

SYMPOSIUM ON QUESTIONING TECHNOLOGY BY ANDREW FEENBERG
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What Sort of Ethics Does Technology Require?

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Abstract

This essay critically examines the non-essentialist and anti-deterministic philosophy of technology developed in the work of Andrew Feenberg. As I interpret the work, Feenberg achieves an important 'demystification' of technology. His analysis peels away the facade of ironclad efficiency, rationality, and necessity that permeates our experience of technology. Through theoretical argument and rich examples, he illuminated the contingent interests, values, meanings, and voices that are built into specific technologies, often by experts. He shows how technology is transformed by lay actors who challenge its design on behalf of a wider agenda of interests, values, meanings and voices. My critique focuses on Feenberg's attempt to argue from his demystification of technology to the full democratization of all technical design and decision-making. I argue that Feenberg's framework lacks the ethical resources required both to (1) justify the democratization of technical decisions, and more basically, (2) to determine when lay challenges to technology do and when they don't, advance democratic ideals, and why. I trace these problems to ethical inadequacies in his notions of interests, democratization, and an alternative modernity. A subtheme of my argument is that our society's Lockian morality of property rights and market freedoms poses fundamental ethical objections to his philosophy of technology with which it is ill-equipped to deal.

Keywords: alternative modernity, democratization, ethical argument, Lockian morality, modernity, non-essentialist, philosophy of technology, technology

Demystifying Technology

In a series of books written over the last decade, Andrew Feenberg takes up the important task of developing a non-essentialist philosophy of technology, aimed at a more democratic politics of technical decision-making and a more rational design of our built environment. [2](#) To this end, Feenberg challenges the dominant modes of experiencing and understanding technology. He argues that the dominant essentialist model(s) of technology imprisons us in a world made by experts who use claims of expertise to exclude the voices and vital human interests of those lay groups most affected by it. [3](#)

On the dominant essentialist image, technology and the built environment are perceived as determined, or dictated, by necessary imperatives of efficiency and special bodies of expert professionals who enjoy a monopoly over knowledge of these

imperatives.⁴ The development of technology is seen to obey an autonomous and value-neutral logic in which science-based, technical elites (engineers, city-planners, physicians, architects, etc.) realize ever more effective and reliable means to attain the necessary, incontrovertible goals of modern society. As such, existing technology at any particular moment in time appears to have a self-evident rationality and necessity which repels the very possibility of authentic ethical choice and political debate. Of course such debate may arise over the proper use of technology - including questions of access and distribution. But the technology itself is seen as essentially outside all such political perturbations, marking the necessary framework of all rational action.⁵

Feenberg's work mounts a theoretically powerful and empirically well-documented critique of this dominant understanding of technology. On his analysis, it masks the particularity, historicity, contingency, interest-ladenness, and politics of every specific technology that we confront in our built environment: buildings, hospitals, clinics, highways, cities, clinical trials, machines and devices of all sorts, factories, offices, etc. Each such technology embodies a design, and underlying that, a technical code embodying established experts' determination of what is and is not a relevant factor in designing this or that sort of thing. In turn, Feenberg shows that every such design and technical code embodies particular peoples' decisions/power over which among many possible considerations, interests, values, costs, functions and voices are to be included and which excluded in that technology.⁶

Feenberg thus teaches us to ask certain very specific questions about any given technology and establishes the social reality of these questions by illuminating contemporary cases in which lay groups have asked these questions and transformed technology in the process: "Who determined how this thing would be made, with whose or what purposes in view and out of view, at whose expense, in the context of what relations of power, and through what institutional or social process?" When various lay actors or users of technology are motivated to raise such questions, the paralyzing experience of an implacable technology or environment is dissolved and human agency is restored. By this route, Feenberg is able to explain and justify several real-life cases: how AIDS activists were able to transform clinical trials and experimental therapies from researchers' pure devices of medical knowledge to technologies of care and personal autonomy for people with incurable, fatal illness;⁷ how movements of people with disabilities were able to transform the design of streets and buildings to incorporate ramps and thus their access and agency in relation to public life;⁸ how millions of users of the French Teletel system were able to transform it from an information to a communication technology.⁹

On Feenberg's non-essentialist view, technology emerges as the embodiment of a social process in which empowered groups of experts choose to express certain sets of specific interests and standards in specific technologies, which in turn are re-experienced, challenged, and redefined by their users. The users have to live in the world made by others and bring their own meanings and interests to it which can be different than those of its designers. Feenberg's work thus develops a new conception of technology as the site of contingent political contestations between different groups of actors over the interests, purposes, and meanings which will be invested and encoded in the built environment. His work is a powerful contemporary exemplar of critical theory for it succeeds not simply in providing a more accurate scholarly representation of technology; but also one which speaks to the consciousness of lay actors and can enable

the public to challenge and transform the environment designed by others. He effectively achieves a demystification of technology, which parallels the demystification of authoritarian state power achieved by the classical liberal philosophers, and the demystification of capitalist political economy/market relations accomplished by Marx and his heirs.

Democratizing Technology and Society

Feenberg's most recent work seeks to go well beyond the demystification of technology. He raises the stakes considerably for his non-essentialist philosophy by arguing that it paves the way for a democratization of technology, and indeed, a radical democratization of society itself. [10](#) Feenberg looks to his account of the politics of technology as the basis for unifying a whole disparate array of new social movements of reform. He sees in his philosophy of technology the basis for an overarching ideal of radical democracy and a utopian vision of an "alternative" or "redeemed" modernity. [11](#)

In the rest of this essay, I argue that Feenberg's non-essentialist philosophy of technology lacks the ethical resources required by these grander aims and in any case misconstrues the aims themselves. My argument revolves around three points of criticism. First, I maintain that Feenberg lacks a clear and plausible standard of what counts as the democratization of technology. Secondly, I argue that he needs a more substantive conception of democratic ideals - especially of democratic equality and rights. Without that, I argue, he cannot distinguish between challenges to, or changes in, technology which strengthen democratic ideals, from those that do not, or have a minimal democratic impact. Thirdly, I claim that there are powerful normative obstacles to democratizing technology which cannot be comprehended or criticized in Feenberg's theory. In particular, non-democratic technology, however it is interpreted, rests on our society's powerful Lockian moral code of private property, and not simply on the technocratic ideology of essentialism and value-neutral efficiency.

In sum, I argue that there are large theoretical, ethical, and political gaps between Feenberg's achievement - the demystification of technology - and the broader vision of democratization and alternative modernity it is supposed to serve. My point is not that Feenberg's non-essentialist philosophy is no aid to the broader vision, but rather, that the broader vision requires, in addition, a different kind of analysis and ethical critique of modern liberal democracy than what is now central in Feenberg's approach.

"Participant Interests" and Democratizing Technology

At rockbottom, Feenberg's non-essentialist conception of technology is supposed to show all lay actors who are impacted by technology not just that they can change it, but that they do or may have good reasons for doing so. This is further accentuated by Feenberg's project of democratizing technology. After all, there is little point in demonstrating that people can criticize or change something, democratically or otherwise, if they have no good reason to do so.

What provides the "good reasons" in Feenberg's model? The answer is given by his notion of "participant interests". [12](#) Lay actors who have to use or live with the environment built by others either have or may develop various "participant interests", some of which are not, but could be embodied in its design and structure. Intuitively, the notion is clear enough. "Participant interests" refers to the ways that the personal welfare of various people - participants, users, third parties, etc. is commonly impacted,

for better or worse, by a technology, making them into a group bound together by such "participant interests", affirmed or frustrated by that technology, as the case may be.

This notion must bear considerable weight in Feenberg's overall argument against essentialism. After all, the essentialist who equates technology with efficiency and rationality sees that its design embodies persons' interests. The essentialist perceives these interests as typically uncontroversial, inescapable, and universal in modern life - shared by users, designers, the public, alike. Owners, designers, workers, and buyers all share an interest in making a car that will sell, run, etc. It is the collective emergence of marginalized "participant interests" - particular users' interests and voices excluded from the design process and technology - which, in practice, reveals the one-sidedness, contingency, and politics of technology. In seeing what a technology excludes, what it is not but could be, we gain a clearer and truer grasp of what it is - the bias of technology beneath the guise of efficiency and rationality.

Feenberg's notion of participant interests must also bear considerable weight in his argument for democratization. For, it is certain participant interests which must provide (1) the motivation, (2) the justification or reasons, and possibly (3) part of the criterion, for the democratization of technology. The establishment of marginalized participant interests, or ones once marginalized but now included in the technical code, shows that technology could be other than what it is. But this falls well short of defending a conception of what technology ought to or should be - which participant interests should be accommodated within a democratized technology, or alternative modernity. Which technologies or aspects of our built environment ought to be democratically transformed and in accordance with what standard of participant interests, or human well-being? This is the key ethical problem that requires exploration by a democratic critique of technology.

Feenberg may reply that this is not his problem or project. Having shown that technology can be changed, it is up to the users, the public, to assert their marginalized participant interests and to determine how the built environment ought to be changed. Isn't that the thrust of democratization - allowing the affected groups to decide for themselves? Once technology is demystified, a desirable democratization of technical design inevitably follows, so the argument might go. I see two large problems for this strategy, which in any case doesn't seem to be Feenberg's. I will refer to these two problems as the 'Which Interests' problem and the 'Private Property' problem.

Which Interests?

The first problem is this: it is clear that not every participant interest, or challenge to technology is legitimate, morally justified, or a victory for democratization. There are reactionary challenges to technology - ones which have led or would lead to a less rational, equitable, or democratic technology.¹³ Moreover, there are many ambiguous or ambivalent cases to which a critical theory of technology should speak. In the fractured social world of modern life, many challenges or revisions to technology that speak to the interests of one group of users/participants/affected third parties may leave other actual or potential users worse off. Without an ethical standard, how can we determine which trade-offs, whose interests, what challenges contribute to a more, or less, democratic rationalization of technology? Finally, there are cases of successful challenges to technology which are neither reactionary nor ambiguous but don't really democratize the technical code. To my mind, Feenberg's example of Teletel falls into this

category. [14](#) In general terms, it is a case where large numbers of customers put a technology to uses alien to its designers' will and design which are then exploited to produce a more marketable and lucrative technology with these new uses now built into the design. While this may be desirable, such changes of technology in response to consumers' initiatives or preferences follow the logic of market rationalization, not democratization.

Feenberg presents some intuitively quite attractive contemporary examples of successful lay challenges to established technology - the struggle of disabled people for access ramps and that of AIDS activists for a different technical code governing the design of clinical trials. I examine these cases below in order to determine whether and on what basis, each can be characterized as democratizing technology. But the cases do not provide an explication and defense of a normative standard for judging which interests and challenges might produce a more rational, democratic, or morally defensible technology, and which do not. This is what Feenberg's argument for democratizing technology and an 'alternative modernity' requires but lacks.

Presumably, Feenberg does not want to embrace any and all participant interests or challenges which happen to surface or succeed. For one thing, he implicitly acknowledges that lay actors may have participant interests which they fail to interpret and articulate as claims that can gain wider social recognition and legitimacy. [15](#) For another, he implies that even when they do get articulated as claims or demands, not all such claims deserve recognition and legitimacy. [16](#) On the other hand, Feenberg cannot justifiably pick and choose the cases he finds attractive and ignore others, without some systematic ethical justification. The development of a standard of justification is not external to Feenberg's project - a gratuitous appendage he can take or leave. Without it, there is little reason to accept his claim that the emergence of new participant interests and lay challenges in techno-systems informs a process of democratizing technology and creating a more rational 'modernity'. Rather, all his argument would establish, against essentialism, is that technology is not destiny; because local shifts in relations of power and interest alters technology, in some cases for the good of particular groups.

But my critique could be pre-empted by Feenberg's conception of democratization and his analysis of cases of it - either of which might contain the normative standard(s) which, I have argued, he requires. Before turning to examine these contributions, I turn to the second problem facing his critical, non-essentialist theory of technology - the "Private Property" problem.

The " Private Property" Problem

In many contexts, users' marginalized participant interests fail to emerge or gain social recognition as legitimate claims for technical change because the established technical code is taken to embody the will, property rights, and legitimate interests of the owners of the technology. Feenberg's approach is certainly right in stressing that the problem of technocracy (the rule of experts) is not limited to capitalism or even market-driven practices within modern society. Nevertheless, in the modern world, a great deal of technology is private property. Its designers or experts act in the name of the owners, and their rights as owners, to determine the technical code in accordance with their economic interests. In my view this complicates and destabilizes Feenberg's argument from the critique of essentialism and technocratic ideology to democratization. How so? In these contexts users' participant interests and challenges quickly confront the claims

of designers and experts that they alone have the right to decide, to determine technology. Feenberg's theory pictures these conventional prerogatives of expert authority as always an expression of technocratic ideology -- the very essentialist image of efficiency he demystifies. But in the common case where technology is private property, the rights and authority of the designers/experts really rests on the fact that they are employees, representatives of capital. The rights of the designers to exercise authority rest not just on their expertise and the logic of efficiency, but on the rights of private property, and the Lockian moral code of ownership and free-market exchange. To this extent, Feenberg's critique of essentialist technocratic logic is insufficient to explain, motivate, or justify the democratization of technology. For, in modern society, it is the powerful moral code of private property, not just technocratic ideology, which opposes the translation of users' or workers' participant interests into legitimate rights to re-shape technology. Do they have such rights? What rights? How are they ethically justified? Those are the key ethical issues which derail Feenberg's democratic euphoria.

If I am right, in the common case where technology is private property, the technical code(s) is embedded in the moral code of Lockian ownership and the rationality of capitalist market relations. The experts who claim and exercise rights of exclusive control over technology are widely perceived not just as authoritative arbiters of efficiency, but as the designated agents of the will and rights of owners, and less directly, the will and rights of consumers who get to "vote" on technical design with their dollars. In these contexts, challenges to technology based on workers', users', or impacted third parties' participant interests involve challenges to the rights of private property and modern society's powerful Lockian moral code. To draw on one of Feenberg's examples, workers (or their unions) may challenge production technology on the basis of their participant interests "in such things as health and safety on the job, educational qualifications and skill levels, and so on." ¹⁷ When they do so, their claims may be discredited or undermined not simply by experts' judgement concerning what is and isn't feasible, efficient, etc. but by owners' or top-managements' "right" to reject such changes as unprofitable, unnecessary, or incompatible with company policy as they define it. The dominant technical code may be seen as necessary or unnecessary, reasonable or unreasonable, but if it is the will of the owners and embodies company policy, then many see it as legitimate, and workers' or users' challenge to it as lacking moral force.

In sum, if as I am arguing, many technical codes are grounded in the Lockian moral code of private property, dominant technology is provided with powerful rights-based protections quite as basic as technocratic essentialism. Rational challenges to technology in these cases pushes beyond the logic of Feenberg's participant interests to the issue of users', workers' or participants' basic rights -- as citizens, persons, human beings, democratic agents, etc.. If established technology can be reasonably re-interpreted as a violation of these actors' basic rights or entitlements, this may provide a good reason for transforming dominant understandings of the rights of private property, not simply the prerogatives of expert authority.

The private property problem forces a re-orientation of Feenberg's project, moving it beyond the critique of essentialism and the discourse of participant interests. Rather, his argument needs to develop an account of the logic through which some participant interests but not others have been or can be reasonably represented as legitimate claims of right, counterbalancing rights of private property. Whatever else it may involve, a

democratization of technology goes well beyond its demystification. It involves not just a reinterpretation of technology, but an ethically well argued reinterpretation or revision of the Lockian and liberal-democratic moralities of right. [18](#) A good start would be a normatively sensitive account of the actual historical logic through which established technical codes and rights of private property (e.g. sanctioning child-labor or polluting factories) were successfully and rationally re-coded as violations of rights or ideals basic to democracy. But, as I argue in the last section, the aim is to develop a general ethical standard or conception powerful enough to establish a link between some but not all challenges to technology (and rights of private property) and the substance of liberal-democratic ideals, properly interpreted.

Can such a standard be identified in Feenberg's conception of democratization or his examples of it?

Changing Technology and Democratizing Society

My aim in the remainder of this essay is to argue that Feenberg's theoretical account of democratization and his examples of democratizing technology do not provide an adequate normative standard or set of standards. When we characterize society or social change as more or less democratic, we may operate with very different standards in mind concerning its institutions, practices, and ideals. It is useful to distinguish standards concerning democratic models of political agency from ones concerning democratic models of equality or individual freedom/rights.

We may focus on how power is exercised, who can or cannot, does or does not have a voice in the key decision-making practices of the society at various levels of social life. I'll call various standards that focus here ideals of democratic political agency, or political agency conceptions. On the other hand, we may focus on the impact of a society's decision-making practices on its structure of democratic equality or freedom: the degree to which its citizens and groups enjoy equal individual rights, freedom, opportunities, essential resources, and statuses in the society. Agency is involved here, but it is agency in the sense of individual autonomy - personal control over one's own life and activity - rather than political participation/agency in the above sense. I will call standards which focus on this second dimension, ideals of democratic equality, or equality conceptions - though it is often personal agency which equal rights, opportunities, resources, etc., protect. Clearly both political agency and equality enter into modern understandings of democracy. Furthermore, each of these goods typically functions to serve or protect the other. Political theories disagree on how they interpret the substance of one or both of these two sorts of democratic ideals - political agency and equality - and which they see as more normatively important or fundamental to a democratic society.

For example, the liberal tradition from classical theorists to John Rawls see democratic political agency, representative government, as having primarily an instrumental value. It is the only or best arrangement for protecting individual freedom, rights, equality of opportunity, market freedoms - i.e. equality, which is taken to be the value most fundamental to modern society. Other theorists (civic republicanism, radical democracy, etc.) embrace far more ambitious models of democratic political agency which is seen as having intrinsic value or virtues as, or more, central to 'true democracy' than individual freedom or the equality which protects it. [19](#) Feenberg does not address these normative disagreements.

Yet, it is clear from his treatment of theorists of democracy such as Barber and Sclove, that he is operating with a "political agency" conception or ideal of democracy. [20](#) With Barber and Sclove, Feenberg wants to reject the liberal ideal of democracy I characterize above. Following Barber's model of "strong" democracy, Feenberg accords central value to a populist, participatory politics involving local collective action, direct citizen intervention, and bold social movements, exemplified by AIDS activists, environmentalists, feminists, and other groups of lay actors. Following Sclove, Feenberg holds that the key problem for this participatory model of radical democratic political agency is how to apply it to technology. Indeed his formulation of this problem and the way he seeks to resolve it constitute impressive insights.

Both standard liberal and radical participatory models of democratic political agency define the relevant units of agency, the public, and representation by means of conventional geographic boundaries. Thus, on these various models, the relevant political actors are variously identified as the citizens of the nation, the citizens of this or that municipality, the employees of a hospital or factory, etc. But, as Feenberg argues, the lay public which might exercise democratic control over technology cannot be identified by such conventional political boundaries. [21](#) Modern technology implies the "fragmentation of technical publics" - a proliferation of diverse subgroups of users, each of whom bear different practical relations to a techno-system and none of whom necessarily occupy one and the same conventional geographic or political boundary. [22](#) Who then is supposed to exercise democratic political control over technology, and on what basis?

Feenberg's intriguing answer is that technical networks create *new* political subjects - e.g. ill people seeking access to experimental drugs or clinical trials, or users of a new technology such as the French Minitel. [23](#) While such subjects defy conventional geographical and political boundaries, their common practical relation to a technology may give them common "participant interests" which in turn may become the basis for democratic political agency concerning that technology's impact on them. In dialectical terms, a technology, and the experts that control it, create their own "other", specific groups that develop new common interests which prepare the way for a dialectical overcoming, and more harmonious "whole", of technical and human relations. Through such a dialectic, the users, participants, customers, third parties impacted by their common practical relation(s) to technology theory become political agents - precisely the agents required by a democratization of technology! A beautiful theory, indeed.

But, at this point, my earlier critique re-arises. The very fragmentation of technical publics stressed by Feenberg's incisive analysis of modern technology seems to bring in its wake a fragmentation of participant interests, agency, and the very meaning or prospect of democratization. What standard of democratization is operative in his argument? Is he willing to see democratization whenever any politically marginalized lay group(s) of users exercises power over technology? Or does it also depend on the substance of their interests and demands? Doesn't it depend on the relationship of what they do to the broader democratic ideals of political agency and equality? Doesn't it depend on how the group justifies its interests, how other groups' interests and political agency are impacted, and how other groups interpret what has been accomplished?

The fact that one sub-group of users of technology gains some power over it should not necessarily count as democratization, especially if the change comes at the price of

dis-empowering or excluding other broader groups of users with basic rights, opportunities, or interests at stake. Suppose a group of industrial or office workers succeed in gaining a marginally safer, or more pleasurable, or easier to operate, technology in the workplace. Imagine that the "cost" is that others who are not consulted lose their jobs or skills. Or, that thousands or millions of consumers lose access to a basic good or service as a result. Worse, imagine that those who benefit and those who are disadvantaged or harmed by the change in technology are already divided by differences of race, class, ethnicity, or gender. Without taking such zero-sum conflicts of group interest, power, and identity into account, we cannot reasonably evaluate whether or not the change in technology should be, or in fact will be, seen as a democratization of technology. And, we require a defensible ethical standard of democratization to ground such evaluations, and to transform the politics of technology.

Deep Democratization: Political Agency vs. Equality

Feenberg advances his own political ideal of "deep democratization" perhaps in order to overcome the sorts of problems I've raised above. [24](#) Deep democratization involves a political process or strategy through which direct action by subgroups of users (fragmented technical publics) generates the basis for a new practice or institution of technical decision-making in our society. In this new practice, all participants in major technical institutions or networks would enjoy a normal political participation and role in shaping the technical code and design of technology. This practice would shift power from experts and owners to all users whose interests are impacted by a technology. Fragmented technical publics with diverse or even opposing participant interests in a given technology would all become democratic agents who recognize that they have a common interest in exercising shared rights of political representation in the process of determining that technology. [25](#)

My criticisms of deep democratization are as follows. In principle, it could function as an ethical standard for evaluating any particular challenge to technology as a case or non-case of democratizing technology, depending on its relation to the ideal of deep democratization. But is there any empirical evidence that the cases Feenberg cites are part of a process of deep democratization? He certainly doesn't present any, because his central examples don't seem to be cases in which the intentions, consciousness, or impact of lay actors embody or advance deep democratization. [26](#) Thus if that is his criterion, it is doubtful that any cases of specific challenges to technology that he discusses count as democratizing it. Feenberg's participant interests and fragmented technical publics are centered on specific negative impacts of a technology. Typically, they don't even involve an interest of the subgroup of users in exercising wider political control as a purpose in itself, not to mention any interest in enabling other groups to exercise such control.

Secondly, Feenberg's non-essentialist theory lacks the resources to motivate or justify his ideal of deep democratization. As I have already argued, grounding such an ideal in modern society involves much more than demystifying technology. It requires the elaboration of ethical arguments aimed at a radically different understanding of Lockian rights and liberties, on the one side, and democratic equality, the citizen's rights and freedom, on the other. Deep democratization is a version of socialism, which is widely perceived as the enemy of individual rights and freedom, as they are presently

understood. While this is unfortunate and invites theoretical/political critique, Feenberg's demystifying theory, by itself, is unequal to the task.

Finally, and most fundamentally, the ideal of deep democratization remains stuck in the political agency paradigm of democracy, and ignores the need for a theoretical engagement with the equality paradigm. Deep democratization, even if fully realized, is not democracy enough. As the equality paradigm insists, the crucial test of new powers of decision-making must include the impact on the everyday rights, liberties, opportunities, resources, personal autonomy, and dignity of individuals, and especially of oppressed and disadvantaged groups. As I would construe them, democratic ideals depend on the moral substance of people's interests, and not just their power to embody their interests in the built environment.

Indeed, when we examine Feenberg's main examples of democratizing technology and his negative disappointing cases, they implicitly evoke the equality (or individual rights/personal autonomy) paradigm, though he fails to theorize it.

Democratic Equality

If I am right, Feenberg's vision of democratizing technology and an alternative modernity must be grounded in an ethical account of the interests which might define, justify, and motivate this emancipatory project. What I've called the Lockian moral code does not just provide rights-based protections of technology as private property. As a modern ethos, it shapes users' very desires and interests in ways which tend to bind them to the rationality of established market and technical relations.

Feenberg's work is permeated by an ironic tension or contradiction. His theory of democratization rests exclusively on the 'political agency' paradigm. But his examples of successful democratization, as well as his evaluations of absent, failed, or flawed democratization, implicitly rest on the 'equality' paradigm: a view of the sorts of substantive interests, the specific changes in the technical codes at issue in a genuine democratization of technology. He observes that a version of his ideal of deep democratization, under the heading of "self-management" or "co-management", has been embraced and practiced by unions in Germany and Scandinavia. Though workers gained some degree of democratic control over technology, for Feenberg, the results are disappointing because it produced "no major changes in technical codes".²⁷ Workers' new found political agency failed to generate any significant impact on the democratization of technology. In this context, Feenberg obviously has some implicit view of the workers' major or true participant interests - what would have produced a significant enough change in technology to count as its democratization. In a similar vein, he explains the absence of pressure to democratize technology as a result of: (1) the public's lack of awareness of its participant interests - "...how profoundly affected it is by technology";²⁸ and (2) American workers' agreement to exclude "the most important implications of technology for workers" from technical politics - in favor of focusing on issues such as "job security".²⁹ In all these cases, for Feenberg, the obstacle to democratizing technology is not primarily political powerlessness (the political agency paradigm), but users'/participants' failure to recognize or assert the "right" interests and changes in technology (the equality paradigm). His own assessment underscores the need for going beyond his whole discourse of deep democratization in order to define and justify the moral substance of an alternative modernity.

When we turn to Feenberg's accounts of successful democratizations of technology, the same points emerge, with some clues concerning how to address them. He characterizes the movement of disabled people for barrier-free design or ramps on streets, public buildings, businesses, etc., as the most "compelling" example of a democratic politics of technology.³⁰ The dominant technical code for designing sidewalks could 'rationally' or 'efficiently' exclude ramps, as long as disabilities count as purely personal problems, irrelevant to the design of public spaces. But disabled people comprise a large population with a powerful participant interest in "mainstream social participation".³¹ Once they mobilize and gain public recognition of this interest, many technical features of the built environment are transformed.

Why is this such a compelling case of democratizing technology? Indeed, it qualitatively different from Feenberg's other case of millions of French users of Minitel transforming it from an information to a communication technology, which hardly seem to democratize anything, by my standards (i.e. democratic equality).³² Arguably, in both cases, groups of users exercise power previously denied to them in order to bend technology to their legitimate interests. Feenberg's concepts of users, power, and participant interests, are too abstract to capture the important differences between these cases, and to show why the first is so much more compelling a case of democratization than the second. We need to attend to the paradigm of democratic equality and ask who is this group of 'users', where do they stand in society, what have they been denied, and what is the ethical significance of the technical change they demand?

Disabled people are suppose to be equal citizens with the same rights, equality of opportunity, personhood, and dignity that other groups enjoy. In practice, they are victims of prejudice and discrimination, inequality and indignity. Their movement for barrier-free technology was identified by them, and eventually, much of the public, as a struggle for basic civil liberties, citizenship, the right to enjoy the same access to public buildings, social life, urban mobility, as other Americans. Thus, disabled peoples' transformations of technology is democratic first and foremost, because it involves a victimized groups' gaining (1) the same ability to exercise fundamental rights and liberties as other citizens, and (2) public recognition that they can do so, and deserve to.

In sum, the action of the disabled, unlike that of the Minitel users, is about the ideal of democratic equality. It counts as a democratization of technology precisely for that reason. But doesn't it also count that the disabled gained this democratic, moral, and technical change or result through their own political agency? Doesn't this aspect of 'democratization' make it akin to the case of the French users who 'hacked' the Minitel system to bend it to their purposes?

My answer is 'yes and no'. Had barrier-free design been the result of political actors *other* than the disabled themselves, it would *still* have constituted a democratic change in technology. Why? Because it enhances democratic equality. Nonetheless, the fact that the political agency of the disabled played a key role in generating this result, is part of what makes it a democratization of technology. Why? Against Feenberg, it is not simply because it is a case of users exercising power over design, like Minitel's hackers. Rather, in the case of the disabled, it is their political agency on behalf of effective rights as citizens, as well as the access they gain (the ramps) which transforms their recognition and position within the space of democratic equality. It is the fact that they claim their rights and the equal worth of their freedom, as much as the technical change they win, that secures their recognition and citizenship.

In the next section, I examine Feenberg's treatment of AIDS activists and seek to determine the criteria of democratization that we should employ in order to evaluate it.

Democratizing Experimental Medicine

Feenberg provides his most explicit, detailed normative argumentation concerning participant interests in his account of the challenge of AIDS activists to the technical code underlying clinical trials of experimental drugs.³³ On the technical code of medical experts, there is a sharp distinction between research and treatment or care. Clinical trials involving the testing of experimental drugs fall under the category of scientific research aimed at gaining knowledge of the drug's medical value. Clinical trials are not a form of legitimate treatment or care because the medical efficacy of the drug has not yet been scientifically established.

This technical code shapes the design and regulatory policy governing clinical trials and access to experimental drugs more generally. Patients must be protected from false hopes, irrational decisions, scientific exploitation, and medical abuse, for their own good. This requires stringent public regulation of patient access to, and physicians' use of, experimental drugs. They should be used exclusively as objects of research, not modes of treatment, until their medical value is scientifically established and certified. This provides the rational basis for the design of clinical trials. Because they constitute research, not treatment, it is entirely efficient and appropriate to limit patient access to clinical trials, use placebos to determine the causal efficacy of the drug, and employ elaborate conventions of informal consent to protect participants from deception and false hopes. On the essentialist paradigm, the technology of the clinical trial is necessarily dictated by the requirements of reliable scientific inquiry and the medical knowledge already possessed by expert researchers.

In the story that Feenberg recounts, AIDS patients and activists demanded a radically liberalized and expanded access to experimental drugs and clinical trials. These are people with terminal and incurable illnesses. They have the largest personal stake in finding a cure or beneficial treatment. They want to be in a position to try unproven drugs that might help or work and to be participants in the life and death race for a cure, rather than doing nothing. So they demand changes in the policies, availability, and design of clinical trials, in order to gain access to experimental drugs and the research process.

In effect, Feenberg argues that upon analysis, clinical trials and access to experimental drugs are forms of medical treatment or care and not exclusively contexts of pure scientific research.³⁴ He marshals a body of evidence and theory which tends to show that the well-being of patients is positively impacted by their social engagement in clinical trials, and in various other practices of medicine - all of which provide medical care, even in the absence of a physical cure. As a result, AIDS patients' desire to participate in drug trials embodies a legitimate interest in gaining medical care - one of the few or only forms of care available to people with incurable, fatal illnesses. Modern medicine embraces "care" as one of its major professional callings, even if it has been somewhat eclipsed by the technical pursuit of "cures". Thus, Feenberg provides a moral justification for the AIDS activists' challenge to established medical technology based on its own internal moral code of providing care to the ill and suffering. On Feenberg's illuminating interpretation, what the AIDS activists accomplished is the leveraging of modern medicine's moral code to revise its technical code. As a result, previously well-

established policies surrounding drug trials (e.g. limiting participation to statistical minimums, the employment of placebos, excluding subjects with prior experience in drug trials, etc.) could now be rationally modified in some cases to accommodate subjects' now 'legitimate' interest in participation.

Does Feenberg's argument concerning this powerful example establish that it is a case of democratizing technology? Does it provide implicit clues concerning the normative standard(s) of democratization we should employ to evaluate and generalize such cases of technical change? To begin with, it is useful to observe the modesty and ambiguity of what Feenberg takes himself to have established in this case. Feenberg stops well short of defending the moral right/entitlement of persons with incurable, terminal illnesses to have access to experimental drugs and clinical trials. Today, there are many who lack this access, particularly to the proven but expensive drug cocktails discovered in the intervening years. Feenberg's argument does not seek to establish a moral right to care in the case of persons with terminal illness - so the change in the technical code he defends does not necessarily morally condemn the situation of scarce access. Indeed, he continues to think of 'the principle purpose of experimentation' as 'the acquisition of new knowledge' - not serving the interest of the ill in the care or well-being provided by participation.³⁵ Furthermore, he recognizes that there are tensions and trade-offs between increasing the access of ill people to experimental drugs and securing the sorts of clinical trials most effective for providing knowledge of a cure.

So, the change in the technical code defended by Feenberg amounts to the important but essentially modest claim that "a good medicine", when and where it is feasible, will "design experiments that serve patients while simultaneously serving science".³⁶ But even this claim goes well beyond what his reading of AIDS activists establishes. This case shows that the interest in experiment as care is an urgent, legitimate factor in design for persons with incurable terminal illness; it doesn't establish the same point for any and all persons with any illness whatsoever, which is what some of Feenberg's formulations suggest. Nothing about the case of people with AIDS speaks to the status of people who desire to enter experiments which test new drugs for skin rash and their interest in the care such participation may bring. These considerations return us to the same point I have made in the case of the movement of disabled people.

On the dominant technical code of established medicine, the AIDS activists' demands reflect ignorance, irrationality, false hopes, and destructive outcomes. These demands would destroy the sharp boundary between research and treatment, and in the process, harm the scientific effort to discover a genuine cure. In response, Feenberg poses the key normative question inspired by his non-essential theory of technology: Does the desire and demand of AIDS victims for access to drug trials deserve public recognition as a legitimate participant interest and a rational basis for revising the technical code governing the design of experimental medicine?

The way Feenberg poses and answers this question fits well with the general critique I have made of his argument for democratizing technology. How so? The AIDS activists achieved some success in expanding access and revising the technical code of clinical trials as pure scientific research. But, as far as I can tell, Feenberg is not content to take the mere fact of this marginalized group's empowerment as "the" mark of a democratic rationalization (improvement) of experimental medicine. Rather he seeks to provide a moral justification for taking AIDS victims' desire/demand for access as a

good ethical reason for revising the technical code of clinical trials. That is, in this example though not in his general theory, he recognizes that the case for a liberating democratization of technology depends on providing a normative justification of the interests or demands which inform and motivate it. But what he says in this case may provide clues for developing a general theory.

In order to evaluate the impact of any particular case of technical politics on the democratization of technology and society, we need to ask *who* is this group of users challenging technology, *where* do they stand in society, *what* have they been denied, and *what* is the ethical significance of the technical change they seek, for democratic ideals? These questions call the attention to features of the AIDS example which are relevant to the standard(s) of democratization but are ignored in Feenberg's treatment.

When we ask who the AIDS activists represent, it is clear that they are *not* simply a group of citizens with a deadly or incurable illness. It is a stigmatizing illness culturally associated with a group oppressed by homophobic fear, hatred, prejudice, and discrimination. AIDS was not treated as a horrible plague requiring the total mobilization of society's initiative, resources, and compassion. It was treated as the obscure fate of a marginal group of 'others', or worse, nature's way of punishing repugnant, unnatural, immoral, and irresponsible sex. The struggle of AIDS activists for access to treatment, care, agency, choice, etc. challenges the moral code which sustained homophobia and sanctioned the early record of sparse funding for AIDS research and care. Their success in revising the technical code governing clinical trials, coupled with related political attainments, enhances the credibility, legitimacy, and moral standing of a despised minority in America - gay men with HIV or gays generally. They gain a significant measure of human dignity, agency, respect, and citizenship - even though they do not win a right to care, or a right to participate in clinical trials, as Feenberg admits. It is this positive impact on the ideal of democratic equality that makes it a powerful case of democratizing technology. As in the case of the struggle of the disabled for ramps, it is not exclusively or primarily the exercise of political power by lay actors that provides the criterion of democratization. Rather, we need to also look at the impact of these struggles over technology both on the moral and political standing of oppressed groups and the long march to genuine democratic equality for all.

Towards an Ethics of Democratic Equality

Let us return briefly to the example of the struggle of the disabled for ramps, in order to summarize my argument in this essay. We can employ this example to highlight the strengths and weaknesses of Feenberg's theory of technology and the path of future research for democratization.

The movement of disabled people for barrier-free access requires both a demystification of technology and an ethical reconstruction of the ideal of democratic equality and the meaning of citizenship/personhood for the disabled. Following Feenberg, for democratic change to occur, lay actors/users need to see that existing sidewalks, bridges, building entrances, restrooms, classrooms, etc. (without entry access for the disabled) do not embody a timeless necessity and efficiency; and that they do exclude the interests and voices of some group(s) of users. Feenberg's theory accomplishes this important task, important because it constitutes a necessary condition for democratization. But this much does not necessarily provide public or private parties with good reasons to support a design change or force an opening up of decision-making

- both of which always involve costs of some sort to somebody, whether it is owners, consumers, taxpayers, or whoever. For various actors to have such good reasons, they need to and should be convinced that there are powerful moral rights, entitlements, and ideals at stake, especially where other rights will have to be abridged or overridden.

Feenberg's theory lacks the resources to accomplish this task. He doesn't develop any framework of ethical concepts for analyzing democratic ideals or showing how they enter into, or are broadly impacted by, the cases of users' challenges to technology which he examines. He doesn't mobilize his cases to articulate any general ethical standard(s) of democratization which would enable us to evaluate particular challenges to technology or to define a liberating politics of technology, an alternative modernity. The political philosopher who aims at a general democratization of technology confronts a multi-dimensional project - criticizing and revising, in tandem, dominant ethical understandings of technology, private property, democratic equality, and the morality of individual rights. The critical theory of technology cannot complete its mission without turning into a more thorough-going critical philosophy of liberal-democratic values. An Alternative Modernity is a modernity with a different vision of human relationships and the good life. The democratization of technology awaits the development of an alternative ethical understanding of the ends of modern society. More generally, the influential discourses of anti-essentialism and social constructivism create a political vacuum which can only be filled by affirmative ethical argument concerning the right and the good.

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[1](#) An earlier version of this paper was read at the Pacific Division, American Philosophical Association meetings (April 3-5, 2000, Albuquerque, New Mexico) in an 'Author Meets Critics' session on Andrew Feenberg's *Questioning Technology*. I am happy to acknowledge my debt to all of Feenberg's work and his valuable responses to my work on this occasion and many others. In writing this paper, I have also gained illumination from Robert Pippin's work on the philosophy of technology in "On the Notion of Technology as Ideology: Prospects" in A. Feenberg and A. Hannay (eds.), *Technology and the Politics of Knowledge* (Bloomington and Indianapolis: Indiana University Press, 1995).

[2](#) In this essay, I will mainly focus upon theoretical formulations in A. Feenberg's, *Questioning Technology*, (London and New York: Routledge, 1999), which I hereafter abbreviate as "QT", and the historical cases in his *Alternative Modernity: The Technical Turn in Philosophy and Social Theory* (Los Angeles: University of California Press, 1995), which hereafter I abbreviate as "AM". Also see *Critical Theory of Technology* (New York: Oxford University Press, 1991). All three works make important contributions to Feenberg's philosophy of technology.

[3](#) *Ibid.*, pp. vii-xvi.

[4](#) *Ibid.*, pp. vii-x, [14-17, 201-216].

[5](#) *Ibid.*, pp. 16-17.

[6](#) *Ibid.*, pp. 87-89 [142-143].

[7](#) *AM*, pp. 96-123 and *QT*, pp. 127-128 [141-142].

[8](#) *QT*, p.141.

- [9](#) *Op. cit.*, pp.144-169, *QT*, pp.126-128.
- [10](#) *QT*, pp. vii-xvi, [104-109, 131-147].
- [11](#) *Ibid.* pp. 222-225.
- [12](#) *Ibid.*, pp. 140-142, *AM*, pp. 104-109.
- [13](#) Feenberg acknowledges such cases and the problems they raise. See *QT* , pp. 92-94.
- [14](#) *AM*, pp. 144-169, *QT*, pp. 125-128.
- [15](#) *QT*, pp. 140-142.
- [16](#) *Ibid.*
- [17](#) *QT*, p. 140.
- [18](#) For my own attempts to advance such an argument see "Rawls' System of Justice: A Critique from the Left," in *NOUS* 15(3) (1981); "Conflicting Paradigms of Human Freedom and the Problem of Justification," in *Inquiry* (Spring, 1984); "Rawls' Kantian Ideal and the Viability of Modern Liberalism," *Inquiry* 31 (1988), pp. 413-419; and "Is Rawls' Kantian Liberalism Coherent and Defensible?," in *Ethics* 99 (July 1989), pp. 815-51.
- [19](#) For a recent and engaging contribution to this tradition, see I. Shapiro, *Democratic Justice* (New Haven: Yale University Press, 1999), and my critical study of it in *Inquiry* (Summer, 2001) in "Does More Democracy Yield Greater Justice."
- [20](#) *QT*, pp. 132-137.
- [21](#) *Ibid.*, pp. 134-147.
- [22](#) *Ibid.*
- [23](#) *Ibid.*
- [24](#) *Ibid.*, pp. 142-147.
- [25](#) *Ibid.*, pp. 145-147.
- [26](#) *Ibid.*, pp. 140-147.
- [27](#) *Ibid.*, p. 146.
- [28](#) *Ibid.*
- [29](#) *Ibid.*, p. 140.
- [30](#) *Ibid.*, p. 141.
- [31](#) *Ibid.*
- [32](#) *AM*, pp. 144-169.
- [33](#) *Ibid.*, pp. 96-120.
- [34](#) *Ibid.*, pp. 110-118.
- [35](#) *Ibid.*, p. 108.
- [36](#) *QT*, p. 141; *AM*, p. 109.

Democratizing Technology: Interests, Codes, Rights

Andrew Feenberg

Abstract

In this reply, I will relate Doppelt's critique to certain general limitations of political philosophy. Like Doppelt, political philosophy has attempted to introduce some social issues, for example those involving race and gender, into the structure of its concerns but it still abstracts from technology. Philosophers of technology have not ignored the normative issues Doppelt raises, but have addressed them in terms of what I will call the humanistic normative tradition, a tradition that emphasizes the full development of human capacities. Participants in technical networks often confront obstacles to their own personal development, especially their capacity for agency in an increasingly technocratic society. Their protests on behalf of substantive goods they pursue often involve claims to agency. Political philosophy must come to terms with this dimension of social life if it is to remain relevant to a modern technological society.

I. The Crux of the Argument

In this paper I reply to Gerald Doppelt's critique of my work at two levels. In the first place, I take many of his arguments to typify the main dissatisfactions of political philosophers with philosophy of technology, especially my own. I will attempt to sketch out the relation of my work to political philosophy in general. In doing so, I will be generalizing much too roughly, but perhaps if the argument focusses important issues I will be forgiven. Secondly, I reply in some detail to specific criticisms Doppelt offers in order to show that far less separates our positions than he imagines. Let me begin by summarizing his critique.

Doppelt argues that I lack of "clear and plausible standard of what counts as the democratization of technology," that I fail to offer a "substantive conception of democratic ideals," and that I do not adequately take into account arguments in favor of the undemocratic management of technology based on property rights. In sum, while my demystification of technocratic ideology is successful, I cannot get from there to an adequate account of the democratization of technology. The main reason for this failure is my lack of an explicit equality-based argument justifying technical democratization and differentiating it from other non- or un-democratic forms of technical change.

The background to Doppelt's argument is the distinction political philosophers make between merely particular interests and rights which are rationally grounded and can claim universality. Of course interests and rights are not mutually exclusive concepts. Usually a right protects or fulfills an interest, often in conflict with other interests that cannot be universalized. For example, the interest of the disabled in free movement around the city is interpreted as a right in current legislation, and this right

overrides the interest of taxpayers who are now obliged to pay for the retrofitting of sidewalks and public buildings for disabled access.

When this distinction between interests and rights is brought to bear on the arguments of philosophers of technology like myself, they appear to fail an important test of rigor. The philosophers of technology seem to make strong normative claims without appropriate grounds. Why, after all, should we prefer a world in which people rely less on the media and more on direct experience, in which workers have more rights and businessmen less, in which certain risks such as those associated with nuclear power are taken more seriously than the benefits, and so on? All these preferences involve clashes of interests which, if they cannot be reconciled by compromise, ought to be adjudicated in terms of rights. But philosophers of technology rarely invoke the discourse of rights or argue for the rights corresponding to their preferences.

While acknowledging the usefulness of my analysis of the influence of social interests on technological design, Doppelt objects that I offer no explicit reason to prefer some interests to others. He notes that my explicit arguments for democratizing technology are based on the value of agency, but agency by itself, without some substantive goal sanctioned by the ideal of equality, does not constitute a democratic value. In fact the successful assertion of agency by some groups may disempower and oppress others and violate democratic norms. Since I do not present a "standard of justification" to sort out these cases my theory is incomplete. At the same time, Doppelt suggests that I do have an implicit standard which shows up in my examples though not in my general theory.

Doppelt claims that my most persuasive examples turn on issues of equality. To show this he contrasts my example of the Minitel in France with the example of disabled access. The Minitel case, he claims is not a democratization at all but merely a market rationalization because, although lay actors did change technology, the interests served by the change have nothing to do with human rights. The disabled access case fulfills these conditions and so is a good example of a democratization. My account of the AIDS case shows further that I rely implicitly on a normative justification in terms of the ideal of equality for oppressed minorities and not on agency as such to distinguish true cases of democratization. What makes these cases democratic, Doppelt argues, is not primarily that lay people exercised agency but the substantive moral issue addressed by the reforms. Since I do not have a theory of these issues, I cannot offer a satisfactory theory of the democratization of technology. In sum, philosophy of technology must grow up and face all the tough issues with which political philosophy struggles if it wishes to intervene in the debate over democracy. Responding to these charges requires a fairly comprehensive review of my own position.

II. The Humanistic Tradition

Political philosophy analyzes a form of being that only exists by the common consent of human beings and that joins them in a political community. The political lies between us; we bring it into being by abstaining from violence in the resolution of our civic differences, and it in turn constitutes us as citizens. This unusual mediation requires explanation. Unfortunately, the tradition of political theory has been fixated for centuries now on a mythic account of the political, the social contract. Even in the 18th Century, social contract theorists knew that the great event of which they wrote "may never have existed," as Rousseau conceded. [1](#) But the worst problem with the social

contract is not historical but theoretical. The contract is an imaginary agreement between individuals abstracted from all concrete social relations. As such it is quite unbelievable. The political is not a self-sufficient form of life, but is always the expression of many other forms of "between-being" uniting men and women in a society. Without an understanding of these social relations, political relations remain obscure.

Political philosophy has struggled in recent years to face this issue. It would still like to abstract the political bond from social bonds so as to focus the significance of justice in human affairs more sharply than is possible in the muddle of everyday social life. Instead of returning politics to its social roots, political philosophy has attempted to incorporate aspects of social life into a framework still implicitly determined by the social contract. Thus although social contract theory is outmoded, it continues to shape the philosophical notion of the political. This is not to say that an alternative is easily found. As Doppelt's critique shows, a method like mine which remains closer to the realities of social life leaves many questions in suspense, some of which I will try to clear up here.

Today, few would affirm that the way we relate to the state is wholly distinct from our economic and social relations. The mutual interference of the realms limits the political abstraction and obliges us to look for substantive conceptions of justice that take certain social realities into account. This shows up in attempts to include some material circumstances in the conception of justice while continuing to exclude others, in particular, technology. Income, gender, race and community bonds are the most important such themes so far explored by political philosophy. There is now general agreement that it is not enough for citizens to be equal under the law in principle if their poverty, gender, or race excludes them in practice from the benefits of equality. There is less consensus about community, but many philosophers argue for its importance as a source of political values.

The question I want to address here is whether and how philosophy of technology can contribute to this social reconstruction of political philosophy. The question is not so easily answered. Until recently most philosophy of technology was either determinist or instrumentalist. But if the course of technological development is inevitable, it would be irrelevant to the issues of concern to political philosophy. There is no politics without choice, and choice is precisely what determinism excludes. Similarly, if technology is a neutral instrument in the service of universal needs, it does not raise questions of justice. There is no politics without divisions; if everyone benefits from technological advance, it is a unifying force beyond politics. Only a few rather isolated thinkers--the principal influences on contemporary philosophy of technology--Ellul, Mumford, Heidegger, and Marcuse--challenged these positions before the 1980s, and the conclusions they reached were so sweepingly negative as to be difficult to incorporate into political philosophy.

This situation began to change in the 1970s as philosophy of technology developed far more concrete and politically informed analyses of particular problems, such as nuclear power, environmental pollution, computer, medical and reproductive issues.² But political philosophy and philosophy of technology have kept their distance even as they have gradually converged on a common project. That project is a better understanding of the links between the social forces shaping our society and its ideals of

freedom, justice, and equality. Today, that project cannot be carried through without taking technical phenomena into account.

This point can be made most clearly by considering the difference between the treatment of income inequality in political philosophy and the treatment of differential access to control over technical arrangements. Most political philosophers agree that beyond a certain point material inequalities are subversive of democratic rights. Hence the welfare state in some form has been integrated to the conception of justice, notably by Rawls.

However, technical arrangements are also often disempowering and oppressive. Workers in many dead-end jobs are subjected to injuries to physical and mental health and to their dignity as human beings as surely as those whose income falls below the poverty line. Had these workers more control over their work, they might use that control to make it safer and more fulfilling. But the typical organization of work in a modern industrial economy leaves them little if any initiative. Why would one worry about the rights of the poor in income and not the rights of the poor in control over the material circumstances of their work? A political philosophy conscious of the challenge to democracy contained in excesses of income inequality ought to address these issues as well. Similar problems arise around the control of the media of communication. Surely differences in control have political implications as least as large as differences in income. Yet political philosophy has paid little attention to the obvious injustices that arise when a few can purchase the space of public debate, reducing the many to manipulated objects.

Doppelt is in fact one of the rare political philosophers to have squarely faced the problems of working life. He argues that human dignity on the workplace is a matter of human rights and should be protected by a just society.³ However, his argument is incomplete so long as it is not grounded on a philosophy of technology capable of rendering a greater measure of economic justice practically plausible. After all, if respect for workers will impoverish our society, even workers are unlikely to insist on their rights.

It is commonplace to look at the problem of workers' rights, as fundamentally economic rather than technical. This approach reveals ignorance of just how tightly control over modern technical organization is intertwined with technical design. This is a theme of much recent study of technology, for example, David Noble's important history of industrialization, *The Forces of Production*, and James Beniger's *The Control Revolution*, which surveys the background to the development of the computer. Some philosophers of technology, including myself, have argued accordingly that the rights of workers must be structured into the design of production technology at the expense of control, not purchased at the expense of efficiency.⁴ Thus if we take the connection between control and design seriously, we will have to rethink the foundations of political philosophy.

Mainstream political philosophy has not been much influenced by such arguments in part because they fall outside its categories. Doppelt clarifies those categories neatly. Political philosophers disagree over which aspect of democratic right to emphasize, citizen agency or equal individual liberties, autonomy in public life or in private life. These two emphases correspond to two great and influential traditions of democratic thought which Isaiah Berlin summed up rather misleadingly with his concepts of "positive" and "negative" liberty. In addition to this fundamental divide over agency and

equality theorists also argue over the importance of the Lockean conception of property rights, which places most economic matters beyond the reach of politics. The standard political views, from libertarian to conservative to liberal to socialist, fall along a continuum laid out by these different emphases. An emphasis on private liberties and property rights lies at the libertarian end, while an emphasis on citizen agency in political life is often conjoined with intrusions into property rights and falls at the liberal end. Socialism, an unusual view among political philosophers, would involve a full suspension of the Lockean claims in order to free political agency to institute a more just economic order.

What is wrong with this framework from the standpoint of philosophy of technology? In one sense, nothing is wrong. We can all appreciate the cogency of these options, and indeed, most people have made choices along this continuum. The problem is that the main thrust of the critical philosophy of technology that has emerged over the last 20 years simply does not fall along this continuum but instead invokes a third conception of liberty found in what I will call the humanistic tradition. This tradition is distinct from the traditions emphasizing agency and equality privileged by political philosophy. The technology issue thus suggests a different set of concerns which do not easily intersect with the themes of political philosophy. These concerns have to do with capacities and fulfillment.

When Albert Borgmann or Langdon Winner criticize current technical arrangements, it is primarily in terms of the limitations those arrangements place on human development. Technology in their view provides the material framework of modern life.⁵ That framework is no neutral background against which individuals pursue their conception of the good life, but instead informs that conception from beginning to end. The most important question to ask is what understanding of human life is embodied in the prevailing technical arrangements. This type of critique flows from a different tradition from that of mainstream political philosophy, a tradition which emphasizes the intrinsic value of human capacities. The goal of a good society should be to enable human beings to develop their capacities to the fullest, however these are interpreted (and they are interpreted somewhat differently by different theorists.)

This approach to understanding the relation of technology to politics has precedents in various marginal contributions to contemporary political thought. There are a few philosophers who regard the Aristotelian conception of human nature as a fundamental criterion for measuring social and political arrangements. Some Marxists and followers of John Dewey would no doubt also support the humanistic claim that an enlarged realization of human capacities is a good in itself.⁶ This tradition influences mainstream political philosophy tangentially, but rarely with enough force to displace the central issues of agency and equality stressed by Doppelt. And since philosophers of technology pay little attention to political philosophy, they (I include myself) have not formulated their position in relation to debates in that field with the cogency and clarity Doppelt demands.⁷

Faced with arguments based on this tradition, the political philosopher will no doubt want to know the grounds for a preference for some forms of human development over others. What qualifies an activity as an advance toward human fulfillment? And how can conflicts between different ideals be adjudicated without some such grounds? These are certainly legitimate questions.

Political philosophers no longer seek absolutes themselves, so they can hardly ask philosophers of technology to supply them. The serious issue is more specific: how can we distinguish between worthy and unworthy capacities? Or, put another way, on what basis do we identify some aspects of human being as "capacities" while dismissing others as regressive tendencies, perverse distortions, and the result of various failures and limitations, in sum, as "incapacities"? Do we have anything more substantial than personal preferences to offer in answer to these questions?

Although the objection appears daunting, I do not think political philosophy has it much easier facing similar demands for justification of its values of agency and equality. After all, how do we distinguish "true" agency from manipulation? And what makes some uses of our private freedom politically worthy and others condemnable? In all such cases, criteria are needed, and these must be derived, I would argue, from a historical tradition to which we belong. In the absence of absolutes, this is the best we can hope for: to participate in a still unfinished history and to derive future goals from reflection on its course and direction.

In the case of the humanistic tradition, certain achievements have the status of paradigmatic guides to the future. Democratic revolutions revealed the capacity of the lower classes to take political responsibility for themselves, the Civil War and various other political struggles instituted the universality of the human against all distinctions of caste, race, and gender. Universal education demonstrated the potential of the vast majority of human beings to achieve literacy and a significant degree of mental independence. Equally important changes in social and cultural life have also shaped our conception of human fulfillment. Individuality has become an important value through the emergence of the modern family, based on the free choice of partners and the care of children, and creativity is cherished under the influence of the various cultural movements associated with romanticism. These phenomena have different implications for different traditions, but in the humanistic tradition they are taken to mean that our destiny as human beings is a progressive unfolding of capacities for free self-expression, the invention of the human.

Because we belong to the tradition shaped by these achievements, wherever we see similar struggles for a fuller realization of freedom, equality, moral responsibility, individuality, and creativity we interpret them as contributing to the fuller and wider realization of human capacities. It is a question of judgment how any given struggle relates to this normative background, but that is not an argument against these claims but is a problem for every tradition. However, what is clear in principle is that we have criteria under which we can easily dismiss regressive attitudes and movements such as racism and Nazism as obstacles to the realizations of human capacities, while praising other attitudes and movements for their positive achievements.⁸

III. The Structure of the Theory

I want now to review several aspects of my argument most relevant to the encounter of philosophy of technology with political philosophy. These aspects concern the questions of power, interests, technical design and democracy.

1. *The question of power.* Radical critics of technology, from Mumford and Marcuse on down to the present, generally agree that the rise of technocratic power East and West has overshadowed the Marxian problematic of class struggle. This is not to say that they have dismissed capitalist economic power as insignificant, but it is true that the

shift in emphasis from capitalism to technocracy sometimes gives this impression. Political philosophy has not generally shared this shift in emphasis, but continues to debate quite seriously the Lockean claims to property rights philosophy of technology regards as less and less relevant to modern societies.

Doppelt argues accordingly that I overlook the role of private property rights in authorizing the undemocratic administration of technology. While the interests of workers or consumers might be a sufficient basis for challenging technocratic arguments from efficiency, only rights-based arguments can answer the claims of a rights-based defense of property.

I do not directly address these claims, but my argument has something to add to the debate. To understand the relevance of my position, it is necessary to consider more concretely what is involved in Lockean property rights. Locke himself was no doubt primarily concerned with land ownership but as manufacturing took off, the free disposition of private property acquired a technical dimension he could not have anticipated. The owner of a factory has not merely an economic interest in what goes on within it, but also a technical interest. By reorganizing the work process, he can increase production and profits. Control of the work process, in turn, leads to new ideas for machinery and the mechanization of industry follows in short order. Eventually professional managers represent and in some sense replace owners in control of the new industrial organizations. In a final stage, techniques of management and organization and types of technology first applied to the private productive sector are exported to the public sector where they influence fields such as government administration, medicine, and education. This last phase of the process is particularly important for the socialist economies of the East, which never escaped from the original paradigm of a social organization based on control from above.

The entire development of modern societies is thus marked by property rights which establish the paradigm of unqualified control over the labor process on which industrialism rests. It is this control which orients technical development toward disempowering workers and the massification of the public. I call this control "operational autonomy," the freedom of the owner or his representative to make independent decisions about how to carry on the business of the organization, regardless of the views or interests of subordinate actors and the surrounding community.⁹

It is in this context that agency itself appears as a central democratic value. No doubt this claim must be qualified by respect for the rights of others, however, it will not do to treat the agency of individuals under conditions of radical subordination as a merely instrumental value or a minor issue on the margins of democratic concern.¹⁰ The ability to intervene, to change and alter circumstances that affect one becomes a key issue where it is systematically denied. Doppelt insists on the importance of equality for minorities and stigmatized groups, and on that point there is no disagreement. What I have tried to do is to raise the alarm over the decline of agency for everyone, majority and minorities alike, and refocus attention on its problematic status in an increasingly technocratic society.

It can be seen from this account of my argument, that I do acknowledge the importance of property rights in the process of technical development. However, I argue that today the bias against agency designed into technical arrangements is a more important issue than moral claims based on those rights. A Lockean defense of arbitrary

managerial authority does not have much force today where public issues are concerned. Of course, we are willing to see managers exercise their property rights most of the time, and often they are able to abuse workers or consumers with impunity, but where widely recognized issues of public health and safety or legal rights are at stake, we often regulate. Businesses rarely claim an absolute right of property in their own defense, but usually argue that the prerogatives of private ownership coincide with the public interest in efficiency. It is this coincidence of a Lockean and a technocratic argument that is the mainstay of business resistance to regulation. The two arguments together are often successful, however, a traditional defense of property rights alone really only works where no compelling public interest in regulation is at stake.¹¹

2. *The problem of substance.* Political philosophy regards the technical sphere as a neutral background against which individuals and groups pursue personal and political goals. These goals are usually seen as more or less rationally justifiable opinions about rights, the good life, and so on. As a philosopher of technology, I reject this concept in which technology simply cancels out as a constant and politics is a matter of opinion. Instead, I conceive of technical arrangements as instituting a "world" in something like Heidegger's sense, a framework within which practices are generated and perceptions ordered. Different worlds, flowing from different technical arrangements, privilege some aspects of the human being and marginalize others. Goals flow from the nature and limits of worlds and not from arbitrary opinions. What it means to be human is thus decided in large part in the shape of our tools. And to the extent that we are able to plan and control technical development through various public processes and private choices, we have some control over our own humanity.¹²

If this is so, then an adequate understanding of the substance of our common life cannot ignore technology. It is a political matter how we configure and design cities, transportation systems, communication media, agriculture and industrial production. And we are making more and more choices about health and knowledge in designing the technologies on which medicine and education increasingly rely. Furthermore, the kinds of things it seems plausible to propose as advances or alternatives are to a great extent conditioned by the failure of the existing technologies and the possibilities they suggest.

I formulate this idea dynamically in terms of the concept of "participant interests." Insofar as one is enrolled in a technical network, one has specific interests corresponding to the potential for good or harm such participation entails. These interests are often served by the existing technical arrangements, but not always, not inevitably. To the extent that the system is based on the operational autonomy of management, it is specifically armoured against the recognition of many participant interests. That armouring shows up in technical designs that deskill, injure, pollute, and otherwise harm those excluded from a share in technical power.

Under these conditions, individuals often become aware of whole dimensions of their being that are ignored, suppressed, or threatening by their technical involvements. When they are able to articulate these interests, an opportunity opens to reconfigure the technical system to take into account a broader swath of human needs and capacities. In terms of the humanistic tradition to which I attach my work, this means: to recognize the intrinsic worth of the human as such in a hitherto suppressed or unnoticed domain.

Note the dialectical character of this conception of participant interests. These arise not from the arbitrary choice of the individuals but out of a specific context which gives them weight and generality. That context is the existing level of technical

development which successfully represents some aspects of our humanity while suppressing or harming others. We become conscious of our potentialities in running up against the specific limits of our time, not in pure utopian speculation. Or rather, our utopias have become "concrete" in the sense of rooted in the opportunities of the historical present. Thus while the notion of realizing human capacities refers us to a totality of the human, that totality is not given in advance in a speculative ideal but must emerge from a real process, piece by piece. [13](#)

It is true that historical opportunities are not always seized. Sometimes, more powerful interests than those awakened by the failings of a particular technical network prevail at the expense of what might have been beneficial changes. In other cases, participant interests can be identified by counter-expertise, for example by health professionals, where the individuals concerned remain unconscious of the long term consequences of their activities. Finally, as Doppelt points out, one can easily imagine cases where conflicts between different participant interests lead to a harmful outcome for some or deadlock for all. Thus there is nothing mechanical about the process of technical advance supported by participant interests and political philosophy can certainly help to clarify the issues in particular cases. The main point is that because they overflow any particular set of technical arrangements these interests can guide the enlargement of the range of human potentials realized in future designs.

3. *Interests, codes, and rights.* I would imagine that most philosophers of technology are aware of the distinction Doppelt emphasizes between interests and rights, but they do not directly engage the debates that have arisen in political philosophy around that distinction. This leaves the political philosopher wondering how philosophers of technology decide whose interests have a *right* to prevail.

Instead of an explicit criterion, what we find in philosophy of technology is a very different type of discourse focussed on the demystification of the claims to universality of technical decisions. This discourse points in some sense in the opposite direction from the discourse of rights. Instead of sublimating interests into rights, it locates interests in the technical underpinnings of society. I have formulated this approach in terms of the notion of "technical codes." A technical code is the realization of an interest in a technically coherent solution to a problem.

The notion of technical code presupposes that there are many different solutions to technical problems. Some sort of meta-ranking is therefore necessary to choose between them. In determinist and instrumentalist accounts, efficiency serves as the unique principle of meta-ranking. But contemporary philosophy of technology contests that view and proposes that many factors besides efficiency play a role in design choice. Technology would be "underdetermined" by the criterion of efficiency and responsive to particular interests. In my formulation of this thesis, I argue that the intervention of interests does not necessarily reduce efficiency, but biases its achievement according to a broader social program. [14](#)

Thus two different configurations of production technology might each achieve high levels of efficiency, one applying workers' skills and the other eliminating them. Under different social conditions and with different values in view, each could be successful. The technical code would in the one case impose skilled work and in the other deskilling, reflecting the different interests of workers and managers. We have seen that the philosopher of technology can refer to the humanistic tradition to ground the right of workers to technical advances that protect and develop their skills. It is true

that such arguments are rarely made explicit and worked out in detail in philosophy of technology. This is a legitimate complaint. But I have argued above that political philosophy suffers a corresponding failure insofar as it does not appreciate the contingency of many aspects of the material environment and so does not judge them ethically. Here I would like to consider how a synthesis of these various concerns can be achieved.

Consider society as a scaffolding with three levels. At the center there are social groups acting in defense of interests of one sort or another. Interests are the starting point of the analysis because they are such visible, powerful, and constant moving forces in history. However, interests are not really independent factors, nor do they, by themselves, constitute a society. Without a material framework, there are no interests, and unless some interests are systematically privileged there is no social order. Thus interests are institutionalized at two other levels and it is their institutionalization which gives coherence to social life. These levels are, the reader will have guessed, rights as codified in laws, and technical codes.

Where several of these levels are congruent, it is quite difficult to perceive the interests at stake. This is what it means to call a certain way of life culturally secured and a corresponding power hegemonic.¹⁵ Just as political philosophy problematizes cultural formations that have rooted themselves in law, so philosophy of technology problematizes formations that have successfully rooted themselves in technical codes. A political philosophy that wants to be truly critical must learn from this unrecognized partner. Unless it shares such technical problematizations, it will allow profound injustices to fall into the background of its argument as normal and unsurpassable aspects of the human condition.

Political philosophy teaches the importance of grounding interests as rights, philosophy of technology the contingency of technical codes on politically or socially powerful interests. The projects are not contradictory but supplement each other. It is not necessary for each field to do the work of the other, but rather each must draw on the other for insight and support.

4. *Socio-technical ethics*. While I have not attempted to devise a explicit ethical theory, as Doppelt argues I should, I have explored significant meta-ethical issues relevant to technology. Doppelt outlines some of these but he seems to have overlooked others. I would like to review them briefly here.

I am primarily concerned with the relation of ethical values to technical facts. This version of the traditional fact/value, ought/is dilemma has original traits that are not sufficiently appreciated either in ethical theory or technology policy studies. I argue that ethics is realized not only discursively and in action but also in artifacts. Latour describes something similar as the "delegation" of norms to devices. I am particularly interested in two aspects of this notion. First, as discussed in the previous section, delegated values tend to become invisible in the technical codes that govern their realization. To take an example currently in the news, a safety standard for automobile tires embodies the value of life without anyone paying much attention to it until it is widely violated. This leads to my second point. Ethical discourse and ethical demands are often conditioned or provoked by the limitations of existing technical codes. Where safety is not adequately protected by existing standards, the value of life is brought forward as an ethical claim which advocates attempt to impose on manufacturers. The successful imposition of this claim by government regulation transforms it from an

ethical demand into a technical code and results in the ethical issue sinking beneath the surface in a kind of technological unconscious. [16](#)

This account does not directly address Doppelt's concern for justifying some claims over others but it does help to understand the nature of real world ethical controversies involving technology. Often these turn on the supposed opposition of current standards of technical efficiency and values. I have tried to show that this opposition is factitious, that often current technical methods or standards were once discursively formulated as values and at some time in the past translated into the technical codes we take for granted today. This point is quite important for answering the usual so-called practical objections to the ethical arguments of those like Doppelt and myself who believe our society can do a better job of achieving justice. [17](#)

In the AIDS case to which Doppelt refers I have applied this perspective to the way in which a profession such as medicine, which is shaped both by an explicit ethical code and a technical code, can be changed by playing off one against the other. The door to controversy and reform is opened by identifying tensions between the wider ethical mission of the profession and its narrow technical code. In the process supposed dilemmas can be dissolved through adding new, ethically justified layers of functionality to the existing techniques. Doppelt claims that what makes this a case of democratization is the background of discrimination of against homosexuals. This is not my position. I argue that coincidentally the gay rights movement enabled a disenfranchised technical public, the terminally ill, to assert its rights in the medical system. [18](#)

My discussions of the Minitel and the Internet bring out another aspect of this approach to technology and ethics. I have argued that the technical configuration of computer networks has ethical content insofar as promoting or discouraging the various activities they make possible involves decisions about how we will live in a technologically advanced society. I emphasize in particular the role of human communication on the networks which I see as a technologically mediated version of the human rights of free speech and freedom of assembly. This type of analysis is carried further in my recent work on the relation between software design and online community. I am now trying to identify the software features through which community formation is either privileged or obstructed on the Internet. [19](#)

The larger implication of this approach has to do with the ethical limits of the technical codes elaborated under the rule of operational autonomy. The very same process in which capitalists and technocrats were freed to make technical decisions without regard for the needs of workers and communities generated a wealth of new "values," ethical demands forced to seek voice discursively and realization in the new technical arrangements. I explore the implications of this situation in relation to problems of skill and the environment. Most fundamentally, democratization of technology is about finding new ways of privileging these excluded values and the publics which articulate them.

5. *Democratization.* What do we in philosophy of technology mean by the "democratization of technology?" This expression puzzles political philosophers anxious to know why we are not clear on whether questions of procedure or of substance are defining for our project. Do we mean by democratization the introduction of formal public controls on design and the success of insurgent movements to change technology, or do we mean the advancement of the rights of minorities or stigmatized groups who

suffer oppression in specifically technical contexts? It is important to decide between these interpretations, the political philosopher argues, because they may contradict each other. What do we say to a case where procedurally democratic decisions about technology worsen the oppression of some to the benefit of others? Is every public push for technical change democratic regardless of its content? Conversely, is a change in technology that benefits the oppressed democratic even if it is introduced by experts without public consultation or protests?

These puzzles result from the fact that philosophy of technology does not set out from a concept of democracy, as does political philosophy, but from analysis of our contemporary industrial society. Since the starting point is concrete, questions of procedure and substance are naturally mixed. Doppelt's critique stimulates an effort to sort out the mix.

When philosophers of technology talk about democratization, they mainly have in mind three social problems. First, they are concerned about the excessive power experts have acquired in a technological society at the expense of lay people who have become increasingly passive. Second, they point out the connections between the undemocratic, centralized structure of such institutions as the media or the production system and the corresponding designs of the technologies on which they depend. Third, they argue that expert power and undemocratic, technology-based organizations together erode traditional values and liberties. I relate all three problems to the operational autonomy won by the leaders of technical organizations.

With this background in mind, we can interpret the concept of democratization in philosophy of technology. To be effective, democratization must involve changes not only in technological design, but also in the distribution of power between lay and expert, objects and subjects of technical action. I call this "deep democratization" in contrast to merely formal changes in legal procedures that do not alter actual power relations in the technical sphere. Doppelt objects to my theory of deep democratization because, he argues, few groups aspire to accomplish such vague and ambitious goals when they engage with technical issues. Apparently, Doppelt thinks deep democratization irrelevant as a standard for measuring technical change unless agents consciously will it as their objective. In fact, he claims, my examples all show that the agents do not so much value agency per se as substantive goals.

This is a false dichotomy. Like most politics, technical politics involves both procedure and substance. A procedure reducing the operational autonomy of experts in a domain such as medicine is introduced to insure that technical decisions represent a larger range of interests, not simply to disseminate power for its own sake. The procedural changes patients fought for and obtained would have a generally democratic significance even if they ended up serving no such substantive purposes, but it is hard to imagine many patients wasting time on them unless something of substance was involved. Thus when AIDS patients gained influence over the design of clinical research, it was to serve such substantive ends as improved access to care and enhanced respect for the freedom and dignity of the terminally ill. I can agree with Doppelt that a reform offering these benefits would be desirable and substantively democratic independent of whether patients imposed it through changes in procedure. But democratic reform from above is uncommon. And I think it is reasonable to argue that democratization in the full sense of the term implies some sort of public process. It is the combination of

procedure and substance that most commonly marks the place of democratic interventions into technology.

The generally undemocratic structure of the core institutions of production presents another aspect of the same problem. Factories are tyrannies and the tyranny is to some extent installed in the machines themselves. The destruction of skill and initiative in favor of managerial power is reflected in machine design, most obviously in the assembly line. Demands by workers to reverse this process have a democratic character both because they challenge undemocratic procedures, and because they conform to a humanistic normative criterion. Once again, the introduction of new machines that favored the development of skilled, interesting work would have democratic value in terms of this criterion regardless of the procedures presiding over the reform, but the reform itself seems unlikely to occur where management believes it must exercise arbitrary and unchallenged power over workers. One would expect reskilling where management power has been weakened by the labor movement, innovations, or competitive pressures. In such situations, management seeks to represent workers rather than treating them as mere objects. This may show up in the way new equipment is designed, selected, and installed. And, finally, the exercise of worker power, for example by whites, to oppress another race might be procedurally democratic in one aspect, but like any such abuse of majority power, it fails significant democratic tests in other respects.

6. *Civilizational politics*. In the end the issue of democratization is embedded in a larger issue of the civilizational model toward which industrial society is evolving. [20](#) We live in a society based on vast technical macro-systems and huge organizations, controlled ideologically by a highly concentrated media industry. Despite brave attempts to show that this system adequately represents a wide variety of needs and views, it seems fairly obvious that we are headed for a less democratic future under this dispensation. As technology advances and reaches into more and more domains, the social consequences of operational autonomy in technical leadership grow and grow.

It is at this civilizational level that it becomes clear why agency is not primarily a procedural matter but has itself become a substantive issue. Maintaining the independence of technical leadership in a technological society involves concrete decisions about the framework within which people live and work. Operational autonomy is not neutral with respect to technical decisions, but is a principle of meta-ranking with substantive consequences. It is not a merely procedural matter when millions of skilled occupations are destroyed and replaced by unskilled ones in order to strengthen management in its struggle with labor. Nor is procedure alone involved in the struggle today over whether the newest medium of communication, the Internet, will be transformed into a global mall capable of being operated by large corporations.

These are matters of concern not just for the oppressed minorities who occupy Doppelt's attention, but for everyone in technologically advanced societies. Furthermore, the stakes in such generalized disempowerment go beyond the violation of democratic rights in particular cases and add up to *a threat to the human capacity for active self-responsibility and initiative*. It is on this ground that I have invoked arguments for agency, and not the usual ones to which Doppelt refers. In sum, the accumulation of decisions that reproduce the operational autonomy of technical leadership shapes a particular type of society and a corresponding human type, and these are not necessarily ones we would choose "democratically" if we had the option. [21](#)

This is not to say that counter-tendencies are lacking through which people attempt to recover values such as skill or individuality. Some of these counter-tendencies are technically based. I am thinking for example of the sudden burgeoning of online communities on the Internet, which offer an alternative to an atomized society united only as a mass audience. Democratization of technologically advanced societies depends on the success of such counter-tendencies, on their generalization, and their ability to serve the most important needs and interests currently served by the system. Procedural changes without consequences at this civilizational level will end up making very little difference.

I stated earlier that politics involves a special kind of social bond and is embedded in a wider framework of social bonds. Increasingly, these bonds are technically mediated in our society. This is why a concept of politics that abstracts systematically from technology will prove more and more irrelevant to many of the most compelling problems we face. Philosophy of technology may well have something to learn from political philosophy, but political philosophy must make a similar opening to philosophy of technology and broaden its reach to encompass the realities of our time.

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- [1](#) J.-J. Rousseau, *Du Contrat Social*, Paris: Garniers, 1962, p. 35 (my translation).
 - [2](#) For a survey of the evolution of the field, see Andrew Feenberg *Questioning Technology* (London and New York: Routledge, 1999) (hereinafter referred to as QT), chap. 1.
 - [3](#) See G. Doppelt, "Rawls' System of Justice: A Critique from the Left," in *NOUS* 15(3) (1981).
 - [4](#) QT, 218-219.
 - [5](#) See Albert Borgman, *Technology and the Character of Contemporary Life*, Chicago: Univ. of Chicago Press; and Langdon Winner, *The Whale and the Reactor*, Chicago: Univ. of Chicago Press.
 - [6](#) Names that come to mind in these connections include Alasdair McIntyre, Nussbaum, Sen.
 - [7](#) Nevertheless, the issue of human capacities is extensively discussed in Andrew Feenberg, *Critical Theory of Technology* (New York: Oxford Univ. Press, 1991) (Hereinafter referred to as CTT). See pp. 30, 39, 93-95, 126, 149-153. See also QT, 220, 221.
 - [8](#) This approach is discussed in CTT, 143ff and QT, 97ff.
 - [9](#) See CTT, 28-29, 79-80; QT, 103.
 - [10](#) I say as much: "All forms of public activity and participation should be sanctioned as democratic so long as they respect civil rights" (Andrew Feenberg, *Alternative Modernity*, Berkeley: Univ. Of California Press, 1995, p. 9) (Hereinafter referred to as AM).
 - [11](#) I mention these issues in CTT, 25. I discuss technocracy at length in AM, chap. 4 and QT, chap. 2.
 - [12](#) CTT, 108; AM, 231-232; QT, 141.
 - [13](#) CTT, 195ff.
 - [14](#) QT, 81.
 - [15](#) CTT, 134ff; QT, 86-87.
 - [16](#) QT, 220, 98, 105.
 - [17](#) QT, 91ff.
 - [18](#) AM, 107-108, 102-103, 118
 - [19](#) Andrew Feenberg and Maria Bakardjieva, "Community Technology and Democratic Rationalization," *The Information Society Journal*.
 - [20](#) CTT, 15.
 - [21](#) AM, 6.