

SYMPOSIUM ON *QUESTIONING TECHNOLOGY* BY ANDREW FEENBERG
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On failing to reach escape velocity beyond modernity: an essay review of *Questioning Technology*.

Fernando Elichirigoity

Questioning Technology by Andrew Feenberg represents a sustained, valiant and exquisitely lucid attempt to break away from the essentialism that still dominates modernist philosophical analysis of technology. It attempts to do so by incorporating social constructivist approaches to technoscience. Unfortunately, by trying to preserve many aspects of the modernist methodology, particularly in its reconstruction of technology as essence, the book manages only to change the interface without transforming the underlying code.

The author cannot escape the Manichean taxonomies of all modernist discourses such as those of Marx, Habermas and Marcuse. His calls for a new centralization of political practice around the "unifying articulation supplied by technology" and his dependence on the historically unexamined and essentialist notion about the relentless expansion of "technocratic capitalism" lead us back to the insufficiency and abstractness of the modernist analysis that he wants to escape. He also wants to preserve what he calls the "essence" of technology, and yet also argue that technology is historically contingent. We cannot have both at the same time. A history of essences, the modern project, needs to give way to a history of contingent processes and assemblages.

I argue that the need remains to develop intellectual practices that incorporate the possibilities of historical discontinuities and explore the emergence of self-organizing social, civic, political, religious, economic, technological assemblages of humans, nature and machines free from the tired tropes of modernity, however liberatory they purport to be.

1) The problem of escaping modernity

I see this issue as both the central problem and the promise of the book. The author wishes to develop an understanding of technology that escapes the essentialism of technology embodied in modern discourses and practices. He attempts to do so by incorporating social constructivism in his arguments and borrowing from this area of knowledge production analysis that accepts the need to see technology as co-emergent with social and cultural forms. He is impatient, however, with the apparent penchant of social constructionists to engage in close empirical analyses which appear to do a good job of explaining the issues at hand but fail to provide a moral perch from which to criticize the macrosystemic injustices and inequalities we can see around us. This impatience leads him to pine for those broad conceptual tools of the modernist critiques of technology, such as "social forces", "capitalism", "technocracy", that provide an

immediate and mighty moral grounding. As he brings back these conceptual tools however, he loses the advantages that social constructivists' analysis can provide and brings back all the problems of the traditional modernist viewpoint. These include:

- historical abstractness,
- tacit reification of technology,
- *a priori* and asymmetrical construction of who are the good and bad historical actors,
- inability to apprehend emergent possibilities that depend on breaking away from the purifying certainties of modernity, and
- an asymmetrical understanding of power.

I will discuss these issues further below.

The promise of *Questioning Technology* remains in that the author has lucidly delineated the problems of producing knowledge within the modernist framework and the advantages of jettisoning it, even if, at the end he decides against doing so. Many aspects of his critique of modernity are quite trenchant. I have found his analysis of the shortcomings of Habermas, for example, to be particularly clear and incontestable. This includes highlighting Habermas's inability to see that his sense of ahistorical rational invariance, even if carefully circumscribed to instrumental spheres of action, is untenable. The promise implicit in this book can be fulfilled if the analysis is opened to admitting the emergence of historical subjects (the biosphere, humans with many bodies, computer mediated collective intelligence, cyborgs) that would be unrecognizable to modernist thinkers; and accepts a conceptualization of technology as mutually constitutive with the social and the natural worlds.

a) Modernity and the reification of technology

With one breadth the author wants to locate technology in the world by incorporating what he calls "the social dimension of technological systems" into the essence of technology. With another breadth he reifies technology, in the modernist idiom, by positing it as something that engages with objects, subjects, environment but remains objective to them. Technology is seen as distinct from objects and subjects. However, the way we conceptualize, apprehend and understand objects, subjects and environments is precisely through technology. Technological practice is co-emergent with the world, not an objective element apart from it. There is no understanding without technology, because every aspect of our being, our bodies, our thinking, our tools are formed by and through the technical practices we are born in and educated with. From the training of the eye to rove in certain patterns to the way we learn to speak, our being in the world embodies technical practices. Consciousness is impossible without those practices. Heideggerian claims notwithstanding, not even art can exist without the trained body.

The position of seeing technology and nature as separate from humanity constitutes the core of modernist thinking. Embodied in this formulation is an unexamined formulation of the "human" as the vessel of goodness, as illustrated in Heidegger's nostalgia for the artisans of ancient Greece. By lingering on and pining for Heidegger's misguided notions about the opposition of humanity and technology Professor Feenberg starts losing the tremendous gains that he makes when thinking through technology by incorporating the insights of social constructivism. Social

constructivism, at least the variety articulated by people like Bruno Latour, Andy Pickering, Donna Haraway, (but not, say, David Bloor or Harry Collins), invites us to think about technology as co-emergent with the social and the natural worlds and not as something alien to them. I believe that this form of knowledge production opens up the possibility of novel forms of democratic practice because it is not engaged in fighting a pre-defined enemy but is open to strategies of looking for spaces of possibility and freedom. By not admitting the mutually constitutive character of this process and in particular by dismissing as insufficient the painstaking empirical local analysis that emerges in social constructivism knowledge production Feenberg necessarily reverts to the historical abstractness of modernist narrative with its toolkit of preformed actors and social forces.

b) Modernity and the endless struggle against technocracy and capitalism

Questioning Technology is positioned as struggling against technocracy. I think that this approach vitiates Feenberg's considerable efforts to provide a framework of analysis that can facilitate novel forms of democratic action around technological issues. It has many negative effects. In the sphere of political practice it leads to political activity oriented towards fighting modern reifications, such as "technocracy", which is the modernist term for that which remains alien and evil outside the warmth, cozy embrace of purified humanism. This leads to pre-formed enemies and friends. It visualizes a series of Napoleonic set battles in which technocracy is fought against by democratic forces. This leads inexorably to miss the potential for tactical alliances, fleeting truces, novel forms of politics that are, as Donna Haraway among others has argued, the necessary tools to function in the global spaces we find ourselves in.

The problem of the modernist analysis, shared by this book, that it knows the enemy and names it "technocracy," is that it commits itself to the theory of original sin. It assumes that by knowing the origins of a particular technology it can accurately predict its trajectory and socio-political impact. An empirically grounded historical analysis of many of the technologies emerging out of, or being reformed by, the crucible of WWII and the bowels of the military-industrial complex, such as the Internet, systems thinking and cybernetics have had trajectories and potentials that cannot be divined from the certainty that they are technocratic processes. By hurrying to grasp the ephemeral promise of solid moral grounding of modernity, the author lets go of the potential to ground a promising narrative about the potential of the Internet on its heterogeneous and contingent history. This can be the real grounding of democratic activity because it can make constant reference to the emergence, in real time, of assemblages of people and machines that have been oriented towards the development of technologically mediated and sustained spaces of communicative freedom.

The desire to keep the "pure" forms of modernity, where we can always locate the enemy (technocracy, capitalism) even before we do empirical research leads also to an inability to understand the post human world we increasingly live in where nature, humanity and technology are emerging in novel assemblages that do not respect the boundaries between the organic and the technological, the human and the natural that remain the province of modern analysis. The post human world involves actors such as the biosphere; cyborgs and computer mediated collective intelligence. These real existing actors cannot be encompassed within the narrative spaces of concepts such as "technocracy" or even "capitalism". They include elements that one could identify as

belonging to those concepts but they also bring a newness that cannot be captured or domesticated by them.

c) Modernity and the problem of the purity of actors (or the symmetry of power)

The reclaiming of the modernist tropes leads Feenberg astray in dealing with the problem of power in a symmetrical manner. He assumes, following the modernist script, a set of friends (democratic groups) and a set of enemies, technocrats and capitalists. This, in turn, leads to an asymmetrical analysis of power, where the enemy embodies all that is evil and the friendly side all that is good. If we are going to study power in real-existing capitalism, then we need to do so also in real-existing populist democracy. As Rudolf Bahro, and specially Andre Gorz, in his *Farewell to the Working Class*, have argued not every movement that speaks in the name of democracy is necessarily democratic. I believe that we can avoid the problem of power by not assuming, *a priori*, that we know who is who, and, instead, insist on looking at all actors in every historical struggle in real time. This will necessitate analyzing close to the ground and far from the categories that modernity provides to generate our analysis.

2) Historical discontinuities and the emergent post human world

The need remains to develop intellectual practices that incorporate the possibilities of historical discontinuities and explore the emergence of self-organizing social, civic, political, religious, economic, technological assemblages of humans, nature and machines free from the tired tropes of modernity, however liberatory they purport to be. The grounding of moral action on the soil of a dichotomy between humans and technology must be firmly and resolutely abandoned. Because it ignores the mutually constitutive nature of humanity and technology, it cannot provide us with any solid moral perch to develop practices of being.

There is urgency in developing a new imaginary of practice that accepts the fact that we are both natural and technological and the enemy of neither nature nor technology. The urgency exists because we are, for the first time in the history of humanity, confronted with two profound discontinuities: we have discovered the inescapable global nature of our environment (the biosphere) and we have created the one to many global space of communications (the Internet). The Internet is growing towards becoming the new knowledge-creating environment that forces us to deal with the immediacy of the other. No more colonialist discourses and practices that keep us segregated, no more modernist narratives that posit the *pseudo* universalism of the Enlightenment where the French are more equal than anyone else. Now we are entering the exhilarating, terrifying, promising, dangerous space of the global earth and the global communicative space of the universal nation. No time for struggles against nature or technology. Time for being fully posthuman, that is to say, free from purified humanisms, and see ourselves as concrete historical beings embodying and emerging concurrently with technology and nature. This has to be the grounding for a philosophy of technology that will stand the judgement of the future. If the author of *Questioning Technology* wants to contribute to this effort, and I hope he does, he must retain his trenchant, and often brilliant, analysis of the problems of the modern narratives, but must abandon a nostalgic longing for the false moral certainties of their essentializing methodologies.

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Will the Real Posthuman Please Stand Up! A Response to Fernando Elichirigoity

Andrew Feenberg

Fernando Elichirigoity has written an impassioned plea for a postmodern philosophy of technology that would go beyond the limits of my project in writing *Questioning Technology*. Elichirigoity praises my turn to constructivism and my critique of Habermas, but, failing to understand posthumanist insights, I supposedly remain bound to tired old modernist prescriptions which prevent me from adequately analyzing technology in its contemporary context.

This diagnosis of my problems is expressed with more regret than satisfaction. The critic would be delighted if I would make "encore un effort pour être postmoderne" and surrender my lingering modernist nostalgia. Then, I could contribute to the strictly localized studies of particular technological systems which alone offer insight into the new forms of struggle appropriate to our postmodern condition. As it is, my analyses of the Internet, environmental politics, and suchlike are marred by a reliance on the old demonology of the Left and an abstractness and apriority typical of modernist critique.

I hope this is a fair summary of an interesting comment on my book which may represent the views of a whole segment of readers I would like to reach. I assume that many readers of this symposium will not yet have seen *Questioning Technology* and so cannot measure these criticisms against the text. I regret this very much as I do not think that these complaints fairly represent my book. In fact, it seems to me that most of these criticisms should be turned around and aimed at the critic. Who belabors apriori oppositions, who thinks abstractly and reifies his objects, the author of the book or the critic who treats it as a straw man for the overworked struggle of postmodernism against modernism? As I will show, in the most important respects for any contemporary politics of technology, I have already met the general methodological requirements that underlie this critique and so I have to wonder why it is so harsh. But before I turn to that question, I want to consider the notion of posthumanism on its own merits, in the radical formulation of it to be found in Fernando Elichirigoity's paper.

I must confess that this posthumanist business has been bothering me for some time and this is an occasion to figure out what troubles me. The idea of getting beyond humanism has been around at least since Marx criticized the false universality of bourgeois morality in the *Communist Manifesto*. Nietzsche's attack on Christian ethics, democracy, and socialism, and Heidegger's attack on metaphysics should also be mentioned in this connection. More recently, Foucault placed the idea back on the agenda of the Left. So we have a great posthumanist tradition behind us. Elichirigoity, like Haraway, and perhaps Pickering, and Latour, would like to add the moral weight of that tradition to the epistemological innovations of postempiricist philosophy of science in some new constellation of radical theory. How is this supposed to work?

Elichirigoity suggests that technology should not be seen as something distinct from humans and nature because technology is "co-emergent" with the social and natural worlds. The key concept he introduces to explain this is the notion of posthumanist assemblages of persons, things, and technologies. These assemblages are both the subject and object of postmodern knowledge: subject, because we know through our technologies and not immediately as in the old paradigm of cognition based on a predefined human-to-nature relation; object, because what we know is a complex of mutually defining human, natural, and technological dimensions. "Technological practice is co-emergent with the world, not an objective element apart from it." As I will explain below, if this is the case, then we can only criticize technology through the painstaking reconstruction of the local processes that establish boundaries between the human and the natural and define social groups and their interests, since none of these terms can be assumed as primitive. Presumably, such a methodology will reveal new assemblages capable of radical projects of a different and more fruitful type than anything implied in such outmoded apriori categories as class or anti-technocratic struggle.

Although my critic accuses me of abstractness, I find it hard to put my finger on what concretely this notion of assemblages is supposed to mean. I do see that social groups in a society like ours should be defined in terms of the technical mediations which make it possible for them to form in the first place. I discuss the implications of this requirement for democratic political theory. Up to now and still in much philosophy of technology, political theory takes geographic units as the basis of its definition of local community without considering the many social forms that emerge around technical networks such as production, means of transportation and communications, medical systems, and so on. I argue in opposition to more traditional forms of populism that activating these networks politically is essential to a democratic politics of technology.

But apparently, this is not yet sufficiently posthumanist to qualify. Somehow, I need to get to a deeper level at which not just social groups and technologies "co-emerge," but also the human or social and the natural as such. Here is where I confess to having some problems following. Of course I understand that the boundary between the natural and the social is often a subject of controversy, particularly in medicine and other domains of "body politics" such as feminism. But the work of controversy, which finally draws the boundary, presupposes the general distinction between "nature" and "society." It is in fact this very presupposition which makes it possible to have a controversy in the first place. Why? Because controversy is only possible where the contingency of the social can be distinguished from the necessity of the natural. Consider for example the remarkable Amazonian tribe which believes that after death men are transformed into jaguars while women and children simply disappear. Clearly, in this context it would be difficult to raise feminist objections to discrimination as a cultural construct. We can only do so because we know how to distribute effects between the social and the natural.

Now this ontological presupposition is subject to an epistemological critique, which points out that it is after all "we" who do the distributing. Some social constructivists have argued that this makes society an ultimate subject and nature merely one of its positings. But the posthumanist line is different. "Subject" is now redefined not as the knower who posits objects but as the "actor," the agent, which effects changes in the world. On those "postmodern" (or "non-modern") terms, nature is

as much a subject as society. The process in which the lines between society and nature are drawn by subjects in this sense involves activity on both sides of the line prior to the drawing of the line. Indeed, since human and natural subjects can only be distinguished once the line between them is drawn, "human" and "natural" cannot be ultimate categories but must be relative to something more fundamental. Latour, for example, calls this foundation the network of "*actants*" and Elichirigoity refers to it as an "assemblage." I realize this sounds awfully abstract, but it is Elichirigoity who introduces it as a more concrete approach than my own rather flat "modern" view.

The abstractness is perhaps a sign of a deeper problem. How, after all, can the actors act before their existence has been defined by their action? How, one wonders, can we talk about *actants* or assemblages without using the language of modernity in which the human and the natural are distinguished apriori? Try analyzing Amazonian jaguar theory without presupposing the distinction between the human and the natural. Thus the ultimate foundation to which the theory implicitly refers seems to be a sublime nothingness about which nothing can be said, that night in which all cows are black, as Hegel complained of Schelling's subject-object identity.

In fact, the reference to German idealism is not out of place. We are dealing here with an approach with (no doubt unconscious) similarities to the original Fichtean notion of a prior unity underlying the split between subject and object. At the beginning of this century, William James revived this idea in an original way in his critique of the concept of consciousness. James argued that consciousness and reality are merely two different orderings of the contents of experience, in the one case along biographical lines, in the other objectivistically. The fundamental unity of experience is broken by acts of reflection in which consciousness is posited as separate from reality. Consciousness and reality are thus not primitive terms but derived from a prior foundation which James called "pure experience" (James, 1943).

James had little to say about pure experience for the obvious reason that it was supposed to be prior to reflection. But that is not at all the posthumanists' conclusion. Rather, they have a lot to say about their foundational point of departure. What they say is contained in those painstaking local analyses Elichirigoity wishes I would make. The analyses are supposed to be able to trace the co-emergence of society and nature in the processes of scientific and technological development. As Latour writes, "[S]i je ne parle pas de 'culture', c'est parce que ce nom est réservé à l'une seulement des unités découpées par les Occidentaux pour définir l'homme. Or, les forces ne peuvent être partagées en 'humaines' et 'non-humaines', sauf localement et pour renforcer certains réseaux" (Latour, 1984: 222-223). Latour continues in this passage to similarly reduce the terms "society" and "nature" to local actions.

This *transcendental localism* employs a self-conscious rhetorical strategy which consists in distributing the terms usually attributed to human subjectivity across the boundaries between the human and the non-human actors whose coming into existence is itself the object of the story. The most famous case in point is Michel Callon's discussion of scientific research on scallops in which the little devils are described as more or less "cooperative" with the researchers (Callon, 1986).

At the same time, a strict operationalism forbids the introduction of data which is not effective in the strong sense of decisive for the outcome. This has disturbing normative implications. It means, for example, that the losers' perspective in any struggle disappears from view as it cannot be operationalized in terms of the structure of

the successful network. If our Amazonian feminist protests her status in the afterlife, we cannot find support for her in a rigorous theory of assemblages for the simple reason that she has no methodological right to refer to a transcendent distinction of nature and society to make her case. I have never understood how one obtains a radical politics starting out from an empiricist position that blocks the construction of categories transcending the local.

I have tried to escape these problems by hanging on to the notion that human actors have unique reflexive capacities. These capacities make it possible for humans to represent the networks in which they "emerge" and to assign goals to the systems they carve out within those networks. I would agree that human symbolic powers can only exist within networks in which non-human elements are also active in their own way, but that is not quite enough symmetry for Elichirigoity's cyborg ontology. As a posthumanist, he appears to want to make no fundamental distinction between the human and the non-human.

I have proposed a rather different approach which avoids all these theoretical contortions and better defends the weak against the claims of the strong. I call this the principle of symmetry of program and anti-program. It seems to me that we must recognize that part of the human actor which overflows any particular network involvement and provides a basis for distancing and criticizing the construction of networks. Where it issues in action, that critique takes the form of an anti-program that may challenge or disrupt the network in its dominant configuration. In the absence of an empirical support in the established reality of the network, the anti-program is defined in terms of transcending concepts, such as nature, justice, humanity. (I am not merely advocating this but observing that it is generally true of struggles by the weak at least over the last few hundred years down to our present supposedly postmodern era.) Marxism first formulated objections to transcendent values similar to those of contemporary postmodernism, but it historicized values rather than abolishing them. For similar reasons I argue that whether or not oppositional values are successfully operationalized in the course of events, insofar as they are manifested in struggle they must be treated symmetrically with the established network definition put in place by the dominant "heterogenous engineers" who have configured an assemblage to their own liking.

I have applied this approach to the study of human communication on computer networks, an example to which Elichirigoity repeatedly refers. I would like to conclude now by explaining my work in this field in the hope that I can convince my critic that my method does recognize those "novel forms of democratic practice" which, I fully agree, we must learn to theorize today if we are to avoid merely mouthing outdated political cliches.

Elichirigoity complains that my modernist bias results in serious methodological problems. My account is too abstract and reifies technology as something separate from society. I also assume apriori that capitalists and technocrats are bad guys and democratic movements good guys without actually investigating their far more complex interrelations. And, I fail to see the "emergent possibilities" of cyborg subjects combining humans and machines in new configurations. None of these charges accurately reflect what I have written.

I discuss the interaction of technocrats with democratic movements in general terms in chapter 2 in relation to the May Events of 1968 and in chapter 6 on technology

and democracy. In both cases I am concerned with how to inform technical disciplines and technocratic actors with concerns that emerge from democratic movements, hardly a black hat versus white hat approach. I treat this issue more specifically in relation to the evolution of the Minitel system in France in the early 1980s and the Internet. In both cases I base my argument on concrete analyses rather than abstract and apriori assumptions. I am interested in the possibilities of layering technocratically designed information systems with popular demands for new functions in human communication. Rather than reifying technology, in these discussions I show how malleable it is, how its design is relative to the demands of the social groups constituted by the networks it makes possible.

Let me offer a few more details to make my approach clearer. The Minitel was the first large scale domestic computing network. In the early 1980s, the French telephone system distributed six million terminals connected to a packet switching network to which host computers could be easily hooked up. We have here a kind of national anticipation of what the Internet was to become on a global scale. The system was designed by telephone company technocrats who conceived it as a means of modernizing French society through improving citizen access to information resources. Human communication over computer networks was not originally included in the design or, where it was mentioned in early documents, it was far down on the list of priority functionalities. As a result, hardware and software designs were biased against human communication, although it was not technically impossible. *Questioning Technology* offers a brief summary of a case study from my earlier book, *Alternative Modernity*, focusing on the process in which this original design was altered by hackers and popular demand to make human communication a central functionality of the network (Feenberg, 1995: chap. 7). I take this case as an exemplary figure of the transformation of technical networks by the human actors they enroll, and I think it responds very well to Elichirigoity's demand for an appreciation of novel democratic forms.

Questioning Technology also discusses the Internet at some length in the context of a critique of Heidegger and Albert Borgmann (Feenberg 1999: 187ff). Borgmann is a prominent philosopher of technology who views the Internet as a spiritual disaster area (Borgmann, 1992). He is convinced that it is a morally inert field of trivial interactions. I do not agree and argue on the basis of research on a medical self-help group of ALS patients that the Internet can support new forms of human community which realize significant moral values (Feenberg, 1996).

The point I particularly try to make is the tremendous importance of the opening of the networks by users to innovative communicative applications. This opening is now taken for granted but it was not inevitable. Wise after the fact, we look back on the history of computing with the certainty that it was always meant to facilitate human contacts and then complain that it doesn't do as good a job as it should. If we "follow the actors," as Bruno Latour advocates, we discover a very different picture in which groups such as the self-help community I studied are inventing and reinventing the networks as places of human encounter. This process is not yet complete and will engage both users and computer and software "technocrats" in what I call "reflexive design" of the systems for years to come.

I hope these remarks satisfy my posthumanist critic that I have made a useful contribution to radical technology theory. That was my ambition and I would be

disappointed to learn that I have failed in the eyes of a potential ally in what is after all still a quite marginal project. Could it be that differences in style give rise to the misunderstandings between us? If so, I want to warn Elichirigoity and others who share his postmodern views not to isolate themselves behind a language which stands on the margin of a margin. In our field the search for a common language or, at the very least, for charitable translations between traditions should be the order of the day.

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