THE MATERIALITY & ONTOLOGY OF DIGITAL SUBJECTIVITY:
GRIGORI "GRISHA" PERELMAN AS A CASE STUDY IN DIGITAL SUBJECTIVITY

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Abstract

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New conditions of materiality are emerging from fundamental changes in our ontological order. Digital subjectivity represents an emergent mode of subjectivity that is the effect of a more profound ontological drift that has taken place, and this bears significant repercussions for the practice and understanding of the political. This thesis pivots around mathematician Grigori 'Grisha' Perelman, most famous for his refusal to accept numerous prestigious prizes resulting from his proof of the Poincaré conjecture. The thesis shows the Perelman affair to be a fascinating instance of the rise of digital subjectivity as it strives to actualize a new hegemonic order. By tracing first the production of aesthetic works that represent Grigori Perelman in legacy media, the thesis demonstrates that there is a cultural imperative to represent Perelman as an abject figure. Additionally, his peculiar abjection is seen to arise from a challenge to the order of materiality defended by those with a vested interest in maintaining the stability of a hegemony identified with the normative regulatory power of the heteronormative matrix sustaining social relations in late capitalism. The first chapter analyses the formal aesthetics of legacy media representations of Perelman. The second chapter focuses on new media aesthetic productions pertaining to Perelman and the political ontology of digital media. The third chapter interrogates the political ontology of the materials utilized in Perelman's work and seeks to clarify the status of the conditions of the challenge of a digital hegemony.

Acknowledgments

In many ways this thesis has changed a great deal since conception. This may well prove to be true of all academic work; experience will tell. Upon beginning to write, it quickly became apparent to me that the project as I had originally envisioned it would be more appropriate to a dissertation than an MA thesis, requiring, as it would, about seven chapters. I began with comparably little interest in either the aesthetic materials or conceptual work that has been made of abjection, thinking instead that I would be writing a delightfully dry and humourless text regarding the changing conditions of materiality as we enter a new digital era with a particular focus on the intersection of digital technology and contemporary topological inquiry. Where the former is a requisite material support for the pursuit of the latter, a number of fascinating questions concerning the relationship between ontology and mathematics in a digital age seemed in need of a worthy treatise. I was giddy at the prospect of tying myself into knots to solve this problem. This is not the document that I have produced. Indeed, undertaking such a project would require many years and more reams than I am able to devote to the current project. Those chapters absented from this document will continue to haunt me until I complete them.

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Introduction

This work argues that digital subjectivity is an emergent mode of subjectivity and makes the case that Grigori 'Grisha' Perelman is an instance of such. By grounding this analysis in the figure of Perelman as a case study, it became possible to draw out how generalizable cultural dynamics are at work in constructing this particular subject. The political stakes of this investigation extend to an understanding of the developing foundations of contemporary existence. The political ontology of the digital is shown to structure and predispose subjects to relating to and performatively (re)constructing what constitutes the materiality of an object in the world and interrogates the horizons of possibility for the political future of the commons in a digital ontology.

The first chapter presents the argument that Grigori 'Grisha' Perelman is an abject subject. It follows a lineage of thinkers pursuing the notion of abjection – from Julia Kristeva and Mary Douglas through the work of Judith Butler – and, in tracing this development, recognizes abjection not as a stable and fully constituted form of life, but something polysemic: abjection as noun and verb; as a state of becoming. Where much of the scholarship following Butler's thinking on abjection makes use of its absolutizing and monstrous effects and affects in the production of hegemonic modes of subjectivity, I will here be pursuing a more nuanced consideration of the richness of her texts as they stand to inform our reading of digital subjectivity. The cultural objects that are the representations of Grigori Perelman materialize an abject figure in transit: that is, the very indeterminacy of his status as an abject figure is illustrative of a foundational cultural transformation that is taking place. Perelman is (partially) rendered abject, and this abjection is non-totalizing. This is an effect of the emergence of digital subjectivity as a mode of subjectivity striving to actualize its hegemonic potentialities and situate itself in precisely the position of privilege whose

ubiquity and conceptualization of universality are so totalizing as to form the background against which all else is measured, rendering it invisible. For the sake of convenience, the mode of subjectivity that can be thought to occupy this position *avant le lettre*, as it were, and with which digital subjectivity competes, shall be referred to as analog subjectivity. For reasons that will be discussed below, this less than satisfactory terminological distinction is a necessary and necessarily erroneous point of departure.

  The second chapter further pursues the ontological status of Perelman as an embodiment of digital subjectivity by moving the focus toward the aesthetics of new media productions pertaining to Perelman. Of primary interest here are the conditions of materiality autochthonous to the digital. This chapter handles new media renderings of Perelman, beginning with a deliberately desultory treatment of the various internet memes featuring his likeness and a cursory review of the significance of the internet meme generally before proceeding on to a reading of a meme series I have dubbed the Satoshi Nakamoto series. Next is a brief engagement with a short video on YouTube that spoofs Perelman's reclusiveness. The chapter concludes with a reading of digital artist Ferran Esteve's zine *Grisha*. Evidence of Perelman's peculiar abjection will be provided throughout. The nuance that is added by considering new media portraits of Perelman further develops our understanding of digital subjectivity rendered in its own terms. New media more sympathetically renders its own subjects intelligible as constitutively ungrounded figures of complexity, whether by pastiche, parody or prosaic storytelling. This practice of citationally performing the moralizing attributes that the analog would foist upon the digital in a diminutive fashion is read as a (dis)identificatory practice that adopts those attributes as both admonitions and collegial jovialities. In this way, to identify oneself as one among this emergent mode of subjectivity is to appropriate and repurpose the identificatory schema for oneself (as a digital, hacker, nerd, noob etc.) in much the same way that identity politics 'took

over' the term queer. In either case, the assumption of the position as legitimate constitutes a competing universality that seeks to challenge the heteronormative matrix for hegemony and effect a resignification of the symbolic.

The third chapter is focused on making a theoretical move beyond the confines of merely discussing the conditions of materiality qua non-totalizing determinism, to identifying the fundamental condition of digital ontology as constitutively destabilized. The work of Judith Butler remains with us throughout, as it is picked up and further developed by Arthur Kroker, whose elaboration of ontological drift as the fundamental ontological condition of ungroundedness experienced by digital subjectivity facilitates a recognition of the sheer complexity and pervasiveness of the problem of the digital's hegemonic resignification of the symbolic. Attention is paid throughout to the materiality utilized in Perelman's work – namely, its publication on arXiv.org – and the very public affair that transpired when the authority of this work was challenged by colleagues. It is from this affair that I am able to understand the changing conditions of supporting the provisional stabilization of the emergent code matrix responsible whose regulatory and normative powers produce a new mode of subjectivity that accompany the ontological drift that is digitality. The decided shift in focus that transpires with the passage from the second to the third chapter is a significant index of my own theoretical shift in concerns.

By tracing the passage of Perelman as exemplary of this transition toward the digital as establishing a new normative matrix and regulatory framework for subjectivization, it is concluded that digital ontology is founded upon a set of paradoxical and problematic schematizations that determine, in a non-totalizing manner, the conditions of daily life for subjects of the emergent digital ontology. The very conditions of political engagement in democracy are shown to be under threat as the hegemony of the digital strives to circumscribe the potential actions and intelligibility of the *demos*. While Perelman is but one

fascinating instance of this transformation, his story illustrates the complexities of critically

approaching and resisting the dominating power formations of our contemporary era.

Chapter One: Abjection and Legacy Media

Abjection

> "Perelman's peculiar behavior attracted the sort of attention to the Poincaré Conjecture and its proof that perhaps no other story of mathematics ever had."[1]

Where subsequent chapters deal more concretely with the actions and events of Perelman's situation, this chapter focuses primarily on the activity of Perelman's biographers. More specifically, the production of what has come to be understood as the Perelman biography as it is discursively formed within legacy media. I regard the particular contributions towards this aggregated discursive formation as cultural objects. These objects materialize an abject figure in transit, where materialization is understood as the process of materialization theorized by Judith Butler, developed more fully below (provisionally, the process of materialization can be understood as providing an account of the emergence of materiality that is without and opposed to theories of materialism that have recourse to a foundational and uninterrogated transcendental givenness – or an obviousness whose need of obviation is disavowed or rejected). Nevertheless, a brief sketch of the events is necessary to orient the reader with our subject. Grigori Perelman published a series of papers offering mathematical proofs of conjectures whose complexity it was believed were virtually insurmountable. In 1994, he published a proof of the Soul conjecture.[2] In 1996, the European Congress of Mathematicians named him the recipient of the EMS Prize, a prestigious award

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[1] Masha Gessen *Perfect Rigor: A Genius and the Mathematical Breakthrough of the Century*. Houghton Mifflin Harcourt: New York 2009: x.

[2] "Proof of the soul conjecture of Cheeger and Gromoll" *Journal of Differential* Geometry 40 (1): 209-212. For a brief explication, see John Lott's "The Work of Grigori Perelman" available here: https://math.berkeley.edu/~lott/preport.pdf

he has yet to collect.[3] In 2003, he offered a proof of the Poincaré conjecture.[4] In 2006, he was named as the recipient of the Fields Medal for outstanding achievement in mathematics.[5] Due to the exceptionally high threshold for achievement, the requirement recipients be under the age of forty on the date of acceptance, and that it is only awarded every four years, the Fields Medal is the most prestigious award in mathematics.[6] One, quite literally, has better odds of winning a Nobel prize. In 2010, on the basis of the academic community roundly agreeing with the same work that led to his nomination in 2006, the Clay Institute named him the first eligible recipient of their million dollar Millennium Prizes.[7] He declined to accept either award, stating, "I'm not interested in money or fame, I don't want to be on display like an animal in a zoo."[8] Following this, he became a recluse until reportedly landing a job as a programmer in Sweden.[9]

Of greatest interest to us at the present is less the actions or beliefs of Perelman, and more precisely the cultural objects that are the representations of Perelman. Collectively, these objects denote a cultural imperative that Perelman be represented or reported upon as a

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[3] EMS - Europeans Mathematical Society Prize. See O'Shea 188 and
http://news.bbc.co.uk/2/hi/science/nature/5274040.stm
[4] The proof was articulated in a trio of papers Perelman posted as pre-prints to the arXiv, entitled, "The entropy formula for the Ricci flow and its geometric applications," "Ricci flow with surgery on three-manifolds," and "Finite extinction time for the solutions to the Ricci flow on certain three-manifolds." These papers are accessible here: http://arxiv.org/abs/math/0211159
http://arxiv.org/abs/math/0303109
http://arxiv.org/abs/math/0307245
[5] Dana Mackenzie "The Poincaré Conjecture – Proved" in *Science* 22 December 2006: Vol 314 no. 5807 pp. 1848-1849. Available here: http://www.sciencemag.org/content/314/5807/1848.full
[6] http://www.ams.org/notices/200609/comm-prize-fields.pdf and/or
http://www.cbc.ca/news/technology/reclusive-russian-turns-down-math-world-s-highest-honour-1.622524
[7] http://www.claymath.org/sites/default/files/millenniumprizefull.pdf
[8] Nasar, Sylvia & David Gruber. "Manifold Destiny." New Yorker, August 28, 2006. In many ways, this can be considered the foundational document for understanding any aspect of the Perelman case as all others refer to it. It is digitally archived here: http://www.newyorker.com/magazine/2006/08/28/manifold-destiny#
[9] It is worth noting that the Moscow Times article features a picture of a man that is an actor parodying Perelman, discussed further below, in a short YouTube video entitled "Life After Poincaré: Grigori Perelman (part 1 of n)." The article can be found here: http://www.themoscowtimes.com/article/504076.html For an enlivening commentary regarding this by redditors click here:
http://www.reddit.com/r/math/comments/2c2voi/perelman_moves_to_sweden_to_work_in/ As will be discussed below, there is some evidence to suggest that Perelman stories originating in Russia are fabricated. This one has weathered time better than many of those and is lent some credence by the fact that Perelman's sister was already an engineer in Stockholm at the time, and had reportedly been inviting her brother and mother to relocate for some time.

sort of abject figure. In nearly all accounts of Perelman, his magnificent accomplishments are

accompanied by a report on his character, a peculiarity to say the least. Despite having

already achieved a certain stature within the mathematical community before solving the

Poincaré Conjecture, it is not uncommon to find language describing Perelman as "a

mysterious Russian from St. Petersburg."[10] Sir John Ball, President of the International

Mathematics Union and Chairman of the Fields Medal Committee that selected Perelman as a

winner commented after meeting him that "he has a different psychological makeup."[11]

Following what has been varyingly reported upon as amicable to abhorrent, Yuri Burago,

Perelman's former supervisor at the Steklov Institute, said once that "Our differences are due

to Perelman's difficult character…as is generally known, this is often the case with brilliant

personalities."[12] It is a constant reference point that Perelman "kept his fingernails uncut."[13]

This identification of the care of his body as a materialization of an abjection rooted in

psychical disorder is traced by some biographers as far back as adolescence, when "personal

hygiene was tricky, but Rukshin [the musical supervisor] occasionally managed to get

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[10] George G. Szpiro, *Poincaré's Prize*: 2.
[11] Sir John Ball, quoted from Szpiro's *Poincaré's Prize*: 5.
[12] Yuri Burago, quoted from Szpiro's *Poincaré's Prize*: 206.
[13] See Szpiro *Poincaré's Prize*: 207 and Gessen: 113. Below is a sample of sources mentioning or discussing Perelman's fingernails. As you can see, the fingernails have attracted quite a range of thinkers.
http://ownshrink.com/aspergers/why-grigori-perelman-rejected-his-award/
http://www.nytimes.com/2009/12/13/books/review/Hoffman-t.html?_r=0
http://nautil.us/blog/purest-of-the-purists-the-puzzling-case-of-grigori-perelman
http://www-history.mcs.st-and.ac.uk/Biographies/Perelman.html
http://www.theguardian.com/world/2010/mar/23/grigory-perelman-rejects-1m-dollars
http://www.notablebiographies.com/supp/Supplement-Mi-So/Perelman-Grigory.html
http://heebmagazine.com/grigori-perelman-retired-math-genius/33607
http://www.huffingtonpost.com/2010/03/24/grigori-perelman-reclusiv_n_511938.html
http://www.npr.org/templates/story/story.php?storyId=6682439
http://www.telegraph.co.uk/culture/9475585/Searching-for-Grigori-Perelman-Russias-reclusive-maths-genius.html
http://english.pravda.ru/science/tech/28-04-2011/117727-Grigori_Perelman-0/
http://www.newyorker.com/magazine/2006/08/28/manifold-destiny
http://www.columbia.edu/cu/alumni/Magazine/Winter2007/math.html
http://www.brettforrest.com/shattered-genius/

Perelman to change his socks and underwear and pack the soiled items away in a plastic bag, since he refused to wash them – as, often, he refused to wash himself."[14]

Throughout these documents Perelman is reported upon as an unintelligible figure - one whose very unintelligibility must be entered into discourse. Yet, such statements are also encountered as that of Perelman biographer, Masha Gessen, "The more people talked about Perelman, the more he seemed to recede from view."[15] The imperative to represent Perelman as an unintelligible figure, where the imperative itself is understood as operating such that Perelman becomes (partially) intelligibly inscribed within our discursive framework, qualifies his abjection as peculiar. Indeed, this peculiar abjection is best thought as an abjection in transit. But this requires an excursus through the history of the development of the notion of abjection. Julia Kristeva's work on abjection is a continuation and development of Mary Douglas' work on dirt, filth and defilement:

> Taking a closer look at defilement, as Mary Douglas has done, one ascertains the following. In the first place, filth is not a quality in itself, but it applies only to what relates to a *boundary* and, more particularly, represents the object jettisoned out of that boundary, its other side, a margin.[16]

Through this pursuit of the transient boundaries and margins of the body, Kristeva is able to build upon Douglas' theoretical framework of foundational prohibitions, primordial repressions and phonological, semantic and syntactic structures of determinism.

> When I am beset by abjection, the twisted braid of affects and thoughts I call by such a name does not have, properly speaking, a definable *object*. The abject is not an object facing me, which I name or imagine. Nor is it an ob-jest, an otherness ceaselessly fleeing in a systematic quest of desire. What is abject is not my correlative, which, providing me with someone or something else as support, would allow me to be more or less detached and autonomous. The abject has only one quality of the object – that of being opposed to *I*. If the object, however, through its opposition, settles me within the fragile texture of a desire for meaning, which, as a matter of fact, makes me ceaselessly and infinitely homologous to it, what is *abject*, on the contrary, the

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[14] Gessen *Perfect Rigor*: 31.
[15] Gessen *Perfect Rigor*: x.
[16] Kristeva 69. This passage spanning the next few pages contains the bulk of Kristeva's direct reference to Douglas' work.

jettisoned object, is radically excluded and draws me toward the place where meaning collapses.[17]

Kristeva recognizes the abject as a sort of radical exclusion. This exclusion is tantamount to a foreclosure, where what is foreclosed is the possibility to actualize the possibility of meaninglessness that plagues the symbolic field. To become abject, then, were it possible, would be to become the ever-present specter of meaninglessness made material. Kristeva is prepared to shutdown the possibility of such a materialization taking place. That abjection "does not have, properly speaking, a definable object," poses a significant theoretical problem. It introduces an element in the socio-psychical economy without objectival or material existence.

Kristeva's discussion of the abject has two noteworthy features: it is scatological or excremental and non-indexical. The language she uses to discuss the abject is scatological in that she compares the abject to the refuse, waste and excrement that are essential features of embodiment and perform the duty of seeming to anchor her discourse in the irrefutability of the real. Simultaneous to that, however, the abject is non-definable, cannot be pinned down or readily pointed to in isolation. This is a hallmark of the Lacanian real – it is unthinkable and unthinkable that it should be denied. Problematically, this results in a theorization of abjection predicated upon a Lacanian shibboleth: the discourse of the master requires "the real" as an ideological stopgap in a way that echoes liberalisms' endless variations on the state of nature, veil of ignorance, or whatever other idealized parable can be used to foment an ought from an is. But just because we are able to articulate Kristeva's reliance upon a transcendental signifier in an uncritical or precritical way does not mean we should throw the baby out with the bathwater. Kristeva's success comes in recognizing abjection as an ambiguous alterity and articulating it in relation to what she calls deject or borderline subjects

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[17] Kristeva *Powers of Horror: An Essay on Abjection*. Columbia: New York 1982: 1-2.

and recognizing their destabilization of any solidly entrenched schematization of the social or the symbolic. Judith Butler's rethinking of abjection is critical here.

What is abject or abjection in Judith Butler's *Bodies That Matter*? The answer to this question would be to state that abjection is a falling away from the center, a trauma that structures and constitutes the subject. Butler writes that "abjection (in latin, *ab*-jicere) literally means to cast off, away, or out and, hence, presupposes and produces a domain of agency from which it is differentiated."[18] But, in seeking to understand what the figure of the abject or abjection are, it is imperative to understand how the term functions in the text. The first hint of how abjection is to function comes in the very first paragraph of the "Preface," where the word itself does not even appear:

> I found that I could not fix bodies as simple objects of thought. Not only did bodies tend to indicate a world beyond themselves, but this movement beyond their own boundaries, a movement of boundary itself, appeared to be quite central to what bodies 'are'.[19]

This philosophical reflection upon the nature of the boundary as the defining trait of a body does more to illustrate the form of analysis that is about to unfold in the notion of abjection than any direct or literal explication likely could. Here, what we discover is a recognition (a recognition that brings together philosophical/theoretical abstraction and personal epiphanic reflection) of the inability to clearly demarcate, define, and delineate not only the boundary of a body, but the acceptable bounds of boundaries themselves as they refuse to rest complacently with static logics that circumscribe inquiry. There is some sense in which what is excluded from bodies, and so located beyond their boundary, comes to be that which structures them. Butler thoroughly engages this notion further into the preface:

> This exclusionary matrix by which subjects are formed thus requires the simultaneous production of a domain of abject beings, those who are not yet 'subjects,' but who form the constitutive outside to the domain of the subject. The abject designates here precisely those 'unlivable' and 'uninhabitable' zones of social life which are

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[18] Butler *BTM* 186n2.
[19] Butler, Judith. *Bodies That Matter*. Routledge: New York 2011: viii.

nevertheless densely populated by those who do not enjoy the status of subject, but whose living under the sign of the 'unlivable' is required to circumscribe the domain of the subject. This zone of uninhabitability will constitute the defining limit of the subject's domain; it will constitute that site of dreaded identification against which – and by virtue of which – the domain of the subject will circumscribe its own claim to autonomy and to life.[20]

As the abject falls away from the center, they open that space for occupancy by their other, the subject. These subjects are what could be called 'full subjects,' or subjects partaking of or participating in the reproduction of a hegemony established as the regulatory power called the normative. Implicit in Butler's explicit exclusion of the abject from the realms of subjectivity is a theoretical oversight requiring correction - it must be admitted that all occupants of the heteronormative matrix, including the abjected yet 'densely populated zones of social life,' are subject to the power determinative of that matrix. Thus, even the abject are a form of subjectivity – they are abject subjects. It is essential to grasp the productive constitution of "the domain of the subject" as it is articulated here. The domain of the subject is no more a stable or fixed thing than 'are' those aforementioned bodies that matter.[21] In this light, there is a permeability to the subject-abject boundary by virtue of the constitutive instability of the relation. The conditions in which one may pass through this boundary effect a "movement of boundary itself" such that the mode of subjectivity said to be livable under one set of normative practices may give way to another, should that movement of boundary effectuate a tectonic shift rather than a mere tremor. The abject would still find themselves to be subjugated by those 'full' subjects as a byproduct of their being calculated into the "exclusionary matrix," and so cannot be said to be absolutely incongruent with those full subjects. However, in order to take seriously the category of the abject as distinct from the subject we must interrogate the conditions of this minimal commonality – the material

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[20] Butler *BTM:* xiii. This quotation is clearly counter to Butler's later humanism by virtue of recognizing the friend-enemy distinction – but this will be taken up more thoroughly in the second chapter.
[21] I'm thinking here of the 'are' placed in scare quotes cited in footnote 16: *Bodies That Matter*. Routledge: New York 2011: viii.

manifestation of all these forms of subjectivity is the body. It is precisely the matter of the body that Butler wishes to interrogate. At base lies her challenge that even matter – inclusive of bodies as matter – is a culturally constructed, rendered or produced category:

> To speak within these classical contexts of bodies that matter is not an idle pun, for to be material means to materialize, where the principle of that materialization is precisely what 'matters' about that body, its very intelligibility. In this sense, to know the significance of something is to know how and why it matters, where 'to matter' means at once 'to materialize' and 'to mean'.[22]

The abject or abjection in general are traumatic, structuring categories that form and inform the constitution of the subject. The abject comes to be that which, by promising a deferred coming to presence that is never experienced by the subject (any subject) directly, allows meaning to be made and matter, and allows matter to be made meaningfully. But the implicit treatment of abjection as constitutive, continuously, reiteratively and illimitably of the stabilization of the heteronormative matrix necessitates its ongoingness, that is, its becoming. It is precisely this becoming which Butler calls upon when, at the close of the Introduction to *Bodies That Matter*, she acknowledges the possibility of a normative engagement that "consists precisely in assisting a radical resignification of the symbolic domain, deviating the citational chain toward a more possible future to expand the very meaning of what counts as a valued and valuable body in world."[23]

This presents for us one of the more robust challenges that will remain throughout this work, coming to the fore only upon occasion, namely, Butler's Hegelian lineage and its reliance upon theoretical modes of identity qua stabilization of relations. For example, Butler's thinking abjection as figuration deprived of subjectivization enables the realization of an abject figure that is not (yet) a subject. She insists time and again on this point, regularly making reference to the figure of the abject as that which "I would rather die than

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[22] Butler *BTM*: 32. This 'expansion' is an early sign of Butler's coming humanism to be discussed in the second chapter.
[23] Butler *BTM* xxix.

do or be."[24] Where it is possible to here argue that Butler's thematizing of abjection as a state of being differentiated from the position of the subject occupying a central position within the hegemonizing heteronormative matrix denotes a deep commitment to Hegelian identity or essence, a more delicate, attentive and nuanced reading of *Bodies That Matter* is possible and will be defended here. In those same passages where abjection is discussed as being that than which one would rather die than be, it is also articulated in a more subtly conditional way: "I want to propose that certain abject zones within sociality also deliver this threat, constituting zones of uninhabitability which a subject fantasizes as threatening."[25] And again, where the "normative dimension of this work…consists precisely in assisting a radical resignification of the symbolic domain," it may do so because the "politicization of abjection"[26] is made possible only by "a specific reworking of abjection into political agency,"[27] where this reworking, politicization and resignification are possible precisely because the stability presumed to be inherent in the identity and essence of the subject is not quite so stable.

In this light, *Bodies That Matter* can be seen to be carrying forward Butler's earliest work challenging the standard reading of Hegel. In Butler's first book, *Subjects of Desire*, she clearly articulates her position on this point: "My suggestion is that in the *Phenomenology*, figures emerge to describe a state that has not yet achieved a stable logical status; indeed, the figure marks the instability of logical relations."[28] This instability, as much in *Bodies That Matter* as in *Subjects of Desire*, has to do with a rethinking of the role of language in philosophy. In *Bodies That Matter*, language in the form of subject-predicate grammar is deterministic in a non-totalizing way. A similar reading of Hegel is proffered in *Subjects of Desire*: "The Hegelian subject is one for whom the stable relation between subject and

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[24] Butler *BTM* 186n2.
[25] Butler *BTM* 186n2.
[26] Butler *BTM* xxix.
[27] Butler *BTM xxviii*.
[28] Butler *Subjects of Desire* xi.

predicate within ordinary grammar becomes undone."[29] However, *Bodies That Matter* is not

only challenging the standard reading of Hegel, it is also challenging certain features of the

Hegelian corpus – in particular, the question of externality. This is best demonstrated in those

glancing mentions of Hegel mid-text, and deeply influences Butler's understanding of

subjectivity:

> To a certain extent constitutive identifications are precisely those which are always
> disavowed, for, contrary to Hegel, the subject cannot reflect on the entire process of
> its formation.[30]

And,

> The ideal of transforming all excluded identifications into inclusive features – of
> appropriating all difference into unity – would mark the return to a Hegelian synthesis
> which has no exterior and that, in appropriating all difference as exemplary features of
> itself, becomes a figure for imperialism, a figure that installs itself by way of a
> romantic, insidious, and all-consuming humanism.[31]

Essential to the Hegelian synthesis is the absence of an externality to which the

subject may refer. Where theorizations of subject-object relations predispose the reader

toward accepting an externality to the subject as a form of ground provisioning an ontological

stabilization upon which judgment is said to be predicated (the conventional materialist's

theoretical presupposition), it should be recognized here that Butler makes no recourse to

accepting as absolute such provisional conditions. For our purposes it is imperative that we

understand how Butler's retooling of the Hegelian subject relates to abjection vis-à-vis the

unfixity or destabilization of materiality as such. The answer resides in Butler's insisting not

on a materialism, but on the process of materialization:

> What I would propose in place of these conceptions of construction is a return to the
> notion of matter, not as a site or surface, but as *a process of materialization that
> stabilizes over time to produce the effect of boundary, fixity, and surface we call
> matter*. That matter is always materialized has, I think, to be thought in relation to the

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[29] Butler *Subjects of Desire* xiii.
[30] Butler *BTM* 75-6.
[31] Butler *BTM* 77-8.

productive and, indeed, materializing effects of regulatory power in the Foucaultian sense.[32]

Through the process of materialization we understand that neither the subject nor the materiality of its world(s) may be described in terms so stable and determinate as the standard reading of Hegel would have it. Or, indeed, as the stability of the Hegelian understanding of identity would have it. Subsequent to the recognition of materiality and subjectivity as effects of power that may stabilize without ever concretizing or absolutizing themselves, neither abjection nor the figure of the abject can be thought so simply as to be nothing other than that which desiring subjects would rather die than become. Abjection as a force constitutive of the process of stabilization comes to be understood as a perpetual state of becoming, a state with many zones, some of which the subject fantasizes as uninhabitable. And in recognizing this we recognize also the open possibility that the figure of the abject may, through an exercise of agency not at all necessarily its own, become less marginalized or marginally regulated, so as to be recognized as a subject (even if its mode of subjectivity is different from that of the hegemonizing force produced by the heteronormative matrix). Indeed, the theory of the abject subject is already latent in Butler's own normativity as she seeks "a specific reworking of abjection into political agency."[33]

I contend that Perelman's abjection and subjectivity consist in precisely such an interstitial modality – he is an abject subject. This transformation and chaotic rendering is the result of digital subjectivity moving in from the margins to challenge the subject of the heteronormative matrix for hegemony.[34] As we can see, Butler's conceptualization of abjection is much more 'definable' than Kristeva would have it.

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[32] Butler *BTM* xviii.

[33] Butler *BTM* xxviii. Such normativity is no doubt the kernel from which her humanism will be born.

[34] Had I chosen a different subject for this project the argument could have been made simpler. For example, arguing that Alan Turing was a figure of abjection would not be so complicated. As one of the earliest exemplars of digital subjectivity, this hypothetical project would still have been possible, and simpler by not having to parse the troubled waters of cultural transformation as resignification of the symbolic in progress. However, such a project would also be unable to illuminate in any substantive way the complex conditions of

Insofar as the process of materialization (re)opens the question of materiality as a stable ontological category and would seem to provide an account of the contingency inherent in normative social relations via recourse to thinking abjection as an index or indices of potential destabilization, it also lends itself to the theoretical investigation of the constitution of materiality, however provisional, in an era of 'new' media. Before entering into an investigation of new media and its particular form of determinism or forces structuring the (digital) subject in advance, some understanding of the media from whose legacy the digital has been born is required. This excursus will also evidence the ways in which Perelman has been represented in and by legacy media.

Legacy media represent a world they are immersed in as if they remained the central pivot and formative force of structuration constitutive of our culture. That is, they speak of and are spoken of as riven from the world they are said to represent. This irony is a delightful proof of the ascendency of digital ontology. New media, by contrast, ironically reflect upon the conditions of their own existence in a way that is strictly not possible with legacy media. I am so persuaded of the thesis of the emergence of digital subjectivity as concomitantly arising from a drift in our ontology that I will first present Perelman as a figure appearing in legacy media.[35]

This division, though much lauded in the early part of the century, is facing a challenge. Many theorists who were once proponents of new media as somehow foundationally different than legacy media are revising their position. However, this revision

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our own contemporaneity as it will be pursued in subsequent chapters. Turing would be such a remarkably different figure that we would learn more about the advent of digitality and be thinking less with the digital. This project is much more interesting.

[35] The allusion to Arthur Kroker is not coincidental. His work will be discussed more fully in Chapter 3, which focuses on the materiality and ontology of digital subjectivity as it relates to the question of the emergence of a new normative matrix.

becomes problematic. Exemplary of this trend is *Excommunication* by Alexander R. Galloway, Eugene Thacker, and McKenzie Wark, where the argument is made that media are media and as such are constitutive of the foundational conditions of any society.[36] While in a certain sense there is an obviousness to this argument, it stands in contradistinction to arguments presented elsewhere insisting upon the historical specificity and uniqueness of the contemporary digital moment. Wark is quite precise about this when he searches for the historical essence of our digital time.[37] Galloway argues that ours is a theoretical moment that would shed the preoccupation with epistemology that was the hallmark of post-structuralism in favour of foregrounding ontological inquiry.[38] As a diagnosis of the theoretical culture of which we are a part, he's no doubt correct. But I will insist upon the legitimacy of the poststructuralist practice of recognizing the interwoven nature of epistemology and ontology, for the conditions of knowing cannot be divided from the conditions constitutive of our being other than by reinscribing into our being an essential spirit mobilized by something akin to the Kantian transcendental deduction. Where the transcendental deduction and its problematic will be discussed in the third chapter, and the ontological conditions of digital subjectivity are the focus of the second, I will for the time insist only upon the falsity of essentialism as argued here by recourse to Butler's theories of subjectivization and the

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[36] See Alexander R. Galloway, Eugene Thacker, McKenzie Wark *Excommunication: Three Inquiries in Media and Mediation*. Chicago: Chicago 2014. Interestingly, this text often writes of post-structuralism in the past tense, a feature increasingly commonplace in academic literature. I have the utmost respect for these thinkers and take them quite seriously. Their work will be more thoroughly engaged in subsequent chapters and its greatest strengths brought to bear upon our inquiry.

[37] This is a persistent feature of Wark's particular brand of Marxism, which vacillates on the question of historical materialism, at times adhering to and at times critiquing that troubled lineage. For an exploratory passage through Wark's working with this problem, see his always generous and thoughtful engagements on http://www.publicseminar.org/author/kenwark/

[38] This is not only true of *Excommunication*, but also of *Laruelle: Against the Digital*. Minnesota: Minneapolis 2014. The latter text makes for a very engaging and challenging reading. I highly recommend it and believe it worthwhile even for those readers, such as myself, who are less familiar with the work of Laruelle. Galloway's exposition of Laruelle's thought and its relevance to media theory and philosophy at large is superb. It should not, however, be understood as a text striving to become hagiography – as an exposition, it articulates and situates Laruelle without committing Galloway to becoming some form of 'Laruellian,' should such a thing ever become a thing. As we will later see, those moments of heightened tension illuminate both the relevance of Laruelle's thought to our own project, and shine a light on Galloway's own thinking on the subject. These passages a marked by a beautifully quiet dissonance.

process of materialization. In fact, I will go so far as to demonstrate how productive such an insistence can be by reference to the work of Wark and Galloway throughout this project.

"Manifold Destiny"

Sylvia Nasar and David Gruber co-authored a major article for *The New Yorker* in late August of 2006 that has had a significant influence in shaping the response to Perelman. "Manifold Destiny" weaves together three strands of Perelman's story, which in some sense also maps the division of our three chapters. First, Perelman is portrayed as an eccentric whose peculiar abjection is tenable throughout the writing; but this tenor is nuanced with a sympathetic recognition of some unarticulated (and possibly unintelligible) commonality. Second, that Perelman's actions provoked a political rupture within the mathematics community is not shied away from. Indeed, the unfolding complexity of this narrative thread decidedly forms the backbone of the whole story for Nasar and Gruber, who slalom through the discourse of apoliticization, bringing to the fore the central political questions of materiality, authority and authorship that are the focus of our second chapter. Thirdly, an attentive and subtle reading of the significance of mathematics is proffered, as an attempt to think with the practice as it is implicated in rendering the earlier crises and queries of fundamental ontological significance. A not entirely dissimilar engagement is front and center in our third chapter. It is worth nothing that "Manifold Destiny" has as much to do with Chinese mathematician Shing-Tung Yau, a figure who will become a pivot for our next chapter, as it does with Perelman. Nevertheless, certain traces of Perelman's peculiar abjection should be touched upon here (as they have come to be citationally reiterated in nearly all accounts).

Reporting upon Perelman's reportedly anti-social or asocial behavior provides Nasar and Gruber a point of departure in their narrativization. Citing Yau, who would threaten

multiple counts of defamation[39] on the premises that their article misrepresented his person (talk of which quieted immediately when *The New Yorker* issued a public statement that it would stand behind their work),[40] the authors note that "Perelman resides in St. Petersburg and refuses to communicate with other people."[41] In giving an account of Perelman, Nasar and Gruber rehearse one of the most talked about aspects of Perelman: his language - more specifically, his withdrawal of speech from the public arena. His peculiar use of language is alluded to or written around at several junctures, as it will be elsewhere, but few more significant than when he is required to account for his infamous hygiene: "He wore the same brown corduroy jacket every day and told friends at N.Y.U. that he lived on a diet of bread, cheese, and milk…Some of his colleagues were taken aback by his fingernails, which were several inches long."[42] Such articulations, which clearly submit to the unspoken cultural imperative to enter Perelman and his abject embodiment into discourse, should be understood as an unconscious effort to return to a fantasized period of absolute ontological stability by establishing clear normative boundaries. Conventions of hygiene form such a boundary. Such a renormalization is effectuated by rendering peculiar abjection eccentric and ascetic. That during the period prior to his withdrawal, "some of Perelman's friends noticed that he was becoming more and more ascetic," is an emission that reinforces this reading. This passage from linguistic withdrawal to abject embodiment to asceticism as saintliness inverting and elevating peculiar abjection to priestly commissar of the good knowledge will be reduplicated in whole or part, in all representations of Perelman. In their otherwise fine mathematical histories, *In Search of the Shape of the Universe*, and *The* Poincaré *Prize,* Donal O'Shea and George G. Szpiro, respectively perform the same operation. Here, too, hair and fingernails are

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[39] http://www.doctoryau.com/9.18.06.pdf
[40] http://web.archive.org/web/20070227205608/http://business.bostonherald.com/businessNews/view.bg?articlei d=158369
[41] Yau, cited in Nasar & Gruber
[42] Nasar & Gruber

the body part of choice. But where Szpiro favours the Freudian symbolism of a man under his

mother's care and O'Shea emphasizes Perelman's aversion to digital media enabling capture

(such as cellphones, cameras etc.), both chart the same basic course concluding with

Perelman's ordination.

Perelman's distaste for digital capture has been challenged in remarkable fashion.

After his rejection of the Fields and the Millenium Prize, he became something of a celebrity

in Russia, with paparazzi following him for years to come. Numerous photos and claims of

Perelman sightings can be found, though rarely if ever are any of these sympathetically

inclined. Below is a quick selection of such images, authors unknown, that are returned when

performing a quick image search for Perelman using Google.

Fig. 1   Fig. 2

Fig. 3   Fig. 4

Fig. 5   Fig. 6

The Man Who Walks Differently

In 2011, a Russian documentary was produced for popular television entitled, "The Man Who Walks Differently: Perelman's Lesson."[43] The narrator informs the audience that "the media" describe Perelman as strange and poor, intimating that "one look will tell you that." The script includes such gems of insight as explaining to us that for "the media"

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[43] The doc is publicly available online in translation or with subtitles, such as it is here: https://www.youtube.com/watch?v=Ng1W2KUHI2s

Perelman's unusual character "makes him romantic." Lacking in all subtlety, the narrator explains that the public's romantic vision of Perelman is reinforced as we regard his withdrawal from public life as amounting to "his silence is loud." He is "unusual in character [because] he is impeccably honest." He is "odd in dress." And, he "lived austerity everywhere."

The romantic and fiscally conservative Perelman is developed throughout the documentary as a character in a parable, providing for the audience an image of how to live well. "The world consists of consumers, its [sic] normal." However, "the serene camp of consumers is confused" by Perelman's rejection of prize money. Many interviewed concur with this sentiment, with one notable exception. Mathematician Anatoly Vashik[44] expresses his opposition to the financial meritocracy of the Clay Institute, but also condemns Perelman's reclusion. For Vashik, as for the camera, Perelman's reclusion is a waste of a social good – the utility of his mind. Were Perelman not a reclusive unusual character we could all benefit from his teaching. However, in the moral economy of this particular narrative, Perelman is portrayed as somehow degenerate for his withdrawal from public life. At this point in the narrative arc, the camera becomes less celebratory and more judgmental about Perelman's actions. Where the previous slurs against Perelman were reported upon as if oddly connecting his theoretical and political practices, the connection is now made explicit as the audience is presented with an implicit argument that Perelman's great theoretical achievements are possible only at the expense of becoming *persona non gratis*. Once again we are shown images of Perelman's hair, fingernails, clothes, decrepit and degrading embodiment, a story told against the backdrop that he is violently opposed to being the

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[44] Vashik, sometimes transcribed as Vershik, has made for himself a secondary career championing mathematics' ascetic virtues and positioning himself as a priestly oversight, ready and willing to proffer judgment on the morality of mathematicians. He has also championed Perelman as someone whose professional and personal character manifests such asceticism. On this point see also Szpiro, particularly 208 & 257

subject of any form of digital recording device.[45] Supposing that the origin of his resistance to surveillance and capture is somehow essential to his being, it is implied that the same motivating origins caused him to resign suddenly and without notice from the Steklov Institute in St. Petersburg. The same moral compass that is opposed to digital capture is equally opposed to the immorality of monetizing intellectual labour and the production of knowledge and/or information. We are then informed by the narrator that as Perelman's status as a cult hero has increased in Russia, "the media" have grossly misreported upon his character and even published fraudulent interviews.

ASD & Digitality

"His apparent disregard for the conventions of personal hygiene is common to Aspergians."[46]

Gessen notes in the prologue to her biography, *Perfect Rigor*, that one of the difficulties she faced as an author was her lack of knowledge of her subject: "I had to imagine a person I had literally never met…at times I thought it was easier than writing a book about a cooperating subject."[47] No doubt writing a book-length treatment about a subject with whom one is familiar could prove to be more difficult than writing about a subject about whom one knows only things. This difference is more important than the skeptic might think. On the one hand, a cooperating subject's complicity with a project produces a relationship that fosters familiarity and entanglement with that subject. On the other hand, a subject about whom one knows things is, in many ways, already the concrete subject idealized by the

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[45] Variations on this theme recur throughout the depictions of Perelman. His resistance to digital capture is generally treated as a legitimate reason for depicting him in Orientalizing ways, further reinforcing his peculiar abjection. It is reminiscent at times of reports of Philip Agre's behavior.
[46] Gessen: 179
[47] Gessen xi

scientific method. Knowing things about a subject (name, birthday, biographical facts and factoids, the gossip, scuttlebutt and hearsay) disposes one towards the belief that this knowledge, verifiable and therefore veridical, appears as full knowledge of this subject. The provisioning of facts as flesh phenomenologically effectuates a form of subjectivization with regards to which the subject is non-identical, incongruent, and non-coincident. Any narration predicated upon such a disjuncture (knowing about rather than knowing of or with) is a narration that, through the deployment of fact as the legitimizing ground of knowledge, enables the exercising of judgment about that subject. To exercise such judgment is to performatively call into being or to identify the contours and limits of that subject in a way that is othering and hierarchizing. Such judgment can be made only about subjects looked down upon (hence the judgment of incongruency). Such judgment can be passed only if one presumes to know about the subject more truthfully than the subject himself (hence, non-identical). Such judgment can be executed only post-facto, for the facts about which a subject is judged necessarily transpire before the judgment and in this way, presume a temporal contiguity as identity vis-à-vis the subject in question (the dimension of temporality is what I have in mind when I specify non-coincidence). Of course, the thoughtlessness of uncritically accepting such a subjectivization and concomitant narration produced by phenomenologically relating to facts as knowledge qua veridicality is the result of metaphysically committing oneself to an understanding of the world that fails to differentiate itself from the banality of the universe. I would also argue that in general such a commitment is common property to digital subjectivity, predisposed as we are via mobile technologies.[48] By extension one may

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[48] In effect, I am arguing here that digital technology predisposes its users to accepting an inverted form of Kripke's primal baptism. We haven't the space for such a debate here, the inversion would effectively function in such a way as to make naming subsequent to the colleting of attributes. Via massive data collection we are now able to name a subject from their attributes in such a way as to make the named subject synonymous with those attributes. That this transpires as an effect of our phenomenological mode of relating to digital technology should not be understood as validating Kripke. That such an enframing is ready at hand, standing in reserve, is no proof of its status as ontological rather than ideological. Analogously, the solutions to differential equations function similarly - one provides attributes (specifying rates of change) and seeks nomination (the unknown

not illegitimately conclude that Gessen is inextricably woven into the fabric of our digital

ontology, but by now this should be of little surprise. What we do unexpectedly encounter in

Gessen is an astounding conclusion about this subject she "had literally never met" that

results from her commitment to the normative matrices of metaphysical digitality.

Gessen makes the argument that Perelman is best understood as someone who ought

to have been diagnosed with Autism spectrum disorder:

> More than forty years after Hans Asperger, a British psychologist named Simon
> Baron-Cohen came to study autism and Asperger's syndrome and figured out several
> things that seem to me to be very useful in understanding Grigory Perelman. First,
> Baron-Cohen suggested that the autistic brain was lopsided in a particular way. Where
> a neuronormal brain has the ability to both systemize and empathize, the autistic brain
> might be excellent at the former but is always lousy at the latter – causing Baron-
> Cohen to dub the autistic brain 'the extreme male brain.'[49]

Gessen continues,

> Grigori Perelman, as far as I know, never took the AQ [autism-spectrum quotient] test
> and certainly cannot be diagnosed by someone who has not talked to him, though
> after I spent an hour on the phone describing Perelman to Baron-Cohen, the famous
> psychologist volunteered to fly to St. Petersburg to evaluate the famous
> mathematician – who sounded so very much like many of his clients – thus joining
> the long list of people who had volunteered help that Perelman did no welcome.[50]

Over several more pages Gessen continues this line of inquiry, associating Perelman

with the "weirdness" and "autistic rudenesses"[51] of mathematicians from Soviet Russia,

because "the degree to which a sort of Aspergian culture was built into the larger Russian

culture of mathematics" is evidenced by anecdotal references to Andrei Kolmogorov, famed

Russian mathematician and former dean at Moscow University.[52] Gessen clearly states that

"virtually everything people have recounted to me about Perelman's behavior, starting from

the time when he joined the math club, fits the typical picture of a person with Asperger's

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mathematical object) as the answer - this dynamic will be taken up in the third chapter in relation to the
ontological commitments of Perelman's mathesis.

[49] Gessen 175
[50] Gessen 176
[51] Gessen 176
[52] Gessen 177

syndrome. His apparent disregard for the conventions of personal hygiene is common to

Aspergians, who perceive it as a nuisance forced upon them by the incomprehensible world

of social mores."[53] Gessen's argument makes a curious extension, one that is worth

discussing. Referencing Tony Attwood, an Australian psychologist who believes that

Asperger's is an "impairment that causes Aspergians to interpret everything they hear

literally," and that it is "the belief that people mean exactly what they say," Gessen includes a

quotation from Attwood that is left hanging, as if without further need for comment or

correction:

> I suspect that many 'whistle-blowers' have Asperger syndrome…I have certainly met
> several who have applied a company's or government department's code of conduct
> to their work and reported wrongdoing and corruption. They have subsequently been
> astounded that the organization culture, line managers and colleagues have been less
> than supportive.[54]

There are two interesting and interconnect beliefs at work here. The first, the belief

that others (Aspergians) hold a belief in the absolute literality of language; the second, the

belief that the political practice of whistle-blowing is the result of a belief in language

functioning as Quine's word identifying clearly object.[55] By including what would otherwise

have appeared as a single paragraph irrelevant to the argument she seeks to present, Gessen's

inclusion of this passage is demonstrative of a metaphysical commitment to liberalism, a

liberalism which is troubled, somehow, by marginal creatures such as Perelman. The

marginality of Perelman, or his abjection, which in this case amounts to the same, is one that

brings with it a recognition of the instability and unfixity of the contemporary ontological

condition. This is challenging to the political ontology of liberalism as it is foundationally

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[53] Gessen 179

[54] Tony Attwood, quoted in Gessen 178

[55] Gessen and Baron-Cohen similarly proceed from the 'broken mirror' theory of ASD (so-called because autistics have not always performed identificatory practices to the immediate satisfaction of diagnostic clinicians, leading these professionals to conclude that they suffer from an inability to identify with others). For a good example of contemporary challenges to the broken mirror theory, see Sowden, S., Koehne, S., Catmur, C., Dziobek, I. and Bird, G. (2015), "Intact Automatic Imitation and Typical Spatial Compatibility in Autism Spectrum Disorder: Challenging the Broken Mirror Theory." Autism Research doi: 10.1002/aur.1511

predicated on a belief in an absolute ontological condition that serves as the ground sustaining it.

That those diagnosed with Asperger's put language to work in ways different from the 'neuronormals' is commonly accepted. That the difference in the way that language is used is conceived of as consisting in a commitment to literality suggests a different form of commitment on the part of those subjects seen to be occupying the heteronormative matrix. Here, what is uncommon to Butler's figuration of abjection as the differential relation sustaining the heteronormative matrix is that this matrix need not be specified as committing itself to any particular usage of language that is identifiably its own. Rather, the fact of the abject as that which the normative is not, is the difference in which abjection consists. The implications of Gessen's framing of the linguistic turn in Aspergians is that the normative matrix can now be understood, somehow, in its own terms. Not merely as 'not literal' or 'metaphorical,' for the running commentary on social mores and conventions throughout would seem to be committing Gessen to an essential feature performed by the ordering of the normative matrix, but more precisely, that the ability to pinpoint an essence of the matrix is itself an epistemological indexing of ontological drift. Perelman's supposed commitment to the literality of language is essentially distinguished from Gessen's normative matrix that is committed to the unification of competing values of liberal democracy. As Michael Hoelzl and Graham Ward note in their "Introduction" to Carl Schmitt's *Dictatorship*,

> Liberalism pursues the values of freedom, economic freedom and the freedom of opinion; democracy pursues the values of equality. It is not that the principles based on these values are contradictory, but rather that they can make unruly bedfellows, particularly in the matter of governing state finance.[56]

Hoelzl and Ward's condensation of Schmitt's analysis is spot on, but should be taken a step further. With the emergent digital ontology it becomes not only possible to

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[56] Hoelzl & Ward from Schmitt's *Dictatorship: From the origin of the modern concept of sovereignty to proletarian class struggle*. Tr. Michael Hoelzl & Graham Ward. Polity: Malden, MA 2014: 227n7.

acknowledge a rivenness endemic to liberalism and democracy, but within liberalism itself. The severing of economic freedom from freedom of speech is reaching a turning point as subjects of the digital epoch, often bona fide liberals, see in the pursuit of economic freedom not only a challenge to democracy's egalitarian pursuits, but also a challenge to freedom of speech. It would be convenient here to point to Citizens United v. FEC of 2010 and rest on my laurels, though such a gesture would be rather unsatisfactory. Instead, the sharpening of this divide can best be evidenced by the argument and evidence proffered by bona fide liberals such as Gabriella Coleman: a hacker's printing of digital content is a challenge to economic freedom because the digital content is conceived of as speech, the freedom of whose exchange cannot be restricted. This question will be raised in chapter 2 and discussed there in relation to the changing conditions of materiality. While the focus will remain Grigori Perelman, the fundamental issues are much the same. For the moment, suffice it to say that this rupture within liberalism is coeval with digital subjectivity's pursuit of hegemony. We are unconcerned in this work with forecasting how this situation will resolve itself. Our current trajectory seeks only to establish that the anxiety driving the representations of Perelman's abjection emanates from his mode of subjectivity as ontologically at odds with the heteronormative matrix of analog liberal democrats. To some extent, we have already accomplished this, but for our project to be fully realized we must return to Gessen.

The need to assert that the abject Perelman belongs properly to a clinically ordered subset of deficient humans without evidence or substantive argument, and the articulation of the nature of this deficiency as one of linguistic abnormality essentializing his spirit or mind is tied to another disturbance from within: whistle-blowers. The surprise expressed by Attwood and reiterated by Gessen in her textual performance that whistle-blowers are perturbed by ethically questionable conduct is intensely interesting. Gessen's efforts to

localize the source of her anxiety regarding Perelman's abjection gave rise to the diagnostic

efforts to repress, suppress, domesticate and circumscribe the source of the abjection in the

materialization of mind – his brain, pace Baron-Cohen, is "the extreme male brain." Such an

effort to localize operates according to a logic that allows the heteronormative matrix of

liberalism to retain its claims to hegemony. By subjecting this other to the power of the

sanctified establishment, he is thereby subordinated. Through classification we are able to

categorize the tremor. By identifying and naming the subjugated as Aspergian, two important

things are accomplished. First, an explanation for his flaws and defects is found and

externalized from the purity of judgment. He may be forgiven his transgressions, for he

knows not what he does. Second, the triumphant product of his mutilated genius may be

safely appropriated, for its glory is supreme and pure of the defect localized in his brain.

All this would seem to reinforce our earlier point while deviating from understanding

the mention of whistle-blowers. But what is most significant about the degenerative whistle-

blower passage in Gessen is that this same logic is transformed from a particular

consideration to a political generalization. To diagnose whistle-blowers as Aspergians is to

name all deviants and to cite their deviance as evidence of their unfit materiality and abject

subjectivity. In this formula, resistance, opposition, and disagreement all become marks of

difference and enmity that may be cited as potentially requiring punishment, correction,

discipline or control.

That ASD is viewed as the disease that is the "metaphoric disease for the era of the

Internet" takes little evidencing.[57] The sentiment is everywhere.[58] Susan Greenfield has gone

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[57]https://books.google.ca/books?id=z3hEBgAAQBAJ&pg=PA66&lpg=PA66&dq=harvey+blume+autism+and+
the+internet&source=bl&ots=ypWMepCaaj&sig=_kqgGvhliQB7Tf96l5vRa9Zl9Fo&hl=en&sa=X&ei=DQ5eV
erdAom9yQSA2YHACg&ved=0CDsQ6AEwBA#v=onepage&q=harvey%20blume%20autism%20and%20the
%20internet&f=false

[58] For example, consider the character of Abed in the television series *Community*. Or read this:
https://autismandoughtisms.wordpress.com/2011/08/04/a-quicky-on-the-internet-and-asd-how-something-
rotten-lead-me-to-something-beautiful/

so far as to explicitly argue that the internet causes autism.[59] Since the mid-nineties Harvey Blume has been tracing cultural associations of digitality and ASD, arguing that ASD is to the digital era what hysteria was to the Victorian.[60] The cultural associations of digitality and ASD is a problem meriting a book-length treatment[61] and is beyond the scope of the present work. Before proceeding to new media renderings of Perelman, something more profound is to be recognized and will be returned to later: Gessen's diagnosis of Perelman as autistic is to associate his abjection with the tremors and traumas of the digital, and the foundation for this is the everyday practice and use (that is to say, meaning) of language. What is essentially abject about Perelman as a materialization of the digital is his autism – understand violently as the indifference of a reason mobilized by an ontological commitment to the actuality of literal linguistic determinism. Such a claim is evidence that not only is Grigori Perelman a form of digital subjectivity, but that Masha Gessen is, too. Control groups of neuronormals are used in contemporary psychology experiments as a contradistinction to the various ASD groups being studied. Regularly, members of the control group name the literality of those with ASD as their defining trait. More commonly, psychologists are finding that the control group exhibits an intense fixation in their efforts to name clearly and unambiguously an object to such an extent that the control group performs the subscription to literality more faithfully than do the ASD groups.[62] In her diagnosis Gessen does just this. As a liberal subject caught in the fray, torn between the analog and emerging digital ontologies, Gessen points to the ASD group to accuse them of unwavering literality while, ironically, she

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[59] http://www.newscientist.com/article/mg21128236.400-susan-greenfield-living-online-is-changing-our-brains.html#.VV4Of01MuUk

[60] http://web.mit.edu/comm-forum/papers/blume.html Also instructive on this point are Blume's pieces http://www.theatlantic.com/magazine/archive/1998/09/neurodiversity/305909/ and http://www.nytimes.com/1997/06/30/business/autistics-freed-from-face-to-face-encounters-are-communicating-in-cyberspace.html

[61] Erin Manning has taken great strides in advancing our understanding of this collision in her *Always More Than One: Individuation's Dance*, which would form a central pivot for any comprehensive undertaking such the one alluded to here.

[62] Edith L. Bavin, Evan Kidd, Luke Prendergast, Emma Baker, Chery DIssanayake, and Margot Prior. "Severity of Autism is Related to Children's Language Processing." Autism Research 7: 687-694, 2014.

remains fixated on ensuring that her naming is made literal. This is the symptomatic expression of the citational and reiterative practice of performing the metaphysical commitment to literal positivism that Gessen seeks to name abject in Perelman.

This chapter has traced the following path: an inquiry into abjection as a fantasized force of normative regulatory power was paired with an understanding of the process of materialization, which allowed for a nuanced approach to understanding the developing conditions of possibility that necessarily arise from within social relations as contingent possibilities to actualize forms of life in whose disidentificatory practices inhere the expression and desire for a living under conditions non-identical with those of the heteronormative matrix. These insights were mobilized with recourse to a series of legacy media artefacts that evidence a growing anxiety from the political ontology of liberalism about both its own uncertain and non-absolute status, and its progeny, the indifference of an autistic reason that thinks digitally. In the next chapter, representations of Perelman from within new media productions will be investigated and contrasted with the ontological commitments of legacy media's inherent liberalism.

Chapter 2: Materiality & New Media

This passage handles new media renderings of Perelman, beginning with a desultory treatment of the various internet memes featuring his likeness and a cursory review of the significance of the internet meme generally, before proceeding on to a reading of a meme series I've dubbed the Satoshi Nakamoto series. Next is a brief engagement with a short video on YouTube that spoofs Perelman's reclusivity, and the chapter concludes with a reading of digital artist Ferran Esteve's zine *Grisha*. Evidence of Perelman's peculiar abjection will be provided throughout. The nuance that is added by considering new media portraits of Perelman further develops our understanding of digital subjectivity rendered in its own terms. New media more sympathetically renders its own subjects intelligible as constitutively ungrounded figures of complexity, whether by pastiche, parody or prosaic storytelling. This practice of citationally performing the moralizing attributes that the analog would foist upon the digital in a diminutive fashion is read as a (dis)identificatory practice that adopts those attributes as both admonitions and collegial jovialities. In this way, to identify oneself as one among this emergent mode of subjectivity is to appropriate and repurpose the identificatory schema for oneself (as a digital, hacker, nerd, noob etc.) in much the same way that identity politics 'took over' the term queer. In either case, the assumption of the position as legitimate constitutes a competing universality that seeks to challenge the heteronormative matrix for hegemony and effect a resignification of the symbolic.

Before we begin to engage the language of internet memes and those of Perelman in particular, some prefatory comments are necessary to contextualize our discussion.

In his essay, "The People Formerly Known as the Audience," Jay Rosen nicely differentiates the modes of engagement that subjects of the analog and digital experience. As the title would suggest, Rosen argues that subjects of an analog media regime experience

media as audience members. That is, they passively receive emissions or messages as a direct result of the operations of the medium. Whether it be radio, film or television, legacy media are materially bound to unidirectional communications practices. Their audience need not be thought of or considered in their particularities, for the anonymity of mass society does not and cannot attend to individual identities or difference. Social media, by contrast, operates according to a foundationally distinct premise: the incessant (mis)recognition of the individual identities, differences and particularities is essential to the operational logic of social media. That an archivist of social media may experience the volume of texts, tweets, posts or what have you as an undifferentiable scree ushering forth from the mountain is of no consequence here. That the experience of riding the scree is essential to the continued operations of the media is the whole point. As feckless travelers that are constitutively ungrounded, the people formerly known as the audience have become producers of the context of new media and populate it with the bafflegab of emissions that found sporadically appearing ethereal resonances or spontaneous affinities that live and die by the whim of the murmur.[63]

      This change in the dynamics of media subjects is of consequence to our present study as we shift focus to the plethora of internet memes that render Perelman a digital subject whose partial intelligibility is given rise to through the iterability of the medium's form. The "meme" was first theorized by Richard Dawkins in the 1970's. In an effort to rescue effort to rescue evolutionary biology from the commonplace practice of implicit or explicit determinism or relativism that periodically sweeps the discipline, Dawkins argued that memes are to culture what genes are to biology: as the building blocks the world they produce and reproduce the conditions of materiality with great fecundity and reproducibility

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[63] For a comfortable analysis of these dynamics see Bill Wasik's *And Then There's This: How Stories Live and Die in Viral Culture*. For a more compelling and theoretically rigorous analysis of the dynamics of network societies see Galloway & Thacker's *The Exploit: A Theory of Networks*.

that, through the contingent minimal variations account for the possibility of both continuity and radical evolutionary shift(s). Accordingly, a meme is an idea that is circulated and exchanged, and this process accounts for the manufacture of meaning. We needn't adhere to Dawkins' notion hagiographically in order to render productive the digital's appropriation of the meme, where an idea taking multifarious form may reproduce and mutate in a way that accords with the development of a language. On the following page is a selection of portraits of Perelman, circulated digitally and understood here as a form of meme. Indeed, Dawkins' greatest strength lies in theorizing the meme as an instancing of episodic moments of that mutant continuity Wittgenstein conceives of as family resemblance. These portrait memes, unlike photographs, plainly do not seek to represent Perelman in an objective or photorealistic way. What allows for our recognition of continuity in their type or series is precisely their family resemblance. All are portraits of the same subject that intensify or ameliorate certain features through their varying renditions. What makes the series interesting for our discussion is first the evidencing of a cultural imperative to represent Perelman as a figure of partial intelligibility. In endlessly different ways, these memes mark the peculiar abjection of Perelman as a partial intelligibility in that his visage/image is marked crudely, or obfuscated, or dimensions of his cranial structure are (de)formed, or his hair oscillates between string weeds and matted cap, etc.

One of the most interesting distinctions is the way that the various artists have chosen to render the surface of digitizations. Where the ethereality of the digital image would have no need to render the surface of the screen as textured or implicated in the production of the coded image as an object of visibility, many paradoxically gesture towards this. This is the second integral

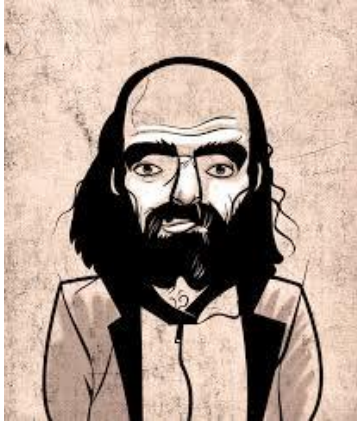Fig. 7   Fig. 8   Fig. 9

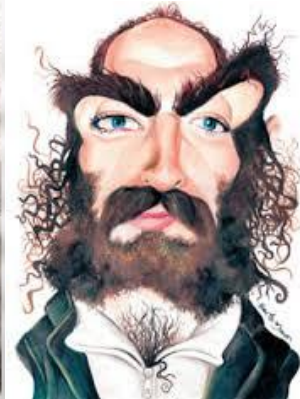Fig. 10   Fig. 11   Fig. 12

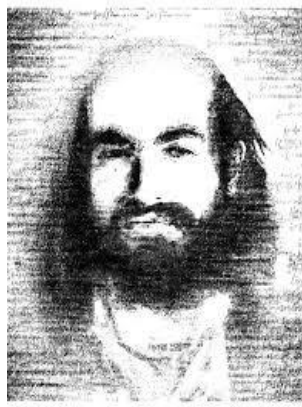Fig. 13   Fig. 14   Fig. 15

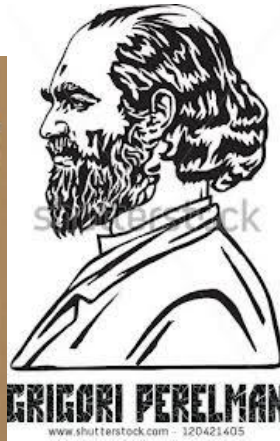Fig. 16   Fig. 17   Fig. 18

feature to be noted: the materialization of the digital as echoing the conventions of modernist

preoccupation with the canvas. An essential part of forming Perelman's partial intelligibility

is the conscious ambiguity of the relationship that each image bears as it represents its own

(digital) relationship to (analog) Perelman as well as (digital) Perelman's relationship to

(analog) codes of materiality. This aesthetic ambivalence in deciding and situating Perelman

as properly digital or analog contributes to Perelman's partial intelligibility as a figure in

transit, negotiating the stability of the boundary dividing this materiality from that.

Exemplary of the process of materialization, these ideas are memes made digitally concrete

as the ontological conditions of materiality, of what can be said to materially count and of

what must be excluded from this count. Here, the ontological boundaries are coterminous

with the stability and fixity of the heteronormative matrix constitutive of subjectivity and

abjection. And when these boundaries do destabilize and their unfixity is made manifest, a

resignification of the symbolic has been effected, but the unmooring of the deterministic

categories of intelligibility are less the effect of a willful human than they are the

acquiescence of divine caprice. In recognizing the digital code of the portraits as the marks

differentiating one from the other, we recognize code as a political signifier. "It is in this

sense, then, that political signifiers might be avowed as performative, but that performativity

might be rethought as the force of citationality. "Agency" would then be the double-movement of being constituted in and by a signifier, where "to be constituted" means "to be compelled to cite or repeat or mime" the signifier itself."[64]

Committing ourselves to the process of materialization thus commits us to a reconceptualization of agency as never quite properly human, and, for the democratic reason of allowing for the contestation of the political signifier "code" to materialize also the meaning of a materiality non-identical to that which has become totalizable as "present and physical," we recognize now in 'human' the very conditions of possibility of the posthuman future that mark our present.

The portraits are memes. And these memes are recognized as materializing and rearticulating the conditions of intelligibility. Perelman's partial intelligibility in these images is therefore shown to be an index of his peculiar abjection concomitant to a movement of the boundary of that which can be said to be subject. This movement is providing a provisional stabilization of an extraordinarily rendered heteronormative matrix, or, in other words, is producing the emergent mode of subjectivity here referred to as digital.

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[64] Butler *BTM* 167

Satoshi Nakamoto series

Fig. 19

"Bitcoin first appeared in early 2009, introduced by a shadowy figure known as Satoshi Nakamoto. The software underlying its creation established that Bitcoins would be released slowly and steadily until there are 21 million of them; at that point, more than 12 decades from now, no more Bitcoins will be generated. These rules produced two somewhat predictable results, especially coming in the immediate wake of the financial crisis and the government bailouts of the big banks. The limited and regular release of Bitcoins appealed to libertarians, who have been skeptical of currencies that governments can print in unlimited quantities. (When Rand Paul announced his candidacy for president last month, his campaign's website began accepting donations in Bitcoin.) The built-in sense of scarcity also led people to regard Bitcoin as a kind of digital gold, its value likely to increase over time – in other words, something to buy and sell as a speculative investment. The millions of traders, many of them in China, who have bet on the price of the virtual currency have kept the cumulative value of all outstanding Bitcoins well above \$2 billion since late 2013. At the same time, that speculative activity has left much of the general public wondering why these virtual coins should be worth anything at all."[65]

This excerpt from *The New York Times Magazine* demonstrates several key features

of Bitcoin that are central to our immediate concerns with regards to the representation and

subjectivization of Perelman. To begin, it clearly perpetuates the mythology surrounding

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[65] Nathaniel Popper. "Quick Change." *The New York Times Magazine*: 5.3.15 page 50-51.

Satoshi Nakamoto as "a shadowy figure." That Satoshi Nakamoto is without a direct correlative identity in conventionally bounded physical space troubles the normative bounds of identity formation. This is not particularly new; in fact, this precise 'problem' has been an ever-present feature of the internet.[66] This mysterious identity is then directly tied to the production of the technological machinations requisite for the production of wealth as hidden treasure. While the article writes of the structured inflationary process of Bitcoin as a planned release that is intentionally slow and steady, it does so in a way that obfuscates precisely the fact of inflation. As a perfect expression reduplicating the ideological sustaining power of the crypto-currency, this second sentence serves to tie the mythic identity of Satoshi Nakamoto to the intelligent design, the divine guidance, of the currency by projecting readers into its futurity ("until there are 21 million of them…more than 12 decades from now, no more Bitcoins…"). The following sentences pristinely blend a number of enticing features while building continuity with their predecessors. The articulation of rules and their "somewhat predictable results" invites a sense of gamer's delight by presenting Bitcoins as a gameworld with simple rules, predictable results, and easily identifiable parameters within which the gamers are to play. The gameworld of Bitcoins, so the argument suggests, provides an alternative to the messy everyday playground of international finance. By limiting the number of rules, whose scarcity is a supposed index of the simplicity (and implicitly a mark of the honesty and integrity) of the Bitcoins gameworld, the crypto-currency appeals greatly to libertarians, presumably well known for their savvy investments. The scarcity responsible for producing the sensation that Bitcoins are "a kind of digital gold" combines with the allusion that an Orientalizing Chinese wisdom (no less Orientalizing than the allusion to the figure of Satoshi Nakamoto) participates in producing this magical potential fortune. The

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[66] Liam Mitchell, ""Because none of us are as cruel as all of us": Anonymity & Subjectivization." *CTheory* 4/24/2013: www.ctheory.net/articles.aspx?id=720

gameworld of Bitcoins, while it is strictly not stated here, reproduces many of the same structural features of the everyday – the agon of competing against oneself and a community of others for supremacy over a pot of gold at the end of the rainbow.

The truly phantasmatic character of Bitcoins as a crypto-currency comes precisely from the formula of rendering an agonistic field of play in which one is pitted against others, where the field itself is grounded on the premise of absolutely simple rules, or simple absolutes, that guarantee the solidity and stability of that world. The phantasy here is one of securitization perfected – but this is a phantasy equally participated in by Bitcoins' detractors. As the closing sentence of this excerpt suggests, many question the speculative value of the crypto-currency. The phantasy shared by all – by Bitcoins' gamers and its detractors alike – is that capital itself is or could ever be other than speculative. Capital is by its very nature speculative. But this is foreclosed as a possibility, and this foreclosure is precisely the force of requisite foreclosure whereupon modes of capitalist subjectivization may begin. When we note that "it is unclear that the subject is not, for instance, from the start, structured by certain general features of capitalism," it is this dynamic of which we are thinking.[67] Without the absolute and unshakeable belief in the sheer givenness of the value of capital as such, capitalism could not exist and the entire framing of our world(s) would collapse around us.

Concomitant to this foreclosure is the disavowal of the structuring forces upon which the phenomena of Bitcoins as capital-commodity is founded: its "mind-numbingly complicated" technical structure:

> The details of how the network operates can be mind-numbingly complicated,
> involving lots of advanced math and cryptography, but at the most basic level, the

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[67] Butler, *Contingency, Hegemony, Universality*: 139. This is one point upon which Butler & Zizek agree. The conditions of their agreement are up for debate, and each does arrive at this conclusion via distinct routes. Where Zizek accepts capital as a construction and speculative in nature, he does so by differentially referring to the natural world of the real, itself a something givenness. Butler, by contrast, and in keeping with the path pursued here, is unrelenting in her critique of the constructedness of all things – including the framing of the real-symbolic and idealist-materialist debate(s). For to frame the world in such a way is to already submit to certain principles of absolutes, which are predicative in nature but assume the position of a prime mover or absolute transcendental foundation from which all else follows.

network makes it possible for the first time to send valuable digital money around the world almost instantly, without moving through an intermediary like a bank or credit-card company or a service like PayPal. In a sense, the Bitcoin network was designed to be a financial version of email, which enables messages to be delivered without passing through a national postal service, or like the broader Internet itself, which allows people to publish news and essays without going through a media company. Instead of just delivering words, though, the Bitcoin network makes it possible to deliver money from New York to Shanghai in a matter of minutes without paying any financial institution.[68]

What appears as a feature enabling the circumvention of international conventions, whereupon financial exchange is both publicly archived and charged a transaction fee, is here articulated in precisely the terms of its phenomenological mode of human relation. I touch the screen to prompt the transfer and my counterpart around the world receives a screen notification of receipt of transfer in exactly the form and amount I disposed of. But, it would be foolhardy to uncritically and unreflexively accept this narrative as complete. Where popper emphasizes the experience of freedom that block chain technology (which supports the entire operation of bitcoin) fosters, we should recognize the material constraints and hierarchization that such technology necessitates.

Alexander R. Galloway's excellent *Protocol: How Control Exists After Decentralization*, brilliantly argues for "a dialectical tension" grounding the mechanics of internet exchanges that "creates a hospitable climate for protocological control."[69] A user's experience of freedom and anarchic organization results from TCP/IP protocols, which enable peer to peer relationships across the network. These protocols, though, for however much they foster the experience of radical freedom, are operational strictly as a result of their reliance upon and cooperation with DNS protocols: "All DNS information is controlled in a hierarchical, inverted-tree structure. Ironically, then, nearly all Web traffic must submit to a hierarchical structure (DNS) to gain access to the anarchic and radically horizontal structure

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[68] Nathaniel Popper. "Quick Change." *The New York Times Magazine*: 5.3.15 page 51.
[69] Galloway *Protocol* 8.

of the internet."[70] Bitcoin's block chain technology works off of this dialectical tension.

Block chain not only relies upon TCP/IP and DNS for its basic operations, it amplifies the

distribution and hierarchization of these protocological controls. This occurs because black

chain, designed by Satoshi Nakamoto, recognizes distribution as hierarchical and

hierarchization and requiring distribution of its form to secure its infinite reproduction.

> In the long run, Bitcoin will be very disruptive to the developed world," Dan
> Morehead, a former Goldman Sachs executive who now runs a hedge fund focused on
> Bitcoin, told me. Things are happening sooner in Argentina, he said, because its
> financial system creates hassles for the people there. But, he added, "Argentina is just
> a more extreme example of the situation in every country.[71]

This is the background against which the Satoshi Nakamoto meme series is to be

considered. It is imperative that we take into account the remarkable ways that Bitcoin

materializes in order to understand the humor of these memes, but also important to

understand the double function played by the Satoshi Nakamoto reference. On the one hand,

the suggestion that Perelman is Nakamoto is ridiculous. The memes are conscious of this as a

self-ridiculing device augmenting their solicited response. On the other hand, suggesting that

Perelman is Nakamoto playfully ascribes to each a more tangible identity than either figure

affords when considered in isolation. What is significant about this is not that one is to

unironically accept the premise of their identity in spite of the obviousness of the falsehood

of such a claim; rather, that the very unintelligibility of each is rendered, somehow, however

obliquely, more intelligible by the mere supposition of the claim as a means of grounding the

quandary of materiality posed by the work of each figure. In either case, attributed to

Perelman, as to Nakamoto, is an authorship that promises the full presence of sovereignty that

is the origin from whose bourn these new materialities have come. Thus, what we witness in

these memes is the digital's effort to cover over the trauma of its nascence. By rendering the

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[70] Galloway *Protocol* 9.
[71] Nathaniel Popper. "Quick Change." *The New York Times Magazine*: 5.3.15 page 80.

radically unintelligible a peculiar abjection, and the digital thus domesticates and internalizes

the very conditions of its own unintelligibility. Here we are dealing not with a Freudian

trauma that structures the subject through foreclosure, but rather with a disavowal of the

lacunae upon which the digital founds its ontology, and out of which a new materialism is

born. It is precisely the anxiety surrounding the conditions of this process of materialization

that is the subject of this meme series.

Consider, for example, this meme:

Fig. 20

The formal conventions that are dismissed in earlier memes are hyperpresent in this.

We have header text (which functions as a setup), background picture (with images of

familiar faces) and footer text (which functions as punch line). The portrayal of Perelman as a

hobo-like figure is augmented by the delightfully unnecessary inclusion of Zooey Deschanel

and Keanu Reeves. Zooey Deschanel, warranted or not, is the brunt of jokes for her quirky

behavior – which just might include cavorting with the homeless. Keanu Reeves, having been

unable to shake the image of his eponymous Bill from the *Bill & Ted…* series (most righteous

movies!) is regularly the brunt of jokes for resembling or behaving as if he were a wealthy vagrant. This staging allows the viewer to recognize immediately that there is something peculiar about Perelman's state - just as Deschanel and Reeves are thought oddities in Hollywood for not conforming to the conventions of stardom, so, too, are Perelman peculiarities.

Playing off this conventional asymmetry in the identities of Deschanel and Reeves, Perelman's identity is a focal point here. The logic of the joke then proceeds dialectically. The setup or conditional premises start from unspoken cultural understandings. Zooey Deschanel appears to be walking with a hobo, modestly funny in itself as the cultural reception and representation of Deschanel as an odd or peculiar figure in her own right is one admitting of the possibility of such activities. Keanu Reeves sits comfortably in the background of the image, at ease among the geography of the destitute and dispossessed - an image in keeping, too, with his own celebrity image as peculiar and odd (an image contiguous with his character performance in the *Bill & Ted* film series). Perelman, positioned and appearing as if one of the many homeless or destitute abjected souls of our society, carries a plastic bag with belongings unknown. But these unknown belongings are presumed to be virtually worthless, as objects of notable value are presumed to be carried in containers aesthetically and hierarchically suited to their content. Thus, the setup for this joke semiotically calls upon a presumed cultural understanding that Zooey Deschanel is accompanying a hobo…because she does or would do that?...That Keanu Reeves can be represented as a hobo…because in some inarticulable sense he is such a hobo?...That hobos carry bags…because the misery that the homeless are subjected to necessitates such putrid mobility. The dialectical turn of the joke comes from the text superimposed over the edited image and intimates that the hobo in fact is carrying a bag of bitcoin. Therefore, the hobo could not possibly be a hobo as the accumulation of bitcoin is restricted to an elite and

wealthy circle of financial marketiers. Literally the joke invokes the paradoxical nature of identity – the hobo is not a hobo. There is something forever contradictory inherent in the nature of identity, as certain identity markers (bag carrying, failure to conform to conventions) would seem to determine one's very being. But, at the same time, these identity markers remain coherent and self-identical on condition that they not be interrogated further. When I say that this joke proceeds dialectically, I mean precisely that the form of the humour is playing upon the gap inherent in representation between form and content: there is never anything that *a priori* determines the content of a bag, the identity of a person, or the meaning of a subject.

Consequently, there is a dialectical rejoinder to this developmental logic that pertains to materiality. If the materiality of identity is itself a joke, and the materiality of bitcoin (an 'immaterial' currency) is a joke, while at the same time each persists in its material force to structure the very conditions of our daily lives, the presumed absoluteness or givenness of the materiality of conventional currency is seen to be no less a joke. The supposition of the absurdity of equating bitcoin and any form of conventionally accepted currency (e.g. the Canadian or American dollar) comes to articulate itself as a self-deconstructing and dialectically reflexive moment as those 'in on the joke' implicitly recognize the constructedness of their own material reality. Capital is, thus, no more materially and ontologically absolute than is bitcoin, and the physical manifestation of items representing the flows of global capital are shown to be self-undermining.

The conclusion drawn here would seem to comfortably placate the digital subject. But we should consider how precisely this logic maps onto the aforementioned disavowal. The classical formula for disavowal – *I know very well X, but nevertheless, I proceed as if not-X* – is fully present here. To conclude that we know very well that the materiality of conventional currencies is no more absolute or less constructed than that of Bitcoin does not undo the

recognition of Bitcoin's constructedness, nevertheless, by jesting that my enemy's materiality

is a social construction I am able to proceed as if mine were not disturbed by this. The

takeaway from this joke is that the negotiation of the process of materialization as the product

of competing universalities renders the very ontological conditions supporting any

appearance of materiality in its particularity always a contingency.

A similar logic underpins the remaining memes in the Satoshi Nakamoto series. Each

has a comedic pivot accessible to readers aware of Bitcoin's dubious materiality and

Perelman's peculiar abjection. These two features converge interestingly through the series as

mild variations upon the theme arise. For instance, consider this:

Fig. 21

This meme, which takes as its background image one of the more well-known

paparazzi pictures captured of Perelman during his period of reclusiveness in St. Petersburg,

references the 'incomprehensible' process of mining bitcoins to no end other than that it be

made light of by suggesting that the digital technological mastery of Nakamoto-Perelman

extends to a literal impossibility (the mining of bitcoins from an intercom).

Fig. 22

Life After Poincaré: Grigori Perelman (part 1 of n)

"Life After Poincaré: Grigori Perelman (part 1 of n)" is an amateur video short

running slightly more than six minutes, available on YouTube courtesy of user

"grishagenius." grishagenius has also posted a sequel to this video, entitled, "Life After

Poincaré: Grigori Perelman (part 2 of n)."[72] Posted around the same time as the first, it was

presumably made following the success of the original.[73] The most recent versions uploaded

dates to March 2007 and has more than 125,000 views.[74] Following a short introduction that

provides the context for the narrative, the video's narrative imagines Grigori Perelman's

struggle to find meaningful employment after becoming a recluse.

The first of the three acts is set at his mother's house in St. Petersburg. She sits

silently on the couch knitting while he plays Battlefront 2 and bemoans the state of affairs in

which he finds himself. His speech is clearly directed at responding to her absent

admonitions. He pleads with her that he will find a job, explains the difficulties in doing so,

rejects the suggestions that he return to mathematics and so on and so forth. Mother Perelman

has no dialogue in the video at all, and yet, as if she were Grigori's super-ego, he exhausts

himself in an effort to placate her unending demands. He stops playing the video game,

which he deems to be too hard, and moves to the piano where he farcically rehearses

variations on classical scores (often with only a single hand moving). During this period of

rumination various images or thoughts are seen to flash in his mind – purity, no-money, no

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[72] https://www.youtube.com/user/grishagenius/videos The sequel is far less interesting and will not be discussed here. Suffice it to say that it performs all the conventions of a sequel – each specified highlight from the original reappears, less interesting in its repetition and displacement.

[73] You'll notice that the videos currently posted by grishagenius date differently than numbered. (Part 1 of n) was chronologically released earlier, but was only brought into relation with (part 2 of n) when grishagenius created a YouTube account in order to specifically host these two shorts. Which also means that the number of views would be significantly higher if anyone bothered to tally them. Such trivial arithmetic is irrelevant to our purposes and has not been done.

[74] https://www.youtube.com/user/grishagenius/videos

math – which he combines with the notion that the shape of a torus is preferable to the sphere, all to deduce that the doughnut is the materialization of all that he seeks. All superego commands, pace Freud, are negative. There is no positive commandment or law that emanates from psychoanalysis, which performs a recognition of Hume's is-ought fallacy by concluding that subjects are resolved to a forced choice, one which does not guarantee justification or justice, but only ever serves as a provisional ground for the subject's political ontology.

The second act of the video sees him voyage out of the apartment to find a Krispy Kreme doughnut shop. There he applies for a job, goes through the interview (in which he informs the manager that "If you are familiar with my work with doughnut you no need my resume"), and begins to work immediately. Grigori is quite explicit that he has sought doughnut manufacturing and sales as a means of ensuring that he has an "ethical work environment." This impresses the Krispy Kreme manager initially, though ultimately leads to his dismissal only minutes later as Grigori opts to not charge a female customer for her doughnuts on the basis that she is hungry, and if she is hungry it would be unethical to extract payment for this service. The audience is privy to the exchange with the customer entirely via subtitles, while the song "My Mathematical Mind" as performed by the music group Spoon plays in the background. The third act opens with Grigori's solemn return to his mother's apartment, once again unemployed, while John Lennon's "Mother" plays in the background. He returns to Battlefront 2, only briefly explaining himself to his mother, before the game's voiceover announces "He never caught a whiff of what was really going on, until it was far too late." The simple suggestion of course being that as viewers we are privy to the irony of life: moral maxims are incompatible with the political and ethical comportment requisite to maintain one's existence in this world.

There is a clear division in this logic between rule and practice, between ought and is. The portrayal of Perelman as an Aspergian who relates to language as always literal and unambiguous is consistent throughout. In fact, Gessen's understanding of "the extreme male brain" is reinforced by the mechanics of the film, as no female character is given a voice or line of dialogue at any point. The mother is a voiceless terror. The female customer is stripped of her voice as popular music overtakes the soundtrack, we see only her back, and subtitles ventriloquize her from below. It suggests that any faithful representation of Perelman, even a parodic one, must excise the feminine. Even the musical selections involve male vocalists bemoaning long lost mother figures. This ejection of the feminine from the realm of ASD is intimately tied to the imaginary relation of autistics to the literality of language. 'Word identifies clearly object' is a sentiment that is not merely parodic in its utterance, it's performance presupposes a sovereign authority that materializes itself solely through the might of his phallogocentrism.

In its forever striving toward playful delight, this short video ironically misses precisely the essential dynamic that constitutes Perelman. His is not a subjectivity to be understood as properly belonging to a regime of "the hermeneutics of the self" that promises the dialectical gymnastics of personal depth or infinite interiority. Digital subjectivity, which is concerned less with depth and more with technological correctives, aligns more properly with cybernetics – the technologization of the self, state or bureaucratic apparatus.[75] Such technologization seeks to supplant world with universe and, in so doing, eschew the political in favour of politics. Where universe denotes the mere banality of material existence, world indicates an essential inclusion of the process of materialization that makes matter meaningful. Analogously, where politics denotes the banality of policy development aimed at

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[75] See Eli Zaretsky's "From Psychoanalysis to Cybernetics: The Case of Her," in *American Imago*, Volume 72, Number 2, Summer 2014, pp. 197-210.

delivering minimal reforms and efficacious correctives to the technology of the state apparatus, we follow Carl Schmitt's thinking of the political as the normative matrix of differentiality sustaining the possibility of the friend-enemy distinction, understood here as a political ontology that would not erroneously be regarded as the transcendental condition of possibility for the process of materialization. This will be discussed further in the next chapter. The true irony of the short video "Life After Poincaré: Grigori Perelman (part 1 of n)," then, is that as a product of digital ontology Perelman's narrative (be it spoof or homage) foregrounds a Freudian hermeneutics of the self in its narrativization while the formal composition of the digital reigns supreme in its manufacturing. As regards Perelman or digital subjectivity at large, "we are dealing not with Freudianism but with the suppressed or forgotten remnants of the Freudian past."[76]

Fig. 23

Fig. 24

Fig. 25

Fig. 26

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[76] Zaretsky 200

Ferran Esteve Zine

Entitled, "Grisha," Ferran Esteve's zine sets out to tell the story of Grigori 'Grisha'

Perelman. Esteve's 20 page zine was released in June of 2011 on a limited run of 100 copies

which sold out at 2 Euros each.[77] Only four images from the zine have been made publicly

available, reproduced on the next page. The zine was digitally designed and rendered,

presumably printed on a digital press, and disseminated, sold and distributed via online

platforms. Even if the zine was materialized as a print product, I contend that this choice is no

different than the printing of memes with web addresses or QR codes that witnessed an in

vogue moment at approximately the same time, they are digital materials translated into

conventionally analog physical forms – that is to say that the conditions for materialization of

the object precede its physical production across multiple media (this is the process of

materialization).

The style, which is highly representative of Esteve's work, seeks to mimic the effects

of black magic marker on white paper (as one would have found commonplace in late

twentieth century classrooms). It should immediately be noted that this is a digital production

striving towards the realization of just such a style, and not an effort to 'authentically'

produce exactly such a unique or original piece of art. It is therefore preeminently

technological and reproducible. But in its appropriation of this stylistic convention, the work

could be said to be nostalgic kitsch. Whereas the digitalized kitsch nostalgia is not a nostalgia

of kitsch but for kitsch, it ironically reflects upon the conditions of its own production in a

way legacy media renderings would not. The nostalgia for kitsch is an *amor fati*, a delightful

nihilism that has no need of meaning. The nostalgia of kitsch, by contrast, is the shit you find

on Fox News.

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[77] I have since been in contact with Ferran and benefitted from a lingering copy of this zine. It can be made available upon request.
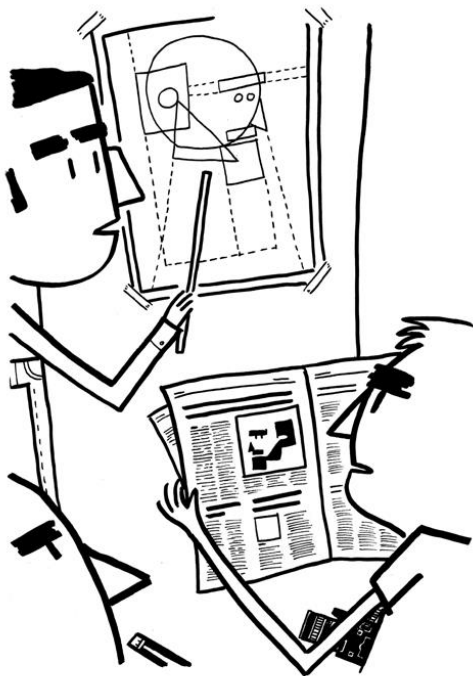
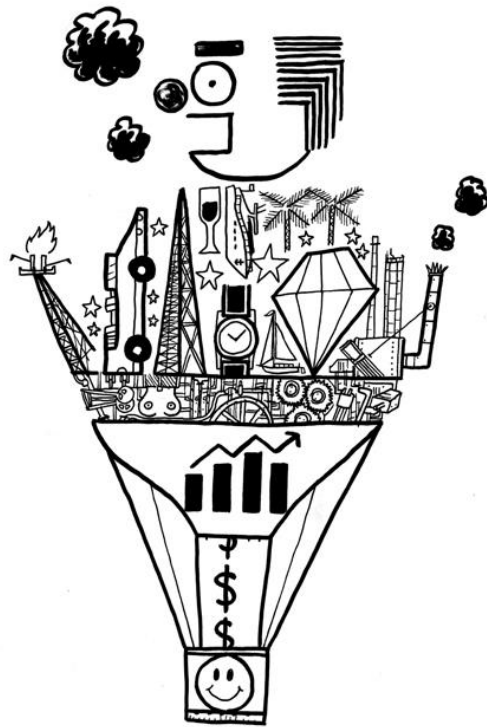Fig. 27

Fig. 28

Fig. 29

Fig. 30

The fourth panel, which I will refer to here primarily as the capitalist machinery panel, should be discussed first. A central feature of the Perelman mythology is his virtuous pivot – that he dared to declare, "I'm not interested in money or fame, I don't want to be on display like an animal in a zoo," has led to many esteeming him as a truly glorious intellectual ascetic.[78] Biographers such as Gessen foreground his upbringing and birth in Soviet Russia when presenting statements such this, and without further evidence or argument insinuate or suggest that his is a spirit essentially other ("Perelman's unparalleled purity"), and therefore not motivated by degenerate incentives such as the accumulation of filthy lucre.[79] Ironically, this is most often cast as an apolitical, transcendental superiority, not recognizing the politic as the competing universality that it is. This is the context for any discussion of and the justification I put forth for dubbing this fourth panel the capitalist machinery panel.

The image, when I first came across it, struck me initially as reading simply from the top-down. At the height of an inverted pyramid we see a rectilinear, and thus, mechanistic, head of a leviathan. Mouth agape, it exhausts puffs of smoke as if pollution resulting from industrial production. The head of the leviathan, unlike that of the frontispiece adorning Hobbes' tome, is vacuous and devoid of human sensibilities. It appears to exercise no judgment at all, but is the mere technological commissar animating its constitution. Such, too, it says, is the machinery of the economic ordering of our existence. The upper torso of this leviathan is made of be-starred automobiles, oil derricks, wine glasses, wristwatches, diamonds, palm trees – in short, emblems of luxury. The arms – one, a smoke stack, the

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[78] This statement is reproduced at the close of the zine.
[79] Gessen 63. Gessen is often inclined to depict Perelman and Russian mathematicians generally as pro-democratic dissidents. Her anti-Soviet sentiments are often framed in pro-democratic terms, and obfuscate her commitment to capitalism. This is not uncommon in representations of Perelman, as his rejection of money is esteemed not as critical of capitalism but as ideologically pure in its pursuit of transcendental knowledge; in this way, the connection between freedom of speech and economic freedom need not be directly made, but through its invisibility is reinforced.

other, a flare stack – are joined by a thing, heavily compressed weaving of body parts and mechanical components. The bosom of a female here, the cog or fan belt of a motor there. The fragmented parts of people and machine are barely discernible, or in any event, discerning their lines of distinction strikes one almost instantly as a fool's errand. This tightly squeezed belt of bodily mechanistic fashion suspends a codpiece clearly designed to resemble stock value indexing, from out of which fright these tent pegs divided by scrolling improvised dollar signs. At the base, this leviathan stands atop a pedestal marked with a vapid smiley face whose presence is so bitterly sardonic as to bring the viewer to chuckle.

But all of this is on a first glance, immediate and unreflective. The moment our chuckling subsides our eyes wander over the image again, this time from the bottom up. When viewed in this way, the creature less resembles a leviathan and more closely approximates the form of a conveyor belt. At the input is joy, happiness in a box. It is converted instantly into dollar signs as it is carried forward through the assembly line. At the entrance to the machine a display shows the worker a double graph, dissonant in its reading. The arrow points upward after a series of peaks and troughs, suggesting a reason for hope or optimism. The last bar, by contrast, shows a marked decline from its previous heights. What has gone wrong? Has there been a problem? What could the source of the problem be? Is my production line less efficient than our target? We are then rapidly run through the machinery belt before gleaming upon the objects of grandeur, above which floats this strange head. Puffing smoke. Has our happiness gone up in smoke? The pupils show no signs of hope. The brow, heavy with seriousness. The hairline receding. How has this monster become?

By reversing the direction of our reading, we have rendered quite a different image. The first, a goliath distant from ourselves; the second, a reviled hoarding of the fragmentary parts of ourselves. Where the first begs for disidentification, the second uncomfortably hoists upon the viewer an inculcatedness and involvement, unwillful and beyond intent. This

disjuncture perfectly articulates the conditions of our contemporary digital capitalism: we see nothing of ourselves in the leviathan, disidentify with the social machinery of which we are unwittingly a part, only to oscillate again to the uncanny moment of feeling swept up in a process outside of and beyond ourselves, included without our consent.

The zine's text accompanying this image reads, "The rich always want to buy everything, even merit and knowledge." With a turn of the page we find Grisha's head opened like a jar, investigators rooting around: "This is why they cannot stand someone rejecting their money and now are determined to find something wrong with me, something to condemn my behavior."

Grisha is depicted in these frames as a large bearded head floating above stilt like legs. Such an image recycles the myths of the man whose intellect is so grand that the conventions of proportional bodily representation are in some way deemed inappropriate to the subject. This much is straightforward. But in drawing around the torso, Esteve is performing a sort of citationality of all the materials we've encountered thus far. No doubt, he would have been familiar with at least some of these materials. What is most of interest to us in such a depiction is that a beard can come to stand for the man at the expense of disavowing Perelman's problematized embodiment. Features, such as unkempt fingernails, in their very absence come to mark a division of realities: the image is begging you to see another reality, another materiality constituting who Grisha is. This is not the division of the psychical from the bodily. The zine could not materialize without the representation of Grisha as somehow embodied. But, unlike the anonymous gathering of readers studying Perelman, all of whom assume a convention of representational embodiment that figuratively reduplicates the anatomy, Grisha's is a form assumed as if by necessity or inconvenience – his is an ethereal embodiment, transitory in nature, transitioning between one space and another as is the wont

of those legs, transitioning between the psychical sublime and banality of the corporeal. This is the division of the analog and the digital.

Prior to engaging any particularity within these images, we should consider them as a set. They are, in many ways, a pristine example of a popular convention in digital imagery. As black and white images they occlude the ornamentation that is colour. In doing so, they create a dynamic interplay of positive and negative spaces that often materialize in a way inverse to classical expectations. As the eye looks to settle upon these comfortable images it is prevented from doing so as an effect of the absent detail of content. These are figures with form without content. However, we should keep in mind here Hegel's critique of Kant: wherever there exists an empty form, that form comes to generate its own content. The formal wholeness of the anatomically figured bodies, playing perfectly upon our digitized kitsch nostalgia for the diagrammatic anonymity of the post-war era, renders the wholeness of the figure as lacking. Lacking psychical fulfillment, maybe. Lacking incorporeal enrichment, maybe. But lacking in access to the division of realms that Grisha's transitional state materializes, certainly.

Consider, too, what is to be seen within the world of the images themselves. Bodies of wholeness gaze upon Perelman. They are captivated by him. In one panel, they read about him in the newspaper while simultaneously studying a board. On the board there is a diagram that is equal parts figurative composition of Grisha and symbolic representation of the topological work for which he has become known. In another, less contemplative frame, these heads pop out from behind a building and stare as Grisha appears to move indifferently out of reach. In this frame, Grisha would seem to be gazing upon nothing at all. The bead of his pupil is present only to mark the utility of a cumbersome ocular device as the beard frames and sheathes over the object of his mind's eye. This same dynamic would seem to be at play on the title page. But for Grisha there is no seems, only is. This is the literality that

grounds his being – his autistic reason. This brilliantly crafted title page has Grisha walking, but fully utilizing his beady pupils to scrutinize something foreign to him. This name, this alien other that is the effect our cultural apprehension with the myth of the man is something towards which he is not indifferent, but from which he is quite different. It is as if Grisha moves away, awestruck by the obscenity of recognizing nothing in himself that he is told is rightly what he 'is.' The figure of Grisha is exhibiting a disidentificatory moment. Where the supposition of his identity is hung among the stars, he wanders gently out of frame, away from our gaze.

Gessen notes early in her biography that "the more people talked about Perelman, the more he seemed to recede from view."[80] But, the important question to ask here is not whether or of what variety is Grisha's psyche. Rather, we should be asking in what way the difference between legacy media and new media can be mapped onto the difference between analog and digital subjectivity. Recognizing Esteve's "Grisha" as a condensation and convergence of those varied threads, we should seize upon the blackness of the black as an exemplary instance enabling our distinctions. For legacy media such as film, light is an essential yet promiscuous thing – its blacknesses are composed not of a pure or unadulterated black, but are rendered visibly black by a deprivation or combination of light. Black on film can be produced simply by blocking out certain portions of the celluloid reel so that the projector's light is required to bend around the obstacle. Thus, in McCall's "Line Describing A Cone," legacy media realizes its promise in expanded cinema by producing the black of the backlit celluloid while a dynamic and playful environment emerges where blackness is the effect of a presence that deprives the screen of light by providing obstacles to light's purity (marks on celluloid or audience members moving through the beam of light).

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[80] Gessen *Perfect Rigor*: x.

Emergent digital technology, by contrast, has no recourse to backlighting its blackness. Emissive screen technologies have developed to the extent that some no longer make use of the conventional backlight technology (responsible for screen burn, ghosting, etc.) and so are capable of rendering a blackness with remarkable depth as a direct result of this blackness not being composed of light. The blackness of devices incorporating OLED (organic light-emitting diode) technology, for example, is a blackness rendered not by backlighting black-set screen functions, but rather, it does away with the logic of the backlight as permanently provisioning the possibility of image transmission. In this way, OLED technology really is on-demand in that the technology reconstitutes what it means for a light emitting device to be ready at hand. The luminescent energy that made early digital screens and projectors functional operates according to a logic of immediate standing reserve – it holds the light immediately at bay, ready to be deployed the instant it is called upon. OLED technology, by contrast, digitally reconceives of the light manufacturing process as the production of light, not from a backlight source that we merely phenomenologically relate to as internal to the machine, but conceives of the production of light as immanent to the demands of the image being called forth. This development is in many ways a perverse absolutizing of the logic of the standing reserve, as it does away with a persistent light emitting source in favour of calling light forth into existence on demand. With OLED tech, the pixels no longer call upon the backlight as the source of light, but directly speak the code of their programming: *let there be light *insert RGB command line here**. We find here another instance of the digital's autism of reason where word/code identifies clearly object.

This brings us back to Esteve's zine. As a product of the digital it is designed as a literal and absolute presence or absence of black. Viewed onscreen as designed, this accords with the literality of the autism of reason. But, and this is crucial, the zine also exists as a physically materialized hard copy. Only the digital is capable of translating RGB to CMYK.

The absence of light and colour that is the black of an OLED screen can be translated into the language of CMYK so that a print copy of a digital design renders accessible the blackness of "Grisha" as a combination flood/knock-out on the fourth plate, thus materializing the digital across analog media. Any such effort to translate CMYK to RGB will forever leave a material trace – such as the variety of ghosting effects will attest to – or indeed, any photocopied course readings can prove instantly. This ghosting or haunted materialization of the translation process should be understood as a pristine materialization of the ontological incongruency of the analog and the digital. That the digital appears to translate to analog in a way that renders the product of reversing this process haunted by a stain should be recognized as evidence of the digital's emergent hegemony: the preconditions of our understanding are such that we relate to the digital as cherubic, sullied by its unfortunate relationship to this lapsarian analog world. It is Esteve's genius to poetically reflect upon the ascendency of the digital in this way by offering a reflection on the competing universalities of the analog and digital in a form whose content would seem to be accessible to both, but whose meaning qua process of materialization is intelligible only when approached from the digital. This artistic piece should be read as a synecdoche of the coming digital hegemony – which, after all, is already around us.

A Remark on Materialism(s) and the Process of Materialization

If all this is about math and an online environment, how does it differ from John Perry Barlow's idealism?[81] Because it has material real world effects, in part. But also, the internet is not now nor has it ever been the ideal and immaterial world Barlow imagined. What

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[81] Barlow regards the digital as immaterial or ideal. Chief among his works on this subject are two papers entitled "Electronic Frontier" and "Virtual Frontier." His writings are widely distributed across the internet, most of which are available at http://w2.eff.org/Misc/Publications/John_Perry_Barlow/.

Butler's process of materialization allows us to see is that the partitioning or separating of the digital from the (conventionally recognized) material is a false dichotomy. The digital is born of the material; it does not and could not exist outside of or beyond it, as its limit is derived from within the conditions of its birth. This is in stark contrast to the view of Slavoj Zizek, who opposes what he calls 'discursive idealism' and lumps into this category the work of Judith Butler.

> Not everything is cultural, that's the paradox. Although you cannot pinpoint a moment which is pure nature, which is not yet mediated by culture, in spite of this you must not draw the conclusion that everything is culture. Otherwise you fall into 'discursive idealism.'[82]

To understand Butler, it would be most productive not to read Zizek's "must" in the context of his theoretical commitments to the Lacanian real, which entails reading this "must," as imperative, not as a formal logical proposition, but as a political commandment. "Although you cannot pinpoint a moment which is pure nature, which is not yet mediated by culture, in spite of this you must not draw the conclusion that everything is culture." This would beg the question, why not? Why mustn't we draw this conclusion? The reason has to do with the vulnerabilities of the Lacanian theoretical edifice. Throughout this chapter, far from hiding from potential theoretical attacks I have made every effort to open the invitation and indicate points or nodes of difference with the brand of Lacanian thought practiced by Zizek, whose work I greatly admire. Their "must not" commandments enter into discourse as a result of their commitment to the classical materialist-idealist binary, which is no longer a productive theoretical framework for thinking the digital as an effect of the process of materialization. In a later chapter in *Bodies That Matter*, entitled "Arguing With the Real," Butler picks up exactly this problematic. Maintaining that "materialization…is not fully

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[82] Slavoj Zizek, quoted from Adrian Johnston's. *Zizek's Ontology: A Transcendental Materialist Theory of Subjectivity*. Northwestern University Press: Evanston, Illinois 2008: 150. The question of materialism as transcendental, particularly as it differentiates itself from the immanent, when and where it does, will be discussed in greater detail in Chapter 3.

stable"[83] as a central tenet of the process of materialization, Butler connects this instability

with performativity:

> Counter to the notion that performativity is the efficacious expression of a human will in language, this text seeks to recast performativity as a specific modality of power as discourse. For discourse to materialize a set of *effects*, "discourse" itself must be understood as complex and convergent chains in which "effects" are vectors of power.[84]

And,

> The normative force of performativity – its power to establish what qualifies as "being" – works not only through reiteration, but through exclusion as well. And in the case of bodies, those exclusions haunt signification as its abject borders or as that which is strictly foreclosed: the unlivable, the nonnarrativizable, the traumatic.[85]

Butler's antifoundationalism takes issue with Zizek's insistence upon there being a

necessary material 'rock' or 'kernel' to material existence that is both contingent and

necessary. Insofar as any theory of the political predicated upon a foundational necessity will

produce a teleologically constrained futurity, that necessity must be recognized as contrary to

the potential realization of any democratic promise. As Butler's reading notes, Zizek would

not disagree with this. Butler goes so far as to exemplify the recognition in Zizek of the

importance of theorizing contingency with regards to "The 'subject-position' of women,"

which, "for instance, is never fixed by the signifier "women"; that term does not describe a

preexisting constituency, but is, rather, part of the very production and formulation of that

constituency, one that is perpetually renegotiated and rearticulated in relation to other

signifiers within the political field."[86] However, when Zizek insists upon the necessity of the

Lacanian real "as the trauma induced through the threat of castration, the Law of the Father,

this "law" is posited as accountable for the contingency in all ideological determinations, but

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[83] Butler *BTM* 140. In what follows, all quotations are copied verbatim – emphases of any sort (itals, air-quotes) are not my own.
[84] Butler *BTM* 139.
[85] Butler *BTM* 140.
[86] Butler *BTM* 146

is never subject to the same logic of contingency that it secures."[87] From this, Butler rightly

concludes,

> Zizek's theory thus evacuates the "contingency" of its contingency. Indeed, his theory
> valorizes a 'law' prior to all ideological formations, one with consequential social and
> political implications for the placing of the masculine within discourse and the
> symbolic, and the feminine as a "stain," "outside the circuit of discourse." [...] If this
> law is a necessity, and it is that which secures all contingency in discursive and
> ideological formulations, then that contingency is legislated in advance as a
> nonideological necessity and is, therefore, no contingency at all.[88]

Butler continues to develop her analysis of the foundation and consequences of this

over several more pages, recognizing along the way the many commonalities, strengths and

virtues of her colleagues' work. This recognition also allows for a reading of the conditions

which may be said to constitute a rearticulation of boundary concepts requisite for the

development of alternative ontological conditions:

> To claim that there is an "outside" to the socially intelligible, and that this "outside"
> will always be that which negatively defines the social is, I think, a point on which we
> can concur. To delimit that outside through the invocation of a preideological "law," a
> prediscursive "law" that works invariantly throughout all history, and further, to make
> that law function to secure a sexual differential that ontologizes subordination, is an
> "ideological" move in a more ancient sense, one that might only be understood
> through a rethinking of ideology as "reification." *That there is always an "outside"*
> *and, indeed, a "constitutive antagonism" seems right, but to supply the character and*
> *content to a law that secures the borders between the "inside" and "outside" of*
> *symbolic intelligibility is to preempt the specific social and historical analysis that is*
> *required, to conflate into "one" law the effect of a convergence of many, and to*
> *preclude the very possibility of a future rearticulation of that boundary which is*
> *central to the democratic project that Zizek, Laclau, and Mouffe promote.*[89]

Butler's commitment to "the very possibility of a future rearticulation of that

boundary which is central to the democratic project" is not simply a commitment to a

particular understanding of the political, it is also an ontological commitment. This

commitment is one of political ontology, where the conditions of possibility of boundaries

themselves have the power to determine the conditions of the political and of how politics is

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[87] Butler *BTM* 146
[88] Butler *BTM* 147
[89] Butler *BTM* 155-6

practiced. By recognizing the possibility of a rearticulation of boundary as such, Butler is implicitly committed to the possibility of dynamic or emergent political ontologies requiring analysis attentive to their own respective complexity and historicity, the conditions of which preclude the "final or complete inclusivity" of absolute universality of the sort sought after by Zizek.[90]

In the next chapter we'll discuss the process of materialization in relation to the stabilizing materialities of digital ontology and the rethinking of agency and authority that comes from accepting the radical contingency of Butler's antifoundationalism, specifically focusing on Perelman's use of digital technology. Significantly, this will give us cause to depart from such an extensive reliance on Butler's early work.

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[90] Butler *BTM* 167-8

Chapter 3: Authority & Ontological Drift

This chapter focuses more explicitly on the technological materials utilized by Perelman in his work. A provisional treatment of Arthur Kroker's work precedes a simple but helpful overview of Perelman's trajectory given first to reacquaint the reader with the 'facts of the matter at hand.' There is a discussion of the significance of the digital technology employed by Perelman where consideration is given to the functions of authorship and authority as materialized by Shing-Tung Yao's contesting of Perelman's material methodological resolution of the Poincaré. Finally, it is argued that the ontological drift we experience as digital subjects is responsible for producing a distinct normative matrix, and that the conditions of this emergent matrix are themselves unsettled as yet (even constitutively unsettled). Kroker's theory of ontological drift, when paired with Butler's process of materialization, affords us a perspective on what digital subjectivity experiences as a disruption to the hegemony of the heteronormative matrix.

Where the previous engagement with Butler's process of materialization provided a clearing for thinking ontology as a destabilized, unfixed, and always provisional field, to delve further into the annals of the Perelman affair requires a movement away from thinking the digital as nebulously post-analog towards thinking the digital as digital. This movement is one that might be thought of as shifting our focus from historicizing or genealogically tracing the digital to reading the digital in its own historicity. This overly simplistic severing of one mode of analysis from the other will prove theoretically untenable, and I offer this moment's thought only as an effort to prime the reader for the methodological shift that comes. A rigorous and attentive reading will show that neither has anything been abandoned nor have I any firmer a 'method' in place than the unrest of a committed thinking. Nevertheless, the gesture of shifting primary textual reliance from Judith Butler to Arthur Kroker in this

chapter is one that sees us carry the Butler of *Bodies That Matter* forward as we traverse the vistas of *Exits to the Posthuman Future*. Arthur Kroker's greatest strength is to think digital subjectivity as constitutively adrift ontologically. The very unfixity and destabilization proffered by *Bodies That Matter* becomes for Kroker a radicalized theoretician's sword of Damocles in the digital. As will be shown, Kroker understands digital ontology not as one of mere provisional stability in what might otherwise be called the common sense application of the term, but rather, he understands the form of provisional stability that digital ontology affords as the stability of the form of ontological drift.

While the notion of ontological drift as developed by Arthur Kroker is elaborated more fully below, a provisional understanding is as follows: ontological drift is the constitutive ontological condition of digital subjectivity such that the nature of digital ontology itself is one of mutant continuity and contiguity. Where metaphysics for moderns, analogs, or pre-digitals designated a being that promised becoming, ontological drift admits the suspension of any such groundedness that may onto-theologically secure a space of judgment legitimizing action *qua* absolute sovereignty, thereby inverting the apparent relation of being and becoming - where once being promised becoming, our ontological condition is now one of becoming that promises a secure and stable being. It is a truly utopian ontology. The conditions of materiality are non-identical in the passage from pre-print to print worlds. A transformation of equal importance transpires in the passage from print to digital worlds. This transformation in the conditions of materiality is strictly analogous with the transformation of the normative matrices of which their respective modes of subjectivity are the effect. Thus, it is imperative first that we not confuse what may be misread as a glib comment, that this is a truly utopian ontology, with a utopian ideology. As can be gleaned from a cursory survey of our cultural non-homogeneity, ideologies as competing universalities can be narrativized as coeval and may contingently promote utopian or

millenarian or other belief systems, while still remaining within a common ontological horizon. Indeed, such disagreement is not only necessary of any ontology but is necessary of any politics: this is to say nothing more than that disagreement is the minimal condition of possibility enabling the friend-enemy distinction requisite of any understanding of the political.[91] That it becomes possible to recognize through an analysis of the political ontology of the digital that the media is deterministic in a non-totalizing way elevates the stakes of this argument to an investigation of the very conditions of possibility to experience freedom in a digital epoch via recourse to a resignification of the symbolic.

arXiv.org Overview

Before publishing the three papers that collectively prove the Poincaré and geomtrization conjectures, Grigori Perelman had already made a name for himself as the author of the proof of the Soul conjecture, which was printed by the *Journal of Differential Geometry* in 1994. For a sustained duration before posting his proof and with little exception since, Perelman has remained a reclusive figure, shying away from the limelight.

This section deals with a series of questions that continue to blur the overly simplistic modelling that would divide the print world from the digital that was discussed in previous chapters. In sequence, the following are addressed: what is the arXiv? What is a pre-print? How is a pre-print different from print manufacturing? What conventions do pre-prints retain or reproduce from print manufacturing? How, then, do pre-prints materialize ontological drift?

There are two fronts from which to attack the question of Perelman's use of media. The first is his technological deployment of advanced recombinant algorithms as they relate

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[91] Schmitt, Carl. *The Concept of the Political, Expanded Edition*. Tr. George Schwab. Chicago: Chicago 2007.

directly to the production of his intellectual labour and the proof of the Poincaré. The second inquires into the media of dissemination of this work. Insofar as the former is inextricable from the postponed or deferred question of the ontological state of mathematics at large, the prudent focus shall be on the latter throughout this chapter. Though, there are supplementary reasons for my making this decision which are deserving of clarification. As a result of first the form then the content of Perelman's digital publishing, a highly publicized and scandalous affair transpired. Another mathematician, Shing-Tung Yao, led an effort to develop Perelman's thinking and publish the work as a claim to authorship relying on legacy media. This affair thus aligns with and continues the previous discussion. Additionally, as an effect of the publicity this affair received, Perelman's peculiar abjection was exponentially intensified while being simultaneously renormalized or stabilized within the boundaries of the hegemony of a developing heteronormative matrix.

The website Perelman chose for publication was arXiv.org (where the 'X' is supposed to be read as if it were the Greek letter 'chi'). The site is world-renowned for its dedication to publishing research papers primarily in mathematics and physics. Though, the term 'publishing' can be misleading here. The arXiv (as it is commonly known) publishes pre-prints. Based out of Cornell University, the arXiv published a series of small texts that can be read as manifestos – with few exceptions these are written by Paul Ginsparg and published prior to Perelman's work. Perelman's decision to publish on the arXiv should be understood as an acquiescence to the principles espoused in these manifestos and practiced by the maintenance of the site. The two most significant engage directly the question of legitimacy and peer review on the internet.[92] The first was titled "Creating A Global Network Knowledge." The noticeable absence of the word 'of' between network and knowledge is

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[92] All of the arXiv papers by Paul Ginsparg to which I shall refer can be found at http://people.ccmr.cornell.edu/~ginsparg/blurb/. This webpage is directly linked from the arXiv under the heading "blurb." All citations will refer to the title of the paper accessible from this page.

intentional. Knowledge on the arXiv is conceived of differently than our colloquial understanding may have it. Firstly, "knowledge here signifies information + synthesis." So, knowledge is not merely the accumulated 'facts' of scraps of information, but regarded as always already the ability to comprehend, interpret, and synthesize bits of information. 'Knowledge,' in this sense, is a critical faculty. Furthermore, knowledge in this sense belies a commitment to a double movement ontologically at odds with the sort of reading performed by liberals such as Gessen (discussed in the first chapter). Where Gessen would have Perelman's political ontology denoting a 'word identifies clearly object' system of representation, Ginsparg's "information + synthesis" both relies on and challenges this assumption. It is reliant upon it insofar as information is taken to be the atomistic unit of a representational system; it challenges this reading in that the practice of addition – the "+" of the formula – clearly reiterates Kantian transcendentalism (a feat that should be strictly at odds with an 'autistic' reason reliant upon a theory supposedly necessitating ontological simples or atomistic units of representation). There is a distinction to be made between the addition of "+" and the speculative possibility of the conjunction "and." Where the former reigns for Ginsparg there is an implicit tautology at play – one that radical shifts the ground of meaning. To have addition "=" synthesis is to materialize a mode of what may be offhandedly called synthetic judgment, wherein the act of synthesizing information is not merely to add or form between bits of information a conjunction, but rather is to formalize the conditions of the relations of the constitutive elements of information such that the act of synthesizing becomes a transcendental act. Secondly, 'knowledge' in the sense of "a global network knowledge" is disembodied from privatization, (being a thing that, due to its nature as a critical faculty, is shared and communally built upon in the digital). Thus, "network knowledge" becomes the very foundation of the commons for a classical liberalism transposed to the digital. The individual contributors or synthesizers of knowledge possess

knowledge, but develop this knowledge solely in conjunction with the intellectual labour of others. The dimension of intellectual labour is imperative to keep in mind, because Ginsparg argues that:

> This is where capitalism should return to the fore: researchers can and should be willing to pay a fair market value for services provided at the information or knowledge levels that facilitate and enhance the research experience. For reasons detailed above, however, we expected that access at the raw data level can be provided without charge to readers. In the future this raw access can be further assisted not only by full text search engines but also by automatically generated reference and citation linking." [93]

Ginsparg is arguing is that capitalist subjects ought to pay for knowledge when and only when the "services provided" already include some form of *post hoc* interpretation and rendering of the research results. If, however, that interpreted and rendered research is itself being used as the kernel of further research, it is to be regarded as being at the level of 'raw data' and not subject to the same charges. In short, the reduplication of intellectual labour ought to be remunerated, but not the further synthesizing of research materials dedicated to the development of knowledge. What is most significant about this schema is that the knowledge-data or knowledge-information distinction (for data and information are deployed as cognate terms) is fully the logic of capitalism. The knowledge-data distinction is exactly analogous to that of the capital-money distinction in Marx's *Capital* – knowledge is to data what capital is to money.[94] Each term is essentially differentiated from its counterpart according to the directedness or purpose to which it will be put to use. Money, of any currency or denomination, can be recognized when used to facilitate exchange directed towards the accumulation of objects of use value (commodities). Capital, by contrast, is a sum of money invested with the explicit intent of being utilized for the purpose of

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[93] Ginsparg, "Creating a Global Knowledge Network," originally presented as invited contribution at UNESCO HQ, Paris, 19-23 Feb 2001, Second Joint ICSU Press - UNESCO Expert Conference on Electronic Publishing in Science, during session *Responses from the scientific community*, Tue 20 Feb 2001.

[94] Marx, Karl. *Capital, Vol. 1*. Tr. Ben Fowkes. Vintage: New York 1977.

reproducing itself. Hence, the oft cited M-C-M' cycle. Data, or information of any file

extension, can be recognized when used to accumulate objects of potentially actionable

utility. Knowledge, by contrast, is synthesized data with the explicit intent of being utilized

for the purpose of reproducing itself in the form of contributing to network knowledge.

The status of the arXiv/archive as a rendering service is ambiguous. Ginsparg

disavows the role of media materialities which are the condition of possibility "for services

provided at the information or knowledge levels," and in so doing he also accepts as just and

metaphysically proper the logic of capitalism as the just and proper mode of organization and

revelation. This is the reason why for these practitioners of the new digital sciences,

knowledge is conceived of as immateriality requiring material support.[95] Where tracing the

process of materialization in earlier chapters would have such a logic set under erasure due to

the clear segregation of the epistemological from the ontological, with this manifesto we are

encountering an instance of the digital's ironic practice of citing the theological foundations

of liberalism. (More on this below when an extensive discussion of Kroker's *Exits* occurs.)

The second paper that has served as a manifesto for the arXiv was titled "Can Peer

Review Be Better Focused?" The basic gist of this article is that digital publication is

quicker, cheaper, and more readily accessible to and for peer review. We ought "to make the

results of publicly funded research freely available as a public good."[96] The 'public good' is

no doubt what Perelman had in mind when he began publishing his work on the arXiv. But

what precisely counts as the public or its good remains to be seen. Following from the

analysis of Ginsparg's earlier manifesto it is unsurprising to see him qualify the form of

research within the bounds of private property. It seems reasonable also to equate "the public

good" with the commons supposed by a network knowledge, accepting that this equation is

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[95] Wark's *A Hacker Manifesto* presents a version of this argument, claiming that "Information is immaterial, but never exists without a material support." (paragraph 127 under Information). Harvard: Cambridge 2004.
[96] Ginsparg, "Can Peer Review Be Better Focused?" Last updated 13 March 2003.

for Ginsparg so obvious that it need not be expressed as such. And in this light, it becomes possible to understand the arXiv as a materialization of the digital commons – one that accepts as its point of departure the clean division of media and content, materiality and knowledge, ontology and epistemology.

From this we can see that the technology employed by the arXiv presupposes two primary things. One – it presupposes a community of academically minded and professional mathematicians that seeks to participate in the advancement of research in all fields of mathematics. It therefore presupposes a level of knowledge and interest for a subject matter of an abnormal degree. The object of the knowledge is not any particular subject, person, or field of study, but rather the endless pursuit of theoretical development for its own sake. Most of the research has barely perceptible applications in the conventional sense. The growth and replication of the community form the singular purpose of this community. Two - the community performatively calls itself into being when it names itself as such. In so doing, it defines itself as a community, distinct from others, yet situated in a murky relation to them. In this community, knowledge is materialized in a particular conception and definition. The production of knowledge in and by this community is regarded as a form of meaningful property, but the conditions surrounding that property are such that they essentially alter the constitution and materiality of what it means for knowledge to be property. In this community, the materialization of matter as knowledge blurs the rigid structure classically associated with property rights in such a way that it also blurs the line dividing subject and object. As the materialization of knowledge, on the arXiv one's published work persists as a quantum of one's labour, serves to (re)create one's identity and makes meaningful the matter of one's intellect. In choosing to publish on the arXiv, one implicitly gives an account of oneself and gives of oneself. Knowledge becomes a marker of one's presence.

The arXiv does not directly 'publish' anything, at least in the sense that publishing is the material production and manufacturing of the printed word on paper in a bounded volume. In fact, publishing on the arXiv is also different from traditional forms of publication (although these conventions are continuously under revision, as will be discussed below) in that the arXiv is primarily responsible for the production of a secondary tier of publications that have come to be known as 'pre-prints.' Pre-prints are becoming the predominant mode of scientific publication. Numerous possible narrativizations can seek to establish a cause for this. One of the more widely adhered to fables, and the one proffered by Ginsparg in "Can Peer Review Be Better Focused?", runs according to the following sequence: scholars of the digital age came to perceive the duration of time that passes between the terminal point of research and/or experimentation and the release date of an official scholarly publication as extraneous to the point of undermining the legitimacy of their on-going research efforts. However, unable or unwilling to proceed without the funding associated with academic publication, researchers sought a means of retaining the legitimizing function of publishing which could be augmented by the instantaneity of the digital world. Unencumbered by the materiality and concomitant temporality of print, digital publications in the form of pre-prints combine the legitimizing function of academic publishing with the experience of instantly securing intellectual property rights over the knowledge product. Whereas the periodical nature of traditional academic publishing made it possible and probable for any given release of a major journal to contain material with a great degree of overlap in content, and for even the most 'cutting edge' piece of that content to be already outdated by the publication date, the digital environment is not bound by the constraints of temporality that accompany print media.

The fundamentally different nature of the medium as structuring and circumscribing different possibilities for its use was of primary concern to Prof. Paul Ginsparg, one of the

founders of the arXiv and one of its most outspoken proponents. However, another more theoretically salient narrative is possible. Where the first narrative establishes the ideology demanding convenience and expediency as the cause of the development of the technology, it ought to be considered to be the reverse. It was, indeed, the presence of digital technology that gave birth to the idea of a need for increased efficiency on the part of academicians. Without or prior to the advent of the technology researchers did not conceive of the process of publication as onerous in this particular way. I am arguing here that media theorists accept and endorse a form of McLuhan influenced, non-totalizing media determinism. The medium is the missive.

It is precisely for this reason that it is imperative to recognize that the arXiv does not simply 'publish' work, it hosts pre-prints. The formofthe medium is more significant to theorizing developing conditions of materiality than is the content transmitted across its wires. For centuries mathematicians have been publishing and publicly sharing their research. Perelman is not even close to being the first professional to disseminate via online forum. His research, however, is some of the most significant mathematics in decades. Having explicitly chosen to post his work in the online forum that he did, Perelman was satisfied that the peer review process would assess and amend his work as needed. Because his research had built upon the work of so many other notable figures, he felt it illegitimate to claim absolute authorship for the final result. However, though the particular venue hosting this document is well known and scrutinized by the discipline's elite, his resistances to submit his work to formal publication – a mode of resistance that challenges the legitimacy of classical intellectual property rights – was met with a chagrin that would officially disqualify his eligibility to receive the Fields Medal he had been awarded. The digital peer review site that legitimated his research was, paradoxically, determined to be illegitimate.

It is strictly not the case that Grigori Perelman is to be understood as a revolutionary. I do not attribute to the man a philosophical genius, or even a conscious politicization of academic publishing as a power nexus, per se. It should be recognized that far from thwarting or stalling capitalism, the acceptance of Perelman's approach to knowledge as communal as well as the content of that knowledge have the potential to generate the production of innumerable new gadgets and gizmos, the invention of a plethora of new products and services for consumption. Perelman's chosen forum for publishing is simply a new form of publishing, one which had yet to attain the hegemonic hold requisite for academia to have recognized it as fully valid. But, the form itself, in reduplicating and transposing to new media the resemblance of the printed word, binds the two in their lineage. By representing itself as an intelligible approximation of print, digital textuality such as the pre-prints of the arXiv are recognizably continguous with print media. This contiguity and intelligibility enable a transition to be made by uncritical users who think nothing more of the passage from reading print to digital than did the viewers who gazed upon canvas before turning their eyes towards the screen of the cinema.[97]

Of vital importance to understanding the Shing-Tung Yao affair is understanding not only how Perelman's chosen medium for publication played a vital role in determining the (il)legitimacy of his work. It must also be understood that he adhered to and espoused a defense of the medium as satisfying the conditions of legitimate contribution to network knowledge understood as incorporating knowledge produced prior to the advent of the medium itself. Perelman biographers, led by Nasar and Gruber, return to the significance of the influence of the work of Richard Hamilton. Hamilton is referenced and thanked gratuitously in Perelman's papers. Perelman has repeatedly made claims that without

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[97] For a substantial engagement with this, see Tom Gunning's "An Aesthetic of Astonishment: Early Film and the (In)Credulous Spectator." *Art and Text* 43: Spring 1989 pp. 114-133.

Hamilton's work on the Ricci flow, he (Perelman) would have been unable to accomplish what he has. In recognition of this Perelman has repeatedly refused to accept the role of singularly triumphant author of the proof of the Poincaré. Perelman's inability or unwillingness to differentiate the acknowledgement of Hamilton's efforts from an attribution of authorship and authority, to any degree, to Hamilton (and others), firmly illustrates that he regards the past practices and conventions of the mathematical community as regards the establishing of authoritative domains to be a perversion of the ontological givenness of network knowledge. What follows in the next section is an analysis of the mathematical community's acquiescence to Perelman in the face of Shing-Tung Yao mounting an assault that would see the past conventions of mathematics adhered to as a means of supporting the claim made by his students that they had, in fact, authored the definitive proof of the Poincaré. As we will see, an integral part of why they were able to be taken seriously in their challenge has to do with the aesthetics of Perelman's work.

The Shing-Tung Yao Affair

> In Perelman's work, spectacular as it is, many key ideas of the proofs are sketched or outlined, and complete details are often missing… We would like to get Perelman to make comments. But Perelman resides in St. Petersburg and refuses to communicate with other people.[98]

This statement was made by mathematician Shing-Tung Yao at a talk in Beijing, only weeks after Perelman had been named to receive the Fields Medal. This sentiment is in keeping with Yao's representation of Perelman as a modest, yet honourable, labourer of a peculiar sort – one whose explanatory incompleteness is a sufficient justification for the intervention of Yao and his team (Huai-Dong Cao & Xi-Ping Zhu). Nasar & Gruber's recapitulation makes this quite clear:

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[98] Shing-Tung Yao, quoted from Nasar & Gruber "Manifold Destiny."

Perelman's proof was unorthodox. It was astonishingly brief for such an ambitious piece of work; logic sequences that could have been elaborated over many pages were often severely compressed. Moreover, the proof made no direct mention of the Poincaré and included many elegant results that were irrelevant to the central argument […] the proof's complexity – and Perelman's use of shorthand in making some of his most important claims – made it vulnerable to challenge.[99]

Cao and Zhu, led by Yao, undertook the writing of an extensive elaboration of the surgery on the Ricci flow as articulated in Perelman's work. These surgeries are necessary for Perelman's proof, and while they have been established as coherently present in Perelman's original work, his "astonishingly brief" articulation of their mechanics and significance made it difficult for many topologists to follow the logical operations as articulated there. Briefly, the Ricci flow is a process of intentional deformation that smooths out irregularities on Riemannian manifolds. For example, Perelman's use of the Ricci flow proves in topological terms that either a zebra or a banana are spheres. The basic 'laws' of topology allow for identity to be recognized between different objects so long as no cuts or conjunctions are made between surfaces. So, when I say that either a banana or a zebra are, in this sense, homeomorphic to a sphere, I may do so legitimately because no cutting or pasting need be performed on either objects in order for it to be made to resemble a conventional sphere – there need only be a series of deformations (push in the nose and legs, compress the length of the banana, etc.). Such offhanded examples can fall apart when pressed upon. For example, the claim that a zebra is a sphere falls apart if I include the digestive tract of the animal – the mouth-anus pathway would effectively become a hole within the greater object, and so become a torus (doughnut shape) and not a sphere. This hole cannot be legitimately sutured according to the conventions of topology. Further to clarifying this, the 'surgeries' that Perelman's work enables on the Ricci flow should be understood provisionally as if they were tumor extractions. An irregularity in the smoothness of the manifold undergoes surgery

[99] Nasar & Gruber, "Manifold Destiny."

to be removed when it prevents the Ricci flow from realizing its end goal of total

morphological capability. These surgeries, which are performed by a set of algorithms that

advanced topological programs can perform, are therefore difference erasing engines, as

symptomal nodes of difference are identified and extracted from the manifold to ensure

regularity and maintain simple identity. Understandably, the mathematics supporting such

operations are exceptionally complex and complicated. What Yao, Cao and Zhu effectively

did was elaborate Perelman's method without contributing information or knowledge to the

operations Perelman had designed.

Cao and Zhu undertook this project at the behest of Yao, who told them "We have to

figure out whether Perelman's paper holds together."[100] They spent nearly a year working on

the production of a nearly three-hundred page document, an article that would eventually be

published by the *Asian Journal of Mathematics*, of which Yao is an editor. The circumstances

under which this article went to publication are succinctly summarized by Nasar and Gruber:

> On April 13th of this year [2006], the thirty-one mathematicians on the editorial board
> of the *Asian Journal of Mathematics* received a brief e-mail from Yau and the
> journal's co-editor informing them that they had three days to comment on a paper by
> Xi-Ping Zhu and Huai-Dong Cao titled "The Hamilton-Perelman Theory of Ricci
> Flow: The Poincaré and Geometrization Conjectures," which Yau planned to publish
> in the journal. The e-mail did not include a copy of the paper, reports from referees, or
> an abstract. At least one board member asked to see the paper but was told that it was
> not available. On April 16th, Cao received a message from Yau telling him that the
> paper had been accepted by the *A.J.M.*, and an abstract was posted on the journal's
> Web site.[101]

One month afterward, Yao had lunch with president of the Clay Institute, Jim Carlson,

who informed him at that time that no complete manuscript of the elaboration of the proof of

the Poincaré or Geometrization conjectures had been received from Yao's competitors and

colleagues, Gang Tian and John Morgan.[102] Tian and Morgan's book-length treatment of

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[100] Quoted from Nasar & Gruber "Manifold Destiny."
[101] Nasar and Gruber, "Manifold Destiny."
[102] Ibid.

Perelman's work would soon be accepted and published, and is now widely available. But, promptly after that lunch, Yao undertook certain revisions of the Cao and Zhu paper:

> By the end of the following week, the title of Zhu and Cao's paper on the *A.J.M.'s* Web site had changed, to "A Complete Proof of the Poincaré and Geometrization Conjecture: Application of the Hamilton-Perelman Theory of the Ricci Flow." The abstract had also been revised. A new sentence explained, "This proof should be considered as the crowning achievement of the Hamilton-Perelman theory of the Ricci flow."[103]

Yao, Cao and Zhu wrote an extensive elaboration of the surgery strictly so as to claim authorship of the intellectual property produced by Perelman. When the moment presented itself, Yao then took it upon himself to revise the title and add a single sentence to the abstract, both maneuvers that independently could be viewed as making an effort to claim authorship of the original ideas. Such a claim could be made because the conventions of mathematically sanctified knowledge are constitutively ungrounded, suspended above a lacunae, yet performatively brought into being through their iterations.

The academic community has had two primary concerns in their response to this matter: who owns it and how is it to be spoken of? Firstly, Yao's claim to holding legitimate title over the intellectual labour associated with the proof of the Poincaré Conjecture has largely been discredited. The actions of Yao and his team have met with disparate interpretation. Yao has apologists and condemners. Nasar & Gruber represent Yao as morally contemptible, but perhaps still 'playing inside the rules of the game.' Donal O'Shea represents Yao and his team as mathematicians brilliantly doing their job, with the purity of intent that identifies the soul of the mathematician, and inadvertently caught up in scandal initiated by Nasar & Gruber.[104] Masha Gessen, conversely, reflects upon the work of Yao's students somewhat more bitingly: "The abstract of the Cao and Zhu paper read more like a

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[103] Ibid.

[104] See Donal O'Shea *The Poincaré Conjecture*. There is something of an effort throughout to rehabilitate Yao (or as O'Shea spells it, Yau). Mathematicians, so O'Shea would have us believe, are humanity's cherubim.

marketing pitch than perhaps any mathematical abstract ever written. In fact, there was

nothing obviously mathematical about it."[105] She goes on to note that Yao "was frantically

creating a chronology to support his narrative, in which Cao and Zhu were the mathematical

heroes."[106] The problematic resolution to this dispute is remains ongoing, or at least so

current as to have yet slipped away into history. Its relationship to academia's adherence to

the principle of legitimizing intellectual labour as a form of property with title and claim,

however, requires further investigation beyond the scope of the present work. An opening to

a more thoroughgoing investigation can be found in Masha Gessen's succinct summary of

how intellectual property operates in mathematics:

> Such is the law of mathematics: the person who takes the final step gets all the credit
> for the proof. The difference between taking the final step and providing the
> explication of the proof is substance, and substance can be a difficult thing to
> measure.[107]

The rejection of Yao, Cao and Zhu's claim by the mathematical community is

tantamount to deferring to Perelman's competing universality, which carries with it a distinct

ontology and politics predicated upon a distinct understanding of normative matrix. The

heteronormative matrix scrutinized with such incisive critical rigor by Judith Butler can be

seen to be giving way here to an emergent form of regulatory power. This emergent

normative matrix, what Arthur Kroker refers to as the code matrix (a term that will be

developed in more detail below) does not adhere to the machinations of phallogocentrism in

ways identical with that of its predecessor. Specifically, the code matrix displaces the

physicality of the text as materialization of logos in favour of a materialization

simultaneously distributed and lacking in physical, indexical fixity. Where both the Fields

Medal Committee and the Clay Institute's Millennium Prizes originally required that the

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[105] Gessen *Perfect Rigor*: 186.
[106] Gessen *Perfect Rigor*: 187.
[107] Gessen *Perfect Rigor*: 187.

recipient's work be published in a conventional and hard-bound printed journal, each was willing to forsake this minor point in order to name Grigori Perelman a recipient. Adhering strictly to the original requirements, where what is expressly not stated because it could not be stated - that the digital is immaterial and therefore of no consequence to this material world – would seemingly have required both committees to name Cao and Zhu as the authors of "the crowning achievement of the Hamilton-Perelman theory of the Ricci flow," and furthermore name them as award recipients in Perelman's place. This certainly did not happen. This is powerfully compelling evidence in support of my claim that the ontology of the digital has been in ascendency for some time as the preconditions to deference or acquiescence were firmly the ground of the mathematical community's judgment in naming Perelman and not Cao and Zhu as the authority materializing this new knowledge.

Ontological Drift

This movement from one form of reliance upon the materiality of discourse to another is what Arthur Kroker has in mind when theorizing ontological drift, and more specifically, archive drift as integral to being at drift. As mentioned previously, ontological drift names the condition constitutive of digital subjectivity, such that digital subjects are at drift and ungrounded in their being (unlike the analogs or pre-digitals, for whom some form of comparatively simple, provisionally stable ground of materiality is necessary). Archive drift denotes the at drift state of digital archives:

> While the impact of technology on the archive is often limited to the notion that analog archives are about to be transformed into searchable databases, my hypothesis is that one of the outstanding characteristics of digital culture, particularly in the contemporary phase of social media, is that the content of the archive has suddenly and risibly expanded to encompass the totality of life itself and, moreover, that the form of the archive has been fundamentally changed by the architecture of social

media. Archive drift, therefore, always has a doubled meaning, namely that the actual *content* of the digital archive is literally at drift – unbounded, animated, deeply relational – in the universe of social media; and that the *form* of the archive patterns itself on the waves of code drift within which it finds itself and on behalf of which the form of the digital archive increasingly comes to represent the key trajectory of technological society.[108]

Kroker builds from the previous of insights of many thinkers, but the work of Judith Butler is always just below the surface, guiding his thought.[109] Archive drift demonstrates this in three complementary ways – through his discussion of a founding ontology of digital media, through his theorizing a return to presence in language qua code, and through his resistance to the totalizing force of digitality by insisting upon the continued possibility of a contestation of political signifiers within the digital matrix.

That archive drift is the "founding ontology" of social media is for Kroker imperative to recognize for contemporary cultural theorists:

> Because what results when the speed of social media slams into the history of the cultural artifact is that the artifact as traditionally conceived is suddenly jettisoned from the domain of the collected, the bounded, the labeled, the studied to become something radically at drift in contemporary culture. Indeed, if digital archives can be so pervasive in contemporary culture, it is, perhaps, due to the fact that, in the age of social media, digital subjectivity has itself been increasingly transformed into a type of cultural artifact – one which floats in a complex web of network relations, its network identity merged with its social identity, its autobiographical narrative shaped by events in real time as much as by the natural rhythms of life and death.[110]

"Suddenly jettisoned" meaning that the materiality of the digital is non-identical to the status of the object as conventionally bounded by physicality. For Kroker, as for Butler, materiality does not necessitate physical presence in the conventional sense practiced by an indexical use of language. Kroker's insistence upon the blurring of the boundary traditionally thought to divide circadian rhythms from digital ones continues Butler's project initiated by her investigations into the process of materialization. Were it simply the case that materiality

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[108] Arthur Kroker *Exits To The Posthuman Future*: 80-1.
[109] For an extended engagement with Kroker's reading of Butler, see his *Body Drift: Butler, Hayles & Haraway*. Minnesota: Minneapolis 2012.
[110] Kroker 82.

existed independent of meaning (recall Butler's 'how meaning comes to matter'), it would not be possible to effect any form of change at the level of ontological boundaries or lines of division (and so, ontological boundaries would determine fully the meaning inherent in any political signifier as that signifier's stability would be guaranteed in advance). Such boundaries would remain absolute and beyond the contestation of social practice, if not beyond the possibility of recognition for any given subject. Concomitant to this, it would also not be possible to think of competing universalities or competing ontologies, for a single ontology would reign forever supreme.[111] That the mathematical community roundly agreed that Perelman's work should stand as the authoritative textual proof of the Poincaré conjecture in spite of Yao, Cao and Zhu's adherence to and reliance upon the textual literalness of the rules of the game, evidences that these very rules lack the anchorage of ontological absoluteness supposed by vulgar positivism. Thus, by recognizing Perelman the community found itself recognizing also the arXiv as a valid archive, one whose material status was legitimized as such.

Kroker's insistence upon the digital's effecting an ontological return to presence in language qua code also evidences a theoretical indebtedness to Butler:

> While generations of cultural theorists have struggled over the division of spoils between the warring languages of sign and signifier, the digital archive begins from another point, the vanishing point of the object of reflection that represents a liquid sign-slide between referents and their coordinate predicates.[112]

And,

> The digital archive can so powerfully draw the past into presence because this fateful meeting of technology and remembrance is in itself an ongoing act of intermediation linking temporality and spatiality.[113]

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[111] As discussed in earlier chapters, this is precisely such a position that is adopted by Marxist Lacanians such as Zizek, hence, their ability to ground a denial or refutation of historicity or historicization generally.
[112] Kroker 84.
[113] Kroker 85.

Taken at face value, these statements may be thought to be anti-Butlerian or non-Butlerian at best. However, the great strength of Kroker's reading of the digital is reliant precisely upon those greatest virtues of Butler's theorization of the conditions of materiality as an open sight of continual contestation. If the process of materialization can be said to denote an essential relation of language qua meaning to the provisional stabilization of meaning inhering in materiality, then Kroker's work can be seen to continue to insist upon this essential relation while developing a cultural theory that accounts for the digital in its own historicity. This is the central reason that I make a theoretical move toward Kroker in this chapter and away from Butler – Kroker's most contemporary work is some twenty years beyond *Bodies That Matter* and engages with conditions of everyday life at one and the same time so chaotically different and yet so near and contiguous to the era in which Butler was writing that, guided as he is by the sensitive and nuanced reading advanced by Butler, he is able to recognize the need to move beyond merely rehearsing the arguments of old. This should in no way be understood as diminishing Butler's achievements. This work is possible only because of Butler's thought. But, recognizing that an ontology predicated upon code as an operational language with deterministic tendencies entails a recognition of the material differences of this period and that of so many years ago. Kroker's great success here is to recognize that the ironical development of "generations of cultural theorists [who] have struggled over the division of spoils between the warring languages of sign and signifier" is that digital code has the magnificent capability to reconcile these warring languages by enabling a return to presence in language qua code.[114] For Butler, it is the form of grammar that will determine the boundaries of a language's potential content (the supposed constative of the statement). For Kroker, it is the form of operational logic that will determine the

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[114] This insight also raised many theologically tinted questions that are beyond the scope of the present study. I should very much like to pursue these in the near future.

boundaries of a code's potential content. That code can adapt or modulate its form so as to totalize additional potential content should be thought as grammatical self-reflexivity transpiring at the speed of fiber optics. What digital subjects relate to as the immediacy of code's reflexivity is thus the phenomenological condition provisioning an onto-theological relation to digital technology.

With regards to Perelman and the Yao affair, it becomes possible to read the mathematical community's heralding of Perelman as the author and authority of an emergent new topology as implicitly acknowledging that archive drift has enabled a return to presence in code. Perelman's script (his textual product that is the proof of the conjectures), as well as Perelman's scripts (the programs and algorithms employed by his work to resolve those proofs), as well as the arXiv's various scripts, manifestos and artifacts form an archive unexpectedly at drift, where the meaning and materiality of the work coincide in the coming to presence of the code onscreen. Mathematicians seem predisposed towards positivist readings of reading – but this should not be accepted at face value. Reading always entails some form of negotiation with the meaning that enables recognition of the materialization of its content as a prerequisite for its intelligibility. Kroker's transposition of Butler's foregrounding the significance of grammar in language as a non-totalizing force of determinism can also be seen in his thinking surrounding how the logic of code obeys similar operational principles: code structures and determines the form that all content shall take; but it never fully determines the meaning of this content:

> The fact that it is a *digital* archive, simultaneously constituted by and framed in its operating logic by software codes implies also that archives in the wires are shaped most profoundly by the logic of the code…Literally, archives in the wires will be self-generating because it is an essential ontological requirement of code itself that the code matrix exists in dynamic homeostatic exchange with other systems of code, not only recording and responding to online queries and new links but effectively adapting its future behavior to that which is trending on the net.[115]

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[115] Kroker 89. Incidentally, I've heard tell of stories out of Cornell that when news of Perelman's achievements went public, the mathematical community at large swamped the arXiv server with requests for access to the

This is the paradoxical drift of digital ontology. Kroker is clearly arguing "that the content of the archive has suddenly and risibly expanded to encompass the totality of life itself."[116] Nevertheless, this totality is one that is to be resisted, which brings us to our last point. Kroker's insistence upon resistance to the totalizing force of digitality by insisting upon the continued possibility of a contestation of political signifiers within the digital matrix evidences a theoretical reliance upon the work of Judith Butler on a number of fronts. To begin with, where Butler will discuss the heteronormative matrix as the schematization regulating subjectivization in late capitalism, Kroker adapts this by writing of the code matrix or the digital matrix. This should not be understood as doing away with the question of gender or sexuality. Indeed, Kroker has no such ambitions as he returns at times to this problem; for example: "when technology intersects with questions of gender, the result is sometimes a sharp escalation in what the critical feminist Donna Haraway has described as the "informatics of domination," but also an equally rapid diffusion of knowledge and activism concerning gender inequities through social media."[117] Kroker's foregrounding of the technological over the heteronormative indicates only a sound belief in the significance of the cultural turn toward the technological as contemporaneously determinative in ways that heteronormativity once was.

This example of the variation in modes of response to the question of gender illustrates another salient feature of Kroker's analysis that is indebted to Butler: political signifiers such as gender remain open to contestation for digital subjects. That a digital

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files. Perelman's work was trending and, in an effort to "adapt its behavior to that which is trending on the net," the server shut down temporarily as mathematicians had inadvertently DDOS'd the server at Cornell. The arXiv has since migrated to a more distributed digital archive. But this anecdote raises legitimate questions about the extent to which the grammar of code – its "operational logic" – was determined by the logic of the reproduction of capital. In other words, are Ginsparg's manifestos prescient and generalizable as examples of the digital ontologizing what may elsewhere be thought ontically? Is capitalism thereby ontologized?

[116] Kroker 81.
[117] Kroker 20.

subject may daily encounter both the violence of the "informatics of domination" and scroll past a meme promoting "activism concerning gender inequities" evidences that the question of the status of gender and sexuality as political signifiers remains open. Indeed, as the challenging of Perelman's materiality by Yao shows the very conditions of materiality remain open to possible resignification. I would contend, and believe that I have convincingly argued here, that the arXiv has attained provisional stabilization as a vital material node within our cultural network. But this site, too, remains stable only provisionally and is thus what Kroker refers to as an open space of ambiguity:

> When fast computation processed slow memory, when the transcendent power of the code mingles with the depth knowledge of the archive, when historical inscription is forced to move at light-speed, the result is a fantastic cultural implosion, specifically the opening up of a space of ambiguity in the previously bounded spaces of the archive.[118]

This chapter has sought to make clear the complexities of arguing for the recognition of digital subjectivity as an emergent mode of subjectivity whose distinguishing characteristics are present throughout the Perelman-Yao affair. Ontological drift, as theorized by Arthur Kroker, brilliantly articulates evolving ontological state of affairs concomitant to this new mode of subjectivity. That the mathematical community roundly recognized and heralded Perelman as the author and authority of the proofs of the Poincaré and Geometrization conjectures, in spite of what amounted to a foundational challenge regarding the material status of the conditions of production of his work, is tantamount to deferring to Perelman's emergent ontology in ascendancy. Revised from earlier chapters was my reliance upon Judith Butler's theorizing of the heteronormative matrix, which was supplanted by the code matrix as the emergent normative matrix regulating subjectivization in digital ontology.

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[118] Kroker 85.

Conclusion

This work has sought to demonstrate that digital subjectivity is an emergent mode of subjectivity by making recourse to the case of Grigori 'Grisha' Perelman. Representations of Perelman differ in their sympathies from legacy to new media and these discrepancies have been shown to be the result of competing political ontologies. The hegemony of the digital was shown to be in ascendancy as it supplants the heteronormative matrix that accompanied the material and ontological conditions of legacy media. This study of Perelman is far from exhaustive.

There are several projects for further research that are born of this one. I was unable to attend to the question of the relationship of mathematics to ontology that I once believed would be the closing of this project. Working vigilantly as I did, it became apparent that such an undertaking was both some years beyond the scope of reasonable completion for this project; but more importantly, beyond my immediate theoretical capabilities. The internecine wars of the set and category theorists appear, if I understand the lesson of Perelman correctly, to be founded upon a misguided schematization of the relationship of mathematics to ontology. This now seems self-evident at least insofar as the cleaving of epistemology from ontology that under girds these debates and has given rise to various warring foundationalist approaches are coming to a head as radical democratic theorists of diverse ilk gesture to a space of critical examination and interrogation that moves beyond merely rehearsing the pros and cons of Badiou's critique of Deleuze. At present, the anti-foundationalist and expressly contra-totality/totalizing movement of contemporary radical democratic theory promises, in my view, to be the surest step forward in advancing an organized and mobilized resistance to the totalizing forces that manifest the logic of digitality. If the resistance requisite for eliding what may be thought of as the digital's will to totalization can be brought to the fore, and if

we are to advance the pursuit of a preservation of the political fomented upon a conceptualization of universality *sans* totality, it must begin here.

Grounding such a speculative inquiry into this perverse media determinism will also require a resolution to one of the many theoretical problems inadequately dealt with here. Namely, the question of the priority of software or hardware in configuring the experience of the digital subject. Where much has been done to legitimately support each side of this debate, I find myself wanting to maneuver between the camps. The transcendental relation of code to silicon is one that I am inclined to read as without a determinative causal relation. It is true that hardware is the physical support that makes manifest the machinations of software. But it is equally valid that the software animates this hardware, mobilizes it and effectuates a resignification of the symbolic in ontologically profound ways. In short, the very categories through which we think the world need revisiting. At present we seem to lack the language to adequately describe what is happening. And though I'm disinclined to accept that this language shall emerge from a concerted and willful effort to craft it, I believe I am willing to traverse the spaces, embarrassments and failures that separate us. But such a journey is sure to do more to reveal what is already at hand than it is to manufacture a tongue or script alien to our eyes.

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