Where is an Author?[1]

[author function: $\lim\limits_{x \to \infty} \dfrac{1}{x}$ where $x = \sum\limits_{i=1}^{P} ORCID_i$]

where $ORCID_i$ measures the authorial output of each Open Researcher and Contributor ID, and P represents the total population of author functions assigned "persistent digital identifiers" in the ORCID "researcher disambiguation system" (ORCID, 2014).

Abstract: If you're reading these words on a digital device, we are not alone: our encounter as author and reader is taking/making *place* in and through an uneven, evolutionary planetary digital infrastructure of cognitive production, measurement, and monetization. Five and a half millennia after symbolic discourses of literacy and authorship co-evolved with the first urban revolution, the material, embodied phenomenological encounters of planetary urbanization have arrived at the precise moment of explosive contingency in the scalar nexus between cities and literacy. "What is an author?" Foucault asked in a brilliant lecture in Paris in February, 1969. Today, if we put Foucault's question into an intertextual dialogue with contemporary critical urban theory as well as earlier elements of Comte, Marx, and Kant, we gain fresh insight into the ways reading and writing are being reconstituted through partially automated constellations of quantification and commodification of human consciousness. Foucault's genealogy of the "author function" has become an increasingly contested and lucrative circuit of accumulation as Marx's concept of the "general intellect" has materialized through the transnational urban networks of what is now widely described as "cognitive capitalism." The growth and

evolutionary adaptation of socially networked cultures of reading, viewing, sharing, and writing are now performing a new neo-Kantian time-space construction of sense perception in a planetary version of Harvey's "urbanization of consciousness," putting individual authors into constitutive conversation with global knowledges once imagined by Comte as the "Great Being" of collective intergenerational inheritance of post-theistic human knowledge.

It's early in the twenty-first century of the Western calendar. If you're reading these words, there is a very high probability that the characters, words, and sentences are delivered to you on a screen, on a digital device connected by wire or wavelength to a vast, evolutionary ecosystem of information and algorithms. This empowers you as a reader like no generation of readers who has ever lived before. With a few slight physical gestures, you can ask your device to search for information about the author of the words you're reading. You can easily obtain a variety of statistics and rankings that measure various dimensions of the popularity or 'impact' of the author's words, or of the publication where the words appear, or of the collections of audiences who have used their digital devices to view the words. This can help you decide whether these words are worth paying attention to. You can find other collections of words written by other authors that manifest varied types of correlations with the authors' words. If the author smuggles a strange word like "transdiscursive" into the text without providing a clear explanation, you can quickly search for a definition across a wide array of blogs, wikis, Twitter feeds, and other phenomena yet to be named. Yet at this point the empowerment of search collides with the radically contingent democracy of meanings. Among all the different ways that "transdiscursive" has been or will be used in digitally available written works -- at the moment, Google tells us there are at least 5,530 -- which one best captures the author's intended meaning? At this point you may well feel offended and violated by the author's refusal to honor the implicit social contract of authorship as it has been negotiated across the centuries of literary and scientific modernity. Does not an author have an obligation to try to make meanings clear, and to explain where others' words or ideas have been borrowed? Shalt thou steal?

Some of the words you've read thus far were inspired by the preface to Jaron Lanier's (2010) cyber-manifesto, *You Are Not a Gadget*; other words were shaped by Nadine

Schuurman's (2013) analysis of the Gutenberg effects of neuroplasticity in creating a new era of "Geographical Knowledge Production 2.0;" and "transdiscursive" is the English translation of Michel Foucault's (1969, p. 386) meaning for the position of an "author of a theory, tradition, or discipline in which other books and authors will in turn find a place." It is the burden of my argument in this essay to demonstrate that Foucault's conceptualization, first introduced in a lecture in Paris in February, 1969 entitled "What is an author?," helps us to understand the scope, scale, and significance of a revolutionary moment we have been living through in the past few years. The material, embodied realities of planetary urbanization have arrived at the precise moment of millennial transformation of the nexus between cities and literacy. If this coincidence might seem to be epiphenomenal when the short-term causal conjuncture A→B is subjected to strict scrutiny, even a spurious correlation has undeniable long-term implications for how critical theorists can "dissect the urban process in all of its fullness" in order to "lay bare the roots of consciousness formation in the material realities of daily life" (Harvey, 1989b, p. 230). The "urbanization of consciousness" (Harvey, 1989b, Chapter 8) is now *taking* and *making* place through online socio-informational networks in the "earthly city of the multitude" of planetary urbanization (Hardt and Negri, 2000, p. 396).

The historical trajectory of cities and urban systems producing revolutionary texts – consider, for an overwhelming moment, all the journalism, manifestos, political theory, graffiti, and literature written from and about the streets of cities from 1848 to 1968 (see Merrifield, 2002, 2010) and to the latest street protests you've been watching and reading about – now stands at an unprecedented event horizon. Today, Foucault's simple question, "What is an author?," exposes a fundamental re-scaling of the relations between authors and readers – especially between authors/readers classified as "students" versus those designated as "teachers"

– in a world of profoundly uneven yet pervasively expanding and urbanizing circuits of internet communication, production, consumption, and surveillance (Graham et al., 2014; Zip et al., 2013; Figure 1, Figure 2). "This book opens with a city that was, symbolically, a world," Lewis Mumford (1961, p. xi) writes in the preface to *The City in History*; "it closes with a world that has become, in many practical aspects, a city." But only two short paragraphs later, Mumford apologizes for retaining parts of four chapters of his 1938 *The Culture of Cities*:

> "If the reader occasionally stumbles upon a ruined portion of that earlier edifice, preserved under a quite different building, like a fragment of the Servian wall in Rome, let him not tax me with undue piety. I have kept only so much as I was not skillful enough to improve or resourceful enough to expand. The material thus retained should give the book an organic continuity and solidity that would have been lacking, perhaps, had I ignored the earlier structure and, like a speculative builder with a bulldozer, levelled the whole tract. In this it reflects with symbolic aptness the historic growth of the city itself." (Mumford, 1961, p. xi).

If Mumford's textual bulldozer evokes memories of Haussmann rewriting Paris or Robert Moses using the Cross-Bronx Expressway to work on a second or third draft of New York, today's textual urban renewal is a swipe of your finger on that handy digital device. *Do you really want to delete?* Or you can peer across the Servian wall on Amazon, where, as a *City* reader you will not be surprised to learn that "Customers Who Bought This Item Also Bought" Kevin Lynch's *Image of the City*, Jane Jacobs' *Death and Life of Great American Cities*, and Peter Hall's *Cities of Tomorrow* -- the latter with its own Mumfordesque ruminations on edifices and ruins. Hall began the first edition with thanks to "the anonymous authors of WordStar and WordPerfect" and "the unknown cottage-fabricators of the Taiwanese clone" manufactured under "the iron

laws of peripheral Fordism" (Hall, 1988[2002], p. xiii); by the third edition, Hall reflected that generations of "personal computers, each exponentially more powerful than the last, have come and gone on my desk; much of this revision was produced *in direct connection with the World Wide Web*" (Hall, 2002, p. xv, emphasis added).

These are textual fragments, ripped out of context. And yet these fragments are now delivered to you through a planetary constellation of networks, readers, devices, and correlations that has dramatically materialized and monetized Marx's "Fragment on Machines" from the *Grundrisse* (Virno, 2007). These networks are re-contextualizing and re-constituting the combinatorial infinities of fragments of human communication. Analyzed through a genealogical technique that Foucault called "discursive instaurations," and put into conversation with critical urban theory and parts of the works of Marx, Comte, and Kant, the question of "What is an author?" can be used to explore several important recent trends in the urbanization of consciousness under conditions of planetary cognitive capitalism.

Plagiarism Frontiers of the Berkeley Unfree Speech Movement

We need a new theory of authorship. To appreciate why, it is worth considering the frustration voiced by Mark Bauerlein, a Professor of English at Emory University. "When students take on research tasks," Bauerlein writes in a commentary on college-level term papers, "here is what they don't do:

- Visit the library and browse the stacks.

- Find an archive and examine primary documents.

- Read widely in the subject before identifying a topic.

Instead, they

- Type a term into Google.

- Consult Wikipedia's entry on the subject.

- Download six web pages, and cut and paste passages.

- Summarize the citations and sprinkle in commentary of their own.

- Print it up and hand it in." (Bauerlein, 2011).

For Bauerlein, the disciplined crafts of authorship traditionally associated with the student research paper -- sustained curiosity, deep reflection, and critical judgment -- are being destroyed by the false promises of a universe of informational tools that "offer too many shortcuts, conveniences, and well-digested materials." "Teachers demand better usages ('Don't just rely on Wikipedia!')," Bauerlein laments, "but they're up against 19-year olds who love speed and effortlessness. Good luck." Yet if the "free-ranging intimacy" (Walker, 2010) of the net enables more widespread plagiarism among students, educational institutions are now able to respond with an unprecedented arsenal of powerful surveillance technologies, especially when the last of Bauerlein's steps is replaced by an online "submit" button. In the emergent field of "plagiarism detection," the Turnitin.com service has quickly become the industry leader; the cloud-based service creates a "digital fingerprint" for each student paper submitted to the system, and compares the results to an evolving database of more than 110 thousand publications, 300 million archived student papers, and more than 40 billion web pages -- all across 18 languages in more than one hundred countries (iParadigms, 2012a, 2012b, 2013; Barrie, 2008).

Turnitin.com was developed in the 1990s by John Barrie, who pursued a double major in rhetoric and neurobiology in what he describes as "a less than ideal undergraduate experience" at

the University of California, Berkeley. Continuing at Berkeley for doctoral work in biophysics

and neurobiology, Barrie specialized in research on

> "how spatiotemporal patterns of the EEG (electroencephalogram) over the
>
> primary sensory neocortices could help one understand how the brain encoded the
>
> sensory world into the neuro-world, how those patterns changed with time and
>
> ultimately how those patterns came together to form our conscious representation
>
> of the world." (Barrie, 2008, p. 16).

At the same time he was refining observational experiments and analytical algorithms for

his doctoral research, Barrie served as a Graduate Teaching Assistant for several large

introductory courses, where he saw his own undergraduate experience from a new vantage point:

"class sizes approaching the ridiculous" made it impossible for students to get any detailed

feedback on their work, creating "a cold and impersonal environment that was exacerbated by a

brutal grading curve" (Barrie, 2008, p. 16). In 1994, Barrie (2008, p. 16) realized he could "use

these new things called the 'web' and the 'browser' to facilitate a completely digital version of

class manuscript peer review" to provide rich, thorough feedback for enhanced student

engagement.

Unfortunately, Barrie soon discovered that many students were taking papers from his

new peer review system and submitting them for other classes. "I had inadvertently created a

mini-cheat site," Barrie (2008, p. 17) realized. Barrie came to a decisive turning point:

> "Now things began to change. I was more than a little irritated that a significant
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> minority of students were cheating their way to an unfair competitive advantage
>
> over their peers. And I was aiding and abetting by providing hundreds of students

with their peers' manuscripts via the class website. I felt a need to put a stop to that problem....

...a real deterrent would require the real threat of getting caught doing the wrong thing. In my analysis, the only real threat would involve creating a database so massive that, when a student is told that their paper will be compared with documents in that database, a student is deterred from cheating. That database would have to include all of the sources a student might use to cheat: the Internet, things in the library and millions of student papers ... The only problem was: how does one search those billions of documents in real time?

The solution was to use algorithms designed to detect regularities in large databases of brain waves and apply the same strategy to detect regularities (i.e., unoriginal work) in large databases of text." (Barrie, 2008, pp. 17-18).

Barrie's vision required a decade of refinement, as well as backing by a $40-billion private equity firm (Warburg Pincus), but the service eventually grew to become one of the most widely used educational applications in the world. Turnitin.com processed more than 80 million student papers in 2012, and maintains contracts with more than ten thousand educational institutions -- including 130 of the top 200 universities ranked by the *Times Higher Education World Rankings* (iParadigms, 2013). The service has withstood several legal challenges by students forced to submit their work to (and thus enhance the proprietary data assets of) a private company (Brinkman, 2012). While the surveillance capabilities were originally devised for

undergraduate college-level course term papers, Turnitin.com's parent company, iParadigms, LLC, has pursued the larger market of K-12 education as well as other domains of credentialling and knowledge-production centers. 'Turnitin® for Admissions' is marketed to admissions offices deluged with student personal statements on college applications. iThenticate® is promoted to publishers and editors of books and scholarly journals. Turnitin.com's plagiarism detection functions, moreover, are seamlessly integrated into the comprehensive "SmarterGrading™ with GradeMark" interface, allowing educators to provide a wide range of different kinds of feedback on students' writing. QuickMark® Sets allow teachers to "save time and provide better feedback by quickly dragging standard or custom marks and comments directly on the paper"; the Voice Comments function allows teachers to "guide students with personalized audio feedback that conveys your 'tone' and clarifies QuickMark® comments"; and with Grade Anywhere[SM] on Turnitin for iPad®, teachers can provide all of this rich feedback from anywhere, anytime (iParadigms, 2013). In October, 2013, Turnitin.com launched a "Cloud Submit" interface allowing direct submission of papers from Google Drive and DropBox, and in March, 2014 the new GradeAnything[SM] feature allowed submission of any kind of electronic file format to the system's expanding pattern-recognition capabilities.

iParadigms' innovations constitute a tiny sample of the technological frontier of what is now widely described as "cognitive capitalism." Given the central role of America's military-industrial complex in building the urban and regional agglomerations of Silicon Valley in the latter half of the twentieth century, however, today's innovations might also be understood as the leading edge of a "surveillance capitalism" (Foster and McChesney, 2014) that has achieved a broader venture-capitalist buyout of the insurgent 1960s legacies of Berkeley and the Bay Area. If the "Mario Savio steps" of the University Administration Building stand as a museum-set

reminder of the "pedagogy of the streets" (Mitchell, 2002) of students mobilizing at the urban

frontier between public and private space in the Free Speech Movement of 1964-1965, a

generation later Berkeley's long-running People's Park protests were literally taking *place* in a

different world: the competitively-upscaled campus built environment of Berkeley's town-gown

interface was coming to resemble yet another of the regimented, Disneyfied spaces of elite

consumption and "aestheticized land-use intensification" (Scott, 2011b) that define

contemporary global-city aspirations. At the same time, Silicon Valley's civilian-consumer

adaptation of military technoscience distracted even the most critical urban theorists; Mitchell

(1995, p. 122) reviews the work of critical theorists seduced by proclamation that "the electronic

space of the media and computer networks has opened a new frontier of public space," with the

digital agora now "the primary site for discursive public activity in general and politics in

particular." Perhaps. Yet the violent revanchism of privatized enclosure of material spaces of

the new urban frontier of a splintering technosocial urbanism (Graham and Marvin, 2001; Smith,

1996) provide the template for a CloudSubmit, Grade Anywhere[SM] dispossession of today's Free

Speech Movements that re-opens the frontiers that Frederick Jackson Turner diagnosed so

carefully upon their closure in America after the 1890 Census (Turner, 1893; cf. Smith, 1996, pp.

xiii-xvii). "The peculiarity of American institutions," Turner (1893, p. 199) declared, "is the fact

that they have been compelled to adapt themselves to the changes of an expanding people" on a

constantly-moving frontier of Westward expansion as 'wilderness' was won and transformed

"into the complexity of city life":

> "...we have ... a recurrence of the process of evolution in each western area reached
>
> in the process of expansion. ...[D]evelopment has exhibited not merely advance
>
> along a single line, but a return to primitive conditions on a continually advancing

frontier line ... This perennial rebirth, this fluidity, this expansion westward with its

new opportunities, its continuous touch with the simplicity of primitive society,

furnish the forces dominating American character. ... In this advance, the frontier is

the outer edge of the wave – the meeting point between savagery and civilization."

(Turner, 1893, p. 200).

    In a Snapchat instant, the Wiki-cut-and-paste culture that so infuriates Bauerlein (2011)

has replaced Turner's nineteenth-century American exceptionalism with the cosmopolitan

creative-coding classes of Silicon Valley. The digital frontier is a decisively global expansion,

yet the close correlations between planetary social media and urbanization (Zip et al., 2013)

persist on the cutting edge where the frontier develops "into the complexity of city life" – and,

even today, "The most significant thing about the frontier is that it lies at the hither edge of free

land." (Turner, 1893, pp. 199, 200). Today's digital free lands are partly about physical

infrastructure provided through military subsidy – the Pentagon's DARPA was Silicon Valley's

Homestead Act, and the old NASA Research Park houses the Google engineers' technotopian

Singularity University – but the real significance of comparing continental territory to "a huge

page in the history of society" (Turner, 1893, p. 207) involves the *cognitive landscapes* of human

attention, memory, communication, and learning. This is why John Barrie's brilliant insight

cannot be dismissed as a mere surface coincidence. The Berkeley biophysics spinoff of

iParadigms is indeed *paradigmatic* in the Kuhnian sense so painstakingly diagnosed in *Social

Justice and the City*, where Harvey (1973) excavated the repressive ideological foundations of

neoclassical economic theory used to understand (and plan) the cities of Fordist Western

capitalism. Today, iParadigms signifies a more cosmopolitan transnational urbanism of post-

Fordist surveillance-capitalist Empire (Foster and McChesney, 2014; Hardt and Negri, 2000) in the fast-expanding universe of privatized educational technologies deployed in a globalizing market of competitive aspirations for wealth (Figure 3). These technological developments have been driven by anticipations of the infinite global "scalability" of massive open online courses (MOOCs) (Heller, 2013). The array of innovations includes authentication software for MOOC remote-testing facilities that analyze the keystroke typing rhythms of students taking examinations (Eisenberg, 2013), "machine learning" algorithms for automated grading of student essays (Markoff, 2013), and tracking systems designed to monitor online reading activities by counting page views and click-throughs to calculate a precise quantitative "engagement index" for each student (Streitfeld, 2013). There is now a significant scholarly literature analyzing how these transformations are enmeshed in the neoliberalization of education, and how individual students and educators are being enrolled into accelerated -- and partially automated -- circuits of digital governmentality (e.g., Castells et al., 1999; Noble, 2001; Brinkman, 2012; Boler, 2007; Smith and Jeffery, 2013). Nevertheless, despite the valuable critical insights in this literature -- from David Noble's (2001) early diagnosis of "digital diploma mills" to Megan Boler's (2007) feminist theorization of the false promises of "digital Cartesianism" and DeAngelis and Harvie's (2009) analysis of the Taylorist quantification of cognitive labor in British higher education -- a case can be made that research in this area has remained too modest, and too deferential. Most of the literature remains focused on the implications of technological change for the familiar, discrete human social roles associated with education (students, teachers, administrators) or social practices (reading, writing, teaching), as if these words carry the same meanings we've all been taught to recognize. They do not. Each of these social positions has been redefined through radical technological contingency, etching fine-grained divisions of working conditions,

learning experiences, audit and surveillance capabilities, struggles for attention and valorization, and processes of knowledge production. Planetary urbanization has arrived at the precise historical moment when networked communications technologies have undermined the historically tight linkage between human literacy and the material proximities defining urban life. "Mind *takes form* in the city," Mumford proclaimed in 1938; "and in turn, urban forms condition mind." (Mumford, 1938, p. 5). Seven decades later the evidence of the mind-city nexus was definitive in the famous MRI measures of mid-posterior hippocampi of London cabbies whose jobs required them to "acquire and use knowledge of a large complex city to navigate within it." (Maguire et al., 2006, p. 1091). Only a few years later, the speedy diffusion of voice-narrated GPS directional systems reconditioned the minds of countless cabbies in so many cities, while more and more urban literacy and communication gravitated to the "new social operating system" (Rainie and Wellman, 2012) of social media.

"We are in a Gutenberg moment in which we are migrating from book reading to Internet browsing," Nadine Schuurman (2013, p. 396) reminds us, and it is worth considering the stunning acceleration of changes that have diffused widely in just the past few years (see also Adams, 2005; Curry, 1996, 1997; Lanier, 2010, 2013; Turkle, 2012). If the latter half of the twentieth century came to be defined by the gathering momentum of computerization and automation in a mechanical, industrial-wholesale sense, the twenty-first century brought a sudden phase shift in the role of digitized information in the cognitive, retail experience of globalized capitalist culture. We suddenly find ourselves in a *world of information* that is fast evolving into an evolutionary proliferation of *informational worlds*. By the most authoritative estimates available, the share of all of humanity's recorded information stored in digital form increased from 25 percent in 2000 to 98 percent in 2013; there is now about 1,200 exabytes

worth of information in the world (Hilbert and Lopez, 2011, updated in Mayer-Schönberger and Cukier, 2013, p. 9).

This flood of information is rapidly redefining the meanings and functions of communication in contemporary human culture -- in the dynamic, shifting, and blurred boundaries among news, politics, entertainment, and education. Precisely the same sudden ease of access to a world of information that encourages the student's quick search and cut-and-paste now enables the real-time deployment of corporate neurologically-inspired software to compare an individual's writing to an expanding database of human communication that is rapidly becoming planetary. A growing share of today's *new* human expression is taking place in digital form, while initiatives like Project Gutenberg, the Wayback Machine and Internet Archive, and Google's monumental book-scanning project are quickly digitizing all possible traces of the cultural *past*. Not long ago, Trevor Barnes (2013, p. 297)

> "heard the all-around American philosopher scientist, James Owen Weatherall, say on a podcast that for every individual in America there are 200 Ancient Alexandria Libraries worth of information that have been collected and stored about them. The Library at Alexandria contained everything worth knowing in the ancient world. So, we now have 200 times what was worth knowing about the ancient world for every living American, and likely a few dead ones too."

No generation in human history has ever lived in such an environment of planetary digital information. Teachers and students are thrown into new digital worlds. The meanings -- and the spaces and times -- of reading, learning, and teaching are in flux (Adams, 2005; Barnes and Duncan, 1992; Curry, 1996). So are the meanings of the Latin word for a writer, a maker, an originator -- the term that eventually became the Anglo-French *autour*.

Comte, Marx, and Foucault

In an age when an author's words can instantly be combined or compared with a globalizing corpus of the words of other authors, what does "authorship" come to mean? When the cognitive overload of Simmel's (1905) "Metropolis and Mental Life" of industrial urbanism is reconstructed through the "multiple meanings of space and time" in the spintered technosocial infrastructures of postindustrial informational cities (Graham and Marvin, 2001, p. 416), what is the position of "authorship" in the contemporary urbanization of consciousness (Harvey, 1989b, Chapter 8)? To be sure, the conditions of possibility of collective human knowledge advanced and transmitted through individual action have always been a central concern of philosophy. It is worth revisiting the issue, however, to understand an era in which the "machinic logic of the multitude" of networked prosumers is said to be building "an *earthly city*, torn away by the power of its own destiny from any belonging or subjection to a *city of God*" of discredited political-theological inheritances of sovereignty (Hardt and Negri, 2000, p. 368, p. 396, emphasis in original) -- an era in which the President of New York University explicitly commits to the construction of a world urban system of universities premised on a collective consciousness in the evolutionary convergence between humanity and God known as the noösphere (Aviv, 2013; de Chardin, 1956). We can gain a fresh perspective on authorship by revisiting key moments of instability in the philosophy of human knowledge at the juncture of science, politics, and theology. This requires consideration of an odd combination: Auguste Comte, Karl Marx, and Michel Foucault.

No other trio makes for a greater sense of theoretical cognitive dissonance: at first glance it might seem a fool's errand to search for common ground between the austere father of

scientific positivism who later became the "High Priest of the Religion of Humanity," (Mill, 1891, p. 125) the historical materialist analyst of capitalism, and the archaeologist of knowledge whose inquiries into the 'limit experience' of human philosophy involved intense readings of Nietzsche, Kant, and Heidegger as well as LSD trips in Death Valley and the "entirely different truth" of gay liberation in San Francisco in the 1970s (quoted in Miller, 1993, p. 28, p. 245). Comte, Marx, and Foucault were each discursively prolific and politically radical -- but in starkly different historical and geographical circumstances of what radicalism meant. Most of the few fragments of their direct engagements with one another are reflexively negative. "I am studying Comte on the side just now," Marx wrote in a letter to Engels in the summer of 1866,

> "as the English and French are making such a fuss of the fellow. What seduces
> them about him is is encyclopaedic quality, *la synthèse*. But that is pitiful when
> compared with Hegel (although Comte is superior to him as a mathematician and
> physicist by profession, i.e. superior in the detail, though even here Hegel is
> infinitely greater as a whole). And this shitty positivism came out in 1832!"
> (Marx, 1866, p. 289).

But Marx was late; the shitty positivist himself, "the thinker of Humanity in place of God," (Wernick, 2001, p. 220) had been dead for almost a decade. Foucault, working to think outside and beyond the lineage of Marx, Husserl, Hegel, and Sartre in what Gilles Deleuze called the "malicious gift" of *The Order of Things*, refused to exempt Marxism from the "archaeology that smashes its idols" (quoted in Miller, 1993, p. 152). Marxism "introduced no real discontinuity" in human understanding "at the deepest level of Western knowledge," Foucault (1966, p. 285) declared, because European modernity's conceptualization of History established its conditions of possibility. "Marxism exists in nineteenth century thought like a fish in water:

that is, it is unable to breathe anywhere else." Foucault certainly admired the oppositional aspirations of Marx's "nineteenth century revolutionary economics" against "nineteenth century bourgeois economics," but Foucault's archaeology was unforgiving: "Their controversies may have stirred up a few waves and caused a few surface ripples; but they are no more than storms in a children's paddling pool." (Foucault, 1966, p. 285).

Yet such quotes are deceptive. Comte, Marx, and Foucault shared a panoramic, critical view of the development of human scientific thought in and through the constitution of modernity. All three were deeply concerned with the relationship between *individual* and *collective* knowlege, and with the implications of changes in knowledge in the physical sciences for the domain of social relations and politics. Marx admired *la synthèse* of Comte's attempt to apply the advances of the physical sciences to the problems of politics and society precisely because they shared a revulsion to the stubborn, atomistic individualism of economic liberalism backed by military force and theological politics; both were obsessed with the "species-specific capabilities of man" (Lenzer, 1972/1973, p. lv) through collective work and knowledge. And Foucault (1966, p. 346) saw the connection too, even as he mercilessly dismantled the materialism of Marx's "species being" and the secular scientism of Comte in favor of an ontology of discourse. Foucault (1966, p. 347) begins his inquiry into the "strange empirico-transcendental doublet" of man at the Cartesian, individual scale: "he is a being such that knowlege will be attained in him of what renders all knowledge possible." But then Foucault takes an unusual approach to get to the scale of societal knowledge, arguing that Comte and Marx established (albeit in contradictory ways) the fundamental importance of theory and discourse as constitutive of, and not only reflective of, the "real":

"Comte and Marx both bear out the fact that eschatology (as the objective truth proceeding from man's discourse) and positivism (as the truth of discourse defined on the basis of the truth of the object) are archaeologically indissociable: a discourse attempting to be both empirical and critical cannot but be both positivist and eschatological; man appears within it as a truth both reduced and promised. Pre-critical naïveté holds undivided rule." (Foucault, 1966, p. 349).

The very conditions of possibility of human knowledge, in other words, rest on "a truth that is of the order of discourse -- a truth that makes it possible to employ, when dealing with the nature or history of knowledge, a language that will be true." (Foucault, 1966, p. 348). But the "status of this discourse," despite all the advances of science in the nineteenth century, "remains ambiguous" (Foucault, 1966, p. 348).

This ambiguity provides a valuable -- yet obscure, neglected, and forgotten -- line of continuity between the politics of knowledge that concerned Comte, Marx, and Foucault, with far-reaching contemporary consequences. Today, for the first generation of humanity living in a planetary urbanization networked through multiscalar transnational circuits of everyday discourse, there is mounting evidence that the ambiguous truth status of discourses of human knowledge has become performative in new ways, through what Paolo Virno (2007) has analyzed as the "mass intellectuality" of post-Fordist cognitive capitalism: "In contemporary labour-processes there are thoughts and discourses that function as productive 'machines' in their own right..." (Virno, 2007, p. 5; see also Hardt and Negri, 2000, p. 298ff, p. 364ff). In order to understand how today's "knowledge objectified in machines" has transformed labor time -- especially *cognitive* labor time -- while creating "new and stable forms of domination" (Virno,

2007, p. 5), we need to scrutinize these distinct yet complementary perspectives on the ambiguity of aggregated human discourse. For Comte, the ambiguity involves the struggle to transmit positive scientific knowledge across the generations at a time in human history when science is suppressed by religious authoritarianism; for Marx, the decisive issue is the question of class consciousness as human consciousness itself becomes interwoven into capitalist relations of production; and for Foucault, the dilemma involves the "empirico-transcendental" tensions of human knowledge constituted within individual consciousness and among human lives defined by relations and fields of power (biopower).

Consider Comte's view first. Today, Comte is mostly remembered for the six-volume *Course in Positive Philosophy*, published between 1830 and 1842. Yet the *Course* was only the first half of a grand vision Comte had outlined in an essay written in 1822. The second half of Comte's project resulted in the four-volume *System of Positive Polity*, published between 1851 and 1854. The *Course* formalized and consolidated the methods of empirical science against the medieval repressions of Catholic theocracy -- and, through the influences and transformations of John Stuart Mill and then the Vienna Circle, established the foundations of the twentieth century's various strains of logical empiricism, logical positivism, and methodological positivism (Lenzer, 1972/1973; Scharff, 1995; Steinmetz, 2005; Wernick, 2001). The *System* was very different, and in fact was widely dismissed as the product of a nervous breakdown and heartbreak after "the extraordinary episode" of Comte's "brief, passionate, but 'morally pure' affair with the ineligible Clotilde de Vaux" (Wernick, 2001, p. 24). Clotilde died in 1846.

The *System* was an outline for a comprehensive, secular "Plan of the Scientific Operations Necessary for Reorganizing Society." This was the title of the essay Comte wrote in his early twenties and spent the rest of his life elaborating. The *Course* was intended to end,

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once and for all, the reign of religious and metaphysical dogmas that were suppressing the advance of human scientific knowledge. The *System* was the next, positive, step. As the illusions of theological knowledge and metaphysical philosophy succumbed to the achievements of positive science, Comte redirected scientific inquiry to the most complex phenomena of all: human politics and human subjectivity. "Social physics" served as the unifying framework for Comte's brilliant yet monomaniacally authoritarian attempt to master-plan a new political order for post-Revolutionary France, and then the entire world – including a comprehensive urban and regional territorial hierarchy that foreshadowed the Christaller central place theory paradigm that was field-tested in the horrific biopolitics of the Third Reich (Barnes and Minca, 2013) before its apolitical, geometric facets provided a template for twentieth-century urban theory in the Quantitative Revolution. The *System* also outlined a detailed science of ethics. The entire scientific manifesto came with a corresponding political program to spread positivist scientific knowledge through "revolutionary schools" and a full-fledged "Religion of Humanity" to replace Christian dogma with a catechism honoring successive generations of saintly scientists who had led the advance of human progress and development.

Distorted and misinterpreted elements of Comte's philosophy became pervasive and influential in the late nineteenth century and in the years up to the First World War (Lenzer, 1997; Scharff, 1995; Wernick, 2001). While much of the history is today forgotten, at the zenith Comte's thought provided an epistemological and political foundation for a century of urban theory in what eventually became known as "urbanism incorporated" (Martindale, 1958, p. 28) -- the Chicago School of urban sociology. Robert Park, who had studied under John Dewey at Michigan in the 1880s and came to be influenced by a strain of "cognitive Darwinism," (Entrekin, 1980, p. 47) included extensive sections on Comte (counterposed with the social

Darwinist Herbert Spencer) when justifying the need for a new discipline known as "sociology"

at the University of Chicago. Several sections of Park's 1921 text for the young discipline that

would eventually become hegemonic -- *Introduction to the Science of Sociology* -- theorize

America's emergent urban-industrial modernity in Comte's terms. And in "The Social Organism

and the Collective Mind," Park defined 'society' with Comte's conceptualization of a "collective

organism" sustained by consensus:

> "The individual, as Comte expressed it, is an abstraction. Man exists as man only
>
> by participation in the life of humanity. ... the individual man was, in spite of his
>
> freedom and independence, in a very real sense 'an organ of the Great Being' and
>
> the great being was humanity. Under the title of humanity Comte included not
>
> merely all living human beings ... but he included all that body of tradition,
>
> knowledge, custom, cultural ideas and ideals, which make up the social
>
> inheritance ... an inheritance into which each of us is born, to which we
>
> contribute, and which we inevitably hand on through the processes of education
>
> and tradition to succeeding generations. This is what Comte meant by the social
>
> organism." (Park, 1921, p. 2).

Now consider Marx. In a brief passage in the *Grundrisse*, that was labeled the "Fragment

on Machines" when the journal *Quaderni Rossi* [Red Notebooks] published the first Italian

translation in 1962 (Virno, 2007), Marx foresaw human experience and knowledge materialized

into the infrastructure of capitalist production:

> "Nature builds no machines, no locomotives, railways, electric telegraphs, self-
>
> acting mules, etc. These are products of human industry, natural material

transformed into organs of the human will over nature, or of human participation in nature. They are *organs of the human brain, created by the human hand*; the power of knowledge, objectified. The development of fixed capital indicates to what degree general social knowledge has become a *direct force* of production, and to what degree, hence, the conditions of the process of social life itself have come under the control of the general intellect and been transformed in accordance with it. To what degree the powers of social production have been produced, not only in the form of knowledge, but as immediate organs of social practice, of the real life process." (Marx, 1857/1858, p. 706, emphasis in original).

The "organs of the human brain" and the "general intellect" were portrayed in Volume III of *Capital* in terms of those processes that could achieve economies of scale in the use of fixed capital:

"These savings in the use of fixed capital ... are the result of the way the conditions of labour have been applied on a large scale. In short, the way in which they serve as conditions of directly social, socialized labour, of direct cooperation within the production process. ..." (Marx, 1894, p. 198).

Marx highlighted three key features of "directly social" labor -- the capacity for mechanical and chemical inventions to unfold "without increasing the price of commodities," the economies of scale attained through "productive consumption in common," and then a crucial third dimension:

"Finally, however, it is only the experience of the combined worker that discovers and demonstrates how inventions already made can most simply be developed, how to overcome the practical frictions that arise in putting the theory into practice -- its application to the production process, and so on." (Marx, 1894, pp. 198-199).

"We must distinguish here, incidentally," Marx adds,

"between universal labour and communal labour. They both play their part in the production process, and merge into one another, but they are each different as well. Universal labour is all scientific work, all discovery and invention. It is brought about partly by the cooperation of men now living, but partly also by building on earlier work. Communal labour, however, simply involves the direct cooperation of individuals." (Marx, 1894, p. 199).

Contemporary Marxist thought has refined and extended Marx's 'Fragment,' (Virno, 2007; Vercellone, 2007) including several specifically urban refinements. The notion of "general intellect" seems implicit to Lefebvre's (1970[2003], p. 30) analysis of the "layers" and "social and mental" "blind fields" of knowledge in and about the transition to planetary urbanization -- as the "verbal layers" of fetishistic ideology in industrial society become detached into deceptive, floating signifiers: "We can look at them the way we look at various cloud layers from an airplane. Here, high above the earth, floating lightly, is the cirrus of ancient philosophy, the nimbus of rationality, and the heavy cumulus of scientism. They are languages, or meta languages, halfway between the real and the fictive, between the realized and the

possible." (Lefebvre, 1970[2003], pp. 28-29). Harvey's post-*Explanation* Marxist turn was a

direct challenge to hegemonic "Chicago style" urban theory (Harvey, 1978[2001]), but he

nevertheless sees the connections between Lefebvre's theorization of the collective right to the

city and Robert Park's memorable quip that "in making the city man has remade himself"

(Harvey, 2012, p. 4). Harvey's (1989) analysis of the "urbanization of consciousness," and his

inclusion of "mental conceptions of the world" among the central co-evolutionary dynamics of

capitalist accumulation and crisis (Harvey, 2011) have updated the idea for contemporary

circumstances. And Marx's general intellect is explicitly urbanized in terms of the convergence

of planetary urbanization with rhizomatic digital practices in Hardt and Negri's *Empire*:

> "What Marx saw as the future is our era. This radical transformation of labor
>
> power and the incorporation of science, communication, and language into
>
> productive force have redefined the entire phenomenology of labor and the entire
>
> world horizon of production." (Hardt and Negri, 2000, p. 364).

What is new today is the endogenous processes by which information and communication are

"embedded in and completely immanent to" (Hardt and Negri, 2000, p. 398) systems of the

"production of knowledges by means of knowledges connected to the increasingly immaterial

and cognitive character of labour" (Vercellone, 2007, p. 16). This is "cognitive capitalism,"

which Allen Scott (2011a, p. 846; also Scott, 2011b, 2013) summarizes as:

> "(1) the new forces of production that reside in digital technologies of computing
>
> and communication; (2) the new divisions of labor that are appearing in the
>
> detailed organization of production and in related processes of social re-
>
> stratification, and (3) the intensifying role of mental and affective human assets

(alternatively, cognition and culture) in the commodity production system at large."

Comte's Great Being of humanity is not theoretically incompatible with Marx's conceptualization of the general intellect, or with contemporary new-materialist portrayals of the multitude as "a machine that is full of life, an intelligent life" that "stamps society with a new collective meaning" in an "exodus toward (or with) the machine" (Hardt and Negri, 2000, p. 366, p. 365). This brings us to Foucault's "most fiendishly intricate text," (Miller, 1993, p. 18), *The Order of Things*. Foucault (1966, p. xxiii) sought to analyze the collective human experience through the evolution of "ordering codes" and "reflections upon order itself" in the development of scientific knowledge since the sixteenth century; he investigated "in what way ... our culture has made manifest the existence of order" and how "modalities of order have been recognized, posited, linked with space and time, in order to create the positive basis of knowledge" as we find it in the emergence of contemporary scientific modernity (Foucault, 1966, p. xxiii). The endeavor is "an enquiry whose aim is to rediscover on what basis knowledge and theory become possible" and how sciences and philosophies could be established, "only, perhaps, to dissolve and vanish soon afterwards." Foucault had no desire to "describe the progress of knowledge towards an objectivity in which today's science can finally be recognized," but instead focused on the *epistemic field* in which human knowledge grounds its "positivity" not only in rationality and objectivity, but its "conditions of possibility" within the "*space* of knowledge" as it is created and negotiated across the generations of human inquiry. "Such an enterprise is not so much a history in the traditional meaning of that word," Foucault (1966, p. xxiv) emphasizes, as an "archaeology."

The "space of knowledge," and any corresponding archaeology, is defined through generations of human inquiry, communication, and indeed the very phenomenological conceptualization of humanity itself. This is where the ambiguity of a truth discourse matters, because "the threshold of our modernity is situated not by the attempt to apply objective methods to the study of men" -- this is where Foucault rejects what he perceives as the raw, mechanistic implications of Comte's (1842) social physics -- "but rather by the constitution of an empirico-transcendental doublet which was called *man*" (Foucault, 1966, p. 347). This is the nineteenth century's sudden flashpoint that separates *individual* Cartesian empirical observation from the philosophical, cumulative scientism of *collective* knowledge:

> "Two kinds of analysis then come into being. There are those that operate within
>
> the space of the body, and -- by studying perception, sensorial mechanisms,
>
> neuro-motor diagrams, and the articulation common to things and to the organism
>
> -- function as a sort of transcendental aesthetic; these led to the discovery that
>
> knowledge has anatomo-physiological conditions, that it is formed gradually
>
> within the structures of the body, that it may have a privileged place within it, but
>
> that its forms cannot be dissociated from its peculiar functioning; in short, that
>
> there is a *nature* of human knowledge that determines its forms and that can at the
>
> same time be made manifest to it in its own empirical contents. There were also
>
> analyses that -- by studying humanity's more or less ancient, more or less easily
>
> vanquished illusions -- functioned as a sort of transcendental dialectic; by this
>
> means it was shown that knowledge had historical, social, or economic
>
> conditions, that it was formed within the relations that are woven between men,
>
> and that it was not independent of the particular form they might take here or

there; in short, that there was a *history* of human knowledge that could both be

given to empirical knowledge and prescribe its form." (Foucualt, 1966, p. 348).

Foucault's analysis of the "giddily reflexive epistemic stance" of the fabrication of Man

is an extension of the "Copernican" philosophical revolution of Immanuel Kant: the 'empirico-

transcendental doublet' is Foucault's terminology for Kant's achievement in *The Critique of*

Pure Reason, where it is the mysterious, unknowable powers of free will and freedom that allow

humans to bridge the gulf between the empirical domain of experience and the transcendental

realm of reason -- categories of knowledge that lie beyond all possible individual experience.

But it was Comte "who had first thought through the implications of bringing Man collectively

into the episteme of modern science." (Wernick, 2001, pp. 50-51; see also Park, 1921, pp. 1-7;

Lenzer, 1997). It is here where Foucault's lifelong commitment to reading through *past*

centuries in the archaeology of knowledge diverges from Lefebvre's (1970[2003]) future-

oriented analysis of the transition from industrial capitalism to the production of urban life. We

now know that urbanization shaped much of the philosophical infrastructure of the Western

modernity Foucault sought to excavate -- most clearly in the nexus of Renaissance urban design

and the development of rationalist Cartesian thought (Akkerman, 2001). There are implicit

urban dimensions, therefore, to Comte's struggles concerning the 'transcendental dialectic' of

knowledge constituted through relations among people versus the anatomo-physiological

conditions of perception within individual human brains. In a deeply politicized mutation of

Descartes' introspective method premised on the axiom of a non-deceiving God, the

conservative philosopher Victor Cousin popularized a doctrine of "interior observation" as a last

line of intellectual defense for the edicts of France's feudal-Catholic hegemony. Comte's

revolutionary scientific challenge to Cousin is now long forgotten, in no small part because of a crucial misinterpretation by Mill (Scharff, 1995); yet the matter of "interior observation" is again all the rage in contemporary cognitive capitalism, as evidenced by the enormous investments now committed to research at the nexus of neuroscience, behavioral economics, and target marketing. Functional MRI brain scans are now fused with evolutionary psychological theories of the human mind as nothing more than "computational systems that have evolved ... in evolutionarily relevant domains such as survival, mating, kin selection, and reciprocity." (Garcia and Saad, 2008, p. 397). Comte's challenge to Victor Cousin's bulwark of established political-economic power is a precursor to contemporary insurgencies against the near-theological commitment of neoclassical economics to the doctrine of consumer sovereignty. Comte's radical proposal for a science of humanity as a collective phenomenon -- the 'Great Being' -- thus merits careful consideration alongside Marx's general intellect and Foucault's empirico-transcendental doublet of human knowledge. We need Comte, Marx, and Foucault to make sense of the networked neoliberalism of contemporary global capitalism, with its ubiquitous Internet connectivity and increasingly automated infrastructures of digital production, consumption, and surveillance. A particularly potent critical sensibility emerges if we engage Comte and Marx with Foucault's 1969 lecture, "What is an Author?"

What is an Author?

"The coming into being of the notion of 'author,'" Foucault (1969, p. 377) begins in a lecture presented to the Société Française de Philosophie in early 1969, "constitutes the privileged moment of individualization in the history of ideas, knowledge, literature, philosophy, and the

sciences." This privileged moment has been misunderstood, Foucault avers, and we can learn much by reconsidering "the relationship between text and author" and the ways a written text "points to this figure that, at least in appearance, is outside and antecedes it." (Foucault, 1969, p. 377). Foucault's lecture is a compelling blend of demanding antifoundationalist theoretical challenges punctuated by clear, concise attacks on the simplistic conventions of "the man-and-his-work criticism" of literary modernism. The classical traditions of Greek epics and Arabian narratives, for example, achieved immortality for writers as well as heroes, yet now "our culture has metamorphosed this idea of narrative, or writing," in newly threatening ways. "The work, which once had the duty of providing immortality, now possesses the right to kill, to be its author's murderer, as in the cases of Flaubert, Proust, and Kafka." (Foucault, 1969, p. 378). Here Foucault (1969, p. 378) offers a generous modesty -- "None of this is recent; criticism and philosophy took note of the disappearance -- or death -- of the author some time ago" -- as a prelude to a more devastating critique: "A certain number of notions that are intended to replace the privileged position of the author actually seem to preserve that privilege and suppress the real meaning of his disappearance." Preliminaries complete, Foucault has prepared his audience for his broader purpose: a wide-ranging project of destabilization that induces theoretical and literary vertigo. Foucault's conceptually rich analysis defies casual, linear summary. For my purposes, however, it is necessary to tease out three distinct elements of Foucault's analysis of authorial modernity in order to illuminate today's technological metamorphosis of writing, teaching, and learning.

The first matter is best described as a theory of the *unbounded author* -- an ambiguous, contingent extension of the work (*oevre*) that simultaneously erodes the self of authorship. If an individual is not yet recognized nor respected as an authority, "could we say that what he wrote,

said, or left behind in his papers, or what has been collected of his remarks, could be called a 'work'"? (Foucault, 1969, p. 379). Once the question is posed, other complications are apparent:

> "Even when an individual has been accepted as an author, we must still ask whether everything that he wrote, said, or left behind is part of his work. The problem is both theoretical and technical. When undertaking the publication of Nietzsche's works, for example, where should one stop? Surely everything must be published, but what is 'everything'? Everything that Nietzsche himself published, certainly. And what about the rough drafts for his works? Obviously. The plans for his aphorisms? Yes. The deleted passages and the notes at the bottom of the page? Yes. What if, within a workbook filled with aphorisms, one finds a reference, the notation of a meeting or of an address, or a laundry list: is it a work, or not? Why not? And so on, ad infinitum. How can one define a work amid the millions of traces left by someone after his death? A theory of the work does not exist, and the empirical task of those who naively undertake the editing of works often suffers in the absence of such a theory." (Foucault, 1969, p. 379).

As you read these words in the retina-resolution pixellated aura of the latest wireless device *du jour*, such expressions from February of 1969 may arrive with a resonance of quaint nostalgia tinged with eerie prescience. Foucault wonders about Nietzsche's laundry list. Do you share my passionate desperation to see Nietzsche's emails, as well as Foucault's? Of course you do. What about their text messages? Certainly. Their tweets and retweets, their Facebook status updates, their Instagram selfies and FourSquare check-ins? Such posthumous prurience might

seem as irrelevant as it is irreverent, but a century from now these sorts of digital fragments will be the texts from which tomorrow's Simmel (1905, p. 143) will analyze the "preachers of the most extreme individualism" like Nietzsche, who have a "bitter hatred" of the city but are "so passionately loved in the metropolis" that drives the intensifying struggle for "particularization" of individual identity. Can we venture a bold hypothesis? Anyone in the world today who tweets a line of Nietzsche or Foucault while cramming for a test has authored some kind of contribution to the expanding planetary digitization of Marx's "general intellect," enhancing the direct force of informational production for Google's leveraged capitalization of humanity's inherited legacy of knowledge in Comte's 'Great Being' of an evolutionary Internet.

Can today's global social mediascape really be connected to authors of the past? A second dimension of Foucault's analysis demands that we give serious consideration to such questions. There is "a paradoxical singularity of the author's name," Foucault (1969, p. 381) emphasizes, because the "author function" requires the name of an individual to perform much more serious work than an ordinary proper name. This is because an author's name "performs a certain role with regard to narrative discourse, assuring a classificatory function" (Foucault, 1969, p. 381) that is quite separate from the matter of one-to-one personal, authentic identity. The author's name is not an individual personal identity, but rather *a representation of an individual embedded in society and human communication* through the ways readers engage with the author's works. The author's name thus allows a reader to "group together a certain number of texts, define them, differentiate them and contrast them to others," while establishing "a relationship among the texts" of multiple authors (Foucault, 1969, p. 381). In a contemporary, cynical interpretation of Foucault's reasoning, we might say that the author is a brand, an intellectual property with a market value negotiated through the infrastructures of cultural-

products industries and copyright law. Such valorization, however, is only possible because the "author function" is a collective, socially-created identity. This identity transcends any creativity in the mind of the individual author. The identity is constituted *within* and *between* the communicating minds of readers: the author function is an investment of collective social meanings regarding whose words and ideas are worth paying attention to.

Such collective social investments have varied historically, with corresponding contingency in the author function. Foucault reminds us that in ancient Western civilization, narratives, epics, and other works we would today understand as *literature* were widely accepted without concern for the identity of the author; conversely, texts that we would today classify as *scientific* (medicine, natural sciences, geography) were acknowledged as statements of truth only when marked with the author's name. The sixteenth and seventeenth centuries, however, bring a reversal in the author function. Anonymity becomes acceptable in science, where discourses are increasingly validated through their "membership in a systematic ensemble" rather than by "reference to the individual who produced them": the author function becomes a matter of *classification* (with inventors' names used to label theorems, effects, or pathologies) rather than *validation*. At the same time, literary culture develops a much more strict adherence to the individual aspects of the author function: "We now ask of each poetic or fictional text: From where does it come, who wrote it, when, under what circumstances, or beginning with what design?" (Foucault, 1969, p. 383). When a text is left anonymous (by accident or intent) "the game becomes one of rediscovering the author. Since literary anonymity is not tolerable, we can accept it only in the guise of an enigma." (Foucault, 1969, p. 383).

Today the author function is once again in transition. The positivist presumption of a "systematic ensemble" of scientific truth-claims validated through objective experimentation and

observation is now perpetually in conflict with the financial rewards to those individual authors recognized and valorized as the source of innovation. At the same time, the uneven yet unmistakeable planetary consolidation of digital networks of networks as the setting for an expanding share of all human communication and knowledge production is eroding many of the most important distinctions that concerned Foucault (as well as Comte and Marx). The binary genealogy of "scientific" and "literary" discourses -- which Foucault (1969, pp. 383-384) hastened to qualify as an historical generalization -- is replaced by dynamic, instantaneous, and multidimensional performances of the author function through algorithms of classification in the monitoring, measurement, and mobilization of audiences (Schuurman, 2013; Lanier, 2010, 2013; Mayer-Schönberger and Cukier, 2013). Scientific and literary discourses -- and indeed any and all discourses amenable to classification and measurement -- are increasingly validated and valorized through real-time streams of data on purchases, downloads, page-views, citations, and other digital representations of audience engagement.

As the author function is digitized on a planetary internet, more of the discourses of human communication that necessitate an "author function" in the first place are being *constituted* through online practices. This brings us to the third key dimension of Foucault's archaeology of authorship: the societal transformations of *collective* thought initiated by *individual* authors. Foucault coins the term "transdiscursive" to denote authors who create disciplines, traditions, or theories in which other authors "will in turn find a place." Nineteenth-century European modernity, moreover, brings even more remarkable kinds of authors that Foucault (1969, p. 387) calls "founders of discursivity." These authors create works that establish "the possibilities and the rules for the formation of other texts," enabling the conditions of possibility not just for analogies, similarities, and imitations (as in the familiar instances of

influential novelists or playwrights) but also transformative differences. Founders of discursivity create texts that set the parameters within which subsequent generations of authors undertake the work of interpretation, refinement, adaptation, and challenge -- enabling "an endless possibility of discourse."

Ironically, it is here that Foucault slips into an implicit logical-positivist demarcation between founders of discursivity and founders of *science*. In scientific innovation, even the most exceptional author is positioned at a definite historical juncture of discovery: the individuality and personal, embodied circumstances of a founder of science like Galileo recede so that Galileo's observations, theories, and methods can become part of the systematic ensemble of collective scientific knowledge. Subsequent scientific advances may uncover flaws or limitations in the work of a founder of science, necessitating appropriate amendments in how contemporary science is refined or applied; but these later developments cannot alter the founding scientist's discourse itself.   Galileo's texts are what they are.

By contrast, true founders of discursivity -- Foucault singles out Freud and Marx as the first and most important -- create inherently dynamic, shifting spaces of knowledge that evolve through repeated "discursive instaurations" and "returns to the origin." Successive generations of authors who engage with the texts of Marx do not uncover external positivist truths addressed by Marxism, but instead remake new internal truths: the return to the origin changes the very meanings of the discourse of Marxism itself. Marx and other founders of discursivity "have created a possibility for something other than their discourse, yet something belonging to what they founded." (Foucault, 1969, p. 388).

Where is an Author?

We are now in a position to develop a theory of authorship appropriate for the distinctive spatialities of today's planetary urbanization of consciousness in the network society. Recall the argument thus far: 1) The plagiarism detection services of iParadigms, LLC offer just one example of the breathtaking capacities of a vast, unprecedented infrastructure of surveillant transformation in planetary human communication -- thus re-defining many of the meanings of authorship. 2) Today's revolutionary turmoil in knowledge production can be understood from a unique perspective by engaging with Comte's post-theistic understanding of collective human knowledge as the "Great Being," Marx's theorization of the "general intellect" as a direct force of capitalist production, and Foucault's geneaology of Kant's "empirico-transcendental doublet" of knowledge constituted *within* and *between* human minds. 3) Foucault's 1969 lecture, "What is an Author?" is an especially powerful catalyst for a critical analysis of authorship in the networked planetary urbanization of cognitive capitalism -- if we undertake a 'return to the origin' of selected concepts developed by Comte, Marx, and Foucault. After considering all these seemingly contradictory prerequisites, how can we theorize contemporary authorship?

I take it as axiomatic that authorship entails *individual* creativity arising from conditions of possibility that are inescapably *collective*, socio-spatial constitutions of language, communication, and recognition. Individual and societal knowledge are dialectically interwoven in dynamic currents of learning. Sometimes these currents of learning yield cumulative advances that are understood as 'progress.' Sometimes they yield destabilization and revolutionary shifts in thought. What is decisive, however, is the capacity for individuals to gain access to, and to contribute to, socially necessary parts of the collective accumulation of human knowledge

produced by individuals from other times and places. I apologize for the cumbersome

terminology here, but "socially necessary partiality" is absolutely essential to my meaning. The

socially necessary labor power of Marx's analysis of commodity production, when adapted for a

globalizing cognitive capitalism built on the commodification of the human attention span and

the antagonism between "the dead knowledge of capital and the 'living knowledge' of labour"

(Vercellone, 2007, p. 33), has its corollary in the inherent human limitations of reflection,

understanding, and expression.   An author's creativity is impossible without selection,

abstraction, focus, and concentration. Given the limits of human cognition, the creative act of

authorship -- individual engagement with the collective accumulation of human knowledge --

absolutely demands partiality. The 'socially necessary' aspects of this partiality are historically

and geographically contingent, defined by the cultural, material, and political context in which an

author makes creative decisions that are relevant and useful for particular purposes (Adams,

2005; Barnes and Duncan, 1992; Curry, 1996). Crucially, the domain of the urban was among

the dominant scalar constraints that maintained partiality: while Simmel's (1905) metropolis

was overwhelming, the technical and social dimensions of communication and knowledge

production imposed limits -- for instance, through the centralization of publishing houses in a

comparatively small number of dominant cities.

     If partiality is essential to what it means to be an author, technological acceleration has

created a countervailing illusion of infinite possibility across vast, dynamic planetary urban

systems. From Alexandria to Gutenberg to McLuhan's global village, the advancing

technologies of recordable, retrievable human communication dramatically reduced the barriers

for individuals seeking access to the collective accumulation of human knowledge. Authorship

under nineteenth- and twentieth-century modernity came to be defined by a presumption of

individual access to nearly *all* important societal knowledge -- first for a privileged elite, and then progressively for broader communities of readers. By the late twentieth century, the Internet promised fully universal access, and shortly thereafter the interactive capacities of Web 2.0 arrived with assurances of radical communicative democracy: everyone can be a reader, everyone can be an author.

But a funny thing happened on the way to informational infinity. The individual consciousness of the author function was put at risk by the explosive technological capacities to mediate the relations between individual authors and collective human knowledge. We're drowning in information.   The slow primary sensory neocortices of human brains fall further behind the expanding volume and accelerating velocities of the information society: neurons can't compete with silicon and code. Hence the everyday paradox of stunning advances in aggregate, *societal* achievements of human creativity and collaboration -- alongside the exacerbation of psycho-social risks experienced by *individuals*. The same societies locked in the global competitive races for Nobel prizes, "world class" educational systems, and billionaire success stories are also the world's growth markets for antidepressants. Cognitive-capitalist innovation frontiers (such as an expanded telecommunications ecosystem with a more readily optimized array of niche audiences) are now implicated in a significant intensification of psychological disorders: movies and reality television now condition the vivid experiences of schizophrenia -- a phenomenon suitably branded as the "Truman Show Delusion" (Gold and Gold, 2012).

Behavioral adaptation to cope with the constant threat of information overload has become the defining essence of life in many domains of cognitive capitalism. The pressures are especially significant in education.   Educational institutions, trapped in a speeding hamster-

wheel of intensifying transnational competition to achieve "world-class" status in various

ranking and testing regimes, now struggle to cope with multiple epidemics of *individualized*

dangers: increases in the legitimate diagnosis of ADHD; thriving underground economies for

the off-label use of Adderall, Ritalin, and other ADHD drugs as academic steroids (Schwarz,

2012); evolutionary plagues of cyberbullying (Schneider et al., 2012) and Internet addiction that,

at the limit, are regularly implicated in cases of student suicides (Hinduja and Patchin, 2010);

and, of course, the varied factors of competition, anxiety, and expediency that lead many

students to plagiarize. Here we come full circle to iParadigms' surveillance of billions of web

pages in dozens of languages across the planet, implemented through the creative adaptation of

analytical protocols learned through an individual author's interest in spatiotemporal patterns of

the electroencephalogram over the primary sensory neocortices of human brains. When the

iParadigms algorithm meets the "Cloud Submit" interface to compare students' words with the

contents of billions of web pages and publications around the world, Foucault's separation

closes: automated cognitive pattern-recognition software integrates the neuro-motor diagrams of

the Kantian transcendental aesthetic with the historiographies of the transcendental dialectic of

an infinite Google.

Contemporary Authorship as an App?

Contemporary authorship is constituted across three transformations of individual

creativity within the conditions of possibility of collective human knowledge. In each of these

transformations, the philosophical extrapolations of nineteenth-century modernity that concerned

Comte, Marx, and Foucault have suddenly become the mundane, taken-for-granted capacities of the device on which you read these words: *The Order of Things* as an app.

First, Foucault's unbounded author has exploded, propelling the innumerable traces of authorial creativity simultaneously inward to the scale of the 'anatomo-physiological' conditions of the human brain, and outward to the scale of global circuits of communication and learning. The blast radius catches heroes and villains.

Consider the inward shifts first. The dramatic advances of neuroscience of recent decades have coalesced with the invasively popular and aggressively creative discourses of what Jerry Mander (2012), a former president of a commercial advertising agency, calls the "privatization of consciousness." "Ours is the first generation in history to have essentially moved its consciousness *inside* media," Mander (2012), p. 23) observes, and the diminishing marginal returns available in a world saturated with advertising are driving innovation inward. In cognitive capitalism, Wall Street has become increasingly dependent on Silicon Valley to deliver regular breakthroughs in the speed and efficiency of the commercial colonization of the human attention span. The old Newtonian gravitational fields of advertising are losing effectiveness in a world where (according to the dominant audience-rating firm Nielsen) the average U.S. adult sees more than two million television commercials by age sixty-five; general relativity requires adaptive, interactive innovation at an accelerating pace, which became clear in 2007 when Nielsen forged a partnership with Google to "give advertisers a more vivid and accurate snapshot than ever before of how many people are viewing commercials on a second-by-second basis, and who these people are" (Stelter, 2007, p. C1). More recently, in a conference call with investors, Facebook CEO Mark Zuckerberg mapped the current edge of the frontier when he described the company's enthusiasm for acquiring artificial intelligence firms;

"Such technology could help Facebook understand the objects inside users' photographs, such as handbags or food, which could lead to more targeted advertising." (Rusli, 2014, p. 20).

Such developments imply that anyone aspiring to become an author today -- or a reader, a teacher, or a student -- must undertake the Nietzschean quest "to become what one is" in a world of intensified commercial colonization. "What the Internet has achieved," Mander (2012, p. 23) concludes, is an aggregate increase in the time spent by people "physically attached to information machines as their sources of imagery and ideas. The science fiction image of the disembodied brain seems ever more appropriate." The final frontier of the capitalist colonization of knowledge about knowledge -- the human brain -- is mapped not only by 'Darwinizing' neuroscientists (Garcia and Saad, 2008) and U.S. federal officials involved in the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative (Markoff and Gorman, 2014), but also by the esteemed cartographers of yesteryear's colonial worlds: *National Geographic*'s February, 2014 cover story maps "The New Science of the Brain." It's almost as if Victor Cousin's theological pseudo-science of interior observation has been assigned as required reading for advertising executives, Silicon Valley digerati, and the Wall Street executives demanding ad revenue from publicly traded informational companies. Only a few decades after Donna Haraway (1991) diagnosed the neurological turn in the emergence of the "cyborg" in the comparatively specialized confines of scientific laboratories and poststructuralist theories of "epistemological shock therapy" (Haraway, 1988, p. 578), neuroscience has become popular culture in a planetary privatized consciousness where more than half the world's population has smartphones. The "brain training" Internet game Lumosity is proudly advertised as "based on the science of neuroplasticity." Various trending celebrities are shown in witty banter with Siri. Nokia promotes the new Lumia 1520 with a bold declaration: "This phone

records feelings," with its advanced high-definition camera and four-directional distortion-free microphones; "Don't just record. Re-live!" An ad campaign for a recent Android smartphone portrays a man in a futuristic laboratory undergoing cybernetic enhancement: "brain upgrade complete ... predictive intelligence with Google Now ... It's not just an upgrade for your phone; it's an upgrade for your self."

The outward dimensions of the unbounded author are also important. The cumulative aggregation of billions of socially networked individuals is now described as a "new social operating system" (Rainie and Wellman, 2012) and a "hive mind" capable of speedy, efficient allocation of a global "cognitive surplus" (Shirky, 2010) unleashed by the unprecedented possibilities of real-time collaboration. Looking backward across the centuries, Foucault (1969, p. 348) understood the profound significance of the divergence between the "anatomo-physiological conditions" of knowledge within the space of the body, versus the historical, social, and economic conditions of knowledge "formed within the relations that are woven between men." Today the closure of this separation inaugurates a new kind of authorship enabling the production of *oevres* that transcend -- at velocities accelerating towards the deceptively-labeled phenomenon of "real time" -- the inherited binaries of knowledge production: individual/collective, local/global, and embodied/Cartesian. This new kind of authorship certainly has emancipatory potential, as demonstrated so vividly in the "hacker ethic" (Himanen, 2001) historical progression of Linus's Law -- Linux creator Linus Torvald's (2001, p. xiv) maxim that computer hacking speeds the evolution of human motivations through the phases of survival to social life to entertainment -- towards the transformative geopolitical possibilities of networked social-justice mobilizations of the past few years. The *oevres* of the Arab Spring, Occupy, and so many other mobilizations exemplify a new smartphone situationist

social physics in which "dialogue arms itself to make its own conditions victorious." (deBord, 1967, thesis 221). As Castells (2012, p. 219) puts it:

> "Enthusiastic networked individuals ... are transformed into a conscious, collective actor .... social change results from communicative action that involves connections between networks of neural networks from human brains stimulated by signals from a communication environment through communication networks."

Yet there's a catch. It is ontologically impossible to conceive a "conscious collective actor" without *consciousness* being defined to include the entire range of possible variations of human thought and expression found within the *collective*. This was the fatal omission of Comte's (1842) dictatorial master plans for social physics; and this is the fundamental insight of Foucault's doctoral thesis, *Madness and Civilization*: mental illness is a societal construct, not an individual-level biological condition. Hence any understanding of conscious, collective authorship demands a recognition of the "philosophical values accorded to the lives, utterances, and works of artists and thinkers conventionally deemed 'mad.'" (Miller, 1993, p. 103). We can't define authorship in terms of the utopian possibilities of crowdsourced social justice without also including the collective *oevres* of pathologically violent mobs of cyberbullies, the insanely sophisticated creativity of black-hat hackers and identity thieves, and the transnational "cognitive surplus" devoted to child pornography and snuff film sharing networks. Not long ago, a pair of 12-year-old girls in a Milwaukee suburb tried to prove themselves worthy to a fictitious online character named "Slenderman" by luring a 12-year-old friend to a local park -- where they repeatedly stabbed her with a kitchen knife; Slenderman had been created five years

earlier by the username Victor Surge (subsequently identified as Eric Knudsen) in a post to an online forum that quickly evolved into a vast horror-film subculture of writing, pictures, and iPhone apps contributed to the Creepypasta Wiki (Davey and Yaccino, 2014). Slenderman is a "horror figure for the selfie age," a "web-based, crowdsourced urban legend" with, it would seem, the power to inspire attempted murder (Manjoo, 2014). Conscious, collective authors may be brilliant or mad. Usually they are both.

To the degree that collective consciousness is becoming a reality in authorship, however, it is imperative to have powers of definition and classification at the fine line between madness and brilliance, so that the latter can be valorized while the former is policed. Hence the second element of a contemporary theory of authorship: The socially-created, collective meanings of Foucault's "author function" are now mediated through the network architecture of digital neoliberal capitalist planetary urbanization. Each element here is crucial. *Digital* is about numerical representation amenable to enrollment in systems of calculation and automation. *Neoliberal* is about the revival of political doctrines of the seventeenth- and eighteenth-century navigations of global colonial discovery and plunder. And *capitalist planetary urbanization* involves the social relations of accumulating wealth by extracting surplus value from the exploitation of human labor, as capital continues to shift towards the production of cities and urban life as the central circuit of accumulation (Lefebvre, 1970[2003]). Centuries of cumulative advances in labor-saving technologies refined through successive technological eras of industrial commodity production are now coalescing with planetary information networks, pushing into new urban frontiers of increasingly automated accumulation that are transforming the division of labor, redefining the "time-value of labour to knowledge value" while "the exploitation of the use-value of labour-power expands to the entire social day" (Vercellone, 2007, p. 30, p. 34).

Yesterday's advances on the frontier – such as the optimized exploitation of living labor through dynamic flexible-specialization transnational outsourcing networks – are augmented today with systems achieving further rounds of accumulation enabled by appropriation from dead laborers of previous generations: depending on the day's market conditions and which part of the fragmented trading landscape is considered, up to 68.3% of all dollar volume of Wall Street stock market transactions now involve high-frequency trading firms deploying "algorithmic trading" strategies designed to harvest speculative gains through ever more precise slicing of time (see SEC, 2014, p. 13). Across a dynamic world urban system of city elites competing for the 'cognitariat,' the integration of algorithmic digital technologies and "finely honed cognitive and cultural forms of human capital" (Scott, 2011b, p. 298) are transforming the author function into a bizarre hybrid of Comtean algorithmic positivism, discursive Foucauldian poststructuralism, and raw materialist Marxist political economy.

Foucault understood that the power of the author function was to establish relations among texts and discourses among the minds of many readers. Comte understood that this power had once been the monopoly of Catholic theocracy, but could be challenged and replaced by the experimental and observational logics of scientific knowledge. Marx understood that this kind of knowledge was revolutionizing productivity – and he saw that once it was ensconced into new machines and industrial processes in commodity production it would provide extraordinary opportunities for the accelerated appropriation of surplus value. More recently, Steve Jobs, Mark Zuckerberg, Jeff Bezos, Larry Page, and Sergei Brin understood the implications of network technologies for the capitalist commodification of human attention on a global scale (see Schmidt and Cohen, 2013, pp. 36ff; Lanier, 2010). In the network society, 'content' matters, but even more important is *the architecture of the relations formed within and among the minds of*

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'readers.' Fortunes are now accumulated through control of the algorithms gathering data streams from a general intellect that is, for the first time in the history of humanity, amenable to real-time positivist observation (and even experimentation) with the digital transformation of everyday social life. Roland Barthes' (1968, p. 148) announcement of the death of the author -- "a text's unity lies not in the origin" (the author) "but in its destination" (readers) -- is the birth of Google's search algorithm, whose $40 billion annual advertising revenue comes from harvesting the constantly-changing ways that billions of people ask questions and seek answers. "People click more frequently on the results that provide more meaningful answers," the science historian George Dyson (2012, p. 264) concludes in an analysis of the parallels between Internet search engines and the work of Alan Turing in the 1940s, "and with simple bookkeeping, meaning, and the map between questions and answers, begins to accumulate over time. Are we searching the search engines, or are the search engines searching us?"

In education, vast algorithmic infrastructures are built of code, corporate law, users, and 'content providers' in an evolving networked author function. Some parts of the infrastructure are designed to adapt the old models of surplus value realization in publishing for the ruthless oligopolistic economics of the digital age, by chasing the new "Big Data" possibilities of measuring and making markets for educational materials. Other parts of the infrastructure -- Thomson ISI's citation indices and impact factors, Google Scholar's H Index -- are designed to measure the "impact" and institutional legitimacy of certain kinds of authors. Other parts of the infrastructure are explicitly designed for various kinds of disciplinary surveillance of the sites of tomorrow's authors: online "learning management systems" (LMS) seamlessly integrated with online standardized testing regimes, copyright compliance systems, institutional analytics for ranking students, teachers, and schools, and of course the plagiarism detection powers of

iParadigms and their competitors. Surveillance and discipline are nothing new. But no generation of humans has ever before lived and worked in this kind of informational world. An aspiring author's words can, for the first time ever, be subjected to powerful forms of mathematical comparison with virtually all of a social institution's collective investments in the meanings, values, and rules associated with the author function. As more parts of more social institutions -- and entire societies -- are pushed online, the old scalar constraints of geographical limits to governmentality give way to a more unstable (yet always potentially global) network of institutionalized oligopticons.

Rewriting Space and Time

The Kantian converse is also changing: as spatial limits are transgressed, so are the temporal horizons of possibility. This is the third element of contemporary authorship -- a reconstruction of the very conditions of possibility of "the idea that the mind imposes order upon the world" (Berdoulay, 1978, p. 82) for an age in which human minds can be instantly put into communion with infinite combinations of other human minds on a planetary scale. Instead of reading these words, you could be talking or texting with any number of people on one of the world's ten billion mobile internet devices (Meeker, 2014, p. 11). Instead you're patiently following my reasoning as I write these words (by hand) and check my citations (by paging through physical books) to remember that "the idea that the mind imposes order upon the world" (Berdoulay, 1978, p. 82) can be traced back through multiple neo-Kantianisms to the original Kantianism itself, a philosophy that "was a condition of the Western mind for a century and a half" (Berdoulay, 1978, p. 88). The meliority of Kant's thought marks a founder of discursivity

who has endured through the generations: neo-Kantianisms have always been "far from monolithic" (Berdoulay, 1978, p. 81), with a remarkably adaptive author function. Neo-Kantianisms have been combined with "some Comtean positivism" (Berdoulay, 1978, p. 81), and the philosopher of mind Mark Rowlands (2004) places Marx alongside Hegel and Nietzsche as neo-Kantians. Indeed, if neo-Kantianism is defined as "the view that there are activities of the mind whose function is to structure the world," (Rowlands, 2004, p. ix), it is "difficult to imagine anyone who is not neo-Kantian." Today, only a few years after Spivak (1999) undertook a return to the origin to adapt Kant's *Critique of Pure Reason* for a postcolonial world and Foucault (1984) took Kant's "What is Enlightenment?" to its logical conclusion at the limit-experience of human possibility (Miller, 1993; Hardt, 2014), we now inhabit a world in which Silicon Valley visionaries, activist veterans of Occupy and the Arab Spring, NSA administrators and Edward Snowden all agree: minds *can* impose order upon the world, depending on how many minds can be connected at the right place and the right time.

The very meanings of "right place" and "right time" are being reconfigured. Planetary circuits of all those forms of communication that constitute today's "author function" are, for the first time ever, able to enact in real time the performative empirical phenomena of modern neo-Kantian idealism -- creating a new incarnation of what Foucault (1966, p. 347) so admired in Kant's Copernican "empirico-transcendental doublet." The craft of authorship, in other words, is now being reconstituted in space and time through digital instantaneity.

Struggling against the sense-perception obsessions of eighteenth-century British empiricism, Kant sought to "establish a logic of how we know and construct the world" (Smith, 1989, p. 96). Whereas there are some undeniable external realities -- "things-in-themselves" or *noumena* -- "their transmutation into thought [is] a complex process" (Smith, 1989, p. 96).

Things-in-themselves generate sensory perceptions, but the senses are limited and unreliable --

thus requiring that 'raw' sense-perception data be ordered by human reason. This organization

into meaningful understanding produces what Kant calls the *phenomenon*. The phenomenon is

between the thing-in-itself and conceptual thought, but is created by both. It is "a bare concept

made sensible," (Kant, 1965 ed., p. 260), an "appearance" that can be "thought as [an] object

according to the unity" of pure categories -- "the pure form of the employment of understanding

of objects in general" (p. 265). Phenomena blend the necessarily messy, embodied empirics of

sense-perception observation with the kinds of conceptual thoughts that eventually lead to the

"transcendental" realm of the inherently unobservable; for Kant, the three crucial unobservable

realities were free will, immortality, and God.

If phenomena mediate between the empirical and the conceptual, then the very conditions

of possibility of human understanding depend critically on how human sense perceptions extend

through time and space. This is what Paul Adams (2005) calls the "extensible self" of

contemporary communications. Yet this is more than a simple matter of today's authors and

readers casually adopting the latest technologies to search the past and speak across distance --

important as this certainly is -- but rather a fundamental reconstruction of how time and space

condition the very possibility of human knowledge. Writing before the partitioning of scholarly

knowledge along formal disciplinary lines that came with the industrialization of the academy in

the nineteenth century, Kant recognized "a certain deep-seated priority to spatial and temporal

knowledge of the world as a whole," (Smith, 1989, p. 97), and assigned special importance to

geography and history:

"Description according to time is history, that according to space is geography ....

History differs from geography only in the consideration of time and area (*raum*).

The former is a report of phenomena that follow one another (*nacheinander*) and has reference to time. The latter is a report of phenomenon beside each other (*nebeneinander*) in space. History is a narrative, geography is a description .... Geography and history fill up the entire circumference of our perceptions: geography that of space, history that of time." (Kant, *Physische Geographie*, quoted in Hartshorne, 1961, p. 135).

This is the panoramic, global conceptualization that has so often reassured geographers' ontological anxieties through devastating periods of interdisciplinary competition and retrenchment (Smith, 1989). Yet in *The Critique of Pure Reason*, Kant's conceptualization of time and space at the individual scale of human consciousness helps us understand how planetary social networking and cloud computing now reproduce Marx's "general intellect," Comte's intergenerational inheritance of human knowledge in the "Great Being," and Foucault's archaeology of the "empirico-transcendental doublet" of human knowledge "formed gradually within the structures of the body" versus understanding "formed within the relations that are woven between" human minds. For Kant, space is not an external medium but instead "a property of our minds," (Kant, 1965 ed., p. 67) and time is "the formal *a priori* condition of all appearances whatsoever." (p. 77). Space and time define "the subjective constitution of our mind" (p. 68). As Bertrand Russell (1946) puts it, space and time are "subjective, ... part of our apparatus of perception" (p. 734), and the *phenomenon* is a doublet -- one part arising from "sensation," and another part "due to our subjective apparatus" that orders sense-perception into organized, coherent, and meaningful relations. "This latter part," what Kant calls the *form* of the phenomenon, "is not itself sensation ... it is always the same, since *we carry it about with us*, and

it is *a priori* in the sense that it is not dependent upon experience" (Russell, 1946, p. 739, emphasis added).

It is hardly necessary for us to become Facebook friends with the latest generation of neo-Kantian theorists (see Curry, 1996, pp. 102-105; Rowlands, 2004, p. ix; Smith, 1989) to notice that the form of our "apparatus of perception" has changed dramatically in less than a generation. It is not simply a matter of the increasing share of human authorship and communication that relies on a priori cognitive phenomena that are independent from direct experience; it is also about the rising proportion of cognitive phenomena consituted through algorithmic informational environments that are becoming partially autonomous forms of direct experience in their own right. The immersive multi-player virtual reality games like Second Life are seeping into the network architectures of "real" life for the exponentiated phenomenological digital-individual (Curry, 1997) simulacra of billions of networked devices, profiles, bots, and avatars. As declared by the author function labeled "Eric Schmidt and Jared Cohen" but designated for legal enforcement purposes as "©Google Inc. and Jared Cohen,"

> "By 2025, the majority of the world's population will, in one generation, have
> gone from having virtually no access to unfiltered information to accessing all of
> the world's information through a device that fits in the palm of the hand."
> (Schmidt and Cohen, 2013, p. 4).

When Castells (2012, p. 219) theorizes social movements as "networks of neural networks" of "human brains stimulated by signals from a communication environment," and when Rainie and Wellman (2012) celebrate the speedy, far-flung support systems of social media as a "new social operating system," Kant's eighteenth-century idealism is coded into the software of twenty-first century cognitive capitalism at the interface between world and mind. Space, after all, is not just

"a property of our mind," but is *outer sense*, while time is *inner sense* of reflection and

knowledge of the self:

> "By means of outer sense, a property of our mind, we represent to ourselves
>
> objects as outside us, and all without exception in space. ... Inner sense, by means
>
> of which the mind intuits itself or its inner state, yields no intuition of the soul
>
> itself as an object; but there is nevertheless a determinate form (namely, time) in
>
> which alone the intuition of inner states is possible, and everything which belongs
>
> to inner determinations is therefore represented in relations of time. Time cannot
>
> be outwardly intuited, any more than space can be intuited as something in us."
>
> (Kant, 1965 ed., pp. 67-68).

Kant wrote these words in Königsberg sometime in the years before 1781. Two centuries later,

the field of geography was being swept by the innovations of "time geography," a

methodological paradigm that sought to reconcile the social sciences' post-World War II

quantitative revolution with humanist perspectives on behavior, meaning, subjectivity, situation,

and contingency (Hägerstrand, 1970; Pred, 1977). Given sufficient information on individuals'

time use and spatial location (from individual surveys, or from micro-level

historical/biographical records capable of countering the "highly edited views of lives" portrayed

in mainstream, elitist histories; Miller, 1979, p. 4) time geography promised unprecedented

insight into human "lifepaths" in "the ceaseless matching process, or pairing-up ballet," between

people, environments, and activities in place (Pred, 1977, p. 209). The approach deployed

twentieth-century methodological positivist social-science methods in an attempt to measure the

"choreography of existence," (Pred, 1977), the "lifeworld" of a phenomenology that can be

traced back through Husserl and Heidegger to Kant himself (Pickles, 2009). A generation later, the communications geographer Paul C. Adams (2005, p. 1) adapts and refines Hägerstrand's "lifepaths" concept to make sense of the changing relations between writers and readers:

> "As I sit at my desk writing, I am engaged with an audience that exists in other times and places. I am struggling to communicate with distant places and times: writing, deleting, replacing words and phrases as if involved in a heated discussion, although the room is silent. My audience is at once imaginary and real: at the moment of writing, it is imaginary; at the moment of reading, it is real."

But Adams' reader (me, and now you) performs the reality of reading in a time-space of uncertain and contingent meanings. Contingency arises not simply from the ambiguities of language that made Wittgenstein into a postpositivist, but through the embodied, contextualized space-time experiences of daily life:

> "Try as I might, I cannot produce the same idea in all members of my audience. A major reason ... is that our lifepaths -- that is, our physical movements through space and our social movements through communities -- have brought us 'here' to this virtual encounter by many routes, and these tortuous routes have left tracks on each of us." (Adams, 2005, p. 3).

Adams theorizes the "boundless self" to understand the implications of the contemporary network society -- "Everyone on the planet grows up in a mediascape," he reminds us (p. 17), and for each person the mix varies amongst books, radio, television, cinema, and the Internet. Yet as I have been writing these words (by hand, on paper), I have been struggling to communicate with a growing fraction of an imagined audience whose lifeworlds have been

networked, mobilized, digitized, and multiplied at a pace that has accelerated just in the few

short years since the publication of Adams' remarkable book. Today, who sits at a desk in a

quiet room to write? Who writes on paper? Who is even permitted to determine the

technological conditions of their own writing? In one of the academic departments on my

campus, *every* instructor, *every* student is required as a matter of policy to submit papers to

Turnitin.com. Nearly every "letter" of recommendation I write must now be submitted through

an automated (and usually privatized and subcontracted) online system; the last recommendation

I submitted elicited an insta-spam-reply from Checkwell™, "one of the world's largest providers

of employment screening," inviting me to explore their other services -- BackCheck™,

MoraleCheck™, ConcernCheck™, and ExitCheck™. A decade ago, it made sense for Adams to

assert (2005, p. 8),

> "Agency (the ability to act) is clearly a part of being human; technologies do not
>
> act of their own accord. ... it makes little sense to attribute agency (the ability to
>
> act) to communications technologies. My phone has no power until I consent to
>
> live part of my life through it and thereby accept the boundary conditions that it
>
> imposes on my interactions."

Yet in a brilliant humanist counterpart to the actor-network theory and assemblage literatures

that have become so deeply influential in recent post-humanist social theory (Hinchliffe, 2009)

and contemporary critical urban theory (McFarlane, 2011a, 2011b), Adams (2005, p. ix) also

analyzes how communications technologies constitute networks that are "made, rather oddly,

both *by* us and *of* us." Communication -- and the technologies by which it occurs in space and

time -- conditions the way the speaking and listening "self" comes into being (see also Curry,

1996, 1997). And both 'agency' and 'consent' are now quite elusive. With each passing year, it

is more difficult to refuse to live parts of our lives through the constellations of devices,

algorithms, and fragmented representations of human expression of the evolving network

society. How do we even begin to locate "agency" in those information-saturated parts of the

world where nearly every institution -- retail and wholesale, private-market and public-service --

is quickly rebuilding its operations for online interaction, where 'users' find fewer and fewer

humans? In this "robotic moment" (Turkle, 2012), humans are spending ever more time

communicating with friendly voice-recognition systems, customized machine-generated emails,

and the increasingly sophisticated auto-recommend algorithms designed to adapt to all

observable traces of our digital histories. Google, Amazon, and the rest of Silicon Valley's

"siren servers" (Lanier, 2013) know a great deal about what our "digital individuals" (Curry,

1997) like to search for, read, share, and purchase. It is only partially relevant to point out that

we do retain considerable agency in the evolving avatar society, in which we all have a sufficient

number of online profiles, usernames, and passwords to support yet another "new economy"

industry in identity management, security, and reputation management. Techniques of

quantification and monitoring refined in the domains of corporate brand management, market

research, and political consulting provide the template for today's landscapes of turbocharged

competition -- from social-media rankings like Klout scores to America's Thirty Years' War

over the pedagogical Taylorism of standardized testing. Lanier (2010, p. 69) is not kidding when

he declares that "Facebook is similar to No Child Left Behind." Competitive quantification

requires precision in the identification of the individualized author function in a world where

humans sometimes carry similar names. And so now Foucault's insight that literary anonymity

was becoming intolerable is applied to the neoliberalized wreckage of the ivory tower.

Academic researchers are implored to stamp their foreheads with an "Open Researcher and

Contributor ID" (ORCID), a "researcher disambiguation system" scheme backed by dozens of

universities, funding agencies, foundations, and informational corporations that "provides a

persistent digital identifier that distinguishes you from every other researcher and, through

integration in key research workflows such as manuscript and grant submission, supports

automated linkages between you and your professional activities, ensuring that your work is

recognized." (ORCID, 2014). The "disambiguation" promised by systems like ORCID is, of

course, an important policing function necessitated by the escalating incentives for authorial

fraud: Sage Publications, for instance, recently retracted 60 articles from one of its journals after

a fourteenth-month investigation of a "peer review and citation ring" involving fabricated

identities on SageTrack, one of the online referee interfaces of the ScholarOne Manuscripts™

system; the tactic allowed an author at the National Pingtung University of Education, Taiwan to

use a fraudulent alias to provide an anonymous peer review of his own paper (Baker, 2014). Yet

if ORCID promises to become the new necessity of authorial discipline and punish, it presents a

sudden, hyperreal reincarnation of the individual-collective dialectics of knowledge production

explored at different generational junctures by Comte, Marx, Foucault, and Kant. ORCID is

promoted for its linkages with "other current researcher ID schemes to "enhance the scientific

discovery process" (Francis, 2014) and the efficiency of collaboration in what Marx would

recognize as the "combined worker" of cognitive-capitalist knowledge production factories.

ORCID has also been the choice for some institutions that have decided to "register their

researchers en masse, to enable accurate tracking of institutional research output" (Francis,

2014). And ORCID has been seamlessly integrated into the "functionality" of major online peer

review systems -- not only to authenticate identities, but also to assist editors "in evaluating

potential reviewers' ORCID profiles and assessing their suitability for particular review assignments." (Francis, 2014).

What is decisive here is the new time-space in which the lifeworlds of authors and readers have the potential to intersect. Adams' (2005) nexus between an audience imagined by a writer and rendered real by a reader now constitutes a lucrative commodity -- albeit a fictive one, in the Polanyian sense -- because it can be observed (and potentially monetized) in networked cognitive capitalist accumulation. It rewrites the space and time in which readers and authors communicate, firstly by means of the expansion of observational logics applied to the products of writing: there's a fine line between Google Scholar's (2014) instructions to authors on how to configure a website so "[o]ur search robots should ... find your paper" for prompt inclusion in the system's popularity-contest metrics, and John Barrie's (2008) Eureka moment of applying brain wave analysis algorithms to databases of text. Secondly, the time-space of author-reader relations are rewritten by the near-ubiquitous accceleration of the seductive technologies of automation applied to more of the decision-making sequences involved in the craft of writing itself. An astonishing array of algorithms now mediate the way aspiring individual authors gain access to, and choose from, socially necessary parts of the collective accumulation of human knowledge produced by individuals from other times and places: static 'top-ranked' lists of all kinds of cultural products are quickly evolving into dynamic 'users also read...' auto-recommendations that engage a reader's preferences by correlating the individual's prior reading experience with intercorrelation patterns amongst larger collectives of human communication (Schuurman, 2013).

This correlation aspect of the author function once required the voracious reading and ambitious -- perhaps even enigmatic or arrogant -- writing of mortal, human founders of

discursivity, like Kant, Comte, Marx, or Foucault. Today, the networked algorithms of Amazon

and Google are the new founders of discursivity, mediating the way more and more human

readers and authors begin each return to the origin. The power and convenience are undeniable:

it's an archaeology of knowledge with the world's largest backhoe, guided by a military-

precision GPS. Yet the joyously infinite combinatorial possibilities of unlimited search

transform the author/reader time-space nexus in unpredictable ways, perpetrating subtle forms of

silent violence on an evolutionary general intellect. Anything not digitized and rendered

searchable is ignored, and the severity of indifference vastly exceeds the technological

mismatches of previous generations. Historical depth is put into ruthless competition with the

shallow, expanding informational vistas of *now*. Speed and efficiency enhance the collective

attention given to those works that appear at the top of the very first screens delivered to a search

request, creating intensified network effects. In turn, network effects magnify the incentives for

authorial search-engine optimization techniques, as well as oppositional forms of Google-

bombing. On the other hand, the ongoing dynamics of constantly-updated rankings derived from

a flow of current searches builds into the system a countervailing tendency for bubbles and

crashes. Path dependencies accelerate through unstable configurations of authors' software-

mediated engagements with readers and with authors of the present and the past. And the

convergence of algorithmic reading with the automated production of discourses has now gone

mainstream in the field of "robo-journalism" (Lohr, 2011); *Forbes* uses robots to synthesize

financial information for automated stories of companies' stock performance; the *Los Angeles

Times* is using bots to deliver instant reports on homocides and regional earthquakes; and the

Associated Press, which has used bots for much of its sports coverage for years, now plans to use

automation to increase the number of corporate earnings stories from 300 each quarter to more

than 4,400 (Beaujon, 2014; Diep, 2014). "We flipped the standard content creation model on its head," gushed the CEO of Automated Insights, the company that will supply the AP stories, describing a tactic that amounts to a vertical disintegration of journalism's Fordist-era general intellect: "The standard way of creating content is, 'I hope a million people read this.' Our model is the inverse of that. We want to create a million pieces of content with one individual reading each copy." (quoted in Beaujon, 2014).

The new time-space lifeworlds where authors and readers find one another reconfigure Kant's tidy distinction between a spatial "outer sense" and a temporal "inner sense." The well-documented global disjunctures of time-space compression (Castells, 1996; Harvey, 1989a) now approach the scale of eyeballs, brains, and neurons, amidst the network society's competitive dynamic of "promising the future to arrive at the consumer" ever faster through an ecosystem of devices and codes optimized for ubiquitous, uninterrupted connectivity (Himanen, 2001, p. 23). Around the same time that Amazon's Jeff Bezos announced plans to deliver commodities by drone and began seeking permission from the Federal Aviation Administration for test flights, he announced the launch of a new smartphone that serves as "an Amazon-themed world" for consumers as commodities, via a device that "tries to fulfill the retailer's dream of being integrated into consumers' lives at every possible waking moment" (Streitfeld, 2014). The diremption of outer sense and inner sense is most severe for the growing portion of humans diagnosed with abnormalities in brain dopamine levels that impair the basal ganglia's function of time perception; hence the phenomenological significance of the fact that psychological research now connects one of the resulting disorders (ADHD) with "pathological technology use" (Gentile et al., 2013) as risk-enhancing "environmental stimuli" analogous to the link between cigarettes and cancer (Gentile, quoted in Rosen, 2012, p. 103). Given the well-documented

generational contrasts in multitasking and connectivity (Rosen, 2012, pp. 103ff) along the asymptote to all the YouTube videos of infants working iPads with perfect intuition, it is clear that the next generation of authors and readers are much closer than you and I to the informational singularity pronounced by Schmidt and Cohen (2013, p. 13): "Soon everyone on Earth will be connected." Such global connectivity of human minds begins to close the separation between the neuroscientific "anatomo-physiological" and collective, social conditions of knowledge analyzed in Foucault's (1966, 1969) retrospective of the sixteenth century. It has constituted, in less than a decade, an entire industry capitalized by the discounted net present value accounting regimes of planetary, monetized subsets of Marx's general intellect -- via the massive, infinitely measureable microdata representations drawn from ever-larger samples of the global attention span. As Spence and Carter (2011, p. 307) put it, "what we are witnessing is the privatization of the General Intellect." The securities disclosures filed as part of Facebook's initial public offering allowed a new kind of cognitive accounting for investors and advertisers: every day, Facebook's servers store an astonishingly intricate volume of data on more than 64 thousand years of human social relations (Zip et al., 2013). And as algorithmic innovation replaces human founders of discursivity with the axiomatically undeniable superiority of code -- Google cheerfully reminds us that "nobody's as smart as everybody!" -- we see new relations between the living and the dead. Auguste Comte's "Great Being" of post-theistic intergenerational knowledge is coded into the competitive chaos of proprietary operating systems and open-source architecture of the "Church of Google" (Carr, 2011). Foucault is dead, but Google Scholar's robots keep a close eye on the Foucault author function in the evolutionary quantification of the planetary scholarly general intellect. Perhaps you'll regret having read thus far, because the robotic citation analysis indicates that the author function attached to these

words (ORCID undisambiguated) is worth only 0.00603 the valorization of Foucault's hundreds of thousands of citations. But even Foucault's brilliant madness is no match for the charismatic code of a planetary operating system. The siren servers value Foucault's scholarship as worth only 0.00027 of the views of Psy's "Gangnam Style."

A Mind at Work

"Writing is constitutive, not simply reflective; new worlds are made out of old texts, and old worlds are the basis of new texts."

-- Barnes and Duncan (1992, p. 3)

"The phone beeps and they feel compelled to answer it .... It's not like reading a book. The book wasn't pinging you every moment, saying 'Read Me! Read Me!' You can close the book."

-- Anonymous mother of a 13-year old girl obsessed with late-night chatting on Kik, a mobile messaging system (quoted in Holson, 2014, p. ST1).

"...a moment's Googling would have revealed that the [Amazon Books Team] is misrepresenting this 'famous author' ... Does Amazon, which early in its e-book days made copies of '1984' vanish from Kindles after discovering it did not own the rights, really think George Orwell -- of all people! -- would want to suppress books?"

Streitfeld (2014b).

As I write these words, I try to imagine the time and place from which you read them. I struggle to imagine all the social, temporal, and spatial intricacies of the lifepaths that have brought us together as author and reader. Given all the ambiguous, forgotten, and unknown dimensions of my own Hägerstrandian lifepath, I am pedagogically overwhelmed by my ignorance of yours, and what this means for what my words can possibly mean to you. *Where* is a reader, and *where* is an author, in space-time, on the face of the earth or through the communion of human faces and minds (Figure 4)? We can never fully know or understand. It is the achievement of human literacy and accumulated authorship in Comte's 'Great Being' and Marx's 'general intellect' that sustains a culture in which we try anyway. Yet this culture -- which Foucault helped us trace back to Kant's 1784 answer to the question, "What is Enlightenment?" -- has been quite suddenly remade in our present "break with tradition," our "vertigo in the face of the passing moment," our media-saturated planetary "consciousness of the discontinuity of time" (Foucault, 1984, p. 49). Because as I write these words, I know that an increasing proportion of the lifepaths that bring us together are guided through, alongside, or by the algorithms of Silicon Valley's siren servers that now mediate so much of the "machinic exodus" of a planetary urban multitude (Hardt and Negri, 2000, p. 366). IBM's Watson has read 200 million Wikipedia pages, and Ray Kurzweil, Google's director of engineering, is leading a push in artificial intelligence to "really try to teach it to understand the meaning of what these documents are saying." (quoted in Dowd, 2014, p. A25). Can the Twitterbot speak? Given the inability of human brains to keep pace with the nonlinear accelerations of Moore's Law, it is not unreasonable to think that the "closest" read of my words may very well involve the neurologically-inspired code of systems like iParadigms' WriteCheck™ or CloudSubmit.

I set down my coffee, and reach for my paperback copy of *The Essential Foucault: Selections from Essential Works of Foucault*, 1954-1984. The book is an extraordinary achievement and a valuable contribution by the editors, Paul Rabinow and Nikolas Rose, even if its very existence creates a sort of literary credit default swap: it's a selection from a larger volume of 'complete uncollected writings' -- precisely the sort of collection-of-uncollected-fragments fiasco that Foucault warned against back in February, 1969. Sadly, the 'complete uncollected writings' include no laundry lists. I flip the coffee-stained text over to savor the familiar tweet-length back o' book blurbs. One of them takes me back to another city, another time in which I struggled to read and understand part of the work of another (human) founder of discursivity. "A rare opportunity to see how a great and original mind produces its work as well as itself at the same time ... Foucault's work ... leaves no reader untouched or unchanged." Where were you on *your* lifepath when Edward Said died? I am writing slowly, by hand, on paper, in a meandering yet materially real and embodied sequence of places and times over the past months of work and travel, as I've wrestled with the ideas of Comte, Marx, Foucault, and Kant. But that embodied materiality will change in chaotically contingent ways once the words are typed and rendered analytically commodifiable through the planetary circuitry of search robots and pattern-recognition codes; at that point iParadigms' cognitive predator drone will highlight Said's quote, and will tell us that these words previously appeared in the *New York Times Book Review*. Yet if we read beyond the decontextualized promotional quip to the full review, Said (2000) reminds us that for Foucault, "what matters is not the individual writer or philosopher, but a continuing, impersonal activity he calls discourse, with its rules of formation and possibility." We also learn *why* Said wrote that Foucault's work leaves no reader untouched: it is "enmeshed, imprisoned" in limit-experiences like madness, death, and crime, and because

his books were "interwoven and overlapping" in series that engaged with cascades of problems, questions, and themes coursing *between* and *across* individual texts. This style of writing placed certain demands on human readers. Yet in the digital vivisection enabled by the easy, brutal efficiencies of search-engine literacy, the "impersonal activity" called discourse enmeshes us all in the potentiality of virtual limit-experiences -- we could overdose while hyperlink-freebasing through the 5,530 uniquely-contextualized meanings of the word "transdiscursive" found by Google's search robots; or we could try to keep up with the flood of instant messages and emails in the transcendental aesthetic between 'spam' and 'legitimate' email; and of course we're always just one short accidental link-click away from Creepypasta, or from Reddit, with all its "racism, porn, gore, mysogyny, incest, and exotic abominations" (Chen, 2012, p. 1). Meanwhile, the powerful textual analysis algorithms of Google and Amazon colonize the transdiscursive, intertextual brilliance of posthumous human author functions -- like the one labeled "Foucault" -- as well as the emerging, aspirational author functions in the "record of social evolution" (Turner, 1893, p. 207) on the new planetary urban frontiers of cognitive capitalism, as thousands or millions of people mention Foucault, or Marx, or Psy in the evolving multimedia *oevre* of contemporary digital authorship. If capital is dead labor, cognitive capital entails accumulation through the appropriation of surplus value from dead authors; *Forbes*, with its cheeky motto "Capitalist Tool," regularly publishes lists of the "Top-Earning Dead Celebrities."

"How can one define a work amid the millions of traces left by someone after his death?" Foucault asked in 1969. Today, encounters with such questions always begin with a search engine, and that's often where they end, too. Foucault died in June, 1984, just as "word processing" software was gathering momentum as the new transdiscursive appliance for life in the postindustrial office-drone cube farms -- vertical at the city center, horizontal in the suburban

office parks -- that Peirce Lewis (1983) once called the "galactic metropolis." Today, the quaint

nostalgia of spell-check and CTRL-F succumbs to the evolutionary Turing-test artificial

intelligence algorithms of crowdsourced auto-recommendations. Word processing has evolved

into *author* processing and *reader* processing: It is not theoretically insignificant that Amazon's

monopolist transformation of books into commodities that deliver lucrative insights on the

multicollinearities of readers' non-book consumption preferences now involves an Astroturf

campaign called "Readers United," complete with (erroneous) Big-Brother talking points

supplied by an entity known as the "Amazon Books Team." (Streitfeld, 2014b). Foucault's

question now has a performatively definitive answer: 'the work' is now defined by all the

textual and multimedia digital dust of recordable human expressions that can be searched in the

Cloud with codes like John Barrie's (2008, p. 16) madly brilliant adaptation of software designed

to help "understand how the brain encoded the sensory world into the neuroworld." In the new

Great Being of the "Church of Google" (Dyson, 2012), the injunction of *The Book of Common*

Prayer that Trevor Barnes (2010, p. 675) cites in a gripping historiography of the dusty archives

of an obscure social-physics scholar of the Cold War years -- 'Thou art dust and unto dust you

shall return' -- is written into a new testament: when human authors return to dust, look for their

digital remains on Amazon or Google. Look for their digital dust hiding in plain sight in the

planetary urbanization of cognitive automation in the neoliberal noösphere: on the subway

yesterday I saw a fan wearing a giant Brazilian flag as a cape, with the grand motto: *Ordem e*

Progresso. Order and Progress. How many of the estimated 3 billion who are watching the

World Cup through the "unprecedented levels of fiber and satellite bandwidth" delivering

"30,000-plus coverage-hours" (SES, 2014) might catch a glimpse of that motto? Will anyone

remember that the motto is there because a few of Brazil's nineteenth-century postcolonial

modernizers were briefly inspired by the grand plans for a "Religion of Humanity" penned by

Comte in Paris in the 1840s and 1850s? It's unlikely. If we wish to preserve the memory of any

human author function that is not sufficiently valorized to rise to the top of a Google search,

we'll need to pay the extra annual fees for Legacy.com, ForeverMissed.com, or a dozen other

online memorial services to manage the transdiscursive details of dead-authorial search-engine

optimization (Fowler, 2014). Three centuries after Kant's theorization of inner sense and outer

sense in the development of human reason, we are now presented with a Mephistophelean

question about the relations between authors and readers: does it matter whether the

phenomenon to witness "a great and original mind produce its work and itself at the same time"

(Said, 2000) is a human reader or a search robot?

Figure Captions

(all photographs taken by the author)
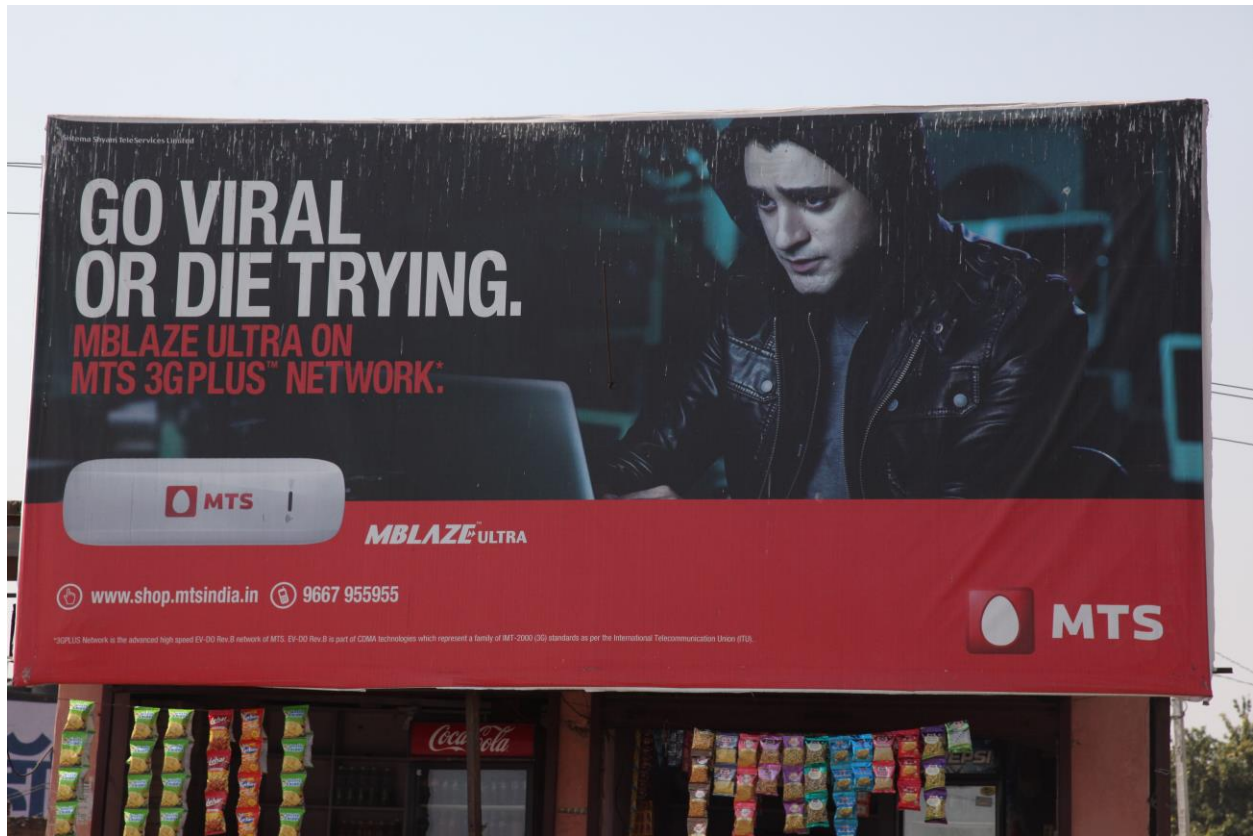
Figure 1. Go Viral or Die Trying. "In the next decade," Schmidt and Cohen (2013, p. 32)

predict, "the world's virtual population will outnumber the population of the earth. Practically

every person will be represented in multiple ways online, creating vibrant and active

communities of interlocking interests that reflect and enrich our world." Or we will die trying.

Delhi-Jaipur Expressway, northeast of Jaipur, Rajasthan, February 2014.

INTERCON

THIS SITE IS UNDER
CAMERA SURVEILLANCE.
THE CAMERAS ARE NOT
ALWAYS MONITORED.
CALL 911 FOR EMERGENCY
ASSISTANCE.

Figure 2 (a, b). Surveillant Urbanism. "A surveillance camera ... can simultaneously represent safety and danger to those aware of its gaze and create a paradoxical emotional space in which people can feel both more secure and more fearful." (Fyfe and Kenny, 2005, p. 365). Toronto, Ontario, October 2005.

Figure 3. Wall Street English. Capital, education, and language are co-evolving through transnational circuits of communication, competition, and aspirations for wealth in the planetary general intellect. John Sexton, the President of New York University, has explicitly theorized the world urban system of portals (NYU New York, NYU Shanghai, NYU Abu Dhabi) and "idea capitals" (Berlin, Accra, Buenos Aires, Sydney) in the new "Global Network University" in terms of the noösphere -- the self-aware, God-like global human consciousness described by the evolutionary paleontologist/ordained Jesuit priest Pierre Teilhard de Chardin (Aviv, 2013; de Chardin, 1956). Image: Shanghai, March 2010.

Figure 4. Faces are Sacred... Part of an alley mural in downtown Flagstaff, Arizona, created by Chip Thomas with Sam Minkler and Stephanie Jackson as part of a local environmental protest. "The beautiful thing about that weekend was how this group of people came together on a moment's notice as artists, activists, and concerned citizens to pool our resources and to make a collective shout at the machine." (Thomas, 2011). Image: Flagstaff, Arizona, July 2012.

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