



PROJECT MUSE®

Established Sentiments, Alternative Agendas, and Politics of Concretization

Casper Bruun Jensen

Configurations, Volume 14, Number 3, Fall 2006, pp. 217-244 (Article)

Published by The Johns Hopkins University Press

DOI: 10.1353/con.0.0014



➔ For additional information about this article

<http://muse.jhu.edu/journals/con/summary/v014/14.3.jensen.html>

Established Sentiments, Alternative Agendas, and Politics of Concretization

Casper Bruun Jensen
Copenhagen Business School

This essay discusses some of the political and practical efficacies, which constructivist science and technology studies (STS) is imagined, intended, or presented as having. I refer to the ways in which authors make arguments and claims about such efficacies as the politics of concretization: the concretization of why, how, and in which circumstances it matters to be a constructivist. It is important to consider which argumentative resources STS and SLS (science and literature studies) have access to and draw upon when defining their fields and their relationships to other social and political arenas; not least so, as social science and humanities research is increasingly called upon to legitimate itself in broader societal terms—for instance, under the banner of mode 2 knowledge production.¹ Under this rubric, such research is increasingly discussed in terms of the public relevance and usefulness it is capable of providing. However, the criteria of utility according to which such evaluations can or should be carried out is rarely opened up for scrutiny, and the definitions and notions guiding the determination of the useful and the relevant are often narrow. This can have potential consequences on many levels: from the individual researcher struggling to do research

1. See Helga Nowotny, *Re-Thinking Science: Knowledge and the Public in an Age of Uncertainty* (Cambridge: Polity Press, 2001). For commentary, see Marilyn Strathern, "A Community of Critics? Thoughts on New Knowledge," *Journal of the Royal Anthropological Institute* 12:1 (2006): 191–209.

on a “useless” topic, to the relative apportioning of funds among disciplines and institutions and the infrastructure of education more generally.

The concretization of disciplinary capacities is obviously not controlled solely from within; nevertheless, arguments generated from within academic fields about the kinds of goods they are capable of providing take part in shaping public and political understandings of what ought to be expected from such fields. Among other ways, this is done through rhetorical constructions, which show the importance of specific kinds of research and their potential societal contributions, and thereby link it up with other areas and concerns in various ways.² Further, the constructions of the useful that are promoted by prominent researchers are likely to influence administrators and policy makers, not least when such constructions converge with existing policy discourses. There is thus good reason to consider how this happens, for what reasons, and with what consequences.

To get an analytical grasp on the issue, I make use of the term “politics of concretization.” I use it to characterize the relations a text (or other pronouncement) tries to establish among itself, its intellectual environment, and its (hoped for) readers. I am particularly interested in capturing the rhetorical tendencies exhibited as one pronounces on the strengths of one’s research and emphasises the *goods* it provides. Often, this is done in juxtaposition with other studies, which are implicitly or explicitly presented as failing to meet a set of values and that one can therefore claim to supersede. The politics of concretization thus involves at least two aspects. First, it illuminates how an author works to control the relation between his text and its reader by providing guidelines for how it should be read. And second, it shows how an author attempts to demonstrate some form of superiority or other through his/her capacity to deliver according to these guidelines in a better manner than competing texts and arguments.

The politics of concretization is manifested in very variable ways

2. Themes such as usefulness, intervention, and knowledge translation have been the focus of attention in a number of recent workshops and conferences in STS and cultural anthropology, including “Does STS Mean Business?” at the Säid Business School at University of Oxford in 2004 and 2005; “Description and Creativity: Approaches to Collaboration and Value from Anthropology, Art, Science and Technology” at King’s College, Cambridge, in July 2005; and “Practices of Assessment and Intervention in Action-Oriented STS-Studies” in Amsterdam in April 2005.

though in my estimation, it takes two main forms in present constructivist and cultural studies in science and technology. Both of these lean on a sense of the merit of being “normative.” The first of these forms is most readily available from scholars of overt political orientation, and it has been used to argue that while such “approaches” as post-structuralism and constructivism have perhaps provided some insights, their value is nevertheless limited because they fail to engage critically with the powers that be. This is the well-known charge of “complicity.” The second orientation is often found in the work of researchers located in practical or “applied” environs, such as policy institutions and management departments. Here, too, it is repeatedly argued that such studies fail to properly cash out their value; but in this version of normative argumentation, it is because they are viewed as insufficiently capable of providing practical guidelines for how to improve some set of affairs, such as the use of information technology (IT) in health care (which is the case discussed below). To remedy these variably conceived deficiencies, such arguments regularly claim to go “beyond” the supposed constructivist impasse—or more specifically, in the case of STS, Bruno Latour, actor-network theory, and so forth.³

Illustrated below are some of the ways in which this happens and some of its consequences in recent “normative” STS. The key illustration here will be the theoretical and practical trajectory of well-known Dutch STS-theorist (and now consultant) Marc Berg. This case is analytically interesting in its own right, but also, I argue, instructive if one wants to understand some of the consequences that might follow from going along with the normative demands made on contemporary social research.

The outline of this essay is as follows. First, two prevalent senses of the normative in STS are pointed to: the *political*, and the *practical*. The work of Donna Haraway is typically viewed as exemplifying the former, whereas Marc Berg argues for the importance of the latter. In practice though, the two forms often shade into each other. To understand this situation, I return in the third section to two of Berg’s most prominent contributions to these fields: “The Politics of Tech-

3. See, for example, Marc Berg, “The Fruitful Amodernism of a Lingering Modernist: Commentary on Bruno Latour’s ‘On Interobjectivity,’” *Mind, Culture, and Activity* 3:4 (1996): 252–259; and Eric Monteiro and Ole Hanseth, “Social Shaping of Information Infrastructure: On Being Specific About the Technology,” in *Information Technology and Changes in Organizational Work*, eds. W. J. Orlikowski, G. Walsham, M. R. Jones, and J. I. DeGross (London: Chapman & Hall, 1995), pp. 325–343.

nology," and "Order and Their Others" (with Stefan Timmermans).⁴ In section 4, I then discuss how these arguments are aligned with the suggestion that social research should go beyond description, and toward intervention. Following this, I consider how this requirement is concretized by Berg in one instance of engaging with an audience of medical informaticians, and how this kind of intervention, in turn, provides a different kind of leverage when it is *reported back* to STS. Then some of the implications of this process of concretizing the relevance of the study across disciplinary boundaries are considered.

The bulk of the essay is thus devoted to following a specific construction of the useful within STS, especially in order to understand the ways in which it draws on constructivist arguments in order to reach conclusions about practical intervention. Although teasing out this construction may be seen as a genealogical endeavor, it will be obvious that I am not an impartial analyst. Indeed, I am a relatively sceptical observer who is also tangentially implicated in the line of argumentation through my own studies of health care technologies—studies that would qualify as useless according to the re-definitions proposed by Berg and Timmermans.

While understanding the politics of concretization through which STS/SLS audiences are enrolled into a more useful future is thus a first aim of the essay; a second ambition is to start thinking through some other ways of articulating the uses of these fields. With this in mind, the latter part of the essay revisits the theoretical landscape from which Berg's arguments originated. I add to this an argument of Barbara Herrnstein Smith concerning the merits of constructivist "extremism," and a problem identified by Isabelle Stengers regarding how to define alternative agendas without simply alienating "established sentiments." Following Smith and Stengers, I propose that a key to the usefulness of our research is that it is conducted in such a way as *not to hinder becoming* either in theory or practice.

Normative Questions in STS

One can observe a swelling interest, both in STS and related fields such as cultural studies and cultural anthropology, as to the question of how to be *practical* in doing *intellectual* work. It is itself remarkable

4. See Marc Berg, "The Politics of Technology: On Bringing Social Theory into Technological Design," *Science, Technology and Human Values* 23:4 (1998): 456–491; and Marc Berg and Stefan Timmermans, "Order and Their Others: On the Constitution of Universalities in Medical Work," *Configurations* 8:1 (2000): 31–61.

and worth inquiry that this question is increasingly raised in such terms, since they rely on a number of distinctions between, for example, mind and body, the ideal and the material, and so forth, which have been extensively problematized from within these fields.⁵ Various explanations for the (recovered) felt need to connect what is viewed as the abstract labor of thought with the concrete work of some real-life practice or other—that is, to “produce” something practical—could undoubtedly be constructed and would certainly be relevant.⁶ But rather than looking for causes, I want emphasize a symptom, which can be described by inverting a formulation from Belgian philosopher of science Isabelle Stengers.

Stengers has suggested that “nothing is easier for a modern person than to be tolerant”—a proposition to which I return late in the essay. However, in light of the present concerns about intervention in social science, a corollary to this suggestion appears to be that few things seem more important to a number of intellectuals than to *remedy* this situation by becoming (again perhaps, or for the first time) duly normative.

Normativity takes multiple shapes, but I want to here mention two broad kinds, which may in practice overlap. The first can be referred to as *political* or *critical*, as it is regularly inspired by left-wing thought in general, and Marxism in particular, and is embraced by self-described radical scholars.⁷ The second could be called *practical* or *instrumental* and is associated with the question of how to accomplish some tasks or other better, or more efficiently, according to some agenda: bureaucratic, corporate, or emancipating.⁸

In a discussion piece considering the work of Bruno Latour, Berg has posed a number of questions that can be taken as introductory for a discussion of normativity in constructivist science and technology studies. Berg frames Latour as a residual modernist, because “al-

5. See, for example, Casper Bruun Jensen, “Sorting Attachments: Usefulness of STS in Healthcare Practice and Policy,” *Science as Culture* 16:3 (2007): 237–251.

6. As I note later on, Isabelle Stengers, in fact, encourages such an analysis.

7. See, for example, Sande Cohen, “Reading Science Studies Writing,” in *The Science Studies Reader*, ed. Mario Biagioli (New York: Routledge, 1999), pp. 84–95; and, for a commentary, Casper Bruun Jensen, “A Non-Humanist Disposition: On Performativity, Practical Ontology, and Intervention,” *Configurations* 12:2 (2004): 229–261.

8. See, for example, Marc Berg, *Health Information Management: Integrating Information Technology in Health Care Work* (New York: Routledge, 2004); and Claudio Ciborra, *From Control to Drift: The Dynamics of Corporate Information Infrastructures* (Oxford: Oxford University Press, 2000).

though Latour would be the last to deny that every representation is also an intervention, his work does breathe the ghost of that denial.”⁹ He suggests, referencing Haraway, that “the inseparable connection between depiction and intervention should be embraced rather than fled from,” and urges Latour “to spell out the political implications of his *own* creations.”¹⁰ How, wonders Berg, “can theories like these be put *to work*?” And anticipating a topic that will be taken up later, he asks: “In the case of (information) technologies for work practices, for example, is there any way in which such insights can be drawn upon to design *better* technologies, for example, or to implement them more successfully?”¹¹

In the argument, Berg refers to a version of normativity formulated in Haraway’s work on cyborg feminism, and he wants to bring her political sensitivity to bear on themes relating to technology use in health care. Specifically, he wants to associate her attentiveness to the politics of technology with his interest in making better IT systems. Thus Haraway’s political ideas are transported and translated into a realm of practical application, which is somewhat foreign to her own projects. This is not problematic as such: people borrow concepts and ideas from one another all the time and bring them to bear on new settings. But it opens questions both of reasons and consequences: Why draw on Haraway to go beyond Latour in order to be practical? How reach the conclusion that a constructivist analysis of technology is what is needed in order to design better technologies? And what follows from drawing such conclusions? In order to facilitate an answer to some of these questions, the following section discusses some of Berg’s work as an innovative STS theorist, both alone and in tandem with sociologist Stefan Timmermans.

Bringing Social Theory into Design

Two of Marc Berg’s most important theoretical pieces are “The Politics of Technology: On Bringing Social Theory into Technological Design” (hereafter PT), published in the STS journal *Science, Technology, and Human Values* in 1998, and “Orders and Their Others: On the Constitution of Universalities in Medical Work” (hereafter OO), published, with Stefan Timmermans, in *Configurations* (2000). Here, I consider these pieces in order to see how they connect with the argument made in 1996 (and referred to above) that STS ought to

9. Berg, “The Fruitful Amodernism” (above, n. 3), p. 256.

10. Ibid.

11. Ibid.

spell out its own political implications, and to understand how they align with research activities later conducted and presented by Berg as exemplifications of this strategy (which will be presented below).

One function of PT is to act as a guide into the blooming literature on the design of information technologies for use in work practice. This literature, not least from the interdisciplinary fields of CSCW (computer-supported cooperative work) and PD (participatory design), is interesting because it often builds a strong emancipating ambition on a theoretical foundation from assorted social science disciplines, with the practical aim of designing better information technologies. Aside from acting as a guide into this territory, Berg's article also had an innovative ambition. He suggested that CSCW researchers and their colleagues crossed the "great divide" between social and natural science on a continual basis *in their practical work* to build machines. He argued that STS studies certainly also crossed this divide, but only in *textual representation*. The problem, which Berg meant to address, was thus that "the traffic remains mostly unidirectional: STS researchers venture into the land of engineers, but the latter are not very interested in joining them on the return trip."¹² Consequently, it would be a "fascinating next step [to] actually employ social theory in design."¹³

This raised the question as to why STS researchers would be needed if CSCW and PD research already crossed the divide in practice. Berg argued, however, that the emancipating aims of these analysts and designers get in the way of a radical re-conceptualization of socio-technical relations. The problem was that when making "better technologies" was straightforwardly connected with an agenda of democratizing workplaces, this left unasked the questions of what constituted "technology" and "human work" and their interrelations. Following actor-network theory, Berg argued that "the analytical and political power of this approach . . . thrives upon the assertion of a crucial, ontological *difference*"¹⁴ between these realms. The consequence was that a logic is put in place where the only alternative to technological determinism became human determinism:

There is an interesting tension here: "technology is tied to negative associations of being 'authoritarian,' 'impoverished,' and 'mechanistic'"—yet "tech-

12. Berg, "The Politics of Technology" (above, n. 4), p. 457.

13. *Ibid.*

14. *Ibid.*

nology" is what designers build. And, indeed, reading this literature one sometimes feel that the only proper technology is no technology; that systems built should intervene as little as possible in the informal interactions and ongoing work flows, since they can only impede them.¹⁵

The problem, then, is that CSCW and PD are fields based on critique. Just as Latour has argued that "critique has run out of steam" in the humanities,¹⁶ Berg argued that it had run out of steam among progressive designers. His solution, inspired by Latour, was to stop viewing technology as oppressive whenever it changes current human patterns of activity. If neither humans nor technologies have essence, it becomes far more interesting to explore "what *new* worlds are or can be created through interrelating technologies with human work."¹⁷ Since, *pace* Haraway, we do not have access to a God's-eye view, the designer must take "intertwinement with technologies as a starting point and move from there: [operating] in a piecemeal way, making moves in a game that constantly and inevitably overtakes the mover."¹⁸ And because such surprises of practice happen irrespective of designers' intentions, designers' ideals of control and transparency are not necessarily to be preferred. Berg provocatively suggested that "partial *abandonment*" of these might be desirable.¹⁹ But what then of political and normative implications? Berg was adamant in that giving up the belief in preestablished notions of the capacities of humans and technologies did not entail becoming less political;²⁰ it meant, however, that no guarantees of a benign outcome could be offered on behalf of a general method or theory. And for that very reason, Berg recommended that STS choose the line taken by CSCW researchers, who, rather than theorizing endlessly, take "substantive" positions, setting their theories to work "to materially refigure" (citing Haraway) the practices in question.

Whereas PT contained a literature review, an interesting analytical suggestion, and a practical recommendation directed at an STS audience, "Order and Their Others" (OO) was published in *Configurations* and had a more theoretical ambition. The empirical theme of the essay had to do with "attempts to formalize, standardize and ration-

15. *Ibid.*, p. 469.

16. Bruno Latour, "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern," *Critical Inquiry* 30:2 (2004): 225–248.

17. Berg, "The Politics of Technology" (above, n. 4), p. 469.

18. *Ibid.*, p. 480.

19. *Ibid.*, p. 481.

20. *Ibid.*, p. 482.

alize . . . in Western worlds." According to Berg and Timmermans, the usual way in which this issue is considered is to say that "the disorder of current practices . . . should be replaced by scientifically established, rational and universal modes of working and understanding."²¹ The theoretical question addressed in the essay was how to analyze such efforts at universalizing differently. Following actor-network theory and Michel Serres, the authors suggested that universality is not a given, but rather an acquired characteristic: "the *effect* produced through binding heterogeneous elements together into a tightly coupled, widely extended network."²² Just as PT argued for breaking down the a priori distinction between humans and machines and its attending determinism, OO argued for breaking down the accepted separation between the orderly and disorderly. Further, Berg and Timmermans proposed to improve on an analytic scheme used in social constructivist analyses as well as Latour's *Science in Action*, according to which "the production of universality follows a clear temporal pattern: disorder pre-exists and precedes the emergence of order."²³ Instead, they suggested that "with the production of an order, a corresponding disorder comes into being."²⁴ As illustrations of how orders "*produce the very disorders they attempt to eradicate*," Berg and Timmermans offered the universalizing ambitions of statistical logistics and clinical protocols in medicine. About statistical universalization, they explain that

disorder emerges as the absence of quantitative links, of rigorous calculation, of impure reasoning. The statistical logics are themselves the very yardstick against which this "disorder" can emerge: they project its ideal-type onto medicine, and then attempt to eradicate the shadows they have thereby cast. Within these logistics (its experimental set-ups, its ideal-typed performance criteria embedded in the tools, the format of their training programs), physicians emerge as "poorly calibrated" decision makers.²⁵

Yet this also exemplified how an "order" cannot survive without the disorder, which it has as its stated aim to eradicate, as these disorders are incorporated into the very tools and technologies with which order is built. Following Serres, Berg and Timmermans thus argue

21. Berg and Timmermans, "Order and Their Others" (above, n. 4), p. 31.

22. Ibid. (emphasis in original).

23. Ibid., p. 33.

24. Ibid., p. 35.

25. Ibid., p. 45 (emphasis in original).

that “there is no disorder, which is not a *specific* parasite of a *specific* order.”²⁶

At this point, it would appear that we are maximally distant from a normative position and very close to a “relativist” perspective, since no progressive order can now be imagined without also considering its chaotic underside—the anti-progressive other—that it makes emerge. However, as in PT, it is at just this moment that an argumentative reversal occurs, whereby the apparently noncommitting conclusion, that *any* order whatsoever generates disorder, is shown to provide the best possibilities for taking up a refreshed normative viewpoint. In conclusion, Berg and Timmermans thus return to the theme of criticism in the following way: “This does not imply that we cannot be critical vis-à-vis the generalizing orders. Quite the contrary: we feel that taking these emergent orders seriously is the most fruitful starting point for a critical position.”²⁷

As in the case of design, this is a position sceptical of attempts to *prioritize the human aspect*—medical craft, for example, because such a focus

cannot but blind us to the new worlds that are appearing through . . . standardization and rationalization efforts. Focusing on the multiplicity of the universal leads to a re-evaluation of the cherished moral superiority of all things local that often recurs in such critiques. When the “local” is seen as always part and parcel of everything universal, the latter needs no longer be perceived as a necessary (latent) threat.²⁸

Since we need not be afraid of universalizing schemes as such, according to the authors, it might consequently be “that the most productive critical position is to be found in the creation of alternative universalities, formalizations or modes of standardization, rather than in the defence of the local.”²⁹

The arguments in PT and OO thus follow a similar strategy, which is one of turning the received apolitical and supposedly nonnormative implications of actor-network theory inside out. To be sure, Berg has learned from Latour, Haraway, and Serres that there can be no God’s-eye view, no external position securing our ability to make certain judgments about how to develop technologies. However, the consequence of recognizing that there is no innocent universal—ei-

26. Ibid., p. 57.

27. Ibid., p. 60.

28. Ibid.

29. Ibid.

ther for or against technology, for or against formalization—should not be to lament that the grounds for making informed political decisions have vanished; rather, it should be to enter into the experimental fray of doing technical politics.

Concretizing the Normative: From *Political* to *Practical*

After reviewing these arguments about the politics of technology, we can see more clearly what Berg was getting at in his early critique of Latour. As Berg sees it, Latour, in spite of all his conceptual brilliance, does not participate in technical politics, but remains stuck on the level of the text. Precisely, that is his “lingering modernism.”

Berg, on the other hand, has taken on himself the task of rendering constructivist STS-insights relevant to the setting of Dutch health care. Specifically, he wants to participate in improving its information infrastructure. As will be recalled, he cited Haraway to argue that the “inseparable connection between depiction and intervention should be embraced rather than fled from.” In spite of a superficial resemblance between Berg’s practical agenda and Haraway’s political one, however, some noteworthy differences between the two are also to be found.

Most prominent among these is that Haraway explicitly defines her approach in opposition to misplaced concretism. Hence, she describes *Modest_Witness* as: “In its most basic sense, . . . my exercise regime and self-help manual for how not to be literal-minded.”³⁰ Indeed, one of Haraway’s most important contributions to social and cultural theory has been to drag readers towards new political issues that they will be “forced, kicking and screaming to notice.”³¹ She thus proposes that her critical aim is to enable readers to notice that more things than are usually considered are worthy of our political attention. This is crucial, since “[t]he power to define what is technical and what is political is at the heart of technoscience.”³² This is obviously a different ambition than using constructivist analysis to take substantial positions on the design of an IT infrastructure.

Haraway has been hugely successful in opening up new avenues of investigation and analysis—indeed, the comparison, which springs to mind in terms of successfully doing so, is to the work of Bruno

30. Donna Haraway, *Modest_Witness@Second_Millennium.FemaleMan@_ Meets_Onco-Mouse™: Feminism and Technoscience* (New York: Routledge, 1997), p. 15.

31. Donna Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), p. 99.

32. Haraway, *Modest_Witness* (above, n. 30), p. 231.

Latour. Yet at the same time, the identical reproach, which Berg directs at Latour, could also be directed at Haraway: that she remains a “lingering modernist” because she does not spell out the practical implications of her creations, although, rhetorically, she makes more of their political import than Latour does. This suggests that Berg’s references to Haraway are not intended so much *substantively* (that is, as in her doing what he wants us to do), as *symbolically* (that is, as in signaling a commitment to “politics,” which, at the time, was missing in Latour).

As noted, Berg has drawn upon and extensively referred to the work of both Latour and Haraway. But as we have seen, the conclusion he draws with respect to political and practical implications are different from these authors. In contrast with Haraway, who defines her strategy against being literal-minded, Berg defines his as the quite literal one of using STS theory to make better IT systems and to ensure better implementation processes. It should be obvious that the literal-minded here does not equal “simple-minded”; rather, it refers to the argument that what must be concluded from a reading in constructivist theory is that one ought to make a substantive attempt at using such theory to design better technologies.

Now, in some sense, this is considerably more difficult to accomplish than Haraway’s task. A straightforward manner of questioning this idea exists within the actor-network theoretical vocabulary, as it suggests that the attempt to *apply* anything to anything else will always result in an unforeseen outcome. As Berg himself stressed in PT: “this is already a consequence of the well-known STS insight that the construction of a technology is a process of endless negotiations: no single ideal will survive unscathed, and every actor’s definition of the situation will be altered beyond recognition.”³³ While these surprises may be pleasant or unpleasant, they occur inevitably; Latour has called their effect the “slight surprise of action.”³⁴

Knowing that one is not fully in control need not, of course, detain one from setting to work. Indeed, Berg draws the conclusion that since one is not fully in control, the *only* sensible thing to do is set to work in a “practical” effort. And yet, some questions suggest themselves in response to this strategy. First, why set to work on something rather than something else? Second, how are we to decide upon the specific ways in which we ought to set to work? Indeed, do

33. Berg, “The Politics of Technology” (above, n. 4), p. 478.

34. Bruno Latour, *Pandora’s Hope: Essays on the Reality of Science Studies* (Cambridge, Mass.: Harvard University Press, 1999).

STS have anything to offer with respect to such decisions? If not, what then decides? To get some purchase on these questions, the following sections survey some of the interventions described by Berg in light of his argument for more normative STS.

“Mythical” Engagements

I take my examples from Berg’s article “Implementing Information Systems in Health Care Organizations: Myths and Challenges” that was directed at the medical informatics community through its publication in the *International Journal of Medical Informatics*.³⁵ The article has two aims. Given that the implementation of patient care information systems seems to be always a daunting task, it wants to first discuss three myths, which regularly continue to guide and “hamper implementation processes,” and, second, to explore the alternative guidelines for such processes, which could come out of a “sociotechnical approach.”³⁶

Before the explosion of myths and subsequent rebuilding of the landscape of medical informatics can take place, Berg formulates two caveats, both concerning the measure of “success” in relation to implementation. This is important, because, in a nominalist gesture, “[the] final decision is about the attachment of the label ‘success’ or ‘failure’ (or anything in between) to a particular situation.”³⁷ So, “success” is not a simple thing, but is rather multidimensional; it can have to do with “effectiveness, efficiency, organizational attitudes and commitment, worker satisfaction, patient satisfaction—and not all parties in and outside of the implementing organization may agree about which dimension should be the most relevant.”³⁸

This point is typical STS-fare in its stressing of the multiplicity and heterogeneity of actors, aims, and measures, but it is mixed up with the admission that “it is of course also possible to be less relativistic, and to set a success measure outside of an organization’s own deliberations. . . . Only in this way, after all, can one compare different implementation processes.”³⁹ The claim exemplifies a willingness to

35. Marc Berg, “Implementing Information Systems in Health Care Organizations: Myths and Challenges,” *International Journal of Medical Informatics* 64 (2001): 143–156. The chapter was reprinted in Berg, ed., *Health Information Management* (London: Routledge, 2004), a volume that introduces the reader to challenges and lessons learned about how to manage information in health care.

36. *Ibid.*, p. 144.

37. *Ibid.*

38. *Ibid.*, p. 145.

39. *Ibid.*, p. 144.

let go of the STS insight in order to secure a soothing effect on behalf of the more rationalist-inclined practitioners of medical informatics. It enables readers to reassure themselves that *that*, after all, is what they are interested in accomplishing, and that their particular endeavors are therefore *not* included in the otherwise argued-for relativistic field.

Berg is placed in a rhetorically difficult situation by this assurance, when in his second caveat he asks: "How successful are success factors?"⁴⁰ For, on the one hand, while he wants to argue "not so important after all," he has opened the possibility that *this* answer can co-exist with "quite important" or, indeed, "crucial for some purposes." He becomes progressively entangled in the ramifications of this initial admission, as he introduces his main argument against the three prevalent myths, identified in relation to implementation and evaluation processes. For what he has termed "myths" are precisely the assumptions that practitioners of medical informatics rely on in their work to develop, implement, and assess new health care technologies. Thus he suggests:

This is not to say that we cannot outline certain insights that seem to be a *sine qua non* to the realization of successful systems however defined. Indeed, in the following paragraph some of these insights will be discussed in the form of prevalent "myths" that stand in the way of fruitful implementation.⁴¹

Berg's myths are, in fact, the everyday assumptions of his medical informatics readers, and the elucidation of this point is the main contribution of the article: it is what opens up for an alternative formulation of the sociotechnical challenges facing medical informatics. In the sentence just cited, which immediately precedes the statement of this demythologizing aim, however, these myths are rendered equal to "certain insights that seem to be a *sine qua non* to the realization of successful systems."

Are they then valuable *insights* or *myths*—or, indeed, "myths," where the commas work to guard against the idea that he really thinks that the mythical assumptions of medical informaticians are, well, mythical? Again, are the insights really discussed *in the form of myths*, or are they clarified in *contradistinction* to prevalent myths? In other words, are the myths really insights, or is the insight, rather, that the "myths" are really myths?

40. *Ibid.*, p. 146.

41. *Ibid.*

From the point of view of STS, there is, of course, no doubt that the latter is the case. The equivocation arises because the argument has been arranged in such a way that the stated goal is to replace one set of assumptions with an alternative set whose advantages can be argued from such a point of view, while the implications of these assumptions are elided in order to not offend the sensitivities of the relevant set of readers.

I turn now to the article's "Conclusion: The Challenge." It can be first noted that, as indicated, the normative implications are spelled out here *not* as a set of practical recommendations, but rather in terms of a future common challenge. The challenge is to recognize implementation and development projects as mutually transforming all participants in the process, and to view them as a "balancing act between setting goals and targets for the implementations," while "stimulating the mutual learning processes that will inevitably transform these goals and targets."⁴² Notably, this challenge is presented at a level of abstraction remarkably similar to the one directed to the STS researchers in PT, who were admonished to take substantive positions. To this audience of medical informaticians, however, no substantive positions are offered, but instead some lightly formulated versions of analytical insights from STS.

On the one hand, these conclusions and challenges seem manifestly sensible, notably in the suggestion that "accepting, and even drawing upon, th[e] inevitable uncertainty might be the hardest lesson to learn."⁴³ Indeed, Berg goes so far as to suggest that "searching for critical success or failure factors reinstalls exactly the urge for control that we should abandon, or at least mitigate, in order for the full potential of IS [information systems] synergy to emerge."⁴⁴ Yet, on the other hand, these proposals are not manifestly more normative or practical than those of other STS researchers about whose lingering modernism Berg implicitly complains.⁴⁵ What is going on here?

42. *Ibid.*, p. 154.

43. *Ibid.*

44. *Ibid.*, pp. 154–155.

45. See, for example, Joan Fujimura, "On Methods, Ontologies, and Representation in the Sociology of Science: Where Do We Stand" in *Social Organization and Social Process: Essays in Honor of Anselm Strauss*, ed. David Maines (New York: Aldine Transaction, 1991), pp. 207–249; Susan Leigh Star and Karen Ruhleder, "Steps Towards an Ecology of Infrastructure: Design and Access for Large Information Spaces," *Information Systems Research* 7:1 (1996): 111–134; and Lucy Suchman, "Technologies of Accountability: Of Lizards and Aeroplanes," in *Technology in Working Order: Studies of Work, Interaction, and Technology*, ed. Graham Button (London: Routledge, 1993), pp. 113–126.

Practical Heterogeneity and Abstract Practicality

The previous section ended with the question of what I will here call “the relation between abstract practicality and practical heterogeneity.” Arguing toward an STS/SLS audience, Berg has, on the one hand, argued strongly for taking substantive positions on concrete issues. But obviously these arguments are still just that—arguments—and they therefore instantiate an abstract call for the normative and practical. On the other hand, arguing toward an audience of practitioners (medical informaticians), Berg argued not in substantive terms, but rather formulated broad challenges based on established STS-principles, including the heterogeneity of actors and the emergence of outcomes; that is, in terms of practical heterogeneity.

The politics of concretization can here be seen as a double movement, which works differentially depending on whether it is oriented towards the pole of theory and abstraction, or of practice and action. Toward the theoretical pole—presumably inhabited by social theorists—it can be argued that because research fails to establish sufficiently tight links with the practical pole, it becomes increasingly irrelevant. Meanwhile, toward the practical pole—presumably inhabited by medical informaticians—it can be argued that to the extent that practice remains ill-informed about recent developments in social theory, it will fail to develop successful applications.

This strategy has had tremendous effect. Indeed, Marc Berg has become increasingly influential among medical informaticians, managers, and policy makers *while* winning the Robert Merton Professional Book Award from the American Sociological Association for *The Gold Standard: The Challenge of Evidence-Based Medicine and Standardization in Health Care*, which he co-authored with Stefan Timmermans.⁴⁶ Yet, analyzing Berg’s forays into medical informatics might lead one to doubt whether his plea for substantive position-taking offers significant added value compared to all the other STS studies, which also end up stressing the open-ended emergence of practice. If that is the case, there would be correspondingly less reason to believe that normative position-taking is required for STS to upgrade its social usefulness. Before drawing this conclusion, though, it must be recognized that there are more layers in this story of concretizing the benefits of STS in medical informatics.

46. Stefan Timmermans and Marc Berg, *The Gold Standard: The Challenge of Evidence-Based Medicine and Standardization in Health Care* (Philadelphia: Temple University Press, 2003).

Further Concretizing

Although I have argued that Berg's normative propositions rely on a double standard, this does not tell the entire story. One good reason is that the discussion has relied solely on text. I have described in detail how Berg concretizes his claims in relation to both STS and medical informatics, but, of course, we still don't know what he and his colleagues *actually do* to reshape the Dutch medical sector. This objection, however, is not crucial to the present argument. First, this essay aims precisely to understand the politics of concretization as a textual manifestation; thus it is particularly concerned with exploring how, why, and with what consequences research activities are described and accounted for to different audiences. But the second and more interesting reason has to do with Berg's own changing strategies of concretization.

Two such changes are particularly noteworthy. First, there has been a precipitous decline in the amount of papers directed as STS/SLS audiences over the last several years. However, second, we can witness a corresponding increase in papers aimed at medical communities, through publication in journals such as the *Journal of the American Medical Association* and *International Journal for Quality in Health Care*. Along with this switch in the key audience, a further rhetorical transformation can be observed.

The previous section showed how equivocal phrasing emerged at key points in order to make STS insights palatable to a medical informatics audience. And, indeed, after encountering the arguments made in "Orders and Their Others," we would have been surprised if the language of, for example, "success measures" had been adopted without question. As will be recalled, the elegant point of this article was that each order comes packaged with its own parasitical disorder. Empirically, Berg and Timmermans therefore noted that although they preferred the universality defined by medical protocols to that proposed by statistical logistics, they were "nevertheless critical about its often naïve self-portrayal as 'transparent' carriers of 'scientifically optimal' knowledge, and about its equally naïve, built-in-dogmatism on 'the single best answer' to a complex medical situation."⁴⁷ They were critical of this rhetoric just because it universalized without recognizing that it produced its own sustaining disorders and others in that same process. Universalization might be alright, in other words, but more analytical care ought to be taken to account

47. Berg and Timmermans, "Order and Their Others" (above, n. 4), p. 17.

for by-products of the universal and their role in its constitution and maintenance.

Along with the change of audience noted above, however, it appears that this requirement has fallen by the wayside, perhaps because the complexity it inevitably articulates does not lend itself well to useful interventions, as these are perceived in health policy and informatics communities. Thus, in a 2005 discussion of the U.S. *Institute of Medicine's* reports on the "quality chasm" in health care, Berg and colleagues made suggestions on how to bridge this chasm. Readers were assured that this proposed plan is "realistic, in that it builds upon elements that are broadly accepted and proven—both theoretically and practically."⁴⁸ These consensual and proven models include the joining "of state-of-the-art insights from different fields in one,"⁴⁹ making use of an integrated "'flight control model': no take-off before all subsequent steps, including landing slot and arrival gate, are planned."⁵⁰ The health care analogy of flight control is the "well-designed care program" based on guidelines.⁵¹ "From these guidelines, finally, the relevant outcomes for monitoring and steering can be deduced."⁵² Theoretical and practical realism, based on the most advanced technology and standardization, here enable the deduction of relevant outcomes. The "naïve self-portrayals" castigated by Berg and Timmermans in 2000 has turned into actual promises only five years later.

Likewise, by 2005, Berg had become fully enmeshed in the reorganization of Dutch health care, including the development of standardized care paths and performance indicators.⁵³ In such participation, no doubt, we see the STS analyst involved at a level of practical engagement unparalleled by Leigh Star, Bruno Latour, or Donna Haraway. Indeed, substantive positions are now taken with apparent ease. Yet, what is striking in this movement is that the con-

48. Marc Berg, W. Schellekens, and Cé Bergen, "Bridging the Quality Chasm: Integrating Professional and Organizational Approaches to Quality," *International Journal for Quality in Health Care* 17:1 (2005): 75.

49. *Ibid.*, p. 76.

50. *Ibid.*, p. 79.

51. *Ibid.*, p. 80.

52. *Ibid.*

53. Marc Berg et al., "Feasibility First: Developing Public Performance Indicators on Public Safety and Clinical Effectiveness for Dutch Hospitals," paper presented at the "Does STS Mean Business?" workshop, Säid Business School, University of Oxford, June 30, 2004.

crete positions that are taken seem to have less and less to do with STS and are harder and harder to distinguish from mainstream health care consultancy.

While no one should be denied the right to do consultancy, this raises the question of whether it is a particularly promising way of concretizing the capacities of STS as originally suggested by Berg. Unsurprisingly, the final sections of this essay answer this in the negative. It then embarks on a short tour of nonhumanist ideas in order to consider whether other, more expansive ways of thinking about the capacities of STS and SLS might be available.

Prescriptive and Participatory Problems

It is worth noting that the idea of better theory enabling better practice is not a particularly new one nor necessarily a particularly liberating one—nor necessarily, for that matter, a particularly sophisticated one. Indeed, history can provide many examples of benevolent scholars aiming to improve society in multiple ways and with quite variable results.⁵⁴ I propose that while arguments and articulations in constructivist and cultural studies in science and technology can and should take many different forms, they should not rely on a claim to *especial* prescriptive value.⁵⁵

In the conclusion to their award-winning book *The Gold Standard*, Berg and Timmermans argue strongly for a positive engagement with what they call the “quality improvement” movement in health care. They suggest that “entering into debate with the subjects of this study, so to speak, is what is now most relevant.”⁵⁶ Sociology, they claim, is rendered helpless and “deadly stale” by its repetitive critiques of rationalization, McDonaldization, and so forth: “Failing to redraw our own politics of standardization would not only render us blind to all the transformations that are occurring in front of us. It would also render us powerless in its further development.”⁵⁷

It is certainly true that one cannot work in constructivist STS with an old-fashioned conceptual separation between theory and practice. As we have seen, Berg and Timmermans interpret this predica-

54. For an egregious example, see Stephen Jay Gould, *The Mismeasure of Man* (New York: W. W. Norton, 1996).

55. For discussion of some of these potential forms, see Jensen, “A Non-Humanist Disposition” (above, n. 7).

56. Timmermans and Berg, *The Gold Standard* (above, n. 46), p. 215.

57. *Ibid.*, p. 216.

ment as implying that a theory would in some sense be legitimated by its practical efficiency. However, both engagement and practicality can mean many things. Wendy Brown, for example, following Foucault, suggests distinguishing between studying *for* and *in terms of* a contemporary situation.⁵⁸ The difference indicates whether “intellectual life will be submitted to existing political discourses and the formulation of immediate political needs those discourses articulate, or will be allowed the air of independence that it must have in order to be of value *as* intellectual work for political life.”⁵⁹

Her formulation connects with the view here embraced, which emphasizes that theory is always a form of practice, always a form of intervention, and, therefore, is always political. Since this is always the case, one needs to do *nothing special* to be normative in doing research. Of course, this does not specify just *how* practical, political, or any other consequences of research will play out, which can surely happen in multiple ways in relation to which one is not totally helpless, but of which one is certainly also not in full control. It suggests, however, that an issue, which is perhaps as pressing as learning how to engage with practices on their own terms, is to retain breathing space for “non-practical” inquiry by “sever[ing] critique from prescription.”⁶⁰ Contrary to what is implied by Berg and Timmermans’s characterization of much social research as “deadly stale,” this is not an argument for a return to a dark and solitary ivory tower, neither does it signal a withdrawal from participation in a vibrant field. As Brown points out,

to argue for a separation between intellectual and political life is not to detach the two. The point instead is to cultivate among political intellectuals an appreciation of the productive, even agonistic, interlocution made possible between intellectual life and political life when they maintain a dynamic distance and tension. By itself a political act at a time when universities are increasingly underwritten by “interested” corporate, private, and state funds, such cultivation is also quite possibly a route to freeing political life from its

58. Wendy Brown, *Politics Out of History* (Princeton, N.J.: Princeton University Press, 2001), pp. 42–43.

59. *Ibid.*, p. 43.

60. *Ibid.*, p. 118. As Brown elaborates: “We do no favor, I think, to politics or intellectual life by eliminating a productive tension—the way in which politics and theory effectively interrupt each other—in order to consolidate certain political claims as the premise of a program of intellectual inquiry. Indeed, we usurp the increasingly scarce space allocated today to thinking” (*ibid.*, p. 41).

current moralizing despair and intellectual life from its grip of bad conscience.⁶¹

It is, of course, always *possible* to try to spell out the specific implications of one's own work, but this is also always a volatile gesture, as this interpretation is necessarily put into the hands of later users. As we know, these users have a tendency to confound expectations and turn putatively radical ideas to conservative ends, or make creative use of a dangerous legacy (as in Haraway's cyborg figure).

I would suggest, in addition, that the claim to be able to deliver especially useful guidelines, while it can manifestly be used to significant rhetorical effect, carries a significant risk of backfiring in the long run.⁶² For insofar as the grand promises fail to materialize, as they may well do, this is likely to be viewed by those who believed in these promises as demonstrating that ANT or STS is incapable of improving health care, in much *the same way* as other management methods (business process reengineering, new public management, total quality management) have been incapable of doing so. This would furthermore be a realistic evaluation, according to this analysis, but that does not signal the uselessness of these studies; instead, it suggests that they have a different task than delivering those goods.

If one takes seriously these propositions, it becomes an unviable strategy for constructivist STS to claim a *special* capacity for guiding other practices. Furthermore, in my estimation, the withholding of implications may well be more conducive to the experimental processes of mutual learning and transformation that Berg recommends than offering "position taking, policy formulation, or blueprints for action."⁶³ Indeed, deliberate ambivalence or nonexplicitness regarding consequences might better facilitate a creative process of transformation than taking a strong position, because it requires people to get involved as actors, joining in a search for solutions to their problems. To repeat: the point is obviously not that one should shy away from practice (as if one could); it is rather that STS attentiveness to the contingencies and transformations of practice could lead to a rather different stance with respect to one's capacity to solve

61. *Ibid.*, pp. 43–44.

62. The analysis of strategic essentialism in Barbara Herrnstein Smith, *Belief and Resistance: Dynamics of Contemporary Intellectual Controversy* (Cambridge, Mass.: Harvard University Press, 1997), has inspired these considerations.

63. *Ibid.*, p. 43.

problems—one not less interested or engaged, but perhaps with a more well-developed and nuanced sense of its own capacities and limitations. I develop this theme below, in the final sections.

Constructivist Extremity and Established Sentiments

The problem field can be delineated by juxtaposing two arguments, one made by literary theorist and intellectual historian Barbara Herrnstein Smith on the one hand, and the other by philosopher of science Isabelle Stengers. The former is from Smith's article "Cutting-Edge Equivocation: Conceptual Moves and Rhetorical Strategies in Contemporary Anti-Epistemology,"⁶⁴ wherein she surveys a number of putatively radical contemporary arguments on the current academic scene and suggests that

[w]e can derive some sense of the way intellectual life is experienced in an era from the recurrence of certain metaphors to describe its conduct—for example, the frequency with which, in our own time, intellectual projects and achievements are described in terms of navigational finesse: the charting of passages between extremes, the steering of middle courses, the avoidance of the twin perils of Scylla and Charybdis.⁶⁵

As Smith shows, the capacity for moderation is often praised by commentators precisely because of its "extremity avoidance." In our case, we have seen how Berg used equivocation about the viability of using clear-cut success measures as an extremity-avoiding strategy, so as to be taken seriously by medical informaticians. Yet Smith is far from convinced by the strategy, because, as she argues, such "navigational feats risk becoming not so much a steering-between as a steering-in-two-directions-at-the-same-time."⁶⁶ It is such self-induced ambiguity with regards to where one is steering that she terms "cutting-edge equivocation," defining her stance as a defense of extremity:

Conversely, what gives many of the "extreme" proposals their conceptual power is, among other things, precisely their *extremity*—that is, the unhedged explicitness of their questioning or rejection of various traditional ideas, and the consistency of the alternative ideas they develop. Contrary to what the

64. Barbara Herrnstein Smith, "Cutting-Edge Equivocation: Conceptual Moves and Rhetorical Strategies in Contemporary Anti-Epistemology," *South Atlantic Quarterly* 101:1 (2002): 187–212.

65. *Ibid.*, p. 187.

66. *Ibid.*

term *extreme* may suggest, these intellectual virtues are the product not of uncontrolled excess or exhibitionist derring-do but, rather, of an effort at clear and precise formulation and a rigorous working-through of theoretical and practical implications.⁶⁷

From the point of view of the agenda proposed by Berg, the problem with this approach is also clear, as its emphasis on conceptual stringency virtually guarantees that it will be perceived as useless by his audience. It is precisely to deal with this kind of dilemma that Stengers retrieves what she calls the “Leibnizian constraint” in *The Invention of Modern Science*. According to this constraint, “philosophy should not have as its ideal the ‘reversal of established sentiments.’”⁶⁸ As Stengers remarks, “few philosophical statements have been as badly viewed as this one.”⁶⁹ But yet, she continues,

it is easy to “speak the truth” against established sentiments, and then to be proud of the effects of hatred, resentment, and panicked rigidity one has aroused as so many proofs that one has “reached the beast”—even at the price of persecution, since the martyr and the truth are good bedfellows.⁷⁰

How to read these two formulations together? Perhaps they could be easily taken to suggest opposite strategies for dealing with issues in science and technology; where Smith would represent the raving iconoclast, Stengers would be the figure of moderation.⁷¹ Perhaps she would agree with Berg that we must learn to speak to the established sentiments of the communities of medical informatics and policy. This is a doubtful interpretation though, for no one is less (traditionally) critical than Barbara Herrnstein Smith, and few contemporary intellectuals are, in certain respects, quite as radical as Isabelle Stengers. What is at stake is not the ultimate right of scholars to

67. *Ibid.*, pp. 191–192.

68. Isabelle Stengers, *The Invention of Modern Science* (Minneapolis: University of Minnesota Press, 2000), p. 15.

69. *Ibid.*

70. *Ibid.*

71. For some, her figure seems distinctly too moderate, not to say conservative. Thus Rosi Braidotti refers to Stengers regressive “post-poststructuralism” in Braidotti, *Nomadic Subjects: Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York: Columbia University Press, 1994), p. 23. Stengers is likened to a modern Auguste Comte in Nina Lykke, “Between Monsters, Goddesses, and Cyborgs: Feminist Confrontations with Science,” in *Between Monsters, Goddesses, and Cyborgs: Feminist Confrontations with Science, Medicine, and Cyberspace*, eds. Nina Lykke and Rosi Braidotti (London: Zed Books, 1996), pp. 13–30.

make extreme theoretical propositions, but rather the question of how to establish a role in society for conceptual exploration and inquiry.

Below, I use their formulations as productive contrasts with which to think differently about relevance and use in STS and SLS. Rather than offering a choice between models, I explore the *topos* opened up by these arguments with respect to the theoretical, practical, and therefore political and normative capacities they may engender.

Some of these become more visible if we follow the “intellectual vectors” of these scholars. Smith is involved in elucidating potentialities, in many different fields, of constructivist thought. Her worry is that the crucial differences and important consequences established by these new styles of thought are flattened in the name of old theoretical distinctions and/or are tied to immediate political demands. Stengers, on the other hand, is particularly interested in thinking about the possible development of an “ecology of practices” that would not be homogenized by power, which she identifies with the figures of the Politician, the Policeman, the Scientist, and the Critic. This is the connection in which she argues that “nothing is easier for a modern person than to be tolerant.” She identifies the ease of tolerance with freedom of a particular kind, as instantiated in the figures listed above; it is the freedom brought about by a power by means of position, which ensures that one is rarely or never required to engage with other practices on their premises. In this way, a generalized state of easy tolerance articulates a negative phenomenon; it indicates that too many practices manage too well to ignore and stay indifferent to one another, each filling out its own limited niche in a fragmented ecology. In the present case, it appears that STS is allowed to enter into contact with medical informatics and health policy only by hiding its constructivism, being thus “tolerated” by neutralization.

As Stengers argues, tolerance quickly turns antagonistic when differences become serious enough to threaten key understandings of the involved parties. Encounters whose results are not predetermined by position may force practices and actors to reconsider who they are, what they are doing, and what their relationships are to other parts of the ecology. Easy tolerance is thus a symptom of stasis and fragmentation, whereas encounters entailing genuine risk, while “intolerable,” may *therefore* enable the construction of creative links among practices (think about Haraway’s readers, “forced, kicking and screaming to notice” . . .).

In Stengers’s ideal, practices would not exist in separated alcoves, but would be in significant exchange with one another. In contrast,

the shared trait of the types identified above is their inability or unwillingness to participate in such exchange. Because these figures are capable only of tolerating other practices, they cannot respect them as partners or foes in engagements involving transformation. All this suggests that they participate in a logic of power:

power, when it grows a capital letter, transforms the rhizome into a tree: each branch is “explained” by its relation to another branch, one closer to the trunk, and indeed to the roots, that is, to the site—occupied by a “logic” if not by actors—from which all the rest can be denounced as puppets, acted on beyond their intentions and plans.⁷²

The organization of the sciences into a hierarchy according to the depth of their explanatory power has been under heavy fire, not least from Bruno Latour, who has likened epistemology to a “professional hazard . . . much like a bad back.”⁷³ Stengers points out, however, that “it is difficult to put . . . the ‘error of the epistemologists,’ rather than power, in the role of the thing responsible for everything that does not go well.”⁷⁴ “Error,” she continues, “does not have to be denounced any more than power. It explains nothing, except insofar as it is a product of the network, characteristic of the *style* of the network that belongs to our epoch, and of the political problem it poses.”⁷⁵

The formulation is a significant addition to the argument presented so far, which has revolved primarily around possible “epistemologist’s errors” concerning the translations of constructivist knowledge into new settings. But, Stengers adds, such issues are never separated from questions of power and the style of the relevant networks. We can see Berg’s efforts to concretize the capacities of his research to medical informaticians—moving from suggestive though vague declarations about the open-endedness of practice, to deducing outcomes from “well-designed care programs”—as a way of struggling with this problem.

Stengers’s power operates here in the way that Berg, in order to be welcomed into the field of health policy, was seemingly obliged to forget his constructivism. Power, meanwhile, is also visible in the

72. *Ibid.*, p. 124.

73. Bruno Latour, “Trains of Thought: Piaget, Formalism, and the Fifth Dimension,” *Common Knowledge* 3:6 (1996): 170–191.

74. Stengers, *The Invention of Modern Science* (above, n. 68), p. 124.

75. *Ibid.*

way that Berg promotes his normative approach to colleagues in STS and SLS, with little appreciation of other agendas, interests, or options. But there must be something more constructive to say than this. In the final section, I take one more look at the arguments discussed above and also indicate how it pays to revisit Berg's original arguments in order to draw some rather different conclusions.

Not to Hinder Becoming

What lies between Smith's call for conceptual clarity extremity and Stengers's aim to not alienate established sentiments so as to have a chance to transform them? According to Stengers,

the problem designated by the Leibnizian constraint ties together truth and becoming, and assigns to the statement of what one believes to be true the responsibility not to hinder becoming: not to collide with established sentiments, so as to try to open them to what their established identity led them to refuse, combat, misunderstand.⁷⁶

Specifically, this responsibility involves letting go of what Deleuze called "the indignity of speaking for others"⁷⁷ by claiming to know what is best for such others in political, moral, economic, or technical terms. Escaping this indignity does not return one to a state of nerveless tolerance in which each and all viewpoints must be equally respected. Attempting to understand what it entails to "not hinder becoming," we can instead turn to Deleuze's suggestion that thinking must always proceed "in front of" its object:

to think (or create) is to think "in front of" or "for" "analphabets or dying rats of alcoholics." This does not mean addressing them, or helping them, or sharing hope or faith with them, but, rather, not insulting them with our power to justify everything. Thinking with them "in front of" us means thinking with the feeling and constraint that we are not free to speak in their name or even side with them.⁷⁸

76. *Ibid.*, p. 15.

77. Gilles Deleuze, *Desert Islands and Other Texts, 1953–1974* (New York: Semiotext(e), 2004), p. 208.

78. Isabelle Stengers, "Beyond Conversation: The Risks of Peace," in *Process and Difference: Between Cosmological and Poststructuralist Postmodernisms*, eds. Catherine Keller and Anne Daniell (Albany: State University of New York Press, 2002), p. 238.

79. From Helen Watson-Verran, "Renegotiating What's Natural" (paper presented at the Meeting of the Society for Social Studies of Science, New Orleans, October 12–15, 2004), cited in Haraway, *Modest_Witness* (above, n. 30), p. 113.

According to this proposition, a key demand would be restraint and humility in the face of encountered differences. Here, it might appear that we are back to a version of the designers criticized by Berg in "The Politics of Technology," whose very respect for existing practices led them toward designs that left those practices unchanged. But if becoming is what must be facilitated, clearly the point cannot be to tolerate entities or states of affairs as they are. The issue raised, however, concerns the disposition that is brought to the task of transformation. Is it a disposition to "think in front of" other actors and practices, with the sobriety this entails? Or, alternatively, is it a disposition infused by a power that claims the capacity and right to change those practices "for their own good," by recourse to justifications taken from the repertoires of the Politician, Policeman, Scientist, and Critic? While the later writings of Berg suggest the latter mode, resources are found in earlier work for developing the former approach.

In "The Politics of Technology," Berg encouraged readers to consider human–technology interrelations as active and emergent both in theory and practice. The theoretical basis for this suggestion was found in the work of authors such as Latour, Serres, and Haraway. But theory inevitably must be given shape by practice, because only by following concrete assemblages of humans and machines would it be possible to develop a new viewpoint on the specific manner in which they might be transformed. Read in this way, Berg's analysis ties up neatly with Smith's emphasis on the need for developing new agendas of thought and action, based both on thorough and careful thinking and on empirical study. It also connects with Stengers's requirement to first of all ensure that our activities do not hinder "becoming." Due to this demand, it should also be recognized, as Berg and Timmermans argued, that any universalizing scheme carries the seeds, from which its own disorder grows. But then the argument might be made that these disorders, appearing from within the universalizing logic, should be attended to with special care as potential vectors of becoming, pointing elsewhere. The point would thus not be to revert to a classical "underdog" analysis, heroicizing the marginalized others; rather, it would be to notice the *other within* obliging the researcher to enter into an experimental apprenticeship with the orders and its others *simultaneously*, rather than simply erasing the latter when convenient.

Turning our gaze toward our own disciplines, it is, of course, precisely the requirement to "justify everything" that led to the issue with which this essay started out: how to respond to the increasing pressure for social science and the humanities to legitimate their activities? Following the analyses above, I would now suggest that

this question must be resisted—not overall, but in its specific form. What should be resisted, then, is not the notion that social science and the humanities are, can be, or should be relevant; rather, it is the narrow conception of what counts as “useful,” with its inherent tendency to hinder becoming by focusing only on the ordering aspects of universalization.

When scholars increasingly worry about their lack of relevance, they accept a picture in which their academic activities alone seem located outside society (and inside “the ivory tower”). Yet, neither outside nor inside seems an adequate term for the space that contemporary researchers occupy. Discursively, the “inside” that founds its claim to existence largely on a notion of basic research certainly seems to be shrinking. Rather than attempting to inhabit that space, researchers would do far better to take seriously that they are not *in there* in a safe haven of knowledge, cut off from all the exigencies of so-called real life. Instead, obviously, research is a particular way—or, in fact, multiple ways—of participating in society.

Meanwhile, the “outside”—the supposed “real life”—seems to be in a phase of continual discursive expansion. However, since nonhumanist STS knows very well that the inside is never separated from this outside, there is no need to embrace this construction and rush out where “reality” claims to be. But if this is the case, a new *topos* emerges, one in which social and cultural analyses of science and technology might have as their tasks not to hinder becoming by learning to think in front of what they study. This is a difficult task, bound to require conceptual and empirical creativity and effort. At best, however, it would enable such disciplines to become relevant by formulating ongoing challenges—theoretically, technically, politically, and practically—to established sentiments, without simply alienating them by external critique. Posing such challenges may well be important not only to intellectual communities, but also to all the organizations, institutions, and disciplines that tend to “suffer from an advanced case of hardening of the categories”;⁷⁹ for example, in health care systems envisioning smooth technical or scientific solutions to a multitude of social, cultural, organizational, and political problems. Without being able to *promise* solutions, since we are not expecting salvation, this would be quite an accomplishment.

Acknowledgment

An earlier version of this essay was presented at the STS seminar in the History of Consciousness Program, University of Santa Cruz, California, in May 2005. I would like to thank the participants for their suggestions.