

Political Ontology and Digital Technology

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It is an interesting time to try to say something worth saying about the relationship between technology, digital life, and politics. We have passed through the stage in which it is reasonable to speak of the internet, or even the World Wide Web, as something new. Hundreds of books, and countless articles, have been written to explain the phenomenon of the Web, and an equal number to predict and chronicle its impact on society, the economy, politics, the family, religion, language, memory, education, governance, science, and romantic life. We have available for our web-related consumption a range of techno-utopian dreams, sales pitches, cyberdemocratic promises, and bandwagons of various shapes and sizes. But, for all of the ink spilled on the matter there seems to be a dearth of literature about the underlying theory of digital life. This massive economic, social, and political transformation has rarely (in a relative sense) been taken to be worthy of philosophical reflection. This has started to change, with the dawn of code studies, software studies, platform studies, and the philosophy of the web. However, a full-fledged political theory of digital technology has yet to be developed.

Outside of academic political theory, much of the current work being done in the field of digital studies, broadly construed, is focused on the question of ontology. Among the community of technical experts in web science we see a movement towards denaturalized ontology (see, for example, the essays in Halpin and Monnin, 2014). Given that the breadth and depths of the issues associated with an overarching theory of digital life and ontology are substantially beyond what can be addressed in a single paper, in what follows I look to prominent philosopher of information, Luciano Floridi, for insight into the relationship between digital technology, moral responsibility, politics, and agency. Floridi is Director of Research and Professor of Philosophy and Ethics of Information at the Oxford Internet Institute. A prolific researcher, Floridi was also a member of Google's Advisory Council to Google on the Right to be Forgotten.

Rather than engage the full range of Floridi's scholarship, I wish to focus on the concepts most likely to generate some novel approaches to the study of political theory in the digital age. Floridi introduces three notions that I suggest may be useful in helping political theorists get move towards a theory of the digital. First, Floridi suggests that we ought to think of ourselves as a particular sort of informational organism, an inforg, inhabiting a shared ontological space which he describes as the infosphere. Second, Floridi argues that our status as citizens of the infosphere means we have to rethink our relationship to artificial agents such as computer programs. Third, he recasts politics as a "multi-agent system" in which natural agents (i.e. humans) are not the only players.

I use Floridi as a starting point on a journey for which the end point is not yet clear, in large part because his work does a decent job of clarifying certain issues while opening up others for discussion. He forces us to ask, for example, whether the new information environment constitutes a rupture with, rather than an acceleration of, social and economic trends that contribute to the fabric of human life. Does digital technology, as it is applied specifically to social networks and networking devices, simply make visible the underlying factors that have always shaped social behaviour, or does it transform such behavior? That is, does digital technology create new rules, or does it make the old rules more transparent? Does digital technology expand the realm of meaningful human agency, or does it shrink that realm

by creating a world of pre-populated fields of choice which, taken together, appear as infinite possibility but are experienced as varieties of a stifling sameness? These are decent-enough cocktail party questions, but they don't get to the heart of the matter. Rather, the core question might be something more like this: In a technologically hyper-mediated world, what remains to be mediated? As we surf in the great ocean of information and communication potentially available to us, does it continue to be true that politics stops at the water's edge?

The Infosphere and the Inforgs Who Live There

Floridi unavoidably walks upon well-worn ground, making some version of arguments we have heard before: we live in an information society; the internet changes fundamental social and commercial relations; inherited forms of life are destined to be "disrupted", and so on. Thankfully, this rehashing of our current "revolutionary" state of affairs is offered largely as background and introduction to the core issues. For the most part, a starry-eyed fascination with technology is avoided, as is the sense that the work is little more than an intellectual lifeline offered to those who feel like they are drowning in a sea of "sea changes". As I suggest below, a number of the central claims put forward in Floridi's work don't stand up particularly well to intense scrutiny. However, he makes a number of intriguing contributions to our collective attempt to grapple with the conceptual, social, and political changes wrought by rapid technical innovations. None is more interesting, and potentially far-reaching, than his theory of the infosphere.

Floridi argues that the overwhelming majority of philosophical reactions to the dawn of the digital age maintain an untenable separation between information and communications technology (ICT), on one hand, and human actors, on the other. With this approach ICT becomes either a tool (to be used as needed, but solidly under the control of the human tool-user) or some semi-mystical "force" in the world, interacting with the human world in predictable but not always controllable ways. Either way, we humans are separated from the information, interacting with it as Other. Floridi describes this as an outdated Cartesian picture of reality, premised on a view of the self that is rational and autonomous, somehow existing in a reality that is sharply demarcated from the technology with which we interact.

Rather than ICTs representing just another stage in the long-running relationship between human beings and technological artefacts, Floridi suggests that we are in the midst of a "fourth revolution" in human self-understanding. Successive revolutions in (western) intellectual history have challenged our human predisposition to situate ourselves at the center of everything. As it turns out, "we are not at the center of the universe (Copernicus), of the biological kingdom (Darwin), or of the realm of rationality (Freud). After [Alan] Turing, we are no longer at the center of the world of information either. We share the infosphere with *smart* technologies" (Floridi 2014b). Unlike the previous revolutions in our (western) self-understanding, the effects of which took several generations to be fully realized, the fourth revolution moves quickly, and the conceptual transformation associated with it will be complete, Floridi argues, within the next fifty years. It is worth quoting at length Floridi's most straight-forward description of the infosphere:

Minimally, [the infosphere] denotes the whole informational environment constituted by all informational entities (thus including information agents as well), their properties, interactions, processes, and mutual relations. It is an environment comparable to, but different from, cyberspace, which is only one of its sub-regions, as it were, since it also

includes offline and analogue spaces of information. *Maximally*, it is a concept that, given an informational ontology, can also be used as synonymous with reality, or Being” (2013, 6).

Although Floridi (problematically, at times) switches back-and-forth between the minimal and maximal interpretations of the infosphere, the majority of his work is premised upon a maximal, which is to say, an ontological, approach.

The infosphere is a shared ontological space, populated by natural agents (like humans) and artificial agents (like webbots). Floridi is not simply saying that we are surrounded by ever-increasing amounts of information, although that is clearly the case. Rather, he is suggesting that we are coming to recognize that we belong to that environment, that we *are* information. “A person, a free and responsible agent, is after all *a packet of information*. She is equivalent to an information microenvironment, a constantly elastic and permeable entity with centres [sic] and peripheries but with boundaries that are neither sharply drawn nor rigidly fixed in time” (2013, 259, emphasis added). If the biosphere is that physical region that is able to support life, in all of its complexity, interaction, and interdependence, then the infosphere is that conceptual realm in which information exchange is possible. Floridi suggests that such a realm is populated by all forms of informational entities, with varying degrees of agency, and that we can no longer afford to assume an ontologically privileged place in the neighborhood. And, he is suggesting that the ontological realm we inhabit along with information-exchangers, and information itself, is becoming more densely populated. We are not outside of the pool, watching it fill up with swimmers. We are swimmers in an increasingly packed pool, and the density of information is forcing us to admit the infospheric nature of reality. (Actually, this is an imperfect metaphor since part of what he is trying to argue is that the medium in which we exist as swimmers/agents is water/information. The metaphor regains some standing if we remind ourselves that we are constituted largely of water!) Being in, or *of*, the infosphere means that we need to rethink our own nature. Floridi tries to do this by introducing the idea of the inforg.

At the heart of the fourth revolution is a radical transformation in our understanding of the place we occupy in the universe, both as individuals and as a species. Floridi argues that “we are slowly accepting the idea that we are not Newtonian, standalone, and unique entities, but rather informationally embodied organisms (*inforgs*), mutually connected and embedded in an informational environment, the *infosphere*, which we share with both natural and artificial agents similar to us in many respects” (2013, 14). The term inforg is both a recognition and a rejection of the popular cyborg imagery in much of the so-called post-humanities. Inforgs may have fully integrated technical systems such as pacemakers, hearing aids, prosthetic limbs, or Google glasses. Or, unlike a cyborg, an inforg may be walking down the street unadorned by digital devices of any kind. “We have begun to see ourselves as *inforgs*,” we are told, “not through some transformations in our bodies but, more seriously and realistically, through the reontologization of our environment and of ourselves. It is our world and our metaphysical interpretation of it that is changing” (2013, 15). What matters for Floridi is not that inforgs are loaded up with ICT, but rather that informational organisms exist of a realm of continuous information. It is not enough to recognize that our environment is “information rich”. Floridi is making the stronger claim that our environment *is information*. This change in perspective is, predictably, difficult for us to grasp but Floridi promises that “in a few generations, an informational ontology will seem obvious to the point of being trivial” (2013, 250-251). It will be trivial, but not meaningless.

Floridi’s theory of the self, his “egology”, as he calls it, needs to account for the separating out of an individuated and identifiable entity from the great rush of information that constitutes the

infosphere. He does this by positing a “three phase development of the self” (2013, 217) in which successive (corporeal, cognitive, and conscious) membranes mark us off from the world in increasingly distinctive ways and create a kind of detachment from reality. Each membrane level is held together by a particular “bonding force”, either physical, cognitive, or semantic. There is little about the details of the model that are not obvious from the classification scheme, and I shall not dwell on them here. For our purposes it is sufficient to note that Floridi understands consciousness to emerge “once data become re-purposeable information” and that “the more virtual the structure [of the self] becomes, the more it is disengaged from the external environment in favour of an autonomously constructed world of meanings and interpretations, the less physical and more virtual the bonding force can be” (2013, 220, 221). This latter claim is not well-developed but it is crucial for Floridi’s argument, especially when he maintains that

[i]f the self is made possible by something like the healthy development of all three membranes, then any technology capable of affecting any of them is ipso facto a technology of the self.... Now, ICTs are the most powerful technologies to which the selves have ever been exposed. They introduce radical modifications (a re-ontologization) of the contexts (constraints and affordances) and praxes of self-poiesis, by enhancing the corporeal membrane, empowering the cognitive membrane, and extending the conscious membrane.” (2013, 221)

The difference between cyborgs and inforgs, then, is akin to the difference between eyeglasses (i.e. technology that augments our abilities) and biotechnology (which might correct visual deficits at the source, changing the very nature of our abilities). Cyborgs change us through the addition of technology, while inforgs represent the gradual evolution of our environment and ourselves into continuous information.

The introduction of a triple-reinforced system of borders between the subject and the external world calls to mind the extended mind hypothesis of Andy Clark and David Chalmers. In their 1998 paper, “The Extended Mind”, Clark and Chalmers argue that we ought to entertain an inclusive notion of mind, one that reaches beyond our bodies and incorporates any system, mechanism, device, or process that does the work of a mind. “Epistemic action,” they argue, “demands the spread of epistemic credit” (1998/2008: 222, emphasis in original). Clark and Chalmers suggest that “if...part of the world functions as a process which, *were it done in the head*, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world *is*...part of the cognitive process” (222, emphasis in original). They provided us with the example of Otto, a gentleman who suffers from organic cognitive impairment, presenting as severe memory difficulties. Clark and Chalmers ask us to imagine that Otto used a notebook to record important details about his daily activity—maps, meeting times, place names, etc. – that one might otherwise commit to memory. Otto has the same ability, using his notebook, to retrieve, use, and manipulate information in his cognitive field as would another person using his or her brain alone; but in using his particular cognitive capacities, Otto is breaching the border of skull and skin. His mind is extended or, if we hew to Floridi’s terminology, distributed.

Writing against the background of a creeping reductionism emanating from the discipline of cognitive neuroscience, Clark and Chalmers’ paper, and Clark’s subsequent (2008) work in the same vein, resonates with nascent theories of digital information exchange. Without going to the extreme of transhumanist thought, and without taking a position on the possibility or desirability of an organic-silicon singularity, it is possible to take from Clark and Chalmers a sense that any attempt to understand the relationship between individual action and technology should remain open to the possibility of

porous skin and skull borders/membranes. Indeed, as they point out at the end of their paper, “if the view is taken seriously, certain forms of social activity might be reconceived as less akin to communication and action, and as more akin to thought” (1998/2008: 232). Politics, as conducted in the infosphere, seems like a form of social activity that might be considered in this light.

Despite some similarities, Floridi rejects the notion that the inforg is just a further development of the extended mind approach. He does not think of the inforg as just another means of “mental outsourcing”. Floridi argues that “the view according to which devices, tools, and other environmental supports or props may be enrolled as proper parts of our ‘extended minds’ is outdated” in part because “it is still based on a Cartesian agent [that is]...fully in charge of the cognitive environment” (2014a, 95). Floridi is interested in developing a picture of agency that better fits our informational age. To do so he develops a definition of agency that includes artificial agents such as webbots. “All entities are informational entities,” the argument goes, and “some informational entities are agents, some agents are artificial” while some, obviously, are natural (2013, 110). An agent is defined as “a system, situated within and a part of an environment, which initiates a transformation, produces an effect or exerts power on it [i.e. the environment] over time” (2013, 187). Floridi describes four types of agents:

Natural Autonomous (a person, a god)

Natural Heteronomous (a flood, an avalanche)

Artificial Autonomous (a robot, a computer virus)

Artificial Heteronomous (traffic)

Further complicating matters is the fact that entities can collaborate in multi-agent systems with enough cohesion to count as something like a higher order agent, such as a family or a board of directors...or a social network in which the natural (human) and artificial (in this case, computer software) agents are treated as ontologically equal partners. The goal is “a terminology that applies equally to all potential agents that populate our environments, from humans to robots and from animals to organizations, without prejudicing our conclusions” (2013, 158). A “non-anthropomorphic” approach, taken to its logical conclusion, would take seriously (as Floridi does) the idea of punishing/censuring artificial agents. Indeed, he argues that “perhaps it is time to consider the development of [governmental] agencies for the policing of [artificial agents]” (2013, 157). If a robot discriminates somehow against a class of people, or if a computer program unduly makes available sensitive data, then the remedy might be to give that agent a punishment, a “time-out” during which it is not allowed to play in the infosphere.

Privacy

Floridi’s description of inforgs is abstract, making it difficult for the reader to understand how this approach might have real world connections. On this front, Floridi’s strongest response can be found in his treatment of privacy. Much of our thinking about privacy, he contends, is tied up with industrial age notions of ownership. We “own” our private information much as we own our tables or houses. That is, our information is protected mostly as something created by us, and then separated from us so as to make it susceptible to claims of copyright, intellectual property, or some other form of extra-personal property. Floridi contends that this approach mistakes the nature of personal information. He argues that informational privacy is “a constituent part of someone’s personal identity and individuality” (2013, 245). As such, it is more akin to their heart (or left pinkie finger, or any other body part) than to a piece of artwork that they produce. In other words, when agents “deal with

personal and private information, they are dealing with *human beings themselves*” and not with the effect, or the derivative, of a person (2013, 259, emphasis added). Consequently, violence done against one’s personal and private information ought to be tantamount to violence done against one’s body.

The issue of privacy is where Floridi’s ontological claims are the most clear and (perhaps not coincidentally) the strongest. Conceiving of the person as an inforg rather than as a more-or-less modern liberal subject means that we have to recognize that inforgs can make radically different arguments and legal, ethical, and political claims. The strongest possible privacy claims protect us by safeguarding undue knowledge of our past actions—the European battle with Google over the “right to be forgotten” has this issue at its center—but they also protect our core right to self-governance and self-creation. “We never stop becoming ourselves,” Floridi argues, “so protecting a person’s informational privacy also means allowing that person the freedom to construct and change herself, ontologically”. In the infosphere, the need to respect this freedom extends to all agents, natural and artificial.

Floridi’s argument about privacy can be pushed further than he takes it. If we accept as a given the claim that the infosphere is a conceptual space that is shared by artificial and natural agents, then we have to factor artificial agents into a political theory that had previously been restricted to natural agents (whether we take the class of natural agents to be restricted to humans, or to a more encompassing definition that includes animals, or even nature itself). Let’s take, for example, the case of algorithms that are used for hyperdoxing. Doxing is the practice of collecting publicly available information about an (usually anonymous) individual in order to identify them for reasons of shaming, revenge, or humiliation. Historically, doxing evolves from hacker culture and can be undertaken by individuals or by organized groups. *Hyperdoxing* commercializes this enterprise, transforming its modus operandi from public shaming to proprietary data gathering. It involves the creation of predictive algorithms that can replace human agents. Rather than simply identifying (and outing) an individual, hyperdoxing submits their behavior, associations, and online activities to analysis in order to create incredibly detailed and increasingly accurate models for predicting future behavior. In other words, hyperdoxing uses artificial agents to create an “algorithmic identity” for individuals. This identity is then used to market products, shape opinion, identify customers, get out the vote, solicit donations, and influence a range of behaviors.

What is pertinent about hyperdoxing is not its disconcerting ability to generate a more accurate (behavioral) picture of the individual than even that individual could generate, but rather the fact that this activity is being undertaken by artificial agents, by programs applying certain algorithms, and then making independent “decisions” about how to influence a natural agent. Imagine a scenario in which hyperdoxing, algorithmic identification, not only influences dinner choices (pizza or Indian food tonight?) but even electoral outcomes, not by encouraging the vote but by suppressing it through sophisticated (yet entirely legal) manipulation of the infosphere. In cases like this, artificial agents are accountable (if not responsible) and informational “entities are also politics by other means” (Woolgar and Lezaun, 2013, 334). And, in the case of hyperdoxing, Floridi’s preference for treating private information as a constitutive part of a human being is mooted by the fact that predictive algorithms speak to what might happen as opposed to what has happened. Failure to recognize the scope of the intelligence and autonomy of hyperdoxing programs leaves us unaware of the changing subterranean foundations of social and political activity.

The Politics of Continuous Information

In the forward to *The Ethics of Information*, Floridi notes that he has refrained from explicitly addressing the political implications of the argument developed therein, though he promises that the next book in his tetralogy will be dedicated to the issue. However, in the Preface to *The Fourth Revolution* (2014, ix), Floridi includes in his list of roughly sketched ideas, “a philosophy of politics, in terms of the design of multi-agent systems”. His sketch of the politics of the infosphere is focused on the rise and fall of the state as an informational entity. Floridi plays off post-revolutionary politics with a pre-revolutionary model that takes as its organizing framework what he calls the Westphalian state (i.e., the European state as it evolved after the Peace of Westphalia in 1648). In addition to accommodating a certain amount of religious liberty and territorial sovereignty, the Westphalian model also gave the state control over information, establishing the state as society’s most powerful “information agent”. Control over information allowed the state to rise “to the role of the binding power, the system able to keep together and influence all the different agents comprising it, and coordinate their behaviours [sic]” (2014a, 169). That is to say, the state moved into the starring role as the center of the information universe.

Floridi uses the term “political apoptosis” to “describe the gradual and natural process of renovation of sovereign states as they develop into information societies and then into multi-agent political systems” (2104a, 169). After the fourth revolution, the Westphalian state model is as outdated for politics as the Cartesian model is thought to be for consciousness and decision-making. The uber-agent of the state is replaced by multi-agent systems, and these systems include artificial agents, and while the state maintains a monopoly on the legitimate use of force, it loses substantial power to the “democratic” impulses of multi-agent systems. Floridi suggests that “the ‘democratization’ brought about by ICTs is generating a new tension between power and force, where power is informational, and exercised through the elaboration and dissemination of norms” (2014a, 176). Leviathan is dismantled and replaced by us, we inforgs, but also by the artificial agents (machines, executable code) with which we inforgs routinely interact in the infosphere. This is the new state of nature in which life is connected, rich, collaborative, and long.

The revolutionary transformation of politics from a Westphalian to a multi-agent system has direct consequences. Rather than being a member of a political community from birth, and subsequently being subject to the authority of the state via some sort of social contract we can only escape by explicitly “opting out” of, Floridi suggests that political affiliations in the infosphere have as their default an “opt in” logic of association and obligation. He argues that

[w]e are moving from being part of the political consensus to taking part in it, and such part-taking is increasingly ‘just in time’, ‘on demand’, ‘goal-oriented’, and anything but stable, permanent, or long-term.... Gathering consent around specific political issues becomes a continuous process of (re-)engagement... It is not a matter of attention span [but rather] it is a matter of motivating interest again and again. (2014a 184.)

Dispersed agency, and complex multi-agent systems, means that our political identities no longer emanate from the state-as-information-superpower, but rather from local, dynamic information states within the larger infosphere.

With the transformation of politics in the fourth revolution we also see an evolution of agency. Floridi’s treatment of political agency can be summed up briefly as follows:

The sum of an agent’s degrees of freedom is its ‘agency’. When the agent is alone, there is of course only agency.... However, as soon as there is another agent...or, indeed,

a group of agents..., agency acquires the further value of social interaction. Practices and then rules for coordination and constraint of the agents' degrees of freedom become essential, initially for the well-being of the agents constituting the multi-agent system, and then for the well-being of the multi-agent system itself.¹¹

(2014a, 185)

Social agency becomes political when “the complexity of the social space requires the prevention or resolution of potential *divergences* and coordination or collaboration about potential *convergences*” (2014a, 186). Floridi’s novel argument is that artificial agents, as constitutive elements in these multi-agent systems, have independent claims to political consideration and an ontological status as actors (if not quite citizens). They possess, and subsequently demand, accountability.

Floridi wants to say that, prior to emerging from the Fourth Revolution as inforgs, our political activity (and agency) corresponded to an abstract, coherent, autonomous and deliberative entity. From our relationship with technology to our exchanges with sovereign authority (the state), our actions, decisions, and interactions, along with the consequences thereof, were traceable back to a core self that occupied certain more-or-less stable—stability over the course of a single lifetime, of course—subject positions (even if those positions were historically contingent). Here, the *Onlife Manifesto* reflects the logical extension of Floridi’s thought into the political realm:

We believe it is time to affirm, in political terms, that our selves are both free and social, i.e., that freedom does not occur in a vacuum, but in a space of affordances and constraints; together with freedom, our selves derive from and aspire to relationships and interactions with other selves, technological artefacts, and the rest of nature.... Shaping policies in the remit of the Onlife experience means resisting the assumption of a rational disembodied self, and instead stabilizing a political conception of the self as an inherently relational free self. (4.2.)

The claim that political subjectivity is complex, contested, and the product of a multitude of social forces is hardly new. But, Floridi does not meaningfully engage with scholars who are working at the nexus of politics and (digital) technology, individuals who are also attempting to interrogate the extent of the effects of rapid ICT proliferation.

Mark Deuze’s 2012 *Media Life* attempts such an interrogation. Denis McQuail (in a back-cover blurb) sums up Deuze’s work quite nicely: “It contains the promise of a long-sought-for new paradigm to replace the original causal-linear model of mass communications.” Deuze argues that “a media life suggests that the ways we experience, make sense of and act upon the world (including ourselves) are always already tied up in media. In this process we *become* media” (2012, 5, italics in original). Media are not, then, apart from us nor us from media. Following Christian Fuchs, Deuze argues that “any technological system is also a social system...and all media must therefore be seen as techno-social or sociotechnical systems – as determining what people can say and experience” (2012: 28). Although Marshall McLuhan does not play a prominent role in either Floridi’s or Deuze’s work, McLuhan did point “out that any technology gradually creates a totally new human environment. Environments are not passive wrappings but *active processes*” (2003: 12, emphasis added); that we tend to separate our discrete biological systems from the larger sociotechnical systems is largely a matter of habit and convenience. The creation of new environment is not necessarily the same, of course, as Floridi’s

stronger claims about *integration* with the new environment, but Deuze is claiming that the latest iteration of technologically-driven environmental change is one that effectively obliterates the distinction between human life and an ontologically separate form of electronic media life. However, neither Floridi nor Deuze spend much time thinking through the effects of prolonged and repeated information exchange, i.e., of the fact that information is dynamic and is only information while in the process of being circulated.

Jodi Dean's 2009 book *Democracy and Other Neoliberal Fantasies: Communicative Capitalism and Left Politics* calls into question the meaning of democracy in the context of networked communications structures that are skillfully and intricately woven into the fabric of contemporary economic life, dubbed by Dean *communicative capitalism*. Dean draws a distinction between "institutional politics" or "official politics" and the form of politics characterized by the circulation of political messages, counter-messages, memes, and other such devices. She notes that the ideal-type version of democratic government may see official and circulatory politics operating in the same conceptual and active sphere, with the latter informing, or at least having the capacity to regularly inform, the former. But, as Dean points out, "there is a significant disconnect between politics circulating as content and official politics" (2009, 21). This disconnect is indicative of communicative capitalism. For Dean, "[t]he concept of communicative capitalism designates the strange merging of democracy and capitalism in which contemporary subjects are produced and trapped. It does so by highlighting the way networked communications bring the two together" (2009, 22-23). Networked communications create an unbreakable circuit into which energy, participatory instincts, and pseudo-democratic discourse are fed. And, since "[t]he only thing that is relevant is circulation, the addition to the pool," then it follows that "[n]etworked communication and information technologies are exquisite media for capturing and reformatting political energies. They turn efforts at political engagement into contributions to the circulation of content, reinforcing the hold of neoliberalism's technology infrastructure" (Dean 2009, 26, 31-32). And, it turns out that the computational components of this technology infrastructure warrant consideration.

When prominent figures in the technology industry speak of fundamentally altering, not just the economics environment, but the very nature of human life, it is easy to write them off as transparently fueling techno-utopian visions for the sake of enhancing their own power, economic clout, or individual stature. It is more difficult to ignore claims from the likes of Tim Berners-Lee (inventor of the architecture that enabled/created the Web) that, behind the hype, what we are witnessing is an ongoing attempt to "denaturalize ontology" via "ontological engineering" (Halpin and Monnin 2014, 9, 8). David Berry (2014, 11-12) recognizes the potential for substantial change that is entailed in the idea that computer engineers are really, as well, social philosophers:

Elements of subjectivity, judgment and cognitive capabilities are increasingly delegated to algorithms and prescribed to us through our devices, and there is clearly the danger of a lack of critical reflexivity or even critical thought in this new subject. The new augmented subject has the potential to be extremely conservative, passive and consumerist, without the revolutionary potential of the 'schizophrenic'. Indeed, the norms and values of the computational economy can be prescribed quite strongly as a society of control, limiting action, thought and even knowledge.

Berry's description of a capitalist stage in which computation stands in for deliberation and criticality is decidedly *not* the world of *The Matrix* in which machines have "taken over". Rather, Berry raises concerns that "[i]n advanced capitalist societies, economic anarchy is interwoven with rationalization

and technology to create fewer chances for mental and reflective labour” (2014, 35). Meaningful political participation requires exactly this type of labor.

Whereas Dean’s concern is that communications technology creates an inescapable circuit of drive that cleaves (ineffective) participatory politics from (effective) institutional/official politics, Berry is more concerned with the effects of what has come to be known as algorithmic identity. For Berry, the fact that we have at our fingertips a collection of digital tools is exactly the problem; thinking as the digital *as merely a collection of tools* entails “an engineering understanding of the world” (2014, 16). The engineering of the world no longer can be detected by noting the heights of bridges (*pace* Winner 1980), but it can be discerned by paying attention to the particular way that digital technology, mediatized behavior, and politico-economic interests intersect. For Berry, critical political theory “can contribute to the understanding of the computal and the information society beyond the usual critiques offered at a macro-level of the general principles underlying knowledge-based societies, or micro-analysis of users and practices. Indeed, we need to pay attention to the dialectical relationship between the two” (15). Indeed.

It is common to describe the proliferation of potential sites of political engagement as inherently “democratic”. After all, isn’t more participation inherently more democratic? Of course, the reality is more complicated than this. A model of distributed agency is both democratic and anti-democratic; democratic because it allows entry and exit at will into the political stream, anti-democratic because on those days (most days!) in which most natural agents don’t bother to participate the system is susceptible to “the danger of a transition from a rational-juridical epistemology to an *authoritarian-computational* epistemology” (Berry 2014, 51, 12, emphasis in the original). Distribution means that actions of the democratic masses, taking place in so many sites, require interpretation. They require a reading or recognition of patterns in the mass of on-again, off-again relationships between individuals and (political) community. And, only those who are consistently politically engaged are capable of producing and maintaining the interpretative framework. This ongoing maintenance of an interpretative framework of sufficient robustness to withstand the vicissitudes of governance is an enormous job, one that has been performed (at various times, and in varying degrees) by religion, force, discipline (in the Foucauldian sense), and democratic participation. Whether he intended to or not, Floridi has alerted us to the possibility that artificial agents, working in a distributed manner, have replaced previous mechanisms of control. Power has shifted to inforgs. Floridi thinks this signals both an undermining of the state, and an increase in individual political autonomy. I am suggesting that the former may be true without entailing that the latter is also the case.

Critiquing Floridi’s Technological Ontology

Luciano Floridi is a prolific writer and an important voice in the field of information ethics. His work is evolving toward more engagement with questions of politics and policy, and if his record in information ethics can be taken as a prediction of future influence, his forthcoming work on the relationship between politics and technology, especially ICT, will have an agenda-setting significance. However, his theories are not without shortcomings. I shall address three such shortcomings below.

First, core arguments are often made against straw men. For example, the central premise of the fourth revolution is that we are no longer at the center of the information universe. For this claim to be as revolutionary as Floridi needs it to be it is necessary that the dominant philosophical position prior to the ICT revolution be one that squarely puts humans at the center of the informational universe. That simply isn’t the case. Floridi’s repeated claim that his “relational” and multi-agentic approach to the self replaces a dominant paradigm in ethical and social thought is simply not supported by the evidence. Despite Floridi’s invocation of Descartes, almost nobody takes seriously Descartes’ (supposed)

formulation of a purely rational and autonomous self at the center of contemporary moral and political life. In philosophy and political theory, this approach has been roundly criticized for over 100 years. And, more recently this picture has been thoroughly debunked by scholars from the human sciences, most notably by Antonio Damasio whose most famous book, not coincidentally, is titled *Descartes' Error*.

In fact, Floridi's failure to engage at all with cognitive science, or with social epistemology, constitutes a second shortcoming of his approach. Work in the last twenty years in cognitive science has a great deal to say directly about specific issues that Floridi raises. The second of Floridi's three membranes that sets the individual off from the rest of "reality" is the cognitive membrane, yet Floridi shows no real interest in how it works in practice. Nor does he engage with questions that arise from cognitive science regarding social cognition. Although he is quick to eschew any meaningful connection between his work and the so-called 4EA school of thought, it is at the cost of engaging with the existing literature on common issues. The extended mind hypothesis, especially as it has been developed by Andy Clark, also raises the matter of ethical responsibility in technologically extended relationships. Indeed, Floridi's rather compelling discussion of the need to rethink privacy in ontological terms pushes him toward a commitment to recognize that personal integrity extends beyond the body. Recall his argument that to deal with one's private information is to deal with the "human being" himself or herself.

As inforgs, the totality of our information profiles is protected, and this includes information that exists beyond our corporeal "membrane". Floridi rejects so-called cognitive extension because it resembles nothing more than sophisticated tool use, yet he neglects the "connected" and (to use his own term) "relational" nature of those extensions within the context of the infosphere. Floridi has no answer when somebody points out (as did Halpin, Clark, and Wheeler [2014: 26]) that the Clark and Chalmers example of Otto now involves not only Otto's own personal cognitive extension, but a crowd-sourced extension of which Otto can avail himself. One might couple Clark and Chalmers' notion of epistemic parity with a similar argument for limited agentic parity: if an action that would otherwise have been undertaken as the result of individual volition is, in fact, undertaken as the result of the volition of the crowd, then perhaps no reason to distinguish between the few and the many can be rationally maintained.

Put another way, let us assume that questions about the politics of information are posed in a context in which the very communication of that information within the circuits of communicative-computative capitalism entails a disempowering of the demos vis-à-vis the political efficacy of the information user. This assumption echoes McLuhan's observation that in the age of digital—McLuhan would say "electric"—media "we approach the final phase of our extensions of man—the technological simulation of consciousness, when the creative processes of knowing will be collectively and corporately extended to the whole of human society" (2003: 5). If this assumption is correct then the particular content of the information is "secondary to the fact of circulation." As Dean puts it, "the message [is] not received. It [is] circulated, reduced to the medium" (2009: 26, 20). A theory of the informational agent must not only account for the content of communication, but also its pathway. It is not clear that Floridi meets this challenge.

The third weakness with Floridi's line of attack is the most difficult for his overall approach. Simply put, Floridi claims too much when he (repeatedly) suggests that the ICT revolution results in wholesale reontologization. Recall that the weak version of Floridi's description of the infosphere as nothing more than the totality of information. The minimal version of the infosphere is more-or-less captured in the advertisements from Apple, Cisco, and AT&T: it is a connected world, an information-

rich world, and...exactly the same world described in thousands of articles, books, news stories, and online commentaries. For an account of the infosphere to move beyond cliché Floridi needs to adopt his maximal version of the infosphere, one that assumes an “informational ontology”. However, it is exactly here where Floridi equivocates. For, to be dealing with ontology rather than metaphysics he would need to commit to a theory of Being which takes information to be its foundational structure. However, when pressed on this point by John Searle (in a *New York Review of Books* review), Floridi retreats to ground he stakes out only sporadically in his books and articles; he asserts that, subsequent to the fourth revolution, we merely *interpret* the world informationally. That is to say, information exchange is so ubiquitous that it is *as if* it were underlying everything. Our “conception” of the world is informational. But, as Searle points out, this move reduces Floridi’s claim to the trivial since “that is what a conceptualization of the world does: where accurate, it puts into concepts some facts about the world and thus gives us information” (Searle 2014b). While Searle may have an impoverished notion of what constitutes information—surely, information exists in the absence of concepts to organize it—his larger point holds.

Ultimately, the ontological claims that have found their way into the heart of Floridi’s argument are unnecessary in order to sustain interest in the potential of his project for political theory. While there is a great deal of literature concerning the ways that new digital realities support neoliberal politics and economics there is a dearth of theorizing about how digital media, specifically, penetrates our being, and hence there is “no comprehensive account of how media change social ontology” (Couldry 2012: ix). Stripped of reontologizing excess, Floridi’s core insight persists; our definitions of political agency need to be reconsidered in light of a more distributed set of connections with other people, as do conclusions about the (legal, ethical, and political) relationship of ourselves to our information. I have briefly suggested that changes in political agency as a result of technological evolution lead to political life that is “spread thin” as our agency is distributed and impoverished at the same time. As an increasing percentage of our social (and political) lives come into direct and indirect contact with code, and with algorithms that work hand-in-glove with code to predict and modify behaviors, our theoretical framework lags behind. Floridi wants to advance the conversation beyond simply pointing out that we create “data shadows”, and beyond pointing out the possibility of online identity play (which, we are finding out, is not as widespread as we had previously imagined). As our “algorithmic identities” become more politically salient, questions about particular coding choices, platform utilization, and design protocols take on increasingly political overtones. Programming as “politics by other means”. It is laudable that Floridi wants to draw our attention to the implications of the ICT “revolution”. However, the issues need to be addressed without further muddying the conceptual water by unduly claiming that the revolution is ontological in nature.

One may be tempted to attempt to rescue an ontologically-oriented interpretation of digital technology by linking the internet of things to one (or both) of two schools of thought that are fashionable in some corners of academia: object-oriented ontology (see, e.g., Bryant, 2014) and the “new materialism” (e.g., Coole & Frost, 2010; Bennett, 2010). Object-oriented ontologists share with new materialists an instinct away from anthropocentrism, away from simple subject/object distinctions, and away from philosophies of technology which stress social constructivism. Instead, they share a commitment to the idea that material objects have an “inner life” or (to use Jane Bennet’s language) a *vibrancy* that it is not captured in Kantian ontological models. The agentic potential of objects is taken as a given, which leads to demands for a “political ecology” and an assemblage model, often inspired by Gilles Deleuze, that places humans and non-humans on equal ontological footing. With its collection of objects that are imbued with agency, in the sense that Floridi uses the term, the internet of things would appear to lend itself to a “flat” ontology in which the subject-object distinction collapses, only to be replaced by the strong version of the infosphere.

The problem with treating the internet of things as an example of a new ontology is that such a move mistakes the things-in-themselves—the bad Kant pun is unintended, but noted!—for the two part assemblage of the “natural” thing *plus* its subsequent point/mode-of-contact with the internet (often a RFID chip). The complex relationship entailed by the internet of things is not fundamentally an ontologically transformative relationship, but rather a provisional, transitory, and technical relationship of subjects and subjectivity. The relationship(s) between the objects that make up the internet of things are established outside of those objects, rather than being inherent in them. They are brought into relationships, and that which is important is, indeed, the relationships themselves, rather than the objects that are related. That is to say, in establishing and reinforcing social relationships (e.g., between buyer and seller), the internet of things actually further entrenches objects in the familiar Kantian subject-object binary by reinforcing the distance between the two aspects of existence.

In the end, developing a denaturalized ontology as a way of explaining and coping with rapid and accelerating technological change can only be accomplished by reformulating not the nature of being, but rather the scope of ontology (especially by focusing on relationships more than substance). A political theory of technology does not need to adopt this deformed ontology in order to make sense of the political and social realities of the digital world. Instead, political theorists would do better, I would like to suggest, to explore questions of agency, subjectivity, and responsibility without diving down the rabbit hole of onto-technological speculation. In particular, notions of distributed and networked agency, crowd-sourced subjectivity, and the political and ethical responsibilities of artificial agents are all rich targets for reflection and investigation regardless of whether one adheres to a naturalized or denaturalized ontology.

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