Scale Theory: A Nondisciplinary Inquiry*, 2021; Tsing, “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales,” 2012; Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017; Woods, “Scale Variance and the Concept of Matter,” 2017; Chakrabarty, “World-Making, ‘Mass’ Poverty, and the Problem of Scale.”

10 Wilson, “Cyborg Anamnesis: #Accelerate’s Feminist Prototypes.”

11 Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective (1988),” 579.

12 Indeed, the turn to various forms of realism has perhaps been the most widely shared rallying-cry of contemporary engagements with science and technology, including feminist ones. While this may be most clearly observed in contemporary technofeminisms, as Katerina Kolozova makes clear, this ‘turn’ to realism was made boldly and speculatively by feminist theory well before the emergence of OOO, new materialism, and left accelerationist neo-rationalisms. Kolozova, “Preface: After the ‘Speculative Turn,’” 2016, 13.

‘our’ problem, is how to have simultaneously an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice for recognizing our own ‘semiotic technologies’ for making meanings, *and* a no-nonsense commitment to faithful accounts of a ‘real’ world¹³

Technofeminisms must find ways to commit to both these injunctions: to be anti-essentialist in resisting the dominating (hetero-patriarchal, Eurocentric) tendency towards trans-scalar absolutisation, reduction and determinism, whilst also realist in their commitment to grappling with and staking claim to phenomena that cut across ontologically different scales and siloed epistemologies to engage with the “objectivity” of science and technology in tractable ways.

In this paper, we identify two main tendencies within contemporary technofeminist attempts to negotiate both realist and antiessentialist commitments, which we find in the theoretical paradigm of the “new materialism” on the one hand, and on the other, the more nascent and emergent provocations put forward by “xenofeminism.” By examining these approaches through contemporary theorisations of scale, we find that neither of these forms of technofeminism can, however, adequately think multi-scalarity—each fall into respective versions of what theorist of scale Zachary Horton has termed “scalar collapse,” a reduction in the last instance to a “master-scale” or trans-scalar logic that subsumes scalar difference and multiplicity. We claim that a multi-scalar feminism would, conversely, be able to both mediate across complex and non-hierarchical scalar topologies of difference, *and* do justice to the real and insuperable differences, the disjunctions, rifts, and cuts, between scalar domains. Such a desire is shared by xenofeminists, though we query whether their neo-rationalist account of reason can adequately account for the form of difference we take to be necessary for a multi-scalar approach, a difference that has been described by contemporary theorists of scale as a difference of “at least two.”

Toward this end, we draw out two philosophical figurations of this “at least two” which we find in the work of Luce Irigaray and Gilbert Simondon. We gesture toward their philosophies of difference as possible avenues for a feminism that could adequately think real scalar difference without falling into scalar collapse, and, as such, be definitively multi-scalar. Irigaray’s notion of “at least two” sexuate difference may appear to be a perfect instance of the kind of naturalising gesture xenofeminism finds to inhibit multi-scalar mediation. However, through Simondon’s ontogenetic account of individuation, we gesture toward a rapprochement of these two figures’ work that allows us to understand Irigaray’s notion of “at least two” sexuate difference ontogenetically—that is, not as a

13 Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective (1988),” 579. Our emphasis.

determining essentialist difference or a “fideistic” imposition of the given, but as a claim to a *generative limit* that, rather than being a conservative bulwark against change and transformation, enables scalar becomings to unfold in indeterminate ways. This allows us to think multi-scalarity, that is, the real differences between scalar domains, without relying upon one determining ground or totalising, transitive medial framework. A multi-scalar feminism would not only be able to better negotiate multi-scalar phenomena, but ultimately realise a new form of mediation—one that does not determine the world in its image but is rather open to and makes possible an opening toward radical indeterminacy and transformation.

Beyond Geometrical Scaling: Multi-Scalarity and Scalar Collapse

Scale, in recent theorisations of it as a fundamental concept,¹⁴ indexes any domain of relatively bounded coherence: a level,¹⁵ structure,¹⁶ or layer¹⁷ that organises a set of relationships between differently structured¹⁸ or sized¹⁹ entities. The terminology used to define scale in the literature is varied—for instance, William Wimsatt writes of “levels” and “divisions of stuff (paradigmatically but not necessarily material stuff) organized by part-whole relations”;²⁰ alternatively, Yuk Hui draws on a lineage from Bachelard and Simondon to describe scale in terms of “order of magnitude,”²¹ where zones and modes of existence can be both differentiated and systematically related, while simultaneously “departing from the Cartesian subject of observation, which favours an absolute localization and permanent individuality.”²² Despite this varied terminology, contemporary theories tend to agree that scale is nontrivial in that it indexes more than purely contingent assemblages, but neither can scales be determined “in advance”—they are not reducible to rigid hylomorphic categories. As Zachary Horton has claimed, scale is “a primary form of difference, a diagrammatic force of *composition* that continually

14 Various authors describe scale as primary, non-arbitrary, basic, or beyond mere epistemology or ontology, claims which we elaborate on throughout this paper.

15 Floridi, *The Philosophy of Information*.

16 Puntel, *Structure and Being*.

17 Bratton, *The Stack*.

18 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021; DiCaglio, *Scale Theory: A Non-disciplinary Inquiry*, 2021.

19 Tsing, “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales,” 2012; Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017.

20 While Wimsatt here uses the term ‘levels’ to describe such generic divisions, we see his theoretical elaboration of the concept as broadly equivalent with wider theorisations of the concept of scale. Wimsatt, *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations of Reality*, 2007, 201.

21 Hui, *On the Existence of Digital Objects*, 29.

22 Hui, 29.

differentiates itself from within, producing new objects of incommensurate sizes.”²³ A scale is thus a stabilisation of relations into topologically complex but structurally non-arbitrary orders or levels, and as such, it is a fundamental element of the *individuation* of coherent entities. This entails, however, that we understand the functions of scale as not simply epiphenomenal categorisations or arbitrary groupings and take seriously the ways that operative disjuncture between scalar domains is necessary for technoscience.

If we are to take science and technology seriously, we must begin from the position that scale is a real and ineliminable aspect of the world. As argued across contemporary theorisations of the concept, scale is a “*deep, non-arbitrary*”²⁴ feature of reality, functioning as more than “‘mere epistemology.’”²⁵ Where some philosophers might emphasise our best physics’ transitivity across all scales of phenomena,²⁶ philosophers and theorists concerned with scale have emphasised that this universal applicability is *insufficient* for our understanding of the world, as there are in practice ineliminable scalar disparities. The ineliminable quality of these scalar disparities is most apparent in applied science and engineering practices, where it is often referred to as the “tyranny of scales,”²⁷ emphasising its constitutive and unavoidable nature. Put simply, the problem is this: our ways of modelling and manipulating things are scale-specific, only functioning correctly at limited spatial and temporal ranges.²⁸ This scale specificity is not merely limited to a dual micro/macro split, but a layering of various sub-scales that each bear their own relevant dynamics—dynamics that are, in a meaningful sense for their manipulability, incommensurable with each other.²⁹ Thus the organisation of even a very simple physical

23 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 143.

24 Wimsatt, *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations of Reality*, 2007, 203.

25 Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017, 220.

26 Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, 85.

27 Oden et al., “Simulation-Based Engineering Science: Revolutionizing Engineering Science Through Simulation,” 29.

28 This is observed in a variety of contexts, from physics, to biology, to cosmology. See Green and Batterman, “Biology Meets Physics: Reductionism and Multi-Scale Modeling of Morphogenesis”; Green, “Scale Dependency and Downward Causation in Biology”; Massimi, “Three Problems about Multi-Scale Modelling in Cosmology.”

29 Philosopher of science Mark Wilson provides a useful study of scalar difference in the engineering of materials, taking as a key example the multi-scalar techniques involved in modelling a steel beam in a railway bridge. He notes that in order to predict how a steel beam will behave under the stress of a locomotive repeatedly running over it, the beam cannot be modelled via a single-scale procedure. Subject to Oden et al’s ‘tyranny of scales,’ even such a mundane case as this exhibits scalar difficulties: a complex hierarchy of varying behaviors comes into view as the metal is inspected at ever smaller scales, from its overall hardness and elasticity, to the steel’s grain structure, to its molecular lattice. Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017, 12.

system operates in terms of functional integration of heterogeneous and mutually opaque scales, where, as Reza Negarestani puts it, “the surface character of the system’s function is realized by qualitatively different sets of individuating powers and activities.”³⁰ Rather than having an essential principle of organisation that holds across a system’s various aspects, a system is instead an *integration* of sets of *different* mediating relations: internal zones of incommensurable activity, mediated by processes that individuate the system across the difference of these scales.

Furthermore, scale specificity appears to be not merely a result of our *currently* limited and imperfect techniques, but a constitutive aspect of what it means to model, manipulate, and mediate the world techno-scientifically. This constitutive “reality” of scale can be observed in various other sites and disciplinary contexts, from Earth-systems science³¹ to ecology and entomology.³² Crucially, the ineliminable and constitutive nature of scale is not isolated to particular procedures but functions as a basic condition of situated (that is, practically operable) technological actions. Scale is thus not simply an epistemological epiphenomena of our ways of seeing or knowing, but a constitutive *condition* of any way of engaging materially in the world. As Mark Wilson writes: “it is a profound mistake to view... scale-based dependencies as grounded in ‘mere epistemology.’”³³ As such, thinking technics entails thinking real scalar difference—a kind of difference that is not in practice reducible to a more fundamental homogeneity. Derek Woods (in line with others in philosophy of science³⁴) identifies that scale domains, inasmuch as they operate as a necessary part of real empirical and conceptual processes, structurally require (and index) an *irreducible* difference between them; they “presuppose a qualitative difference that is not foundationally a function of measurement,”³⁵ and thus necessitate “ontological rifts”³⁶ between scale domains to function. Inasmuch as scale forms a part of technoscientific practice, its functions *rely* (assuming we acknowledge some degree of indeterminacy or

30 Negarestani, “Frontiers of Manipulation,” 1. is there a connection between the concept of the material and the function of manipulation in the sense that the latter decides the former? Drawing on some of the recent discussions in the field of engineering with regard to models, cross-level causal manipulation and intra-level intervention, renormalization groups, morphogenetic analysis (the science of forms

31 Steinhäuser, Ganguly, and Chawla, “Multivariate and Multiscale Dependence in the Global Climate System Revealed through Complex Networks,” 889.

32 Woods, “Scale Variance and the Concept of Matter,” 2017, 206.

33 Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017, 220.

34 Woods primarily draws on the work of Mariam Thalos (see Thalos, *Without Hierarchy: The Scale Freedom of the Universe*; Wimsatt, *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations of Reality*, 2007; Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017.

35 Woods, “Scale Variance and the Concept of Matter,” 2017, 207.

36 Woods, 207.

incompleteness in the real³⁷) on scales being understood as overlapping, topological, and non-totalising genericities.

Given that scale is a question of the multi-composability of domains, *and* the reality of differences, it poses the question of how we can understand scalar differences to be both structured non-trivially (that is, in *real* ways) while avoiding a collapse of their respective identities into determining essences, or reducing their multiplicity to one “master-scale.”³⁸ This is what we term a multi-scalar approach, which has comprised the primary driver of a revival of interest in scale in the humanities. However, whilst within contemporary theory this multi-scalar approach has recently gained traction, scale has, for much of the past few decades, been viewed as an epistemically, ontologically, and politically dubious concept. This has not always been expressed in scalar terms³⁹ but emerges out of poststructuralist critiques across debates in geography, science and technology studies, and media studies, among others. This problematisation of scale argues that the traditional “geometrical”⁴⁰ account of scale, most associated with traditionally humanist paradigms, has tended toward what Zachary Horton has termed “scalar collapse.”⁴¹ Scalar collapse identifies “epistemological and medial practices that unwittingly or deliberately normalise one scale to the dynamics, features, and cultural status of another.”⁴² In doing so, such accounts both *essentialise* fixed and bounded scalar domains, and simultaneously *universalise* transitive architectures for their mediation that are indifferent to the real ontological rifts between scalar domains. This view of scale is “geometrical”⁴³ in the sense that it stages “vertical

37 This is a point for which we lack scope in this paper, but a crucial upshot of the post-structuralist critiques of universal invariants and totalizing systems, as well as similar results in mathematics, logic, and computing (Godel, Turing, Church), is that they strongly point to the necessity of scalar (ie. topological, local and generic) ways of thinking. See Cavia, *Logiciel: Six Seminars on Computational Reason*.

38 As Derek Woods writes: “the linked concepts of scale (in)variance and the scale domain are... a necessary component of the materialisms, realisms, and naturalisms that seek new engagements with the sciences.” Woods, “Scale Variance and the Concept of Matter,” 2017, 216.

39 The criticism of scale has, since the generalized dissemination of post-structuralist ideas from the 1980s on, largely occurred diffusely and in disciplinary siloes. Most fields did not *explicitly* thematize scale itself, instead discussing structures, levels, or other such ‘domain’ questions that we see as isomorphic to those of scale. A notable exception is in the field of geography, where the critique of received notions of scale was central and explicit element of debates beginning in the 1980s, often centred around questions of globalisation and the organisation within world systems of ‘local’ and ‘global’ distinctions. See Herod, *Scale*; Marston, Jones, and Woodward, “Human Geography Without Scale”; Blakey, “The Politics of Scale Through Rancière”; Springer, “Human Geography Without Hierarchy.”

40 Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, 245.

41 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 11.

42 Horton, 11.

43 Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, 245.

hierarchies”⁴⁴ of fully articulated and somewhat rigid scales in neat, “precision-nested”⁴⁵ stacks. Examples include the classical figure of the Great Chain of Being or more recent technocratic ambitions towards “scalability”⁴⁶ as a totalising organisational strategy.⁴⁷ This geometric account is critiqued as a holdover from the essentialising and expropriative aspects of Western thought. Such “essentialist”⁴⁸ use of scale both reifies distinctions between scalar domains whilst subsuming them to one “master-scale” analytic of trans scalar-zoom, assuming a smooth sliding operation of “premodern microcosm/macrocosm analogies” to pertain universally across scalar distinctions.⁴⁹ Such a view precludes, in advance, both the messier, more open-ended relations between scalar domains, as well as the radically disjunctive cuts between them, that critiques of scalar collapse have shown to be “really there” and in need of epistemological justice.

In a feminist context, gender essentialism could be understood as an instance of scalar collapse. We could say that a gender-essentialist scalar collapse has occurred when the multiple scales at which gender operates are reduced (whether completely or “in the last instance”) to one irreducible scale that is taken to *determinatively* constitute the “true” reality of gender. Biological sex essentialism posits, and reduces sexuate multiplicity to, a rigid, immutable scale of the biological,⁵⁰ collapsing all other relata of gender (either entirely deterministically or “in the last instance”) to this essential scale, whose internal attributes such as a dimorphic binary notion of sex are made the irreducible ground of all others. Such essentialism is a paradigmatic instance of scalar collapse. Conversely, a multi-scalar technofeminist understanding of gender would be multi-dimensional and intersectional,⁵¹ comprising dynamic relationships across scales including but not limited to identity, morphology, comportment and bodily style, acoustics, organology, and desire.⁵²

44 Marston, Jones, and Woodward, “Human Geography Without Scale,” 417.

45 Tsing, “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales,” 2012.

46 Tsing.

47 Tsing.

48 Marston, Jones, and Woodward, “Human Geography Without Scale,” 422.

49 Woods, “Scale Variance and the Concept of Matter,” 2017, 203.

50 We note also, that *within* the scale of the biological, the biological gender essentialist reduces the multiplicity of sex to a dimorphism. This is a scalar collapse of the multiplicity of sex biology to the scale of dimorphic gametes. See Fausto-Sterling, *Myths of Gender: Biological Theories About Women and Men*.

51 The question of intersectionality and scale would require an article in itself. As Nash has claimed, today feminism is often, in both positive and perjorative ways, reduced (or collapsed) to a buzzword-ified notion of ‘intersectionality’. We suggest that intersectionality could, in its rich and varied history, be considered the first attempt at multi-scalar feminism. However, intersectionality also has the potential to be used as a tool to reduce complexly topologically ordered differences to a plane of equivalence. See Nash, *Black Feminism Reimagined*.

52 We will later examine Irigaray’s notion of sexuate difference, which does not collapse all the myriad aspects of sexuation to the mediation of ‘gender’. We have, however, used this term here in accordance with the current convention.

These scales of operation of gender are not “neatly” ordered, and no one scale supervenes upon all the others: they are complexly organised, relating but doing so in indeterminate and multi-functional ways.

Between Romantic Reduction and Rationalist Redux: Two Forms of Technofeminist Scalar Collapse

We propose that a multi-scalar feminism requires a theoretical apparatus which avoids essentialising scalar collapse not only with respect to the gendered subject, but which rigorously avoids such collapse in all aspects of its theoretical approach. We identify two main tendencies within contemporary technofeminist attempts to mediate anti-essentialist and realist commitments. On the one hand stands the vitalist monism of new materialism, and on the other, the more nascent provocations put forward by xenofeminism. In the following section, we examine each tendency’s relationship to scalar collapse. While both seek to avoid the “geometric” scalar collapse of traditional humanism, without a sufficient figure of multi-scalar difference, they risk a recapitulation to those same errors they critique.

Emerging largely as a response to the linguistic enclosure⁵³ of poststructuralism, the overlapping currents of what has been termed “new materialism” seek to break free from the strictures of the subject and develop a posthumanist materialist monism. New materialism’s realism emerges from its problematisation of poststructuralism’s enclosure within the scales of language and the social, as it insists on the reality of the world beyond its subjective mediation;⁵⁴ yet it also retains the post-structuralist critique of hierarchy and of notions of immutable, foundational structure or identity. Instead of locating ultimate agency in the human subject’s capacity for reason, new materialism distributes agency among a relational-ontological monism of matter, variously conceived as an a-scalar circuit of ongoing, agential, performative “intra-actions,”⁵⁵ actor-networks,⁵⁶ mutations,⁵⁷ vibrant assemblages,⁵⁸ or queer relationalities,⁵⁹ mingling within a singular field or plane. Bodies and languages, humans and animals, and the social and technological are all placed within an equal ontological register. New Materialism thus tends to view any ordering,

53 Barad, “Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter.”

54 Barad, 802.

55 Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*.

56 Blakey, “The Politics of Scale Through Rancière.”

57 Parisi, *Abstract Sex: Philosophy, Bio-Technology and the Mutations of Desire*.

58 Bennett, *Vibrant Matter*.

59 Morton, “Guest Column: Queer Ecology.”

structure, or boundary-making within this singular ontological plane as, at most, a contingent arrangement within a fundamentally whole and immanent material universe. The assertion of a flat ontology constitutes a refusal of humanism's cleavage and ordering of nature into a great chain of being, or other "violent" hierarchies that legitimate innumerable forms of exploitation and oppression.⁶⁰ Undermining the human/animal and subject/object distinctions allows it to dissolve, in theory, all other binary, hierarchical distinctions. For Jane Bennett (with Michel Serres), in this emergence-friendly monism, the "same vortical logic holds across different scales of size, time, and complexity."⁶¹ By flattening ontology into monistic, vital matter, new materialism offers a justification for the ultimate equality of all things, opening new relational avenues for thought and action. There are no longer essences but rather multiply emergent, contingent entities in constant flux. Boundaries and borders are therefore reconceived not as the result of discrete, determining essences, but messy, contingent, co-evolving relations.

We claim that this monism of a fundamental, a-scalar relationality enclosed within the singular domain of "matter" functions as a form of scalar collapse. There have been multiple criticisms of this monist materialism that generally take issue with its ultimately *reductionist* character. Typical among them is Rosenberg's claim that the "molecular" quality of new materialist material agency collapses and reduces all other differences (historical, sexual, economic, etc) to one abstract, ontological reality.⁶² In another vein, N. Katherine Hayles has criticised the new materialist tendency towards a one-sided Deleuzianism of universal trans-scalar vitality as a "focus almost entirely on the side 'facing the body without organs', eradicating the... forces of cohesion, encapsulation, and level-specific dynamics characteristic of living beings."⁶³ Many other scholars⁶⁴ have made similar criticisms: generically, they identify ways that the ontological flattening of distinctions and relations to a single immanent scale (i.e. matter, objects, actants) renders important differences unthinkable.⁶⁵ New materialism's flight from the old metaphysical paradigm of geometrical scale, from a hierarchy of neat, precision nested scalar stacks, therefore ends in a kind of scepticism with respect to scalar differences. This scalar collapse threatens the integrity of new materialism's realism, as its monism sits in material tension with the real differences between scale domains found to be operational in science and technics. As Derek Woods has argued, "new materialism risks

60 Braunmühl, "Beyond Hierarchical Oppositions: A Feminist Critique of Karen Barad's Agential Realism." the article argues that Karen Barad's (2003, 2007)

61 In Woods, "Scale Variance and the Concept of Matter," 2017, 217.

62 Rosenberg, "The Molecularization of Sexuality : On Some Primitivisms of the Present."

63 Hayles, "The Cognitive Nonconscious and the New Materialisms," 2017, 185–86.

64 A significant example here is Wolfendale, *Object-Oriented Philosophy: The Noumenon's New Clothes*.

65 Boysen, "The Embarrassment of Being Human: A Critique of New Materialism and Object-Oriented Ontology"; Durham Peters, *The Marvelous Clouds: Toward a Philosophy of Elemental Media*, 30.

reiterating the same reductionism that it consistently works to avoid, privileging matter as the foundational scale or substance.”⁶⁶ Such scale-scepticism cannot countenance the real, qualitative differences between operations within scalar domains, returning to an image of scale as subsumable to measure. Zachary Horton articulates the scalar realities such a view neglects, writing that:

The scales of the universe simply are not continuous: each is marked by different processes, dependencies, and interactions. These are irreducible scalar dynamics, brought into focus by a consideration of the medial nature and inherent limitations of any attempt to bridge scale.⁶⁷

Accordingly, Anna Tsing, though she is often identified as a new materialist, implicitly recognises the key scalar contradiction in the new materialist position—that the coherence and function of a given scale depends in a partial but basic way on its *irreducibility* to any other, even and especially to any “trans-scalar” process.⁶⁸ In order to be able to posit the reality of any entity that might be then put into relation, there needs to be a recognition of their fundamental non-equivalence. Ironically, new materialism’s epiphenomenalisation of scale therefore ultimately undermines both new materialism’s realism *and* anti-essentialism.

Xenofeminism is, conversely, extremely aware and critical of the scalar insufficiencies of new materialist monisms. Drawing on the more “Promethean” technofeminist lineages of Shulamith Firestone and Donna Haraway, as well as the philosophical innovations of “neo-rationalism,”⁶⁹ xenofeminism clearly identifies the problems with reverting to monism as a metaphysical strategy for overcoming the traditional geometrical model of scale, claiming that a-scalar, immanent “material networks” and “relational ecologies” are insufficient to contemporary technofeminist tasks. As xenofeminist thinkers Patricia Reed and AA Cavia write:

A common diagram of our time—the flattened network—where nodal points are connected by edges (lines) mapping a system of inter-relationality, is conceptually impoverished, for it speaks nothing of the quality or genre of those relations.⁷⁰

66 Woods, “Scale Variance and the Concept of Matter,” 2017, 200.

67 Horton, “Composing a Cosmic View: Three Alternatives for Thinking Scale in the Anthropocene,” 2017, 55.

68 Tsing, “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales,” 2012, 147–48.

69 Trafford and Wolfendale, “Alien Vectors: Accelerationism, Xenofeminism, Inhumanism.”

70 Reed and Cavia, “Site as Procedure as Interaction,” 84.

Shared between xenofeminist thinkers is this appreciation of scalar differences' necessary role in structural coherence, and that moving beyond an essentialist, geometrical model of scale therefore cannot come at the cost of dissolving scalar difference altogether. For xenofeminists, new materialist monism constitutes a problematic liberal-tending flight from abstract systems-scale structures. What is required, they claim, is a feminism capable of trans-scalar mediation; namely, "collective agents capable of transitioning between multiple levels of political, material and conceptual organization."⁷¹ In failing to realise this multi-scalarity, feminists tie their hands, limiting analysis to contingent arrangements and the scale of the local, whilst disavowing wider multi-scalar "systemic thinking and structural analysis."⁷² Xenofeminist thinkers broadly consider such refusal of multi or trans-scalar mediation as a flattening that, rather than avoiding the ills of humanism and essentialism, simply reinscribes the "givenness" of nature, and reifies it as total and whole.

Against celebrating a monistic material flux, xenofeminism seeks to revive the positive powers of rational speculation, recently articulating their project as a "defense of reasoning, which allows feminism to work at different scales of complexity."⁷³ This Promethean embrace of the trans-scalar capacities of reason is the xenofeminist panacea for the nominalism and scepticism that hinder feminism's multi-scalarity, enabling a path beyond the "correlationist" enclosure of poststructuralism and new materialism. The "xeno" prefix comes from the Greek "xenos," highlighting both the status of the alien and the foreign, as well as the estrangement at play in the process of abstraction itself.⁷⁴ Xenofeminism promulgates an ontological celebration of alienation, one that seeks to expel the myth of an originary naturalness to which we could return. It therefore situates freedom as requiring *more* alienation, an alienation which affords and impels us toward new worlds.⁷⁵ In the rational practice of sifting what is from what could be, xenofeminism locates the epistemological space from which "the given" can be overcome, and the future remade. Whilst feminisms have long rejected rationalism for its supposed androcentrism, xenofeminists instead argue that the historical monopolisation of the practices of science and rational thought by men does not make reason inherently patriarchal or "phallogocentric" but has merely limited its potential—both women and reason "desire" and therefore must be liberated from androcentrism.⁷⁶ As such, their manifesto makes the chiasmatic provocation that, "feminism must be a rationalism... rationalism must

71 Cuboniks, *The Xenofeminist Manifesto*, 2018.

72 Cuboniks, *The Xenofeminist Manifesto*, 2018.

73 Cuboniks, "New Vectors from Xenofeminism," 2022.

74 Cuboniks, "New Vectors from Xenofeminism," 2022.

75 Cuboniks, *The Xenofeminist Manifesto*, 2018.

76 Cuboniks.

be a feminism.”⁷⁷ However, this notion of reason proffered by xenofeminism is no mere revival of transcendent, theologically grounded accounts. For xenofeminists, reason “is not a supernatural faculty,” but rather “simply a rule-governed activity... the faculty of generating and being bound by rules.”⁷⁸ Drawing on neo-rationalist philosophers, this account figures a “normative rift between nature and culture in terms of autonomy,”⁷⁹ a notion they find woven throughout technofeminist history in figures such as Shulamith Firestone, whose speculative vision of a world wherein women are free from the labours and dangers of maternity depends upon a radical uncoupling of the is and the ought, supplemented by technical mediation.⁸⁰ In this vein, Laboria Cuboniks write that:

our normative anti-naturalism has pushed us towards an unflinching ontological naturalism. There is nothing, we claim, that cannot be studied scientifically and manipulated technologically.⁸¹

Nothing is, therefore, “transcendent or protected from the will to know, tinker and hack.”⁸² Importantly, however, xenofeminism’s Promethean anti-naturalism seeks to avoid reviving old humanist nature/culture dualisms, as well as new materialism’s posthumanist scalar impotence, by embracing neo-rationalist *inhumanism*. This inhumanism works to disambiguate the functional core of humanism from the historical and biological contingencies of the human animal and, in doing so, finds that “rational agency can be realised in diverse material substrates and divergent forms of life: humans, animals, extraterrestrials, and machines alike can adopt the role of sapient subjects.”⁸³ For xenofeminism, this inhumanist account of rationality enables them to realise their multi-scalar ambitions: “Reason allows feminism to work across different scales of complexity, from the personal to the abstract.”⁸⁴ This is particularly crucial in relation to phenomena that exceed the scale of the experiential, like climate change, which are composed of complex and interconnected structures of effects and causes, as they “need to be confronted in and as a condition of abstraction if they are to be dealt with adequately.”⁸⁵ Contra new materialism, this transitivity of reason allows xenofeminists to recognise the *relative*

77 Cuboniks, *The Xenofeminist Manifesto*, 2018.

78 Brassier in Wilson, “Cyborg Anamnesis: #Accelerate’s Feminist Prototypes,” 39. Known as ‘Black’ at time of publication.

79 Introduction Trafford and Wolfendale, “Alien Vectors: Accelerationism, Xenofeminism, Inhumanism,” 7.

80 Firestone, *The Dialectic of Sex*.

81 Cuboniks, *The Xenofeminist Manifesto*, 2018.

82 Cuboniks.

83 This is, of course, “provided they possess the corresponding capacities”. Introduction, Trafford and Wolfendale, “Alien Vectors: Accelerationism, Xenofeminism, Inhumanism,” 7.

84 Cuboniks, “New Vectors from Xenofeminism,” 2022.

85 Cuboniks.

autonomy of scales, enabling them to take seriously multi-and macro-scale phenomena.

However, as N. Katherine Hayles writes in her discussion of her similarly “inhuman”⁸⁶ notion of the “nonconscious cognition” or “agency” shared by nonhumans and technical objects, “the capacities and potentials of those agencies are not all the same and should not be treated as if they were interchangeable and equivalent.”⁸⁷ We take the emphasis on such differences to be crucial for a multi-scalar feminism that does not fall into scalar collapse. In identifying rational agency across diverse substrates, xenofeminism risks an epistemological iteration of new materialism’s monism. Much as new materialism makes agency immanent to matter, the gesture of inhumanising reason may in turn make this dispersed reason foundational, recapitulating a hylomorphic account of the active (in) forming of passive matter. As we have heard from Horton, Woods, Tsing, and others, appreciation of real scalar differences—including at the level of their mediation—is crucial. By virtue of the rational instrument of this modulation, we consider xenofeminism to risk a certain variant of scalar collapse that Horton has termed a “trans-scalar zoom.”⁸⁸ Consider xenofeminism’s claim that their approach “is one of constant modulation between different scales of comprehension and intervention—connecting micro, meso and macro levels of complexity, without privileging one scale in particular.”⁸⁹ Whilst this approach clearly attempts to avoid the problem of master-scale collapse (such as that of new materialism’s monism), it also puts forward a vision of scalar domains in which they can be ordered, via rational mediation, into a determinate stack of ordered levels—micro, meso, macro. For Horton, as in traditional humanist paradigms informing the old geometrical accounts of scale, trans-scalar zooms collapse scalar differences “in the process of connecting them.”⁹⁰ This zoom “constructs a particular “shape” for the cosmos, as a networked constellation of scales,” and thereby, crucially, provides “not merely a medial form but a *framework for precharacterizing* the scalar spectrum’s differential potentials for encounter.”⁹¹ This form of collapse is instrumental for a project, archetypally of colonial,

86 While Hayles does not write under the banner of the ‘inhuman’, and she has at other times been more aligned with ‘posthuman’ discourses, we see the approaches she has developed in the last decade as having strong resonances with xenofeminism’s inhuman orientations. This is based on their shared desire to “reassess” the traditional forms and boundaries of the human subject, while not evacuating important points of distinction that inhere in different kinds of cognition and subjective organisation, especially that of rationally ‘discursive’ agents. Hayles, “The Cognitive Nonconscious and the New Materialisms,” 2017.

87 Hayles, 183. Compare this to Barad’s ‘agential realism’, which reducing all scales to the supposed scale-universal transativity of the quantum scale.

88 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 89.

89 Cuboniks, “New Vectors from Xenofeminism,” 2022.

90 Horton, “Composing a Cosmic View: Three Alternatives for Thinking Scale in the Anthropocene,” 2017, 136.

91 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 34. Emphasis ours.

capitalist, or patriarchal reason, that seeks to reductively traverse differences, “without the indeterminacy of transformation.”⁹² Such trans-scalar zooms have functioned as a means by which Western technocratic rationality has ordered the world for extraction and domination, whether in plantations,⁹³ Silicon Valley,⁹⁴ or the widespread industrial operations that have precipitated our present ecological crises,⁹⁵ via the reduction of differences to forms of equivalence that enable their assimilation into a given system.

In the broader critiques of xenofeminism’s rational, multi-scalar ambitions, we identify a latent concern about this problem of trans-scalar collapse. These critiques are often framed as a concern with the way rational thought has often been used, or claimed to be used, to apprehend and order differences for the purposes of exploitation. As Luciana Parisi and Denise Ferreira da Silva argue, xenofeminist recuperations of technical rationalities risk recapitulating the hylomorphic sins of “Promethean colonialisms,”⁹⁶ which end up limiting technics to merely “the servo-mechanic labour through which the progress of bio-economic Man can be realized.”⁹⁷ Rather than serving as an emancipatory gesture, they suggest that neo-rationalist moves towards the separability of domains via the unity of reason restate the colonial gesture of “forceful apprehension”⁹⁸ par excellence. In embracing alienation via rational abstraction, Xenofeminism reinvents proximity to the forces of heteropatriarchal, colonial, and capitalist scalar collapse in ways that go beyond the forms of recuperations they affirm.⁹⁹ Similarly, Jules Joanne Gleeson raises the concern that the xenofeminist embrace of alienation leads only to its acceleration, not as a vector of emancipation, as they claim, but as “a relational feature of class domination”.¹⁰⁰ Annie Goh further argues that xenofeminism’s rehabilitation of the universal via an embrace of reason risks the kind of scalar collapse antithetical to recent attempts, via the concept of intersectionality, to recognize “the non-equivocal nature of white and Black women’s oppressions”.¹⁰¹ These critiques highlight the historical tendency for rational abstraction to *elide* crucial differences, as well as delimiting in advance unethical or oppressive forms of relationality between difference, echoing Horton’s claim that the medial form of trans-scalar zoom constitutes a “*framework for precharacterizing* the scalar spectrum’s

92 Tsing, “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales,” 2012, 507.

93 Tsing, “On Nonscalability: The Living World Is Not Amenable to Precision-Nested Scales,” 2012.

94 Hanna and Park, “Against Scale: Provocations and Resistances to Scale Thinking.”

95 Latour, “Anti-Zoom.”

96 Parisi and da Silva, “Black Feminist Tools, Critique, and Techno-Poethics,” 5.

97 Parisi and da Silva, “Black Feminist Tools, Critique, and Techno-Poethics,” 4.

98 Parisi and da Silva, “Black Feminist Tools, Critique, and Techno-Poethics,” 10.

99 Gleeson, “Breakthroughs & Bait: On Xenofeminism & Alienation.”

100 Gleeson.

101 Goh, “Appropriating the Alien: A Critique of Xenofeminism.”

differential potentials for encounter.”¹⁰² These critics claim that xenofeminism’s attempt to rehabilitate rationality therefore fails to adequately rehabilitate the *formal* quality of transitive relationality characteristic of colonial and patriarchal domination.

It is important to note that xenofeminists are explicitly aware of the potential dangers of their programme, risks they claim are justified by the urgency of the project to develop multi-scalar feminist capacities.¹⁰³ Toward this, their engagement with non-traditional forms such as the manifesto have allowed them to engage *polemically* with philosophical resources that have, on ethical and political grounds, been broadly taken to be foreclosed to feminism. In response to their critics, xenofeminists claim that what is, in fact, required, is more reason, not less: as they state, “the residues of reason [need] to be *reasoned* with.”¹⁰⁴ They claim reason ought be revived as a feminist tool *precisely* as a means of identifying and responding to the non-equivalences that constitute the multiple of political solidarity. They find nothing to be less rational, for example, than inflating the particular “cosmic vision” of the Western European to the status of universal rationality, a move which confuses rationalism and provincialism.¹⁰⁵ Xenofeminists argue that it is precisely the resources of alienation, abstraction, and reason which are necessary for mapping the very specificities their critics demand (i.e., of race, sexuality, class, and more). As they claim, “reasoned abstraction is, in itself, required for imagining one’s material situatedness.”¹⁰⁶ Lucca Fraser writes that it is rational abstraction which allows us to differentiate between bloated particularities constitutive of false universals, such as “all lives matter,” for example, and “real,” multi-scalar visions of universality, such as intersectionality.¹⁰⁷ Against poststructuralist and new materialist localist accounts, they claim reason allows an understanding of scalar differences not as epistemically siloed, but intelligible *as different* via a rational “synthesis between the specific and the global.”¹⁰⁸

However, the critiques of xenofeminism’s rationalism indicate that rather than affording genuine *relation* between the differences identified by reasoned abstractions, this synthesis of local and global constituting xenofeminism’s trans-scalar rational mediation may continue to rely on an opposition between the passive materiality of “given” differences and the active, alienating abstractions of (re)forming, remediating rational activity. Though inhumanist, the neorationalist account of reason that xenofeminism draws upon nevertheless risks this kind of trans-scalar collapse, if not to the scale of the human

102 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021.

103 Cuboniks, “New Vectors from Xenofeminism,” 2022; Cuboniks, *The Xenofeminist Manifesto*, 2018.

104 Cuboniks, “New Vectors from Xenofeminism,” 2022. Our emphasis.

105 Bryant et al., *Continental Materialism and Realism*.

106 Cuboniks, “New Vectors from Xenofeminism,” 2022.

107 Cuboniks.

108 Cuboniks.

reasoner, then to the scale of rationality as an inhuman worldly force. In so doing, they risk recapitulating humanist, hylomorphic “rational” scalar hierarchies, or, in Horton’s words, a “*framework for precharacterizing the scalar spectrum’s differential potentials for encounter.*”¹⁰⁹ The potential problem with such a form of reason is that it places its form of transitivity *before and over* the differences it seeks to mediate, where a reification of self and other, subject and object is prefigured *in advance* by this form of reason and its attendant notion of difference. As Parisi and da Silva argue, the history of the Modern subject that has constituted our understanding of reason has done so by forcing “Difference and otherness... into cultural hierarchies, and [figuring] the relation between European and non-European cultures... as a relation between ‘subject’ and ‘object.’”¹¹⁰ Xenofeminists do note, however, that there are difficulties attending their figuring of scalar difference via rational abstraction. As they claim, “xenofeminism remains committed to [the] important intersection between what is known, how that knowledge is potentially put to use, and the crucial dimension of narration for politicising how reason is instrumentalised in relevant and equitable ways.”¹¹¹

Beyond this question of the *content* of knowledge and its narrativisation, we wish to ask whether their notion of reason does, in fact, fail to rehabilitate the scale of the unitary subject—inhuman or otherwise—as the ground of knowing, and with it the subject/object schema which *formally* reproduces the alien “other.” Though xenofeminism has claimed this figure as an emancipatory one, the reproduction of this alien other through the formal schemata of reason—and its attendant trans-scalar zoom form of scalar collapse—threatens to merely reify the alterity of those whom multi-scalar systems like capital and climate affect most brutally. As an opening toward encountering this problematic of a rational but decentred subject, xenofeminism has recently posed the following series of open questions:

From what scale is situatedness mapped? From the scale of a singular human in the world, or from the scale of humanness as such? Do we have to choose scales? When the human is decentred at the planetary scale, can that abstract schematic work upon our understanding of positioning at a personal scale?¹¹²

109 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 34.

110 Parisi and da Silva, “Black Feminist Tools, Critique, and Techno-Poethics.” This problematic is also, of course, one of the animating concerns of much continental feminist philosophy since de Beauvoir.

111 Cuboniks, “New Vectors from Xenofeminism,” 2022.

112 Cuboniks. Here Cuboniks reference Haraway’s seminal *Situated Knowledges*, which proposes a feminist epistemology for overcoming ‘god’s-eye-trick’ of impartial knowledge making without abandoning the notion of objectivity. The possibility of a situated epistemology that nevertheless is able to apprehend and content with broader contexts and structural phenomena is a crucial issue for what we gesture toward here as multi-scalar feminism. Haraway, “Situated Knowledges: The Science Question

These generative scalar questions are of vital importance, but they remain somewhat unanswered from within the xenofeminist account of multi-scalarity. This returns us to the question of scalar difference: if we map differences *within* scale but subordinate them to a single *form* of differentiation (that is, rationality), then this mapping has the potential to reduce any situation to its coordinate system, as the critics of xenofeminism fear. The crucial question regarding an account of scale, therefore, is to do with the *figures of difference that constitute the mediations of rational activity*, figures of difference that are the product of one's account of the reasoning subject. As we have seen, the challenge for xenofeminism remains how to revive the multi-scalar capacities of rationalism without also bringing along the trans-scalar collapse of an epistemological framework that subjugates differences to its own fundamental transitivity, threatening a recapitulation of the hylomorphic regime of instrumental reason. We therefore ask: what kind of difference is necessary to square the circle of a realist and anti-essentialist account of scale, and thereby of technics; one that does not collapse scalar difference to a mere epiphenomenon of a fundamental scale of matter, but appreciates the reality of scalar differences; one that also resists grounding itself by implication in the historically hylomorphic, unitary subject of instrumental and technocratic projects; and, one that is capable of both *mediating* scales whilst appreciating the irreducibility of their difference?

Here we find ourselves in the territory of fundamental philosophical problems. Since Kant's claim in the *Critique of Pure Reason* that philosophy's greatest "scandal" was its inability to have yet provided evidence, beyond all idealist temptation, of the existence of the world,¹¹³ philosophy has, particularly within the continental tradition, been occupied with the project of overcoming the fundamental opposition between subject and object. Whilst the rationalist pathway beyond this opposition was forged by Hegel, encompassed in his dictum, "What is real is rational, and what is rational is real,"¹¹⁴ there remain alternatives to this overcoming that may inhere important resources for the problem of thinking scalar difference. As claimed by Deleuze, the "major" post-Kantian tradition epitomised by Hegel "found its ground in a principle of identity."¹¹⁵ In order to develop new ways of understanding difference which do not begin from such a ground, Deleuze collates a "minor" philosophical tradition in which he finds very different solutions to the Kantian problem to those from Hegel.¹¹⁶ Whilst we are in no way able to develop a discussion here of Hegel's system of absolute idealism *vis a vis* our concerns with scalar difference and

in *Feminism and the Privilege of Partial Perspective* (1988)."

113 Kant, *Critique of Pure Reason*.

114 Hegel, *Hegel's Philosophy of Right*. Preface. We acknowledge that there have been multiple translations of this passage.

115 Smith, "Deleuze, Kant, and the Theory of Immanent Ideas," 44.

116 Smith, "Deleuze, Kant, and the Theory of Immanent Ideas."

collapse, and though we do not directly address Deleuze on this matter himself, we note that, through figures such as Deleuze, the problems we have gestured toward concerning rationalist idealism and difference have already been raised. For the remainder of this article, we will, in the spirit of xenofeminist experiments in conceptual bootstrapping, search for alternative figures of difference that might afford an understanding of scalar difference and transitivity that do not err so close to proceeding from a unitary ground of identity, and its attendant problem of the subject, nor to recapitulating hylomorphic schemas.

“At Least Two”: Individuation and Ontogenetic Difference in the Theorisation of Scale

As we have seen, the two technofeminist attempts at realist antiessentialism we have examined above—both that of new materialism and xenofeminism—risk recapitulating scalar collapse by subordinating scalar differences, in the last instance, to an immanent principle (matter) or transitive logic (reason). We have claimed that xenofeminism presents a more promising avenue for achieving a multi-scalar theoretical apparatus as its feminist revival of rational mediation explicitly seeks to thematize the importance of transitivity across scalar difference, *pace* new materialism. However, xenofeminism still risks reducing this transitive logic of reason *qua* mediating scalar principle to a determining ground which threatens to undermine the multi-scalarity it purports to afford. Put in terms of attempts to build a multi-scalar technofeminism, we have arrived at the problem of how to understand scales neither as reducible to one ontological plane, nor as geometrically stacked, *absolutely* transitively orderable kinds. Without a clear articulation of the *kind* of difference that would remain unsubordinated to such transitivity, that is, a more robust way of articulating *what scalar difference is*, and what kind of difference *secures its plurality*, this form of trans-scalar mediation risks collapse. As a gestural, prolegomenous response to these questions, we now explore two philosophical resources for thinking this kind of difference: Gilbert Simondon’s philosophy of individuation and Luce Irigaray’s philosophy of sexuate difference. The rest of our paper will sketch a synthesis of these philosophies of difference with recent theoretical work on the concept of scale, toward developing a provisional account of a truly multi-scalar scalar feminist theoretical apparatus.

Within contemporary theorisations of scale, we find a generalised if implicit consensus that scalar difference cannot be thought as metaphysically unifiable within a single immanent or transitive frame. Where the traditional geometric conceptions of scale had been critiqued for their naturalisation of certain entities or relations, we find that the most recent theorisations of scale works to overcome scalar collapse by reorienting their framework to consider scale, and scalar difference, as a *fundamental condition* rather than as given or merely constructed. This recent work in scale theory consistently points

towards two necessary elements of scalar difference, which we interpret as a question of *individuation*:

(1) Scalar difference is most adequately thought as something primary, not reducible to hierarchies of being or ways of knowing. That is, scales “themselves” are not strictly ontological or epistemological, but both, because scalar difference forms part of the necessary conditions for entities to emerge as identifiable, coherent individuals.

(2) This individuating function of scale depends upon a *more basic difference*: an irreducible ontogenetic disparation or rift. In this literature, this kind of difference is often characterised as “at least two.”

Given that the problem of scalar collapse has consistently illustrated the essentialism of demarcating a set of entities as being *in-advance* scaled in some way, then scale—insofar as it is a real property of material relation and thought that we cannot simply do away with—must be understood as a *fundamental condition*. As Horton and others contend, if scale is a “primary form of difference,”¹¹⁷ but one that cannot be reduced to the flat or universally transitive differentiation of matter or reason, then it must necessarily occur as an aspect of the genesis of particular differences themselves.

These recent theories of scale require a philosophical apparatus to support this “ontogenetic” function, which we find in Gilbert Simondon’s philosophy of individuation. The crucial intervention made by Simondon’s project is to understand individual entities not as already-given individuals, but through their *conditions of individuation*. By reversing the analytical priority of individuated entities and their conditions of individuation, Simondon inverts the relation of identity and difference within the tradition of metaphysics. As he writes in his magnum opus, *Individuation in Light of Notions of Form and Information*:

Instead of supposing substances so as to account for individuation, we have chosen to take the different regimes of individuation as the basis of various domains, such as matter, life, mind, and society. The separation, layering, and relations of these domains appear as aspects of individuation according to its different modalities¹¹⁸

Here, different scales—matter, life, mind, society—exist as regimes of individuation

117 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 143.

118 Simondon, *Individuation in Light of Notions of Form and Information*, 12.

and modes of mediation in which certain entities cohere, but not as a set of absolute determinations or essential substances. While Simondon himself does not use the language of scale (he generally speaks instead of “regimes of individuation,”¹¹⁹ “milieus,”¹²⁰ or “orders of magnitude”¹²¹ each of which captures different scalar resonances), we deploy Simondon’s account of individuation to understand what scale theorists have identified as the “primary”¹²² elements of scale.

Zachary Horton, Joshua DiCaglio, and others increasingly frame scale as a kind of *resolution*, a non-trivial parsing of disparities that cohere into a kind of legible frame. Horton expresses this perhaps most neatly when he claims scale ought be understood as “a singular resolution of ontological difference between two surfaces.”¹²³ Thus, scale exists *within* the individuation process, where an incompatible tension, which Simondon terms “disparation,” becomes organized into resolvable differences within coherent milieus: “we can understand scale as a form of mediation that paradoxically engages fundamental scalar alterity as negotiated surface differentials but also produces certain milieus based upon scalar stabilizations.”¹²⁴ Scale is, by virtue of this individuating character, neither merely epistemological nor ontological, but exists at the intersection of the two. It is “beyond” but *productive* of measure,¹²⁵ never “exhaustive”¹²⁶ but still more than “mere epistemology,”¹²⁷ “fully material and fully discursive at the same time.”¹²⁸ As William Wimsatt notes, this gives scale an “almost Kantian flavor [sic],”¹²⁹ though one that points to the same aporia of transcendental thought that, as Alberto Toscano shows, Kant was led himself in his later work: towards that of ontogenesis.¹³⁰ We thus consider Simondon’s paradigm of individuation to offer an important bridging of realism and anti-essentialism, one which might account for multi-scalarity without collapsing all differentiation to one fundamental scalar principle.

Both Simondon’s account of individuation and contemporary theorisations of scale point towards a more fundamental “real” that is not one, an irreducible difference or disparation (in Simondon’s terms), that gives individuation its impulse. While scale appears to have an

119 Simondon, 12.

120 Simondon, 51.

121 Simondon, 32.

122 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 4.

123 Horton, 49.

124 Horton, 25.

125 Woods, “Scale Variance and the Concept of Matter,” 2017, 207.

126 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 135.

127 Wilson, *Physics Avoidance: Essays in Conceptual Strategy*, 2017, 220.

128 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 47.

129 Wimsatt, *Re-Engineering Philosophy for Limited Beings: Piecewise Approximations of Reality*, 2007, 204.

130 Toscano, *The Theatre of Production: Philosophy and Individuation between Kant and Deleuze*, 23.

important role within individuation, serving as the boundarising and stabilising functions of order and milieu that act as the limit-conditions of individuals, for Simondon, this relies on and requires an ontogenetic, real difference that comprises, in turn, first philosophy itself:

Veritable first philosophy is not that of the subject, nor that of the object, nor that of a God or Nature searched for according to a principle of transcendence or immanence, but that of a real anterior to individuation, a real that cannot be sought in the objectivated object or in the subjectivated subject but at the limit between the individual and what remains outside it, i.e. according to a mediation suspended between transcendence and immanence¹³¹

Simondon's argument here mirrors our earlier critiques of new materialism and Xenofeminism: one cannot find the principle of scalar differentiation via a monism of matter nor a universalism of reason, as this engages in "substantializing both terms after having separated them."¹³² What is required to avoid such substantialisation, then, is to reverse our analytical priority, and *begin* with a notion of scalar difference itself, "rather than to enumerate it as an attribute of an already unified subject or object."¹³³ To grasp scale in its plurality and irreducibility, then, we require some *more fundamental but non-identifiable form of difference* that is not expressible in a single, preexisting unity. Both Simondon and scale theory recognise the necessity of this fundamental kind of difference, transcendental to individuation—indeed, they continually express it in terms of a basic ontogenetic difference of "at least two." As Derek Woods writes: "scale variance depends on difference and is more than a question of measurement: you need *at least two* scales to get started."¹³⁴ As Joshua DiCaglio writes, a synthesis of perspective is "only rendered scalar if within it is buried the reference to two."¹³⁵ Crucially, for Simondon, a fundamental (for him, informational) aspect of individuation is that it:

is never relative to a single and homogenous reality but to two orders in a state of *disparation*: information, whether this be at the level of tropistic unity or at the level of the transindividual, is never deposited in a form that is able to be given; it is the tension between two disparate reals, it is *the signification that will emerge when an operation of individuation will discover the dimension according to which two disparate reals can become a system*.¹³⁶

131 Simondon, *Individuation in Light of Notions of Form and Information*, 300.

132 Simondon, 300.

133 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 7.

134 Woods, "Scale Variance and the Concept of Matter," 2017, 201. (Italics ours).

135 DiCaglio, *Scale Theory: A Nondisciplinary Inquiry*, 2021, 35.

136 Simondon, *Individuation in Light of Notions of Form and Information*, 11.

The ontogenetic impulse, then, occurs when some fundamental disparity or tension in the real reaches a point of incompatibility, a “disparation”¹³⁷ that must be resolved by becoming topologically structured and temporally operative.¹³⁸ Individuation’s “dephasing” is prompted by this ontogenetic “‘non-relation’ of disparation, defining the energetic and material tensions between incompatible tendencies within being.”¹³⁹ Such incompatible tendencies, then, index the basic “at least two” form of difference that Woods points to with “ontological rifts”¹⁴⁰ and that Horton identifies when he defines scale as the negotiation of a basic difference between a two that is negotiated and processual but “nonetheless fully real.”¹⁴¹ What both xenofeminism and new materialism fail to index, then, is this twoness, this basic way that—whether it is expressed as material intra-action¹⁴² or as dialectical rationality¹⁴³—any individuating principle must presuppose an irreducible, ontogenetic difference of at least two to avoid scalar collapse. This leaves us with a question for which neither Simondon nor contemporary scale theorists have sufficient answer: what is the *form* of this difference, such that it does not collapse back into metaphysical, essentialising oneness? It is this question that leads us to an engagement with the philosophy of Luce Irigaray.

Irigaray’s Concept of Sexuate Difference: An Ontogenetic “At Least Two”

This notion of difference understood as “at least two” is familiar to any reader of Luce Irigaray’s philosophy of sexuate difference. Sexuate difference¹⁴⁴ is the central concept of her oeuvre, one that cuts across both the domains of the subjective and objective, fundamentally reformulating their relationship in a philosophically unique way. As Rebecca Hill claims, Irigaray’s concept of sexuate difference is fundamentally a concept

137 Simondon, 226.

138 Seely, “Individuation, Sexuation, Technicity,” 25.

139 Toscano, *The Theatre of Production: Philosophy and Individuation between Kant and Deleuze*, 140.

140 Woods, “Scale Variance and the Concept of Matter,” 2017, 207.

141 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 47.

142 Hayles identifies how, even in Karan Barad’s account of immanent materiality as intra-action, this presupposes the already-present disparation of at least two agents. Hayles, “The Cognitive Non-conscious and the New Materialisms,” 2017, 184.

143 As we will go on to show, Irigaray’s critique of reason claims that it, too, presupposes at least two sexually different subject.

144 “Sexuate difference” is the term preferred by Irigaray in her later work to avoid a reductoin of her concept of ‘sexual difference’ to sexuality or biology. See Rine, “Maria Redux”; For a longer discussion of this notion of “the sexuate” and its relationship to the more common feminist terminology of sex/gender, see Sares and Rawlinson, “Introduction: Irigaray and the Question of Sexual Difference,” 3–4.

of difference as such,¹⁴⁵ a form or logic of difference that would be irreducible to one singular ground or referent of “the Same.”¹⁴⁶ Irigaray is relevant to us here because it is this concept of difference that we suggest is required for a truly multi-scalar account—a difference that cannot be located within a singular domain, schema, or frame of reference, nor mediated by a single logic or framework of transitivity. Yet, neither does Irigaray take this irreducible difference to be absolutely unmediable—for Irigaray, mediation across real difference is possible and necessary; however, it requires a different *form of mediation* than the one assumed by theories that do not think difference *qua* sexuate “at least two.” Toward this different form of mediation, Irigaray’s project fundamentally seeks to refashion and unseat the dominant logic of difference in the Western tradition, which she takes to be a phallogocentric A/not-A logic of difference.¹⁴⁷ For Irigaray, the predominance of this logic has not produced, but has rather emerged *from*, the historically dominant understanding of sexual difference in which the feminine has been defined as the negation of the masculine—as such, there are not (at least two) *different* sexes, but one.¹⁴⁸ Where de Beauvoir claims that man is both the “subject” and the unmarked universal whilst woman is “other,” for Irigaray, this unmarked universal requires that both the subject *and* its paradigmatic other are enclosed within a signifying economy, and corresponding form of specula(riza)tion,¹⁴⁹ which constitutively negate sexuate difference. Against this tradition, instead of the unitary “subject” acting as the ground of knowledge of the “object,” Irigaray locates this very division in the “at least two” difference of sexuate difference. Both the subject¹⁵⁰ and nature¹⁵¹ are, for Irigaray, “not one”, but “at least two.” This move corrects for the solipsism of the subject of reason, for whom the “object” of philosophical science

145 Hill, “The Multiple Readings of Irigaray’s Concept of Sexual Difference.” Our emphasis.

146 Irigaray, *Speculum of the Other Woman*, 303.

147 Hill, *The Interval: Relation and Becoming in Irigaray, Aristotle, and Bergson*. Whilst Irigaray does not thematise asexuate difference explicitly through the terminology of ‘A/not-A’ logical binaries in her work, rather using the terms ‘asexuate’ or ‘phallogocentric/phallogomorphic/phallogotropic’ to describe this form of difference, we have chosen to use Hill’s reading of Irigaray’s critique of difference via Aristotle as it pertains to the notion of hylomorphism, one Irigaray is concerned with throughout her oeuvre, and which is also a key focus of critique within Simondon’s philosophy of individuation. Following and going beyond Irigaray’s engagements with Aristotle, Hill shows that Aristotle’s metaphysical categories and their relations are themselves sexed, in that they bear determinate relations to his theory of sexual reproduction. Further, his metaphorisations of matter, form, and privation show that his well-known subordination of difference to identity is based in an androcentric and misogynistic conception of femininity and maternity. Irigaray will read this subordination throughout the history of philosophy and psychoanalysis as necessarily coupled with this ‘phallogocentric’ form of negation of disavowal of the feminine *qua* different *subject*, not merely as passive other to his active self nor as merely equivalent.

148 Irigaray, *This Sex Which Is Not One*.

149 Irigaray, *Speculum of the Other Woman*.

150 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 107.

151 Irigaray, 35.

is but a reflection of the (masculine) auto-referential subject—a subject who cannot escape the “autological circle of the transcendental horizon of a single subject”.¹⁵²

Across Irigaray’s considerable oeuvre she describes sexuate difference in myriad ways, including the claims that it is ontological,¹⁵³ natural,¹⁵⁴ irreducible,¹⁵⁵ real,¹⁵⁶ universal,¹⁵⁷ and a fundamental condition of all life.¹⁵⁸ Irigaray also describes sexuate difference in terms of morphological,¹⁵⁹ psychic,¹⁶⁰ and discursive domains,¹⁶¹ as well as pertaining to (at least two) different sexuate bodily rhythms.¹⁶² These claims about sexuate difference have long been said to evoke the spectre of gender essentialism.¹⁶³ Indeed, if sexuate difference was shown to indeed be essentialist, it would fall into what we have described earlier as a basic form of scalar collapse. We reject this interpretation, though we acknowledge the danger that grounding a notion of difference in the sexuate could be *taken* to indicate a crude essentialism. We rather claim that far from positing a politically regressive and philosophically naïve essentialism, Irigaray’s notion of sexuate difference fundamentally *undermines* such essentialism.¹⁶⁴ Whilst there are many ways to approach Irigaray’s critique of substance metaphysics and the logic of essence,¹⁶⁵ we do so by turning to the work of Stephen Seely, in which he reads sexuate difference as *ontogenetic*. According to Seely, when Irigaray claims that “the natural is at least two: masculine and feminine,”¹⁶⁶ this “at least two” ought be understood:

152 Irigaray, *Sharing The World*, ix.

153 Irigaray and Lotringer, *Why Different?*, 71.

154 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 35.

155 Irigaray, *Sexes and Genealogies*, 132.

156 Irigaray, *Conversations*, 2.

157 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 35.

158 Irigaray, 35.

159 Irigaray, *To Speak Is Never Neutral*, 249; Irigaray, *An Ethics of Sexual Difference*, 11; Irigaray, *Sexes and Genealogies*, 71.

160 Irigaray, *An Ethics of Sexual Difference*, 125; Irigaray, Bostic, and Pluháček, *The Way of Love*, 130; Irigaray, *To Be Born*, 14; Irigaray, *This Sex Which Is Not One*, 110.

161 Irigaray, *This Sex Which Is Not One*, 68–86; Irigaray, *Speculum of the Other Woman*, 56; Irigaray, *Conversations*, 9.

162 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 99; Irigaray, *Sexes and Genealogies*, 71; Irigaray, *An Ethics of Sexual Difference*, 139.

163 Schor, “This Essentialism Which Is Not One.”

164 As Whitford has claimed, Irigaray’s call to refigure our logic of difference itself would be fatalistically nullified if subjectivity were simply predetermined by the body, and the ‘ought’ of gendered expression reduced to some assumed corporeal ‘is’. Whitford, *Philosophy in the Feminine*, 106.

165 Notable examples include Grosz, *Becoming Undone*; ideas which are developed, though not explicitly in relation to Irigaray, in Grosz, *The Incorporeal*; See also Hill, *The Interval: Relation and Becoming in Irigaray, Aristotle, and Bergson*; and Stone, *Luce Irigaray and the Philosophy of Sexual Difference*.

166 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 35.

as the common nature *from which* human individuation proceeds and not, as is often assumed, attempting to *distribute* every already-existing human individual (whose individuation would be taken for granted) into two preexisting universal categories.¹⁶⁷

Rather than indicating a determinable, predictable difference existing in already-individuated phenomena (i.e., dimorphic bodily sex differences), Irigaray's notion of sexuate difference requires us to make the Simondonian move and *invert our ontological priority*. Simondon claims that western thought has "ontologically privileged" the individual,¹⁶⁸ and so have erroneously examined individuation on the basis of an *already constituted* individual. This account mirrors Irigaray's claims about the unitary subject, whose origin is posited in a singular, unitary ground—an already individuated, and therefore asexually conceived, singularity. Like the theorists of scale we have mentioned above, Seely draws on the resources of Simondon to understand sexuate difference not in terms of two pre-given essences—which we would name scalar collapse and, according to Irigaray's critique of metaphysics, would require positing a unitary, asexuate/masculine subject—but rather as part of the conditions of individuation as such.

The concept of a "natural body" or "correct" form of sexuate becoming would therefore partake of the form of metaphysical representation that performs a scalar collapse to a transcendent, ideal "nature," one that is "differentiated" in relation to a phallogocentric economy of (a)sexuation.¹⁶⁹ This single-referent-system is precisely what Irigaray's philosophy works to dismantle. Insofar as at-least-two difference comprises a feature of individuation, it therefore cannot be a difference that is already "individuated" with

167 Seely, "One, Two, Many? Sexual Difference and the Problem of Universals," 67. Emphasis author's. Here Seely engages Irigaray with Don Scotus to demonstrate the radicality of Irigaray's claims about the universal and realism.

168 Seely elaborates: "either as a merger of 'matter' and 'form' (in hylomorphism) or as eternal substance (in atomism)." Seely, "Individuation, Sexuation, Technicity," 25.

169 Irigaray has made trans-exclusionary claims in the past, and this is where we insist on reading Irigaray *against* herself. See Murtagh for a reading of the ways in which Irigaray's philosophy can be used to affirm trans "being" over and against the logics of difference which preside over not only sexism, but transphobia as well. On our reading, the meaning of 'sexuate difference' is not normative in the sense of what Talia Mae Bettcher describes as the "natural attitude" (normatively heterosexist, cis-gendered, eurocentric etc.); it is, rather, the condition of the emergence of a *different* form of mediating nature, one that would refigure our normative and descriptive notions of 'the natural'. Though it is not possible to do justice to these claims here, we would hope that the form of difference and mediation we gesture toward would open onto the "new kinds of self [and] new modalities of intimacy" Bettcher claims trans lives urgently require to overcome transphobic culture. Murtagh, "An Onto-Ethics of Transsexual Difference"; Bettcher, "Full-Frontal Morality: The Naked Truth about Gender."

respect to what it produces. Difference at the level of ontogenesis must be *irreducibly* at least two. As Grosz indicates, “There may be more than two sexes, but life’s proliferation of variation requires at least two, for the increasing intensification of living differences occurs primarily through sexual difference.”¹⁷⁰ As such, this “at least two” cannot be a “given,” “predetermined”—and ultimately metaphysical—difference.¹⁷¹ The irreducible, real, and ontological element of sexuate difference rather indexes what Simondon (and theorists of scale) describe as the necessary condition for *any* subsequent genericity to (in) form and (trans)individuate: an irreducible “disparation” of at-least-two. Far from being a notion of difference and identity collapsible into an essence, sexuate difference thought through individuation shows that “essence” would itself be not-one.

However, from the perspective of xenofeminism, wouldn’t the notion of Irigaray’s “at least two” *qua* irreducible sexuate difference seem to impose a limit, in advance, on the transitivity and therefore transformative powers of reason, which xenofeminists have claimed is the very possibility of multi-scalar mediation? As she claims, “I am not the whole... I am not simply a subject, I belong to a gender. I am objectively limited by this belonging.”¹⁷² Recall that for xenofeminism, it is fundamentally conservative to stake claim to “given” limits. This is particularly so for limits that are taken to constrict, or as ought to constrict, human transformation of ourselves and of the world, as these claims imply that such “remaking” is a hubristic, dangerous, and totalitarian fantasy that risks upsetting the equilibrium between the world as given and the world as (man)made.¹⁷³ For xenofeminists, this is politically conservative as it limits thought and action to an ethical project of conserving the “given,” and rejects the instrumentalising transitivity of reason. This leads to the notion that a “return to nature” will secure man’s salvation, further producing an attendant technophobia. Conversely, xenofeminists claim that embracing the transitive powers of reason, particularly its capacity for materialisation in technics, can enable risky but liberatory techno-Promethean augmentations of the world, particularly of those “givens” in nature that have been taken to be the ground of woman’s oppression.¹⁷⁴ As their manifesto declares, “‘Nature’ shall no longer be a refuge of injustice, or a basis for

170 Grosz, “Foreward,” x.

171 As Simondon writes, a disparation pair, understood in terms of the ontogenesis of some resolvable scale, would “not be a predetermined element but a problem to be resolved, a pair of two distinguished and rejoined elements in a relation of disparation.” Simondon, *Individuation in Light of Notions of Form and Information*, 229.

172 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 106.

173 Wilson, “Cyborg Anamnesis: #Accelerate’s Feminist Prototypes” Now known as Black. Black explains that this “fideistic” notion has been prevalent in continental philosophy since Heidegger, and his ontologisation of Kant’s notion of finitude.

174 Cuboniks, *The Xenofeminist Manifesto*, 2018. See specifically their engagements with Shulamith Firestone.

any political justification... If nature is unjust, change nature."¹⁷⁵ Crucial for our purposes here, xenofeminists have claimed reason is also the means via which feminism could "work across different scales of complexity."¹⁷⁶ Xenofeminism has critiqued Irigaray's generation of "poststructuralists" for rejecting abstract reason, and therefore limiting themselves to "subjectively-organised claims that caution against extending beyond themselves for fear of imposing a microimperialism,"¹⁷⁷ thereby inhibiting the realism of multi-scalar feminism on account of its anti-essentialism. From this perspective, Irigaray's notion of an irreducible sexuate difference—and her claim that "it is from the natural that we should start over in order to refund reason"¹⁷⁸—could seem a problematically conservative and refusal of reason's mediation of "nature," as well as its multi-scalar capacities.

However, such a critique would fail to take seriously the novel way Irigaray approaches the question of the difference *vis a vis* the subject. Irigaray's critique of reason can be distinguished from those of her poststructuralist cohort, and from a naïve, essentialist realism, by the way she routes it through the kind of *sexuate* difference we have described above as a difference of "at least two." In doing so, Irigaray can be seen to make two crucial claims:

(1) The "subject," or that which thinks, is *not one*—for Irigaray there is no possibility of a shared universality at the level of that which thinks.¹⁷⁹

(2) However, the ontogenetic-dialectical inversion proper to Irigaray's philosophy is her claim that this is due to a *universal difference*, where nature is this universal sexuate difference—while she claims sexuate difference is natural, she does not do so without also claiming that nature is *sexually at least two*. Far from rejecting rational capacities, by starting from a properly *sexuate* notion of that which thinks, one which does not derive its capacities for abstraction from a negation of the material resources that sustain it, Irigaray finds mediations that afford a "real universal"¹⁸⁰ and a "refund[ed] reason".¹⁸¹

175 Cuboniks, *The Xenofeminist Manifesto*, 2018.

176 Cuboniks, "New Vectors from Xenofeminism," 2022.

177 Avanesian and Malik, "Introduction," 6.

178 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 37.

179 Unless one presupposes a level of abstraction she claims to be a philosophically untenable. This claim also relates to the influence of Lacanian notions of the subject upon her thinking, in which sexual difference—not reducible to biological sex—is figured as a necessary and insuperable non-relation that conventional notions of sexual difference and philosophical notions of the subject imaginarily attempt to cover over.

180 Irigaray, *Conversations*, 2.

181 Irigaray, *I Love to You: Sketch for a Felicity Within History*, 37. "Thus it is from the natural that we should start over in order to refund reason."

Irigaray thus goes beyond the caricature of poststructuralism, as her critique of the subject implies that within its paradigm not only is “knowledge... ‘subjective,’ but also that the access to the real, to the ‘out-there,’ is a priori barred.”¹⁸² This is because the asexuate status of the subject¹⁸³ fundamentally *limits* it, enclosing it within a form of mediation wherein the “subject of the speculative mind mirrors the object and posits it as the real instead of the real.”¹⁸⁴ For Irigaray, then, it is the refusal to acknowledge sexuate difference *itself* that imposes a kind of fatalistic limitation on thinking, reason, and life, a predetermined limit that would order becoming, and therefore any form of techno-scientific intervention, within a “precharacterized” framework.¹⁸⁵ In this way, though she does not put it in scalar terms, Irigaray could be said to share our concern regarding a use of reason that grants it absolute scalar transitivity. Such a form of rational speculation may well be able to extend us beyond the limitations of the given and to embrace the powers of technoscientific transformation. However, an Irigarayan perspective would ask: what is the relation of this speculation to its material conditions of possibility?¹⁸⁶ Does its abstract flight require an expropriative relation to a material ground, be that the mind’s “grave,”¹⁸⁷ the philosopher’s wife, the empire’s slaves, the colony’s natural and human resources, and, eventually, the rendering surplus of entire populations, human and nonhuman, as the “servo-mechanic labour” of “bio-economic”¹⁸⁸ expropriation?

For Irigaray, the response of “more alienation,”¹⁸⁹ and a doubling down on the abstractive powers of rationality, would not suffice, due to the relationship between the *form* of speculative reason and this exploitation and expropriation of the “other.” This expropriation of the other is a fundamentally sexuate issue, as it is the product of a form of subjectivity and mediation which disavows difference *qua* at least two. Rethinking the question of sexuate difference is therefore, for Irigaray, the *philosophical* gesture which would allow for a *different* kind of difference to emerge, and therefore, “mediations that could permit the existence of a feminine subjectivity—that is to say, *another* subject,”¹⁹⁰ where the emphasis is not merely upon the emergence of a “repressed feminine,” but more

182 Kolozova, “Preface: After the ‘Speculative Turn,’” 2016, 13.

183 Crucially, this also applies to a posthuman or inhuman ‘subject’ or ‘that which thinks’ which would be reducible to, or imply, one asexuate/singular ground—what we have termed a scalar collapse.

184 Kolozova, “Preface: After the ‘Speculative Turn,’” 2016, 13.

185 Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 34.

186 This is the key argument from Irigaray, *Speculum of the Other Woman*.

187 Sampson, “Sôma, Technê and the Somatechnics of Sexual Difference.” Kristin Sampson draws attention to Socrates’ claim that the “living body (sôma) as the grave (sêma) of the soul (psuchê).”

188 Parisi and da Silva, “Black Feminist Tools, Critique, and Techno-Poethics.”

189 Cuboniks, *The Xenofeminist Manifesto*, 2018.

190 Hirsh, Olson, and Brulotte, “‘Je—Luce Irigaray’: A Meeting with Luce Irigaray,” 95.

crucially, on the emergence of a *different* logic of difference.¹⁹¹ This different logic would afford a new, non-expropriative form of relation across all axes of difference, not merely the sexuante:

Substituting the two for the one in sexual difference therefore corresponds to a decisive philosophical and political gesture, one which renounces being one or many in favor of being-two as the necessary foundation of a new ontology, a new ethics, and a new politics in which the other is recognized as other and not as the same.¹⁹²

As such, whilst Irigaray maintains a (“poststructuralist”) concern with the appropriative relation of specular reason to the other, she does not totally reject the powers of transitive mediation, but only the appropriative tendency of what she terms “single-subject transcendence.” Irigaray seeks to maintain fidelity to the difference of the other *without* foregoing the possibility of the rational mediation of such difference. To do so, she claims that sexuante difference is a universal-natural, and natural-universal, difference:

All the speculation about overcoming the natural in the universal forgets that nature is not one. [. . .] Before the question of the need to surpass nature arises, it has to be made apparent that it is two... No one nature can claim to correspond to

191 We acknowledge here the problematic nature of prioritising sexuante difference over other differences, specifically race. We would point here to the parallels between the structure of Irigaray’s argument with Afro-Pessimism, where Blackness, and not ‘the feminine’, constitutes the ontologically negative underside of metaphysics and the paradigmatic form of resource for *white* specul(ariz)ation. For Jared Sexton, “Afro-pessimism’ . . . [is] a disposition that posits a political ontology dividing the Slave from the world of the Human in a constitutive way.” Jared Sexton, “Ante-Anti-Blackness: Afterthoughts,” *Lateral* 1 (2012). We would claim that a minimal difference between sexualization and race is that the former is ontogenetic, whilst the latter is scaled—race emerges not as a part of ontogenesis or as a principle of all individuation, but within the scales at which racism operates, it does so as a real, technical-material force. Indeed, it could be possible to claim that, “in the context of the racializing logic that structures the transatlantic world, [where] anti-Black racism overcodes the dereliction of sexual difference”, the scale of racialisation plays a more dominant role in structuring the becoming of an individual’s ongoing individuations than gender. See Jones, “Sexuante Difference In The Black Atlantic: Reading Irigaray with Hartman.” For more on Irigaray and Afro-pessimism, see Emily Parker, “Elemental Difference and the Climate of the Body / Emily Anne Parker.” (Oxford University Press, January 1, 2021); For critical engagements with Irigaray’s neglect of race and racism in her work, see: Sexton, “Ante-Anti-Blackness: Afterthoughts”; Parker, “Elemental Difference and the Climate of the Body”; Hom, “Between Races and Generations: Materializing Race and Kinship in Moraga and Irigaray”; Chanter, “Irigaray’s Challenge to the Fetishistic Hegemony of the Platonic One and Many”.

192 Irigaray, *Democracy Begins Between Two*, 141.

the whole of the natural. There is no 'Nature' as a singular entity.¹⁹³

In this gesture, Mary Rawlinson sees Irigaray to be radicalising Hegel's "concept of identity in difference, of difference as constitutive of identity... by acknowledging the difference of the other to be *irreducible*,"¹⁹⁴ and "an irreducible feature of my experience."¹⁹⁵ As Irigaray claims:

As soon as I recognize the otherness of the other as irreducible to me or to my own, the world itself becomes irreducible to a single world: there are always *at least two* worlds. The totality that I project is, at any moment, questioned by the other. The transcendence that the world represents is no longer one, nor unique.¹⁹⁶

Through this notion of sexuate difference being a *universal* difference, she offers a *situated* form of transitivity. This acknowledgement therefore opens up not the vertical transcendence of the single-subject model, but a "lateral transcendence," grounded in a relation to a sexually different other, which cuts across "metaphysics' traditional vertical transcendence from the sensuous toward the idea."¹⁹⁷ It is this notion of a "lateral transcendence" that constitutes Irigaray's notion of "at least two," which Rebecca Hill has described as not merely a limit but an "interval" between, an interval constituting the "threshold of difference, the condition of possibility of identity, matter, and space that exceeds all attempts at calculation and prediction."¹⁹⁸ For Irigaray this interval of sexuate difference is necessarily *sexuate*, by virtue of which it is both spatial and temporal, as well as material and transcendental.¹⁹⁹ This interval is both the real condition of the becoming of all life, as well as an open-ended, non-determining yet structuring difference. Sexuate difference thought as this "at least two" is therefore a *philosophical* concept, but one that serves to fundamentally reorient the very matrix of the relation between thought and life which philosophy has traditionally assumed. *Pace* xenofeminism, then, it is not therefore

193 Irigaray, *I Love to You: Sketch for a Felicity Within History*. 33. We see a link between the claim made in this quote and the post-French Hegelian celebration of freedom as the overcoming of first nature, and the way the feminist tradition, especially Butler, has framed the motivations and methods of anti-essentialism.

194 Rawlinson, "Chapter Two. Opening Hegel?," 46.

195 Rawlinson, 46.

196 Irigaray, *Sharing The World*, ix-x.

197 Rawlinson, "Chapter Two. Opening Hegel?," 46; See 'Sharing The World' for Irigaray's broader discussion of this notion of lateral transcendence, and the way it opens up Hegel's 'autological circle' toward a notion of what Malabou and Ziarek have described as a gesture toward a 'double dialectic' of sexuate difference. Irigaray, *Sharing The World*; Malabou and Ziarek, "Negativity, Unhappiness or Felicity."

198 Hill, *The Interval: Relation and Becoming in Irigaray, Aristotle, and Bergson*, 115.

199 Hill, *The Interval: Relation and Becoming in Irigaray, Aristotle, and Bergson*. See Chapter 5.

nature or the given which has, for Irigaray, determined women's oppression. It is rather the way this nature has been *taken to be*—by the form of the singular experiencing, knowing subject—which has constituted this oppression, by collapsing it into this form of asexuate difference. We therefore claim Irigaray's invocation of the "limit" invoked by the "at least two" is not an imposition upon human freedom, but rather its *generative condition*.

Scale Is Not One: A Provisional Account of the Multi-Scalar Subject

Irigaray's philosophy of ontogenetic sexuate difference thus offers crucial resources to support the philosophical requirements of a multi-scalar feminism. This is because it allows us to understand difference as real and irreducible, yet, through her rehabilitation of the situatedness of its mediation, also allows for multi-scalar transitivity. Situating this figure of difference within fundamental processes of ontogenesis affords us a more robust understanding of the scalar differences involved in the ongoing individuations of life. Crucially, what this allows us to consider is the way in which a multi-scalar subject might be understood beyond a form of scalar collapse. This is because, as in Irigaray's account of the "at least two" quality of nature, individuation processes cannot be reduced to a *single* essence, form, substance, or process. As Simondon writes:

There is no single essence of the individuated being, because the individuated being is not substance, not a monad: its entire possibility of development comes to it from what is not completely unified or systematized [. . .] the genesis of the individual is a discovery of successive *patterns* that resolve the incompatibilities inherent to the basic pairs of disparation.²⁰⁰

As we have noted, for Simondon, individuation is not something that only occurs at the time of the genesis of a living being—such individuals continue to individuate throughout their lives by responding to and resolving in themselves multiple problematics.²⁰¹ Simondon therefore describes life as an ongoing "theatre of individuation"²⁰² that individuates in terms of multiple orders or regimes. Indeed, as Seely writes:

200 Simondon, *Individuation in Light of Notions of Form and Information*, 229.

201 Indeed, especially for complex individuals, such as multi-cellular life, ongoing existence relies on being able to continually enact and resolve ontogenetic disparations. It may be possible to also read this ongoing individuation in other, non-living complex systems, or in superorganisms. What is crucial is that the 'individual' (*qua* coherent system) contains some set of unresolved potentials as disparations, negentropic bifurcations which continue to generate further (trans)individuations as the individual interacts with its milieu. See Stiegler, *The Neganthropocene*.

202 Simondon, *Individuation in Light of Notions of Form and Information*, 9.

what Simondon calls ‘the subject’ [. . .] is a polyphasic, transductive more-than-unity, consisting of a superposition of vital, psychic, and collective structures and operations as well as of the unstructured potential of the associated milieu and is ‘infinitely richer’ than any notion of ‘identity.’²⁰³

Subjects are as such comprised of multi-scalar topologies which are themselves structured processes of different kinds of relation. A human being is physical, vital, psychic, and collective, legible via scales of morphology, discourse, identity, or bodily rhythms. The biological scale of the individual may have some *relation* to the scale of its psyche, for example, but the very intelligibility of the difference between these two scales *presupposes* their non-reducibility to each other, as does the fact that the individual is not a simple automaton.²⁰⁴ Scales can overlap, in incompatible ways, indexing different sets of relations that express different processes.

We therefore differentiate the claims Irigaray makes about sexuate difference into two broad kinds: “ontogenetic” and “scaled” aspects of sexuate difference. The *ontogenetic* aspects of sexuate difference are those we claim to be part of the conditions of individuation as such, in the sense elaborated above with Seely. These include her claims that sexuate difference is ontological, natural, irreducible, real, universal, and a fundamental condition of life. We understand these aspects of sexuation to be ontogenetic in the sense that they can be understood as primary and “anterior” to individuation.²⁰⁵ This is what we have articulated earlier as the basic “at least two” form of difference that comprises the ontogenetic “‘non-relation’ of disparation, defining the energetic and material tensions between incompatible tendencies within being.”²⁰⁶ As such, we can understand the scales of reality to be ontogenetically propagated by this fundamental difference—a difference we are reading as a *sexuate* disparation—which implies and secures the necessity of thinking the real in a multi-scalar way.²⁰⁷ Within this account,

203 Seely, “Individuation, Sexuation, Technicity,” 29.

204 Yet, those different processes, inhering within particular scales, *do* communicate and interrelate across these boundaries, though in indeterminate and heuristic ways. It is in this sense that Horton describes scales as performing a resolution that, “through a process of negotiation, produces a set of determinate properties for and between two surfaces that are nonetheless fully real.” The ‘interval’ between these surfaces is irreducible, but this is productive of a multi-scalar dimensionality that can hold this negativity in ongoing relation. This process is iterated innumerable times, producing any number of multiply articulated scales in topological relation. Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, 2021, 47.

205 Simondon, *Individuation in Light of Notions of Form and Information*, 300.

206 Toscano, *The Theatre of Production: Philosophy and Individuation between Kant and Deleuze*, 140.

207 This dynamic, multi-scalar architecture could further be used to think the kinds of relations the concept of intersectionality works to map, for example, whilst constitutively retaining their *materialist* dimensions—that is to say, without reducing the material to the linguistic or the normative or the

there is no metaphysical plane of absolute differentiation, or platonic ideal of sexuate difference. The “pre-individual” functions not as a metaphysical plane, but is rather relative to particular individuations, indexing unstructured incompatibilities between “at least two” scales that form its generative disparation.²⁰⁸ By enabling a limit between “self” and “other,” sexuation “is an operation of limitation that creates the difference necessary for... an informatic relation with another individual to take place.”²⁰⁹ It is this sharing of information that *makes possible the transformation of the individual* through encounters with multi-scalar architectures that differ from its own, though this transformative sharing is predicated on a difference which enables an exchange of information between at least two. Far from constituting a determining ground, sexuation is precisely that which “makes the individual *more-than-itself* by linking it to sexuate other(s) and to its “own” pre-individual potentiality.”²¹⁰

In addition to these ontogenetic aspects of sexuation, within a multi-scalar account of the subject there are also what we are terming its *scaled* aspects. Recall that individuals continue to individuate throughout their lives, and these ongoing individuations entail the continual resolution of problematics across multiple distinct scales of an individual’s existence. Therefore, what we term the *scaled* aspects of sexuation refer to the multiple scalar domains in which sexuate difference is operationalised and topologically structured in ongoing individuations, of which each individuation nevertheless requires

ideational, without, however, discounting the *constructive* power of these scales as they operate at the scale of psychic individuation.

208 This is somewhat different to the dominant, Deleuzian reading of the notion of the preindividual. While the pre-individual indexes unstructured potentials and tensions, we argue that it should not be read in the metaphysical tenor that many Deleuzians, especially within new materialism, give it. The relevant aspect of the preindividual to any individuation is not simply the unstructured potentialities it inheres, but that these potentials are the result of irreducible tensions, that is, the fundamental disparateness between at least two as-yet unstabilised orders of being. These tensions are what Simondon situates as heterogeneous reals, which provide the basis for all subsequent individuation. Indeed, it is tension which is left as yet unresolved by this fundamental splitting that preserves and enables the ongoing and open-ended becoming of the individual. While Deleuze takes from Simondon much of the latter’s account of ontogenesis, ultimately Deleuze moves away from the concept of disparation, recasting it in terms of differences in intensities. Rather than disparateness as incompatible separation, as in Simondon, in Deleuze we find an internal preindividual difference in intensities. The strata - as scalar differentiations - are thus less fundamental here than the scalar orders of magnitude and milieu in Simondon. This alters the dynamic of difference in that, rather than proceeding from the requirement of a fundamental ontogenetic interval as a split between incompatible orders, difference falls back onto a sliding scale (or a scalar collapse) of intensities: pluralism as monism. What (the dominant reading of) Deleuze’s reformulation of the preindividual constitutes then, for us, is another illustration of the refusal of sexuate difference that results in scalar collapse. We see the emergence of the possibility of the at-least-two of disparation in Simondon as a radical moment in the history of philosophy, one which encounters the sexuate, from which Deleuze’s uptake recoils.

209 Seely, “Individuation, Sexuation, Technicity,” 32.

210 Seely, 35.

an ontogenetic moment of (sexuate) disparation. These scalar aspects of sexuation include but are not limited to the morphological, psychic, and the discursive. We claim that sexuate difference is not necessarily 'in' these scalar domains, but that it *structurally* organises them in irreducible but open-ended ways. As Carter explains, for Irigaray, "sexuation is not reducible to any single event, process, domain, or outcome".²¹¹ As such, sexuation is not *reducible* to its ontogenetic aspects; the sexuated individual is comprised of many topologically overlapping scales, including those, for example, of morphology. As Irigaray claims, whilst the "morphological organization of bodies provides a background for the development and evolution of subjectivity,"²¹² morphology itself is an "incompleteness of form" and an "open volume that can't be circumscribed,"²¹³ indicating its important structuring function, but its ultimate open-endedness.²¹⁴ In this way we claim that morphology is a scaled aspect of sexuation; it is not itself "sexuate difference" *qua* the originary difference we are locating in the moment of "disparation" in Simondon's account of ontogenesis, but one of the multiple scales that bears a mutually structuring but ultimately indeterminate relation with all others, such as the psychic, the discursive, the social, the economic etc.²¹⁵ These scales are related but not reducible to one another: there is no collapsible trans-scalar unity that would give a single frame for all scales at which an individual exists, be this transcendent, top-down rationality or immanent material substance. Instead, an individual must be understood as a multi-scalar, topological process: it is an ongoing individuation that still participates in ontogenesis by virtue of the disparations that emerge between and within its scales.

The ontogenetic aspect of sexuate difference is thus the *condition* by which the indeterminacy, multiplicity, and transformability of such scales is maintained. Reading Irigaray's claims about sexuate difference via this distinction of the ontogenetic and scaled aspects of sexuation allows us to move away from a modality of interpretation structured by an essentialist/anti-essentialist binary, and opens up a reading of her philosophy whereby sexuate difference is neither "given," essentialist, nor merely constructed,²¹⁶ but is rather the fundamental, irreducible, *and* non-determining and non-locatable difference (sensibly-) transcendental to the ontogenesis of multi-scalar reality. The scales of any complex system therefore must be understood in this topological way, as having multiple possible articulations to each other, and communicating in an indeterminate fashion. The

211 Carter, "An Uncontainable Subject: Thinking Feminine Sexuate Subjectivity with Irigaray," 181.

212 Carter, 173.

213 Irigaray in Hirsh, Olson, and Brulotte, "'Je—Luce Irigaray': A Meeting with Luce Irigaray," 98.

214 See also Stone, *Luce Irigaray and the Philosophy of Sexual Difference*, 96 for a discussion of the "open ended" way Irigaray understands "growth into prescence" through Goethe and Heidegger's notion of "physis".

215 Each of which are themselves multiply scalar.

216 Irigaray, *Sharing the Fire: Outline of a Dialectics of Sensitivity*, 84–85.

multi-scalarity of individuals is therefore a real (that is, necessary) feature productive of their indeterminacy, an indeterminacy which, in the last instance, is only erroneously collapsed into one form or telos. Thus, we claim that Irigaray's sexuate difference of at least two, understood ontogenetically, does not arbitrarily limit multi-scalar mediation, nor constitute an imposition upon human freedom, but is rather their generative condition. Such a provisional synthesis inheres possibilities for a technofeminism adequate to multi-scalar phenomena—namely, computation, climate change, and capital—yet one that also maintains fidelity to scalar difference, and is itself, therefore, adequately multi-scalar.

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Coyote Figurations, Techne and Feminism

Roshni Babu

Abstract:

It is within the framework of situated knowledges in the field of biology and technology studies, in its relation to feminism that the coyote figuration is conceptualized by Donna Haraway. In what respect are they conceived by Donna Haraway to be figures of emancipation? What kind of affinity does it establish with the figure of cyborg, as figure of posthumanism? Certainly, Donna Haraway hypothesizes the privilege of a 'partial perspective' having to play a role in expanding the epistemic horizon of feminist thought. This paper probes into the potential role of coyote figures as metaphors illuminating feminist readings of the relation between philosophy and technology. However, coyote figures have a generic character of transgression, and hence, borders on epistemological reduction of its ontico-ontological phenomenality which Catherine Malabou problematizes. Malabou's eschewal of flexibility counters this binary by developing the role played by the "fantastic" in the espousal of plasticity of being. Being conceived in this originary mutability eliminates the interior-exterior division of beings. What are the comparable features of coyote figurations and the fantastic? And how does it add to the feminist understanding of philosophy of technology?

Keywords:

Metaphor, coyote, plasticity, feminist figurations, feminist technologies, cosmotechnics, Donna Haraway

1. Introduction: Coyote Feminism

I like to see feminist theory as a reinvented coyote discourse obligated to its sources in many heterogeneous accounts of the world.¹—Donna Haraway

Donna Haraway evokes the metaphor of the coyote as a trickster figure who, instead of dwelling in subject-object dualism, posits the objectivity of science at the intersection of witty agents and prosthetic devices of meaning-making. The “coyote” figuration emerges in Donna Haraway’s work as a “metaphor,” insinuating the fragmentary constellation of situated knowledges. Extracting coyote figures from the traditional domains of mythical abstraction without thereby slipping into ethnic-naturalism, Haraway underscores that the Coyote figuration is regional but at the same time not reducible to the ethnic, human, or gendered nature, which thus escapes its appropriation as an over-determination of the feminine. Its fantastic element is a critical figuration dwelling at many inter-sectionalities not reducible to each other. The pertinent question is whether coyote figures can escape anthropocentric concepts of nature and whether the subject-object nexus formed around them can support somatophilic rationality. In Donna Haraway’s conceptualisation, they are found to be lacking in these respects. Hence, transposing coyote figures into the conceptual framework of the plasticity of beings, this paper will discuss the viability of developing the notion of the “fantastic” postulated by Catherine Malabou as offering another dimension of crossing essences, which incidentally also moulds them into a deconstructive technique that trammels with the current mode of cyber-governmentalities in Katherine Hayles’s work.

In what way does the use of metaphor radicalise our understanding of the makings of scientific objects? In Haraway’s doctoral work, *Crystals, Fabrics, and Fields*, she compares the critical importance of metaphors to visual imageries.² Further, citing Ludwig Wittgenstein from his *Tractatus*, she postulates the importance of “showing” over “saying,” which can be more efficiently carried forth through the use of metaphors. She also attributes to metaphor a “predictive value.” Above all, for her, metaphors can invoke a sense of community, although in this work, her metaphors are drawn from the communities of scientists. In her analysis, the formation of a community mobilises a metaphor that is formed around a set of problems which demands a shift from one paradigm to another. Haraway pursues two fundamental problems in this work: 1) how we account for the change in the field of sciences and 2) the new equation these changes bring about in making sense of what may be termed as “nature.” In particular, she provides an account

1 Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 48, no.3 (1988): 594.

2 Donna Jeanne Haraway, *Crystals, Fabrics, and Fields: Metaphors that shape Embryos* (Berkeley: North Atlantic Books, 2004), 2.

of the change brought about in the field of “developmental biology” in the first half of the twentieth century, which saw a shift from the binary of vitalism-mechanism to synthetic organicism. In her justification for the use of “metaphors,” she compares it with another symbolic expression—the “paradigm”—that was quite in vogue during this time, being introduced by Thomas Kuhn in his seminal work *The Structure of Scientific Revolutions* (1962).

In comparison, “paradigm,” though, is a befitting metaphor to wield in the field of physics; in her analysis, it falls short in visual imageries to suit the field of biology. She defends this thesis with an explanation that “paradigm,” for Kuhn, embodies a set of shared values which result in the formation of a scientific community of “normal science” as a cumulative enterprise consolidated by a network of shared commitments. In contrast, she observes that community formation is of lesser significance in accounting for a paradigm change in biology, as it is unfurled by the coming together of a set of discrete scientific communities.

However, regarding the role metaphors play in emulating the explanatory power of a scientific paradigm, she is in agreement with Mary Hesse that a metaphor is an image that gives concrete coherence to even highly abstract thought.³ The intelligibility of metaphors arises from the fact that it is shared by a community. Though it is a property of language, it has concrete expectations shared by a community of users, which gives it its explanatory power; this is, nonetheless, not analogous to a logical structure or an archetype. In her doctoral work, she makes use of the potency of “crystal” as a metaphor juxtaposed with how the dynamics of an organism are explained under the framework of a “perfect form” in cell theory. Explaining crystal formation in terms of its organic processes will dispel the imagery of an organism as a hierarchically organised perfect structure in favour of a “discontinuous series of organisms” because crystal formation can be best conceived only as an intermediate state of organisation.⁴ This analogy, built on the potency of metaphors, travels a long way by the time it assumes the guise of a coyote figure.

As she affirms, coyote figurations are brought into the fold of a “kin group of feminist figures” in an effort to show possibilities towards a more liveable place “elsewhere” in the spirit of science fiction:

Figures collect up hopes and fears and show possibilities and dangers. Both imaginary and material, figures root peoples in stories and link them to histories. Stories are always more generous, more capacious, than ideologies; in that fact is

3 Haraway, *Crystals, Fabrics, and Fields*, 9.

4 Haraway, *Crystals, Fabrics, and Fields*, 11–12.

one of my strongest hopes...I want to know how to help build ongoing stories rather than histories that end.⁵

She adds to these feminist figures in the interest of conflating facts, history, and ideology. These figurations have roots in their formative histories of religious rituals. But they are figuratively placated off their historical links in order to transpose them as “tropes” that defer their literal meanings. Thus, the affinity towards cross-cultural tropes and metaphors is in the interest of etching a non-inherited kin group “elsewhere”:

There can be an elsewhere, not as a utopian fantasy or relativist escape, but an elsewhere born out of the hard (and sometimes joyful) work of getting on together in a kin group that includes cyborgs and goddesses working for earthly survival.⁶

The figure of the “cyborg” is Haraway’s much celebrated and popular imagery when compared to the “coyote” figure, which is one of the reasons why there is a dearth of discussions on the anti-racial, decolonial readings of contra-modern or alternative-modern readings of folkloristic imageries divulging the tensions built into their appropriations.

Haraway develops the concept of partial knowledges leery of the uncontestable claims on objectivity upheld by the scientific edifice.⁷ Whether partial perspectives can be advanced as an account of radical historical contingency of all knowledge claims is a critical project, she ponders along with Sandra Harding, who advanced marginal perspectives representing the standpoint of the marginalised communities of scientific views emanating from their cultural origins as the starting point of scientific research.⁸ As she adds, the extension of this vision is the fundamental tenet of the critical practice of theory building needed for a “successor science” project that offers a better account of a world for the future. This she holds out as the feminist standpoint theory on objectivity, whose want Haraway recognises as the radical multiplication of local knowledges.

Though the Marxist tradition has been identified as a rich source of critiquing hegemony, it failed, in her analysis, in terms of bringing women’s subjectivity into its fold other than as an alienated wage labourer. The feminist extension of this tradition unmasks objectivity as a placeholder of unmarked positions of Man and White. Haraway’s project is to mark the objectivist claims from multiple locations of situated knowledges. But as

5 Donna Haraway, *The Haraway Reader* (London: Routledge, 2004), 1.

6 Haraway, *The Haraway Reader*, 2.

7 Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” *Feminist Studies* 48, no.3 (1988): 575–599.

8 Sandra Harding, “Rethinking Standpoint Epistemology: What is ‘Strong Objectivity?’” *The Centennial Review* 36, no.3 (1992): 437–470.

we are informed by the regimes of oriental and colonial anthropological scholarship, the “local” is no less of a marked position of “an aboriginal” purity. Thus, Haraway invites us to embody our vision in differential “dimensions of mental and physical spaces we hardly know how to name” in an effort to check the unrestricted vision promised by technological mediations, transcending all limits.⁹ The privileges presumed by the lens of peregrination are what Haraway brings under the critical gaze. Travelling lens ensconced in the imperialist economic privileges of capitalism, allied to its forms of mobility, grants us a false impression about the mightiness of prosthetic devices that they are “active perceptual systems equipped for translations” of specific partial knowledges. As she acknowledges, there is risk involved in appropriative claims on local knowledges—“danger of romanticizing and/or appropriating the vision of the less powerful while claiming to see from their positions.”¹⁰ Her critical gaze cuts through the relativist positionings of local knowledges, signalling the significance of aligning with the “subjugated standpoints” as they are deemed “in principle least likely to allow denial of the critical and interpretive core of all knowledge.”¹¹ Such preference for subjugated knowledges is translated as an argument for situated and embodied knowledges. Thus, the politics implied by the epistemology of partial perspectives situate them as an alternative to relativism, which she underlines is the “perfect mirror twin of totalisation,” as both deny the stake implied by locations and embodiment. Equality of positioning is a denial of responsibility and critical inquiry “falsely promising a vision from everywhere (instead of nowhere) equally and fully.”¹²

However, just as any partial perspective will not do, as it would be a disguised form of relativism, the critical potential of partial-subjugated knowledges should signal hope for transformation. Whether this aspect of hope could be contaminated by a “fantastic” element—an extra-rational element of phantasm—is the pertinent question Catherine Malabou shoots into this debate.¹³ In other words, can the characterisation of partiality manifest itself as an alternative to the exhaustive rationalisation of the object of knowledge? Partial knowledges, when juxtaposed to equal positioning of relativism and universal positioning of totalisation, poises itself on a rational axis as another claimant of reason, masking its act of hegemonisation via channels of systematisation and erasure of differences and inequalities. By contrast, the paradox entailed by positioning partial knowledges as non-isomorphic reason leaves the element which injects imbalance to exhaustive reasoning mysterious, or least of all, unexplained. And it is at this juncture that

9 Haraway, “Situated Knowledges,” 582.

10 Haraway, “Situated Knowledges,” 584.

11 Haraway, “Situated Knowledges,” 584.

12 Haraway, “Situated Knowledges,” 584.

13 Catherine Malabou, *The Heidegger Change: On the Fantastic in Philosophy*, trans. Peter Skafish (Albany: SUNY Press, 2004).

Haraway imagines “metaphors” as the intermediary link that sutures the non-isomorphic subject positions and interstitial connections between locations of knowledges:

In these metaphors, we find means for appreciating simultaneously both the concrete, “real” aspect and the aspect of semiosis and production in what we call scientific knowledge.¹⁴

In other words, as one can notice from the above quote, the coming together of heterogeneities constituting partial knowledges is leveraged on an absence of grounds for an ontology of the subjugated. At first glance, the choice of this figuration is quite apt to her project of re-defining “objects as boundary projects,” where boundaries acquire the guise of liminal spaces which are tricky and risky to invest in terms of generation and production of meanings due to their vulnerability to shifts of displacement at borders. However, envisioning the coyote as a “problematic” figure without thereby problematising the boundaries of reason, only in which case it would become characteristic of being a “trickster,” is not promising enough.

2. Xenofeminist Critique of Donna Haraway

In so far as her search is for granting agency to the local world of objects, an active contender is “eco-feminism.” For eco-feminists, however, agency of the world is embodied by the metaphor of a “primal mother” who resists convertibility into an object of resource. Figurations of mothers are designed to claim mastery over the world (including the artificial) via recourse to the mystical powers. It is in defiance of this primal figuration of nature that Haraway opts for the coyote figure as symbolising a “trickster” figure enabling the visualisation of the world as a “witty agent,” thus giving way to a feminist account of objectivity which “makes room for surprises and ironies.”¹⁵ However, Haraway could not envision this figure as a technophilic figure, although it is not a technophobic figure either.

Xenofeminism (henceforth XF) poses itself as one of the contemporary technophilic feminist positions in the work of Laboria Cuboniks (2015)¹⁶ and in their extended vision presented in the work of Helen Hester (2018).¹⁷ XF presents itself as a post-revolutionary feminism seeking to develop strategies of adaptation to technologically mediated realities.

14 Haraway, “Situated Knowledges,” 589.

15 Haraway, “Situated Knowledges,” 593–594.

16 Laboria Cuboniks, *Xenofeminism: A Politics for Alienation*, laboriacuboniks.net/manifesto/xenofeminism-a-politics-for-alienation/, accessed January 14, 2017.

17 Helen Hester, *Xenofeminism* (Cambridge: Polity Press, 2018).

Their vehement stance on anti-naturalism is built on the labour of freedom from alienation induced by normatively given “natures.” Their orientation towards adaptiveness to the existing technologies organises their thought around the “repurposing of technologies.” This strategic stance towards adaptive or repurposed use of technologies is grounded on two premises: 1) that there is no inherently progressive or political techno-scientific imagination, and 2) feminism is a project of reclaiming reason (“feminism must be a rationalism”), or “rationalism must itself be a feminism”:

Systematic thinking and structural analysis have largely fallen by the wayside in favour of admirable but insufficient struggles bound to fixed localities and fragmented insurrections. Whilst capitalism is understood as a complex and ever-expanding totality, many would-be emancipatory anti-capitalist projects remain profoundly fearful of transitioning to the universal, resisting big-picture speculative politics by condemning them as necessarily oppressive vectors.¹⁸

Though one might agree with their affirmative to go beyond the valorisation of local micro-communities to foster universal solidarity between fractured insurgencies in the interest of emancipatory tactics, there is an equally imminent need to transcend the binaries of local and universal in order to scale up alternative imaginations of “globalism” emanating from heterogeneous forms of milieu formations. Alternative milieus unfurled by digital realities present recursive networks of reasoning whereby our naïve definitions of the rational do not recognise themselves in the binary contrast under the new algorithmic schemas of the rational. It is with respect to their position on anti-naturalism that XF positions themselves as “Haraway’s disobedient daughters”:¹⁹

XF is an anti-naturalist endeavour in the sense that it frames nature and the natural as a space for contestation – that is, as within the purview of politics. Any political project based upon nature as a pseudo-theological limit, a cartography of the untouchable, or a space of incontaminable purity risks lending huge conceptual resources to the conservative punishment of radical difference.²⁰

XF’s anti-naturalist position, as expressed in the above quote, provokes the “givenness” of gender identities. Seeking to break free of the comforts one experiences in the unfreedom of being born this way leads to their position of gender abolitionism. Heteronormative norms, as we know, are constructed around the immutability of nature. The givenness of gender identity is sequestered into the private realm as a certainty. Severing the natural into the private realm is the biggest challenge one faces today in tearing down

18 Cuboniks, *Xenofeminism*, 3.

19 Hester, *Xenofeminism*, 20.

20 Hester, *Xenofeminism*, 19.

the disciplining grid of gender identities. Although in agreement with XF's agenda of anti-naturalism, this paper examines the equitability assumed between the local and the natural. Most agendas of globalism are a call to transcend localism. Dynamics of the transition from the local to the global appear unproblematic in the rational registers of emancipatory universals. However, it would disclose a checkered history in the registers of semi-rational, mystical-spiritual, or inadequately rational.

Donna Haraway's work exposes this intricacy in her articulation of the coyote figuration as an inadequately technophilic figure who could visualise this quandary. However, in this respect, XF's postulation of the "mesopolitical" sphere as a substitution for the local is equally inadequate,²¹ as it operates on the advancement of given technological rationality into developing women's self-help tools, a repurposing of second-wave feminism for the fourth-wave, which though certainly serves the everyday ends of the feminist movement, does not serve the end of the heterogenisation of feminist technics per se:

Without sufficient attention to the mesopolitical, the difficult work of alliance building and of increasing the reach of political ideas is too often left unconsidered. It is within this context that the example of self-help becomes particularly illuminating, given that the protocol might be considered a specifically mesopolitical tactic.²²

Xenofeminism, on the one hand, imagines a post-capitalist mode of production, thought of as a counter-social production; on the other hand, it executes its vision within the given models of practical solidarity using the universal model of the modern technological apparatus. Hence, this model forecloses the possibilities inherent to "cybernetical cosmotechnics" to realise an alternative future of techne. Instead, XF envisions a future that foregrounds human survival, "remembering that survival is the precondition for any revolutionary politics."²³ Although I empathise with XF's concern regarding the acknowledgement of old tools, namely, the "speculum," one of the first gender political tools that mediated the second-wave feminist movement, their lack of empathy towards the heterogenisation of tools is dismal.

In Hester's interjections on Haraway's version of anti-naturalism, we see the conceptual contours of XF's position on anti-naturalism. In her extended version of Xenofeminism teasing out the underpinnings of 2015's *Xenofeminist Manifesto*, Hester, one among the six members of Laboria Cuboniks (the Xenofeminist working group), focuses on their position on reproduction, or rather reproductive justice implied by some versions of

21 Hester, *Xenofeminism*, 9.

22 Hester, *Xenofeminism*, 115.

23 Hester, *Xenofeminism*, 68.

transhumanism. In reference to contemporary environmental activism, she points to the “anti-natalist” tendencies implicit within recent accounts of a more sustainable future.²⁴ At this point, her work brings into discussion Donna Haraway’s slogan, “make kin not babies,” which she pronounces in her work the *Chthulucene* (2015). Hester’s point of contention is with its suggested directive to “reduce our birth rate.”²⁵ She deploys her dissonance in contextual reference to the biopolitical population control projects initiated by the UN in view of the depletion of resources exacerbated by the environmental crisis.

Haraway’s analysis of the impact of population density on the issue of environmental strain, XF argues, “lets capitalism off the hook.”²⁶ Integral to Haraway’s call for making kin (the *Chthulucene*) is her deliberation on alternatives to the reproductive futurism of one’s genetic line induced by the current ecological conditions. Making kin-assemblages beyond one’s genealogy and species prompts us to rethink naturalism. This call, XF argues, inadvertently enters into a complicit entanglement with the “coercive histories of population management, extending to racist practices of sterilisation as a kind of biopolitical border control, culling unwanted future lives from citizenship.”²⁷ Indeed, there is a side to Haraway’s argument that unravels a lacuna in political sensibilities concerning the biopolitics of subjective formations. Therefore, Hester’s critique of Haraway comes in the wake of racialised strategies of population control, which siege the reproductive sovereignty of the subjugated race, which by extension also violates women’s individual bodily autonomy. In a further remark, Hester observes that Haraway’s empathy towards the ongoing decolonial and post-colonial struggles “concentrates on a vision beyond the capitalist present rather than centring active struggles for a post-capitalist future.” In the remaining part of the chapter, Hester brings out the dismal picture of “reproductive labourers,” thereby unveiling the fact that the “social capital of parenthood is drastically limited.”²⁸ Certainly, one could add to this picture the plight of sex workers, the impoverished, the displaced (migrants, refugees), and the queer. Therefore, Hester succeeds in her argument that rather than making kin-assemblages as a generic call of post-humanist feminism, one has to pay heed to subjectivations formed under the political regime of biopolitics, which appropriate this demand as a tool of governance. However, Hester’s caution against any form of “punitive disdain regarding the reproductive choices of others”²⁹ does not open up new doors for kin-formations beyond the human species and is a drawback which places Haraway’s metaphors harbouring kin-groups of other-than-human species, a reservoir of imageries far exceeding the narrow framework of

24 Hester, *Xenofeminism*, 4.

25 Hester, *Xenofeminism*, 55.

26 Hester, *Xenofeminism*, 56.

27 Hester, *Xenofeminism*, 59.

28 Hester, *Xenofeminism*, 60–61.

29 Hester, *Xenofeminism*, 63–64.

reproductive justice highlighted by XF, investing exclusively in post-capitalism without a parallel expansion via post-humanist imageries.

3. Cosmotechnical Affinity of Coyotes

Through hindsight derived from algorithmic modes of governance modelled after recursivity, Yuk Hui dispels the naïve imaginings of monolithic reason identifiable in the eighteenth-century models of technologies. Whether the form of reasoning that fuels the big-data machines governed by cybernetics be legibly called “reason” is not only a challenge to its nomenclature but also delineates the crisis in thinking new horizons of cybernetics. A more pertinent question for us to ponder in the age of cybernetics is to map the recursive movements of reason, which otherwise bestows an aura of mystery to its modes of functioning that resemble the soul.³⁰ The advent of cybernetic governance confuses the given critical apparatuses of thinking, as it readily draws in the so-called radical subjectivations—or, as Haraway would call it, subjugated knowledges—into its feedback loop without thereby distinguishing between positivism and hermeneutics. Thus, while systems of governance optimise themselves through cybernetics, their functioning obtains the guise of new metaphysics. In this regard, posthumanist figurations have been criticised by Hui for their naïve attitude towards technology, which completely ignores the ontological intricacies implicit in the new technological ordering of machine and organism relations.³¹ Following this analysis, one can see that Haraway’s figure of the cyborg ails from such conceptual naiveté.

In Haraway, the presumed affinity between the post-humanist figure of the cyborg and the Native American figure of the coyote is beset with a theoretical dilemma. Though chronologically, the concept of the cyborg precedes the coyote in Haraway’s work, the latter could not succeed in becoming a posthuman figure. While feminist counter-dialogues with science and technological discourse can be appraised as a voice of resistance against the increasing synchronisation normalised between different spheres of society and culture aided by cybernetic governance, Hui’s work appeals by adding volume to the diversification of technological resistances, instead of naively opposing organicism against the inorganic. If Haraway’s figure of the cyborg is premised on a naïve dichotomy between nature and machine, the coyote figuration would beg another disdain from an informed post-humanist like Hui: “Are we not here sacrificing science and technology to the Unknown, or, more precisely, to a mythical and religious thinking?”³²

30 Yuk Hui, *Recursivity and Contingency* (New York: Rowman & Littlefield, 2019), 246.

31 Hui, *Recursivity and Contingency*, 252–53.

32 Hui, *Recursivity and Contingency*, 270.

In contrast, Hui maps an alternative route which bypasses a resolution in favour of either science or organic nature. He postulates a new realm of ecology constituted by cybernetics and thus takes the risk of “burning the bridge.”³³ In this newly forged landscape, cybernetics substitutes the place of the “Unknown” in all its spiritual, aesthetic, or absolutistic senses.³⁴ Consequently, cybernetics is recast in a non-deterministic model of diversification of its technical coordinates. This diversification is leveraged on different visions of the cosmos, embedded in multifarious aesthetic, intuitive sensibilities, whereby each of these conceptual equations, radiated by their respective cosmological milieus, would reverberate in resonance with the corresponding cosmotechnics that emerge. A critical moment of reappraisal of the familiar-sounding notions in a new framework of non-modern epistemologies is demanded by “cosmotechnics.” Whether one can reinvigorate the figure of the coyote in cosmotechnical imagery is a compelling question to ponder in the interest of advancing alternative visions of non-modern technics. However, this demands rediscovery of the corresponding cosmological imaginations in which these coyote figures are nestled by various corpora of folklore.

4. Conclusion: Plasticity of Coyotes

This concluding section gesticulates certain theoretical moves that can be viably conceived to have resonance with the contemporary post-human feminist discourse of new materialism wherein the coyote figuration can emerge as a “critical” metaphor with political intent. In this regard, I bring the works of new material feminism into dialogue with each other. The voices of Karen Barad, Katherine Hayles, and Catherine Malabou are brought into dialogue with Donna Haraway for the pursuance of an informed reinvention of the coyote metaphor in technophilic feminism.

In the trajectory of the post-human feminist discourse leading up to its inflexions in new feminist materialism, Haraway’s work belongs to the feminist critiques of the epistemological authority of science. It thus opens new ways of imagining objectivity, but which is still a far cry from new materialism, which is rooting for a shift towards an ontological redefinition of materiality and material agencies. Barad is the key figure who pronounces this shift by engaging with matter’s agentive properties as opposed to a vision of agency associated with human intentionality and intelligence. Instead of resisting scientific objectivity, Barad shifts the focus to material-discursive practices of sciences whereby what comes to be determined as “matter” in scientific observation/objectivity is conceived as co-constituted by various processes of becoming of the world’s entangled

33 Hui, *Recursivity and Contingency*, 274.

34 Hui, *Recursivity and Contingency*, 278.

agencies, a position she names by the phrase “agential realism.”³⁵ Thus, this shift can also be characterised as a move away from a direct critique of science, the mode in which Haraway and Harding have been carrying out their feminist critiques. Nonetheless, the socio-cultural, anti-racial, decolonising, and postcolonial affinities implied by their feminist visions seem to be attenuated in the imaginings of new material feminisms.³⁶

The provocation that Haraway brings into effect with her use of cyborg and coyote imageries is through her imagination of post-gender apparatuses of bodily production. As she reminds us, “gender is a specific production of subjects in sexualised forms where some have rights in others to reproductivity and sexuality.”³⁷ But she uses the phrase “post-gender” only in a critical sense, insinuating the discontinuities in the history of this specific way of understanding gender that “things need not be this way,” not in the sense of beyond masculine and feminine. Similarly, by reimagining the cyborg as a female figure, Haraway is etching an alternative figuration for the space project. In this regard, she decentralises the cyborg from the male-centric imagination of a militarised space project and from the pornographic male-centric gaze of robotised objects fabricated by science fiction. Thus, the figure of the cyborg is reinvented as a tool to understand women’s place in the “integrated circuit” of the communication-control-system.³⁸ Wherever the cyborg assumed a female figuration, she notes, its character is etched in fragilities and ambiguities—as a patient, or as iron-maiden, or as fem-bots. They became expressions of the “problematic of communication.” Hence, her reinvention of the cyborg as a critical figuration of the project for freedom is as an oppositional figure, but which is undertaken as a relentless task, acutely aware of the risks involved in the appropriations of such figures into the mainstream. This propels her into making a counter-appropriative move of inventing a “kinship system of figurations as critical figures.”³⁹ Thus, the coyote is invented as an alternative figural expression of nature, with sorts of entities that are neither nature nor culture, analogous to the genetically engineered laboratory research animal OncoMouse.⁴⁰ In a similar attempt, she articulates “Sojourner Truth” as a trickster figure, a shape-changer, a troublesome problematic universal.⁴¹ That is, these critical figurations dwell in an interface establishing inter-sectionalities between nature and culture, human and non-human, and human and machine, but nonetheless, in prior determined binaries.

35 Karen Barad, “Agential Realism,” *The Science Studies Reader*, ed. Mario Biagioli (New York: Psychology Press, 1999) 1–11.

36 Sari Irni, “The Politics of Materiality: Affective Encounters in a Transdisciplinary Debate,” *European Journal of Women’s Studies* 20, no.4 (2013): 347–60; Stacy Alaimo and Susan J. Hekman, *Material Feminisms* (Bloomington: University of Indiana Press, 2008).

37 Haraway, *The Haraway Reader*, 328–329.

38 Haraway, *The Haraway Reader*, 321–322.

39 Haraway, *The Haraway Reader*, 327.

40 Haraway, *The Haraway Reader*, 332.

41 Haraway, *The Haraway Reader*, 46–61.

It is by challenging this notion of inter-sectionality, which presupposes a world of binaries that pre-exists them, that new narratives of the post-human articulate a vision of intra-sections. It is Karen Barad's work, *Meeting the Universe Halfway* (2007), which invents the term "intra-actions" in contrast to "inter-actions" to designate the specific dynamics of agencies, of both humans and non-humans, in an ontologically entangled web. In order to underline their specific differences and distinctness, intra-active processes do not posit the pre-existence of determinate objects—as in inter-action—prior to the actions themselves. They are perceived to be emergent within a certain constellation of phenomena. Though Haraway's transgressive figures symbolically bypass technophobia, they sparingly succeed in turn becoming technophilic. The new material dimensions in posthuman discourse assuage this dilemma, but their alternate conceptions of matter are still ill at ease with the spectral/occultist dimensions. In this regard, Barad's cue lies in the redressal of the dissatisfaction Haraway exudes with respect to the representationalist power of prior ontological categories—of subject and object—predetermining the social constructivist positions.⁴² Nonetheless, what this paper champions is the power of the coyote figuration to precisely defy the representationalist framework in favour of the performative one Barad advances without attenuating the decolonising lens implied by this figuration as well as the occultist one. This figural agency is embedded in the mythic/aesthetic/transcorporeal imagery of the coyote as a "contra-modern" figure, embodying an "originary mutability" symbolising the material-semiotic agency, which is purportedly the vantage point of partial/subjugated/marginal knowledges. However, its first step involves a reinvention of the coyote as a cosmotechnical figure, as the coyote remains a free-floating metaphor in Haraway due to various reasons.

Coyote appears in Haraway's work abstracted from its corresponding cosmoses, assuming the generic character of a "trickster" figure. Unhinged as it is from any conceptual "constraints," it appears in the glory of its flexibility. Appropriation of the coyote from Native American Navaho cultures is imagined, facilitating the "cross-talk" between Native American and Anglo-American cultures.⁴³ In this imagination of cross-border travels, the local-global exchange would remain privileged imagery without a corresponding detailing of the risks and mediations involved. Keeping in view the critical potential of the use of metaphors, Katherine Hayles reminds us that the articulation of metaphors should account for its own set of constraints.⁴⁴ Articulating the post-human possibilities in thinking with metaphors, Hayles argues against the decontextualisation of metaphors, as it merely shifts the subjective agency to non-human actors, thereby making them act

42 Karen Barad, "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter," *Signs* 28, no.3 (2003): 802.

43 Haraway, *The Haraway Reader*, 328.

44 N. Katherine Hayles, "Desiring Agency: Limiting Metaphors and Enabling Constraints in Dawkins and Deleuze/Guattari," *SubStance* 30, no.1/2 (2001): 144–159.

as ambitiously as humans, thus seeking to materialise the very same modern ideals of autonomy. She illustrates this by taking the examples of Richard Dawkins's and Deleuze and Guattari's work. Dawkins decontextualises his use of metaphors from constraints immanent to evolutionary biology. Likewise, Deleuze and Guattari often articulate their goal of the fragmentation of agency against an absent internal structure, which in turn bestows to their use of metaphors an unconstrained dynamism. In contrast to this practice, she forges the concept of "constrained constructivism", foreseeing a post-human future for metaphors wherein processes of self-organisation are constrained by "interlocking feedback loops" restricting the space of possibilities so that "only the most viable self-organising systems or models emerge."⁴⁵ These self-organising systems are conceived as systems that contain distributed cognition and, in consequence, distributed agency whereby we act "with partial agency amid local specificities."⁴⁶ Taking a cue from this insight, we have to reinvent the coyote figuration as a cosmic figuration whereby its possibilities are co-determined by its cosmotechnical milieus in order to make it amenable to technophilic mediums. Hence, a recursive return is called for to the cosmic milieus of coyote figures. However, this return is meant to reinvent the coyote as a cosmotechnical figure of feminism, that is, neither to recover its mythical milieu nor to effect a disaffection from it.

As we have seen, the coyote figuration is rendered as a "trickster" figure by Haraway, assuming its resonance with such figures in the Native American Navaho myths. However, the figure of the trickster assumes a very different set of characters when rendered into Indian folk/tribal/village mythologies, which showcases the heterogeneities in their respective cosmologies. Here, the trickster figure transforms its guise from an epistemological metaphor in Haraway to the mode of expression of "the fantastic designating the phenomenality of ontico-ontological transformations."⁴⁷ Trickster figures within their respective mythical-cosmoses assume their critical potential via their magical acts of violation of specific moral and social codes.⁴⁸ That is, the specificity cannot be taken away from its critical figuration. Its potential as an imagery for post-human articulation lies in the "originary mutability" of this figure.⁴⁹ But what remains to be recovered from their respective mythical cosmoses is the specific modes of intelligibility to change that this figure brings into vision. Trickster figures are not identified as a fixed-type; rather, they are endorsed as potent figures of subversion. Narratives of subversion are renewed each time a new text or a new oral tradition is recreated. This also attests to the changing

45 Hayles, "Desiring Agency," 145.

46 Hayles, "Desiring Agency," 158.

47 Malabou, *The Heidegger Change*, 11.

48 Franchot Ballinger, "Coyote, He/She Was Going There: Sex and Gender in Native American Trickster Stories," *Studies in American Literature* 12, no.4 (2000): 15–43.

49 Malabou, *The Heidegger Change*, 11.

face of the cultural and religious dynamics of this discourse at the ground level.

Malabou shoots the poignant question at the onset of her work, titled, *The Heidegger Change*—whether the palpable elusiveness we experience in thinking on “change without presence”—its mode of operation in thought—exuding the “plasticity of being,” be looked upon as a “converter”? Katherine Hayles deploys this concept in the space of digital media technologies of GIS and GPS, which convert physical geographical spaces into digital information programs.⁵⁰ While the above-mentioned digital program for conversion is a flexible model very amenable to the logic of the global economic model of algorithms, both Malabou and Hayles underline the need to distinguish plasticity as a critical model from flexibility. Flexibility is defined in this context as the passive mode of adaptation to the given techno-economic model of global capitalism, and by contrast, plasticity restores a critical space for resistance by creating new digital devices that contravene the logic of the givenness of the capitalist model.⁵¹ Hayles conceives “technics” as cognitive partners, whereby the spectrum of cognition is broadened to include non-conscious cognition as well.⁵² The inclusivity of non-conscious cognitions would decentralise thinking as a prerogative of humans. Thus, in her understanding of posthuman feminist materialism, she distinguishes between the idea of materiality from the physicality of matter, thereby asserting that materiality is an emergent quality not reducible to the latter. Materiality emerges as part of the meaning-making process of intra-action between human intelligence, the physical attributes of artefacts, and our empirical practices in this robust world.

However, one must also delineate the post-colonial/decolonial/post-racial order of things in the articulations of the situatedness of coyote knowledges, specifying the local constraints that the partial agencies of any cosmotechnical milieu implies. In the given socio-material realities, “plasticity” is embedded in a problematic milieu whereby it becomes symbolic of the entangled material realities of a social class in India within the economy of plastic governmentality as a waste product of everyday life. In the Indian context in particular, and in the racialised economies in general, waste workers and garbage collectors constitute a particular social class who are normalised within the caste-economies in India and racialised economies across the global capitalist order.⁵³

50 N. Katherine Hayles, *How We Think: Digital Media and Contemporary Technogenesis* (Chicago: The University of Chicago Press, 2012), 14.

51 Hayles, *How We Think*, 102.

52 Birgit Van Puymbroeck and N. Katherine Hayles, “Enwebbed Complexities: The Posthumanities, Digital Media and New Feminist Materialism,” *DiGeSt. Journal of Diversity and Gender Studies* 2, no.1-2 (2015): 21–29.

53 Kaveri Gill, *Of Poverty and Plastic: Scavenging and Scrap Trading Entrepreneurs in India's Urban Informal Economy*, (New Delhi: Oxford University Press, 2010).

Hence, it is in resonance with these intricacies of Asian/African/migrant as well as other forms of impoverished materialities of plastic and e-waste matters that a re-imagination of plasticity has to emerge, wherein a re-invigoration of coyote metaphor ought to insinuate the originary mutability of knowledges on plasticity; thereby delineating the potent convertibility implied by specific political interventions through metamorphoses of subjugated knowledges.⁵⁴ However, in this modest articulation, it can only be deemed as a conjecture placed in the ethical space-time that Luce Irigaray articulates as the “interval between,” where non-human others could also possibly include the mythical/occult, alongside the cyborg elements, earth, and nature, in a new economy of relations of energies.⁵⁵ New material feminism suggested in the works of Barad, Hayles, Malabou, et al. exudes the potential for becoming a coyote materialism if mobilised by metaphors embedded in cosmotechnical milieus and thereby, advancing the performative act of meeting in an ethically mediated ground of “the interval between,” conceived as a space both politically contested as well as effectively transformational, where Haraway would meet new material feminism inflected by decolonial agencies in thinking.

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54 Stuart H. Blackburn, “The Folk Hero and Class Interests in Tamil Heroic Ballads”, *Asian Folklore Studies* 37, no.1 (1978): 131–149.

55 Luce Irigaray, *To be Two* (London: Routledge, 2000); Krzysztof Ziarek, “A new economy of relations,” *Returning to Irigaray*, ed. Maria C. Cimitile and Elaine P. Miller (Albany: State University of New York press, 2007), 51–76; Margaret E. Toye, “Donna Haraway’s Cyborg Touching (Up/On) Luce Irigaray’s Ethics and the Interval Between: Poethics as Embodied Writing,” *Hypatia* 27, no.1 (2012): 182–200.

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Somatophilic Reproductive Justice: On Technology, Feminist Biological Materialism, and Midwifery Thinking

Rodante van der Waal, Inge van Nistelrooij, Deborah Fox and Elizabeth Newnham

Abstract:

One of the major strands of feminism concerned with reproduction, represented in this essay by Shulamith Firestone, is tied to a belief in technology as *the* means to achieve reproductive justice. As such, this strain of feminism has difficulty formulating a critique of institutionalized reproductive technologies that have the capacity to perpetuate systemic racializing and misogynous violence. The prioritization of technology as the primary way to achieve reproductive justice can also trouble the possibility of a conception of reproductive justice where care for the body takes central stage. This is not because technology is deemed mutually exclusive with care, but because it misrepresents reproductive injustice as a biological problem that we can fix, rather than as a cultural issue. In this essay, we offer a perspective on achieving reproductive justice from a different position based in another age-old materialist doctrine, but one that is largely neglected by feminism: that of midwifery. Midwifery has always both used technology and been critical of it, having first-hand experience with its consequences in birth and pregnancy. As such, it has developed both a body of thought on the “*techné*” (defined as art and skill) of dealing with reproduction, *and* it has developed a field of scholarship critiquing the misuse of technology. While midwifery is not wary of technology, it negotiates technology from a materialist position that prioritizes experiential, embodied, and tacit knowledge, as well as the physiological process of childbirth, which it aims to facilitate and enhance. Midwifery’s epistemological standpoint can hence be characterized as a somatophilic *techné* that aims to think *with* the body, rather than fix it. There is, however, a certain tendency in midwifery which is developing towards an anti-technological essentialism. This essay aims to redirect this tendency to the more promising materialist doctrine that can be found in midwifery as well as Firestonian feminism, but develops this materialist stance through a specific “*somatophilic techné*” embedded in “*relational midwifery thinking*.”

Keywords:

Shulamith Firestone, Reproductive technology, Midwifery, Reproductive justice, Medicalisation of birth, Biological materialism, Biological determinism

Introduction

Within feminism, there is long standing debate over whether technology can help us achieve reproductive justice or whether it is more prone to perpetuate reproductive injustice. Shulamith Firestone, most notably, designed a technological revolutionary program to take charge of reproduction, giving rise to a techno-affirmative feminist tradition to free us from the dangers of pregnancy and childbearing.¹ But when we look beyond the tradition of white feminism and its positive understanding of technology as that which brought us techniques such as abortion and contraception, we see in the testimonies of feminists of colour a history of forced sterilizations and hysterectomies. It is therefore important to always remember that reproductive technology has also been used as a tool for colonial governments to maintain eugenic control over people's bodies.² Technology is, like most things, not inherently good or bad. Rather, it can be used in both liberatory as well as oppressive ways. Technological inventions have contributed to bodily self-determination, but they have also contributed to a lack of self-determination and the reproduction of injustice. The term "reproductive justice" was coined to address this very point: it was developed to fight against the unjust use of technology in the form of forced contraception, abortions, sterilization, and hysterectomies—all medical-technological instruments used for necropolitical suppression.³ Therefore, reproductive justice is defined as 1) the right to have children; 2) the right not to have children; and 3) the right to raise children in safety, freedom, and dignity. And, as explicated by the women of colour reproductive justice collective, SisterSong, 4) the right for bodily self-determination.⁴ As such, the reproductive justice movement can be understood as a specific reaction to reproductive technology, which makes the first two rights both possible *and* threatens them. Any feminism that understands grand-scale technology as the primary solution to reproductive justice, must question their position through the examination of these historical misuses.

Midwifery has always had a unique and unacknowledged position in the feminist debate on reproductive technology. Within late modernity, its specific knowledge regarding the relational and physiological support of pregnant people, has been marginalized globally. What did remain of midwifery practice and theory, became a very specific, situated, non-hegemonic standpoint; both appropriated by the obstetric institution and holding on

1 Shulamith Firestone, *The Dialectic of Sex: The Case for a Feminist Revolution* (New York: Verso, 2015 [1970]).

2 Francoise Vergès, *The Wombs of Women: Race, Capital, Feminism* (London: Duke University Press, 2020).

3 Loretta Ross and Rickie Sollinger, *Reproductive Justice: An Introduction* (Oakland: University of California Press, 2017).

4 See: www.SisterSong.net

to autonomous existence outside of it.⁵ As such, midwifery has been able to develop a thorough critique of technology by centring the medicalization of birth against the grain of the more popular techno-affirmative feminist movement. In its critique, midwifery has mostly been specific and materialist, focusing on specific technologies and their effects. In its critique of the foetal monitor, for instance, it understands the instrument as forming a hermeneutic relationship with humans and the world. The monitor helps us to gain a new understanding of the foetal world, just as a telescope may provide a new understanding of the galaxy. But this new knowledge that allows us to see the foetus separate from the maternal body has had major cultural implications, not in the least for the pro-life movement.⁶ Here, midwifery scholarship asks: “How does technology mediate the care for birthing people and their babies?” “What are the benefits and the risks?” And: “How does this specific technology reshape birth?” An individual technology, such as a particular foetal monitor, is the starting point for a materialist and critical standpoint. As such, it lays bare that reproductive technology has already fundamentally reshaped the process of pregnancy and labour, but works less well than we might think, and turns out to be more complex than a techno-affirmative stance might have us believe. When it comes to birth, the number needed to prevent one morbidity or mortality is often high, while the iatrogenic effects of those interventions are serious. For instance, even the Netherlands, as a culture famously resistant to over-medicalization, now has a 36% induction of labour rate, meaning that birth is brought on by medical means, rather than left to occur spontaneously.⁷ This rate is higher in many other high-income countries, for instance; in Australia, the latest figures show that almost half of people giving birth for the first time had their labour induced (44%).⁸ Over-medicalization also has a racist and colonial component, affecting the global South and marginalized people more. In South Africa, for instance, the caesarean section rate is 76% and in the USA, Black people are 21% more likely to have a caesarean section.⁹ At the same time, marginalized people often

5 Critical Midwifery Studies (CMS) Collective Writing Group, “A call for critical midwifery studies: Confronting systemic injustice in sexual, reproductive, maternal, and newborn care,” *Birth* 49, (2022): 355–359.

6 Barbara Katz Rothman, *Recreating Motherhood* (New Jersey: Rutgers University Press, 1989); Trudy Dehue, *Ei, foetus, baby: Een nieuwe geschiedenis van de zwangerschap* (Amsterdam: Atlas Contact, 2023); Barbara Duden, *Disembodying women: Perspectives on pregnancy and the unborn* (Cambridge: Harvard University Press, 1993).

7 Hajo Wildschut, & Anna Van Seijmonsbergen-Schermer, “In blijde verwachting...hoezo? Over medicalisering en bevallingservaringen in de geboortezorg,” *Cahiers Geschiedenis van de Geneeskunde en Gezondheidszorg* (2023, forthcoming).

8 Australian Institute of Health and Welfare, *National Core Maternity Indicators*, 2023. Retrieved from <https://www.aihw.gov.au/reports/mothers-babies/national-core-maternity-indicators>

9 Dána-Ain Davis, “Uneven reproduction: Gender, race, class, and birth outcomes,” *Feminist Anthropology* 4, no 2, (2023): 152–170.

suffer from under-medicalization, being denied the care they need.¹⁰ Midwives witness daily the life-saving effects of well-used technology, which are also needed more often for marginalized people due to systemic racism. Thoroughly and materialistically recognizing the influence of technology in the birthing space, midwifery can be understood to have a unique potential to engage with the design of future technologies in a way that facilitates reproductive justice. We could understand midwifery and Firestonian feminism as both departing from a biological materialism, since both recognize the problems, inequalities, and the vulnerabilities that the reproductive body presents to half of the population. But while Firestonian feminism sees technology as the way to save us from this injustice, and hence locates the injustice fully in biology itself, midwifery is wary of technology contributing to further reproductive injustice. As such, midwifery locates reproductive injustice not in nature, but in the way we deal with nature—believing that the right relational care for reproductive bodies would be the best way to achieve reproductive justice, rather than a technological fix.

Apart from a situated critique of technology, midwifery has also developed a more reactionary movement, however, that has become at times essentialist through its dedication to natural birth, and consequently anti-medical, and anti-technological, and lately increasingly anti-trans, and anti-gender.¹¹ From an ideology that developed out of the radical hippie movement that revived midwifery in the US in the 1970s and remained restricted to the margins of midwifery for a long time, it is gaining support of midwives with the re-rise of radical feminism (including trans-exclusionary) in the UK, Australia, and the US. Radical feminism offers midwifery an ideological position that is, however problematically, able to bring together multiple axes of suppression under which midwifery suffers: the marginalization and expropriation of their profession with the rise of medical men; the naïve and experimental use of technology on women's bodies whose detrimental effects midwives experienced and continue to experience on a daily basis; and the continuation of not being taken seriously, neither in their critique of over-medicalization and obstetric violence, nor in their own knowledge about pregnancy and childbirth. Together with their continuous underfunding, the marginalization of the midwifery profession is causing untenable working conditions, as well as high burn-out rates. It is therefore not surprising that some are tempted to connect the suppression of women in childbirth and the women who help them, to the supposed "erasure" of women by so-called "gender ideology," the "rise" of trans people, and the "taking over" of the world by technology. Gender and technology become intimately connected in midwives' version

10 Suellen Miller et al., "Beyond too little, too late and too much, too soon: a pathway towards evidence-based, respectful maternity care worldwide," *The Lancet* 388 (2016): 2176–2192 [https://doi.org/10.1016/S0140-6736\(16\)31472-6](https://doi.org/10.1016/S0140-6736(16)31472-6)

11 Karleen Gribble et al., "Effective communication about pregnancy, birth, lactation, breastfeeding and newborn care: the importance of sexed language," *Frontiers in global women's health* (2022).

of radical feminism, as gender transition is understood as a form of over-medicalization and thus as consistent with a patriarchal tendency to appropriate and medicalize women's bodies. These ideas seriously jeopardize midwives' loyalty to the ethical principle of reproductive justice, however, which is at this moment most acutely felt in a resistance to gender inclusive language in maternity care.¹² There is a risk that midwifery develops into a reactionary ideology that, caused by anger about its own marginalization, misunderstands another marginalized community as a threat, and simplifies a complex system of nature, culture, and technology as an ideological dichotomy between "nature" and "technology." This would be a major loss, since midwifery, at the same time, has at least as much to offer when it comes to the facilitation of reproductive justice, as well as responsible use of technology than most feminist movements, due to its age-old practice of mutual aid and radical care.

What we aim to do in this article, is bring together the revolutionary vision of Firestone—including its techno-affirmative and sex-abolitionist position—of reproductive freedom *for all*, with midwifery's unique vision of reproductive freedom as something to be achieved in a somatophilic relationality of care, i.e., a form of care that aims to work *with* nature rather than be "anti-nature" as xenofeminism has it. We believe this to be possible, since both Firestone, embedded in a feminist Marxist tradition, as well as midwifery, start from a materialist doctrine. Below, we will critique *and* delineate the potential of both Firestonian feminism and midwifery thought and practice when it comes to the usage of technology in reproduction. Afterwards, we will develop what we coin "midwifery thinking" wherein we embed a relationally and materially grounded, somatophilic usage of technology for reproductive justice in a specific midwifery way of *being-with* the lived realities of reproductive processes.

Technology and Reproductive Justice

There is a rich tradition in feminist theory that connects technology to the abolition of reproductive injustice. Arguably, this tradition is most fiercely represented by Shulamith Firestone during the second feminist wave, who believed that reproductive technology could save us from the unjust disposition that reproduction posed to bodies capable of pregnancy.¹³ The xenofeminist slogan "if nature is unjust, change nature," is a contemporary configuration of the Firestonian idea that reproductive injustice is primarily

12 Gribble et al., "Effective communication"; Kathryn Webb et al., "Trans and non-binary experiences of maternity services: cautioning against acting without evidence," *British Journal of Midwifery* 31, no.9 (2023): 512–518.

13 Firestone, *The Dialectic of Sex*.

located in nature, namely in the biology of the body.¹⁴ Firestone was a Marxist feminist, and hence inspired by the revolutionary idea of communism. She complements Marx and Engels' historical materialism with a biological materialism, arguing that we are not only oppressed by capitalism, but by the biology of sexual reproduction as well—similar to Simone de Beauvoir's thought in *The Second Sex* that it is the burden of reproduction that makes the female sex a captive of the reproduction of humankind, while the male sex consists of individuals who can transcend humankind.¹⁵ In line with Enlightenment thought and the development of science, Firestone situates the injustice of which the female sex suffers, in its biology. Pregnancy and childbirth are classified as dangerous and barbaric processes that make people with uteruses incomparably more vulnerable than others, hence constituting two classes of people: those with and those without uteri. The only way to dismantle this inequality would be the abolition of "sex." Reproduction can then be handled through ectogenesis and there would no longer be people with uteri, hence freeing mankind of this biological class war. Through a move similar to traditional Marxism, reproduction is taken seriously by Firestone as an industrial enterprise, and as something we can and must take power over. Technology is consequently seen as revolutionary: it progressively provides more and more control over reproductive bodies to deal with the uterine injustice they are born with, to eventually rid themselves of it through technology.

The strong suit of Firestone's theory is that it pushes us not only to take over the means of production, but the means of reproduction as well. This follows from her biological materialist doctrine, which makes it possible to take the risks, vulnerabilities, and burdens that indeed come with fertility, seriously. Also, and almost unknowingly so, the abolition of sex can be understood as affirmative of transgender reproductive justice, striving indeed for reproductive justice for all. But her materialist doctrine developed into, and this is where it differs from Marxism, a rejection of the materialism it is grounded on, which is echoed in the "anti-nature" stance of contemporary xenofeminism. In Marxism, we see a total rejection of capitalism as an unjust system for sustaining human life, but there is not an outright rejection of economy or value as such, and neither do we find a rejection of nature.

In fact, the accomplishment of communism would be "man's return to nature." While Firestone rightfully critiques Marxism for its lack of understanding that nature does not mean the same for everyone, we can wonder if a rejection of it in the case of reproduction would indeed lead to reproductive justice. Especially because a rejection of nature is not so easy to achieve, and the steps along the way that aim to control reproduction more

14 Laboria Cuboniks, *The Xenofeminist Manifesto: A Politics for Alienation* (New York: Verso, 2018): 0.

15 Simone De Beauvoir, *The Second Sex*, trans. Constance Borde (New York: Vintage, 2011 [1949]).

and more through technology, are not as successful as perhaps believed in the seventies. Nowadays, it is widely recognized that “over-medicalization” is a form of obstetric violence, hence reproductive injustice, which interrupts the hormonal physiology of birth that has—if all goes well—salutogenic effects. And reproductive technology also makes it possible to continue the logic of capitalism wherein people with a uterus are objectified and used as material resources for the reproduction of human life.¹⁶

Contemporary feminists such as Donna Haraway, Sophie Lewis, and the xenofeminists take up different aspects of Firestone’s thought in relation to reproductive justice. Haraway inherits Firestone’s fascination for biology and technology, taking further her optimistic view of technology as that which will not only free us from the strain of reproduction, but can also bring humankind as a whole to another level; since we would be in control of reproduction and able to tweak it where it is unjust.¹⁷ Haraway did not develop this within the communist framework of revolution but takes up the idea of technology within the framework of evolution, conceptualizing the symbiosis of technology and biology as “re-evolution”.¹⁸ As such, she dismantles the differentiation between nature and culture, speaking of “natureculture”.¹⁹ And there have indeed been some successful symbiosis of nature and culture when we look at reproductive justice. Contraception and abortion are medical technologies that have generally given back control over people’s bodies, and hence given them access to reproductive freedom – indeed something that could rightfully be celebrated as a continuum between animal and machine and as an iteration of cyborg feminist reproductive justice. As such, the symbiosis of biology and technology can lead to a revolutionary change when it comes to nature’s captivity of people with uteruses, by putting them in charge of sexual reproduction and simultaneously enhancing the health and freedom of the human condition as a whole.

But we must also remember—and the same counts for Firestone’s problematic neo-Malthusian conception of the betterment of the human race through reproductive technology—that the development and implementation of contraception and abortion by the leading feminists of the times such as Marie Stopes in the UK, Margaret Sanger in the US, and Guadalupe Arizpe de la Vega in Mexico, went hand in hand with eugenic ideas defined by the classism and racism on who should and should not have children. Stopes’

16 Barbara Katz Rothman, *In Labor: Women and Power in the Birthplace* (New York: W.W. Norton & Company, 1991 [1982])

17 Donna Haraway, *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Vol. 1 (Chicago: Prickly Paradigm Press, 2003).

18 Sarah Franklin, *Embodied Progress: A Cultural Account of Assisted Conception* (London: Routledge, 2022).

19 Haraway, *The Companion Species Manifesto*.

contraceptive cervical cups were called “pro-race” and “racial”.²⁰ Sanger is infamous for her experimentation with the pill on people of colour who never gave their consent.²¹ And De la Vega was determined to have lower class people birth fewer children to solve the population and poverty problem of Mexico, thereby affirming the stereotype of hypersexual Latina women in the process, while getting rich from the industrial labour of proletarian mothers working in her husband’s textile factory.²² Contraceptive techniques, such as abortion, sterilization, or hysterectomies, were performed on people of colour without their consent.²³

As Ruha Benjamin points out, technology is not free of discrimination or inequality. Often, it tends to exacerbate the inequalities that are already engrained within society. For instance, algorithms used within the judiciary system that are supposed to be more objective than the judges, turn out to be just as racist as the judges, but are much more difficult to call out or address as they are covered within the quasi objectivity of technology.²⁴ Similarly, a pulse oximeter, used everywhere in medicine, from the emergency room (ER) to midwifery, cannot correctly read oxygen levels of dark-skinned people, generally over-estimating them, leading to health inequity and poorer outcomes reflective of systemic racism.²⁵ Since technology unseeingly reproduces a system of apartheid, Benjamin terms this kind of technology the “new Jim Crow”—asserting that although, in comparison to her grandmother, she can walk into the main entrance of the hospital since the “whites only” signs are no longer there, it is medical technology which still subjugates her to a segregated system.²⁶ Hence, while technology can certainly be used to achieve reproductive *justice*, we must acknowledge that the way in which technology is designed and used is also responsible for the production of reproductive injustice, particularly because technology is not “neutral” but is conceived, created and used in ways that uphold existing structures of power.²⁷ This underpins Benjamin’s claim that reproductive

20 Nora Heidorn, *Touching Matters of Care* (Birth Rites Collection, 2022), www.Noraheidorn.com/Touching-Matters-of-Care

21 Dorothy Roberts, “Margaret Saner and the racial origins of the birth control movement,” in Baum, *Racially Writing the Republic. Racists, Race Rebels, and Transformations of American Identity*, ed. Bruce Harris (Durham: Duke University Press, 2006).

22 Lina-Maria Murillo, “Espanta Cigüeñas: Race and Abortion in the US-Mexico Borderlands,” *Signs: Journal of Women in Culture and Society* 48, no 4 (2023): 795–823.

23 Ross & Sollinger, *Reproductive Justice*; Vergès, *The Wombs of Women*.

24 Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code* (Cambridge: Polity Press, 2019); Ruha Benjamin, *Viral Justice: How we Grow the World We Want* (Princeton: Princeton University Press, 2022).

25 Benjamin, *Race After Technology*.

26 Benjamin, *Viral Justice*.

27 Howard Waitzkin, *The Second Sickness: Contradictions of capitalist health care* (London: The Free Press, 1983).

justice has been, and still is, way beyond our reach despite huge technological advances.²⁸ Although cyborg reproduction facilitates reproductive justice in some ways, it remains very messy, complex, and unjust in other ways. We must therefore recognize that the fusion of natureculture can be used in eugenic ways or can unconsciously reproduce eugenic logics embedded in society. The first most important pillar of reproductive justice, “the right to have a child”—the Black feminist answer to white middle-class feminism’s one-dimensional fight for legal technological abortifacients—is seriously threatened by contraceptive technology when it falls into the wrong hands. The contraceptive Depo-Provera has famously been used in various countries without consent, and Angela Davis devoted a whole chapter in her classic, *Women, Race, Class*, to the forced and pushed use of anti-reproductive technologies such as sterilization, contraception, and abortion.²⁹ Technology by itself cannot causally be understood to lead to reproductive justice, which is why Firestone herself also strongly emphasized that repro-tech within racial patriarchal capitalism would have dramatic consequences.³⁰

Of contemporary feminists, Sophie Lewis stays most close to Firestone’s revolutionary commitment. Relying on the premise that capitalism can only function through reproductive injustice—a reiteration of the critical insight of Marxist feminism that capitalism feeds on the free and naturalized labour of care and pregnancy—she envisions the road to reproductive justice as necessarily a revolutionary one. Not only because a post-capitalist world supports the organization of resources in a way that would facilitate reproductive justice, but, most importantly, following both Firestone and Silvia Federici, as a strategy for revolution: When we reappropriate the means of reproduction, and enforce reproductive justice, capitalism will necessarily fall. The question is then how to forge a gestational revolution, and one way to do that is through, what Lewis calls, “communist amniotechnics”.³¹ An example of this is her plea for “full surrogacy now” wherein we let go of the configuration of children within a capitalist property (and inheritance) configuration, and instead regard all children as people in and of themselves, no matter to whom they are born, keeping ectogenesis open as a reasonable option.³² Similarly, but with more emphasis on technology as the main tool, xenofeminism regards technology, following Firestone, as the primary means to effectively facilitate reproductive justice. According to xenofeminism, we should affirm rather than reject, enlightenment’s project of rationality, technology, and the body as a mechanic system. This means embracing the grand-scale possibilities it can offer us and embark on a global rational and determined project to technologically change the aspects of sexual reproduction that can be regarded

28 Benjamin, *Viral Justice*.

29 Angela Davis, *Women, Race, Class* (New York: Vintage, 1983).

30 Firestone, *The Dialectic of Sex*.

31 Sophie Lewis, *Full Surrogacy Now: Feminism Against Family* (New York: Verso, 2019).

32 Lewis, *Full Surrogacy Now*.

as unjust.

But while these approaches are enticing, there is another problem with technology that is often disregarded. Apart from the danger of technology falling into the wrong hands, or being incorporated within a racial capitalist world, namely that many reproductive technologies are not very effective but do have iatrogenic consequences. Despite the invasive nature of the emotional changes that come with in vitro fertilization (IVF), it has a low success rate, as does intrauterine insemination (IUI).³³ Technological ubiquity and normalization leave a major mark on the experience of our bodies and lives (for instance the years-long continuation of IVF cycles), and it creates expectations.³⁴ It is quite difficult to resist the pull of IVF when a child is desired, and having an abortion rather than using hormonal contraceptives, is increasingly seen as irresponsible behaviour.³⁵ With regards to childbirth, technology is responsible for such a strong interference with the natural process of birth, that it creates a different set of risks, and a different process of birth altogether.³⁶

In 1968, maternity care was transformed by the advent of the cardiotocograph (CTG), a technology that enabled, for the first time, a continuous reading of the foetal heart rate and maternal uterine activity during labour and birth, known as electronic foetal monitoring (EFM). EFM is a technology globally used in childbirth, despite the facts there was no evidence to support its introduction, that it does not appear to lower rates of perinatal mortality, and that it is associated with increased caesarean section rates.³⁷ Because EFM effectively restricts both movement and other options for managing labour, such as water immersion, it has major consequences for the ontology of childbirth. We are grappling with a machine that is difficult to wear, difficult for midwives to use and a barrier to physiological processes in labour.³⁸ As a result, there is a lack of knowledge on the unmonitored physiology of childbirth, a lack of maternal authority and freedom in birth, and a lack of emotional care and support during childbirth, but most importantly, it separates the relationalities present in childbirth. Rather than focusing on the mother,

33 Emily Jackson. *Revisiting Reproductive Autonomy* (lecture at Cambridge University, ReproSoc, 2022); Franklin, *Embodied Progress*.

34 Franklin, *Embodied Progress*.

35 Franklin, *Embodied Progress*.

36 Elizabeth Newnham et al., "Documenting risk: A comparison of policy and information pamphlets for using epidural or water in labour," *Women and Birth* 28, no 3 (2015): 221–227.

37 Zarko Alfirovic et al., "Continuous cardiotocography (CTG) as a form of electronic fetal monitoring (EFM) for fetal assessment during labour," *Cochrane Database of Systematic Reviews* Issue 2 (2017); Kirsten Small et al., "'My whole room went into chaos because of that thing in the corner': Unintended consequences of a central fetal monitoring system," *Midwifery* 102, (2021): 103074.

38 Annemarie Lawrence et al., "Maternal positions and mobility during first stage labour," *Cochrane Database of Systematic Reviews* 10, (2013), DOI: 10.1002/14651858.CD003934.pub4.

the midwife now directs her attention to the heartbeat of the baby, establishing a relation between health care worker and child without the interference of the mother. This restructuring of relationality in birth, reduces the mother's ability to contribute her own knowledge on the baby's wellbeing, as well as her authority on the matter. As Barbara Katz Rothman points out, the separation of the pregnant subject between the mother as a container and the future child, has been ongoing since the beginning of modernity.³⁹ But before the rise of reproductive technology this separation could not be materially realized since the foetus could not be reached independently. It is through technology that the foetus can now be indeed lifted from the body of the pregnant person, making it no longer necessary to consult the experiences and knowledge of the mother to reach the child. This not only furthers the separation of mother and foetus, but it also furthers the separation between the labouring person and their community of care. Since the midwife can now have a direct relation to the child mediated by technology, the mother becomes increasingly less an active agent in birth to whom it is genuinely important to relate.

Katz Rothman has extensively theorized this consequence of the technologization of birth as the separation of the foetus from the maternal body.⁴⁰ In making the foetus visible through ultrasound, medicine was able to bypass the maternal body and expertise, and to emphasize the maternal body as a site of risk.⁴¹ Following Katz Rothman, Peter Paul Verbeek studied the impact of the routine use of antenatal ultrasound, exploring the influence upon perspectives of the foetus as an entity separate to its mother.⁴² Mediated by the ultrasound machine, the foetus becomes a potential "patient" even before it can survive outside the uterus: "[W]e can say that for the medical professional the mother becomes an *environment* and the infant a *patient* by virtue of the mediation of the medical ultrasound technology".⁴³ The foetus is no longer embodied with its mother as it may have been in the pre-ultrasound era,⁴⁴ but rather constitutes the notion of the maternal-foetal conflict, as it is only able to depict the child separate from its mother.⁴⁵ Antenatal ultrasound paves the way for the foetus to be regarded as an independent entity in very

39 Katz Rothman, *Recreating Motherhood*.

40 Rothman, *Recreating Motherhood*.

41 Duden, *Disembodying Women*; Elizabeth Newnham et al., *Towards the Humanisation of Birth. A Study of Epidural Analgesia and Hospital Birth Culture* (London: Palgrave MacMillan, 2018).

42 Katz Rothman, *Recreating Motherhood*; Peter Paul Verbeek, "Obstetric Ultrasound and the Technological Mediation of Morality – A postphenomenological Analysis," *Human Studies* (2008): 11–26.

43 Rothman, *Recreating Motherhood*; Verbeek, "Obstetric Ultrasound and the Technological Mediation of Morality" Michael Van Manen, *The Birth of Ethics. Phenomenological Beginnings on Life's Beginnings* (London: Routledge, 2021): 29.

44 Duden, *Disembodying Women*.

45 Rodante van der Waal and Inge van Nistelrooij, "Reimagining relationality for reproductive care: Understanding obstetric violence as "separation," *Nursing Ethics* 29, no 5 (2021): 1186–1197; Katz Rothman, *Recreating Motherhood*; Van Manen, *The Birth of Ethics*.

early pregnancy, which is also one of the most important tools in the stigmatization of abortion of anti-abortion activists. In combination with EFM, the notion constituted by ultrasound technology that the foetus is a separate entity, is reinforced again in the birth space. The well-being of the *foetus* is the focus of EFM monitoring, and the machine itself requires significant ongoing attention from the midwife for it to work effectively.⁴⁶ With centralized monitors, doctors and midwives do not need to be in the room of to the birthing person to read the EFM, facilitating the industrialization and dehumanization of birth. Central EFM monitoring systems lead to surveillance of the EFM traces of all people in labour without being present in the room, further reducing the need for an embodied relationality. Hence, the advent of EFM has resulted in a deterioration in the way some health care professionals care for birthing people, by privileging supposed (since the machine does not work so well) foetal wellbeing over the mother's needs and the way in which her labour may progress without intervention.⁴⁷ EFM becomes itself an actor in the network of care, changing that network, and hence the nature of birth, fundamentally.⁴⁸ Therefore, it is important to take the responsibility to study each repro-technology and ask how it reconstitutes reproduction and if it is indeed for the better; if it indeed enhances the facilitation of reproductive justice.

The case of the misoprostol abortion pill, for instance, provides a very different reproductive reality. Due to its high level of effectiveness and safety, we can say that it changed reproduction in a revolutionary way when it comes to reproductive freedom and justice. The abortion pill is so safe in the first trimester that it needs no medical oversight and can be self-managed at home. Since its first use in underground activist networks in the 1980s in Latin America, it has changed the reality and the possibilities of abortion drastically, making dangerous back-alley abortions in the first trimester a thing of the past.⁴⁹ Pills can be mailed safely by post to places where abortion is criminalized, and people are no longer dependent on clinics, doctors, or national health care services to get an abortion. And misoprostol has even more promising qualities: one pill per week could be a form of contraception, thus blurring the line between contraception and abortion. The medication could potentially redefine, or abolish, the borders of the start of life, hence giving the authority on this matter back to pregnant people, on whom the signs of the start of life have always depended: Before the usage of ultrasounds, foetal

46 Deborah Fox, et al., "Harnessing technology to enable all women mobility in labour and birth: feasibility of implementing beltless non-invasive fetal ECG applying the NASSS framework," *Pilot and Feasibility Studies* 7, no.1 (2021): 214–214, <https://doi.org/10.1186/s40814-021-00953-6>

47 Small et al., "My whole room went into chaos because of that thing in the corner."

48 Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005).

49 Margaret MacDonald, "Misoprostol: The Social Life of a Life-saving Drug in Global Maternal Health," *Science, Technology, & Human Values* 46, no.2 (2021): 376–401.

life was determined on the basis of the experience of quickening and other external “signs” of pregnancy, which could only be felt by the mother, and a miscarriage before the quickening was not understood as the loss of a potential child, but simply as the return to one’s normal cycles.⁵⁰ Ever since the use of the ultrasound and other technologies, such as blood testing for human chorionic gonadotropin, returning to one’s cycle is already considered to be an abortion or miscarriage at five weeks gestation, rather than at 20 weeks, as it was in the past. The way that misoprostol reshapes the reality of reproduction by blurring the lines between being pregnant and not being pregnant, thereby giving freedom and authority on the matter back to people with the capacity for pregnancy, can thus be understood as revolutionary when it comes to the advancement of reproductive justice. Rather than resulting in a separation of relations, as in the case of EFM, the abortion pill facilitates as a reconstitution of the relations between the person and their capacity for pregnancy, as well as their community of care. The relation between the pregnant person and their capacity for pregnancy becomes more autonomous and self-determined, since a self-managed at home medical abortion generates the potential to organize this event freely with the least possible interference of medical authority. And it gives mutual aid and radical care networks a lot of possibility to reconstitute the relation between pregnant people and their community of care, not being dependent on doctors and medical institutions. During the care for the abortion itself, the pregnant person is not a passive body out of which the embryo must be retracted, but care consists out of support for the pregnant person who is actively labouring the abortion. Here, technology reshapes reproduction in such a way that it enhances self-determination, rather than passivity.

While Firestone was very aware of the problems of reproductive technology within patriarchal capitalism, the tradition of techno-affirmative feminist thought she gave rise to is less visibly conscious, framing technology sometimes as a solution in and of itself. And while technology indeed has the potential to be revolutionary when it comes to achieving reproductive justice, it remains of crucial importance to acknowledge and critique those technologies that reproduce, and often worsen, the status quo of reproductive injustice. We lose something with a too optimistic stance on technology, namely another possible path towards reproductive justice: that of a “somatophilic techne.”

Midwifery and Reproductive Justice

Midwifery, a feminist profession that assists pregnant people relationally, also has a clear vision of reproduction and reproductive justice, albeit a less well-known one within feminist theory. Midwifery’s vision of reproductive justice can be described as almost

50 Dehue, *Ei, Foetus, Baby*.

oppositional to Firestonian feminism. In order to achieve reproductive justice, midwifery has established a strong critique of technology which is believed to have all too often interfered with respectful and humane care, as well as justice in birth.⁵¹ Midwives have called out the use of technology during childbirth since the 18th century, when in 1760 midwife Elizabeth Nihell complained that “the men use their instruments unnecessarily, resulting in maternal and neonatal infant morbidity and mortality, puerperal fever, and extraordinary birth injuries,” classifying this practice as “meddlesome midwifery,” the frontrunner of “interventionist obstetrics.”⁵² At the same time, there has been a traditional exclusion of midwives when it comes to training in technological skills. Midwives were not allowed into medical schools and early “midwifery” manuals were often written by doctors, who designated level of technological skill according to profession. Today, midwives in most places, cannot use the instrument for vacuum assisted birth, or prescribe contraceptives and abortifacients, guarding these technologies exclusively for medical practitioners.⁵³ The intertwinement of the advancement of the obstetric institution and obstetric technology furthermore expropriated midwifery care, while appropriating midwifery knowledge from many communities, including Black and Indigenous ones. The combination of the exclusion of midwives from technology, while framing all technology as “progressive” has also been a major factor in the marginalization of midwifery, and the justification of this marginalization. Technology was key to the industrial revolution, where ancient, tribal, and Indigenous knowledges—including midwifery knowledge—were both appropriated and undermined as archaic or outdated, and industrializing processes were revered over embodied and seasonal or rhythmic practices.⁵⁴ As such, technology is used within the capitalist apparatus of power, with technological and profitable fixes seen as more cost-effective than other low-technological practices, such as midwifery.⁵⁵

Midwives collected, and passed down their own skills and knowledge base, such as the practice of “being-with” women, knowledge of medicinal herbs and techniques for labour, and of support of emotionally safe labour. This is a fundamentally different practice of birth, and hence of reproduction, than the obstetric institution has provided, which is historically characterized by obstetric violence and obstetric racism.⁵⁶ Midwives have

51 Robbie Davis-Floyd, “The technological model of birth,” *The Journal of American Folklore* 100, no. 398 (1989): 479–495; Katz Rothman, *Recreating Motherhood*.

52 Barbara Katz Rothman, *A Bun in the Oven: How the Food and the Birth Movement Resist Industrialization* (New York: NYU Press, 2016), 72.

53 Katz Rothman, *A Bun in the Oven*, 74.

54 Stephen Hill, *The Tragedy of Technology* (London, Pluto Press, 2018); Newnham et al., *Towards the Humanisation of Birth*.

55 Waitzkin, *The Second Sickness*; Newnham et al., *Towards the Humanisation of Birth*.

56 Jean Donnison. *Midwives and Medical Men: A history of the struggle for the control of childbirth* (London, Historical Publications, 1988); Jean Towler & Joan Bramall, *Midwives in History and Society* (London, Croon Helm, 1986).

a wide range of what is considered normal, while obstetrics has charts that say that cervical dilation has to progress by one centimetre per hour. This is representative of the different way that midwives use technology: to assist and facilitate a physiological process in the best possible way, rather than intervene with it. As such, they also aim to “control” nature, and correct it, when necessary. Rather than a forceps, a midwife might use a rope hanging from the ceiling to support an upright birth position; rather than EFM, a midwife would sometimes listen intermittently to check the baby’s heartbeat with a doptone or pinards stethoscope, and only increase this form of monitoring when there is reason to worry; rather than an epidural a midwife would try hot water, continuous support, and massage first, which has proven to reduce request for epidurals.⁵⁷ Midwives use the birthing ball to make space in the pelvis and help the foetus descend, the bathtub and movement for pain management, the birthing stool as a position in which to optimally push, and safety and dimmed lights for the increase of oxytocin or, if necessary, medication to increase contractions. All these technologies are focused on activating the birthing person, increasing their freedom of movement, intuition, knowledge, agency, and control; enhancing the relationality between pregnant people and their foetuses, and between pregnant people and their midwives. There is hence a difference between specific technologies that either assist or enhance a “natural” process or take over from nature. Synthetic oxytocin induction and epidural analgesia, for instance, prohibit the making of natural oxytocin which also has short- and long-term emotional consequences because synthetic oxytocin does not have the “side-effect” of the experience of love as natural oxytocin does.⁵⁸ Forceps pull the baby out, minimizing the role of the mother, while a birthing stool helps the mother to push. A bathtub increases endogenous natural oxytocin, rather than inhibiting it. This does not mean that in some cases forceps, vacuum-extraction or synthetic oxytocin are not beneficial or lifesaving, but these are technological tools that constitute different reproductive realities. Midwives have been developing and working with technology in various forms for hundreds of years in their use of craft knowledge, knowledge of how to support physiology, such as uprights positions for birth, and managing complications with medicinal herbs.⁵⁹ Later came use of artefacts of technology, such as the Pinard stethoscope, invented in 1895 to enable listening to the foetal heartbeat, which is still used by clinicians and taught to midwifery students worldwide. Intermittent auscultation, with either a Pinard or a hand-held battery operated doppler ultrasound device, has remained the recommended method of monitoring foetal well-being in labour for healthy women at term who have no clinical or

57 Newnham et al., “Documenting Risk.”

58 Buckley, Sarah, “Executive Summary of Hormonal Physiology of Childbearing: Evidence and Implications for Women, Babies, and Maternity Care,” *Journal of Perinat Education* 24, no.3 (2015): 145–53.

59 Towler & Bramall, *Midwives in History and Society*; Donnison, *Midwives and Medical Men*.

iatrogenic risk factors,⁶⁰ and probably also for women who do have complex pregnancies.⁶¹ The relation between technology and reproductive justice can in midwifery be understood as a reproductive justice enacted by a somatophilic technology—a *techne* that loves and supports the body, facilitating the laws of nature, enabling nature to flow in the safest and best possible way.

Katz Rothman understands midwifery as a counterculture, a movement of artisanal workers, of “artisans” of birth resisting industrialization, revaluing home-made, patient, handcrafted, personalized practice, just like the slow food movement. She understands the knowledge and practice of midwifery not as just being patient or doing nothing, but as a specific skill set, we could say, as a specific “*techne*”—as skills, craftsmanship, art—of birth:

Whether it is knowing when a woman should be up and walking and when it will tire her out, when a partner needs encouragement to support the woman and when she needs some space from that partner, grasping immediately just what angle will help a stuck baby turn, or understanding which positions for that woman and that baby at that moment in second stage will help ease a baby out and avoid surgery – *those* are the skills that make a midwife.⁶²

These skills have been documented in various ways in midwifery literature, as “the art of doing ‘nothing’ well”⁶³ and more recently as “watchful attendance”.⁶⁴ The somatophilic technology of midwifery encompasses the physiological, psychological, emotional, cultural and spiritual aspects of each pregnant person’s needs. The reciprocal trust that is engendered in the context of this relation is critical to people’s sense of emotional safety, and the neurohormonal processes of her labour and birth.⁶⁵ In contradiction to xenofeminism’s “when nature is unjust, change nature,” midwifery’s main idea is to lay bare and get to know nature in such a way, that its best configuration can come to the fore. Midwifery’s *forte* is hence to be with nature relationally and respectfully as a way of enacting reproductive justice, exactly because midwives know that interference with nature does not necessarily lead to justice but can be iatrogenic. One of its major critical

60 Debrah Lewis & Soo Downe, “FIGO consensus guidelines on intrapartum fetal monitoring: Intermittent auscultation,” *International Journal of Gynecology & Obstetrics* 131, no.1 (2015): 9–12.

61 Small et al., “My whole room went into chaos because of that thing in the corner.”

62 Katz Rothman, *A Bun in the Oven*, 17

63 Holly Kennedy, “A Model Of Exemplary Midwifery Practice: Results Of A Delphi Study,” *Journal of Midwifery & Women’s Health* 45, no.1 (2000): 4–19.

64 Ank de Jonge, Hannah Dahlen & Soo Downe, “‘Watchful attendance’ during labour and birth,” *Sexual & Reproductive Healthcare*, 28 (2021).

65 Ibone Olza et al., “Birth as a neuro-psycho-social event: An integrative model of maternal experiences and their relation to neurohormonal events during childbirth,” *PLOS ONE* 15, no.7 (2020).

insights is that interfering too much with the natural process of birth leads, at this moment in time, to more reproductive *injustice*—in the form of physical, emotional and psychological unsafety—rather than justice.

Midwifery and its Anti-technological Stance

The history of midwifery knowledge and practice is fraught with well-documented tensions between the dichotomy of physiology/midwifery and medicalization/obstetrics, “both constitutive and demonstrative of power dynamics”.⁶⁶ While we believe midwifery’s unrelenting critique of over-medicalization to be right, and to indeed forge a path to reproductive justice, it is of essential importance to recognize that there is also a reactionary tendency present within midwifery which radicalizes the midwifery perspective on reproduction as a somatophilic relation to nature into a separatist argument that is aligning with radical trans-exclusionary feminism. Just as technology can reproduce oppression, an ideology that prioritizes “nature”—whatever that may be—can turn transphobic and racist.

In making claims to “natural” birth—both as resistance and an identity for (mostly) well-off white women—women of colour in marginalized communities not only suffer the effects of not being able to access adequate or safe medical treatment, but they are also exoticized as people who birth “naturally,” including the appropriation of Indigenous practices.⁶⁷ This is evidenced as well as a response to class—Grantly Dick Read noted his encounter with a young, working-class woman who he attended one night in labour, for whom childbirth did not hurt because she did not know it was supposed to.⁶⁸ Suggesting that, “the closer to nature” one’s identity is constructed, the less of a peril “natural birth” is, denies that we have long been living in a natureculture continuum. On top of that, it denies the very well-known fact that pregnancy and birth are, for “normal physiological processes,” potentially extremely painful, no matter where you come from, and dangerous, the latter especially for marginalized people who are, in contradiction to this theory, more often in need for medical technological assistance because of the effects of systemic racism, and least able to access them. In resisting the dominance of the medical discourse,

66 Candace Johnson, “The political “Nature” of pregnancy and childbirth,” in *Coming to life* Sarah Lachance Adams & Caroline R. Lundquist (New York: Fordham University Press, 2012): 199; Heather Cahill, “Male appropriation and medicalization of childbirth: An historical analysis.” *Journal of Advanced Nursing* 33, (2001): 334–342; Elizabeth Newnham, “Birth control: Power/knowledge in the politics of birth,” *Health Sociology Review* 23, no.3 (2014): 254–268.

67 Johnson, “The political “Nature” of pregnancy and childbirth.”

68 Grantly Dick Read, *Childbirth without Fear: The Practices and Principles of Natural Childbirth* (London: Pinter and Martin, 2013 [1947]), 5.

as an identified mechanism of social control, we can identify a reactionary harkening back to nature and a tendency towards biological essentialism.

Radical feminism is an American school of thought that has a small body of theorists but that can count in recent years on a very broad popular following, not least within midwifery circles. It understands patriarchy confusingly as a mix of both biological determinism and social constructionism. According to radical feminists like Mary Daly, Janice Raymond, Kathleen Stock, Julie Bindel, and Sheila Jeffreys,⁶⁹ female suppression can be traced back directly to male testosterone, male sex chromosomes and the penis—a biologically deterministic argument that roots the suppression of women in male biology. Furthermore, it asserts that this biological male dominance has led to a socially constructed idea of femininity—e.g., as big-breasted, blonde, blue-eyed, submissive, nurturing, weak, irrational woman—which does not align with how women actually, or naturally, are, but which discursively and oppressively shapes women. According to radical feminism, the task is therefore to liberate female biology from the dominance of male biology and its suppressive discourse of femininity. This strange mix between social constructionism and biological determinism makes it possible to affirm women on the one hand, while being severely femme-phobic on the other, especially when it comes to “changing” female nature in the form of make-up, tattoos, plastic surgery, etc., as well as when it comes to transitioning gender identity. It is understandable how this type of thought is a logical ally to midwifery’s critique of reproductive technology, however. Since the aim is to liberate suppressed female biology from male dominance, the existence of both femininity and trans women as well as the medicalization of childbirth, are all regarded as things that bury true female biology. This view then becomes exacerbated, into a fear that “female biology” will be eradicated or erased. This fear subsequently develops into an irrational fear of technology and the medical establishment, or anyone working within it, and an anti-technological anti-medical stance, that can and does result in dangerous medical situations. This irrational fear is the basis by which trans women become constructed as the “other,” keeping a fiction of a united community of biological females intact, revealing the philosophy of radical feminism as a theory based on a psychological fear of extinction, rather than a rational and sincere project to liberate us all from patriarchal suppression

69 Mary Daly, *Gyn/Ecology. The Metaethics of Radical Feminism* (London: Women’s Press, 1978); Janice Raymond, *The Transsexual Empire: The Making of the She-Male* (Boston: Beacon Press, 1979); Janice Raymond, *Doublethink: A Feminist Challenge to Transgenderism* (North Geelong: Spinifex Press, 2021); Kathleen Stock, “Entering the Parallel Universe of Transactivism.” <https://kathleenstock.substack.com/p/entering-the-parallel-universe-of> (accessed 22-12-2022); Julie Bindel, *Feminism for Women. The Real Route to Liberation* (London: Constable, 2021); Sheila Jeffreys, *Unpacking Queer Politics: A Lesbian Feminist Perspective* (New York: Polity, 2003); Sheila Jeffreys, *Gender Hurts: A Feminist Analysis of the Politics of Transgenderism* (New York: Routledge, 2014).

and gender-based violence in order to achieve reproductive justice.⁷⁰

In midwifery, there is a similar tendency to follow the lines of radical feminism into a construction of medicalization and technology as the “dangerous other” to create, just like radical feminism, a female midwifery community. As a consequence, trans people are understood to be subjected to severe processes of medicalization, and hence as a danger to the biology of female birth, and “nature” gets constructed as something that cannot be unjust, hence alienating people who had a difficult, traumatic, or fatal birth experience. Apart from the fact that it is obviously a moral fallacy to believe that whatever nature does to birth is just, even if it goes terribly wrong, it is interesting that precisely where Firestonian feminism goes wrong due to the assertion that reproductive *injustice* lies in biology, here midwifery’s somatophilic practice goes wrong due to the equation of nature and reproductive *justice*. The latter is also an obvious mistake, since, of course, the only reason we can even begin to achieve reproductive justice *via* nature, or bring nature to its full and safest potential, is because of the technological and scientific progress we have made with regards to hygiene, housing and overall health that has made nature or natureculture relatively safe. This anti-technology, anti-medicalization, anti-trans strand of midwifery is increasingly risking the unique potential of the somatophilic techne of midwifery to the ideology of radical feminism, propagating an irrational, dogmatic belief in nature, while defying the potential of midwifery’s strong vision of reproductive justice to be achieved through a practice of thinking with the body, into a naïf religion of the “natural” body. This establishes a specific type of violence in childbirth, distinct from obstetric violence, wherein birth is made unsafe, or birth care exclusionary, on the basis of harmful ideology. Midwifery here adopts the violent exclusionary thought of radical feminism, in the sense that it is anti-trans (transition being also a form of medicalization and thus part of the conspiracy against female nature), and increasingly anti-abortion (also a form of medicalization), racist (because the essentialist biological woman has always been a white one) and, in the end, even anti cis woman, as it ends up affirming misogynist stereotypes wherein all women are intuitive child bearers and mothers. Influenced by radical feminism, this strain of midwifery is no longer a guardianship of physiology in the name of reproductive justice but radicalizes into being the guard of “nature” itself. As such, it separates the relations that are important to facilitate justice, just as a naïve belief in technology does. Rather than being loyal to the pregnant person, there is a loyalty to the “natural” process of birth, hence separating the relation between the pregnant person and their community of care, as well as between the pregnant person and their self-

70 Patricia Elliot & Lawrence Lyons, “Transphobia as Symptom: Fear of the ‘Unwoman,’” *Transgender Studies Quarterly* 1, no.3-4 (2017): 358–383; C. Heike Schotten, “TERFism, Zionism, and Right-Wing Annihilationism: Toward an Internationalist Genealogy of Extinction Phobia,” *Transgender Studies Quarterly* 9, no.3 (2022): 334–364; Alyosxa Tudor, “Terfism is White Distraction: On BLM, Decolonising the Curriculum, Anti-Gender Attacks and Feminist Transphobia,” *Engenderings* (2020).

determination over their child or reproductive capacities. Radfem midwifery becomes the reactionary opposite of xenofeminism's slogan "when nature is unjust, change nature" into the conviction that nature *cannot* be unjust, and *should not* be changed.

Not any longer in line with the first two principles of reproductive justice, the right to have and not have a child, we then lose the unique potential of a specific midwifery configuration of reproductive justice and reproductive technology. Luckily, there are many queer and trans midwives, and many who are opposed to the ideology of radical feminism who make explicit the specific *techne* of midwifery and understand its strong suit as neither aligning nature with reproductive *justice* nor *injustice*, but work with nature to achieve reproductive justice in a true natureculture continuum. Bringing together the somatophillic *techne* of midwifery and aligning it with Firestone's ultimate aim of gestational autonomy and self-determination, we then arrive at a reconfiguration of reproduction that is neither anti-nature nor anti-technology, but that uses both nature and technology in a continuous practice of care that facilitates reproductive justice. We propose that a specific somatophillic *techne*, which we understand as "midwifery thinking" can do so.

Midwifery Thinking: A Somatophillic Techne for Reproductive Justice

Katz Rothman has theorized the "techne" of midwifery as artisanship and skills⁷¹ and Newnham identified the need to define a specific "midwifery technology".⁷² Here, drawing on the work of Sara Ruddick, we aim to further develop our understanding of *techne* of midwifery, not only as a different set of skills, but as a different way of thought, that is characterized as preservative love, nurturance, and the constitution of relations.

The practice of midwifery is directed to the concrete responsibilities that emerge there. Central is that the need of the labouring person comes first, and that responsibilities can only develop in relation to those needs, which is fundamentally different than a paternalistic sense of responsibility wherein health care workers decide for pregnant people what their needs are or should be. Midwives draw upon everything they know of nature, technology as well as the person(s) in front of them, in order to establish a relational midwifery practice in which they do nothing more *and* nothing less than thinking with the pregnant person. The specific *techne* of midwifery hence develops as a response to what the specific labouring body needs, and is inherently relational. Katz Rothman discusses this as:

71 Katz Rothman, *A Bun in the Oven*.

72 Newnham et al., *Towards the Humanisation of Birth*.

The midwife can understand all of the science and the evidence, and yet say that on this particular day, with this particular woman, her particular life story and her particular body, and this particular baby in the position it is, truly knowing and understanding all of what is going on, this is the moment for this particular bit of pressure.⁷³

This entails that midwives are experts in Joan Tronto's elements of ethical care: attentiveness, responsibility, competence, responsiveness and trust/solidarity; being able to see and listen to signal the need, being able to take responsibility of answering to this need, doing the care work this entails, and again listening to the labouring person to see whether the care indeed responded to the need, within a setting that ensures continuity, solidarity, and trustworthiness.⁷⁴ It is within the relationality of this praxis that the possibility of a somatophilic techne arises, as this relationality of care itself consists of a loving dialogue; something that can only take place if one listens, responds, and again listens. A somatophilic techne can only consist of a way of thinking rooted in practice wherein skill, artisanship, knowledge, and technology is used.

Somatophilic techne in the case of reproduction as a "thinking in practice" can be developed by drawing upon Ruddick's idea of "maternal thinking".⁷⁵ For Ruddick, being a mother is not an essentialist notion, but a characteristic of maternal practice. "Practices are collective human activities distinguished by the aims that identify them and by the consequent demands made on practitioners committed to those aims".⁷⁶ Mothering therefore is meeting the aims of the practice of mothering. And since the aims of mothering are constitutive of that practice, anybody can perform this practice by serving those aims, which are threefold: "preservation, growth, and social acceptability".⁷⁷ The consequent demands made on the practitioners are preservative love, nurturance, and training for social acceptability.⁷⁸ If we follow Ruddick's logic and translate it to midwifery practice, we could consider midwifery practice as similarly distinguished by three aims, namely "preservation of people and their capacity for pregnancy," "(un)becoming 'motherandchild,'" and "relations that support reproduction and reproductive

73 Katz Rothman, *A Bun in the Oven*.

74 Tronto, *Moral Boundaries*; Joan Tronto, *Caring Democracy. Markets, Equality, and Justice* (New York: NYU Press, 2013).

75 Katz Rothman, *Recreating Motherhood*.

76 Ruddick, *Maternal Thinking*, 13–14.

77 Ruddick, *Maternal Thinking*, 22.

78 Ruddick, *Maternal Thinking*, throughout parts I and II.

freedom.”⁷⁹ These aims can be understood as corresponding to the concept of reproductive justice, in which they all come together. Reproductive justice consists of the right to have a child, the right to not have a child, and the right to parent the children we have in safe and dignified environments. The first two come to the fore in the first two aims, preservation of people with the capacity for pregnancy and (un)becoming motherandchild, the third one in the last aim. The aims of midwifery practice are a grounding in practice of the overarching aim of reproductive justice. The consequent demands for praxis, made on the basis of these aims can be conceived of as “preservative love”, “nurturance”, and “constituting supportive relations.”⁸⁰

Like Ruddick’s claim that all children need preservation, we can claim the same for pregnant and labouring people. Pregnancy is a developmental state that renders all involved vulnerable. Pregnancies require care if they want to be preserved; both pregnant persons and fetuses can be lost without the required care. At the same time, some pregnancies can be life-threatening and will need to be aborted, or they are simply unwanted. Contraception and abortion are also forms of care that preserve the health and wellbeing of people with the capacity for pregnancy. Preservation, however, is not enough. Ruddick’s addition of “love” here is essential. For Ruddick, “attention is at once an act of knowing and an act of love.”⁸¹ We have seen how mere preservation of health in obstetrics, abortion clinics and contraceptive practices, can take the form of paternalistic preservation of pregnant people, which includes non-consented interventions, and obstetric violence. Although this form of preservation results in a healthy mother and baby, they can be physically and psychologically traumatic. It is love, and hence somatophilic preservation, that turns preservation from merely sustaining biological safety to the flourishing of the potential embedded in the body and mind. Love, in the definition of bell hooks is an intention and a practice, not something that comes automatically or instinctively. It is a choice to let go of power and domination, and instead turn to affirmation of and care for the other, which is, according to hooks, the definition of love. Love is “the will to extend one’s self for the purpose of nurturing one’s own or another’s spiritual growth”.⁸² Preservative love captures an essential element of midwifery practice and the thought that emerges from it; it is the extension of the midwife into a safe presence wherein someone can labour freely, while the midwife makes sure the labour is preserved well and can identify and act

79 These aims are amended from Van Nistelrooij (2022), who first came up with the concept “midwifery thinking” and its corresponding aims and demands. The concept ‘motherandchild’ comes from Anne Enright *Making Babies* (2004). Inge van Nistelrooij, *Humanizing Birth from a Care Ethics Perspective*, Keynote lecture at the *Critical Midwifery Studies Summer School* (2022); Anne Enright, *Making Babies. Stumbling into Motherhood*. (New York: W.W. Norton & Company, 2004).

80 Inge van Nistelrooij, *Humanizing Birth from a Care Ethics Perspective*.

81 Ruddick, *Maternal Thinking*, 122.

82 bell hooks, *All about Love* (New York: Harper Collins, William Morrow, 2018 [1999]).

on complications, or it is the presence wherein someone can explore to keep a pregnancy or abort it, or think about and experiment with contraception and menstruation cycles.

Within the midwifery practice of preservative love, we can think of technology as something that facilitates natural processes during childbirth— preserving it in a loving way so that it can come to its full potential such as with the usage of contraceptive technology that lessens the burden of continuous pregnancies from the reproductive body, life-saving cesarean sections, abortion pills that evoke a natural miscarriage, or pain medication in childbirth that lets a labouring person rest so that it can gain strength to push when it is time.

Pregnancy and labour are also experiences of transformation which require the practical demand of nurturance. The foetus and baby need to be nurtured in order to “foster growth”,⁸³ and a similar demand concerns the mothers: their “growth” (physically, emotionally, intellectually, and also as “multiplied vulnerability”) requires care and nurturance as well, so that mothers are enabled to navigate the changes and challenges that their transformed life offers. Unlike maternal thinking, midwifery is not about fostering the growth of a child through the practical demand of nurturance, but nurturance is needed to foster the becoming of the plural entity of “motherandchild.” Nurturing this plurality so that it can foster growth, is one of the key tasks of midwifery. Midwifery can also concern the nurturance of an *unbecoming* of the plural unit of motherandchild, in case of abortion, miscarriage, sterilization, contraception, and stillbirth. Unbecoming motherandchild in whatever way, is a form of growth and transformation as well, for it realizes and directs attention to the plurality of the fertile body. Sometimes there is huge loss experienced in a wanted pregnancy after which one never feels the same individuality again, or the experience of infertility or wanted sterilization catalyses a transformation or affirmative acceptance consisting of existential change wherein one relates to the (im)possibility of motherandchild as an ontological condition in nurturing the (un)becoming of motherandchild. Midwifery uses technology that facilitates the transgressive becomings and unbecomes of birth, abortion, and miscarriage in a way that goes beyond mere preservation but can foster meaningful emotional growth. For instance, the sense of choice and control and emotional safety during birth, enables the endogenous production of key hormones that progress labour, including oxytocin and endorphins, and prevents the production of stress hormones such as adrenaline that can block endogenous oxytocin. The success of this neurohormonal process is a key influence upon whether the woman may experience a physiological vaginal birth, minimizing the need for medical intervention and increasing the likelihood of a positive birth experience.⁸⁴ We could use technology

83 (Ruddick *Maternal Thinking*, 19–21, 82–102.

84 Olza, “Birth as a neuro-psycho-social event.”

in such a way that it enables and affirms this neurohormonal process. For instance, by engaging with speculative reproductive futures⁸⁵. We could imagine vibrating bulbs in labour baths to stimulate orgasmic birth, or holograms in the shape of a humming cocoon of soft red silk that can be formed around one upon the pressing of a button to facilitate privacy and a sense of safety in all settings, or a space with pain reducing vibrations and lights that one can step in and out of to be fully in control of one's own pain management.

And finally, mothers and babies need others to support them. Rather than Ruddick's third aim of social acceptability, and training children for it, a midwife's responsibility and aim are the other way around: namely to make the world and the direct community a socially safe place that accepts and affirms the autonomy, self-determination, and flourishing of pregnant people, people with the capacity for pregnancy, and mother and child. Through the care of midwives, new relations within the community can be constituted (for instance via group care or the attention for other family members) and the midwife is an advocate for the rights, care, and respectful treatment of people with the capacity for pregnancy. A birth seldomly leaves others (partners, friends, next of kin) unaffected; they also become a (grand)parent, sibling, aunt or uncle, and their relational network shifts. Room has to be made in others' lives as well, to care for and support the mother and child, to grow attached, to become related. They furthermore need materialistic and social support in the form of safe housing and environments wherein to care for their children, access to healthcare, healthy food, education, and childcare support. And the same goes for people who need an abortion or do not want to get pregnant; they also need access to a community wherein abortion pills and contraceptives are free and easily accessible, where they can get time off from work during their abortion or menstruation, and to be able to live stigma-free in societies wherein a broad range of discourses exist on the experiences and meanings of abortions and contraception so that they can engage in sense-making practices regarding their own fertility. Midwives' responsibility here is to safeguard continuity of care, of trustworthy systems, policies, institutions, so that one can rely on care to be there, and not to have to struggle for each care need to be met.

Changing the world and the community in such a way that it is safe for pregnant people, through constituting social relations and relational practices of care, is something that is also done through the creative somatophilic use of technology. For instance, the queer midwifery practice Refuge Midwifery provides IUI practices for queer families in their homes, and provides antibiotics in childbirth at home for GBS positive people.⁸⁶ Black owned independent midwifery practices are able to provide better maternal and neonatal

85 See the website of Wondermash for more information about their project: <https://www.wondermash.eu/projects/birth-futures>

86 See for instance the speculative project Birth Futures on the website of Refuge Midwifery: <https://www.refugemidwifery.com>

outcomes than the obstetric institution through better low-tech risk-assessment and medical testing on the basis of knowledge and trust.⁸⁷ In the Netherlands, it might become possible to do a medical abortion at home with the support of a midwife, and there is now support for this in Australia, leading to proposed legislative changes. Midwives carry technology to the homes of clients so that they do not have to leave their house, like devices to treat high bilirubin levels, to give oxygen to new-borns, to take blood or swabs in the privacy of the person's bedroom. Independent midwives often use WhatsApp as a way to be easily accessible to clients for non-urgent questions, as well as other secure apps for deliberation with paediatricians and obstetricians, so that parents do not have to come to the hospital. Anecdotally, midwives may practice this frequently on request, examples being assisting with artificial insemination, checking for amniotic fluid in queries of released membranes, and conducting examinations (speculum, wound, infant) at home and by request of the mother.

The practice of preservative love of the capacity of pregnancy, the nurturance of either the becoming or unbecoming of mother and child, and of the affirmation or constitution of social relations and relational practices in the world so that it is safe for pregnant people, are all both relational and grounded in nature, and it is within these material relations that specific needs of the specific person arise, are recognized, taken responsibility for, are evaluated, and that responsibility is taken in ensuring pregnant people's care needs are met within society. This requires thinking and interpretation, and it is here that a *techne* consisting of skills, artisanship, experience and evidence, medicine, and techniques, is used. As becomes clear in the three demands to practice above, all the aims that constitute reproductive justice cannot be met without technology. But when technology is always used in a specific practice of preservative love, nurturance, and broader relationality, a specific somatophilic *techne* develops, wherein a love for the body with the capacity for pregnancy guides technological intervention within a practice that has reproductive justice as a general intention. The rights to have and not have a child and to nurture children in safe environments, correspond to the practical aims and demands of midwifery thinking through preservative love, nurturance of the (un)becoming motherandchild, and the constitution of relational networks that support reproduction and reproductive freedom.

87 Jennie Joseph & Stephan Brown, *The JJ Way: Community-based Maternity Center. Final Evaluation Report* (Orlando: Visionay Vanguard Group, 2017); Keisha Goode & Arielle Bernardin, "Birthing #blackboyjoy: Black Midwives Caring for Black Mothers of Black Boys During Pregnancy and Child-birth" *Maternal Child Health Journal* 26, (2022); Leseliey Welch et al., "We Are Not Asking Permission to Save Our Own Lives: Black-Led Birth Centers to Address Health Inequities." *The Journal of Perinatal & Neonatal Nursing* 36, (2022); Suarez, Alicia, "Black midwifery in the United States: Past, Present and Future," *Sociology Compass* 14, (2020); Benjamin, *Viral Justice*.

Firestones' feminist tradition of repro-tech and midwifery's somatophilic techne that is developed and used in midwifery thinking, can both be understood as rooted in a materialist doctrine. Where feminist repro-tech must be wary of not understanding reproductive biology as reproductive injustice, midwifery must be resistant to any pull towards treating biology and nature as justice in itself. Both these tendencies dismantle their materialist grounding and potential of situating critique, thought, and the usage of technology in specific material practices. We believe that feminist midwifery has something to offer the feminist movement when it comes to the question of the role of technology in the facilitation of reproductive justice, namely an articulation of a specifically situated thought in practice, wherein a somatophilic techne is developed. By situating midwifery's usage and critique of technology within the specific epistemic practice of midwifery thinking that centers the needs of the pregnant person and strives for reproductive justice, midwifery is brought back to its promising materialist foundation with the help of Firestone's revolutionary focus on reproductive liberation. Resisting the equation of nature with justice but instead centering the aims of preservation of people and their capacity for pregnancy, the (un)becoming of motherandchild, and the constitution of social relations that makes the world a safe space for people with the capacity for pregnancy, has a Firestonian potential to liberate us from the perils of reproduction with the help of somatophilic techne in such a way that the reproductive body can flourish, rather than lose the capacity for reproduction altogether.' It is our conviction that "midwifery thinking" wherein a "somatophilic techne" is used, can reground the use of technology in care for birth and reproduction in a materialist understanding that makes reproductive justice possible.

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Emilie du Châtelet—On Knowledge and Matter—A Precursor to Posthuman Feminism’s Approach to Science Making

Tal Bar

Abstract:

This paper suggests a reading of the early 18th-century philosopher Emilie du Châtelet’s position on the questions of knowledge and matter as a surprising early precursor to technoscience/ posthuman feminism’s stand on scientific methodology and embodiment. In her 1740 book *Institution de Physics (Foundations of Physics)*, du Châtelet, in an enlightenment fashion, turns to empiricism in an attempt to explain how we acquire scientific knowledge with an aim to account for the physical world and specifically for bodily agency. It is empiricism that leads her to criticise both the Cartesians as well as the Newtonians disembodied account of force. Du Châtelet’s main quarrel with Newton’s theory of bodies arises from its insufficiency to account for matter as vital. It is here that she turns to Leibniz’s metaphysics in a move that, in effect, redefines the premise of *reason*. Having an insight into her intellectual world at the dawn of enlightenment highlights the tendencies of our scientific paradigm to account for bodies as nonlogical and affirms the technoscience/ posthuman feminist transformative project.

Keywords:

Emilie du Châtelet, Posthuman/ Technoscience Feminism, Rosi Braidotti, Karen Barad, Embodiment

Introduction/ Beyond What Meets the Enlightened Eye

Emilie du Châtelet's scholarship has gained a growing philosophical and historical interest over the past decade—from complete posthumous obscurity, a figure forgotten and removed from the pages of history—her work and life as a scholar in her own right, uncoupled from Voltaire, increasingly receive due academic acknowledgement.¹ Her book, *Institutions de Physique*, completed and published in France in 1740 (albeit anonymously at first), is the focus of this paper.

This work of natural philosophy has thus far been analysed in relation to du Châtelet's contemporaries, with a common emphasis placed on the unusual intellectual position she occupies in reading Newtonian physics with Leibnizian metaphysics.² In this paper, I build on existing research on the question of methodology and matter in her writing, as well as on close readings of her *Institutions* in relation to the prescient contemporary feminist debate around questions of scientific methodology and embodiment at the intersection of

1 Emilie Du Châtelet's work falls under what Deleuze would call "minoritarian" philosophical voices, those which are omitted from the canon. Although groundbreaking and influential in her own time, she was completely forgotten posthumously. Her work was rediscovered in the 1960s. Emilie Du Châtelet is often introduced as either the French translator of Newton's *Principia* or as Voltaire's lover and intellectual muse/collaborator, while it is her own extraordinary work that should be our primary interest. Both on the backdrop of her intellectual contemporaries and on the backdrop of the gendered prejudice she operated against. Her independent writing on the topics of natural philosophy, physics and ethics set her work apart and speaks of breaking all intellectual and societal conventions. See Robyn Arianrhod, *Seduced by Logic, Emilie Du Châtelet, Mary Somerville and the Newtonian Revolution* (NY: Oxford University Press, 2012), where she captures both aspects of her persona; her sharp intellect as well as her charisma and unstoppable character so lucidly. Translated primary sources of du Châtelet's work are still patchy. Judith P. Zinsser and Isabelle Bour's translation of most of her work and letters is the only published book currently dedicated to the English translation of her work. It forms part of *The Other Voice in Early Modern Europe*. See *Emilie Du Châtelet: Selected Philosophical Writings* ed. Judith Zinsser (Chicago: Chicago University Press, 2009). English translation to the other *Foundations of Physical Science's* chapters is the labour of Katherine Brading and her students at Duke's Philosophy of Science Program in collaboration with the University of Notre Dame, 2014. All translated chapters (including Zinsser and Bour's) are available online: Katherine Brading, *Foundations of Physics*, last accessed January 4, 2023, <https://www.kbrading.org/translations>. Katherine Brading, *Emile Du Châtelet and the Foundations of Physical Science* (New York: Routledge Focus, 2021) is an excellent secondary source, providing close reading and commentary of the *Foundations*. Currently two philosophical hubs engage with her work (amongst other minoritarian philosophical voices); *Project Vox*, formed at Duke University, <https://projectvox.org/category/announcement/> and Paderborn University's *History of Women Philosophers and Scientists*, <https://historyofwomenphilosophers.org/about/>, accessed January 10, 2023, both of which disseminate secondary sources on du Châtelet's work extensively, through publications and public conferences and seminars.

2 See, for example, Ruth Hagengruber ed., *Emilie Du Châtelet between Leibniz and Newton* (New York: Springer, 2012).

two distinct feminist genealogies, technoscience and posthuman feminism.

Katherine Brading, a philosopher of science at Duke and one of the pioneering scholars to read, translate, analyse and disseminate du Châtelet's *Institutions*, has shifted the discussion on du Châtelet's oscillation between Newton's theory of Gravity and Leibniz's metaphysics to argue that du Châtelet's main concern in her *Institutions* is twofold, the first is bodily causation, that is, the question of what propels bodies (all bodies, celestial, organic, etc.) to act upon each other, as a question in the realm of physics.³ In seeking a theory of matter, du Châtelet developed new positions and transformed the philosophical landscape surrounding the theory of matter as it stood in 1740.⁴ Brading's second assertion is that it is the scientific methodology used by Newton, which did not satisfy a coherent epistemology to support his findings, according to du Châtelet, that led her to adopt Leibnizian metaphysics.⁵

In my reading of du Châtelet's text with Brading and with the illuminating scientific biography written about du Châtelet by the historian of science, Robyn Arianrhod,⁶ I argue that du Châtelet connects epistemology to ontology in a way relevant to current feminist discourse around the connection between scientific methods and materiality in the following ways: as a natural philosopher operating at the dawn of enlightenment, Emilie du Châtelet's work *sheds a different light* on the scientific method orthodoxy. Her scholarship offers us insight into the very making of a paradigm that has propelled Western scientific thought—and still does—by revealing an inner tension between adherence to rationality and logic and between the limits of empirical induction as a sole scientific method to account for matter.⁷ As such, her critique is a precursor to current technoscience/ posthumanist feminist scholarship that decouples rationality from universal, objective, disembodied scientific methods, for example, in the work of Evelyn Fox Keller, Luce Irigaray, Donna Haraway, Elizabeth Grosz, Karen Barad and Samantha Frost to name a few.⁸

3 See Katherine Brading, *Emile Du Châtelet and the Foundations of Physical Science* (New York: Routledge Focus, 2021), 8–9, where she challenges the “received view” of du Châtelet's *institutions*, which renders her as a passive accumulator of existing material from Newton, Leibniz and Wolff.

4 Brading, *Emile Du Châtelet*, 3, 11.

5 Brading, *Emile Du Châtelet*, 12.

6 See Robyn Arianrhod, *Seduced by Logic, Emilie Du Châtelet, Mary Somerville and the Newtonian Revolution* (NY: Oxford University Press, 2012).

7 In the early 18th century, the separation of two disciplines, philosophy and science, has yet to develop fully; hence, we are in the domain of *natural philosophy*.

8 See Evelyn Fox Keller and Christine R. Grontkowski, “The Mind's Eye,” in *Discovering Reality: Feminist Perspectives on Epistemology, Metaphysics, Methodology, and Philosophy of Science*, eds. Sandra Harding and Merrill B. Hintikka (New York: Springer, 1983), 207–224; Luce Irigaray, *Speculum of the Other Women*, trans. Gillian C. Gill (Ithaca, New York: Cornell University Press, 1992), Donna Haraway,

Situating du Châtelet's work in her political-social milieu, beyond opening a small window onto the fascinating intellectual landscape of early 18th-century France, illuminates the turn to empirical induction as a scientific methodology from an angle rarely considered in current feminist critiques of science. In her letter correspondence, du Châtelet reveals the tight control over intellectual life in pre-revolution, absolute, monarchic and Catholic France, which stands in sharp contrast to the intellectual environment Newton operated in just across the channel; a post-revolutionary, relatively religious-tolerant England.⁹ Reading du Châtelet contextually is significant for two reasons: it re-ties the Enlightenment turn to "reason" to the opaque and dogmatic epistemologies that preceded it by means of negation, that is, as a dualist counter-reaction. As an antidote, "neutral" observations of the natural world empowered an emancipatory project away from the grip of religious dogma, which operated on the basis of prejudice and exclusion, executed for the sake of control.

As part of this new scientific paradigm, a notion of objective, empirical observation of the world, by proxy, came to negate everything intuitive, subjective, and bodily. It is here that du Châtelet's position is so unique; her quarrel, I argue, is not with reason but rather with the means to achieve it. It is the monopoly of objective, empirical observations as a scientific method enacted with Newton's revolutionary project that she found insufficient to explain bodily causation. In effect, it is Newton's definition of reason that she found to be flawed, not the entire project. By refereeing to Leibniz's metaphysics, du Châtelet reintroduces intuition to Newton's universal and disembodied methodology. It is because she is logical that she is also intuitive/embodyed.¹⁰

Jumping some 280 years ahead, neutral and universal scientific methodology is confirmed as an arbitrary weapon of selection and exclusion. But does it mean that we need to replace

"Situated Knowledge: The Science Question in Feminism as a Site of Discourse on the Privilege of Partial Perspective," *Feminist Studies* 14, no. 3 (1988): 575–599; Elizabeth Grosz, *Time Travels, Feminism, Nature, Power* (Durham: Duke University Press: 2005); Karen Barad, "Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter," *Gender and Science: New Issues* 28, no. 3 (2003): 801–831; Karen Barad, "after the End of the World..." (Lecture, European Graduate School Video Lectures, August 13, 2019), <https://www.youtube.com/watch?v=68I0y1koakA&feature=share&fbclid=IwAR0lFoHQoLlo-rCSud-qWavir5fDEi4ygigxXf5Jdy7Cg9BmQv5fw3gtwMs>, last accessed Jan 10, 2023; Samantha Frost, *Biocultural Creatures: Towards a New Theory of the Human* (Durham and London: Duke University Press, 2016).

9 See Arianrhod, *Seduced by Logic*, 12–55.

10 Which, by proxy, repositions Leibniz's metaphysics. This is beyond the scope of this paper, I suggest some insight to this claim see: Tal Bar, "Digital Architecture and Difference: A Theory of Ethical Transpositions towards Nomadic Embodiments in Digital Architecture," PhD diss., The Bartlett School of Architecture, UCL, London, 2018, Second and Fourth Chapters that read Leibniz with Deleuze.

the scientific project altogether, as suggested by Xenofeminism and Ecofeminism, or to accept these methods as part of an emancipatory liberal feminist project?¹¹ It is here that I find du Châtelet's position on the question of scientific methodology insightful; not only on the backdrop of her contemporaries but moreover relevant to an ongoing feminist discourse that seeks a transformative path by adopting affirmative, relational methodologies. These entail, first and foremost, releasing the scientific methods from the rule of reason defined narrowly in terms of a universal and disembodied process, an ongoing project championed by technoscience and posthuman feminists such as the work of Donna Haraway, Rosi Braidotti and Karen Barad. But before I turn to what conversations contemporary transformative feminism could have with du Châtelet, I will first turn to sketch her position.

2. In Search of a Vital Materiality

Du Châtelet addresses the *Foundation of Physics* to her 13-year-old son, seemingly, as a textbook to advance his understanding of the physical world. She takes this task upon herself, she explains, to bridge an 80-year gap since the publication of the previous comprehensive physics book available in France.¹² The first few paragraphs into the preface seem at a first glance to be rather mundane and therefore unalarming, however, the breadth and depth of her project become apparent upon arriving at sections II and III of her preface. The Physics she is about to teach him, she notes, "are known in France by only few readers,"¹³ here, she alludes to Newton's physics.¹⁴ Beyond filling in the academic gaps, drawing on the knowledge she wishes to bring before him, she further explains, lies a broader project to address knowledge itself and, more specifically, how to acquire true knowledge, which places her work in what we would categorise today as the *philosophy of science*. This argument is supported by the fact that despite it being first and foremost a

11 See Laboria Cuboniks, *Xenofeminism: A Politics for Alienation*, <https://laboriacuboniks.net>; Emily Jones, "Feminist technologies and post-capitalism: defining and reflecting upon Xenofeminism," *Feminist Review* 123 (2019): 126–134, DOI: 10.1177/0141778919878925.

12 The book, which she publishes anonymously at first, was greatly received. Upon publishing the second edition (1742), her name appeared on the front cover. The book was acclaimed at her own time and received attention beyond France, it was translated a year later into German and then to Italian (1745). The dissemination of her work in Italian proved critical and led to her being elected, as one of the handful of women, to the *Bologna Academy of Science* in 1746. See Brading, *Emilie Du Châtelet*, 5–6 and Arianrhod, *Seduced by Logic*.

13 See, Emilie Du Châtelet, "Foundations of Physics" trans. Isabelle Bour and Judith Zinsser, in Judith Zinsser ed., *Emilie Du Châtelet: Selected Philosophical Writings* (Chicago: Chicago University Press, 2009), 117.

14 Although Newton had published *The Principia* in 1687, at the time of her writing, the only insight to his theory in French was given by Voltaire and herself.

book about Physics, it is Leibniz's philosophical methodology for acquiring truths that opens the *Foundations* and not Newton's new theories.¹⁵

I will delve into her philosophical ideas shortly; but first, embedding and embodying her work in the specific axes of her life is needed for a full appreciation of her theories.¹⁶ At the time of writing the book, young du Châtelet had already removed herself from most social duties and had relocated, with her children, to Cirey, a (relatively) remote family estate in Champagne, where she spends most of her time. At 32, du Châtelet had joined Voltaire there, who in 1734 had sought refuge in Cirey. There, away from the frivolities of Paris and the court at Versailles and unburdened by societal duties expected of an aristocratic lady, which she viewed as a waste of time and intellect, they establish an "academy." A hub of scholarly life, research and writing, which attracts the most dazzling European scholars, discussing mathematics, physics, ethics, religion and literature. However, this relative social tolerance stopped short when it came to intellectual freedoms, as is manifested in Voltaire and du Châtelet's decision to withhold publishing their first common manuscript, *Elémens de la Philosophie de Neuton* (1738) in France. Instead, it was first published in Amsterdam, incomplete and without their permission.¹⁷ The book's content was deemed almost heretical in France. As mentioned, France at the time of du Châtelet is an absolute monarchy under the grip of Catholicism, where scientific/ literary work undergoes a censorship process to be approved by the king.¹⁸ Siding with Newton, the Englishman, and against the Frenchman, Descartes, was not only deemed an unpatriotic act; moreover, it was an act of defiance against religious dogma and the political-social order it supported.¹⁹

15 Du Châtelet introduced Leibniz's metaphysics into the *Foundation* at a later stage of developing the manuscript, just before the publication of the first edition. See, Brading, *Emile Du Châtelet*, 72.

16 In this account, I rely on the comprehensive historical work done by Robyn Arianrhod. See, Arianrhod, *Seduced by Logic*.

17 It is widely acknowledged that du Châtelet, although not receiving official recognition, was a co-researcher and writer to this project, which Voltaire acknowledges in the preface to the book.

18 As Voltaire understood too well, causing him multiple clashes with the clergy and court and several occasions, exile.

19 Embracing Newtonianism was possible in the case of Voltaire and du Châtelet thanks to their marginal position in society, Voltaire on account of his class (middle-class rather than aristocratic) and du Châtelet, although a Marquise, alas, a woman, and therefore excluded from official education and position. This marginality, as well as the unwavering support of her husband, The Marquis du Châtelet, allowed them the freedom to stretch the decorum boundaries throughout their lives and to embody their critique, leading an unconventional lifestyle. It is du Châtelet who would, at a later stage, translate and annotate Newton's *Principia* in its entirety from the original Latin to French. This was a mammoth project, completed in 1749, just before her premature death from childbirth complications. Her manuscript was published posthumously in 1756.

In his *Principia, Mathematical Principles of Natural Philosophy* (1687),²⁰ Newton proposes a comprehensive and universal theory of motion and gravity, revolutionising science-making by basing his theory on laws derived solely from empirical induction based on observations and described in mathematical forms and in a complete detachment from any metaphysical, religious dogma. Newton's revolution uncouples the questions of "why" from the questions of "how;" focusing only on the latter: how do the celestial bodies move in relation to one another? How does gravitational attraction work? without resorting to explaining why it so happens, what propels bodies to move in the first place. This is the crux of du Châtelet's quarrel with his theory, which I now turn to.²¹

Already in the preface to her *Foundation of Physics* du Châtelet critiques Newton's methodology—his revolutionary use of Algebra to express his celestial and other observations—albeit indirectly, while seemingly reassuring her son:

In this work, I will try to place this science [physics] within your reach, and to disengage it from this admirable art, called algebra, which separating things from images, eludes the senses and speaks only to the understanding. You are not yet to understand this language, which seems rather that of the mind than the whole of man.²²

Algebra, which Newton puts to work, therefore, describes the physical phenomena in abstraction and in complete detachment from an intuitive, tangible physical world. Du Châtelet's admiration of the Newtonian project does not *blind* her from the ontological implication of this new language. It is this critique that seems so prescient and which resonates with current feminist and new materialist discourse, which I find remarkable, as I show in the last section,

If Newton and Descartes share anything in du Chatelet's view, it is their flawed methodology to perceive the physical world around them. As does Newton, du Châtelet finds Descartes's reliance on unbased hypotheses problematic. Hypotheses, she elaborates, can come to misuse, such is the case of Descartes:

20 Isaac Newton, *The Principia, Mathematical Principles of Natural Philosophy*, trans. I Bernard Cohen and Anne Whitman (Oakland: University of California Press, 1999).

21 The scope of this paper does not allow me to account for the elements of her theory in detail, which form part of the active intellectual discussion at the time of *vis viva*. See du Châtelet chapters 1 and 7, in Emilie du Châtelet, "Foundations of Physics" trans. Isabelle Bour and Judith Zinsser, and Brading, *Emilie du Chatelet*.

22 See Emilie Du Châtelet, "Foundations of Physics" trans. Isabelle Bour and Judith Zinsser in Judith Zinsser Ed., *Emilie Du Châtelet: Selected Philosophical Writings* (Chicago: Chicago University Press, 2009), 116.

Descartes, who had established much of his philosophy on hypotheses, because it was almost impossible to do otherwise in his time, gave the whole learned world a taste for hypotheses; and it was not long before one fell into a taste for fictions. Thus, the books of philosophy, which should have been collections of truths, were filled with fables and reveries.²³

Newton, and his followers as a counterreaction, she argues:

[...] have fallen into the opposite excess: disgusted with suppositions and errors that they found filled books of philosophy, they rose up against hypotheses and tried to make them suspect and ridiculous, by calling them *the poison of reason and the plague of Philosophy* [italic at source].²⁴

“Experience”, argues du Châtelet in Chapter 8, “proves that bodies act and are gifted with activity.” While the Cartesians’ essentialist approach to bodies “drove them to remove force and all activity from creatures” and resort to God,²⁵ the Newtonians, on the other hand, by resorting to universal laws devoid bodies of “free will.”²⁶

It is here that the Leibnizian logic she develops so meticulously and systematically in Chapter 1 is enacted to critique the soundness of Newton’s theory. Du Châtelet claims that Newton’s use of atoms, which are already extended, as basic physical elements, cannot explain the gravitational attraction of all celestial bodies and all bodies in general (obtained by observation and described so masterfully with algebra) because relying on atoms does not satisfy the basic principles of knowledge acquisition she adopts from Leibniz.

In Chapter 1 of the *Foundations*, du Châtelet unfolds Leibniz’s metaphysics and accounts for two principles to ascertain truth: the Principle of Contradiction (PC) and the Principle of Sufficient Reason (PSR), which, in turn, enables two further axioms: the Principle of the Identity of Indiscernibles, and the Principle of Continuity. It is these axioms that lead her to adopt Leibniz’s metaphysics as a basic non-extended unit of the world (monads) to

23 See du Châtelet, “Foundations of Physics: Chapter 4,” trans. Bour and Zinsser, 147.

24 See du Châtelet, “Foundations of Physics: Chapter 4,” 147–148.

25 At the time du Châtelet was writing, it was controversial whether any such notion was needed, and unclear what roles and definition any notion of force should have. See, Katherine Brading, *Emilie Du Châtelet and the Foundations of Physical Science*, 71–72.

26 See Emilie du Châtelet, “Foundation of Physics: Chapter 8,” trans. Katherine Brading *et al*, https://www.kbrading.org/_files/ugd/96f981_c97681523c074135be2fd9d58c9e77fc.pdf.

replace Newton's atom. This is a double move on her behalf, as she simultaneously deals with epistemology as well as with the ontological aspects of Newton's theory. Brading sums it up effectively:

It is the employment of PC and PSR in their methodological role, in attempting to solve the problem of bodily action, that leads to the introduction of the central metaphysical commitments of the Foundations, including non-extended simples in her account of extended bodies, and her complex theory of forces, including the primitive force of non-extended simples, in her account of the agency of bodies.²⁷

The introduction of these "principles of knowledge" or axioms into her theory of knowledge also enabled her to reintroduce hypothesis back into the scientific process, now guard railed by both the empirical as well as the logical, allowing for experience and experiment to coexist. I argue that du Châtelet's dissatisfaction with Newton's scientific methodology is inadvertently also a claim to the limits of the Newtonian scope of empirical induction based on observation only to account for reality. Furthermore, du Châtelet's insistence on incorporating a metaphysics into the Newtonian system was a perfectly rational move, which she puts in place not in order to envelope rationality with a theological belief in a divine entity but rather to compensate for the inability of the Newtonian system as she saw it to satisfy the question of free will and to explain logically why bodies move in the first place. Thus, reintroducing hypothesis, an intuitive aspect, was a move of sound logic on her behalf, not in order to undo empiricism but to support it.

Challenging the scientific orthodoxy, in turn, enabled her to account for bodily causation. In today's terminology, it is vital material agency that she had sought to introduce into Physics. The principles of knowledge she borrowed from Leibniz allow her to expand the boundaries of reason further in a relational, non-representational perceptual process. However, she does not express it as such directly but hints at it on many occasions in her writings. For example, when discussing the Principles of Indiscernibles, in Chapter 1, du Châtelet confirms that sensing requires embodiment: "The infinite diversity that reigns in nature is evident to us that as far as our organs can sense," a notion she attributes to Leibniz.²⁸ Another example of an embodied, relational appreciation of perception is this astonishing metaphor she writes in Chapter 7:

It is easy to see from this why in our mother's womb we are in a

²⁷ Brading, 72–73.

²⁸ See Emilie du Châtelet, "Foundations of Physics: Chapter 4," trans. Bour and Zinsser, 133.

state where all our ideas are dim; it is that our body, not having yet developed, our limbs and organs are weighed down and concentrated almost in a point...'²⁹

The philosopher and du Châtelet scholar, Ruth Hagengruber, positions du Châtelet's pondering on the role of metaphysics as part of a larger debate in early 18th-century France, a debate on the roles and methods of philosophy vis-à-vis the sciences and claims that du Châtelet's position in favour of metaphysics stood in sharp contrast to the repositioning of philosophy as independent from the sciences in the mid-18th century. Enlightenment principles contribute to the rejection of metaphysics and the acceptance of the then-fashionable materialism and sensualism of the French Enlightenment.³⁰ Reading Leibniz with Deleuze's, *The Fold, Leibniz and the Baroque* confirms du Châtelet's position, namely, that the Leibnizian metaphysics paradoxically is that which allows for embodiment and does not stand in contradiction to it.³¹

It is interesting to compare two images of du Châtelet, both made in her lifetime. The first is the frontispiece engraving of Voltaire's *Éléments de la Philosophie de Newton* (1738) by the Dutch artist Jacob Folkema. The book was published in Amsterdam without Voltaire and du Châtelet's consent. The second is a portrait commissioned by du Châtelet herself, and where we can assume she controlled the themes and composition.

It is believed that the engraving shows Emilie du Châtelet on the top right holding a mirror to bounce off the light from Newton down to Voltaire, who sits at a desk dressed in an ancient Roman toga with a poet's laurel wreath on his head.³² Beyond the portrayed role of du Châtelet as a mere medium, which is contrary to Voltaire's own acknowledgement of the central role she took in writing the book, it is the representational use of light and vision in the acquisition of knowledge that I find significant here.

By contrast, in the portrait she herself commissioned to a young female artist, Marianne Loir, she is portrayed in her own right, holding a compass in one hand and a flower in the other, and although flowers are often associated with femininity,³³ I wonder if holding a flower does not also affirm a tangible, sensual world, to balance the mathematical knowledge a compass represents. Standing on the cusp of the modern project, du Châtelet inadvertently embodies the contradictions and tensions of the Enlightenment, a project that had begun by placing all-observing men at the centre of the universe. However,

29 See Emilie du Châtelet, "Foundations of Physics: Chapter 4," trans. Bour and Zinsser, 172.

30 See Hagengruber, "Editor's Introduction," *Emilie Du Châtelet between Leibniz and Newton*, viii.

31 See Bar, "Digital Architecture and Difference," chapters 2 and 4.

32 See Project Vox website, <https://projectvox.org/du-chatelet-1706-1749/#credits>.

33 Project Vox website.

connecting matter to method was not a project of negation, she viewed herself very much as part of the scientific revolution, and it is here on this point that I would like to dwell on.

3. From Emancipatory to Transformative Feminism: What Can We Learn from du Châtelet?

For three centuries now, du Châtelet's critique of the scientific orthodoxy's ability to account for all matter was cast aside, and her unique position was undervalued. While her scholarship is now *seeing the light of day* again, there is still little in the way of evaluating her premodern insistence on an embodied and situated scientific epistemology to current feminist debates on questions of bodies and science, which is the business of this last section.

While for a century now, the mainstream feminist project entails an emancipatory project, that is to say, a fight for equal access into the very universe of universalist observers, in the last decade, a growing feminist critique in the name of climate justice has sought to overhaul not only the liberal assumptions that are at the heart of the scientific project but the scientific project itself. It is at this junction, between the two poles of a dialectic discourse, that I call upon du Châtelet's unique position to think through alternatives that will enable us a transformative and affirmative take on science and, by poxy, on technology.³⁴

By making it her business to account for all that was left out of the perfectly coordinated and decipherable universe Newton had calculated, du Châtelet questioned the core ontologies and epistemologies of the Enlightenment project in its infancy. Not being satisfied with the rigour of the answers, she went on to redefine its very basic assumptions of how we should go about acquiring knowledge. What had originated out of an ontological question—why bodies move in the first place, or the question of free will—for du Châtelet hinged around a question of epistemology.

On all these three accounts: questioning knowledge production as a disembodied and universal endeavour, questioning matter as non-vital, and relating ontology to epistemology; du Châtelet is a precursor to feminist critique of the Anthropocene, or in other words, a

34 See Iris van der Tuin, "Jumping Generations: On Second and Third Wave Feminist Epistemology," *Australian Feminist Studies* 24, no.59 (2009): 17–31, for a taxonomy of feminist epistemological waves, demarcating the "Second Wave" feminism from "Third wave" according to the epistemological shift, from dialectic relationality, which van de Tuin and Braidotti would later describe as emancipatory.

precursor to critique of the humanist project.³⁵ 250 years later, Haraway would famously challenge the very disembodied and universal epistemology that du Châtelet critiqued; Barad would ask “how matter comes to matter?”³⁶ Braidotti would remind us that the project of modernity is based as much on Cartesian separation of minds from bodies as well as on the dialectic relationality that goes hand in hand with representing matter rather than accounting for it, separating epistemology from ontology.³⁷

However incredibly *clairvoyant* du Châtelet was, it is not the extent of the inspiration we can draw from her work. Du Châtelet is also situated at a time and place where the scientific revolution is the core of an emancipatory project, the project that would lead to the French Revolution and, eventually, to the separation of church from state, the project that granted freedom from church dogma in France and universal rights to all citizens. Du Châtelet does not wish to revoke the very scientific project's core reliance on empiricism; rather, she expands the scope of what empiricism accounts for because empiricism is the foundation enabling her enquiries in the first place. The overreaching impact of this emancipatory project is evident when we turn briefly to another text by du Châtelet, her French translation of Bernard Mandeville's *The Fable of the Bees*. In her introduction to the book, du Châtelet writes:

I feel the weight of prejudice that excludes us [women] so universally from the sciences, this being one of the contradictions of this world, which has always astonished me, as there are great countries whose laws allow us to decide their destiny, but none where we are brought up to think.

As for me, I confess that if I were king I would wish to make this scientific experiment. I would reform an abuse that cuts out, so to speak, half of humanity. I would allow women to share in all the rights of humanity, and most of all those of the mind.³⁸

35 Elaborating on the feminist critique of the humanist project, see Rosi Braidotti, *Posthuman Feminism* (Cambridge: Polity, 2022), 3–4, 18–23.

36 See Dona Haraway, “Situated Knowledge: The Science Question in Feminism as a Site of Discourse on the Privilege of Partial Perspective,” *Feminist Studies* 14, no. 3 (1988): 575–599; Karen Barad, “Posthumanist Performativity: Toward an Understanding of How Matter Comes to Matter,” *Gender and Science: New Issues* 28, no. 3 (2003): 801–831.

37 See Rosi Braidotti, *Transpositions, On Nomadic Ethics* (Cambridge: Polity Press, 2006), 6; Rosi Braidotti, *Nomadic Theory: The Portable Rosi Braidotti* (New York: Columbia University Press, 2011), 1–2.

38 Emilie Du Châtelet, “Translator's Preface for *The Fable of the Bees*” trans. Isabelle Bour and Judith Zinsser in Judith Zinsser ed., *Emilie Du Châtelet: Selected Philosophical Writings* (Chicago: Chicago University Press, 2009), 44. This is a translation of a translation. Du Châtelet translated Mandeville's 1714 fable from its original English to French (1735–39) to be translated back to English.

The emancipatory effect of the new scientific methodologies forming in her lifetime is evident in this extraordinary passage, questioning women's exclusion from education and intellectual life from a strictly scientific vantage point when suggesting to conduct an experiment, educating women to ascertain what impact that would have on society as well as on the happiness and fulfilment of women themselves.

When it comes to feminist discourse, remaining within the fold of dialectics locks us forever within the modern liberal project, so the connection between liberal feminism and its dialectic opposite, social feminism, ends up within the same Anthropocenic world view.³⁹ The other pole is to revoke the project altogether and denounce the scientific project, remaining firmly on the Gaia side of this binary.

Early technoscience feminists, such as Haraway, reversed the duality inherent to ecofeminism between bodies and science to claim back scientific methods from the grip of dualist, humanist epistemologies, by so doing, she has also managed to show how the scientific project cannot be devoid of an ethical facet. Feminist ways of doing science, which began with Fox Keller and were propelled forward by the work of Haraway, Barad, as well as Samantha Frost and currently, also in the work of Ann-Sophie Barwich,⁴⁰ help adhere to our Western scientific heritage while also and at the same time, acknowledging the great injustices, genocide, oppression and environmental catastrophes, doing science as disembodied, objective discipline propelled.

Braidotti, a Posthuman Feminist, argues that transforming this project requires a whole non-binary repertoire of relating methods and suggests affirmative, transversal ethics, "cross referencing through categories and disciplines," as an epistemological tool that "segregates the domains of knowledge production, by creating connections and cultivating resonances among positions that may at first sight appear incompatible." Such thinking argues Braidotti, better connects us into a collective.⁴¹ This epistemology is intertwined with rethinking the premise of the humanist conception of cognition, perception and reason as predominantly cognitive and representational, which she reframes in terms of nomadic subjectivity. Braidotti's nomadic project draws on Deleuze and his Spinozian reading of matter.⁴² Deleuze, however, also had a long engagement with

39 Rosi Braidotti, *Posthuman Feminism*, 45–61.

40 Ann-Sophie Barwich, *Smelosophy: What the Nose Tells the Mind* (Cambridge/ London: Harvard University Press, 2020).

41 Braidotti, *Posthuman Feminism*, 9.

42 See Rosi Braidotti, *The Posthuman* (Cambridge: Polity Press, 2013), 56–67 for a direct reference to Spinoza's concept of matter. See Rosi Braidotti, *Nomadic Theory, The Portable Rosi Braidotti* (New York: Columbia University Press, 2011), and Rosi Braidotti, *Nomadic Subjects, Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York: Columbia University Press, 2011). Deleuze and

Leibniz's mathematics (infinitesimal differential calculus) and metaphysics (monadology) in developing his nomadic thinking.⁴³

This brings me to yet another aspect of du Châtelet's scholarship that relates us to current posthuman feminist discourse. As explained above, Leibniz's principles of knowledge (PC and PSR) contradict Newton's use of atomism as the basic particles of the universe and propelled du Châtelet to adopt his theory of non-extended simples as the building blocks of extended matter; as she explains:

M. Leibniz, who never lost sight of the principle of sufficient reason, found that these atoms did not explain extension in matter, and, seeking to discover the reason, he believed that it could only lie in a different idea of particles, those without extension, which he named nomads.⁴⁴

At the time, du Châtelet defers to metaphysics to account for the vital materiality around her as a means to argue against absolutism because this is the only epistemological tool at her disposal to make sense of the world in a scientific manner that does not resort to God, as she explains:

We lack a system of calculation for metaphysics similar to that which has been found for mathematics, by means of which, with the aid of certain givens, one arrives at knowledge of unknowns. Perhaps some genius will one day find this system. M. Leibniz gave this much thought; he had ideas on this, which he unfortunately never communicated to anyone, but even if it could be invented, it seems that there are some unknowns for which no equation could ever be found.⁴⁵

Guattari's development of the concept of radical immanence and affect theory in *A Thousand Plateaus* all originate in Spinoza. See, Gilles Deleuze and Felix Guattari, *A Thousand Plateaus, Capitalism and Schizophrenia* (London/ New York: Continuum International Publishing Group, 2004), 283–290.

43 See Gilles Deleuze, *The Fold: Leibniz and the Baroque* (London: Continuum, 2006). On the myriad ways, Leibniz's mathematics and metaphysics of calculus influences Deleuze's project in separation from Guattari, see, Tal Bar, "Digital Architecture and Difference," Chapter 2, part1 and Chapter 3, where I argue that Leibniz's infinitesimal calculus inspires Deleuze's relational epistemology of differentiation to replace representationalism, which he titles *Nomadology*. Novak, in a recent paper, makes a similar point to Braidotti's omission of Leibniz from her development of nomadic theory as part of his general argument that Leibniz enables a non-ontology in Deleuze. See; Kyle J. Novak, "Thinking as Folding: Deleuze's Leibnizian Nomadology: A Non-ontological approach to Posthumanist Subjectivity." *Philosophy Today* 66, no. 4 (2021): 745–762. I argue for a repositioning of the ontological, in inter-action with epistemology.

44 See Emilie du Châtelet, "Foundations of Physics: Chapter 7," trans. Bour and Zinsser, 164.

45 See Emilie du Châtelet, "Foundations of Physics: Chapter 4," trans. Bour and Zinsser, 123–124.

Niels Bohr, who developed the quantum model of the atom, it is worth noting, would dissolve atomism as building blocks of all matter to argue for a non-essentialist ontology of matter, which is never predetermined; rejecting the Cartesian object–subject separation. His theories inspired Karen Barad’s project—resonating with her own background in quantum field theory—in favour of a new metaphysics; a performative metaphysics.⁴⁶ Barad seeks to replace representational methods with “matter of practices/ doings/ actions” and shares a similar view of the need to make new connections, new inter-disciplinary intra-actions, with a *diffractive* reading.⁴⁷

Drawing on du Châtelet in this exact moment in the philosophy of science and posthuman/ technoscience scholarship, therefore, elucidates a couple of points. The first is that we must be careful not to spill the bathwater with the baby when it comes to feminist approaches to science. While emancipatory practices operate within the ontological frame of the majoritarian culture, if we are to transform it, we (feminists) better break the cage of dialectics. Second, the solution must include an embodied take on science making to break the mould of reiterating modern ontologies and ethics with our new technologies. This is already taking place by challenging, as du Châtelet had, the boundaries of perception as an epistemological as well as an ontological project, reversing the centuries of Cartesian and Newtonian isolation of the mind as a project of superiority, forgoing our embodied and embedded experiences is, in fact, devoid of logic.

On the cusp of a new technological revolution, that of AI, it is time to take stock of what the axes of knowledge converging with bodies are and reclaim science. As a final thought, it is from the non-defined boundaries between physics and philosophy that du Châtelet’s work emanates, re-drawing inter-disciplinary relationality has never been so needed.

46 See Barad, “Posthumanist Performativity,” 811–815.

47 See Barad, “Posthumanist Performativity,” 810.

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Karen Barad and the Unresolved Challenge of Collectivity: A Case for New Materialisms

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Abstract:

In this paper, I start by pointing out that despite their differences, Slavoj Žižek and Karen Barad share an understanding of the notions of relationality, processuality, and immanence as central tenets of materialist philosophy. As I argue, however, it is collectivity that acts in both Žižek's and Barad's works as a safety valve that lends immanence, processuality, and relationality their materialist quality. To support this argument, I demonstrate that certain forms of collectivity underlie the passage from Werner Heisenberg's uncertainty to Niels Bohr's indeterminacy in Barad's interpretation of Bohr's 'philosophy-physics'. However, I claim that there is a further form of collectivity, which I call 'collectivity as inclusive and holistic overdetermination', that Barad overlooks and that conditions the *indeterminability* of indeterminacy. As I argue, the latter also has implications for political agency. I conclude by briefly sketching out how these forms of collectivity can determine the production of subjectivity and, as a consequence, shape the subject's collective action.

I. Materialism as Collectivism

In this article, I attempt, first, to rethink the concept of collectivity within the framework of new materialisms. To do so, I take into account Karen Barad's, one of this movement's figureheads, agential materialism. Thereby, I demonstrate how collectivity permeates—both intentionally and unintentionally—Barad's conceptualisation of matter, the way that matter is structured, and, lastly, the relationship between the different material elements. Nevertheless, this article has a further second objective, namely, to show how collectivity is an essential part of any thinking of materialism. By rethinking materialism as what I have called elsewhere "a collective science,"¹ my aim is to rehabilitate both materialism and collectivity as a way of thought and mode of practice that opposes a differential and inclusive, i.e., collective understanding of subjectivity to the liberal and solipsist understanding of the subject as an atom. As I argue, this has a further—severe—consequence in regard to the subject's political practices: if the subject is to be

1 Thomas Telios, "Shrapnels: Jacques Derrida's *Theory and Practice*: Towards an Enigmatic Materialism of Hope," *Symposium. Canadian Journal for Continental Philosophy* 27, no. 1 (2023): 77–95.

considered as a collective entity, then also this collective subject's practices cannot but be also collective. The latter entails, however, that also the subject's relationship to its/the Other as well as the way that the subject and its/the Other can work with one another, must be reconsidered. As I intend to make plausible, it is only from the viewpoint of such an understanding of collectivity as the way, relationship, and condition of subjectivity production as well as the regime of how subjectivity relates dependently to its/the Other that materialism can avoid regressing into what Barad aptly describes as the "the metaphysics of individualism."²

Notwithstanding, this should not mean that such an account of collectivity is missing only from Barad's—emerging—neo-materialist understanding of materialism. Collectivity as a structural and constitutive element of materialist thinking and not only as a promising concept of organization of practice like, for instance, in the form of the proletariat, the multitude, etc., is, in general, absent from the materialist edifices. Take, for example, one of the most robust and opulent recent understandings of materialism, namely Slavoj Žižek's Hegelian-Lacanian conception of materialism. In his *Afterword: Lenin's Choice*, Žižek examines whether Theodor W. Adorno's concept of the "predominance of the objective" and Vladimir I. Lenin's "theory of reflection" qualify as materialist concepts. In the course of his discussion, he debunks externality as an idealist trap to which both Adorno and Lenin, despite their fervent attempts, ultimately fell prey. For Žižek, to assume that an externality (like an object or a social situation) is the determining factor of the subject leads to the diremption of an outer, ideal, absolute world that serves as the ultimate determining factor of the subject's constitution and thereby results in a Trojan horse that reintroduces idealism through the back door. Against this "pseudo-problematic of the thought asymptotically approaching the ever-elusive 'objective reality,' never able to grasp it in its infinite complexity,"³ Žižek argues for an understanding of materialism according to which it is "the absolute *inherence* of the external obstacle which prevents thought from attaining full identity with itself."⁴ Rather than "clinging to the minimum of objective reality *outside* the thought's subjective mediation,"⁵ Žižek's immanent understanding of materialism consists of two elements: The first is the internalisation of the external object which from that point on appears as having always-already—to use an Althusserian expression—been inherent in the subject's mode of being. The second counts as a species of materialism, any epistemological or practical-political operation that prevents the subject from completely grasping itself by dirempting it from itself,

2 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham: Duke University Press, 2007), 393.

3 Slavoj Žižek, "Afterword: Lenin's Choice," in *Revolution at the Gates: A Selection of Writings from February to October 1917*, ed. Slavoj Žižek (London: Verso, 2002), 179.

4 Žižek, "Afterword: Lenin's Choice," 179.

5 Žižek, "Afterword: Lenin's Choice," 179.

thus opening up a gap between the subject and itself. This is because “materialist” is a term that can apply to anything that is already given (and therefore immanent) and that, by being internalised, prevents the subject from becoming finite, that is, from being identified and determined.

These topics are again taken up in more detail in Žižek’s *The Parallax View* (2006). Two additional elements are added to that of immanence in order to form what we might call the *materialist triad*: relationality and processuality. Whereas immanence answers the question of “how, from within the flat order of positive being, the very gap between thought and being, the negativity of thought, emerges,”⁶ Žižek (echoing Kierkegaard) defines processuality in terms of the need “not to overcome the gap that separates thought from being, but to conceive it in its ‘becoming.’”⁷ Concerning relationality, the subject acquires its processual mode of perpetual be(com)ing because it appears as the “reflexive twist,” a “necessary redoubling of myself as standing both outside and inside my picture, that bears witness to my ‘material existence.’”⁸ These three characteristics constitute what Žižek calls the *parallax moment*, which encapsulates the following insights: (a) what we know as the subject is the result of the strained relation between the subject and its *potential* self (relationality); (b) the subject, therefore, sees itself as forced to remain open and in a state of *iterative* becoming (processuality); (c) the external determinant of the subject will be *internalised* and—more importantly—will appear as having *always* been an integral part of the subject’s identity (immanence). Seen in this way, the parallax moment is not a concrete moment or instance within the subject’s temporal process of be(com)ing. Rather, it corresponds to the realization that subjectivity is tantamount to the chasm that necessarily emerges as soon as thought tries to conceive of itself, or—as Žižek puts it: a “gap which separates the One from itself.”⁹

In what follows, I argue that it is collectivity that must be acknowledged as the safety valve that guarantees that immanence, processuality, and relationality can avoid the idealist pitfalls and unfold their materialist qualities. To substantiate my argument, I turn to the work of Karen Barad, one of the leading thinkers on new materialisms, whose understanding of materialism is also permeated by the notions of relationality, processuality, and immanence.¹⁰ As I demonstrate, collectivity underlies—in two subtle

6 Slavoj Žižek, *The Parallax View* (Cambridge: The MIT Press, 2006), 6.

7 Žižek, *The Parallax View*, 6 (emphasis added).

8 Žižek, *The Parallax View*, 17.

9 Žižek, *The Parallax View*, 17.

10 Žižek acknowledges the commonalities between Barad’s understanding of materialism and his own. While in his later book, *Absolute Recoil: Towards a New Foundation of Dialectical Materialism* (London, Verso, 2014), he accuses new materialists of rehumanising and anthropomorphising non-human material instead of de-idealizing or anti-essentializing it, in his earlier *Less than Nothing: Hegel and the*

but unequivocal forms—Barad’s explication of the transition from Werner Heisenberg’s uncertainty principle to Niels Bohr’s indeterminacy principle. However, there is a third form of collectivity that both conditions and serves as a foundation for indeterminacy, thus accounting for indeterminacy’s *indeterminability*. I call this form “collectivity as inclusive and holistic overdetermination,” and it is striking that Barad does not seize the opportunity to harness the promise of collectivity in this form. As I contend, however, in accordance with Dorothea Olkowski (2016), the latter has important repercussions both for the subject’s political agency and for the concrete forms of political practices that could be derived from it since it robs Barad of the chance to rethink the interdependence of the subject and its/the Other within this collective paradigm.¹¹ As will be shown, this disregard is more of a consequence of Barad’s understanding of materialism as informed through Jacques Derrida’s radical alterity than mere neglect. Therefore, in the last part of the article, I will try and sketch how thinking collectivity as “an inclusive and holistic overdetermination” could help us reconsider not only the subject’s structuration but also the way it relates to the Other as well as, ultimately, the kind of practices that could be derived from this collective structuration of the subject and the Other as a collective.

II. From Uncertainty to Indeterminacy: Collectivity as Ontological and Methodological Necessity

The significance of Barad’s contribution within and beyond the context of new materialisms cannot be put into question.¹² For the purposes of our discussion, Barad’s concept of agential realism seems to fulfil all three of Žižek’s criteria for materiality. Within the framework of her agential realism, matter is processual because it “does not refer to a fixed substance” but is rather “substance in its intra-active becoming—not a thing, but a doing, a congealing of agency. Matter is a stabilizing and destabilizing process of iterative intra-activity.”¹³ Further, and unlike traditional ontologies, matter’s agency manifests itself as a

Shadow of Dialectical Materialism (London: Verso, 2012), 931–944; he launches a more fundamental critique that pertains to the very core of what he conceives of as an indispensable element of materialism, namely dialectics. Notwithstanding Evelien Geerts and Iris van der Tuin’s profound and devastating critique in their “The Feminist Futures of Reading Diffractively: How Barad’s Methodology Replaces Conflict-based Readings of Beauvoir and Irigaray,” *Rhizomes: Cultural Studies in Emerging Knowledge* 30, (2016): 1–19; I would contend that dialectics is important because it defines—perhaps even *pace* Žižek—a collective and multi-layered process. Unfortunately, I cannot delve deeper into this debate here.

11 See Dorothea Olkowski, “The Cogito and the Limits of Neo-materialism and Naturalized Objectivity,” *Rhizomes: Cultural Studies in Emerging Knowledge* 30, (2016): 1–13.

12 See Katharina Hoppe and Thomas Lemke, “Die Macht der Materie. Grundlagen und Grenzen des agentuellen Realismus von Karen Barad,” *Soziale Welt* 66, no. 3 (2015): 261–280.

13 Barad, “Posthumanist Performativity: Toward an Understanding of How Matter Comes to Mat-

dynamism of forces. Bringing about the end of the constructionism that the discursive turn instantiated, Barad argues that the primary semantics of matter are neither material nor discursive but “material-discursive practices through which (ontic and semantic) boundaries are constituted.”¹⁴ Therefore, they are “strictly”¹⁵ relational, meaning that matter exists simultaneously as a relation and in a relation where all designated “things” are constantly exchanging and diffracting, influencing and working inseparably. The third element of Žižek’s materialist triad, immanence, is equally obvious. Were matter decipherable through its qualities, e.g., the positive or negative potentiality to act or cause (agency), then the results that matter brings about would be determinable and identifiable in advance. This would render agency external to matter since the actions and their results would be presumable before being materialised. As Barad claims, however, agency is neither “something that someone or something has”¹⁶ nor “an attribute.”¹⁷ Rather, it is “the ongoing reconfiguration of the world”¹⁸ and, therefore, a performative, immanent “enactment.”¹⁹ As we have seen, however, these three notions would not be materialist without an underlying understanding of collectivity that lends them their materialist character. To ascertain the latter, we must turn to Barad’s radical rereading of Bohr’s theoretical writings.

Barad’s goal in revisiting Bohr’s philosophy-physics is to develop a “coherent framework.”²⁰ To this end, she proposes agential realism as an overarching paradigm to bridge and address “both the epistemological and [the] ontological issues”²¹ at stake. The first part of Barad’s argument consists of unmasking Heisenbergian uncertainty as a mere epistemic assumption. As Barad’s rendition of Heisenberg’s uncertainty principle lays bare, “a determinate value of the electron’s momentum is *assumed* to exist independently of measurement, but we can’t know it; we remain uncertain about its value, owing to the unavoidable disturbance *caused* by the measurement interaction.”²² Bohr, however, is unsatisfied with such a merely epistemic assumption of uncertainty and articulates the need to corroborate it ontologically so as to authenticate it. The reason, according to Barad, is that concepts like uncertainty “are meaningful” for Bohr—“that is, semantically

ter,” *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 822; see also Karen Barad, “Nature’s Queer Performativity,” *Qui Parle* 19, no. 2 (2011): 125.

14 Barad, *Meeting the Universe Halfway*, 141.

15 Hanna Meißner, “Conversing with the Unexpected: Towards a Feminist Ethics of Knowing,” *Rhizomes: Cultural Studies in Emerging Knowledge* 30, (2016): 1–19.

16 Barad, “Posthumanist Performativity,” 826.

17 Barad, “Posthumanist Performativity,” 818.

18 Barad, “Posthumanist Performativity,” 818.

19 Barad, “Posthumanist Performativity,” 826.

20 Barad, *Meeting the Universe Halfway*, 69.

21 Barad, *Meeting the Universe Halfway*, 69 (emphasis added).

22 Barad, *Meeting the Universe Halfway*, 116 (emphasis added).

determinate, not *in the abstract* but by virtue of their *embodiment* in the physical arrangement of the apparatus.”²³ From this perspective, uncertainty, too, must be divested of its pure epistemic character since the latter is the result of certain “conditions of possibility.”²⁴ Uncertainty may well express an epistemic necessity, but this is neither *metaphysically* nor *transcendentally*, but rather *ontologically* conditioned. And this leads Bohr (and Barad) to shift the conceptual framework and supplement uncertainty with indeterminacy. While uncertainty could be misunderstood as connoting a stage of “unknowability *per se*,” indeterminacy should make clear that what only *seems* unknowable in reality *designates* the impossibility of pinpointing it to a single measurement *because* of “what can be said to *simultaneously* exist.”²⁵ Uncertainty thus becomes the epistemic form of an unavoidable delimitation imposed upon our cognitive horizon by the simultaneous (i.e., synchronous) existence of matter, rendering it not just uncertain but indeterminate. It is not impossible to know; nor is it uncertain whether we can know. On the contrary, what we know is indeterminate because it assembles *as* or *in* itself and bears within it, at each and every moment, the simultaneous co-existence of more than one measurement, meaning and location, making it impossible to single out which of those measurements, meanings and locations is uniquely responsible for what we know. In this light, indeterminacy is not the impossibility of determining something. Rather, it describes the awareness that what exists consists of more than one property, quality, or measurement. This accomplishes the paradigm shift from uncertainty to indeterminacy. By acknowledging that “what can be said to *simultaneously* exist”²⁶ functions as the ontological “condition of possibility” of what can be known to exist, Bohr (and Barad) found themselves obliged to supplement uncertainty with indeterminacy. However, as I will presently show, it is collectivity that conditions not only the paradigm shift from uncertainty to indeterminacy but also the conditions of indeterminacy, thus becoming the reason for indeterminacy’s *indeterminability*. In order to comprehend this, however, we need to take a step back and examine the forms of collectivity that permeate Barad’s reconstruction of Bohr’s philosophy-physics.

Thus far, collectivity has already appeared—subtly, but unequivocally—twice. It first appeared in the form of a *methodological necessity*. By postulating, with Bohr, that uncertainty needs to be understood as the result of an ontological structuration, Barad draws attention to the fact that in order to comprehend what is observed, we need to analyse it by taking into account not only its epistemic complexities (pertaining to *how* knowledge is possible) but also its ontological structuration (pertaining to *what* lies at hand and needs to be learned). Pure or abstract epistemological axioms on their own are not sufficient to provide us with insights concerning the nature of matter, just as pure facts

23 Barad, *Meeting the Universe Halfway*, 116 (emphasis added).

24 Barad, *Meeting the Universe Halfway*, 117.

25 Barad, *Meeting the Universe Halfway*, 118 (emphasis added).

26 Barad, *Meeting the Universe Halfway*, 118 (emphasis added).

are insignificant without epistemic interpretation. For Barad, theoretical principles—no matter how painstakingly reconstructed—must be corroborated by empirical reality.²⁷ And epistemology must be rectified with a *collective* understanding in which theory and practice inform each other in a reciprocal, mutual, and egalitarian fashion.

The second time collectivity springs forth is when both the *essence* of the structural mode and the *organisational structure* of this material reality is itself recognised as being collective in its structuration. Not only does the method of observation need to leave its solipsistic character behind and become collectivized. More importantly, the material reality in question is to be regarded as a collective one since what exists can only be asserted as existing in a simultaneous manner. This bears witness to the existence of more than one matter, meaning that if we are to grasp matter in its complexity, we must take into account its plurality, as well as the ways in which (types or bits of) matter relate(s) to (other types or bits of) matter. Matter's mode of existence is simultaneity, and as such, it is impossible for matter to persevere solipsistically on its own. Whereas the form of collectivity as a methodological necessity refers to the metatheoretical framework necessary for approximating matter, this second form of collectivity refers to how matter is structured. This is not to say that this form of collectivity is the result of a mental or conceptual perception process that dogmatically dictates us to impose upon the material reality a collective mode of its organisation. Rather, it is the differential, diverse, and simultaneous co-existence of different types of matter that forces our perception to collectivise our epistemological tools in order to grasp it in its variety and plurality. For this reason, it is appropriate to speak of this type of collectivity as an *ontological necessity*.

If this diagnosis is correct, then the forms of collectivity that underlie Barad's reconstruction of Bohr's philosophy-physics cast a new light on two elements that are also crucial to Barad's theory of agential realism: her theory of subjectivity and her concept of agential cuts. Barad is undoubtedly right to seek to put an end to "the metaphysics

27 Therein, Barad is still close to the classic or Western Marxist understandings of epistemology. For the young Marx, epistemic truths can assume themselves as such only if confirmed (*bestätigt*), as he says, from the empirical reality they attempt to capture and only by acknowledging the limitations that the social context and social interactions within which were generated impose upon them (see Karl Marx, *Economic and Philosophic Manuscripts of 1844* and *The Communist Manifesto* (Buffalo: Prometheus Books, 1988), 104–5). Similarly, Theodor W. Adorno disowns *scientific solipsism*, i.e., the idea that science is to be understood as a self-contained system of principles and deductions and that this method can be applied in an undifferentiated manner to both the natural and the social sciences. Instead, he pleads for constellational thinking, as he terms it, leaning on Benjamin, that underscores the dependency of scientific thought on societal presumptions that are framed within concrete ideological limitations (see Theodor W. Adorno, "Why still Philosophy?" in *Critical Models. Interventions and Catchwords*, ed. Henry W. Pickford (New York: Columbia University Press, 1998), 5–18).

of individualism.”²⁸ By illustrating, via her notion of intra-action, that the individual is not an integral entity but instead an entanglement—and therefore subject to processes and mechanisms of continuous and incessant re-articulation, reconfiguration, and recalibration—she makes an invaluable plausible contribution to the ongoing debate on decentering subjectivity. The forms of collectivity as ontological and methodological necessity help to elucidate some of the most difficult and hermetic passages of Barad’s conceptualisation of subjectivity. Take, for instance, Barad’s assumption—a direct critique of Butler’s understanding of subjectivity as a “place-holder”²⁹—that there is “no discrete ‘I’ that precedes its actions”³⁰ or that there is “no ‘I’ separate from the intra-active becoming of the world.”³¹ The notion of collectivity as an ontological necessity helps to relativise the metaphysical tone that such an assumption could implicate by highlighting the processual and historical nature of intra-actions. Intra-actions, just like the mechanisms that condition their emergence and the indeterminacy that characterises their interplay, are not metaphysical assumptions that need to be presumed. If this were the case, then Barad would have to fall back on the epistemic metaphysicalism of Heisenberg’s uncertainty principle, which was merely declared but not ontologically corroborated until Bohr undertook and fulfilled this task. Rather, indeterminacy and intra-actions exist and can unravel their interminable functionality only thanks to a *prefigured* collection or assemblage of entities that will subsequently, at a later stage, intra-act with one another. Further, it is thanks to the underlying, this time methodological, form of collectivity that we can make sense of Barad’s argument that “our (intra)actions [...] never leave us” but are instead “sedimented into our becoming.”³² And for Barad, it is, of course, the subject as a collective sedimentation that springs forward from the interplay of the different intra-actions and that comprises the innumerability of intra-actions that brought it forward. Barad calls such phenomena *agential cuts* and defines them as “boundary-drawing practices.”³³ They allow us to conceive of the subject’s structuration from within, i.e., by taking, each and every time, a different interplay of intra-actions as the dominant causality of the subject’s emergence *without* having to appoint and elevate one of these different causal explanations to the subject’s sole causality. This notwithstanding, the *agential separability* that enables a viewpoint of “exteriority-within-phenomena”³⁴ does not render the subject non-determinable. Rather, the subject must be approximated as an *indeterminate* entity, meaning that it emerges as a complex entity that bears within it all possible significations that were “sedimented into [its] becoming,” demanding—in the

28 Barad, *Meeting the Universe Halfway*, 393.

29 Judith Butler, *The Psychic Life of Power* (Stanford: Stanford University Press, 1997), 10f.

30 Barad, *Meeting the Universe Halfway*, 394.

31 Barad, *Meeting the Universe Halfway*, 394.

32 Barad, *Meeting the Universe Halfway*, 394.

33 Barad, *Meeting the Universe Halfway*, 140.

34 Barad, *Meeting the Universe Halfway*, 140.

spirit of what was diagnosed as the underlying form of methodological collectivity—to be approached, not by clinging to a single dominant narrative but by incorporating as many viewpoints as were entangled in the subject's process of structuration.

If, as Barad postulates, entanglement leads to “cutting things together and apart,”³⁵ then there must nevertheless be a moment, albeit a fugitive one, where the elements that were cut together and apart can be thought of as already existing in a sort of relationship and not as just floating in a state of unidentified and unidentifiable limbo before entering new processes of articulation.³⁶ This logical observation demands that a further model of reflection be introduced—one that is capable of theorising this inherent relationality and interdependence of the different material units on one another by bringing to the fore this necessary operation of keeping apart what cannot but be considered jointly. As will be imminently shown, this preexisting interwovenness of matter can neither be addressed as an amorph mass nor be exhausted in bipolar or binary inter-elemental relationships. Rather, matter exists and appears through entanglements of matter and then again through entanglements of the entanglements *by mode of collectivity*. Within this framework, not only is indeterminacy manifested as the result of intra-action, but intra-actions should also be seen as the result of collections of matter that provide the material for entanglements, and that must be acknowledged as having to exist both prior to and through entanglement. In this light, emphasising the dependence of intra-action on the collectivity of matter that precedes it is not tantamount to arguing for “the prior existence of separately determinate entities,”³⁷ which would indeed be a characteristic of metaphysical individualism, of which Barad is right to warn us.³⁸ On the contrary, making intra-actions conditional on an already prefigured collectivity of matter runs counter to the metaphysics of individualism because it opposes the metaphysical solipsism of individualism to the preexisting plurality and complexity of collectivism.

As soon as not only subjectivity but every material entity must be understood as being part of a preexisting collectivity to which it must be juxtaposed, a third type of collectivity begins to shimmer through. This model of collectivity acquires the form of an *inclusive and holistic overdetermination* that neither simply ontologically conditions the subject's (or *mutatis mutandis* the matter's) epistemic indeterminacy nor simply demands that a plural methodology be applied to render it decipherable. More fundamentally, this type of collectivity seems to serve as a condition of indeterminacy, thus functioning as *indeterminacy's indeterminability*. In order to grasp where the third form of collectivity

35 Barad, *Meeting the Universe Halfway*, 140.

36 Antonio Gramsci calls this gap between entanglements an “interregnum”: Antonio Gramsci, *Selections from the Prison Notebooks*, ed. and trans. Quintin Hoare and Geoffrey Nowell-Smith (London: Lawrence & Wishart, 1971), 276.

37 Barad, *Meeting the Universe Halfway*, 394.

38 Barad, *Meeting the Universe Halfway*, 128.

emanates from, we need to revisit the—hitherto only roughly mentioned – notion of inseparability, which is central to Barad’s account of Bohr’s philosophy-physics.

III. From Indeterminacy to Indeterminability: Collectivity as Holistic and Inclusive Overdetermination

Turning now to Barad’s notion of inseparability, it is important to mention that Barad does not introduce this concept to designate a state in which, due to the inherent complexity of entities that intertwine or overlap with one another, it is impossible to ascertain where the traces of agency lead back to. Rather, inseparability arises because those traces of agency that produce matter are overdetermined and therefore lead back to more than one etiological *causae*. In this light, inseparability does not connote the ontological quality of the inability to decipher and discern, which then renders the identification of matter impossible. Instead, inseparability confirms and acknowledges the epistemological insecurity of providing a sole and exclusive account of the production of matter. This renders the different accounts, retellings and narratives of how matter comes into being — processually, relationally and immanently — contingent, as Barad correctly asserts. Nevertheless, the surrounding collectivity of matter, which sets in motion the processes of entanglement from which matter emanates and which provides the framework out of which these contingent narratives unravel, must be acknowledged as having to be necessarily ‘always-already’³⁹ at play. Therefore, while the different narratives of how matter comes to be are contingent, the collectivity is not contingent but *necessary*. In other words: The different accounts of how matter comes into existence or the alternative paths it could have taken may be contingent and as such indicative of the openness of matter production. The diversity of matter production, as well as the singularity of the produced matter, *necessarily* depend, however, on the collection of various preexisting elements which enframe them.⁴⁰ But that’s not all: In the framework sketched here, the notion of contingency also needs to be revisited since it does not designate amorphousness or uncertainty. Rather, it refers to the infinite variations of overdetermination that cannot but be logically assumed to entangle with one another in a parallel and simultaneous —

39 Louis Althusser, *Lenin and Philosophy and other Essays* (New York: Monthly Review Press, 1971), 176. Commenting on her earlier work (Iris van der Tuin and Rick Dolphijn, “The transversality of new materialism,” *Women: A Cultural Review* 21, no. 2 (2010): 153-171), Iris van der Tuin argues that “a new materialism is always already at work in the humanities” (“The New Materialist ‘Always Already’. On an A-Human Humanities,” *NORA-Nordic Journal of Feminist and Gender Research*, 19, no. 4 (2011): 285). In a similar vein, I would even argue that collectivity is always already at work both in materialism and in the humanities.

40 The reverberations of Martin Heidegger’s notion of “Enframing” (*Gestell*) are hard to miss here. See Martin Heidegger, *The Question Concerning Technology and Other Essays* (New York: Harper, 1977), 20.

this is, *necessarily collective* — way. Only from this perspective, can materialism deal a fatal blow to the metaphysics of individualism. By historicizing the subject upon conditioning it from (a form of) collectivity that is both *holistic* and *inclusive*, materialism appears as a form of analysis that can accommodate all matter, leave nothing outside, and, by convoluting the etiological chains of matter's emergence, forces matter to become (and – more importantly – remain) overdetermined since it can never again be thought of in its individuality but as the result of entangling collectivities.⁴¹

It is in this additional form as *holistic and inclusive overdetermination* that collectivity concludes the paradigmatic shift from uncertainty to indeterminacy and from indeterminacy to indeterminability. If uncertainty were found to be the epistemic guise of an ontologically conditioned indeterminacy that was the result of entanglements that needed a complex and plural methodological framework in order to be deciphered, then the collectivity of matter that preexists its every dis-entanglement would be the *raison d'être* and condition of indeterminacy. The holism of collectivity as overdetermination debunks the individualism of matter by demonstrating how matter is entanglement *per se* and how, behind the façade of matter's singular appearance, there is always collectivity at play, which at the same time ensures that individualism will not appear by supplementing metaphysics with historical processuality. Matter combines within itself the collective character of its eventuation and its solipsistic and individualistic appearance by hiding the former behind the latter. In parallel with the forms of collectivity as a methodological and an ontological necessity, collectivity expresses, in the form of *holistic overdetermination*, the logical necessity (i) of keeping apart what at a second stage will be considered entangled and (ii) of searching for the entanglements that always lie behind an individualist façade. However, if collectivity's holism functions as the structural conditionality of indeterminacy by overdetermining it, as we have seen, then collectivity as not only holistic but also inclusive overdetermination conditions the politicality of collectivity. In order to address the latter, we need to reexamine the role that the concrete social Other plays within Barad's theoretical framework.

41 At this point, Barad is very close to Judith Butler's counter-offensive against those involved in "a war on the idea of interdependency" (see Judith Butler, *Notes Toward a Performative Theory of Assembly* (Cambridge: Harvard University Press, 2015), 67). At the same time, and as Kathrin Thiele accurately points out, she is also very close to "the quest of immanence" that Deleuze and Guattari initiated when they conceived of "an ontology that ... imagines an 'immanence immanent only to itself'" (see Kathrin Thiele, "Quantum Physics and/as Philosophy: Immanence, Diffraction, and the Ethics of Mattering," *Rhizomes: Cultural Studies in Emerging Knowledge* 30, (2016): §3).

IV. Rethinking Alterity: On Collectivity as a Political Program

In her most recent work, Barad defends some of her most relevant earlier concepts from critiques they have received. First, Barad redefines and strings together her notions of agential cuts, intra-actions, entanglement and agential separability as follows:

*Agential cuts – intra-actions – don't produce (absolute) separation, they engage in agential separability – differentiating and entangling (that's one move, not successive processes). Agential cuts radically rework relations of joining and disjoining. Separability in this sense, agential separability, is a matter of irreducible heterogeneity that is not undermined by the relations of inheritance that hold together the disparate without reducing difference to sameness. Entanglements are not a name for the interconnectedness of all being as one, but rather specific material relations of the ongoing differentiating of the world.*⁴²

In addition to rethinking some of her own older notions, Barad introduces two new notions: that of “cutting together/apart”⁴³ and that of “(be)coming together-apart.”⁴⁴ These two neologisms connote the “iterative (re)configuring of patterns of differentiating-entangling,”⁴⁵ the “coming together of opposite qualities within, not as a flattening out or erasure of difference, but as a relation of difference within,”⁴⁶ and, last but not least, a “dis/jointed movement ... *that is the hauntological nature of quantum entanglements.*”⁴⁷ The latter formulations can be interpreted as alluding to traits and fundamental operations of materialism as a collective science in the above-sketched way. When Barad emphasizes that cutting together-apart designates “one move”⁴⁸ or that—as quoted above—differentiating and entangling consist of one sole move rather than successive moments in a (mono-)linear process, we can interpret this as implying the form of ontological collectivity. There, just as here, cutting together-apart could be assumed to indicate the collective movement that pertains to bringing distinctive matter together and letting it merge and entangle, before dispersing it and gathering it anew. Furthermore, superposition, although not a new concept, seems to slowly move us away from the idea of representing “*ontologically indeterminate states,*”⁴⁹ coming closer to what Barad only recently described as the ability

42 Karen Barad, “Quantum Entanglements and Hauntological Relations of Inheritance. Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come,” *Derrida Today* 3, no. 2 (2010): 265.

43 Barad, “Quantum Entanglements and Hauntological Relations of Inheritance,” 244.

44 Karen Barad, “On Touching. The Inhuman That Therefore I am,” *Differences. A Journal of Feminist Cultural Studies* 23, no. 3 (2012): 208.

45 Karen Barad, “Diffracting Diffraction. Cutting Together-Apart,” *Parallax* 2, no. 3 (2014): 168.

46 Barad, “Diffracting Diffraction,” 168.

47 Barad, “Quantum Entanglements and Hauntological Relations of Inheritance,” 245.

48 Barad, “Quantum Entanglements and Hauntological Relations of Inheritance,” 245.

49 Barad, *Meeting the Universe Halfway*, 265.

to be at the same time here and there, now and then, dead and alive,⁵⁰ and which was referred to here as collectivity in the form of holistic and inclusive overdetermination. Last, but not least, the notion of multiplicity—though not *stricto sensu* a technical term in her earlier work—seems to gradually move to the foreground and connote something like a collective methodology. These similarities should suffice not only to substantiate Barad’s alleged “Derridean turn”⁵¹ but to point towards a “collective turn” in Barad’s work that should not go unnoticed. As I argue, though, it is exactly due to this novel but discernible recent trend in Barad’s work that her theory becomes vulnerable to critique.

Thus far, I have shown that although Barad seems to acknowledge collectivity as both a methodological and an ontological necessity, she overlooks collectivity in the form of a holistic and inclusive overdetermination, which ultimately leads her to misjudge necessity as a modality inherent to collectivity. As mentioned in the introduction, this has serious consequences for forms of political agency and forms of political practice. Moving on now to address the latter, we must approach this issue independently of the question of whether Barad is aware of the collectivist paradigm underlying her work. Regardless of whether Barad would concede that a collectivist paradigm underlies her work, she is nevertheless conscious of the fact that, within her new-materialist, feminist body of thought, every conventional notion is to be subjected to reconceptualization. As she emphatically declares: “Quantum entanglements are not the intertwining of two (or more) states/entities/events, but a calling into question of the very nature of two-ness, and ultimately of one-ness as well. Duality, unity, multiplicity, being are undone. ‘Between’ will never be the same. One is too few, two is too many.”⁵² Furthermore, it would be unfair to presume that the potential for an actualized concept of collective and political agency or an actualized catalogue of collective practices has eluded Barad’s attention. As she states, commenting on Butler and echoing Badiou: “Any proposal for a new political collective must take account of not merely the practices that produce distinctions between the human and the nonhuman but the *practices through which their differential constitution is produced*.”⁵³ This last quote should suffice to show that recognizing and theorizing the role and functionality of collectivity at play also serves Barad as a propaedeutic for carving out a new framework for political agency and new forms of collective practices. Within this collective framework, however, which seems to increase in importance in her recent work, the hitherto modes of entanglement between the Other and the subject must be

50 Cf. Barad, “Quantum Entanglements and Hauntological Relations of Inheritance,” 250.

51 Evelien Geerts and Iris van der Tuin, “The Feminist Futures of Reading Diffractively: How Barad’s Methodology Replaces Conflict-based Readings of Beauvoir and Irigaray,” *Rhizomes: Cultural Studies in Emerging Knowledge* 30, (2016): §20 FN21.

52 Barad, “Quantum Entanglements and Hauntological Relations of Inheritance,” 251, and Barad, “Diffracting Diffraction,” 178.

53 Barad, *Meeting the Universe Halfway*, 59.

recalibrated so as to account for the different circumstances in which the subject and the Other encounter each other. It is through the lens of the Other, of how the Other is addressed, of how the subject relates to its/the Other and, lastly, of how the subject's collective structuration as a collective necessitates that the subject labors with its/the Other that I would like—in what follows—to both scrutinize and challenge the political potential of Barad's understanding of materialism. The reason is that if collectivity, as argued so far, is the necessary methodological, ontological, and normative warrant of materialism's materiality that protects materialism from regressing to a reverse idealism, then the political practices of such an inherently collective materialism can only be collective which means that they must be carried out from the subject in cooperation and solidarity with its/the Other. While this is undoubtedly still a very abstract way of talking about politics, I think that the framework that will be provided will still suffice in order to inspire considerations on the concrete forms of political practices that could be extrapolated from such a grounding of the Political.

Unfortunately, Barad does not take the step of fundamentally rethinking the functionality of Otherness and the role of the Other in her theory. Instead, she remains confined to the all too familiar post-Derridean (ethical) politics of alterity. As she writes, echoing Derrida's radical alterity program of the 1980s and 1990s:

Entanglements are relations of obligation – being bound to the other – enfolded traces of othering. Othering, the constitution of an 'Other,' entails an indebtedness to the 'Other,' who is irreducibly and materially bound to, threaded through, the 'self' – a diffraction/dispersion of identity. "Otherness" is an entangled relation of difference (*différance*). Ethicality entails noncoincidence with oneself.⁵⁴

Failure to overcome the intrinsic limitations of the Derridean framework does not mean that the politics of alterity have forfeited their radicality or that they have run out of steam. Quite the contrary: Alterity, just like critique, retains (the latter even *contra* Barad and Latour whom Barad directly quotes in an interview at the advent of the new-materialist turn)⁵⁵ its radical political potential – perhaps scathed, but certainly intact. Nevertheless, and unlike recent conceptualizations that have probed the challenges and newly found potentialities of the collectivist paradigm for thinking of notions such as alterity and

⁵⁴ Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 265.

⁵⁵ Rick Dolphijn and Iris van der Tuin, *New Materialism: Interviews & Cartographies* (London: Open Humanities Press, 2012), 49. See also Bruno Latour, "Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern," *Critical Inquiry – Special issue on the Future of Critique* 30, no. 2 (2004): 225–248.

critique,⁵⁶ Barad thinks that the Derridean framework of an ethics of radical alterity also encompasses her own new-materialist and feminist onto-epistemological framework. The latter pertains to her clearly Derridean assumption that entanglements *oblige*: by declaring that the subject comes into being only through entanglements, Barad allows for a shifting and deferment between the subject's actual, not-yet-entangled form and its prospective, entangled and accomplished form. This generates a gap within the subject where its previous, former form becomes dependent on its prospective, consequent form. For Barad, this diremption connotes an understanding of ethicality which "entails noncoincidence with oneself."⁵⁷ Derrida had claimed something similar for himself when he argued that "what I have attempted can *also* be inscribed under the rubric of the 'critique of idealism.' Therefore, it goes without saying that to the extent that dialectical materialism also operates this critique, it in no way incurs my reticence, nor have I ever formulated any on this subject."⁵⁸ By equating, as I think we should, Derrida's critique of idealism with Barad's attempt to put an end to "the metaphysics of individualism," it should be obvious why Barad feels comfortable moving within the Derridean paradigm.⁵⁹

However, it is precisely this identification with Derrida that prevents Barad from harnessing the full potential of the collective paradigm when it comes to sketching out ethical and political "questions of responsibility and accountability [that] lie at the core of scientific practice."⁶⁰ This is not to say that Barad disregards or discards collective action and agency as agential possibilities of her entangled materialism since that would mean that she forfeits her anti-humanist, anti-essentialist and anti-idealist framework. As she undoubtedly claims: "Agency is not about choice in the liberal humanist sense; agency is about the possibilities and accountability entailed in reconfiguring material-discursive apparatuses of bodily production, including the boundary articulations and exclusions that are marked by those practices."⁶¹ Further, echoing herein Badiou,⁶² Barad

56 See Thomas Telios, "Why still Reification? Towards a Critical Social Ontology," in *Georg Lukács and the Possibilities of Critical Social Ontology*, ed. Michael Thompson (Leiden: Brill, 2019), 223–266.

57 Barad, "Quantum Entanglements and Hauntological Relations of Inheritance," 265.

58 Jacques Derrida, *Positions* (Chicago: The University of Chicago Press, 1981), 62.

59 Moreover, and if, as seen above, (i) for Žižek materialism is "the absolute *inherence* of the external obstacle which prevents thought from attaining full identity with itself" (Žižek, "Afterword: Lenin's Choice", 179); (ii) Barad's understanding of ethicality "entails noncoincidence with oneself" (Barad, *Meeting the Universe Halfway*, 265); and (iii) Derrida is right—as I think he is—to equate dialectical materialism with his own critique of idealism, then this may be, if not the only, then at least one of the very few points where Derrida, Barad and Žižek are aligned with one another.

60 Barad, *Meeting the Universe Halfway*, 37.

61 Barad, *Meeting the Universe Halfway*, 218.

62 This point bears a further uncanny similarity to Alain Badiou, particularly to his dictum that revolution must "impose itself on all the elements that help to bring about its existence;" Alain Badiou, *The Communist Hypothesis* (London: Verso, 2010), 208.

clearly intends to ground collective actions holistically and immanently, i.e., as actions that leave no one behind *and* are performative-historical in their origination, meaning that they are not metaphysically or representationally grounded. In addition, it must be added that Barad is in principle not opposed to collectivity as a fundamental mode of articulation of societal and political reality. After all, and as her reference to Latour's etymological derivation of the collective nature of things shows,⁶³ what Barad contests is not the collective structuration of reality, but rather how privileging collectivity and accepting the eventual loss of singularity within such superindividual structures may bear witness to the existence of a certain "discourse power-knowledge nexus"⁶⁴ that countenances discursive constructionism over materialist objectivity.⁶⁵

To what extent, then, does Barad's alignment with Derrida in regard to the relationship of the subject to alterity and Otherness prevent Barad from realising the expectations generated by the collectivist paradigm that lies in the background of her work? In my view, this pertains to the fact that by clinging to an incommensurable and irreducible Other, Barad cannot go all the way to collectivise the subject and to extrapolate a theory of collective-materialist subjectivity that acknowledges in the Other not only an obligor but the vector of the subject's subjectivation, and therefore, also the conditioning element of the subject's collective agency. Instead, for Barad, the Other cannot but remain asymptotic to the subject. The subject orbits around the Other but is never entangled by it. The subject and its Other inter-act but do not *intra-act*.⁶⁶

By contrast, and in light of the above analysis of the three forms of collectivity, a proper materialist entanglement such as those identified by Barad would extrapolate out of the subject an entity that is permeated by the Other to such an extent that it is impossible to differentiate between the subject and its/the Other. It would require that we acknowledge the interdependence of the subject and the Other and that we involve in our analysis of the subject's becoming all entangled modes of subjectivity production that encounter, intersect and in-form one another in/as the subject. At the same time, it would acknowledge the Other as more than a vector of these subjectivation processes. Rather, it would explicitly stress the necessity of including the Other in the subject's practices,

63 Barad, *Meeting the Universe Halfway*, 412, FN33.

64 Barad, *Meeting the Universe Halfway*, 412, FN33.

65 It would be easy to put the blame for Barad's reluctance to provide an elaborate toolkit of collective practices on Derrida and on Barad's identification with him. In this context, however, Derrida was steadfast in highlighting, for instance, the need for a deconstructionist "New International." When drafting his *Specters of Marx*, a work Barad keeps returning to in key passages of her recent work, he likewise highlighted the programmatic aspects that this "New International" had to combat; see Jacques Derrida, *Specters of Marx: The State of the Debt, the Work of Mourning, & the New International* (London: Routledge, 1994), 81.

66 This asymmetry is undoubtedly to be ascribed to the Derridean heritage that Barad follows.

since the subject only exists through the entanglements it experiences due to the Other's simultaneous existence. Finally, there could be no emancipation of the subject and its/the Other from each other but, as Martin Saar puts it, "collective self-determination"⁶⁷ of the subject and its/the Other *through* each other.

V. Outlook: Towards a Collectivist Understanding of Subjectivity

Acknowledging the subject's dependence on the Other that necessitates the subject's materialisation only *through* collective practices executed *with* the Other is what I would like to call a "collectivist understanding of subjectivity." To be honest, such a social-ontological understanding of subjectivity is nothing new; it runs like an undercurrent—even if a minor one—throughout the whole of Western philosophy, starting with Plato's notion of the multiformity of the body.⁶⁸ Undoubtedly, however, it was the critique of the integral and individualist subjectivity exulted by modernity that advanced a notion of the subject as shared, divided—or, as Marx paradigmatically put it, of a subject that is in its "individual existence at the same time a social being."⁶⁹ The series of notions that designate the subject's collectivity which are waiting to be sewn together is long, undoubtedly diverse, fragmented, and definitely not coherent. Yet all seem to correspond in one way or another to one of the three forms of the triptych of collectivity as developed here, namely, to collectivity as a methodological necessity, as ontological necessity, and as holistic and inclusive overdetermination. Immanuel Kant's "manifold," Georg W. F. Hegel's aphorism regarding the "'I,' that is, 'We,'" ⁷⁰ Friedrich Nietzsche's "Dividuum"⁷¹ (1996), Gilles Deleuze and Félix Guattari's notions of "disjunctive synthesis," or their understanding of subjectivity "as a collective assemblage,"⁷² and last but not least Cornelius Castoriadis's understanding of the psyche as "convoluted chaos"⁷³ (1987) have

67 Martin Saar, "What Is Social Philosophy? Or: Order, Practice, Subject," *Proceedings of the Aristotelian Society* 118, no. 2 (2018): 217.

68 The platonic original in *Phaedrus* reads "κατὰ σώματος μορφήν πολυειδές" see John Burnet, ed., *Platonis Opera Vol. 2: Tetralogiae III–IV* (Oxford: Oxford UP, 2019), §271a.

69 Karl Marx, *Economic and Philosophic Manuscripts of 1844 and The Communist Manifesto* (Buffalo: Prometheus Books, 1988), 102. The German original reads "in seinem individuellsten Dasein zugleich Gemeinwesen." For a more detailed reading of this Marxian quote as a basis of a theory of social-ontological subjectivation, see Thomas Telios, *Das Subjekt als Gemeinwesen. Zur Konstitution kollektiver Handlungsfähigkeit* (Baden-Baden: Nomos Verlag, 2021).

70 Georg W.F. Hegel, *Phenomenology of Spirit* (Oxford: Oxford UP, 2004), 110.

71 Friedrich Nietzsche, *Human, All Too Human. A Book for Free Spirits* (Cambridge: Cambridge UP, 2016).

72 Gilles Deleuze & Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (Minneapolis: University of Minnesota Press, 2005).

73 Cornelius Castoriadis, *The Imaginary Institution of Society* (Oxford: Polity Press, 1987).

helped precipitate the understanding of collectivity as a logically necessitated (social-) ontological collectivity that opposes to separation what cannot but be thought together. In parallel, Sigmund Freud's notion of "Überdeterminierung"⁷⁴ and Louis Althusser's notion of "surdétermination"⁷⁵ paved the way for understanding collectivity as holistic and inclusive overdetermination. Ultimately, the syntactical figure of parataxis used by Jean-François Lyotard⁷⁶ and Theodor W. Adorno⁷⁷ (1992) as well as the figure of the asyndeton used by Catherine Malabou⁷⁸ (2012) can be considered as precursors of collectivity as methodological necessity.

Let me now briefly sketch what we win by addressing the subject as a collective that needs to include its/the Other in order to (collectively) self-determine itself. The *first* key insight of a collectivist understanding of subjectivity and at the same time an insight that also serves to undermine the theoretical foundations of identity politics, is that subjectivity is an intersectional, i.e., overdetermined, entity.⁷⁹ This carries with it two implications: first, subjectivity comprises more than one identity, which corresponds to different ways of subjectivity production; second, all of these identities encounter each other in the subject's body. In order to gain a complete picture of the identities that the subject's body discloses, all existing modes of subjectivity production need to be taken into consideration. Not only language and linguistic discourses but also semantization processes, biological delimitations and conditions, procedures of aesthetic and ethical value production, class demarcations, geographical and climatic differences, social institutions and political apparatuses must be considered, since all of these run through the allegedly indivisible individual to subjectivate it and bring it forward as a collective being-in-common (*methodological collectivity*). To do this, however, and this would be the *second* key insight of a collectivist understanding of subjectivity, we need to address these modes of production in their irreducibility and incommensurability, before moving on to scrutinize the ways in which these identities entangle themselves to effectuate the singularity of every particular subject. In this light, institutions and apparatuses, just like the "Other" and "otherness", become simultaneously acting particles and constitutive elements, the entanglement and intertwining of which allows subjectivity to spring

74 Sigmund Freud, *The Interpretation of Dreams* (New York: Basic Books, 2010).

75 Louis Althusser, *For Marx* (New York: Penguin Press, 1969).

76 Jean-François Lyotard, *The Differend: Phrases in Dispute* (Minneapolis: University of Minnesota Press, 1988).

77 Theodor W. Adorno, "Parataxis," in *Notes to Literature, Vol. 2*, ed. Rolf Tiedemann (New York: Columbia University Press, 1992), 109–149.

78 Catherine Malabou, *Ontology of the Accident: An Essay on Destructive Plasticity* (Cambridge: Polity Press, 2012).

79 Regarding intersectionality as a theory of subjectivation that results in an overdetermined subjectivity, see my forthcoming article "The Subject as a Collective Event: Rethinking Intersectionality as Plasticity" in the *European Journal of Women Studies*.

forward (*collectivity as ontological necessity*). This heteronomous constitution of the subject as a collective demands, however, an ultimate *third* key insight: the subject gives up the liberal chimaera of it ever reappropriating itself as a free individual. The collective subject cannot emancipate itself from being determined. Instead, what it, nevertheless, can, is to give in to its collective structuration and to its dependence on its/the. Other in order to enter collective actions and “collectively self-determine”⁸⁰ itself. In doing so, the subject does not only get to reconfigure itself by acknowledging its dependence on its/the Other. More importantly, the subject gets to realize that its “collective self-determination” cannot but implicate also the “collective self-determination” of its/the Other (*collectivity as inclusive and holistic overdetermination*). This is, in conclusion, the contradictory, *dialectical*, promise of collectivist materialism: that only by succumbing to its heteronomous and collective structuration as a collective and only by acknowledging that the “collective self-determination” of the Other – on whom the subject structurally depends in order to be constituted—as the precondition of the subject’s own “collective self-determination”—can the subject reconcile itself and come to terms with its own way of production.

There is, undoubtedly, a lot left to be said. Yet, going back to where we started, it should now be clear why the concept of collectivity that saturates Barad’s work ensures that processuality, relationality and immanence retain their materialist character inasmuch as they prevent the subject’s thought from completing the circle of its identification with itself by collectivizing this process. Subjectivation remains an open and ongoing process, since the entanglements of the different material elements that contribute to its origination are forced to remain infinite (*processuality*). Furthermore, subjectivation as a collective process highlights how all modes of subjectivity production that are prior to the subject assemble each other in/as the subject (*relationality*). Finally, it is this preexisting social collectivity of (i) social and political institutions, (ii) the concrete social Other as a vector of subjectivation, and (iii) collective struggles embodied in the subject’s body that sets the scene for the subject’s emergence (*immanence*).

80 Martin Saar, “What Is Social Philosophy?” 217.

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