Cartographies from the Margins:

Outline of the Development and Applications of Actor-Network Theory in Spain

Jorge Castillo Sepúlveda

Abstract In Spain, since the start of the 1990s, there has arisen a joint movement of recognition, production and hybridization in the social sciences with one of its apexes being the field of STS. This has acquired a specific form in Actor-Network Theory, which in certain research groups, has become a tool for translating the reflective activity and research conducted so far in relational and material terms. This text traces the path of development of Actor-Network Theory in Spain based on the consideration of three themes. First, its evolution over time and the identification of certain periods, differentiated in terms of the work carried out during them; second, the spaces, texts and people recognizable in these processes; third, the naming of certain areas of research interest. Finally, some reflections made public at the *Primer Encuentro Estatal ANT* will be mentioned. These may serve to highlight certain aspects of work currently being carried out and the future of this theory in Spain.

Keywords Actor-Network Theory; Science and Technology Studies; Spain; History.

Introduction

Now and again something escapes and becomes new, restless and creative. Product of meetings, connections and mediation, there are events that create distinctions, feeding off a number of other events that have happened either hidden or exposed, but alternative to what might be called "traditional patterns of thought". Similar to a *ligne de fuite* (Deleuze and Guattari 1980) they seem to escape the resonances which have codified the ways of conceiving the natural and artificial, the normal and abnormal and, together, position themselves between these dichotomies.

Actor-Network Theory (henceforth ANT) may throw light on this phenomenon[1]. From the field of Science and Technology Studies (STS) this theory (or focus, as it is often classified) has returned to mend the domains that make up the real in order to develop narratives which do not lose sight of the continuity with which the various techno-scientific phenomena often intertwine themselves with other phenomena of a multiple nature, both human and material. Though subjected to many criticisms and attempts to stabilize it this sensitivity to associations has awakened research and reflection motivation in various academics around the world. The ideas involved include translation, generalized symmetry, actants and hybrids and they have been disseminated in various scientific circles and transcended their field of origin to reach questions related to the social order and even to question fairly well-rooted beliefs in sociology (Domènech and Tirado 1998). At the same time the academic production of English speaking countries has moved beyond their borders and reached countries such as Greece, Portugal, Germany, Italy, Spain, Brazil, Argentina, Mexico and Chile among others. Hand in hand with this literary expansion ANT has grown and diversified (Callén *et al.* 2011). How has this theory articulated itself on the basis of developments which have taken place on the margins of dominant academic circles? What events might serve as sources to continue developing this theory, or a different one?

This article tries to trace the path taken by ANT in one of the territories where it has only been disseminated and achieved a certain level of recognition relatively recently. In Spain, as probably occurred elsewhere also, STS gradually acquired visibility and their epistemological and empirical contributions gradually consolidated themselves into a productive though also diasporic and transitioning intellectual scene (Callén *et al.* 2011). In the process, various universities integrated its structures into postgraduate training programmes and developed specific research projects on a trans-disciplinary basis (Ayús 2001). In this context, ANT has been recognized as being a useful and fruitful tool to update stalled ideas in social thought. And this has occurred not only in the area of science and technology but also in relation to the fields of politics, economics and education. This article is conceived as a map of this approach in Spain, that is to say, a tracing out over its present but also over its development. This paper should thus be seen as one view, one among the potential diversity of existing views of a story. In the sense developed by Tim Ingold (2007), a view to be found in relation to textures and surfaces, in which these dissolve, reconstitute themselves but also in which it is possible to establish certain supports which generate a sense of location. And so, this is a totally one-sided portrait, based on contacts made, stories recaptured from a particular

---

[1] In Spanish the term Actor-Network Theory has been translated as *Teoría del Actor-Red* although examples of it being translated as *Teoría de Redes de Actores* [Theory of Networks of Actors] can be found as well. Both translations have divergent epistemological and semiotic effects. For example, the first allows the understanding of a figure that is an actant (or actor) and network simultaneously, while the latter emphasizes the concept of network over the actors (as an element *per se*). For a thorough examination of the preference for the first translation see (in Spanish) Domènech and Tirado, 1998.

position and perspective and for this reason many actors will probably not be represented. It is to be hoped that it is just a beginning.

Returning to the idea of the map, the territory that will be described here has qualities that are difficult to capture. The space concerned is dispersed, diffuse, still changing and it is hard to locate all aspects of its background. Nevertheless, the view presented here is relatively validated by those experienced the arrival of ANT in Spain. Interviews were carried out with various researchers who visualized and contributed to the utilization of ANT in certain academic spaces and they were presented with a preliminary version of the material set out here to examine and enrich it. The central intention of this paper is to contribute to the perception of "locatability" of ANT in a territory which is itself in constant transformation. It seems to emerge as a poorly defined archipelago, the material substance of which condenses itself into some research and meetings, the acts of small groups or academics who establish their bases but at the same time roam about precipitating theoretical densities and activating certain connections without agreeing on a stable map of its form. They are acts of incorporation of a territory, mutual movements in which a space for reflection and interaction is performed. A marginal space, if you will, when one considers the mainstream elements of sociology, anthropology and social psychology (Callén *et al.* 2011) but from which this position still remains a territory, with a transformative potential, at the edge of the reach of the sources which situate themselves as a centre. A map of ANT becomes: "stories in emergency contexts in which a concept is continually re-invented. In them the origin is dislocated and blended into the joint movement (…) of practices which have distinct rhythms and emergency spaces" (*ibid.,* 7). Here the idea of marginality emerges as a resource and not necessarily as the acceptance of the existence of a sole and immutable centre. As may be expected from an ANT viewpoint, central or marginal location refers to the effect of a relationship, of a heterogeneous work always in progress, limited to particular circumstances and constantly changing.

In this framework the intention is to construct a certain ubiquity constructed along three scales: one temporal, one spatial and the other conceptual. The first examines the situation of ANT over time in Spain. In order to do this, the descriptions are presented organized into various periods so as to facilitate the capture of this dimension, divided up according to the type of work involved in each one. The second scale deals with the organization of the ANT perspective in various Spanish regions as well as the various publications that have facilitated its diffusion. In order to do this, names, places, centres of studies and publications are indicated as a reference to certain processes. The third scale signals the exposure level of certain themes that have been dealt with and which have developed into areas of study from an ANT perspective in Spain. In this regard areas of interest and projects underway are named. The conclusion will consist of reflections, which may account for certain aspects of the presence of ANT in Spain. But let me start with the definition of some coordinates.

1. Coordinates

How is it possible to recognize the themes and ideas that are specific to ANT and differentiate them from the generality of those of STS? The location of points and crossovers at which this focus has been presented and developed directs attention towards certain historical and epistemological questions, which it may be necessary to address.

As Law (2009, 3) has stated: "If the actor-network approach started at a particular time and place then this was in Paris between 1978 and 1982". Michel Callon coined the term in 1982, "but the approach is itself a network that extends out in time and place, so stories of its origins are necessarily in part arbitrary" (3). Previous to this period, there were two schools of thought which dominated the generality of social studies of science: the "Strong Programme" of David Bloor and the Edinburgh School and the "Sociology of Error", derived from the work of R. K. Merton (Sánchez-Criado 2006; Aibar 2006). In his papers "Wittgenstein and Mannheim on the Sociology of Mathematics", and "Knowledge and Imagery Social", Bloor (1973, 1976) established the basis for what could be regarded as a sociology of scientific knowledge that went beyond the "Sociology of Error", which had been the predominant school of thought up to that point. To do this he established four principles among which the Principal of Symmetry may be regarded as the most important. It holds that sociology should be symmetrical in its forms of explanation and so employ the same kind of cause to account for both errors and successes. What has come to be known as the Generalized Symmetry Principle (Callon 1986, cited in Domènech and Tirado 1998), on the basis of which ANT has constituted itself, consists of a critique of the social as the sole cause of these explanations and also of it as a category formed and sustained by humans alone. This symmetric hyperbole integrates into research narratives not only the ideas of success and failure as effects of socio-technical productions but also the participation of humans and non-humans as agents that participate in the constitution of these phenomena (Latour 1991).

ANT emerged as a critique of the reification of the social as the sole case of scientific and technical phenomena (Tirado and Domènech 2005): without assuming the existence of essences previous to any movement towards association, ANT proposes a way forward in which the distinction between human and non-human ontologies is not the most important factor. It thus affirms that technology and society are the joint and alternate result of a heterogeneous work of engineering in which the material, social, technical, textual and discursive interweave, associate and mutually transform themselves. It privileges neither accounts of a natural order (realism), nor those based on culture.

It may be difficult to build a concrete definition of ANT, given its continuous hybridization with other fields, disciplines and concepts (Law 2009; Callén *et al.* 2011). Nevertheless, Law (2007, 4) holds that, in broad terms, it can be characterized as a "disparate family of material-semiotic tools, sensibilities and methods of analysis which treat anything or issue in the social and natural dimension as simple effects which are continually generated in the heart of relationship networks that

are always localized". It shows qualities which situate it in the first place - in Law's terms – as a sensibility, a way of approaching scientific or techno-scientific phenomena which emphasizes all that which might be omitted by approaches that are exclusively social or principally natural. It is an approach that uses a "seamless web", a map without frontiers.

2. Why ANT in Spain

A question which perhaps might be relevant is: why the focus on this theory, and not on STS? The answer has two aspects, one historic and the other conceptual.

In Spain, as in academic circles in many other countries, there has developed an important school of critical thought (which condenses many perspectives in itself, but which are often placed in relation to this designation) which while remaining outside the mainstream, carries out an intense intellectual project relating to the dismantling of essentialist and naturalizing conceptions of social and cultural events.

Various schools and departments of sociology and social psychology (mainly in Barcelona, Madrid, and Bilbao), organize discussion groups and teach courses related to the work of authors such as Michel Foucault, Gilles Deleuze, Félix Guattari and Donna Haraway, among others. The central axis linking the work of these authors might be said to be power as an area of concern and study and a poststructuralist orientation toward the analysis of the social. Thus, from multiple sources, the arrival of ANT was easily translated according to the research interest of each group, offering as it did a way to unite the work of these authors with an empirical practice. ANT has various similarities with lines of work already being carried out in Spain and presented itself as "one of the most complete (and with most future) proposals for the denunciation of the obsolete character of modern thought" (Tirado 2005, 1). This process is analogous to that described by Law (2009, 145) in his text on the history of ANT:

Precarious relations, the making of the bits and pieces in those relations, a logic of translation, a concern with materials of different kinds, with how it is that everything hangs together if it does, such are the intellectual concerns of the actor network tradition. However, this is a combination of concerns also found in parts of poststructuralism. (…) actor network theory can also be understood as an empirical version of poststructuralism. For instance, "actor networks" can be seen as scaled-down versions of Michel Foucault's discourses or epistemes. Foucault asks us to attend to the productively strategic and relational character of epochal epistemes (Foucault, 1979). The actor network approach asks us to explore the strategic, relational, and productive character of particular, smaller-scale, heterogeneous actor networks.

Another aspect has to do with a question that might be regarded as historical. Only in 2010 was the *Primer Encuentro Estatal ANT* held in the city of Barcelona,

though it should be pointed out that it was preceded by the *Primer Encuentro Estatal de Estudios de la Ciencia y la Tecnología,* held in 2006, also in Barcelona. The 2010 encounter presented itself as a space for meeting and critically debating on "the conceptual tools and methodologies offered by Actor-Network Theory in various areas of social science (sociology, anthropology, geography, psychology, political science…) (…) [assessing] the transformations they have suffered and will suffer in the future" *(I Encuentro Estatal ANT* 2010, 1). It thus constituted itself as a purposeful space for reflection on the conceptual and methodological challenges faced by the area. The 2006 meeting, broad as it was in nature, took place in an atmosphere of recognition, with an impulse to establish working platforms and contacts between professionals and tried to differentiate STS from other disciplines like the sociology of knowledge, the philosophy of science and social psychology. These events account two aspects for the practices of knowledge in the field of STS and specifically ANT in Spain. First, they indicate the occurrence of acts of connection and recognition that point to the existence of various actors involved with the theory. Second, they diffract a field of research that acquires specificity in the developments of ANT, shaping the existence of some academic groups tangentially or directly interested on it. There follows an outline which tries to illustrate one of the forms by which it might be considered that this occurred.

3. ANT in Spain

3.1. From the End of the 80s to the Middle of the 90s: Panorama

A panorama consists of the local production of the perception of totality. In the words of Latour: a vision of wholeness in a closed-off box (Latour 2005). Though, as has already been mentioned, ANT arrived in Spain from multiple sources, but there exists a certain convention that the first reference to it was made in a chapter written by Teresa González de la Fe and Jesús Sánchez Navarro titled *Las sociologías del conocimiento*, published in 1988 in one of the sociology journals of the period. Both authors are part of the academic staff at the *Universidad de La Laguna,* of the Canary Islands, and are, respectively, a sociologist and a philosopher. Their chapter offers a general view of various sociological approaches concerned with the study of scientific culture and knowledge and contrasted each with Merton's Sociology of Error. Thus, the first arrival of ANT took the form of a fairly coherent portrait depicting various research innovations abroad. At that moment there existed no kind of application, or appropriation, of material-semiotic postu-

lates in Spanish research. The interest shown by the chapter was, therefore, mainly, theoretical in nature[2].

The first Spanish translations of key ANT texts soon began to appear. In Barcelona in 1991 Woolgar's "Science: The Very Idea" (1988), appeared with the title *Ciencia: abriendo la caja negra*[3]. The translation was by Eduard Aibar, who had done postdoctoral work abroad and was a specialist in STS. In 1992 "Science in Action: How to Follow Scientists and Engineers through Society" was translated and published with the same title[4]. In 1994 came the turn of *Nous n'avons jamais été modernes. Essai d'anthropologie symétrique*, written by Latour in 1991, this translation being published in Madrid[5]. A previous book by Latour and Woolgar (1979) - perhaps foundational - was published in 1995.

In this period, in certain academic circles reflection and research was still being done from a Mertonian perspective. In 1994, Emilio Lamo de Espinosa, with Cristóbal Torres and José María González, presented *La sociología del conocimiento científico*. These academics from the *Departamento de Sociología y Teoría Sociológica (Sociología V)* of the *Universidad Complutense de Madrid*, are today recognized for their work on the sociology of knowledge and reflexivity. At the *Universidad de Salamanca* Fernando Broncano and Miguel Angel Quintanilla form part of a group exclusively dedicated to the philosophy of science and technology. They have dealt with the participation of technological artifacts as entities which shape human behavior from a discrete and linear rather than a dense and hybrid viewpoint. ANT only appears in the form of texts (both in their original languages and in Spanish translation) which fell into the hands of various academics interested in updating and re-problematizing certain categories not already subject to critical social thought such as, the idea of the object and its relation to the notion of the subject (see, for example, Tirado 2001).

---

[2] Even though the term ANT had already been coined at the international level, the text centres itself on the classification of the type of research carried out, rather than their epistemological presumptions. These are, therefore, described as ethnographic studies in laboratories carried out by Steve Woolgar, Karin Knorr-Cetina and by Latour. Later these were classified as studies based on relativism and constructivism, situating it in coexistence with other research programs such as the Strong Programme (with Bloor and Barry Barnes), the Relativistic Programme of the Bath School (with Harry Collins and Trevor Pinch), Scientific Discourse Analysis (with Mulkay, Gilbert and others) or the ethno-methodology of scientific work (with Garfinkel and Lynch, among others). The Laboratory Studies were integrated into the Constructivist Programme, making it clear that the scientific events they studied were produced in circumstances defined by specific practices (González de la Fe and Sánchez 1988). It was a revision which emphasized the ethnomethodological nature of these studies, so distinguishing it from other sociologies of scientific knowledge which deal with the practices and methods used by scientists in their contexts (Lynch *et al.* 1985, cited in González de la Fe and Sanchez 1988). They are presented as a perspective in development arising from necessities present in foreign contexts and without application in Spain or in other Spanish speaking countries.

[3] "Science: opening the black box". Published by Antrophos.

[4] Published by Labor.

[5] Published by Debate. Currently published by Siglo XXI.

There exists no work done in relation to ANT in this period, rather there was a tendency to see it as a viewpoint limited to the functionality inscribed in its origins, namely, research in laboratories. It was performed as a specific kind of research carried out by foreigners, that is to say, a practice carried out in the exterior, circumscribed by the circulation of certain works in the academic world, imported or translated. Nevertheless, there was an incipient interest in its dissemination arising from the postgraduate work done abroad by various people, people who currently make use of this approach.

3.2. From the Middle to the End of the 1990s: Anchorage

Thus was it that in the 1990s STS and, in particular, ANT, started to be recognized as a research tradition independent from the sociology of knowledge, differentiated, perhaps, by its transdisciplinary nature (Ayús 2001). In this way, various disciplines attracted by the poststructuralist trend, conceived this field as a kind of island at which to anchor, at least for a while, in order to develop research that differed from the body of work that existed at that time. Interests were multiple but they can be grouped along axes such as the process of construction of stabilities of knowledge, the relation between knowledge and social formations and the interaction between power and knowledge. ANT was intended to be a practice to go beyond the purely epistemological or philosophical, and the eminently discursive. There was, thus, a momentum to link these interests with research praxis (Tirado 2005). Different particles composed of academics became specialized in the ANT approach, attending international meetings and hearing about the most recent publications in the field (*ibid.*). On another level, study groups at universities and research centres began to gain theoretical density at the same time, forming groups and academics recognizable for their work in these areas. These possessed different profiles and had different degrees of stability but, nevertheless, they can be clearly identified: the *Departamento de Sociología V* of the *Universidad Complutense de Madrid* (UCM)[6], the *Centro de Estudios sobre la Identidad Colectiva* at the *Universidad del País Vasco* in Bilbao (CEIC)[7], the *Instituto de Filosofía* of the *Consejo Superior de Investigaciones Científicas* (CSIC), under the orbit of the *Ministerio de Ciencia e Innovación* and the *Departamento de Psicología Social* of the *Universitat Autònoma de Barcelona* (UAB), where the research group on *Fractalidades en Investigación Cualitativa* (FIC)[8] and the *Grupo de Estudios Sociales de la Ciencia y la Tecnología* (GESCIT)[9] embraced a material-semiotic perspective. This latter has formed strong ties with the group of young researchers who make up *Tecnología y Acción Social* (ATIC) at the *Universitat Oberta de Catalunya* (UOC)[10],

---

[6] See: http://www.ucm.es/info/teoriasc/
[7] See http://www.ceic.ehu.es/p285-home/en/ and http://www.ifs.csic.es/
[8] See: http://psicologiasocial.uab.es/fic/en
[9] See: http://psicologiasocial.uab.es/gescit/en
[10] See: http://aticuoc.wordpress.com/

academics at *Universidad Autónoma de Madrid* (UAM), as well as the other centres mentioned.

With regard to the UCM, in 1994 the journal *Política y Sociedad* published a special edition on STS which included texts by Latour, Woolgar, Bloor and Mulkay among others, as well as work by Spanish authors. Fernando García Selgas and Rubén Blanco, who spent time at the Edinburgh School, developed a line of research based on the SCOT Programme and ANT. Their initial work was based on the philosophy of social studies of science and the new social contract for science, leading to the sociology of the body and gender, digital culture and virtual communities. The work of the *Departamento de Sociología IV* at the Somosaguas campus of the UCM, where Ángel Gordo and Igor Sádaba (Cibersomosaguas 2010, 1) work, can be read in terms of this logic.

At the CEIC, can be found works of Ignacio Mendiola, Gabriel Gatti and Daniel Muriel. Their research topics have to do with the management of cultural heritage, identity, gender, transformation of space and confluences of migration flows. Though at one time this group was productive with relation to STS and ANT its work has since moved in other directions. In any case it maintains a website to display its activities and an e-journal, *Papeles de CEIC*[11], which publishes a diverse range of work related to these fields.

The CSIC, is a public entity formed as a network of various research centres. In the *Instituto de Filosofía*, Eulalia Pérez Sedeño, and several researchers who have done work abroad in the field of STS, carry out research which intersects with the dimensions of gender, science and technology, particularly addressing the biopolitics of bodies, biomedicine and biotechnology. Its dedication to gender equality encompasses a transversal perspective leading to research into the causes and forms of disequality, including the systems of science and technology (*Instituto de Filosofía* 2011).

In Barcelona the route taken was different. At the *Departamento de Psicología Social* of the UAB some authors showed a particular interest, both theoretical and applied in the field of STS. Thus Miguel Domènech i Armegi and Francisco Tirado Serrano, members of GESCIT, recognized ANT as a resource not only to only to deal with already described problems in the sociology of knowledge nor only to apply its concepts to the study of techno-science but to generate new questions, locate unexplored domains and at the same time come up with concepts to help think about them. They carried out this work in an intellectual context in which the predomination of the symbolic as an explanatory element defined the identity of the Department and the vanguard of research in Spain. This was the context in which the first book dedicated to ANT was published in Spain, *Sociología Simétrica: Ensayos sobre ciencia, tecnología y sociedad* (Domènech and Tirado 1998). It consisted of a compilation of Spanish translations of key articles considered foundational for ANT by Callon, Law and Latour among others. The idea behind the book was to analyze and disseminate the history and development of ANT without losing sight of its weaknesses and limitations and without forget-

---

[11] See: http://identidadcolectiva.es/papeles/

ting to ask questions designed to improve it. This was to find a particularly note-worthy reception in the field of Social Psychology, overcoming the limitations of social constructionism and the discursive perspective.

Thus began the publication of a series of studies which, taken together, tried to go a little beyond the approaches inherited from the founders and which were already in circulation. Since 1997 GESCIT has produced several chapters and articles on the critical analysis of institutions and their relationship to dimensions such as virtualization and technological change, and emerging forms of the social. Among the ideas so circulated was that of *extitución*, a concept developed by Michel Serres and used to explain the transformation dynamics of the traditional dynamics of power; a move from the institution, an organization focused on the interior, towards hybrid, porous and malleable entities dedicated to the management of exteriorities (Tirado and Domènech 1998, 2001, 2006; Tirado and Mora 2004; Tirado and López 2004; Domènech and Tirado 1997, 2002). This concept is noteworthy to the degree that it can be considered one of the first local intersections between philosophy and social science in the field of STS in Spain. There then came a series of studies which sought to make both empirical and theoretical contributions. These would come to light some years later related to matters such as biopolitics (Callén and Tirado 2006; Tirado and Callén 2008), the interaction between technological development and social healthcare (López 2009; Sánchez-Criado and López 2009; Callén *et al.*, 2009; López, Tirado and Domènech 2003; Vitores 2002) public spaces (Íñiguez 2006); social movements (Rodríguez-Giralt 2009; Rodríguez-Giralt and Caussa 2002; Aceros *et al.* 2005; Domènech *et al.* 2002) and knowledge generating practices (Losego, Domènech and Tirado 2000; Domènech *et al.* 2000), among others. The Department has a journal *Athenea Digital*[12], where a series of articles with an ANT research basis can be found, as well as links to other that are critical in nature.

Between the middle and end of the 1990s, ANT came to be recognized in Spain as a theoretical and research perspective immersed in different currents of critical thought that had already fixed certain channels for themselves. The anchoring of ANT thus occurred in conjunction with its distribution and so fixing a productive route, which has followed particular paths but not specific ones, nor with established patterns. This, if anything, is what might characterize ANT in Spain: mobility and juxtaposition, the linking of interests to describe certain phenomena through the connotation of its effective breadth, its range and its concrete levels of influence. It is perhaps this aspect that characterizes what might have happened in these years, the recognition of ANT with its theoretical and empirical vocation separate from STS in general. In fact, ANT in Spain has transcended its applications in techno-science to deal with questions arising in the classic traditions of sociological, psycho-social and anthropological research[13].

---

[12] See: http://psicologiasocial.uab.es/athenea/
[13] The development of ANT in areas other than the sociological and psychosocial fields has not been explored. For some sightings of ANT in the field of anthropology in Spain see González-Ruibal (2007). For architecture could be consulted Muniesa *et al.* (2005).

3.3. The First Decade of the New Century: Plexuses

As occurred in other areas, the intention is not to make ANT into *a* theory, in the sense that there is no desire to stabilize it into an unquestionable set of assumptions of concepts with a pure and unique definition; the intention is, rather, to maintain it as more of a flow of thought (Law 1999). Though it is true that thought has never ceased to move, it has done so more rapidly from the 1990s and on into the first decade of the 21st century. As a sign of this movement it may be worth looking at the work being carried out by some young researchers today. These constitute a kind of "second generation" of Spanish researchers in the field of STS: in several centres, ANT has been adopted as a working perspective, articulating itself as platforms that offer opportunities for dialogue, communication and exchange and mutual influence. In the first decade of the century, new associations and connections have been generated which it may be beneficial to mention.

The ATIC has sought to be trans-disciplinary in nature and has as its objective the study of the role of technoscience in the organization of contemporary social action (ATIC 2011) with a special focus on the daily lives of groups and people. Daniel López and Israel Rodríguez-Giralt have contributed to its formation having previously been members of GESCIT. López has specialized in techno-medical development related to dependency, principally Telecare and in his work has made use of ANT concepts. He is currently working on research projects on the controversies surrounding the Spanish law for the empowerment and care of dependents. Rodríguez-Giralt does research into the heterogeneous mediated processes, which give shape to social movements. Both lines of research have connected with each other in work on public life, spatial and urban development (see Rodríguez-Giralt, López and García 2009; López 2005; López and Doménech 2008; López and Domènech 2009; Callén *et al.* 2009). Tomás Sánchez-Criado, a researcher at the UAM and related to the GESCIT, also participates in the ATIC, as well as an Iberamerican network of anthropological studies, AIBR, *Antropólogos Iberoamericanos en Red*[14]. He currently carries out ethnographic research on the practices of implementation and use of home Telecare devices through which certain articulations of subjects, social contacts and care spaces emerge (see López and Sánchez-Criado 2009; Sánchez-Criado and López 2009). Also in the UAM, Rubén Gómez Soriano works on questions related to the role of the great apes, specifically, the bonobos, in the Western imagination, connecting ANT to the ethology of Despret, Haraway's early writings and some primatological reflections. Among these nuclei many other researchers have generated research processes in the material semiotic line

---

[14] There was a special edition of the journal AIBR in 2005, produced with the intention of reflecting on constructivisms in the social sciences and the study of technoscience. It can be consulted at http://www.aibr.org/antropologia/44nov. This edition had some articles from the world of ANT and was the seed for the collection "Tecnogénesis" (http://www.aibr.org/antropologia/aibr/tecnogenesis). This was published in two volumes and in it various authors reflect on human ecologies as heterogeneous media shared with entities of diverse ontology.

and generating research fields providing mutual feedback on concepts, epistemologies and theories (see Callén *et al.* 2011)[15].

At the UCM, *Departamento de Sociología V*, Carmen Romero has worked, together with Fernando García Selgas on the entanglements that make up the articulation of identities and how this relates to systems of sexual exclusion and differentiation, basing himself on queer theory, post-colonial studies and the notion of the Cyborg. ANT here exists in hybrid form in relation to other theoretical approaches. It maintains relations with the previously mentioned approaches.

The *Universidad de Salamanca* has developed a postgraduate study program on STS in which researchers from the *Instituto de Filosofía* of the CSIC, such as Marta I. González[16] participate. No information is available about specific ANT research from this centre. At the *Universidad de La Laguna*, there continues to be some interest in STS, with some element of involvement of ANT. José Manuel de Cózar Escalante has carried out research on nanotechnology from this position. On the mainland of Spain, CSIC, for its part, is currently developing an annual seminar titled "Cartographies of the body. Biopolitics of science and technology", at which work done from a feminist perspective on the role played by bodies in scientific and technological practices is discussed (CSIC 2010).

Since the year 2000, on the basis of the interests of various researchers, ANT has been employed as a specific perspective of analysis to deal with fields that go beyond the purely scientific but which, nevertheless, transect it. These researchers have generated organizations to propagate their research, obtain funding and contribute to the training of people interested in this field. GESCIT, *Sociología V* at the UCM, ATIC, CEIC and *Instituto de Filosofía* of CSIC, are examples of the work being done in which multiple lines of research are developed by researchers in different spaces in movement, exchanging intentions and projects.

3.4. At the Margin

A map is flat. Nothing that it presents shows the movements that occur in the space it tries to represent. Its purpose is different: to provide bearings and mark routes on a terrain which one is about to set out, but which has not been seen across. Thus, instead of providing a conclusion, some reflections will be set out, in order to mark out a certain perspective on the development of ANT in Spain. They arise from talks between people attending the *Primer Encuentro Estatal ANT* (2010, June 18, UOC, Barcelona), and they may well reflect the marginal and creative momentum that was experienced among several researchers.

The meeting was planned around two main themes: the implications of the use of ANT in social sciences and the conceptual lines of thought for and against this perspective. These resulted in two panel discussions and a series of presentations

---

[15] There is a web log generated by these academics in which they maintain public dialogues and publish recent information related to ANT: http://network2matter.wordpress.com.
[16] She has recently written a theoretical article on ANT with Javier Echeverría (see Echeverría and González 2009).

on various ongoing research projects. It would be too difficult to offer a synthesis[17] of all the topics discussed, so that we present here the main axes that have articulated these debates. Their presentation may serve to capture the constructive nature with which it is sought to adopt this perspective in Spain.

a) Do all the discrete categories have agency?

Is ANT understood as a sort of animism? A monolithic discourse on culture? Certainly, the notion of agency in a context in which the distinction between human action and material participation is seen as diffuse material is relevant in the situating of a field of reflection. Thus, the reification of the notion of *actant* as the entity that homologates any kind of participation and ANT as a new mechanicism is a topic to consider and resolve. In terms of a solution the notion of symmetry as a flat epistemology and not as a simile of equality, has been proposed, arguing the lack of a need to specifically localize agencies. This amounts to re-considering the perspective of joined together groups acting – carrying out actions, generating differences – without irreparably requiring their "locatability" (they are scattered across at different points, but connected), their being identified by the effects they produce and the routes plotted on their course.

Among collective spaces, the human one, with its configuration and production as a stable entity is an obligatory way point on the way to assigning an adequate semiotic place to the notion of *actant.* The articulation of the human would not be a process but rather an effect thereof. The *actant* as a subject space in a statement is not assigned to any material, however, not all *actants* have the same semantic mobility; action would not be an ontological problem, but rather semiotic. Remembering Latour: an actor is which is acted as such.

The notion of agency gravitates as a form of understanding the possibility of causing differences in socio-material entanglements. The recourse to the category of *actant* does not appear to satisfy the demands of the relations that it analyzes. One way of establishing certain densities in the theory could be the distinction in French semiotics between the categories of *actant*, *actor* and *figuración* (Greimas and Courtés 1979). According to this semiotic differentiation, these three categories correspond to three different levels of stability in a network which, in a symmetrical description, could account for participations of different degrees of complexity or intensity, which would not involve losing sight of the relational character of its existence. The interplay between action and agency does not depend on ontological constitution but rather on an analytic exercise in which the entities appear on the basis of the traces that are possible to reconstitute. There is, thus, the opportunity to translate the proposals on the need to identify *actants* to one that considers the entanglements or wefts that articulate them. Any ontological unit, in this sense, would be susceptible to analysis from the multiple connections that

---

[17] A special edition of the journal Athenea Digital was published with the presentations made at the *Encuentro* and in it more can be found about questions mentioned in this section (Callén *et al.* 2011).

keep it active and that give it shape. The notion of entanglement could even re-place that of the network to the degree that it would refer to the establishment of vague connections and would refer to the *process* of spinning and weaving in some way, and with some kind of material reality[18]. It would be possible in this way, for example, to change the objectification of "expert" for "expert entanglements", with the analytical implications of this concept.

b) How to frame power?

Is power somehow involved in its conceptual weave or is it something that must be accounted for? For some, technical artefacts are items from which power can already be conceptualized and have agency in its strategies. Revealing the partici-pation of these latter and citizen agencies in controversies can be a way of ap-proaching the problem but always taking into account precisely what is hidden in these relationships. As with governmentality in the Foucauldian perspective, poli-tics would consist of that which does not seem political and an act of power is to take notice of this. In a "cosmopolitic" entity of different natures, human and non-human at the same level interact in a sort of ideal of democracy, being explained in the same universe of interaction.

Nevertheless, life wants to be captured and one of the most useful concepts in this regard is that of biopolitics. Based on the "calculated ambiguity" of Rudolph Kjellen it is possible to establish a certain assembly of ANT approaches. Thus, "Biopolitics can be read without betraying the spirit or intent of this Swedish au-thor, in a way that would understand the biopolitical as a policy not of life nor about life, but rather pursuing life" (Tirado 2010, 11). ANT has properties that al-low for the following of traces fixed and left by power in the persecution of the liv-ing.

4. Final Legenda

In Spain, since the beginning of the 1990s, a joint movement has arisen devoted to recognition, production and hybridization in the social sciences, with one of its apexes being STS. These acquires specificity in ANT which, in certain groups, be-came a tool for translating the research activity carried out up to that moment, in relational and material terms. Without losing site of the foundations of this per-spective, the impetus for these researchers has been to contribute with concepts and ideas, subverting the directional relations that can occur when importing theo-ries and generating internal lines of influence in an academic area made from spe-cific contributions, partial connections and loosely coupled links.

In this text an attempt has been made to trace out some of these lines of devel-opment marking the evolution this perspective has undergone in Spain. In this en-tanglement, ANT has become a field which, though not much visible and remote

---

[18] While a network always refers to the possibility to be entangled.

from disciplinary questions and attempts at institutionalization, has achieved certain recognition in academic spheres of critical thought. Its particular way of opening up the black box of scientific truth has allowed it to establish a terrain in which its interest lives beyond the intellectual, with a certain degree of passion. Marginality and emotion seem to be good companions. Like a wandering animal, ANT marks and creates its own territory.

References

Aceros, J.C., Coronado, S., Gamero, V. and Mozka, S. (2005) *¿Qué se mueve en los movimientos sociales?*, in "Psicología Social y Problemas Sociales", 2, pp. 47-52.

Aibar, E. (2006) *El estudio social de la ciencia: de la sociología de la ciencia a la sociología del conocimiento científico*, in E. Aibar (ed), *Ciencia, tecnología y sociedad*, Barcelona, Editorial UOC, pp. 5-61.

AIBR (2005) *Cultura, tecnociencia y conocimiento: El reto constructivista de los Estudios de la Ciencia.* Available at http://www.aibr.org/antropologia/44nov/, accessed 11 January 2011.

ATIC (2011) *Presentació.* Available at http://aticuoc.wordpress.com/presentacio/, accessed 12 January 2011.

Ayús, R. (2001) *Estudios sociales de ciencia y tecnología: merodeando en el campo.* Available at http://www.oei.es/salactsi/ramfis.htm, accessed 11 January 2011.

Bloor, D. (1973) *Wittgenstein and Mannheim on the Sociology of Mathematics*, in "Studies in History and Philosophy of Science", 4 (2), pp. 173-191.

Bloor, D. (1976) *Knowledge and Social Imagery,* Chicago, The University of Chicago Press.

Callén, B. and Tirado, F. (2006) *Biodatas y individuos: la transformación de la biopolítica en la era de la información*, in F. Tirado and M. Domènech (eds), *Lo social y lo virtual: Nuevas formas de control y transformación social*, Barcelona, Editorial UOC, pp. 28-45.

Callén, B., Domènech, M., López, D. and Tirado, F. (2009) *Telecare research: (Cosmo)politicizing methodology*, in "ALTER - European Journal of Disability Research", 3 (2), pp. 110-122.

Callén, B., Domènech, M., López, D., Rodríguez-Giralt, I., Sánchez-Criado, T., and Tirado, F. (2011) *Diásporas y transiciones en la Teoría del Actor-Red,* in "Athenea Digital", 11 (1), pp. 3-13. Available at http://psicologiasocial.uab.es/athenea/index.php/atheneaDigital/article/view/852/563, accessed 13 March 2011.

Castillo, J. (2010) *Reseña del Blog* "*Networks and Matters*", in "Athenea Digital", 17, pp. 289-290. Available at http://psicologiasocial.uab.es/athenea/index.php/atheneaDigital/article/view/695, accessed 14 November 2010.

Cibersomosaguas (2010) *Cibersomosaguas: Cultura digital y movimientos sociales.* Available at http://www.cibersomosaguas.com/, accessed 12 November 2010.

CSIC (2010) *VI International Workshop: Cartographies of the body. Biopolitics of science and technology*. Available at http://www.cchs.csic.es/en/content/vi_taller_internacional_cartog, accessed 6 December 2010.

Deleuze, G. and Guattari, F. (1980) *Mille plateaux. Capitalisme et schizophrénie*, Paris, Editions de Minuit; Eng. Transl., *A Thousand Plateaux: Capitalism and Schizophrenia*, Minneapolis, University of Minnesota Press, 1987.

Domènech, M. and Tirado, F. (1997) *Rethinking institutions in the Societies of Control*, in "Journal of Transdisciplinary Studies", 1 (1).

Domènech, M. and Tirado, F. (eds) (1998) *Sociología simétrica. Ensayos sobre ciencia, tecnología y sociedad,* Barcelona, Gedisa.

Domènech, M. and Tirado, F. (2002) *Lo virtual y lo social*, in "Athenea Digital", 1. Available at http://antalya.uab.es/athenea/num1/Mdomenech.pdf, accessed 12 August 2009.

Domènech, M., Feliu, J., Garay, A., Íñiguez, L., Peñaranda, M.C. and Tirado, F. (2002) *Movimientos sociales y conocimiento científico: el impacto del activismo contra el SIDA sobre las prácticas científicas*, in "Revista de Psicología Política", 25, pp. 69-84.

Domènech, M., Iñíguez, L., Pallí, C. and Tirado, F. (2000) *La contribución de la psicología social al estudio de la ciencia*, in "Anuario de psicología", 31 (3), pp. 77-93.

Echeverría, J. and González, M. (2009) *La teoría del actor-red y la tesis de la tecnociencia,* in "ARBOR, Ciencia, Pensamiento y Cultura", 185 (738), pp. 705-720.

Encuentro Estatal ANT (2010) *I Encuentro Estatal ANT. Presente y futuro de la Teoría del Actor-Red.* Available at http://encuentroant.wordpress.com, accessed 23 August 2010.

González de la Fe, T. and Sánchez Navarro, J. (1988) *Las sociologías del conocimiento científico*, in "Reis. Revista Española de Investigaciones Sociológicas", 43, pp. 75-124. Available at http://www.reis.cis.es/REISWeb/PDF/REIS_043_06.pdf, accessed 10 August 2010.

González-Ruibal, A. (ed) (2007) *Arqueología simétrica: un giro teórico sin revolución paradigmática*, in "Complutum", 18, pp. 283-319.

Greimas, A.J. and Courtés, J. (1979) *Sémiotique. Dictionnaire raisonné de la théorie du langage,* Paris, Hachette.

Ingold, T. (2007) *Lines, a brief story,* London, Routledge.

Instituto de Filosofía (2011) *Culturas de la ciencia y la tecnología.* Available at http://www.ifs.csic.es/es/content/culturas-de-la-ciencia-y-la-tecnolog%C3% AD, accessed 16 February 2011.

Íñiguez, L. (2006) *Impacto psicosocial y cultural de las innovaciones tecnocientíficas: procesos de cambio y reproducción social.* Available at http: //psicologiasocial. uab.es/gescit/es/project/es/2008/02/05-0, accessed 16 February 2011.

Lamo de Espinosa, E., García, J. M. and Torres, C. (1994) *La sociología del conocimiento y de la ciencia,* Madrid, Alianza Editorial.

Latour, B. (1987) *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, MA, Harvard University Press.

Latour, B. (1991) *Nous n'avons jamais été modernes. Essai d'anthropologie symétrique*, Paris, La Découverte.

Latour, B. (2005) *Reassembling the Social: An Introduction to Actor-Network Theory,* Oxford, Oxford University Press.

Latour, B. and Woolgar, S. (1979) *Laboratory Life: the Construction of Scientific Facts,* Beverly Hills, Sage.

Law, J. (1999) *After ANT: Complexity, Naming and Topology,* in J. Law and J. Hassard (eds), *Actor-Network Theory and After,* Oxford, Basil Blackwell, pp. 1-14.

Law, J. (2007) *Actor Network Theory and Material Semiotics - Version of 25th April 2007.* Available at http://www.heterogeneities.net/publications/LawANT andMaterialSemiotics.pdf, accessed 12 June 2010.

Law, J. (2009) *Actor Network Theory and Material Semiotics*, in B. Turner (Ed.), *The New Blackwell Companion to Social Theory,* Oxford, Blackwell Publishing, pp. 141-158.

López, D. (2005) *Aplicación de la teoría del actor-red al análisis espacial de un servicio de teleasistencia domiciliaria*, in "AIBR. Revista de Antropología Iberoamericana". Available at http://redalyc.uaemex.mx/src/inicio/ArtPdfRed.jsp? iCve=62309907, accessed 12 May 2010.

López, D. (2009) *Asegurar el cuidado: Redes, Inmediatez y Autonomía en un Servicio de Teleasistencia Domiciliaria.* Unpublished doctoral dissertation, Universitat Autònoma de Barcelona. Available at http://vub.academia.edu /DanielLopez/Papers/98894/Asegurar_el_cuidado_Redes_Inmediatez_y_Auto nomia_en_un_Servicio_de_Teleasistencia_Domiciliari, accessed 12 January 2011.

López, D. and Domènech, M. (2008) *On inscriptions and ex-inscriptions: the production of immediacy in a home telecare service*, in "Environment and Planning D: Society and Space", 26, pp. 663-675.

López, D. and Domènech, M. (2009) *Embodying autonomy in a Home Telecare Service,* in "Sociological Review", 56 (2), pp. 181-195.

López, D. and Sánchez-Criado, T. (2009) *Dwelling the Telecare Home. Place, Location and Habitability*, in "Space and Culture", 12 (3), pp. 343-358.

López, D., Tirado, F. and Doménech, M. (2003) *Extituciones y control abierto y continuo en los servicios asistenciales*, in "Encuentros en Psicología Social", 1 (3), pp. 54-57.

Losego, P., Domènech, M. and Tirado, F. (2000) *Les cycles de crédibilité des biologistes et des mathématiciens. Exemple de deux départaments universitaires de Barcelone,* "Sciences de la Société", 49, pp. 107-126.

Muniesa, F., Luque, E., Chinchilla, I. and Jaque, A. (2005) *Ejercicios de empirismo conceptual en arquitectura*, in "AIBR. Revista de Antropología Iberoamericana". Available at http://www.aibr.org/antropologia/44nov/articulos/nov0504. php, accessed 12 December 2010.

Política y Sociedad (1994) *Política y Sociedad*, 15. Available at http://revistas.ucm.es/portal/modulos.php?name=Revistas2_Historico&id=POSO&num=POSO939411, accessed 12 August 2010.

Rodríguez-Giralt, I. (2009) *El gir simètric en l'estudi de l'acció collectiva: Les mobilitzacions per la controvèrsia ecològica de Doñana.* Unpublished doctoral dissertation, Universitat Autònoma de Barcelona. Available at http://tdx.cat /handle /10803/5466, accessed 12 August 2010.

Rodríguez-Giralt I. and Caussa, A. (2002) *Ecological movements against governmental agencies: the virtualization and actualization tension in Doñana`s disaster*, in "Athenea Digital", 1. Available at http://psicologiasocial.uab.es/athenea/ index.php/atheneaDigital/article/view/30/30, accessed 12 August 2010.

Rodríguez-Giralt, I., López, D. and García, N. (2009) *Conviction and Commotion: On Soundspheres, Technopolitics and Urban Spaces*, in I. Farías and T. Bender (Eds.), *Urban Assemblages. How Actor-Network Theory Changes Urban Studies,* New York, Routledge, pp. 179-197.

Sánchez-Criado, T. and López, D. (2009) *La traducción del cuidado: la teoría del actor-red y el estudio de la interdependencia en la teleasistencia para personas mayores*, in "Estudios de Psicología", 30 (2), pp. 199-213.

Tirado, F. (2001) *Los objetos y el acontecimiento. Teoría de la socialidad minima.* Unpublished doctoral dissertation, Faculty of Psychology, Universitat Autònoma de Barcelona. Available at http://tdx.cat/handle/10803/5412, accessed 12 September 2010.

Tirado, F. (2005) *Reseña de "Reassembling the Social: An introduction to Actor-Network Theory" de Bruno Latour*, in "AIBR. Revista de Antropología Iberoamericana". Available at http://dialnet.unirioja.es/servlet/fichero _articulo?codigo=1382307andorden=67075, accessed 13 April 2010.

Tirado, F. (2010) *Teoría del actor-red y biopolítica.* Available at http://network 2matter.wordpress.com/2010/06/20/teoria-del-actor-red-y-biopolitica, accessed 28 June 2010.

Tirado, F. and Callén, B. (2008) *Simulación y códigos informáticos: una nueva anatomía para las prácticas biopolíticas*, in "Revista Nómadas", 28, pp. 34-43.

Tirado, F. and Domènech, M. (1998) *Sobre extituciones: reflexiones críticas para la psicología social*, in "Revista de la Universidad de Guadalajara", 11, pp. 43-51.

Tirado, F. and Domènech, M. (2001) *Extituciones: del poder y sus anatomías*, in "Política y sociedad", 36, pp. 191-204.

Tirado, F. and Domènech, M. (2005) *Asociaciones heterogéneas y actantes: el giro postsocial de la teoría del actor-red*, in "AIBR. Revista de Antropología

Iberoamericana".   Available   at   http://www.aibr.org/antropologia/44nov
/articulos/nov0512.php, accessed 14 December 2008.

Tirado, F. and Domènech, M. (2006) *Lo social y lo virtual*, in F. Tirado and M.
Domènech (Eds*.), Lo social y lo virtual. Nuevas formas de control y transforma-
ción social*, Barcelona, Editorial UOC, pp. 5-26.

Tirado, F. and López, D. (2004) *La norma digital y la extitución. El caso de la Tele-
Asistencia Domiciliaria*, in "Athenea Digital", 5, pp. 135-149. Available at
http://psicologiasocial.uab.es/athenea/index.php/atheneaDigital/article/viewAr
ticle/121, accessed 14 November 2010.

Tirado, F. and Mora, M. (2004) *Cyborgs y Extituciones: nuevas formas para lo so-
cial*, Guadalajara, México, Universidad de Guadalajara.

Vitores, A. (2002) *From hospital to community: case management and the virtualiza-
tion of institutions*, in "Athenea Digital", 1. Available at http://
www.raco.cat/index.php/Athenea/article/viewFile/34097/33936, accessed 12
January 2010.

Woolgar, S. (1988) *Science: The Very Idea*, London, Routledge.

Jorge Castillo Sepúlveda Universitat Autònoma de Barcelona
Department of Social Psychology
Edifici B, Campus de la UAB
08193 Bellaterra (Cerdanyola del Vallès) - Spain
Email: jcastillo.s@hotmail.com