Postscript to the Special Issue: Governing Life by Standards : A View from Engagements

Laurent Thévenot

Social Studies of Science 2009 39: 793
DOI: 10.1177/0306312709338767

S|S|S

POSTSCRIPT TO THE SPECIAL ISSUE

ABSTRACT Standardization has been extended far beyond the industrial world. It participates in governing our lives and the lives of all living entities by producing public guarantees in the form of standards. Social studies of medicine have provided a precious contribution to advancing standardization as a topic of inquiry, most notably through investigations of the relationship between 'regulation' and 'objectivity', drawn together in the concept of the standard. This postscript discusses this contribution from the point of view of 'regimes of engagement', that is, a variety of ways in which humans are committed to their environment – from public stances to the closest forms of proximity – and in pursuit of a kind of 'good'. These regimes are distinguished according to the good they promise, as well as the degree to which the guarantee being offered can be held in common. The discussion in this postscript extends the critique raised by scholarship on standards by taking into account the oppression and subjugation that standardization can engender.

Keywords conventions, engagement, standards, worth

Governing Life by Standards:

A View from Engagements

Laurent Thévenot

How do standards govern lives? Above and beyond the industrial quest for compatibility, this question is raised by the deployment of standards throughout our lives and the lives of all living entities. Social studies of medicine have provided a precious contribution to advancing standardization as a topic of inquiry, most notably through investigations of how standards draw together the relationship between 'regulation' and 'objectivity'. This postscript to this special issue on Regulatory Objectivity examines this link in light of a research programme within the French '*Sociologie pragmatique*', which has accorded much attention to standards (Thévenot, 1997), and more generally, to the relationship between coordination, information and evaluation (Dodier, 1993; Boltanski & Thévenot, 2006 [1991]; Breviglieri et al., 2009). The first section of the paper examines the relationship between coordinating and informing; the second emphasizes the implications of evaluating; and the third suggests that we should widen

Social Studies of Science **39/5 (October 2009) 793–813**

ISSN 0306-3127 DOI: 10.1177/0306312709338767

what political economy means by extending the paper's argument on how standards govern life in the world.

Investing in Conventional Forms of Coordination: Standards as the Joining of Conformity and Information

Conforming and informing both require and are preceded by acts of giving form. This is why an 'investment in form', which might rely on different 'formats of information' (Thévenot, 1984, 2007a), is the keystone that joins 'regulation' and 'objectivity'. The returns on such an investment, in terms of coordination, vary according to three dimensions: the *temporal* and *spatial validity* of the form, and the *solidity* of the material equipment involved.

Once an investment has been made, it will have a 'temporal validity': that is, the period of time in which it is operative in a community of users. It will also have a 'spatial validity', which refers to the boundaries demarcating the community within which the form will be valid. This is why participating in the process of form-giving can be a means to prevent a standard from becoming external to one's own concerns, and therefore, potentially exclusionary. In the sociology of professions and organizations, the main explanation for how standards get established involves the struggle between professional groups and their quest for spatial extension. Patrick Castel's (2009) paper in this issue exposes the struggle over standard-setting between cancer centres organized around a disease category and the medical societies centred around an organ or bodily system, such as urology. Castel shows that the development of guidelines concerning the range of treatments for cancer is a result of the professional initiatives by oncologists. Cancer centres have attempted to reinstate their position and to enlarge their 'jurisdiction' (in Andrew Abbott's [1988] sense) at the expense of the public teaching hospitals, which challenged their raison d'etre. In so doing, cancer centres integrate into the guidelines the forms of multidisciplinary organization of cancer care in which they are invested. They widen the spatial extension of their forms.

The *solidity* of an invested form varies with the weight of its material equipment. Although the degree of objectivity of a form is the result of three dimensions (temporal and spatial validity, solidity), objectivity is frequently confused with solidity. For example, cancer guidelines called 'Standards, Options and Recommendations' (SOR) are ranked according to their varying 'degrees of evidence', a classification that relies on differences in the solidity of the invested forms. The highest degree is evidence based on randomized clinical trials, which rests upon the solidity of statistical equipment. In contrast, 'expert consensus' does not involve the same solidity: it is evidence that is valid for communities of specialists and is based upon their embodied formatting of information, but it does not rest as strongly on equipment. It is therefore ranked as the fifth degree of evidence in SOR.

Investing in forms is a costly endeavour. Time-consuming negotiations take place within a variety of committees and working groups in an attempt to reach agreement about the selected properties, benchmarks, procedures

and tests that will define a standard. The heavy costs of such activities can and do prevent the most competent experts from participating in standardization work. As Linda Hogle reports in her paper in this issue on the standardization of human tissue products, one participant noted that: 'the academicians who are available to get involved are not the people best qualified to do it' (Hogle, 2009: 727). The cost of standards-setting can give rise to the selling of standards as market goods. Hogle further reports that the American Society for Testing Materials obtains 75% of its funding through the sale of standards that are not published openly, and which even the Food and Drug Administration employees must purchase (Hogle, 2009: 730).

For many participants, this set of costs is balanced out by lowering another set of costs: the infrastructure costs, which are largely supported by their organizations when they have to adapt to new standards. Through their participation in standard-setting committees, participants strive to have earlier investments salvaged and reincorporated into the new ones, which are never created from scratch, but instead are founded upon the transformation of former investments by extending their spatiality and temporality, as well as their solidity. Just as Hogle (2009: 729) has observed the re-use of 'older forms of evaluation from other (non medical) industrial sources', Teun Zuiderent-Jerak (2009) has also pointed to the 'historical depth' of 'investment in forms' in the success or failure of healthcare market reconfiguration. Both authors have underlined the dependency of recent investments on previous ones. History is thus the result of such inter-linked investments.

The Two Faces of the Conventional: Closed or Open Eyes

The notion of investment bears implications that seem to be in contradiction with historical dependency. The necessary break with the past of the new invested form is established by sacrificing other possible forms of equivalency. Yet, once invested in and immobilized, a form cannot conserve the traces of its own past if it is to operate effectively as the new principle of equivalence. Should they appear, such traces would insinuate doubt. Any recollection of the processes through which the convention was established would most certainly reopen anxieties about its initial arbitrariness.

It is here that we touch upon a structural tension that weighs down conventions of all sorts. The tension manifests itself in contradictory positions most often generated from within the social sciences themselves, where the analysis should instead be capable of taking into consideration what I have called the two faces of convention. On the one hand, once established and invested in, a conventional form is bolstered by a blind confidence that favours coordination. It is here that we meet the first understanding of the 'conventional' as what is agreed upon, accepted, established – in short, the 'quietude' of conforming to conventions. A necessary sightlessness demands that we close our eyes to other forms of possible coordination that are sacrificed in the establishment of the form. On the other hand, the moment our eyes are opened, the second face of convention appears, accompanied by

doubt and suspicion. We meet, then, a second understanding of the conventional that exposes its conformist, formulaic and inauthentic arbitrariness. This is the 'inquietude' that comes with following conventions. The present analysis is an attempt to conjoin these two faces.

Alberto Cambrosio, Peter Keating, Thomas Schlich and George Weisz (2006) highlight the role of conventions in guiding the practices and constituting the judgments made by biomedical collectives. There are some interesting convergences between their model of 'regulatory objectivity' and my analysis of investments in forms. To begin with, the very notion of a collective points to the possibility of *coordination* and to the communities in which this possibility is accepted. Then, the notions of 'evidence-making' and of 'qualified entities' point to the existence of probative *information*. Nonetheless, the discussion of regulatory objectivity is intended to characterize a new and specific regime of production and regulation of knowledge and practices in biomedicine. I shall make three comments about this specificity, playing upon the idea of having closed or open eyes.

First, the production of scientific entities and of normative guidelines for the regulation of practices is brought together in delimited collectives, or equipped communities, which Keating and Cambrosio have called 'biomedical platforms' (2003). As a consequence of such delimitation, activities of informing and conforming are more strongly interconnected than usual. Although informing and conforming are always articulated through investments in form, a different accentuation is put on each in scientific production or in the production of guidelines. In the case of biomedicine, the qualification of new scientific entities (informing) is closely linked to the production of standards that are relevant for guiding practice (conforming).[1] In their paper on the biomolecular and epidemiological characterization of pre-clinical dementia ('mild cognitive impairment' [MCI]), Tiago Moreira, Carl May and John Bond (2009: 666) demonstrate that 'the establishment of conventional standards and systems of regulation are viewed as endogenous requirements for ongoing knowledge production, innovation and clinical work rather than forms of external control'. They also show that conformation work based on official regulatory authorities such as the Food and Drug Association (FDA), interferes with efforts to conform to guidelines for therapeutic strategies, based on qualified clinical entities. Comparing clinical practices in cancer genetics and psychiatry genetics, Vololona Rabeharisoa and Pascale Bourret, for their part, highlight 'temporary agreements' on the 'clinical relevance' of mutations, with regard to 'possible interventions' within a 'clinic of mutations'. They demonstrate that regulatory work is not limited to biomedical platforms but continues in the clinical setting where things must be done with mutations (Rabeharisoa & Bourret, 2009). Both papers confirm the features of regulatory objectivity, but not necessarily its strict delimitation within 'biomedical platforms'.

Second, 'regulatory objectivity' seems to challenge the closure of the investment or of the conventions that operate to support coordination. MCI is a convention that sustains bioclinical standards in that it classifies a transitional stage between normal cognitive ageing and dementia. The

convention that allows researchers to conduct an 'MCI trial' and to test drugs replaces the Alzheimer's disease convention. Moreira, May and Bond show that clinical and research actors have jointly invested in this form, in collaboration with regulatory institutions and pharmaceutical companies. And yet, actors also continue to raise doubts about the 'conventionality' of MCI. The paper suggests that participants in the FDA meeting were acting as 'practical historians' (Garfinkel, 1968: 158; in Lynch & Bogen, 1996: 62). Indeed, they explored the historicity of the convention, 'unearthing the contingent relations and processes that sustained the emergence of past conventions' (Moreira et al., 2009: 683). I would prefer the term 'critical historians' to describe how the actors rejoined STS researchers in the critical activity of raising doubts about the first face of conventions.

Moments of doubt are internal to the standardization process as it copes with the temporal rupture of innovation. More generally, opening one's eyes is necessary in the standards-setting phase, as well as in the revision or contestation phases. Conventions are structurally two-faced, but one of the merits of biomedical research is to draw researchers into making this tension more explicit. In the 'regulatory objectivity' model, and even more acutely in the particular case of MCI, the two moments of shut and open eyes are remarkably close. As a result, I shall speak of a kind of 'blinking' or 'eyes wide shut'. Blinking in this sense is not done in response to a stimulus, because of surprise or out of disapproval. Nor does an attentiveness to intermittent sight suggest that the process of standardization is in any way 'on the blink', as the expression goes. Instead, blinking allows us to look at the two moments conjointly.

Third, the 'regulatory objectivity' model suggests that uncertainty glues the collective together. Moreira, May and Bond go even further in showing that 'the collective production of uncertainty' is central to the 'knowledge machinery of regulatory objectivity'. I would suggest that it is necessary to channel uncertainty through conventional forms if the cohesiveness of communities is to be maintained (Thévenot, 2002a). This statement implies that the term 'uncertainty' might not be an entirely adequate descriptor, but should be further qualified, as we shall see in the next part of this postscript. Before proceeding, I will just add one further remark on this point, issuing from the two faces of convention: opening up doubt creates a strong complicity among participants as they come to share awareness of arbitrariness that, in another moment of confident adhesion, should be forgotten. This bond resembles the one that binds secret societies. It seems to me that when moments of opening are closely followed by closure, this batting of the eyelids does more to solder members of a group together than uncertainty alone.

Standardization and Evaluation: The Plurality of Possible Engagements with the Environment

The analytic figure of the network tends to underestimate the evaluative heterogeneity of relationships to the environment that standardization must

cope with. In the political and moral sociology that I have developed in collaboration with Luc Boltanski, we identified a plurality of orders of worth that rely on characterizations of a common good (Boltanski & Thévenot, 2006 [1991]). When they are used for critique and justification in public arenas, these orders face a 'reality test' involving the material environment. In addition to this first dimension of plurality, I felt it necessary to add a second dimension of plurality that I would qualify as 'vertical'. This dimension differentiates between a number of ways that people can be engaged with the world, from the most public forms of engagement to an engagement with what is close and familiar (Thévenot, 2002b, 2006a, 2007b). Evaluative forms from both of these dimensions have to be integrated into a standard for it to work.

A Plurality of Forms of the Probable and Qualifications of Worth

Different investments in forms generate different 'forms of the probable' depending on what is considered probative or provable (Thévenot, 2002b). For example, the statistical form of the probable usually serves to downplay 'monographic' information, because the latter is supposed to concern a single specialized case as opposed to a statistically generalized statement.[2] However, monographs are less 'mono' (singular case studies) than they are 'graphs' (generalizations of some sort). They fit another form of the probable, which contrasts with the statistical one. In this alternative form, a relative likeness to typical exempla sustains the form of the probable. The tension between statistical and clinical evidence parallels the differences between these two forms of the probable.

Ranking 'degrees of evidence' as cancer guidelines do, classifies a 'series of cases only' as a fourth degree of evidence. This is a statement that case-based evidence is far less general than the statistical evidence (Castel, 2009). The critical vigour that emerges from the encounter between these two forms of the probable is accentuated by their association with forms of evaluation that rest upon two different specifications of a common good. The form of the probable based on statistical series is linked to the common good of '*Industrial* worth', that is, technical efficiency; the form based on a collection of cases places value upon the common good of '*Domestic* worth', that is, of reputation by exemplar. Specifications of the good and their concomitant evaluations circumscribe the evidence that qualifies for the reality test.

Such 'orders of worth' are constitutive of the most legitimate ways of making qualifications for the public. Out of their analysis we produced a common model that explains three sources of tension, three critical statements about abusive power (Boltanski & Thévenot, 2006 [1991]). Ranked by increasing degrees of contestation, these tensions are: (1) internal criticisms of unjustified qualification, such as the misplaced exemplariness of a case or instance of conduct in the qualification for *Domestic* worth; (2) reciprocal criticisms from one order of worth to another, one of which is thus disqualified and exposed as abusive interference, such as the 'denunciation' of the inefficiency of varied and personalized clinical practices

based on exemplary cases; (3) external criticisms of the pretension of worth to contribute to the common good, such as the statement that the hierarchy of exemplariness ranked in the order of *Domestic* worth only benefits the higher ranked persons who exercise their unjust power over the others.

As I will briefly demonstrate, all six orders of worth we identified and their critical dynamics are part of the standards-setting processes. Standards rely on entities that qualify as having *Industrial* worth. They sustain a regular future-oriented temporality and a homogeneous detached Cartesian space. By contrast, in *Domestic* worth, evaluation is grounded in traditional trust and personalized authority on the basis of exemplarity. This second order of worth supports a quite different configuration of temporality and spatiality, that is, a customary past-oriented time and a space-oriented by relative proximity. Some of these tensions are expressed in terms of the confrontation between biology and the clinical in the domain of biomedicine. But these structural tensions with regard to qualifications of worth transverse a number of domains and might, for instance, evolve together, leading to the wholesale disqualification of *Domestic* worth as pure oppressive paternalism.

Market competition is not a neutral mechanism of coordination; it is also the specification of a common good. This explains its critical tensions with other qualifications of worth. The order of *Market* worth is present-oriented and does not itself sustain any future or past. What qualifies as space is that which allows the circulation of marketable entities. By contrast, standards always involve some kind of future stability (*Industrial* worth) and may introduce spatial boundaries. Standards are thus criticized for creating barriers to open competition (*Market* test). Such contrasts in time and space explain the critical tensions encountered in biomedicine between the *Industrial* compatibility qualification, or the *Domestic* clinical qualification, and the *Market* qualification that is promoted by pharmaceutics industries, insurance companies, or any arrangement aiming to transform health services into market products.

In biomedicine, the rate of innovation is regularly emphasized. Although creativity can occur within the dynamics of each order of worth, what is commonly called innovation actually implies yet another order of worth, that of *Inspiration*. Inspired qualification places value on the temporality of a disturbing break as well as on the revelation of the general significance of surprise and strangeness. Inspiration generates highly critical tension with the time orientation of the *Industrial* qualification, which is primarily assumed by standardization.

When they are oriented towards public health and safety, equal access to the most appropriate treatments, or disease advocacy groups, health sector and medicine standards involve the *Civic* order of worth, which places value on a collective interest fostered by collective solidarity. *Civic* worth is equally in the tensions between Federal regulatory officials from the FDA and private standardization (Hogle, 2009). As Hogle reports, 'almost everyone in the field had a conflict of interest, since research was primarily going on in private industry, and most academic labs had ties to industry'

(p. 727). The general interest that is praised in *Civic worth* is not easy to make compatible to the privatization of standards.

Finally, collective concern can take the completely different form through the order of worth relating to *Fame*. Entities qualify for fame in the domain of signs, as standard indicators that acquire public renown.

Hogle argues that standards are a passage point: manufacturers have to use standards to get regulatory approval and clearance for sale, and to acquire the proper status for insurance reimbursement (p. 724). In actual practice, the emergence of such a 'passage' has had to cope with highly conflicting demands for diverse qualifications – *Industrial* in stabilized manufacturing, *Market* in instant clearance for sale or insurance reimbursement, *Civic* for regulatory approval. The vocabulary of passage does not fully capture the tensions between these components, which are in critical relations to one another. As the vocabulary of negotiation, it suggests a kind of flexibility, which does not appropriately capture the hard work that is required to cope with these tensions, the work of creating composite arrangements (*dispositifs*) that can eventually hold.

Coping with Critical Tensions: Standards in the Making of Compromises among the Plurality of Orders of Worth

Nicolas Dodier and Janine Barbot have identified a group they call 'new clinicians' in their analysis of 20 years of public controversy about AIDS treatments in France (Dodier & Barbot, 2008). These new clinicians promote composite work *arrangements* that bring together contrasting components involving different kinds of information and evaluation formats. Trained in evidence-based medicine (EBM) and opposed to a return to clinical tradition, this group participates in 'therapeutic modernity' while criticizing EBM from the inside. They demand shorter trials of pharmaceutical innovations, with the possibility of exercising clinical judgment or 'objectivity in proximity'. The group praises certain forms of collegial medicine that 'maintain the advantages of opinions which are made through proximity with the cases they encounter'.

To what extent do these composite work arrangement, praised by new clinicians, 'compose' the difference between formats of information and evaluation, in the sense of preventing dispute from rapidly flaring up through the confrontation of contrasting claims?[3] We have provided a definition of 'compromising' for the common good (Boltanski & Thévenot, 2006 [1991]: Ch. 9). It is the possibility, bounded in space and time, of making two or more orders of worth compatible and to encompass them, within these limits, in an overarching, unifying qualification.

Teun Zuiderent-Jerak's (2009) research is mainly dedicated to analysing the dynamics of making up and enforcing a kind of compromise that is already implied in the name of his object: 'healthcare market'. Both as a social scientist and as a participant, he is able to examine in detail the course of a recent Dutch programme dedicated to making hospitals, 'Better Faster'. Zuiderent-Jerak pays attention to the plurality of orders of worth that are

involved in the process, in particular the 'other' of *Market* worth, and the tensions between these orders. He observes that 'fortunately, in the case of Dutch healthcare markets, financial calculability did not exclude other values from the "orders of worth"' (p. 787). He explains the possibility of composing the difference between *Market* worth and the quality of care by pointing to the fact that health insurance companies, hospitals directors and doctors, and regulatory bodies 'historically have all been involved in an entangled plurality of values' (p. 787). Sustaining this plurality, the process of compromising combines 'clinical quality improvement with cost-reduction' and 'enhances the chances for reconfiguring "regulated competition" in the direction of a value-driven healthcare market' (p. 788).

Zuiderent-Jerak criticizes a too-exclusive focus on devices and equipment that sustain qualification work for only the *Market* worth. As he argues, such a focus prevents analyses from taking into account the tensions between the plurality of 'forms of the probable' and 'historically shaped "investments in forms" ', which have consequences for what actors face during their present-day attempts to reconfigure practices (p. 785). Zuiderent-Jerak exhibits the limits of concentrating on the enactment of market competition economics' theoretical calculative agent, as proposed by Michel Callon (1999). Although I would certainly agree with Callon about the role of material devices that actor-network theory (ANT) contributed so successfully to putting forward, I would pay close attention to the tensions between the plurality of conventions of qualification that differ from *Market* qualification and relate to other orders of worth. They threaten to break compromises apart.

Zuiderent-Jerak dissects the failure of an intervention launched by STS researchers into the construction of performance indicators for quality of care. The explicit strategy of these researchers was to experimentally reconfigure and introduce calculative devices defining such a quality. In spite of their intention to eschew ranking and to opt for 'a deliberately rough and multi-interpretable map', the initiative failed since, on the basis of their performance indicators, one of the largest Dutch newspapers went on to construct a ranking that is now published on an annual basis and is highly consequential for hospitals. Zuiderent-Jerak writes that 'their efforts were overwhelmed by prevailing performance regimes and the "probable form" of ranking that the quantitative format of the performance indicator affords' (p. 787). I will add that, once the multi-interpretable map is transformed into a simple quantitative measurement, it also qualifies for the worth of *Fame*: it becomes a well-known sign, an indicator.

References to the 'laws of the market' or to 'market regimes' tend to situate *Market* worth in a regrettably superordinate position. As with sociological analysis, political deliberation and critique should eschew such bias in favour of this particular worth, and remain more symmetrical regarding the plurality of forms of worth. However, we have to analyse the specific ways that standardization can contribute to such a superordinate position of *Market* worth. This occurs because of a far-reaching requirement for market competition that is not usually made explicit in economics: the

identity of market goods and services needs to be common knowledge for market competition to operate.[4] Standards play a central role in sustaining the common identification of marketable products and services. In this process, standardization can also take into account non-*Market* worth, although it has a very specific way of reducing non-*Market* worth to measurable properties attributed to the 'quality' of market goods and services (Thévenot, 1997). Thus, the standardization of market products creates an asymmetrical position between *Market* worth and other orders of worth; it hampers critique and political debate about their relative weight and their combination. This leads to an arrangement (*dispositif*) of coordination where the *Market* worth and coordination occupies a higher position in comparison to the other orders of worth that are reduced to mere qualities of marketable objects.

The Architecture of Regimes of Engagement

Up to this point of this postscript, we have concentrated on conventional forms of qualification, which derive from worthiness and are involved in public judgment and coordination. But standards also interfere with levels of coordination with the environment that operate with more restricted scope. As I have observed in a research project on safety standards, the process of standard-setting faces dramatic challenges when it comes to coping with things that are closely related to persons, their bodies, and personal usages (Thévenot, 1994).

Standards equip entities with a rather public kind of guarantee with the properties of objects; they are designed to be held in common. Standards confront a plurality of regimes of active coordination or accommodation with the environment, which also offer the person guarantees of their relationship to the material world, but are not equally ready to be shared in common. I have conceptualized an architecture of three 'regimes of engagement' that captures these differences.[5] One can rely on or gain confidence from a *conventional public landmark*, or from *normal functionality*, or from *familiar usage*. None of the three is stronger than the others, but they differ in their possibility of being extended in common, of being communicated or 'commonized'. The notion of 'engagement' has been chosen to emphasize that confidence in the person's capacity to act is highly dependent on the arrangement of the material environment he or she relies on while grasping it by means of a certain format: publicly and conventionally qualified, functional, familiarized. 'Engagement' also refers to a quest for a good (as in the engagements of marriage or a contract) that makes it possible to select and assess what is relevant to grasp. When prepared in a relevant format, the environment offers a pledge (*gage*) that guarantees the kind of good that orients evaluation in the regime.

At the public level of *justifiable engagement,* the evaluative format is that of a common good that depends on conventional qualification. In the regime of *engagement in a plan*, the good, which depends on the functionally prepared environment, is the satisfaction generated by an accomplished action. It

refers to felicitous exercise of the will by an individual to project him or herself successfully into the future. The regime of *familiar engagement* maintains a personalized, localized good: feeling at ease. The well-being experienced in familiar human and material surroundings is heavily dependent on the path by which a person becomes familiar with a milieu shaped by continued use. This arranged milieu does not allow for grasping publicly qualified objects or even objects integrated by a function. In this regime it only specifies certain clues or access keys, particular points of attachment whose beneficial effects turn them into valuable familiar attachments.

What does standardization do when it offers a kind of guarantee that confronts this architecture of possible engagements with the world?

When Standardization is Confronted with the Ease of Familiar Engagement

In their study of people living with diabetes, Annemarie Mol and John Law observed some of the problems raised by living with 'science-based' standards (Mol & Law, 2004). One internist told them that since clinical trial results have started being published, tight regulation has become too popular an assumption. He reacted to this development by asking 'patients a bit more systematically about their hypoglycaemic incidents, making them keep diaries and stuff' (Mol & Law, 2004: 55). The numbers these patients reported to him were shocking. The internist concluded that 'the less experience doctors have the more they love the "science-based"' (p. 55). Mol and Law also observed that practicalities 'appear in clinical presentations but not in epidemiological overviews' (p. 46). They opposed the epidemiological method of '*accounting* which isolates each so-called variable from all the others and is incapable of articulating links and tensions between them', to 'ethnographic *recounting*' which produces 'stories of lived bodies in which medicine figures as a part of daily life' (p. 58).

Daily life, live bodies, stories, diaries and practicalities are expressions that relate to the format of familiar engagement, one of the three regimes of engagement mentioned above. This regime connects a specific format of realism and information reporting with that of a specific good: feeling at ease. Usage, which implies the personalized accommodation of personal surrounding, is better captured within this framework than by the notions of 'practice' or 'habitus'. Both of these concepts fall short of characterizing the kind of good and form of evaluation that are involved, and make excessive assumptions about collective alignment. The agency associated with familiar engagement is a key component of the personality, supported by a personalized way of inhabiting and using the world closest to the person. It is notable that the experience of familiarity remains far removed from the notion of private ownership and is also not adequately captured by the stark binary opposition between the private and public.

Because of attachments within the personal environment, an engagement with the familiar is implied in the act of caring. Attachment illuminates

a primary component of the notion of care that recently has experienced such considerable expansion that it has all but lost its distinctiveness. Taking care of another person presupposes a concern, not simply, as in any other contractual relationship, with their volition or with their choices in the context of the individual's project, but with what touches and affects this person most directly in their proximate surroundings. That is to say, care is concerned precisely with those attachments that guarantee the ease of familiarity. Medical work as other professionalized forms of care rests on attentiveness to what is familiar to the other, but which is not and does not have to be symmetrical, as such symmetry would draw the relationship into mutual engagement and intimate friendship. The professional must keep a delicate balance between familiar engagement of the other and his or her own engagement with the plan inscribed by the professional task.

The Standardized Functional World that Supports Individual Engagement in Planning and Strategy

Notions of instrumental or rational action are based on the primary assumption of individual intention, preference and choice. In contrast to this assumption, the regime of planned engagement relates the agency of the will to a kind of dependency on a functionally prepared environment: no probable and provable exercise of the will can be engaged without a world formatted as an array of functional options. This regime clarifies the arrangement and engagement needed to guarantee will, project, choice or 'informed consent', a series of notions that have taken on growing significance in the domain of medicine. These notions revolve around the 'self' and 'self-reliance' and are irrelevant to the familiar engagement through which agency becomes entirely dependent on personalized and localized attachments with proximate surroundings.

The notions of interest or strategy, which are so widely used in the social and political sciences, are altogether too dependent on the regime of planned engagement to be taken as overall descriptive categories. Nicolas Dodier (1993) has observed that the notion of the interest-driven or strategic actor assumes that the relevant temporality is future-oriented and supported by long-term planning. I will add that this notion of interest neglects the specific good configured into the plan or project; that is, *the very possibility of its fulfilment (a characteristics of all plans over and above their specific contents)*, as well as its dependency on an environment prepared as an array of functionalities. We can observe the adjustment between standards and an engagement in a plan in the 'strategic' reaction of the manager of a hospital badly rated by the 'misuse' of the above-mentioned performance indicators (Zuiderent-Jerak, 2009). This manager 'strategically focussed on the indicators that counted most for the production of the ranking' and raised his institution in the charts to one of the highest positions. However, Zuiderent-Jerak did not observe this hospital to be substantially improved from the point of view of care.

How Standards Reduce Lives and Living Entities by Attributing Properties to Them

The difficulties encountered when living beings are subjected to standardization are taken up in abundant detail by Hogle (2009), whose paper demonstrates the influence of safety standards on biomedical tissue. I will discuss these difficulties now by reference to the conclusion I have drawn from my own research on safety standards that were intended to reduce the harm that objects can pose to human life. My conclusions are that standardization provides a guarantee by attributing properties to standardized objects, while all the while the very notion of engagement accounts for guarantees that rest on a dependency between agent and environment that goes against any such attribution.

For standardizers seeking to attribute properties to objects, physicochemical qualities are held as an ideal: to measure such qualities, they can count on investments in form that were achieved long ago. In the absence of these, ad hoc testing arrangements, albeit ones rendered conventional, have been designed to simulate normal action plans in which the object will be utilized. Thus, one test consists of spraying the object with salt-water. It leads to assigning a new 'functional property' to the object: 'resistance to sea spray corrosion'. Attribution work becomes particularly problematic when personal usage introduces a familiar engagement with and personal accommodation to the thing, far removed from the functionality of the plan. These usages must nonetheless be taken into account because of hazards that result if the deviant user departs from the normal, that is, functional engagement with the object. Testing equipment does factor in a certain number of accommodations, all the while ignoring the distributed patterns of use. A property is still attributed to the object, defying the multiplicity of familiar attachments and familiar 'distributed' agencies in the strong sense of the term.[6]

The difficulty standardizers face when confronted with the lives of human beings and their familiar engagements with things is even further accentuated when they pass to the lives of more elementary beings. Standardizers have to cope with the adjustments of the living to particular environments, which they cannot even simulate on the basis of familiar human accommodations. Hogle (2009) observes that discussions about tissue standards were dominated by concerns about mechanical and physical properties. She found that tests were 'not in the dynamic contexts that would be found in the body' (p. 728). They were rather disjunctive with theoretical concepts with which researchers worked, which insisted upon adjusting the living to the surroundings through biological processes of 'self-repair' (p. 739, n.26).

An Enlarged Political Economy and Critical Stance: Standards, Oppression and Substantialist Reduction

Standards govern life, from living beings to living together in the world.[7] Their extension should give rise to critical reflection on the politics of standards.[8]

Inspired by ANT, research on the biomedical field has extolled the virtues of standards for the ties that these maintain in human and non-human collectives. Adjectives such as hybrid, boundary and uncertain have designated a positive qualification of entanglements which favours a dynamic of innovation and exploration. That these qualifiers can be promoted at the expense of others that are also in play provides the basis of an implicitly critical sociological position. The notion of the 'black box' calls for the box to be opened through a critical unveiling of entangled links that its closure masks. But beyond this, is there a place for considering the investments and the sacrifices that such a qualification, founded on a premise of permanent open exploration, demands of engaged human beings? If this set of qualifiers is not situated within a plurality of other qualifications for worth, it finds itself in a de facto dominant position in the neutralized form of networks as coordinating mechanisms. It is this kind of detrimental turn that comes with *Market* competition, which also neutralizes its own pretensions towards a common good. Instead of being placed in a dominant position as a neutral mechanism of coordination, such pretensions towards a common good should be open to political debate within the community.

Other, older critical traditions centred on human actors can be mobilized in the critique of standards. Castel's paper (2009) takes an explicitly critical stance in its very title: 'What's Behind a Guideline'. Following Michel Crozier's and Erhard Friedberg's sociology of organizations, he unveils strategies for competing for power used by actors who make standards instrumental to their own interests. Such a view is actually restricted to a single model of strategic action, which becomes generalized and naturalized. Pierre Bourdieu's critical sociology would also expose what lies 'underneath' standards and what maintains domination, while focusing on another model of action: the less reflexive level of agents' habituation, once again generalized and naturalized in an all-encompassing theory of practice. Fruitful as these two approaches may be, they are both limited by their foci on certain modes of relationship to the world. Each, therefore, fails to grasp the specificity of the standard among other arrangements of power or domination.

The architecture of regimes offers a wider perspective on the plurality of engaged human agencies or capacities, and on power relations understood as pressure or oppression exerted by one regime of engagement upon another. This architecture offers a first extension of critique.

Oppressing Justifiable Engagements Geared towards the Common Good

The justifiable engagement with a plurality of orders of worth integrated through compromise risks being destroyed by standardization, for the reasons this analysis has made clear. The level of worth geared towards the common good gets reduced to functional properties, measurable according to the engagement with a plan. Evaluation is restricted to the objective of the plan, rather than the rendering of a wider characterization of the common good.

Zuiderent-Jerak (2009) has scrutinized the process of making compromises between different orders of worth in the treatment of colon cancer,

showing that these compromises risk breaking down because they are reduced to planned objectives and indicators. He describes the balance between *Market* justification based on price competition, and another form of justification described as being 'value-driven' and 'patient-oriented' and which might be related to *Domestic* worth. Whereas the new arrangement for reconfiguring treatment is deliberately intended to cope with both types of justification, insurance companies can easily produce a new maximum price by using the output of this arrangement as a standardized objective. Zuiderent-Jerak makes the altogether salient observation that 'non-participating hospitals could react by shortening length of stay without making the recommended improvements in quality of the care process' (p. 787), thereby breaking the compromise and focusing on the objective of decreasing the length of stay.

Another important compromise that occurs in the medical domain also risks being reduced to only one of the combined orders of worth. EBM, which originated a strong movement of standardization within medicine (Timmermans & Berg, 2003), favours both equality of access – the *Civic* worth of collective solidarity – and the treatment with the highest performance – the *Industrial* worth of technical efficiency. This compromise is also transformed by operations of producing standards, at the end of which the regime of the plan, uniquely oriented towards achieving the stated objective, overshadows the need for public justification. The ostensible neutrality of EMB's evaluative procedures and their time-saving quality are often touted. Indeed, the demands of EBM effectively avoid scaling considerations back up to a plurality of common goods and their possible combinations. And yet the treatment of plurality is at the heart of politics. To celebrate time-saving and alleged value-free procedures through standards is to forget that explicit politics have been subsumed into the elaboration of the standard objective, often removing them from any opportunity for open political debate.

Oppressing Familiar Engagement in Care-Giving

Projecting the regime of engagement based on plans, which favours the standard, does more than neutralize the common good and transform it into a property of the standardized object. It might also neutralize the feeling of ease associated with a familiar engagement and based on multiple personal attachments that maintain a sense of comfort, in order to bolster a single functionality attributed to the now standardized object. Drawing down to the plan and to the conventionalized functions of the standard has limits in medical activity as well as in the clinic.[9] Although attention paid to the 'patient pathway' might open medical care to a plurality of values to be taken into account in the hospital, including care for the patient's familiar attachments in her personal life, standardizing this pathway's organization threatens to reduce familiar concern. It concentrates on the functionality of the new organizational tool. A more reflexive approach of a guideline based on the patient pathway would, by contrast, become a

resource encouraging a greater attentiveness to the plurality of values involved in care-giving (Zuiderent-Jerak, 2007). It should be noted that the emphasis on patients' will, on their individual choices and their informed consent, rests on the presumption that the patient can be engaged in a plan. Such planning is likely to be ineffective when the patient is made vulnerable through illness. This focus on will and choice might neglect or oppress the recognition of the patient's familiar engagement, which is so crucial for care-givers in their concern to restore well-being.[10]

The literature on care, much of it feminist, has rightly drawn attention to relationships that are not grasped by theories of justice. A political critique has been added to the analysis of caring relationships by promoting a public recognition of these relationships, which most frequently remain invisibly hidden in the private domain. The public/private distinction is inadequate and altogether too dependent on a liberal political construction to grasp the nuance present within care-work; the nuance of dealing with things that are familiar to others. The point is that care cannot be projected onto the public domain without oppressing a concern for an engagement with the familiar.

Professional care in the medical sector, but also in the social and educational sectors, requires delicate composition work between regimes – between the familiar, the plan and the most public forms of justification available through the law. To account for the arts of composition, we must decompose the complex of varying engagements that professional care itself contributes to. The task is to expose the internal tensions of these complexes and the efforts to create the compromises that appease these tensions. Such compromises are made partly through persons, and partly with the help of extant arrangements. A failure to recognize and remunerate arts of composition and their costs due to faulty managerial as well as social scientific tools has been borne by professional care-workers.

Reducing the Engagement to Substances and Properties

The preceding account of oppression results from the pressure of one engagement on another and the resultant loss of capacities or powers. As we approach the end of this discussion, consider another kind of subjugation whose analysis might extend critical theory. It results from the reduction of the two faces of engagement. Although the standard contributes principally to engagement in a plan, analysing the two faces of engagement permits us to unveil a reduction that can operate in each regime. A three-step mechanism results in a 'substantialist reduction' of the two faces of engagement. The work of standardization facilitates this mechanism of reduction.

(i) The two-faced engagement is reduced to only one face, that of the guarantee. We already mentioned the confident moment of *quietude* oriented to the face value of the engagement. This moment is oblivious to the trying moment of *disquiet* and dynamic reopening to revision that is so crucial for human living. Engagement is therefore reduced to its rigidly assured, single-sided face.

(ii) Instead of being experienced as a kind of good that can be eroded, quietude is confused with a factual statement based on an objective state. This is where reduction becomes 'substantialist'. It forgets that the engagement aims for the achievement of a particular good.

(iii) The factual statement is broken up into independent parts to which substantial properties are attributed. The specific kind of dependency that the engagement relies on is forgotten. Standardization proceeds by attributing measureable properties to independent entities. It is accompanied by heavy investments in form that are required to constitute the measurability of these properties.

The substantialist reduction facilitates the articulation with a genre of econometric evaluations of policies that extend to all the major domains of contemporary life (Normand, 2008), above and beyond EBM. Starting from a 'purification' of causal variables, such evaluations are supposed to select the factors on which policies must be brought to bear. The policy itself is in this way reduced to the format of a plan and its objective.[11]

When the standard deviates from the objectives inscribed in the engagement in a plan, it can contribute to substantialist reductions in other regimes. In an engagement with justification, when the idea of the standard is to certify objects by a qualification of the common good, the standard proceeds through a substantialist reduction of the engagement towards this or that good – say, 'environmental friendliness' or 'safety'. It conflates the anxiety of realizing a good with a measurable property attributed to the object. In the engagement with the familiar, once the standard is made into a guideline that closely espouses practices and surroundings, it threatens to subdue the dynamic of familiarization with a handful of fixed routines to which properties are attributed.

Substantialist reduction tends to inspire the belief that the good being sought has been made real, that once the correct elements with the right properties have been assembled, 'good' need not signify anything more than conformity to the formulation of the standard and its measurement. This reduction omits the disquieting face of the engagement with its dynamic exigencies of having to adjust to one's dependencies on the environment, and with the perspective of guaranteeing a particular good. We can see in this open face of engagement elaborations that are properly human, of traits already present in the dynamic relationship of the living organism with its environment. As we have seen these traits of living beings pose problems to standardizers when they try to transfer standards developed on materials that are not associated with the living (Hogle, 2009).

What is to be Done about Standards?

The trajectory of this postscript has been guided by a response to the question: What do standards do in the lives of humans and other living entities? It will conclude with an inversion of the question: What is to be done about standards in order to live together in the world?[12]

Given the place of objects in our heavily equipped version of humanity (Thévenot, 2002b) it is inevitable that governing this equipped humanity should pass through objects, and therefore through the normative forms supported by standards. To open the critique of the oppressions and subjugations that standardization can facilitate is to draw attention to the threat posed by reducing normative complexity and dynamicity. Yet standards might be used in another way that brings them back to normative complexity and to the artfulness of making do (Thévenot, 2007a). In the social studies of medicine that I have discussed, numerous observations point in this direction. These observations borrow from the language of 'reflexivity', or from a 'situated' approach. I have sought to illuminate the conditions and limits of such a stance with regards to standards, by taking recourse to a systematic analysis of multiple engagements and their dual faces. Over the course of this discussion, and in comparison with other domains of standardization, I have proposed a number of reasons why the biomedical field is especially conducive to this opening for critique. Among them is the intensity of innovations to which STS is particularly attached. But beyond this there is also the issue of life. And of death.

Epilogue

As an epilogue, let us return to one of the oldest meanings of the word 'standard'. This meaning already touched upon life and death, even though without the life-saving urgency that they take on within medical practice. In it, we rediscover the conjunction of the two faces of engagement that prohibits us from lingering at either one or the other of the two symmetrical critiques of the standard – that of disciplining uniformity or that of its impossible accomplishment in the face of actual practice. Investing in clothing and uniforms does not ensure that soldiers will act as one. This does happen from time to time when the regiment marches, following the standard, in a confident display of institutional conformity. However, in the heat of action, the standard is no longer a matter of uniform conformity, but retreats from uniformity to a limited and punctual marker of convention. Then, like a flag raised on a pole, the standard offers nothing more than a modest salience around which to rally.

Notes

The author is very grateful to Martha Poon for her translation of this postscript.

1. Virginie Tournay (2007b) has observed that in the case of human cell products, regulation and production end up becoming conflated.
2. For an overview of statistical reasoning and its equipment, see Desrosières (1998 [1993]).
3. Here, I use the phrase 'composing a difference' in the archaic sense of settling a dispute between opposing claims.
4. The 'Convention theory' in economics and economic sociology (for a brief introduction see Thévenot, 2006b) singles out *Market* competition as a convention of qualification and situates it among other 'conventions of quality' (Thévenot, 2001; Eymard-Duvernay, 2002).

5. On this portion of my research agenda, which came after the work on public critique and justification with Luc Boltanski, see Thévenot (1990, 2006a) (in English: 2002b, 2007b).
6. The social sciences and more notably, STS, have been profoundly marked by analytic figures that are referred to as being 'distributed' and 'situated'. This is the beneficial result of ethnomethodology, and the later influence of ANT, as well as research on action and situated cognition. I have introduced the term 'attachment' to refer to the interdependent idiosyncrasies that are valorized in familiar engagements because they are particularly resistive to becoming communicable properties. Because of these attachments, it is possible to speak about 'distributed' capacities in the strong sense. It is of note that Bruno Latour's (1999) use of the term attachment is much broader than this and encompasses all sorts of other entanglements.
7. I borrow this phrase and perspective from Hannah Arendt, even though she was such a harsh critique of standards in *The Human Condition* (1958). See also Thévenot (2007a).
8. The limits of this postscript prevent me from referencing the ample literature on standardization. In taking up the topic of its political economy, I would, however, like to mention my debt to Lawrence Busch (2000, 2007), a knowledgeable and subtly critical travel companion in the study of this object, so long ignored. I should also mention Susan Leigh Star (Star, 1991; Lampland & Star, 2008) for her political sensibility on the question of standards, and for a series of exchanges made with her.
9. On the basis of his substantial research in the medical domain, Aaron Cicourel notes that the information yielded by the technologies and tests employed in medicine, even when it is unequivocal, must in most cases be 'interpreted by a human actor or actors to be clinically relevant' (Cicourel, 1990: 229).
10. On the patient's choice, see Mol (2008).
11. In contrast to this reduction, Rabeharisoa & Bourret have carefully examined the articulation between biology and clinical medicine around mutations, and demonstrated that 'bioclinical collectives' are far from being reduced to EBM arrangements. They write that in 'the current post-genomic era', taking 'genetic markers as objective proofs of a disease or a risk of disease is definitely inappropriate' (Rabeharisoa & Bourret, 2009: 691).
12. Virginie Tournay has edited a rich volume devoted to standardization in the medical domain. The book defends a pragmatic approach to political science, and argues that the operation of standardization is the 'necessary condition of common living (*vivre ensemble*) enunciable, shared and recognized by all' (Tournay 2007a: Introduction, p. 58).

References

Abbott, Andrew (1988) *The System of Professions* (Chicago, IL: University of Chicago Press).
Arendt, Hannah (1958) *The Human Condition* (Chicago, IL: University of Chicago Press).
Boltanski, Luc & Laurent Thévenot (2006 [1991]) *On Justification: Economies of Worth*, trans. by Catherine Porter (Princeton, NJ: Princeton University Press; 1st French edition 1991).
Breviglieri, Marc, Claudette Lafaye & Danny Trom (eds) (2009) *Sens de la justice, sens critique. Après de la justification* (Paris: Economica).
Busch, Lawrence (2000) 'The Moral Economy of Grades and Standards', *Journal of Rural Studies* 16(3): 273–83.
Busch, Lawrence (2007) 'Performing the Economy, Performing Science: From Neoclassical to Supply Chain Models in the Agrifood Sector', *Economy and Society* 36(3): 439–68.
Callon, Michel (1999) 'Actor-network Theory; The Market Test', in J. Law & J. Hassard (eds), *Actor Network Theory and After* (Oxford: Blackwell): 181–95.
Cambrosio, Alberto, Peter Keating, Thomas Schlich & George Weisz (2006) 'Regulatory Objectivity and the Management of Evidence in Medicine', *Social Science and Medicine* 63(1): 189–99.
Castel, Patrick (2009) 'What's Behind a Guideline? Authority, Competition and Collaboration in the French Oncology Sector', *Social Studies of Science* 39(5): 743–67.
Cicourel, Aaron (1990) 'The Integration of Distributed Knowledge in Collaborative Medical Diagnosis', in J. Galegher, R.E. Kraut & C. Egido (eds), *Intellectual Teamwork:*

Social and Technological Foundations of Cooperative Work (Hillsdale, NJ, and London: Lawrence Erlbaum Associates): 221–42.
Desrosières, Alain (1998 [1993]) *The Politics of Large Numbers: A History of Statistical Reasoning*, trans. Camille Naish (Cambridge, MA: Harvard University Press; 1st French edition, 1993).
Dodier, Nicolas (1993) 'Action as a Combination of "Common Worlds"', *Sociological Review* 41(3): 556–71.
Dodier Nicolas & Janine Barbot (2008) 'Autonomy and Objectivity as Political Operators in the Medical World: Twenty Years of Public Controversy about AIDS Treatments in France', *Science in Context* 21(3): 403–34.
Eymard-Duvernay, François (2002), 'Conventionalist Approaches to Enterprise', in O. Favereau & E. Lazega (eds), *Conventions and Structures in Economic Organization: Markets, Networks and Hierarchies* (Cheltenham, Glos: Edward Elgar): 60–78.
Garfinkel, Harold (1968), transcribed dialogue in R.J. Hill & K.S. Crittenden (eds), *Proceedings of the Purdue Symposium on Ethnomethodology*, Institute Monograph Series, No. 1 (Purdue, IN: Institute for the Study of Social Change and the Department of Sociology, Purdue University).
Hogle, Linda F. (2009) 'Pragmatic Objectivity and the Standardization of Human Tissue Products', *Social Studies of Science* 39(5): 717–42.
Keating, Peter & Alberto Cambrosio (2003) *Biomedical Platforms: Realigning the Normal and the Pathological in Late-twentieth Century Medicine* (Cambridge, MA: MIT Press).
Lampland, Martha & Susan Leigh Star (eds) (2008) *Standards and Their Stories: How Quantifying, Classifying, and Formalizing Practices Shape Everyday Life* (Ithaca, NY: Cornell University Press).
Latour, Bruno (1999) 'Factures/Fractures From the Concept of Network to that of Attachment', *Res* 36: 20–31.
Lynch, Michael & David Bogen (1996) *The Spectacle of History: Speech, Text and Memory at the Iran-contra Hearings* (Durham, NC: Duke University Press).
Mol, Annemarie (2008) *The Logic of Care: Health and the Problem of Patient Choice* (London: Routledge).
Mol Annemarie & John Law (2004) 'Embodied Action, Enacted Bodies: The Example of Hypoglycaemia', *Body & Society* 10(2/3): 43–62.
Moreira, Tiago, Carl May & John Bond (2009) 'Regulatory Objectivity in Action: Mild Cognitive Impairment and the Collective Production of Uncertainty', *Social Studies of Science* 39(5): 665–90.
Normand, Romuald (2008) 'School Effectiveness or the Horizon of the World as a Laboratory', *British Journal of Sociology of Education* 29(6): 665–76.
Rabeharisoa Vololona & Pascale Bourret (2009) 'Staging and Weighting Evidence in Biomedicine: Comparing Clinical Practices in Cancer Genetics and Psychiatry Genetics', *Social Studies of Science* 39(5): 691–715.
Star, Susan Leigh (1991) 'Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions', in J. Law (ed.), *A Sociology of Monsters? Power, Technology and the Modern World*, Sociological Review Monograph 38 (Oxford: Basil Blackwell): 27–57.
Thévenot, Laurent (1984) 'Rules and Implements: Investment in Forms', *Social Science Information* 23(1): 1–45.
Thévenot, Laurent (1990) 'L'action qui convient', in P. Pharo & L. Quéré (eds), *Les formes de l'action*, *Raisons Pratiques 1* (Paris: Editions de l'Ecole des Hautes Etudes en Sciences Sociales): 39–69.
Thévenot, Laurent (1994) 'Le régime de familiarité: des choses en personnes', *Genèses* 17: 72–101.
Thévenot, Laurent (1997) 'Un gouvernement par les normes: pratiques et politiques des formats d'information', in Bernard Conein & Laurent Thévenot (eds), *Cognition et information en société*, *Raisons Pratiques 8* (Paris: Editions de l'Ecole des Hautes Etudes en Sciences Sociales): 205–41.
Thévenot, Laurent (2001) 'Organized Complexity: Conventions of coordination and the Composition of Economic Arrangements', *European Journal of Social Theory* 4(4): 405–25.

Thévenot, Laurent (2002a) 'Conventions of Co-ordination and the Framing of Uncertainty', in E. Fullbrook (ed.), *Intersubjectivity in Economics* (London: Routledge): 181–97.
Thévenot, Laurent (2002b) 'Which Road to Follow? The Moral Complexity of an "Equipped" Humanity', in J. Law & A. Mol (eds), *Complexities: Social Studies of Knowledge Practices* (Durham, NC & London: Duke University Press): 53–87.
Thévenot, Laurent (2006a) *L'action au pluriel. Sociologie des régimes d'engagement* (Paris: La Découverte).
Thévenot, Laurent (2006b) 'Convention School', in B. Jens & M. Zafirovski (eds), *International Encyclopedia of Economic Sociology* (London: Routledge): 111–15.
Thévenot, Laurent (2007a) 'A Science of Life Together in the World', *European Journal of Social Theory* 10(2): 233–44.
Thévenot, Laurent (2007b) 'The Plurality of Cognitive Formats and Engagements: Moving between the Familiar and the Public', *European Journal of Social Theory* 10(3): 413–27.
Timmermans, Stefan & Marc Berg (2003) *The Gold Standard: The Challenge of Evidence-based Medicine and Standardization in Health Care* (Philadelphia, PA: Temple University Press).
Tournay, Virginie (ed.) (2007a) *La gouvernance des innovations médicales* (Paris: Presses Universitaires de France).
Tournay, Virginie (2007b) 'Lorsque réglementer et standardiser se confondent. Le contrôle qualité des produits de cellules humaines: vers une fabrique des thérapies cellulaires', *Sciences Sociales et Santé* 25(3): 41–70.
Zuiderent-Jerak, Teun (2007) *Standardizing Healthcare Practices: Experimental Interventions in Medicine and Science and Technology Studies*, PhD thesis (Rotterdam: Erasmus University).
Zuiderent-Jerak, Teun (2009) 'Competition in the Wild: Reconfiguring Healthcare Markets', *Social Studies of Science* 39(5): 765–92.

Laurent Thévenot is Professor at the Ecole des Hautes Etudes en Sciences Sociales, Paris (Groupe de Sociologie Politique et Morale), and a member of the Research Bureau of the Institut National de la Statistique et des Etudes Economiques, Paris. He co-authored, with Luc Boltanski, *On Justification* (Princeton University Press, 2006), which analyses the most legitimate repertoires of evaluation governing political, economic and social relationships. He co-edited (with Michèle Lamont) *Comparing Cultures and Polities: Repertoires of Evaluation in France and the United States* (Cambridge University Press, 2001) and published *L'action au pluriel; sociologie des régimes d'engagement* (La Découverte, 2006).

Address: Groupe de Sociologie Politique et Morale, Ecole des Hautes Etudes en Sciences Sociales, 10 rue Monsieur le Prince, 75006 Paris, France; email: thevenot@ehess.fr