

## **The “conventional” objectivity of public space: how to think about the questionability of what we need to be unquestionable.**

Laura Centemeri (CES-University of Coimbra)

centemeri@ces.uc.pt

In this paper, I will discuss *objectivity* from a sociological and historical standpoint, that is, as a category which has known an increasing centrality in the organization of our political and public life. I will not discuss anything related to the issue of objectivity as “truth to nature”, which is what philosophers are mainly concerned with. I am interested in objectivity as a requirement concerning the knowledge used for the organization of social life. I am interested in exploring the relation existing between objectivity and publicness.

I will consider objectivity as what results from a process (social and historical) of objectifying (*objectivation*). I argue that this process is crucial to the existence of a public sphere. The work of objectifying can be defined as the manufacturing of solid objects of knowledge that can support the organisation of a political community of large extent, in terms of a community going beyond the space of proximity and familiarity. A community in which the exercise of legitimate authority is based on justification (Desrosières, 2000, p. 19; Thévenot 2007).

In assuming objectivity as crucial to the existence of the public sphere I am following Hannah Arendt, when she states that public sphere is based on the existence of a *common world*, a shared and public world of human artefacts, institutions and settings which separates us from nature and which provides a relatively permanent and durable context for our activities. Arendt underlies the need for a stable background from which public spaces of action and deliberation can arise. “To live together in the world means essentially that a world of things is between those who have it in common, as a table is located between those who sit around it (...)” (Arendt, 1958, p.48). In other terms: “The formation of a public space in which it is possible to debate contradictory options concerning the *cité* [the political community] presupposes the existence of a minimum of elements that can represent a common reference to the different actors” (Desrosières, 1992, p.142).

I assume objectivity as the feature of the common world needed for the existence of the public space. Objectivity is then needed for “public action”, this latter intended as a specific regime of action based on generalization (*generalité*) and justification (Boltanski and Thévenot, 1991). Quoting Porter (1995, p.3) objectivity is required for basic justice and honest government.

According to the way I’m dealing with the concept, objectivity is by definition artificial, but at the same time objectivity points to a *reality*, even if this reality doesn’t say anything about *truth*. Let’s say that objectivity is a specific kind of realism, that is, a specific way to grasp the reality and to cognitively and materially format the world outside. This apparent paradox of a reality being in fact artificial, is, as I’m going to argue, a constitutive tension pervading the public dimension of social life. To allow this paradox to stay open is what makes the existence of a public space possible.

Of course, in this way I’m putting the issue of truth into brackets. The way I discuss objectivity is not in terms of “truth to nature” but in terms of *temporal and spatial validity* and *solidity* of human artefacts forged in order to allow the living together in the world. In doing this, I’m rejoining the approach of Science and Technology Studies to the study of how scientific objects take shape (Callon, 1989; Latour, 1989). Quoting Latour (2000), objectivity can be seen as the *capacity of objects to object*, that is, to resist to the efforts oriented towards their dismantlement. Their capacity to resist critique is then the mark of their reality.

### ***The pursuit of objectivity in public life***

I will start presenting the argument on objectivity developed by Theodor Porter. In his seminal book, *Trust in Numbers*, Porter states: “In science, as in political and administrative affairs, objectivity names a set of strategies for dealing with distance and distrust” (Porter, 1995, p.IX). Objectivity is then related by this author to a “public form of knowing and communicating” (*Ibid.*). Objectivity qualifies a knowledge that we can trust to be the same across time and space. A public form of knowing and communicating implies that what is the object of this knowing and communicating can be recognised as being the same thing by different people, who can be distant, that is, that do not share any tacit or familiar kind of knowledge and communication.

If we understand objectivity as a feature of knowledge, that points to the possibility of knowledge to move across time and space, it is easier to

understand the link often established between objectivity and numbers, i.e. numbers being considered as a way to express things in objective terms. In fact, quantifying is “a technology of distance” (Porter, 1995, p.IX), that is, a specific language which is endowed with remarkable properties of transferability, and of standardised manipulability. To quantify is to express and to let exist in numerical terms something that was previously expressed through words (Desrosières, 2008). The operation of quantifying brings into existence new objects or entities that are then used to organize our life in common. In this sense, there is a link between objectivity and quantification because of the creative power of the operation of quantifying. To quantify is to reshape our world, introducing new entities (objects) that are clearly separated from us, and that, once created, have an independent life.

Still, numbers alone are not a guarantee of objectivity. Discussing historically the standardization of measures, Porter (1995, p.22) points out that “a land surface can be described quantitatively in a infinite variety of ways. But a square grid has usually been preferred by central governments on account of its greater simplicity. A highly organized labor force was required to produce one, but once in place it permitted land claims to be registered and enforced from hundreds of miles away, with a bare minimum of judgment or local knowledge”. Quoting again Porter: “I do not claim that quantification is nothing but a political solution to a political problem. But that is surely one of the things that it is, and our understanding of it is poor indeed if we do not relate it to the forms of community in which it flourishes” (Porter, p. X).

Objectivity is then not so much about expressing things in a quantitative format, as about the existence of shared *conventions* regulating the ways to format knowledge. The generality of these conventions (that is their being recognized across time and space as the proper way to express things) is what allows to abstract from personal and local way to know in order to define a form of knowledge that can be widely scrutinized and judged upon. It is possible then to rely on this knowledge, for example, to define the truth or the false of a claim. This knowledge can be used as a *test of reality* during critical moments, that is, when someone is challenging the way to act with/decide about things in a given situation (Boltanski and Thévenot, 1991; Latour).

A connection can be established between different types of legitimate knowledge and forms of organizing social life. Objectivity is considered

nowadays as a mark of legitimacy of knowledge, but this is not because of objective knowledge being "truth to nature". Porter establishes a link between objectivity as a mark of legitimacy of knowledge and the construction of a specific kind of political community. Relying on the work by Witold Kula (1986), Porter remarks how "in the preindustrial world, the qualitative was always dominant over the quantitative. The regime of discretion and negotiation clearly favored local interests over central powers (...)" (Porter, 1995, p. 25).

Objectivity begins to acquire a central place in the political life once *universalism* starts to consolidate as a new source of legitimacy for public action, basically with the end of the *ancien régime*. The validity of law was no more supposed to depend on intimate knowledge or personal contacts but should be effective over great distances and enforceable by strangers.

The collaboration of modern science (that aims as well at defining universal laws) with the state has been crucial in order to create the actual conditions for the political universalism to be effective, providing objective, that is, standardized, stable and transferrable knowledge for settling conflicts that could no more be dealt with recurring to previous forms of recognized authority and legitimate knowledge. The industrialization (with its imperative of efficiency) and the increasing centrality of market exchange as a way to organize the economic life further propel this process of standardization and homologation that involves nature as well as society. In this sense, objectivity has more to do with *impersonality* than with truth: objectivity implies the subordination to public standards of personal and local ways to relate to and to judge others and the environment (Porter, 1995, p. 74).

According to Porter, this quest for impersonality is linked to an evolution that sees an increasing role of accountability over authority in legitimizing public action. The drive for objectivity (especially in terms of quantification) arose in response to a world in which discretion had become suspect and local knowledge had become inadequate (Porter, 1995, p.90-93). This is the world of *democratic politics* (Porter, 1995, p.200): "in public affairs, reliance on nothing more than seasoned judgement seems undemocratic" (Porter, 1995, p.7).

Porter insists on the broader disciplinary effects of the effort of objectifying the social and political world through quantification in order to make more

transparent to a public scrutiny decisions that are made and that affect the political community: "What we call the uniformity of nature is in practice a triumph of human organization – of regulation, education, manufacturing, and method" (Porter, 1995, p.32). This costly human organization is what can guarantee the existence of clear footholds to describe economic situations, to denounce injustice, to justify political actions: basically, this costly human organization is needed in order to have a democratic public debate as we know it (Desrosières, 2000, p.7).

The effort of objectifying (*objectivation*) through quantification appears as a contribution to increase the transparency of public decision, in terms of its impersonality, fairness, universality and immunity to all kinds of local or personal distorting factors. Objectivity means reducing the place for personal and local judgment, and the operation of objectifying is propitious to forms of decision that aspire to a certain degree of autonomy from judgment.

Porter highlights the risks implicit in the disqualifying of judgment in public decision. In fact, the process of objectifying through quantifying, transforms dramatically the reality. As I already discussed, there is a peculiar link existing between *to objectify* and *to quantify*: to quantify is a particularly strong way to objectify, in that it creates new things (objects or entities, from indicators to social classes) and transforms the meanings of old ones.

More specifically, quantification constructs a commensurability that did not exist before, thus impoverishing the moral complexity of the reality we are confronted to: "Numbers are the medium through which dissimilar desires, needs, and expectations are somehow made commensurable" (Porter, 1995, p.86). Relevant meanings are lost in this process of commensuration.

It becomes clear the risk implicit into collapsing the meaning of objectivity as social construction of impersonal/impartial knowledge with the meaning of objectivity as truth to nature. The naturalization of objectivity prevents from taking into account the *conventional* nature of the operations involved in the process of objectifying. I'm going in the next paragraph to discuss this *conventional nature* of objectivity.

### ***The conventional nature of objectivity***

As Porter argues in his book, objectivity qualifies a form of knowledge, produced through standardized procedures, so to assure its impersonality, accessibility to close ones as well as to distant ones, stability across time and

space. Objective knowledge is then public knowledge because it represents a widely recognized reference for action, that can stand alone and circulate, independent to attachments to specific persons or places.

Porter focuses his analysis on quantification as a way to guarantee objectivity, showing how the process of objectifying knowledge through numbers is costly. First of all, it implies the existence of a heavy socio-technical infrastructure that can assure its production. Objectivity through quantification is produced through a set of objects and disciplined practices. Second, it is costly in terms of reducing the complexity of phenomena. The transparency objectivity can guarantee goes with a form of simplification, i.e. with assuming certain features of a phenomenon as central, putting other features in the background. Usually the features that can be more easily translated into the language of numbers are the ones that are privileged in the process of quantifying.

An important aspect that is not explicitly discussed by Porter is that objective knowledge is not morally neutral. On the contrary, it is value laden. The simplification objectivity prompts is first of all a moral simplification, in terms of privileging certain ways to value things to the detriments of others.

To be more precise, in the organization of our political community we are confronted to different ways to objectify knowledge (not just through quantification), where *to objectify* has to be intended as formatting knowledge so that it can be shared beyond spaces of proximity and familiarity. These different ways to objectify are marked by different degrees of objectivity, as I'm going to discuss more in extent later, quantification being endowed with the highest degree of objectivity. These different ways to objectify embody different moral criteria defining conventions that allow to isolate and stabilize the knowledge that, in a given situation, has to be valued as relevant for acting.

In order to discuss this point I will rely on the work developed by Alain Desrosières and Laurent Thévenot on the "statistical reason" (*raison statistique*) (Thévenot, 1986; Desrosières, 1992), and by Luc Boltanski and Laurent Thévenot on justification and the plurality of orders of worth (Boltanski and Thévenot, 1991; Stark, 2009).

As I already argued, quantification is considered as a mark of the highest degree of objectivity, since the language of numbers is endowed with a strong potentiality of impersonality and transferability. But, as Desrosières stresses,

“to quantify” is not the same thing as “to measure”. To quantify is first of all to *agree upon* conventions of quantification (to convene on quantification). Once conventions of quantification are set, then the actual measuring is possible: “The idea of measure, inspired by the traditional epistemology of natural sciences, implies that something exists in a format which is already measurable according to a realistic metrology, as the height of the Eiffel Tower. In social sciences or in the evaluation of public actions, the frequent usage of the verb ‘to measure’ hides the roles of conventions of quantification and thus it can induce mistakes. The verb ‘to quantify’ (...) supposes the elaboration and the definition of previous conventions of equivalences, involving comparisons, negotiations, compromises, translations, inscriptions, codifications, reproducible procedures and calculus to put things into numbers. (...) Quantification implies two steps: to convene upon and to measure” (Desrosières, 2008, p.3). Time-consuming negotiations take place in an attempt to reach agreement (*convene upon*) about the selected properties and procedures that will assure the uniformity of the measuring.

Previous to the possibility to measure, so to express phenomena through numbers, which are considered as the highest degree of objectivity, there is the active (conflictual and negotiated) shaping of conventions of quantification. The possibility to measure is linked to the establishment of conventions to quantify. To quantify is an action that implies a dimension of *social and cognitive creativity*, that goes missing if we stick to the idea that expressing phenomena through numbers is simply a question of measuring.

The example of quantification illustrates how the production of objective knowledge implies the active shaping of objects of knowledge. To objectify is not to mirror the world but it implies a transformative intervention: it implies the creation of new references that support a specific way to think, to represent and to express the world around us and to act upon it. To objectify is to identify entities (that is, to inform the reality) and to define conventions guiding the production of knowledge about them (that is, to conform the reality) (see Thévenot, 2009).

Informing and conforming both require to put into form. Objectifying is about putting knowledge into form. Laurent Thévenot has introduced the concept of “investment in form” to point to the fact that this operation of putting knowledge into form is costly, but at the same time it assures a gain, in terms

of making more simple the coordination of actions and actors. Actors can rely on stable objects of knowledge that already set the frame for the kind of coordination that is expected from them<sup>1</sup>. As discussed by Porter, a complex socio-technical infrastructure is needed once a convention for quantifying is settled (see the example of quantifying the land surface), in order to assure that the measuring is correct. But once the form is defined, then coordination can be built on it and being guaranteed a high degree of stability.

An investment in form can have different degrees of *temporal and spatial validity* as well as of *solidity* of the material equipment involved: "Once an investment [in form] 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. (...) The solidity of an invested form varies with the weight of its material equipment" (Thévenot, 2009, p.?).

It is then possible to speak about *degrees of objectivity*, specified in terms of different degrees of temporal and spatial validity and solidity of the investments in form that assure the production of the convened upon knowledge. A high degree of objectivity is then related to a high degree of temporal and spatial validity. But objectivity is related as well to the material equipments that are needed in order to assure the production of knowledge in the due form: "For example, cancer guideline 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 upon 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" (Thévenot, 2009, pp.).

Knowledge can thus be objective according to different degrees of objectivity that are related to the temporal and spatial validity of the form in which

---

<sup>1</sup> It is this kind of stability that makes possible conducts that convene to the situation but as well strategic conducts or unconventional conducts. The stability of the situation of coordination is needed in all cases.



knowledge is fixed and to the weight of the material equipment involved. Still it is not clear in what terms there is a link between the production of objective knowledge and moral and political concerns. I will try to clarify this point.

As I have discussed in the previous paragraph, objectivity is the result of an "investment in form" that stabilizes knowledge through time and space and inscribes it into a material equipment. We can isolate different degrees of objectivity according to these three dimensions: high or low degree of time and space validity and weight of the material equipment involved.

The investment is meant to stabilize a specific way in which human and non human beings shape their mutual relationships. The gain the investment guarantees is in terms of stabilizing reciprocal expectations on how people and things are going to act in a given situation. The way these relationships are shaped and stabilized through informing and conforming reality is supposed to guarantee the achievement of a certain "common good", for example technical efficiency.<sup>2</sup> Technical efficiency being what we aim at in a given situation, investments in form are made so to guarantee that this objective informs and conforms the reality of a given situation (for example the organisation of production in a factory). The good aimed at (in this case technical efficiency) determines what has to be considered as the relevant reality to be taken into account, that is, the "probative or provable reality" in order to judge of the situation.

Investments in forms thus generate different "forms of the probable": "the statistical form of the probable usually serves to downplay 'monographic' information, because the latter is supposed to concern a single specialized case

---

<sup>2</sup> This is what Boltanski and Thévenot (1991) call an *industrial worth*. These two authors identify a plurality of "orders of worth" that rely on characterizations of the common good. They identify in particular 6 orders of worth that are present in the organization of our societies: industrial worth, market worth, another organized around a civic logic, and others arrayed according to principles of loyalty (domestic worth), inspiration, and renown. "Orders of worth are not values counterposed to value but are constitutive of value. Orders of worth are the very fabric of calculation, of rationality, of value" (Stark, 2009: 22). Each order of worth places value on a specific mode of relation with our social and natural environment and it implies investments in form but with different degrees of objectivity. "As coherent principles of evaluation, each of the orders of worth has distinctive and incommensurable principles of equivalence. Each defines the good, the just, and the fair – but according to different criteria of judgement" (Stark, 2009: 23). When they are used for critique and justification in public arenas, these orders face a "reality test" involving the material environment.

as opposed to a statistically generalized statement" (Thevenot, 2009, ??). A statistically generalized statement can be considered more objective than a monographic information not because it is closer to truth, but because it conveys information in a format that have a wider spatial validity and a stronger solidity (in the way I have previously defined these concepts). At the same time, the statistical format of information can be easily included in policy instruments that embody a normative vision of the good organization of a society, for example in terms of equality (*civic worth*) or efficiency (*industrial worth*). But other definitions of collective goals to be pursued in the political community ask for a different kind of probative reality.

The different degrees of objectivity of knowledge are then related to different ways to organize a community of human and non human beings. Or, in other words, the different kinds of probative knowledge support different forms of coordination, among human beings and between human and non human beings. The important thing to notice is that these different ways to organize a community of human and non human beings, or these different forms of coordination, are meant to assure, according to Boltanski and Thévenot, different kinds of common good benefitting the collectivity.

The important aspect to retain from this discussion is the following: quantification, as a way to express things objectively, is a process of putting knowledge into form so for this knowledge to support the construction of a specific political community in which certain common goods (equity, efficiency, competition) are privileged over others. When objectivity of knowledge is debated, it is a shortcut to assume that the issue at stake is the correspondence to a " true reality". What is at stake is, in fact, the explicit politics subsumed into the elaboration of objective knowledge, i.e., the wider characterization of the common good implicit in the criteria used to define what has to be valued and how.

This connection existing between different forms and degrees of objectivity and politics, in terms of different representations of the good society these different kinds of knowledge are meant to support, is usually removed from any opportunity for open political debate, once objectivity as standardized and public knowledge is collapsed with objectivity as truth. I'm going to discuss how this collapsing can occur.

### ***The two-faced nature of conventions, between realism and constructivism***

Objectivity, in the way I have suggested to discuss the concept, can be considered as a qualification of knowledge. Objectivity means knowledge produced according to public conventions that fix it into stable and recognizable forms and objects. To objectify is to create objects of knowledge that can hold together (*choses qui tiennent*: Desrosières, 2000, p.18), in the sense that they are stable but as well in the sense that they link different entities together, establishing spaces of equivalence. We can speak of different degrees of objectivity in terms of different degrees of spatial and temporal validity of the form knowledge is put into, and of its solidity. A high degree of objectivity means objects of knowledge that can easily circulate and that are produced thanks to a heavy socio-technical infrastructure.

Objective knowledge is then produced through *investments in form*. These are conventions, i.e., the product of costly negotiations concerning how to value things and people, what is relevant and what is not in order to act upon the reality, having in mind a collective goal which is aimed at (what Boltanski and Thévenot call a representation of the common good). What is at stake in the negotiation that brings to define investments in form is the construction of a certain kind of political community that need a conventional (stabilized) knowledge to rely on for its organization.

An important aspect that has to be stressed is that once invested in and immobilized, *a form cannot conserve the traces of its own negotiated and controversial past*, if it has to operate effectively as a principle of coordination. "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 (...) 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 favors coordination. It is here that we meet the first understanding of the 'conventional' as what is agreed upon, accepted, established (...). 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" (Thévenot, 2009, ??, emphasis mine).

It is then necessary to be able to think about objectivity at the same time as a result of a construction and as a reality. If this tension is not kept open, the risk is to swing constantly between two opposite positions: to claim for objective knowledge to be an unquestionable reference, on the one hand (objective as true to nature); to denounce objective knowledge as constructed and then not real.

Social sciences have been trapped in this dichotomy of realism versus constructivism, that prevents to understand correctly what objectivity is about. Neoclassical economics is the typical example of a social science in which objectified knowledge is considered as a "fact", obscuring the work of setting conventions of quantification and its normative dimension. Critical sociology is, on the contrary, the example of a sociology of denunciation, engaged in re-opening "black boxes" of knowledge in order to show power relationships hidden behind the veil of realism. This position let intend that there will be a reality somewhere, not biased.

Following Desrosières and Thévenot, it is possible to figure out a different way to deal with the question of realism. Conventions defining solid objects of knowledge (objective knowledge) bring into being realities, even if they are conventional. That is, objective knowledge implies the creation of conventional objects with a variable degree of validity and solidity (which implies that we can speak about degrees of objectivity). This validity and solidity have to be intended as embeddedness in the common world, at the cognitive and material level. Objective knowledge is inscribed in a web of relations that gives account of its validity and solidity, cognitively and materially. This web of relations is made through stabilized connections (for example among categories or things), routines of equivalence, stabilized words to qualify objects and processes.

The reality of objective knowledge is related to the fact that countless people consider this same knowledge as a reference in order to act and that this reference is embodied in institutional arrangements. This knowledge is a reference, but at the same time the reference could be questioned, since it is conventional (that is, discretionary). Critical conjunctures (or crises) are marked exactly by the questioning of common references that are denounced or

disqualified in their capacity to support the organization of the political community meant to assure common goods considered as valuable.

Questioning objective knowledge, included quantified knowledge, is always possible, but we have to consider the fact that heavy political, social and technical investments were made in order to produce this objectified knowledge. To dismantle old conventions, so to create new ones, is a costly operation. That is why, when a conventional object is under critical scrutiny, "participants in the controversy strive to have earlier investments salvaged and reincorporated into the new ones, which are never created from scratch but are instead founded upon the transformations of former investments, by extending their spatial or temporal validity or their solidity" (Thévenot, 2009, ??).

This resistance to change can be considered as a mark of realism. In this sense, objectivity can be understood as the capacity of objects to object (Latour): "being real" can be defined as the capacity of objects to succeed the *tests of reality* that aim at their dismantling.

In the exploration of the conditions that make possible the existence of a public space, we are then confronted to a constitutive tension concerning objectivity. Objectivity is needed in terms of the need for stabilized references necessary for a public debate to take place. Only if a world in common exists then different perspectives on the *cit * can be debateable in the public space. At the same time, the debate can always turn into a critique of these same references that constitute our world in common. The objects of knowledge that furnished our world in common can become the very same object of the debate, because of their conventional nature.

Keeping this tension alive, or - quoting Desrosi res - "allowing the unquestionable to be questioned", is what makes possible the very same existence of public space, in terms of a space in which the exploration of collective ends (and means to achieve them) is kept open to revision. Exploring and exposing this constitutive tension is maybe one of the most important contributions social scientists can bring in, to help the organization of our life together in the world.

## References

Arendt. H., 1958, *The Human Condition*, University of Chicago Press, Chicago.

Boltanski L., Thévenot L., 1991, *De la Justification*, La Découverte, Paris.

Callon M. (ed.), 1989, *La Science et ses réseaux. Genèse et circulation des faits scientifiques*, La Découverte, Paris.

Desrosières A., 1992, "Discuter l'indiscutable. Raison statistique et espace public", *Raisons Pratiques: Pouvoir et légitimité*, 3, Editions de l'EHESS, Paris, pp.131-154.

Desrosières A., 2000, *La politique des grandes nombres. Histoire de la raison statistique*, La Découverte, Paris.

Desrosières A., 2008, *Pour une sociologie historique de la quantification*, Presses de l'Ecole des Mines, Paris.

Kula W., 1986, *Measures and Men*, Princeton University Press, Princeton.

Latour B., 1989, *La science en action*, La Découverte, Paris.

Latour, B., 2000, "When Things Strike Back", *British Journal of Sociology* 51(1): 105-123.

Porter T., 1995, *Trust in Numbers. The Pursuit of Objectivity in Science and Public Life*, Princeton University Press, Princeton.

Stark D., 2009, *The Sense of Dissonance: Accounts of Worth in Economic Life*. Princeton University Press. Princeton and Oxford.

Thévenot L., 1986, "Les investissements de forme", in Thévenot L. (ed.), *Conventions économiques*, CEE-PUF, Paris, pp. 21-71.

Thévenot L., 2007, "The Plurality of Cognitive Formats and Engagements: Moving between the Familiar and the Public", *European Journal of Social Theory*, 10 (3), pp. 413-27.

Thévenot L., 2009, "Governing Life by Standards: A View from Engagements", *Social Studies of Science*, 39 (5), pp. 793-813.