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(doi: 10.2383/72699)

Sociologica (ISSN 1971-8853)
Fascicolo 3, settembre-dicembre 2012

Ente di afferenza:
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Introduction to the Symposium

by Dario Minervini *and* Filippo Barbera

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Actor-Network Theory (hence ANT) is not a novelty any more. Its high versatility allowed for the diffusion, or better the translation, of ANT's analytical principles not only in social sciences but also in other disciplinary fields such as Information Systems or Geography.

From the generalized symmetry between human and non-human actants,[1] to the flat ontology, getting through the collapse of the sociological "great divide" between micro and macro, it is undeniable that ANT has introduced a relevant innovation in social sciences, both in terms of new vocabulary and a fresh theoretical perspective. Moreover during thirty years of research and scientific production, ANT scholars themselves frequently felt the urge to take stock of the debate they contribute to perform.[2] One of these reflexive exercises was the book *Actor Network Theory and After* [Law and Hassard 1999] in which it was explained and clarified why the "*sacred divisions and distinctions*" such as agency and structure or micro/macro "*have been tossed into the flames*" [Law 1999, 3]. In his argument Law also stressed the close

[1] The substitution of *agent* or *actor* with the word *actant*, usually adopted in semiotics, represent the ANT solution to emphasize the agency over the intentionality and responsibility of the action.

[2] As the word actant, also performativity needs to be considered as a pivotal term of ANT vocabulary, and also in this case the main question it is connected with is agency. In fact performativity refers to socio-technical configurations that contribute to construct a phenomenon and, in doing so, it's affected by the same phenomenon. In the next pages of this introduction and in most of the contribution of the Symposium the word is frequently adopted, used and explained.

connection between ANT and complexity, too often heavily reduced and "normalized" by the sociological tools and theoretical (and "a priori") categories.

The starting point of the *agency-focused* and *non-foundational* ANT argument was established with the first studies about how science and technology work "in practice" [Callon, Law and Rip 1986; Latour and Woolgar 1979]; and this is why the story of ANT is strictly connected with the development of science and technology studies (STS), and this represents one of its main fields of application. This symposium presents a partial attempt to illustrate some recent uses of ANT's principles in other fields not strictly ascribable to STS. This attempt follows one of the key suggestion coming from ANT scholars: focusing mainly on empirical efforts and considering the framework as a sort of *sensibility*:

> We do this because in ANT theory isn't reified, separate or abstract. It doesn't pre-exist, waiting to be applied. Instead it is created, recreated, explored and tinkered with in particular research practices. Perhaps ANT is best understood as a sensibility, a set of empirical interferences in the world, a worldly practice or a craft [Law and Singleton 2013, 2].

Anyway the theoretical roots of ANT are certainly high-born:

> But I have decided to share with the readers the good news that ANT actually has a forefather, namely Gabriel Tarde, and that, far from being marginalised orphans in social theory, our pet theory benefits from a respectable pedigree [Latour 2002, 117].

Arguing against the Durkheimian reification of social facts as objects, about a hundred years ago Tarde expressed a peculiar viewpoint based on the consideration that "society is everywhere": that is to say in the configurations made at the same time of natural (non-human) and social (human) elements. Latour emphasized also another similarity between Tarde's idea and ANT: the rejection of the micro/macro distinction. Here macro appears simply as the output of a heterogeneous and unstable process of association (imitation/influence in Tarde's vocabulary), never definitively structured in something to be fixed in a sociological category. What counts is the mutual intersection of agencies that perform scenarios, organizations, cultures and the social itself in space and time. Of course this was the exact opposite of the aim pursued by Durkheimian sociological tradition.

Although there are theoretical (or even ontological) implications of such a radical and innovative framework, the main heuristic aim of the ANT scholars still remains the same: to trace and reconstruct how complexities and socio-technical phenomena are performed. It is important to stress that the final goal is to understand the "how" more than the "why" of social phenomena. Here there is another great divide between modern sociologists and those asserting: *Nous n'avons jamais été mo-*

dernes [Latour 1991]. This non-modern disposition is based on a substantial distrust in the modern procedures of knowledge as a pure mechanism of truth revelation. Disciplines, sciences and techniques are negotiated and assembled as well as every social institution or event. Consequently the most famous and important scientists, also within the sociological community, aren't *heroes* [Latour 1987] of knowledge "in se" exactly like the collective and individual actors they study. No one (or nothing) could be considered the cause "in se" of someone (or something) else. This strong downsize of the cause-effect nexus is replaced by a persistent effort to detect how associations and networks are composed, negotiated and stabilized in socio-technical-natural assemblages that occur in times and spaces.

Times, spaces and networks are the coordinates of another classical theme of social sciences: the *embeddedness* of economic behaviour. Here the main reference is the economic sociologist Mark Granovetter and his alternative viewpoint on the economic-sociology relationship. Here economics is fundamentally a mistaken science, since economic phenomena are always a conjoint product of social and economic dimensions. The "social" cannot be separated, neither empirically nor analytically, from the "economic" [Krippner 2002]. In this case as well, we have an ANT non-orthodox counterpart, the "sociologist of translation" Michel Callon. Since "The laws of Market", Callon [1998] underlined that the construction of markets is a process in which the context, with its social structure and specificities, plays only a partial role. In this debate the divergence could be found in the dichotomized perspective that separates the self-interested economic action from the cooperative social action, another "a priori" distinction in line with the modernist over-reduction of what is "real". To understand how markets are shaped and performed, Callon adopts the "*ANT sensibility*" within an analytical perspective focusing on the dynamics of framing and overflowing that respectively close or open market situations. Those dynamics entangle actors and entities – as those goods that are exchanged – or disentangle configurations, reassessing laws, actor profiles and tasks. Moreover several arrangements and devices are able to *dis-embed* and translate exchange practices from one place to another.

Callon's research programme was further developed and recently a manifesto about the need for "economization studies" [Çalışkan and Callon 2009; Çalışkan and Callon 2010] was published. This symposium includes research about economization in different fields showing some peculiar dynamics of new markets in action. The six articles presented here apply these principles to various empirical objects, showing the flexibility of ANT outside the customary boundaries of science and technology studies. The Symposium could be considered as the consequence of a sort of actor-network that consists of an epistemic assemblage. In fact the authors were connected

through time and space (and most of them have never known each other personally) while they were involved in the same action program: translating ANT principles and suggestions in research arguments and/or practices. So each article tells us of an advance, a cognitive experiment or a new viewpoint.

The six articles could be subdivided into three categories: 1) methodological tools for doing empirical research with ANT; 2) theoretical hybridization of ANT with other approaches; 3) applications in the field of new markets and education.

The methodological effort by Tommaso Venturini and Daniele Guido presents an advance in the elaboration of tools dedicated to the ANT *sensibility*. After a fruitful period passed studying how to retrace controversies – one of the most classic topics of STS – the two researchers of Médialab Science Po have developed a software to analyze texts from the ANT perspective. This article contributes to challenge an ancient concern of ANT scholars working within the operationalization of their framework. In the article the story of the relationship between ANT and digital methods and how Latour *in primis* was engaged in this endeavour, is described in detail. The software presented here is called ANTA (Actor-Network Analyzer) and the authors explicate how to manage it to perform empirical research on texts and documents. The output of ANTA is a bipartite graph displaying connections between texts and expressions. Venturini and Guido advise about the limits of this instrument and underline the need for further development, in particular to improve the quali-quantitative integration of the instrument. Anyway it seems that ANTA represents another important step to enforce the empirical and methodological characterization of ANT.

As mentioned in the first part of this introduction, the ANT perspective generated a lot of theoretical debate. Some of these theoretical questions are discussed in the contribution by Federico Montanari about the effectiveness of a semiotic-inspired approach, as ANT intrinsically is, in studying markets and finance. In particular Montanari identifies semiotics as an epistemological *trait d'union* between the two main disciplinary ANT anchorages, anthropology and sociology. In doing so, the author focuses his attention on those performative flows of actions and discourses shaping economy and economics, recalling the Callon research programme on how the knowledge (economics) creates reality (economy). Financial discourses are depicted both as acting and enacted, and not only as a representation of a pre-formed reality "out there". Discourses are (or better could also be understood as) hard "facts" and semiotics allows for the entrance into this assemblage. This is why financial discourses could be retraced in the making of finance itself: its devices, technologies, people, concepts, and most famous of all the calculative *mantra*, such as the powerful and obsessive one called "spread". The ethnographic attention on how heterogeneous entities work together seems an effective way to reassemble the market scenarios.

At the same time the hybridization of economic sociology and semiotics offers the conceptual tools to understand how markets are framed and transposed (that is to say translated) all over the world.

The first empirical paper of Piccioni and Mattozzi deals with the mediating role of machineries used in the raw milk market. Here the artifacts are the main characters of a qualitative account of how a particular practice of consumption happens. In doing so, the authors recall one of the first and most famous works of Latour, *The Pasteurization of France* [1988], questioning if some socio-technical movement (in terms of socio-technical translation) has *depasteurized* Italy.

The methodological and theoretical nexus is well described by the authors and they underline the added value of ANT as a "theoretically informed methodology". If ANT is mainly focused on connections and attachments it is because it considers the theoretical prevalence of the relations over the singularity of the entities. In such an assembled reality, technical objects – such as refrigerated tanks and raw milk vending machines – perform an action of mediation inspired by a "script" stemming from both the projects of designers and the practical adoption of users. In this paper different *milieux* of raw milk vending facilities are typified and depicted crossing the kind of shell and the distance of the vending machines' facilities from other such farms or stores. Then how and what artefacts perform is fully described, compared and accounted. The output of the research is an effective and powerful analysis of different raw milk vending situations that are *explicated* through the *description* instead of general laws, functions or structures. What emerges from the paper is that the raw-milk network has co-constructed a very specific process of *depasteurization* of Italy. This process reshapes the meaning of *depasteurization* in terms of the chemical process adopted to treat milk, in terms of the translation of scientific codes in sanitary standards (and then in practices), in terms of diffusion of a new logic of production/consumption.

The last three papers are explicitly inspired by the research programme of Michel Callon and adopt his framework within three different fields usually studied by three different sociological sub-disciplines: environmental sociology, organization studies and sociology of education.

The contribution by Dario Minervini is about the changing role of waste in our ecological and modern society. Here ANT, according to Callon, is adopted to *enter* into the performative functioning of another sociological theory, Ecological Modernization (EM). At the same time EM represents one of the most relevant approaches in environmental sociology and a prescriptive policy orientation largely shared in the Western countries. EM works like *governance*, an argument that says simultaneously how something happens and what to do to make it better.

The author borrows Callon's concepts of frame and overflow to illustrate how waste, for a long time considered an externality, was internalized in the EM socio-technical *agencement*. This process is made of a complex assemblage of new devices, norms, products and services, all contributing to make the action of waste calculation and valuation possible, that is to say what waste is in the EM configuration.

Two empirical episodes, part of wider researches, show different experiences in which the performative action of waste value creation is pursued. The first case is related to the story of an incinerator plant. Here it is shown how the waste valorisation process was black-boxed and framed in a socio-technical network and how it was so powerful in connecting heterogeneous actors and interests to the incinerator plant.

The second case is dedicated to the practice of spatial control in waste management (and qualification). Here the action of an operator of a municipal company and the ambitions in-scripted in the national IT System of control and traceability of waste are accounted to explore waste identity translation and valorisation in the making.

These two short episodes refer to a small part of the more messy and extended EM agencement, pointing out the movement of waste from traditional networks to new economic scenarios in which the value of waste is realized and, at the same time, needs to be constantly re-negotiated, re-framed and re-realized.

The research presented by Petra Adolfsson also focuses on the Callon programme on performativity. In this case the idea was to use the ANT framework in organizational studies, in particular to show what happened when pharmaceuticals entered into Swedish supermarkets.

As the previous, the article takes into account (and accounts for) the agency enacted after the discourse about privatization was adopted into a kind of welfare paradise (that is Sweden) and in such a delicate sector as the health/pharmaceutical one. But the political controversies are not the main focus here, but the "cold" and slow negotiations originating after the introduction of pharmaceuticals in supermarkets were retraced and investigated. Following Adolfsson's argument, it is possible to explore how products interact in new organizational configurations and what this means for the daily practices unfolding in a supermarket. It seems relevant to notice the reference in the paper to Czarniawska and Hernes [2005], the organizational scholars that introduced ANT in organizational studies reinforcing the *practice turn* both methodologically and theoretically in social science.

This research, like the others presented in the Symposium, is based on a strong qualitative approach, coherently with the ANT tradition. A great number of details about the world of non-prescription medicines are reported. These details are effective in describing how assemblages are involved in the organization of this new vending situation. Retailers, medicines, labels and signs, workers, technologies and tools,

customers and their needs, local and national regulations, experts of the Medical Product Agency, dangerous products such as alcoholic beverages and tobacco, and a lot of other entities play a role in performing the organizational reconfiguration of a store. This happens because "cold" negotiations translate in practice the output of the "hot" controversies that generated the possibility of a new relationship between medicines, retailers and customers. This work shows the added value of ANT in the organizational disciplinary field, representing the dynamics of an innovation considered framed and stabilized.

The last article deals with the new system of head teacher selection implemented in Italy. In this case ANT meets the disciplinary field of sociology of education in which the mainstream was so often and deeply influenced by the works of another grandmaster of "practice" in social sciences: Pierre Bourdieu.[3]

The aim of Barzanò and Grimaldi is to detect the translation in Italian educational policies of a new device to select head teachers, i.e. the 'sudden death test', that is sponsored by the global NPM policy discourse (and its magic formula about merit-based recruitment). To answer such question of research the authors created a theoretical patchwork combining the sensibilities of the studies in governmentality with the performativity research programme by Callon. Head teachers' selection through testing is interpreted as a process of collective performation, where the ideological view of NPM about education is in-scripted in what is considered a non-ideological tool, that is a standardized and objective test for professional selection.

The argument developed in the article is that the STAs through which the actualization of the new formula to select the deserving candidates unfolds have specific performative effects. Although the formula succeeds in establishing the test as an *obligatory passage point* [Callon 1986], overflowings in its actualization make the new device vulnerable and contestable. Moreover, the test and its associations also act as part of an STA that governs the conduct of people and *subjectivates* new deserving and competent future head teachers. The opening up of new markets where knowledge about how to pass the test is commodified and the fragmentation of head teachers professional competences are two effects the authors focus on. Barzanò and Grimaldi point out how Callon allows us to enter into the "socio-technical agence-

[3] It is the case to remember that Latour and Bourdieu have *heavily criticized each other, representing two different approach to what is the role of sociology, that is to say what is sociology. Even if the work of both authors was focused on the society in "practice" and both refused any kind of "a priori" explanation of the social phenomena, the first could be considered a pragmatic thinker very close to what Boltanski [2011] calls "sociology of critique", while the second was one of the most important innovators and leading figures of "critical sociology". So, if Latour considers power as an effect of a particular agglomerate of human and non human entities, Bourdieu studied power in terms of asymmetric distribution of social, cultural and economic capital.*

ments" of government without neutralising its power dimension, in line with the Foucauldian tradition.

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Introduction to the Symposium

Abstract: Actor-Network Theory (ANT) is not a novelty any more. From the generalized symmetry between human and non-human actants, to the flat ontology, getting through the collapse of the sociological "great divide" between micro and macro, ANT has introduced a relevant innovation in social sciences, both in terms of new vocabulary and fresh theoretical perspective.

After thirty years of researches and scientific debate, the main heuristic aim of the ANT scholars still remains the same: to trace and reconstruct how complexities and socio-technical phenomena are performed. Nowadays the ANT sensibility and analytical principles are adopted not only in sub-disciplines of social sciences as environmental sociology, organization studies or education, but also in other fields as Information Systems or Geography.

This symposium presents a partial attempt to illustrate some recent uses of ANT's principles outside the customary boundaries of science and technology studies. The six articles could be subdivided in three categories: 1) methodological tools for doing empirical research with ANT; 2) theoretical hybridization of ANT with other approaches; 3) applications in the field of new markets and education policy analysis.

Keywords: Actor-Network Theory, text analysis method, theoretical insights, new markets, education policy.

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