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Between Stability and Instability – Using ANT and ANTa as Analytical Perspectives Telling Information Technology Stories

Pirjo Elovaara

Blekinge Institute of Technology
Technoscience Studies
Sweden

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Abstract

This article has its background in the criticism, initiated above all by Bruno Latour and John Law in the end of the 1990s, against the current state of Actor-Network Theory (ANT). The first aim of the article is to see how the ANT approach relates to the notions of stability and instability when taking the starting point from the network construction and using the network based vocabulary in analysing the empirical material. What is empirically possible to tell by using ANT? Are there limitations and limits of the ANT based narratives?

The second aim of the article is to see how the later development of ANT, sometimes called Actor-Network Theory and After (ANTa)¹, responds to the ANT criticism and if it can offer an alternative analytical approach to the traditional ANT. Are ANTa stories different than ANT stories? Can the ANTa perspective resolve the possible limits and limitations of ANT? How does the ANTa perspective discuss and relate to the issues of stability and instability? I will make an effort to bring together the same empirical material as in the ANT based analysis and in a reflexive manner analyse the same empirical material.

Keywords

ANT, ANTa, instability, stability, John Law, Donna Haraway, Bruno Latour, translation, Michel Callon, network, information technology, library, metaphors, SME, rhizomatic, feminist technoscience

¹ see for example Law & Hassard (eds), 1999

Introduction

This article has its background in the criticism, initiated above all by Bruno Latour and John Law in the end of the 1990s, against the current state of Actor-Network Theory (ANT). The main issues of the criticism were directed to the use of network metaphor and the performative character of the ANT narratives. According to John Law and Bruno Latour, the notion of network has thereby lost its power as a strong analytical metaphor.² John Law writes: “if people are no longer so keen to talk about systems, then the term ‘network’ is on everyone’s lips”, from Al Gore via Bill Gates to Manuel Castells.³ According to John Law, the ANT stories have been infected by hegemony, functionality and managerialism. What makes Law worried is that the stories ANT tells are not only texts but they are performative and thereby reproduce the phenomena they describe.⁴ <1>

In this paper I explore one way to understand and interpret the criticism and problematisation as presented by Latour and Law through my own empirical research. The method of working is first of all try to understand the basic features of ANT when analysing processes where human and non-human actors co-exist and co-operate. In order to do so the vocabulary of ANT is necessary as the key for an ANT based analysis. This article makes an effort to use some of the classical ANT metaphors, such as actor, network and translation in the analysis of empirical material. The ANT metaphors and the empirical material are brought together and intertwined in order to tell about a regional information technology project in the south eastern part of Sweden in the late 90s. <2>

The aim of this article is to see how the ANT approach relates to the notions of stability and instability when taking the starting point from the network construction and using the network based vocabulary in analysing the empirical material. The article aims also to empirically ask what is possible to tell by using ANT? Are there limitations and limits of the ANT based narratives? <3>

The second aim of the article is to see how the later development of ANT, sometimes called Actor-Network Theory and After (ANTa)⁵, responds to the ANT criticism and if it can offer an alternative analytical approach to the traditional ANT. Are ANTa stories different than ANT stories? Can the ANTa perspective resolve the possible limits and limitations of ANT? How does the ANTa perspective discuss and relate to the issues of stability and instability? I will make an effort to bring together the same empirical material as in the ANT based analysis and in a reflexive manner analyse the same empirical material. <4>

Finally, in the concluding discussion, I will bring ANT and ANTa together and see if it would be meaningful to study the possible similarities and differences without creating an antagonist dichotomy. Do we have to abandon the ANT perspective if we take seriously both the ANT problematisation and the answers to this problematisation provided by the ANTa perspective? Or is there a way to intertwine these perspectives without creating a categorical dualism? <5>

² Latour, 1999, Law, 1999

³ Law, 2000

⁴ Law, 1999

⁵ see for example Law & Hassard (eds), 1999

Actors, Networks, Translations and a Project

Let's move back to the origins of ANT in order to collect a sample of the central metaphors launched by ANT in order to make an effort to the ANT based analysis of empirical material. As the starting point for the ANT metaphor collection was chosen Michel Callon's classical ANT article from 1986 "The Sociology of an Actor-Network: The Case of the Electric Vehicle".⁶ The empirical material in Callon's article is brought from the French project from the 1970s aiming to develop an electric car (VEL). <6>

Callon introduces in this article some of the fundamental concepts within the ANT vocabulary, namely *actor*, *actor-network* and *translation*. <7>

In order to illustrate what he means first by actors, Michel Callon lists the entities present in the vehicle project, such as consumers, social movements, ministries, accumulators, fuel cells, electrocodes, electrons, catalyst, electrolytes and so on.⁷ The actors are active in a context, in relation to each other. The entities become actors when they are related to other actors: "[the actors]...act, react and cancel each other out, in just the same way as any others."⁸ One could say that the actors have no pre-defined existence as actors in a specific context. The relational actor-world shapes them: "The actor-world not only determines the repertoire of the entities that it enlists and the histories in which they take part. It also determines their relative size."⁹ The actors are not small or large per se, but it is the empirical case that both determines and shapes their size. In addition to the definition concerning size, Callon suggests that the actors cannot be categorised on premises based on their importance per se, but "the activist in favour of public transport is just as important as lead accumulators which may be recharged several hundred times."¹⁰ <8>

The notion of network is a metaphor Callon uses to describe how the actor-worlds function and how the relations between the different actors are organised and structured. Actor-network is Callon's own term for describing actor-worlds: "It is clear that an actor-world may be more, or less, extended, heterogeneous and complex. How shall we describe this range of possibilities, and the translations that occur between them? In order to answer this question, we introduce the notion of actor-network. This concept allows us to describe the dynamics and internal structure of actor-worlds."¹¹ <9>

Callon describes the term translation in the following way: "Actor-world defines [entities'] identity, the roles they should play, the nature of bonds that unite them, their respective size and the history in which they participate."¹² It could be easy to depart from previous practices, processes and projects where one could find actors with same names, labels and enrolments and assume that they are doing exactly the same things with new contexts and new actions. This is exactly the opposite of what

⁶ Callon, 1986

⁷ *ibid*, p. 20

⁸ *ibid*, p. 22

⁹ *ibid*, p. 22

¹⁰ *ibid*, p. 23

¹¹ Callon, 1986, p. 28

¹² *ibid*, p. 24

Callon says about translations. The translations are situated, specific in contexts and localised and in this way, also unique. It is only the actual empirical case, including its contexts that can tell us something about the actors and their roles. The translations can be understood as on-going negotiations where the role of each actor is defined. <10>

Callon separates three different aspects of translations, namely *translator-spokesmen*, *translations as geography of obligatory passage points*, and *translations as displacements*. <11>

Let's start by looking more closely at the translator-spokesmen. In his article Callon lists the various spokesmen: "EDF [=Electricité de France] translates Renault, EDF translates fuel cells, EDF translates customers. EDF attributes to Renault an identity, interests, a role to play, a course of action to follow, and projects to carry on. EDF characterizes fuel cells, the way they work their performance, and their mode of use."¹³ He also says that "the translator is thus the spokesman of the entities he constitutes".¹⁴ As I interpret Callon, it is when the translator-spokesman starts to work that the actors needed for the actual actor-world are identified and their roles are also defined. What the translator-spokesman actually does is to negotiate. How to make the actors become interested in the project and make them act in a desirable way so that the different actors will consider participating in, and working for the project, is a question asked by a translator spokesman. <12>

What kinds of strategies are accessible and available to the translator-spokesmen, or what kinds of strategies are included in the repertoires of the translator-spokesmen? First, Michel Callon talks about the geography of obligatory passage points. In the VEL article, the very idea of the VEL can be considered as an obligatory point of passage. It becomes the core, and the meeting and melting point for various and heterogeneous interests. What Renault, for example, is after in the project is not identical with the goals of the environmental movement. At the same time, the VEL project will work as an obligatory passage point for them in order to achieve their specific goals. Neither Renault nor the environmentalists can carry on with their own interests if they do not become part of the VEL. If this is the final argument of the entities, the translator-spokesman, EDF, has succeeded in its translation by using the VEL as the common platform. In this way, the VEL has functioned as an obligatory point of passage. <13>

The processes and results of displacements will work as "links necessary to make the entities accept certain spokesmen and certain points of passage."¹⁵ Callon gives a list including some possible displacements such as inscriptions, reports, memoranda, documents, survey results, scientific papers, meetings, symposia and study sessions, materials and money; physical and social displacements.¹⁶ The displacements become a sort of voice amplifier. In the same way, articles, reports and books can be used in convincing the entities of the gains of the VEL project, and the spokesmen can arrange meetings and seminars where the contents of the articles and other texts can be further disseminated. <14>

¹³ *ibid*

¹⁴ *ibid*, p. 25

¹⁵ Callon, 1986, p. 27

¹⁶ *ibid*

What Callon does when telling the story of the VEL is that he shows the complexity of the project. The VEL project was not a linear process where everything was defined beforehand. When describing similar projects afterwards it is easy to paint a picture showing a process where everything has its place and where this place seems to be given, the only possible one, obvious and evident. The reason why we are not conscious of all the various parts of the processes is understandable when we bear Callon's words in mind: "Successful translation quickly makes us forget its history."¹⁷ Describing the VEL history as Callon does, the multitude of perspectives becomes intertwined. Callon does not separate the social, the economic and the technical aspects. Instead, he wants to strengthen the idea that it is not possible to understand phenomena either as social, technical or economical but that all these aspects are so integrated and involved that the social would not be possible without the technical and vice versa. <15>

Michel Callon gives a chronological account, though not in a linear sense. In this way his story also becomes a story about a process. During this process, different actors enter the stage gradually and, depending on what happens, subsequent actions are the effect of previous ones. This does not need to mean that the initiator contacts actor after actor and waits for results of the negotiations, but that there are several parallel negotiations going on. What the initiator and the project seek is stabilisation, so that the electric vehicle could become a real vehicle and a part of the French car production, and thereby also a part of the everyday transport system and not a mere vision, dream or plan. <16>

Besides the empirical story, Michel Callon works on a metastory level. To be able to describe, analyse and understand the project he uses a vocabulary consisting of metaphors and terms, which make the story tellable. I see the metalevel as an analytical level shaping and reshaping the story by focusing on relations between the different actors. The metalevel also tells how the actors become actors in the first place, what it takes to be counted as an actor and how different actors are connected to each other in different kinds of actions. The analytical level can also be cut off from its original story and to be moved to another context when telling other stories. <17>

In the next section, I will move to some of my empirical questions and solutions as they are mirrored against Callon's ideas. <18>

Towards Stabilisation - Information Technology in a Swedish Context¹⁸

In the year 1995 and 1999 the Swedish government launched two government bills of information technology.¹⁹ The following definition of information technology is to be found in the both bills: "IT is a generic term for different kinds of techniques which can be used to create, store, process, transmit and present sound, text and image. IT makes these activities and processes possible, independent of the amount of information and geographical distances."²⁰ The bill from the year 1999 also gave a list of the so-called information technology educational programs and further, a list of

¹⁷ *ibid*, p. 28

¹⁸ The original story referred to in this text can be found in Elovaara, 2001

¹⁹ Regeringens 1995, Regeringens 1999

²⁰ Regeringens 1995

information technology professions; for example systems development educational program/systems designers as a profession ²¹ In the same bill from 1999 the Swedish government also listed a policy program of eight focus domains for information technology implementations for the Swedish society: economical growth, employment, regional development, democracy and justice, quality of life, gender equality and equality in general, an effective public sector and a sustainable society. ²² As a summary the conclusion is that information technology in the two governmental documents is understood both as a technical domain practised by professionals with a technical training and as a driving force for the societal development. <19>

Another trace, besides reading and analysing the governmental information technology texts, in my on going research was to regard information technology as practices and activities through which information technology is shaped and created and gets its contents and meanings. ²³ <20>

A practice studied was the regional information technology project called BRUK (stands for "Bibliotekens roll i utbildnings- och kunskapssamhället", in English "Libraries and their role in the education and knowledge society"). The project was funded by the European Union Regional office in the county of Blekinge, southeast Sweden. The project was allocated 6 million Swedish crowns. The project started in summer 1998 when the public libraries in the county of Blekinge together with the University of Karlskrona/Ronneby²⁴ library contacted the vice-chancellor of the university. ²⁵ The aim and goal of the project was defined as follows: "The BRUK project is part of a collected county-wide strategy to develop and increase access to information technology services for small and medium-sized enterprises, students/distance students, and the general public."²⁶ <21>

What happened when the BRUK project started? What happened with the 6 million Swedish crowns? What did the project management group do? What did the two employed in the project do? How were the computers and other technical artifacts involved in the project? What did those employed by the local libraries do? How did the project reach its stabilisation? <22>

During the autumn 1998 the IT studios at the participating libraries were developed. Each of the library IT studios was equipped with "7-10 computers with Internet access. The computers are equipped among other things with software for word processing, calculations, data base management, design, layout, web page design for the Internet, as well as conference equipment for the Internet including Net Meeting with camera and sound. The IT studios are also equipped with scanners, digital cameras, CD burners, printers (b/w and colour), data projectors, graphics tablets, imaging programs, manuals, magnifying software and speech synthesis for the

²¹ Regeringens 1999

²² ibid

²³ see for example Tuuva, 2002, Vehviläinen, 2001,

²⁴ The university changed its name 2000 and is now called The Blekinge Institute of Technology

²⁵ My discussion of this project is based on the written information available on the Internet, discussions with the project leader and with one librarian involved in the project as well as personal experiences as one of those who initiated the project.

²⁶ The Bruk Project

visually impaired etc. The IT studios also have extensive videoconference equipment for ISDN communication.”²⁷. Discussions about standards, software versions and the rules governing official purchases became central issues and the subject of lively debate. <23>

How were the above facilities used during the project period? Let us go back to the project goal description: “[to]...increase access to IT services for small and medium-sized enterprises, students/ distance students and the general public.”²⁸ The two project members employed to serve all the participating libraries started to translate these formulations into concrete activities. They contacted other projects, organisations and groups whose goal and aim were to work with small and medium-sized entrepreneurs (SMEs) and increase the use of information technology among them. These other actors were already more established, partly because they had been operative long time before the library project started, and partly because their only original and basic idea was different development activities for SMEs. Meetings, seminars, demonstrations, workshops, videoconferences, exercises with themes such as electronic business and the future of information technology for SMEs were organised by the BRUK project. <24>

The many connections in which the project became involved were necessary in order to “sell” the project idea, first to the vice-chancellor of the university and subsequently, to the financiers. These partnerships also played an important role once the project application was being formulated. In order to gain European Union funding the target group must be the SMEs. And in order to win acceptance and support from the university, the target group of students and especially distance students formed the second target group. The third group, the general public, was, as I see it, the result of negotiations. It was important with respect to the original concept of the public library ideology to include this group. Public libraries in the Nordic countries have their roots in the middle of the 19th century ideologically closely connected to the idea of ‘folkbildning’²⁹. The public library mission was to create a public place accessible to all citizens in order to find literature and information. As an underlying ideology it was a question about educating the citizens and enforcing their competencies in the growing western societies. <25>

To be able to locate the relations between the various elements of the BRUK project studied there was, as a starting point for the analysis, a need to introduce the concept of translation, and more particularly, the concept of translator-spokesman. <26>

How did the university library act as a translator-spokesman? It contacted the five municipal libraries to encourage them to join the project. The university library could give them a position in the project organisation, a part to play in the project application and - if they were successful in searching for funding - also access to computers, other IT artefacts, software, staff, training, and membership of an IT network. In addition to these offers, there was another motive for the municipal

²⁷ The Bruk Project

²⁸ *ibid*

²⁹ The Swedish word ‘folkbildning’ is often defined in dictionaries as ‘adult education’. This is only one dimension of the expression, however. In addition to adult education the Swedish word implies certain ideological aspects related to the German expression ‘Bildung’ and certain aspects of the social democratic ideology of equality and everybody’s right to education and knowledge

libraries for taking part, which was connected to regional and even national IT development. They considered as the impact of participating in the BRUK project visibility and status locally, regionally and even nationally. <27>

Once the translator-spokesman had enrolled the libraries other actors were needed. First of all the vice-chancellor of the university had to be enrolled. The project needed him to give a wider context and greater political weight to the project. What made the vice-chancellor interested and involved was the idea of developing infrastructure for distance education and also the social approach of the project with regard to political debates about 'haves and have not' in the context of information technology. The association 'IT Blekinge' was interested because their mission and goal was to encourage and support as many IT-related projects as possible in the region. <28>

I have mentioned some of the non-human elements figuring in the project. Computers and other IT artefacts became actors. In order to give training courses, the libraries needed hardware and software. The whole project would never have been built up without the non-human actors. The latter were actors when activities were planned during the project time and they stimulated many discussions and caused problems concerning updating, compatibility, technical interface and usability. <29>

Let's move to the aspect of the obligatory points of passage. In Callon's story, the whole VEL project was an obligatory point of passage. It is possible in a corresponding way to state that the BRUK project as a whole was also an obligatory point of passage. The libraries would eventually never have been able to invest as much money in IT artefacts, if they had not participated in the project. The project gave them the publicity they wanted together with other IT actors in the region. The project also gave the participating libraries publicity outside the county. The participants were, for example, invited to inform about the project in several national library conferences. The regional office of the European Union was acting as an obligatory point of passage. The project needed financing and the EU office administered much of the IT funding in Blekinge in 1998. The project had to travel via this office. <30>

Beyond the ANT metaphors there were narrative elements in Callon's article. It was also a story about a geographical place, well-defined, and also a story about a time period that was exactly defined. The place was France and the time the 1970s. It was also a story about a well-framed phenomenon, namely about a development project that was initiated in order to develop an electric vehicle. My research field was the region of Blekinge, a county in southeast Sweden. In terms of information technology, Blekinge is an extremely interesting region. It is one of the many regions in Sweden that were earlier dependent on heavy metal industry; and in Blekinge's case, also on fishing and the military. During the last thirty years a great number of these branches have disappeared. Blekinge, as all similar regions with high unemployment figures, has been looking for new industries and new futures. One of the municipalities in this region, namely Ronneby, can be used as a point in case. Early in the 1980s, some municipal politicians had heard about the expanding field of the computing industry and especially about developments in software. In the beginning of the 1980s, the technology centre known as Soft Center was established. What later became the leading activity for almost the entire region was software development and information technology in general. In addition to the industrial and

business development, Blekinge has been a base for many information technology projects e.g., school and library projects. Blekinge was classified as a regional support area by the European Union. This and many other project forms has meant that a great deal of external project funding has found its way into Blekinge. In the middle of the 1990s, Blekinge was declared a full-scale information technology laboratory.³⁰ <31>

The transportation from Callon's article to my material seemed, in fact, to be working. Callon provided a language free from ready-made definitions. What was satisfying with this analytical approach of working was that it made it possible to see connections and relations between fragments and pieces, the ones initially totally separated from each other. I could make a story with not only human actors but a story where computers and other non-humans to be as important as human elements. It supported my own very vague thoughts about the hybrid character of information technology. What Callon made me reconsider was that eventually there is no need to keep the technical and the social site of information technology, as suggested in the governmental documents, separated. It also allowed selecting a starting point avoiding what one would usually regard as an important and powerful actor. It also helped to understand why people and organisations that do not initially seem to have the same interests and goals could become partners and allies. <32>

Too Much Stability?

I was however not satisfied with the conclusion of the analysis of the project. The fragmented empirical material had been transformed into a very neat, coherent story. I had created a plain network structure, where everything seemed to have a well-defined place and function. The story showed a project that was very stable, solid and univocal. I really had succeeded in my efforts to find out understandings why the BRUK project had been initiated, why things had happened in the way they had. I had followed the project in a chronological order, step by step. I had identified actors, a network and translations. <33>

Was the project really this simple and one-dimensional? Were there really no contradictions? Was everything as smooth as I had presented it? Was there no resistance? Was the actor-world constructed and presented too stable and static? Was I not just trying, in a very instrumental way, to create a model of ANT into which I could insert my own empirical material and reject what did not fit? <34>

The BRUK story was definitely functional. My story was a convincing one, showing that the project was working. What I was missing were all the back stage negotiations necessary for the success of the project. How can one describe the hard work necessary for the computers to be installed, the network to function, the phone calls to be made, the information brochures to be printed and disseminated, and the librarians to find space and time to express their doubts? How to understand the connections between the governmental information technology definition and the local information technology practices in the county of Blekinge? <35>

³⁰ The description of Blekinge is based partly on a report written by Uhlin & Stevrin: Ronneby – Sveriges Soft Center . En PM om en utvecklingsidé för Ronneby kommun [Ronneby- The Soft Center of Sweden. A PM about an development idea for the Municipality of Ronneby], Ronneby 1983 and on a discussion with Sölve Landén, the information manager in the municipality of Ronneby, the 28th of August 2000

The tendency concerning functional managerialism has, as I understand it, a direct connection with the notion of network. If we use the network as a point of departure or as a basis for analysis, the target is to look for stability and structure. It is the network interpreted and used as a scheme or a pattern that drives us to construct stability and structure. In the end, it is easy to become highly insensitive to phenomena that do not fit into the networks constructed in the analysis. Eagerly identifying actors, both human and non-human, and drawing things together it is perhaps not that surprising to become blind to things that strive away from the networks, to everything that is different, difficult to identify and give names to, and to divergences. <36>

This one-dimensional, poor and non-flexible use of network was absolutely not why ANT originally chose the notion. The network was a metaphor intended to be used when talking about relationalities. Actors become actors only in relation to each other; an actor is, in fact, an effect of these relations. In this sense, network was used as a strong metaphor to oppose the structuralist thinking which was dominant in many theories and schools of social sciences and social studies of science and technology at the time. <37>

Fluid and Fire - ANTa Metaphors

How did the ANT writers respond to the concerns of limits and limitations connected to the functionalistic model-wise use of the network metaphor? In 2000 John Law and Annemarie Mol introduced two new metaphors of fluid and fire³¹ providing a possibility and challenging us to think about change and instability beyond the stability and immutability provided by the network metaphor. <38>

The network metaphor is not able to handle networks that change their shapes. The network metaphor is, indeed, based on the idea that the networks keep their shape. It would not be a network if it were not an immutable immobile. What Law and Mol want to suggest is that not all networks keep their shape. As an example, they take the case of the bush pump project. Law and Mol write: “Of this pump and everything that allows it to work, nothing in particular necessarily holds in place. Bits break off the device and are replaced with bits which don’t seem to fit in. And other components – we’re talking here both parts of the ‘machine itself’, and the social relations, village relations, embedded in it – are added to it, components which were not in the original design itself.”³² When it comes to the original idea of a stable network, the bush pump does not fit in in terms of networks because it is a ‘mutable mobile’.³³ The obvious question becomes: Is the bush pump the same pump when it changes shape? What Law and Mol wish to claim is that the bush pump is still a functioning pump even when it differs from the original in a number of ways. But it is working, it has not broken down. These changes are not abrupt and sudden, but happen ‘gradually and incrementally’.³⁴ This is remarkable when it comes to this new space, the fluid space: “...a world in which shape continuity *precisely demands* gradual change...”³⁵ The fluid metaphor invites to think about gradual changes; the moves between the stability and instability, so that phenomena can actually both keep some dimensions of its

³¹ Law & Mol, 2000, p. 5 and 7

³² Law & Mol, 2000, p. 5

³³ *ibid*

³⁴ *ibid*

³⁵ *ibid*, p. 6 Italics as in the original text

shape but there is also room for change dependent on the contexts where the phenomena is located and situated. <39>

The second new metaphor Law and Mol suggest is that of the fire. They introduce the fire space, because there is a need for a metaphor that is capable of including 'abrupt and discontinuous movements'.³⁶ The fire space metaphor is also necessary when talking about relations between what is absent and what is present. We are introduced to new kinds of continuities as compared with those connected with network and fluid. When we talk about networks we concentrate on the actors that are present in the networks, and in a way the actors are not connected to entities and elements outside the defined and closed networks. At the same time, as Law and Mol suggest, the stability of the network is dependent on elements that are not present. <40>

What fire metaphor provides is the opportunity to think about what actually makes up networks; what is actually absent, and what is present. The new metaphor demands a new kind of sensitivity and awareness of varieties, alternatives and disconnections. Are some networks possible because some elements are excluded from the visible networks, in the same way as visible work is made possible because of a huge amount of invisible work?³⁷ <41>

The following chapter aims to show how the notions of fluid and fire challenged to think about the BRUK project activities from perspectives beyond stability and smoothness. I was earlier in this article talking about the missing contradictions and the missing resistance and about the closeness of the network I had constructed. The network-based story was too tight. It needed more life, voices and layers for it not to be discarded. Taking the inspiration and support provided by the new ANTa thoughts³⁸ on the empirical material from the BRUK project, I could go beyond the stabilised structure of the project. <42>

Instability – Information Technology in a Swedish Context

What became increasingly visible was that in addition to the official BRUK project other things were occurring. The project application specified that the project was initiated to increase the use of information technology among the small and medium-size entrepreneurs. However, the librarians who worked within the project did not remain within the official project frames but used the project to make small interventions both in- and outside the project itself. They did not work all the time with small and medium-size entrepreneurs only. The participating librarians actively took steps outside the project borders by arranging computers courses for senior citizens. The project was the same, though not constantly so. By making detours, the librarians actually strengthened the project because they found greater use for all the artefacts purchased with project money, and the project also became known among the general public. The librarians strengthened their own computer and training skills by doing more training than was actually planned for inside the project. The librarians increased awareness of the democratic rights to computer literacy among groups that may not always be regarded as the highest priority. <43>

³⁶ *ibid*, p. 5

³⁷ see for example Star, 1991a and Star & Strauss, 1999

³⁸ see for example Law, 1997, Law, 2000, Law & Mol, 2000

This could, for example, mean that a library could co-operate with senior citizens and give them training courses. “We talked about what a computer is, how you handle the mouse, how you use your keyboard, how you read your screen. How you understand information, how you read the information shown on the screen.”³⁹ Even when talking about the target group SMEs, which as already mentioned above was perhaps not a favoured group among librarians, the use of the library was the motivation: “But it has been enormously positive all this. The shopkeepers have not perhaps visited the libraries, at least not here. Many of them have not been here at all or perhaps once or twice when they were small. And now they think that the library is great and have started to come, in small numbers at least. They have noted that the library is a place that many people use. Many shopkeepers were not aware of this.”⁴⁰ This generally positive attitude towards the library does not necessarily have anything to do with the IT project goals, to using information sources professionally: “there isn’t anybody who asks for business information...”⁴¹ “I think that what they [=the libraries/the librarians] really wanted to work with, were the distance students and other students, and that the libraries wanted to create a place for the people in general. A place where people would have an opportunity to try out the new technology. The SMEs were involved as a result of European Union money.”⁴² <44>

Introducing information technology in the shape of a relatively wide and comprehensive project could also stimulate internal discussion and debate about the basic function of a public library. Why should one put a lot of money into computers these days when the libraries can hardly afford to purchase books? Those involved in the project did however not see that the alternatives were/are either books or computers. “Now we feel everyday when making decisions about what can be purchased and what cannot that we have to be very restrictive and repeatedly say ‘no, not this one’. It does not feel good. It is a bit strange when we have a good deal of money to buy machines, but cannot afford to buy this or that book. We also invest in discussions about fiction, invite authors and organise literary evenings. It’s a long time since we did things like that. But I have also seen this project as a ‘folkbildningsprojekt.’”⁴³ <45>

I had also discussed with two school librarians how to create web sites. I had done the recorded interviews almost at the same time as I collected material from the BRUK project. My intention was to use the same analytical procedure inspired by ANT as for the BRUK project. The librarians talked about caretakers, headmasters, vague assignments, people put aside, fear, uncertainties, computer servers they did not have access to, and html editors they did not know how to use. Initially, I decided to put the notion of network aside. I kept the notion of relations, relationality and non-existing borders between humans and non-humans. I concentrated on listening to how my informants talked about things and people who were not present, and things and people whose contribution to creating web pages were not visible. By changing the perspective from focusing on IT to focusing on heterogeneous materials instead I could tell another kind of story about the librarians and their IT practices. What

³⁹ Discussion with one of the participating librarians on 24th February 2000

⁴⁰ *ibid*

⁴¹ *ibid*

⁴² *ibid*

⁴³ *ibid*

became central were hidden landscapes inside the organisations they were employed at. Landscapes that both provided a possibility as well as an obstacle. What ANTa offered was sensitivity to things that do not always work smoothly, moments that are full of contradictions, places of resistance. At the same time, things were working in some ways. The librarians had gained access to computer servers, training in how to use html editors, funding was fixed, and web pages were being created. Their work was simultaneously about smoothness and resistance, difficulties and possibilities, a mixture of new and old organisational landscapes. <46>

ANT & ANTa – Both And or Either Or?

My intention is not to draw a firm dividing line between ANT and ANTa. It is vital to keep in mind that neither ANT nor ANTa is one single thing.⁴⁴ At the same time, it is justifiable to use these approaches as two nodes. When travelling from one node to another it becomes clear that there are several points that both make it legitimate to talk about ANT and ANTa as separate approaches and also legitimate to claim that ANT and ANTa co-exist on the same line. The line between the two nodes tells a story about development and change rather than a story of separation. <47>

Let me summarise by making some more general remarks about what it would mean to move sometimes between ANT and ANTa, and sometimes perhaps leave ANT behind and vice versa. There is no need to be categorical, but rather quite pragmatic. It is, after all, an empirical matter.⁴⁵ There exist no universal truths either about ANT or ANTa. The only way of talking about ANT and ANTa is to bring them into the world. The following short summary (see figure 1) is, of course, unfair both to ANT and ANTa because it is an oversimplification and reduction even if it hopefully captures some of the core issues of both ANT and ANTa. <48>

ANT	ANTa
Tells empirical stories	Tells empirical stories
Focus on relations between heterogeneous human and non-human actors	Focus on relations between heterogeneous human and non-human actors
Metaphors are important (network)	Metaphors are important (fluids, fires)
Stability is the focus of the ANT based research	Instability is the focus of the ANTa based research
ANT based network stories are often one-dimensional smooth stories	ANTa based fluid and fire stories are rough multi layered stories
ANT stories are functionalist stories, in need of reductions and simplifications	ANTa stories are 'It could be otherwise'-stories respecting complexities
View from nowhere-storyteller	Situated storyteller
Successful translations	Contradictions and controversies
Draws things together	Draws things apart

Figure 1 Moving between ANT and ANTa <49>

Returning back to the actual case study project the key themes concerning the BRUK project and analysing it both from an ANT and ANTa perspective were stability and instability. There is often a tendency to regard stability as something universally

⁴⁴ see for example Law, 1997, p. 6

⁴⁵ thanks to John Law

positive and in opposite to regard instability as something universally negative. Instead of using ANT metaphors as static concepts and models it has been more valuable for my analysis to think about stability and instability in a contextual manner; how stability and instability get simultaneously constructed in local practices. What the case study also tells is that both stability and instability can be positive dimensions as well as they can be the opposite. <50>

However critical one might be when talking about networks and creating managerialism, one must at the same time admit that things are working. Computers do find their way to libraries in Blekinge, and so does the funding. Librarians get their HTML editors and web pages are created. At the same time, computers do not always work and they become old and must be updated. The funding is not always constant but comes in drips and drabs. Librarians need to negotiate and compromise. Fellow librarians feel marginalized. Web pages need time and effort when being updated. The project story is a success story and a story about unbalance and ambivalence. The stories co-exist and need to be told in one breath. <51>

As mentioned earlier in this article a lot of internal and also external criticism⁴⁶ is raised against the texts produced in the context of ANT. Annemarie Mol and John Law carry on with the criticism and connect it more broadly to writing academic texts: “The texts that carry academic stories tend to organize phenomena bewildering in their layered complexity into clean overviews. They make smooth schemes that are more or less linear, with a demonstrative or an argumentative logic in which each event follow that one that became before. What may originally have been surprising is explained and is therefore no longer surprising or disturbing. Academic texts may talk about strange things, but their tone s almost always calm”.⁴⁷ The criticism here raised against academic writing in general has the same main components as Law’s earlier criticism raised against ANT. There is a risk of creating linear texts that order not only the text but the phenomena the texts are about in a linear way where the phenomena has a beginning and an end. <52>

If there is a reason to take the criticism raised against the one-layered, ordering, linear stories and also taking seriously the problems connected to the network as a model of stabilisation, how then to write other kind of stories with new metaphors becomes the central question when talking about scientific writing. What John Law suggest is a new metaphor for a multi-layered and many-dimensional writing. “...then multiple storytelling makes rhizomatic networks that spread in every direction... This results in texts that are uncentered, texts that are not singular.”⁴⁸ <53>

How is it possible to write rhizomatic scientific stories containing resistances, difficulties as well as possibilities? Can one scientific story be both smooth and rough at the same time? How can one build in more dimensions in a one-dimensional medium? How can one write a story that is both closed and open? There are no simple and universal solutions to the many questions but they must both be formulated and

⁴⁶ see for example Grint & Woolgar, 1997, pp. 28-31, Haraway, 1994, Haraway, 1997, pp. 33-35, Ormrod, 1995, pp. 31-47, Star, 1991b, pp. 26-56

⁴⁷ Mol & Law, 2002, p. 3

⁴⁸ Mol & Law, 2002, p. 3

answered constantly and in a manner that supports diversity and difference in writing and presenting the empirical studies.⁴⁹ <54>

Within feminist technoscience research, the transparency of scientific work and its representations has also been discussed and problematised. If we no longer want to accept the universality and generality of science in the sense that science retells and reproduces reality, and this retelling and reproducing are always objective and true, we rather end up in a position where “how something is written becomes important in consideration to what we are going to write about.”⁵⁰ The dream of telling universal scientific true stories from seeing from nowhere, the god-trick as Donna Haraway, an American feminist technoscience researcher, calls it, is broken.⁵¹ <55>

Donna Haraway speaks about situated knowledges which do not refer to a place but instead to what she describes as situatedness⁵², to the epistemological consciousness.⁵³ A story is always a manifestation of partial perspectives, in the sense that there can never be one single story explaining everything. The partiality and situatedness leads to understand that there is no way of talking about knowledge in a singular form; one has to refer to knowledges as a plural. How can one be situated and positioned without being innocent and blind becomes a question of how to join the partial perspectives, and how to relate the partial stories to other such stories. Donna Haraway states that we need to know: “... how to have simultaneously an account of radical historical contingency for all knowledge claims and knowing subjects, a critical practice of recognizing our own semiotic technologies for making meanings, and a no-nonsense commitment to faithful accounts of a ‘real world’, one that can be partially shared and friendly to earth-wide projects of finite freedom, adequate material abundance, modest meaning in suffering, and limited happiness.”⁵⁴ <56>

John Law talks about the researcher’s accountability: “This is a chapter. An article. Or a paper. Let us take note of that. But the business of writing – and talking – raises serious problems. Difficult questions. Questions to do with materiality, method, knowing, representing and signifying. Questions of authorship, authority and the nature of our field. Questions concerning the character of what it is to be an expert in ‘our’ field.”⁵⁵ John Law’s words summarise many of the aspects of writing that make writing such a difficult business. He really asks what it “mean[s] to narrate – that is to write or give a lecture”⁵⁶, and one should also add, what it means to write “formula, diagram and tables”.⁵⁷ <57>

Feminist technoscience studies have from the very beginning had a strong affiliation to issues concerning accountability. Donna Haraway, for example, uses the term antiracist multicultural studies of technoscience.⁵⁸ One could claim that many of the earlier ANT studies in particular have had a touch of ‘standing nowhere and seeing

⁴⁹ see for example Singleton, 1996, Law, 2002

⁵⁰ Landström, 1998, p. 44

⁵¹ Haraway, 1991, p. 189

⁵² Haraway, 2000, p. 71

⁵³ Haraway, 1991, p. 196

⁵⁴ *ibid*, p. 187

⁵⁵ Law, 1998, p. 88

⁵⁶ *ibid*, p. 90

⁵⁷ Mörtberg, 2000, p. 56

⁵⁸ Haraway, 1994, p. 69

everything'. Now when ANTa inspired texts openly criticise ANT for not taking issue with, for example, accountability under more careful and conscious consideration the distance is slowly shortening. Neither ANT nor ANTa is static or monolithic, but consciously starting to implode and change. <58>

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