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Towards a theoretical mashup for studying posthuman/ postsocial ethics

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Abstract

Purpose – This paper aims to propose a theoretical arrangement for the study of applied computer and information ethics carried out in an interdisciplinary and a democratic manner by which the information and communications technologies are seen as an ethical environment, and human-computer couplings are seen as hybrid moral agents.

Design/methodology/approach – New ethical issues emerge dynamically in such environment which must be interpreted according to human sentience and computer ontology. To attribute moral meaning to acts perpetrated by human-computer hybrids, a hybrid of two semiotics must be likely used that bridge the gap between signs and things from opposite directions.

Findings – The author argues that ecosocial dynamics and material semiotics can be harnessed together as in a theoretical mashup for that purpose, and that such harnessing will allow us to engage with a posthumanist/post-social ethics here and now.

Originality/value – The originality of the proposal resides in bringing hybridity to the center of the picture, forcing interdisciplinary teams to engage with one unified, even if hybrid, agency regardless of conflicting ontologies and epistemologies.

Keywords Ethics, Semiotics, Computer-mediated communication, Posthumanism

Paper type Conceptual paper

Introduction

This paper departs from the received notion that ethics is a set of universal norms or the result of utilitarian modes of reasoning which can ultimately lead to a happy life for human beings in general, and moves towards ethics as a context-sensitive discursive formation that articulates culturally and historically ongoing relations among artifacts, persons and activities in such ways as to orient the appropriateness, fairness, utility and teleology of human agency and political action towards a better future [1].

Even if (shortsightedly) seen as a mere collection of artifacts, globally interactive information and communications technologies (ICTs) are clearly ethical entities implicated in new kinds of ethical issues that challenge our usual forms of moral reasoning (Fox-Brewster, 2015). However, inasmuch as they mediate and distribute human cognition and agency by affording human metaphysical presence and moral conduct (Miller, 2012), I suggest we look at the ICTs and their human users as one (hybrid) ethical environment.

An ethical environment is defined by Blackburn (2002, p. 1, emphasis mine) as:

> [...] the surrounding climate of ideas about how to live [which] determines what we find acceptable or unacceptable, admirable or contemptible [also] our conception of when things are going well and when they are going badly [and] our conception of what is due to us, and what is due from us as we relate to others.

"We", in this case, should refer to all humans who design, construct, use and are used by networked computers and computer-like devices on a daily basis, "we" citizens of "smart cities" whose companion "smartphones" require as many power outlets in public spaces as our pets require plastic bag dispensers, and our bodily subsystems require water fountains and public restrooms; in short, "we" cyborg citizens [2] who have access to previously unavailable "chronopaths" [3] of our own activity, which allow us to ask new questions about what it means to be human today, and what kind of post-human creatures we might become in our co-development with cybernetic artifacts.

"Identity theft", "cyber bullying", "porn-revenge", "black-hat hacking", "social engineering" and "flaming", are a few examples of issues that tell us things are going badly. But they are also things that basically could not happen, at least not in the same way, with the same consequences, were we not part of networked human-computer peers acting together at previously unthinkable temporal and spatial scales. Yet, many of us still think of the ICTs as if they were a technical network, such as a railway system that can be used to transport either medicine or poison, either produce or disease, but cannot be seen as a moral environment in itself. Likewise, we tend to see human beings as autonomous self-reflexive ethical agents capable of controlling the ethical effects of their acts through the right intention and adherence to universal golden rules.

Hayles (2006) calls the cognitive-semiotic-emotional environment that emerges from the material-semiotic activity of networked cyborgs [4] (Haraway, 1991) "the cognisphere". For her, the metaphor of a fundamentally computational world has important ideological effects. While many a cultural critique will insist on a binary choice between reality as equivalent to a physical description that can be expressed computationally or reality as a human reading, for Hayles, insisting on either side of such binary is to miss the point of our current cultural dynamics, summarized, by her (Hayles, 2006, p. 163) in the aphorism: "What we make and what (we think) we are co-evolve together".

To the extent that morality and moral evolution are intrinsic to what humanists defined as the "human condition" (Braidotti, 2013), and that humans co-evolve with the artifacts they produce and use (Ihde, 2011), one who wonders what kind of humans, or post-human subjects, we are becoming needs to delve into the mediations that bridge socioculturally and historically situated human moral meaning-making and the new moral phenomena that exist by virtue of the cognisphere.

By feeding the cognisphere with our cultural semiotic resources on a daily basis, we multiply the possibilities of complex ethical meanings being made, which is to say that the ethical effects of semiotic acts become ever less predictable. Yet, the agencies that we constitute as we act in couplings with computers have consequences in the material world. Sentient creatures are affected by the "ethically uncertain" effects of our interconnected, collective material-semiotic activity. This situation summons a new kind of politics which, in turn, should be informed by "smarter" applied ethics research (Buzato, 2016).

The relationship between ethics and politics is more complicated than this statement and may lead one to believe, for ethics informs politics by providing it with constrains and challenges that need to overcome heterogeneous interests to be met. On the other hand, moral codes are key instruments of social coordination and control that legitimize political actions. Unfair or ill-informed moral codes are thus related to destructive political action; illegitimate political action fails to find support in fair moral rules. It is usually believed that while ethics relates to the private/individual realm, politics relates to the public/collective realm. But in the ICTs, the public/private distinction is blurred to a large extent, most individual actions are about publicizing something, whether knowingly, and it is the collective work of human-computer peers that provides the context for individual action.

That we need better "applied ethics" research there is no doubt. As to how much this research can influence politics will depend on how clearly it can address heterogeneous interests and demonstrate the unfairness of current norms and the need for new ones.

To inform such politics, we need a theory or, as I will suggest, a combination of theories that help us bridge the gap between what we do with signs and what things are brought into existence as we do so. My objective in this paper is to propose the use of a "theoretical mashup" as a strategy for research into an applied ICTs ethics that can inform better ICTs politics. I do not claim to be offering a proposal for designing such ethics *per se*. I will argue that Jay Lemke's ecosocial dynamics and Bruno Latour's material semiotics can selectively integrated for such purpose. In proposing the selective integration of two theories that cannot provide the total truth about the phenomenon, but do provide important ways to find some truth and understanding about it, I am inspired by Lemke himself. More specifically, Lemke (1995, p. 134) says that "we may use different theories which are not inconsistent with one another because they are incommensurable, because they lead us to view the world, or a situation, in totally different terms". That, of course, depending on "how using these theories leads to the actions we take; it is their consistency within our praxis that matters". In other words, just like one combines two "self-contained" texts in a mashup that affords new meaning-making possibilities which neither source-text alone would, two partially incommensurable theories may cancel out each other's presumptions of totality while at the same time expanding each other's usefulness to new realms.

My argument is threefold. First, I will characterize the ICTs as an ecosocial environment in which the ethical acts are perpetrated by human-computer peers as unified hybrid agents. Next, I will argue that, given the technical operations involved in human-computer meaning-making, those hybrid agencies circulate across different modes of existence. Finally, I will suggest that Lemke's ecosocial dynamics and Latour's material semiotics (henceforth, MS) can be combined in a "methodological mashup" that is useful for a discussion of a posthumanist/postsocial ethics of here and now.

For this final part of my argument to make sense for the reader, I must now define what I am calling "post-humanist ethics". Basically, according to Braidotti (2013), humanism is a doctrine, a creed and a civilizational model built around the pivotal idea of "Man" as a very special kind of being and bearer of unique, self-regulating and intrinsically moral powers. The notion is historically predicated on renditions of the human by Classical Antiquity and the European Renaissance and coincides with a certain notion of development through the universalizing powers of self-reflexive reason.

Posthumanism, on the other hand, is partially "anti-humanism", that is, an attempt at "de-linking the human agent from this universalistic posture, calling him to task, so to speak, on the concrete actions he is enacting" to free "this formerly dominant subject" from "his delusions of grandeur" and from allegedly being "in charge of historical progress" (Braidotti, 2013, p. 23). But it is, mostly, "the historical moment that marks the end of the opposition between Humanism and anti-humanism and traces a different discursive framework, looking more affirmatively towards new alternatives" (p. 37).

When I refer to "post-human ethics", what I have in mind is an ethics that emphasizes human co-evolution with artifacts, the human physical, cognitive and affective co-dependence on prostheses, media and other biological species that is already bigger than ever before, while at the same time questioning our received notions of body, intelligence, mind, soul, subjectivity and consciousness in our critical engagements with (new) technologies.

There are politically benign and malign versions of posthumanist critique, imagination and techno-scientific entrepreneurship. The malign ones are those which are flagrantly

inhumane (and not anti-humanist). The benign ones are focused on diminishing human predicaments through the co-evolution of the biologic and the cybernetic while humbly recognizing that we are not and will not be in full control and management of such evolution. To borrow from Latour's (2013) formulation of what morality is at present, a benign posthumanism looks for ways to permanently reprise human scruples about what we do, and thus, about what we become. Hence, the need for theoretical approaches that support ongoing ethical reasoning and deliberation about our co-evolution with artifacts.

Using Lemke's ecosocial dynamics to study ethical meaning-making in human-computer ecologies

The cognisphere as a human-computer ecosocial system

Ecosocial systems constitute a specific class of dynamic open systems in which biological organisms, including humans, and human communities, participate centrally. In general, dynamic open systems can be defined as sets of mutually interacting and interdependent processes of matter-energy-information exchanges that are observable at temporal and/or spatial rates separated by several orders of magnitude (Lemke, 2000a), thus comprising different "levels of reality" (Salthe, 2009).

It is important to notice that such systems are not substantive beings that precede the activity, but the product of an epistemic operation that allows us to "see" as if in stasis what is actually relational dynamics. Entities are, therefore, an epiphenomenon of the more fundamental level of existence, which is that of relational dynamics. Rather than a philosophical investigation about the nature of "being", complex system theory is a discourse through which certain physical, biological and/or social phenomena can be usefully talked about (Lemke, 1995).

Like any other dynamic open system, the one comprising the ICTs and human users depends on the availability of material resources from its external environment to keep going. In this case, the affective-semiotic-cognitive resources that circulate through the material practices of human communities and cultures. By the same token, the cognisphere exports certain "waste products" to the external environment that can be ultimately translated as some kind of disorder (or entropy). I claim certain new ethical issues and dilemmas that challenge human communities to find new political solutions are part of such output.

Every ethical act is a semiotic act, and, like any semiotic act, it involves making a choice within limits posed by the meaning system of a certain community and in consideration of a pertinent context within which the potential of the act is realized as actual meaning made (Lemke, 1995). The context comprises both the set of choices available for the perpetrator of the act and the previous realized acts which led to the present situation.

Inasmuch as ethics is the pursuit of the courses of action or patterns of behavior that lead to a good and happy life, and given the fact that humans live in communities, the choice must be made in consideration of how the others, which are part of the context, will be affected, and how their reactions will affect the perpetrator in return. It just so happens that these contextual relations also vary across communities and even across individual agents (a fact that is technically referred to as "meta-redundancy") (Lemke, 2000a).

For example, every time I key in a certain word in a Web-search engine, or activate a hyperlinked banner, or forward an email message to my friends, I have also chosen not to do something else that I could have done in the same situation: type another word, block banners on my browser and/or report the email as spam. Perhaps, I used that particular word in the search because it is a synonym to a word I used before and which provided few results; perhaps, I did not use a different synonym because it has certain connotations that I

wish to avoid. Perhaps someone from a different part of the country, of a different age, with a different purpose in mind could have used the exact same words that I chose to avoid, or could have avoided the exact same word I used because the chain of events of the limits of the meaning system of her community were totally different.

Meta-redundancy is only one of the many ways in which ethical meaning-making becomes more complex when we interconnect smaller human ecosocial systems in one gigantic system such as the cognisphere. Another, perhaps more important, factor is that we increase the possibility of time and space heterogeneity, that is the possibility of processes happening at radically different scales intersecting one another or of things that happen at very distant places or moments affecting a given local process.

Heterogeneity of time and space always happens in human ecosocial systems because "what humans do in the ecosystem depends on stories and histories" and human "meaning-categories influence the design of material artifacts which in turn amplify meaning's human-mediated effects on matter" (Lemke, 2000b, p. 187). But as in other phenomena, quantity, frequency and scale do matter here insofar as more previously unrelated situations, across broader time and space intervals and/or farther apart orders of magnitude intersect, bringing about new, unexpected phenomena.

Semiotic artifacts (including, bodies, texts, conventionalized symbolic forms and, of course, machines and media) play a central role in such heterogeneity because they function both as signs and (material) things (Lemke, 2000b). But when we consider computer-like devices that can exchange information "in real time" among remote physical sites in as wide a geopolitical space as the internet does, something qualitatively different happens: humans are more aware of the experience of a "multiversal context" (Latour, 2013).

Concretely, networked computerized media allows us to aggregate, simulate,(re)mix, organize in chains and redistribute semiotic activity in ways that invite us into new kinds of interpretive-experiential trajectories and provide new semiotic resources and possibilities that displace previous, naturalized ones (Lemke, 2007, 2009), including, of course, naturalized ethical meanings. My sharing an email with all my list of contacts to alleviate my loneliness could be a way of spreading computer viruses; my clicking on a banner that leads to an e-commerce website to save time for community life might affect someone's job in my community; my keying in this particular word instead of that when I am looking for this particular content may limit the ways in which someone who posts content on the Web can describe it to others, and so forth.

In sum, the cognisphere affects the overall ethical environment in ambiguous ways. While it allows human communities to capture their own ways of behaving and making meanings on a scale previously impossible, it also increases the uncertainty about the effects of the human acts it mediates and exports new ethical issues that communities have to engage with, often without the benefit of analogy with previous situations. While it increases the intelligibility of human material-semiotic activity by aggregating and coordinating various sign-situation-action patterns across scales, it also allows for ethical acts to become detached from immediate human experiences, and, consequently, it alienates humans from certain ethical choices they make in a multiversal context.

A hybrid system of interpretance

If Hayles (2006) is right about the cultural dynamics of our time, the key to understanding the current ethical environment is reconciling human and computer ontologies so we can understand the ways in which human-computer hybrids make ethical meanings that generate new events and entities in the world.

In human meaning-makers, feeling (sentience, evaluation and emotion) and meaning evoke, support and influence each other, as they constitute a unified material-semiotic process (Lemke, 2015). Because computers do not have feelings, we program them to rely on informational sensitivity that provides data to go with epistemic rules for (moral) meaning-making. We thus use them as "moral delegates" of our human moral agencies, whom we trust to make moral decisions in the form of operational impositions that deter "anti-programs" performed by other entities (Latour and Venn, 2002).

It is very important to point out that by conceptualizing computers as moral agents participating in hybrid ethical environments, we are not proposing that computers can hold moral beliefs of their own and engage in moral deliberation as if using human language and human meaning-and-feeling processes. What is proposed is that computers can be programmed to perform certain actions based on certain epistemic rules and that such actions have moral value for humans. There are no intrinsic moral values in computers because the computer as a system of interpretance does not possess the capacity to hold such intrinsic meanings. Computers deal with normative language/meanings, which allows us to program them to act in this or that way given this or that (moral) situation. What the computer does in the given becomes morally meaningful as the meaning-and-feeling process unfolds, but not for the computer itself. It is the human part of the hybrid who holds moral beliefs and assigns moral worth to things and actions in the world. Humans can always pursue translations and models of lived moral events into computer ontologies and languages, though, thus making computers moral delegates. Delegates transfer/displace actions, but have no moral values or beliefs of their own.

One key to understanding how a computer can become a moral agent is the concept of "epistemic trust". As Buechner (2013) explains, we can define "epistemic trust" as trust by agent X that an agent Y will reach a certain goal. For those who program computers, it is crucial to make sure that the computational resources needed for agent Y to reach the goal will be available. That requires precise descriptions of what must be done. It just so happens that many tasks that are fairly simple for humans – crossing a street safely, for example – require computational descriptions that are "bewilderingly complex, and algorithms for executing them that are computationally intractable" (Buechner, 2013, p. 47).

In a moral trust relation, on the other hand, agent X cares about a certain goal and knows that agent Y also cares. It is not necessary for one agent to describe to the others, *a priori*, all the activities that must take place – one who crosses the street knows that drivers know that they must stop, knows that the driver knows how to stop and so forth. Buechner (2013, p. 49) explains that, "there is a good deal in the literature on the concept of moral trust that suggests that one function of the trust relation is to provide a way of sidestepping a computationally intractable problem (. . .)". This is another way of saying that computers can deal with certain kinds of evaluations based on a limited set of descriptions of certain kinds of human activities and, for those activities, epistemic trust can pass as moral trust. But passing as is not always enough! For activities outside this limited set, either there is no moral issue at all that can be expressed in terms of epistemic trust. An issue that becomes moral through the work of several types of human evaluations (Lemke, 1998, 2015) must be reduced to one single norm (reaching a given goal) and a few courses of action that can be treated probabilistically and algorithmically.

The problem of reconciling moral trust among humans with epistemic trust among cybernetic agents exemplifies the complexity of an ethical environment where moral reasoning is distributed between human and machine systems-of-interpretance [5] (Lemke, 2000b, 2015).

A crucial question as regards our hybrid (human-computer) system-of-interpretance is, therefore, how computer ontologies translate ethical acts into mechanical goals that have no intrinsic moral worth in its cybernetic rendition of the world and, conversely, how, in pursuing certain apparently morally neutral ends through the mediation of computers, we provide the means for the emergence of new ethical issues that only manifest when we think of ethics environmentally.

Ethical meaning-making trajectories in a complex ecosocial environment
In the study of ecosocial systems, the basic unit of analysis is the process, not the entities, as entities are considered epiphenomena of processes. As the activity of more and more human-computer peers becomes interlinked in persistent and extended physical and logical networks that permit the exchange of matter, energy and information, not only do the possibilities of interference among activities taking place on widely different moments and places, and on different temporal and spatial scales increase but also does the inherent unpredictability of emergent (ethical) phenomena.

It is usually the case that emergent phenomena will take place at intermediate scales between the intersecting process, as the degrees of liberty (possibilities) available at a lower level of organization get hoisted and harnessed by the level immediately above. But in human ecosocial systems, as already mentioned, human material-semiotic activity connects events and scales in ways that alter the overall matter-energy-information dynamics of the whole system. Given this crossing of scales, taking a single process as the unit of analysis will not do, as each single process belongs, by definition, to a single scale. It might be case that the analyst must consider a whole network of processes (or a process mashup) that takes place in and through a unique new mashup of multiple scales [6].

Given that scenario, predicting trajectories of ethical meaning-making across time and space, across meaning systems from diverse cultures and across human and computer ontologies and systems of interpretance becomes a huge challenge. As practitioners of applied computer and information ethics have noticed, trying to apply universal norms or centralized policies leads to a whole set of "conceptual muddles" (Moor, 2004, 2006). One must look at how the agencies at work in each situation "intra-act" to constitute the ethical act and then carry out some sort of archeological disclosure of the human and non-human meaning-making processes involved (Introna, 2014). This requires, in turn, an interdisciplinary endeavor at a certain kind of self-reflexive and truly collaborative work, which I discuss somewhere else (Buzato, 2016).

As we cannot pre-assign the ethical worth of every human-computer act by means of epistemic trust in a radically heterogeous trajectories across scales and human and non-human ontologies, should we resign ourselves to looking locally at moral effects that we cannot reconcile with individual moral agents or singular meaning-making processes? Or should we, perhaps, try to develop a political effort at new epistemologies of human-computer meaning-making that recognizes the effects of negotiating reality across human and computer ontologies?

In many ways, this dilemma is similar to the one described by Bruno Latour (2011) with reference to global warming. We know that we have a role in the emergent phenomenon, yet we feel powerless to engage with it morally and politically because we fail to see the planet as the (social) other to whom something is due from us, while, at the same time, we use the planet's resources irrationally as if they were due to us. In that case, Latour suggests, the political endeavor at hand is constructing the planet as an Other (Gaia) we can relate to. We can do so, he thinks, by means of scientific reference and artistic representation, thus bridging the actantial space between us and Gaia through sensitivity and sentience.

The ambition that pushes this research forward is similar. Only the Other I suggest we start to relate to by means of ecosocial semiotics (ES) and material semiotics is the posthumanist version of ourselves as human beings. Enter material semiotics.

Using Latour's material semiotics to "moralize" posthuman/postsocial meaning-making

Material semiotics and beings in the making

If we are looking at how moral meanings are made in human-computer ecosocial systems, and looking at such system as a hybrid system-of-interpretance, we are actually looking at humans and computers "symmetrically", without denying, however, that their agencies are qualitatively different. I argue Bruno Latour's material semiotics (henceforth, MS), a term I use, inspired by Law (2008), to encompass Latour's Actor-Network Theory (ANT) and later developments, especially, Latour's Inquiry into Modes of Existence (AIME), is a useful theory in this endeavor.

While ANT (Latour, 1998, 1999, 2003, 2005) is relatively well known, AIME (Latour, 2013) is a more recent enterprise focused on a new kind of political action towards the engagement with global problems that Latour sees as generated by the overemphasis placed by "the moderns" on Cartesian dualism and binaries such as subject vs object, nature vs culture, human vs non-human.

ANT, which is supplemented in AIME, is a radically constructionist approach that rejects both the "social construction of reality" and "discursive construction of society" as explanations of "what is out there". The basic claim of ANT is that signs (language, semiosis) and things (social "facts", ontology) operate analogically in one single level of reality (Latour, 1993). Like signs in a meaning system, all entities we believe exist in the world would be dynamical associations of heterogeneous agencies. Hence, things in general can be seen in pretty much the same way we see texts as signs associated with other signs to create texts that constitute yet other signs.

MS neither denies that entities are real nor does it claim that there is only discourse/narratives in the world. What it does is to extend the ways in which discourse works to the way we bring new entities into our cosmologies through epistemic practices. MS is, in that way, complementary with ES. Only where ES is useful in allowing us to benefit epistemically from an ecological perspective of the relation between the cognisphere and the material world, MS invites us to look at the epistemic practices that continuously shape the processes of the cognisphere itself, i.e. processes that give substance to the metaphor of a fundamentally computational world.

Circulating signs to create a metaphysical environment

Of special interest to us in MS is the concept of "immutable mobiles" (Latour, 1998, 2003), i.e. formal representations such as maps, equations, measures and, especially, well-structured data circulating through computer devices that allow for knowledge about some matter going on in one place and moment to interfere in what is going on at other sites, in other moments. Unlike physical objects/artifacts, which function symbolically by virtue of sustaining the same material constitution across radically different timescales (2000a), immutable mobiles generate new spatial connections by dislocating formal meanings across diverse material mediations without ever changing form.

The kind of spatiality that is generated by "extraction" of reference from certain sites and its transformation into formal entities allows for our experience of "multiversal contexts" (Latour, 2013). It makes patterns of activity that are observable at radically different scales, and activities taking place at very distant sites, commensurable, thus allowing for many

agencies to intersect (intra-act) in a single human-computer act. In practice, circulating immutable mobiles, especially in the quantities and at the rates we now do through the ICTs, creates a metaphysical space that passes as a mirror of the physical/material ecosocial environment in which we live.

If ES lets us approach entities as epiphenomena of dynamic processes involving matter, energy and information, MS lets us follow the chains of mediation that allow for material entities and acts to pass through other "modes of existence", particularly, the modes that are amenable to computers and computer networks as systems of interpretance.

Accounting for ethical worth across modes of existence

The notion of mode of existence is an attempt at escaping a tendency in the human sciences of addressing the multiplicity of "realities" though the concept of representation (Pinheiro Dias *et al.*, 2014). Hence, the complementarity we can explore, between a semiotics of material representations and processes, and a MS, that is a semiotics of the processes that "materialize" the beings of human and computer ontologies.

A mode of existence is an ontological operation, i.e. a manner or articulating statements about something in the world that implies a particular interpretation of totality, and, consequently, the pretense hegemony of describing "what is". Each mode of existence is characterized by four agentive (rather than substantive) properties:

(1) the discontinuities it seeks to bridge and the kinds of action it bridges such discontinuities with;

(2) the necessary conditions for the bridging to hold;

(3) the kind of beings such continuities institute; and

(4) the kinds of alterations these beings are subjected to sustain their existence.

The most basic and generic mode is "network" (NET, following Latour's, 2013 notation). This is ANT's classic mode that bridges gaps through associations among heterogeneous elements and thus institutes beings as "networks of irreductions" (Latour, 2013, pp. 518-519), "irreduction" meaning the capacity of anything to be reduced to something else through a certain kind of work/effort [7].

What characterizes our modern technoscientific societies as such is that we constantly use NET to turn representations [the beings of "reference" (REF)] into classes, categories, typologies and lineages. These, in turn, are beings of another mode called "Reproduction" (REP) which "colonize" the world of the Moderns with agencies without substance, for example, with computational objects.

Technology (TEC) is the mode of technical artifacts. It sets up associations of agencies in such ways that "resistances" are folded and redistributed to overcome "obstacles" or "detours". The beings that TEC create are "delegates" who perform actions on behalf of other beings anticipating/defeating/excluding uncertainties or resistances. Double-click (DC) is the mode of "indisputable reason", or technical/scientific "facts" that need not be proven anymore. Despite the metaphor chosen by Latour, the beings of DC are not computers but logical inferences and deductions, precise calculations and "demonstrated truths". Computer and software agents are better defined as beings from a crossing of TEC and DC.

We can understand passages of REF through TEC.DC as "digitalization", but if we want to talk about ethical acts in lived experiences, we must go beyond representation and reproduction. Here, again, we can resort to the passage from ethical trust to epistemic trust that is implied in the metaphor of a fundamentally computational world, and, following the basic criteria in AIME, we can see such passage as kind of "alteration" or "being as other".

Latour proposes a specific mode of existence that accounts for morality (MOR), and characterizes it as a mode "distributed" across all modes in the form of means-ends negotiations. For example, MOR passes through TEC as constantly reprised concerns for "utility" and "efficiency" (reaching the goal) and through DC as concerns for "indisputability" and "objectivity" (making sure the goal is feasible and being able to ascertain that it has been reached). For Latour, ethical problems come "from the suspension of the reprise, from the abandonment of cases, indifference toward any technical arrangement of proofs" (Latour, 2013, p. 460). We can translate such view as equivalent to adopting a particular politics of sentience by which we guarantee what is due to us and limit what is due from us unilaterally.

By reference to the concept of epistemic trust, we might translate this formulation as follows: are we – those of us who design, build or use the ICTs – making sure that we have the computational and semiotic resources necessary to avoid human suffering at all costs when we make humans (including ourselves as users) dependent on computer systems in the material-semiotic trajectories necessary for them to sustain their biological, cultural and social existence? Are we caring enough for irreduction, especially when we cannot connect our local actions to the environmental effects in simple, causal ways, that is, are we justified in self-righteously considering our actions fair because they are part of processes that happen to far in time and space to affect us back casually or too complex and heterogeneous for us to reason about them in terms of usual/ordinary moral judgements of the kind "such means" lead to "such end"?

These are rhetorical questions, of course, for it is more than clear that we are not doing enough, and, perhaps, are not yet equipped theoretically and methodologically to do more (Buzato, 2016) especially if we expect one single theory to provide all the answers. While the reasons why I think ES and MS could be used in tandem to better develop these questions are probably clear, it is important that we keep investigating which blind spots in each theory can be illuminated by the other as new ethical phenomena emerge in our human-computer ecosocial environment.

Material semiotics and ecosocial dynamics: an ongoing spiral dialogue
Lemke (2000a, 2000b, 2015, among other) has pointed out the two basic divergences between MS and ES which I summarize here. Latour does not explicitly cite ES in any of his major works, but his writings do establish a potential dialogue with ES that I will try to make explicit. I do not mean to reconcile whatever differences Lemke and Latour might point out in each other's views, but to integrate elements from each theory in a way akin to the one a remix artist follows when composing a mashup (Navas, 2010).

In an artistic mashup, while each source text sustains its own identity and "aura" of completeness in the discursive memory of the interpreter, the juxtaposition of selected elements from each source in a new, surprisingly cohesive arrangement, creates a new qualitative effect. It is a kind of meta-effect that invites the reader/interpreter to reflect on and evaluate the process by which the mashup was made seamless and what kind of coherence emerges from the piece in relation to the context in which it is presented.

In the "theoretical mashup", I am proposing we try out, the qualitative effect I believe can be achieved is an invitation to a new kind of interdisciplinary reflexivity regarding the ethical context that is emerging today. While ES can be used to represent the environmental and evolutionary effects of human-computer (ethical) meaning-making on different scales, MS can be used to represent the different versions of reality through which human-computer agencies must pass in every material-semiotic process that sustains the cognisphere. The sense of "ontological cohesiveness" provided by the mode crossings can then be confronted

with the material effects of such processes on human communities where sentient beings are affected. To the extent that the computer ontologies reveal themselves incoherent in relation to the ethical principles of these communities, the "loops" in each mode must be stopped and the connections among modes re-negotiated so as to satisfy the criteria of sentience.

Different kinds of networks

What makes the "theoretical mashup" especially useful for us is that both theories deploy a post-Cartesian approach to science by using network topologies to represent the relational nature of all phenomena and a dynamical view of contexts, practices and objects while, at the same time, stemming from relatively different ontological stances. While the former feature is reflected in the use "network" topology by both theories, the latter feature becomes clear in the different kinds of networks each theory talks about.

In ecosocial dynamics, networks are made of lines of connectivity and flows of activity involving transfers of matter, energy and information (Lemke, 2000b). In MS, networks are "heterogeneous" paths of association based on interests (both human and non-human) that unfold, transport, deviate and stabilize "agencies" in the form of quasi-objects (Latour, 2003). These different uses of network topology reflect processes that differ in nature: material processes that generate meaning for Lemke, epistemic-ontological meaning-making processes that unfold as reality, for Latour.

Lemke (2000b) finds the concept of actor-networks useful as a tool to address heterochrony (and I add, heterospatiality) in ecosocial dynamics, as the concept supports the notion that semiotic artifacts (both as signs and things) connect activities (or agencies) across scales. However, Latour first came up with "actor-networks" to flatten out in the same level two kinds of agencies (and therefore, of beings) that traditional sociology would have us believe there is: the (social) subject and "the social" itself. In the long run, Latour's strategy is very useful for confronting both technological and social determinism (Latour, 2003). In this, he finds a common enemy to share with Lemke (2000a, 2000b), although they fight with different "ontological weapons".

The "flat reality" of MS has consequently been criticized by Lemke (2000b) because it does not leave space for "emergence" and "downward causation" in complex systems. However, flattening out can be useful in that it allows us to unveil "interests" and "articulations" that constitute every supposedly "neutral fact" and/or process "without subject".

Ontological assumptions

Underlying the different uses of network topology are deeper ontological assumptions. Lemke's ecosocial dynamics finds support in "dynamical materialism" (Bunge, 1973, pp. 183-185) while MS supports "relational-holism" (McGrail, 2008). Where ES lets us see "causation" and "substance", MS suggests there is actually "articulation" and "stabilization". However, ES does not fall into the "naïve realist" belief that things are "what they are" and can be defined "in terms of their stable and persistent, or invariant, properties". Unlike MS, ES does not "deny the reality of matter", but, like MS, it embraces a "process ontology" in which "the properties of substance have meaning only in and through participation in processes" (Lemke, 2000a, p. 275). MS, on the other hand, does not deny that entities may have stable and persistent properties, but replaces the belief in "natural properties" that comes with the notion of matter with "trials of strength" that grant "reliable competencies" to stable actor-networks.

And the mashup goes on
Having clarified the points of tension and agreement as regards the basic ontological assumptions and the different ways in which ES and MS draw o network topology, one can start "cutting-and-pasting" elements of the theories that cohere together in a hybrid akin to a textual mashup. As in a mashup, the idea is to find montage points that allow for the two independent sources to be seamed together creating a third piece of discourse that proposes something qualitatively different from what could be proposed by each source individually. Here are a few explicit montage points that could be used in this case:

- While ANT supports Lemke's (2000b) argument that heterochrony/ heterospatiality is possible in human ecosocial environments because artifacts are signs and vice-versa, the notion that there is an intrinsic evaluative (and thus potentially ethical) dimension to all meaning-making acts (Lemke, 2015) supports Latour's (2013) claim that every mode of existence evaluates every other.

- The one-levelness of MS prevents us from seeing "that there are emergent phenomena unique to every level" (Lemke, 2000b), but, when a higher scale phenomenon such as climate change hurts us, Latour (2011) shows we need to find some being construable as a social peer on our own level of social activity. If Gaia is the sign that can do the trick of turning "amoral" emergence into our moral peer, though, one-levelness cannot explain how material works of art evoke feeling and across scales. It takes Lemke's (2015) dynamical materialism to do that trick.

The list of possible montage points goes on, as both Lemke and Latour are prolific authors whose papers and books cover a broad range of topics. The next logical step toward the theoretical mashup I am proposing is, of course, a more detailed investigation on such possible points and their relation to the topic at hand.

In conclusion: engaging posthuman/postsocial ethics here and now
To look at the ICTs as an ecosocial (moral) environment not only amplifies the political significance of works that address computer-human peers as social peers, and computer-human environments as postsocial environments (Knorr-Cetina's, 1997, 2001, 2005) but also supports previous and ongoing endeavors at a critical engagement with certain "ideologies of the future", often referred to as "posthumanism" and/or "transhumanism" (Hansell *et al.*, 2011). As with many other "post-" phenomena, these are addressable as agencies that still do not have a legitimized political body or political representation, but do have ethical and political effects here and now.

Lemke (2000b, 2015) allows us to understand feeling-and-meaning making as selective indexical contextualization processes that also involve our memories and our imagination. Ethical meanings are, of course, made the same way. But Ihde (2011) points out that whenever humans couple themselves with artifacts, no matter how low-tech, the resulting cyborgs experience a new environment that is partially transparent for both – i.e. they detect new indexical elements – in partial withdrawal – i.e. each component imposes its own indexical selectivity, which generates ambiguous or disputed contexts.

If it is true that our bodies have always been partially readers and partially semiotic artifacts inscribed with clothing, tattoos, neuromuscular habit patterns, verbal memories and so on (Lemke, 2000a, p. 282), we now must deal with disembodied moral meanings made by beings that "read us". We tolerate this new kind of subject-object ambiguity because it

brings us some sort of freedom, a moral value in itself for a democratic society (Floridi, 2013). But how does postsocial democracy work, if at all, when certain kinds of meaning precede the possibilities of being?

Through informational enrichment, our selves acquire new (often uncalled for) metaphysical properties, and our acts acquire functional roles in informational processes that have no subject. Our awareness of there being an ethical context whenever two social peers meet used to emerge phenomenically though the gaze we exchanged in our face-to-face encounters (Miller, 2012). Now we need to imagine or infer a moral context from signs that evoke our memories of embodied experience or through embodied experiences that are calculated and inscribed in our bodies as cybernetic artifacts.

As Knorr-Cetina (2001) explains, in the process of hybridization between everyday cultures and epistemic cultures that is materially supported by computer-like devices, we are becoming increasingly "technologically (and biologically) improved, distributed cognitively, and emotionally torn" (Knorr-Cetina, 2001, p. 525). In this sense, the ICTs not only fold time and space for our human selves (Lemke, 2000a, 2000b) but also unfold our cyborg selves by multiplying cybernetic beings (Latour, 2013) and distributing presence (Miller, 2012). If we want to protect future cyborg selves from becoming Cotard's delusion patients, we must construct a new sense of ethical responsibility through a politics that bridges sensing with sentience in the making of (ethical) sense. New theoretical solutions are necessary to sustain that effort, but no theory can provide all the answers we need. It takes a hybrid to study a hybrid.

Notes

1. "This research was sponsored through grant 2014/25315-7, Sao Paulo Research Foundation – FAPESP".

2. Gray (2000, p. 2) defines "cyborg" as "a self-regulating organism that combines the natural and artificial together in one system". I consider this definition vague enough to accommodate any kind of networked human-computer peer who acts as if it were one single agent. This, in turn, suffices to state my problem in this introduction.

3. Lemke (2015, p. 614) defines chronopath as "the text-specific or genre-typical pattern of feelings evoked in the course of narrative movement through time from scene to scene, situation to situation, activity to activity". In this case, I refer to experiences such as browsing the WWW, crossing cities and regions using GPS-based augmented reality, browsing through collections of pictures and videos on social media websites and other kinds of movements across a broad set of recorded human activity that allow humans to see themselves differently from what was possible before.

4. I use the term cyborg in this essay in accordance with Gray's (2000, p. 2) definition, i.e. "a cyborg is a self-regulating organism that combines the natural and artificial together in one system. Cyborgs do not have to be part human, for any organism/system that mixes the evolved and the made, the living and the inanimate, is technically a cyborg".

5. Lemke (2015, p. 596 and following pages) uses the term, possibly following Salthe (2008), to define the agent (not necessarily human) that produces the "interpretant" in Peirce's triadic theory of signs, or the element that "construes (. . .) a specific kind of relationship (. . .) between signifier (representamen) and signified (object)" as a new sign.

6. Jay Lemke, personal communication, January 28, 2016.

7. More specifically, Latour (1993, p. 158) claims that "nothing is, by itself, either reducible or irreducible to anything else", meaning, basically, that all entities are equally real insofar as they act on other entities; whether they are corporeal, all "established" entities have some effect on the world.

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