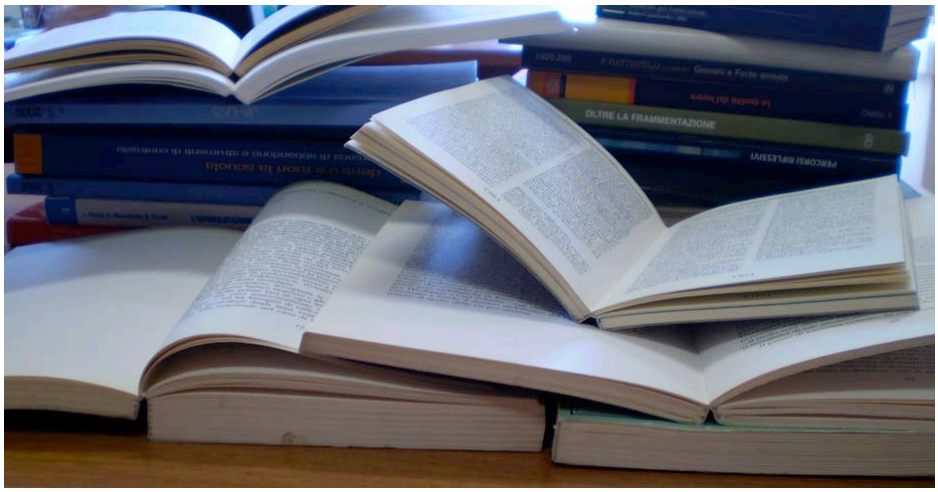
Lecture

A Text of Texts…almost a Texture

Silvia Gherardi

Abstract: This lecture intends to be a journey through ongoing conversations that over time gave a situated meaning to the black box of STS. It tells the story (or rather stories) of how these perspectives have influenced the study targets of various groups of researchers, mainly sociologists and students of organization, technology and science. Using a narrative technique, it places the reference texts of the authors who have helped to build the STS perspective centre stage. The lecture focuses on traditions, authors and intellectual and research trajectories, and then concentrates on the ways in which we are preparing to pass the baton to a younger generation of academics, both in Italy and elsewhere. It also highlights how this new generation is acquiring relevance in the ongoing debate surrounding the social sciences. The texts examined represent the dense texture of the diverse STS perspectives.

Keywords: narration; text; texture; technology; situated knowledge.



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The invitation to speak at the first Italian EASST conference is a great honour and gave me the opportunity to rethink and to reflect on the way STS studies were welcomed to Trento and what this meant to the group of people (mainly labour and organization sociologists and scholars of technology and industrial relations) who began working here at the beginning of the '80s. Many of them are still here and are ready to pass the baton to the next generation of scholars, those who recently set up STS Italia.

I wish to tell a local story, a personal and collective narrative from the margins, in order to contextualise this conference within an intellectual tradition and a disciplinary field. My story is intended to be a journey through ongoing conversations that over time gave a situated meaning to the black box of STS. I chose some texts, images and metaphors to be the spokespersons of flesh and blood authors, many of whom are here in the audience and hopefully can join in my narrative. Every respectable story starts with 'once upon a time' and once upon a time…there were tools!

In fact, in the first issue of *Technology and Culture* (the review of the Society for the History of Technology), in 1959, we find an article by Peter Drucker, a well-known author in organization studies, another interdisciplinary field. May we say that tools and technology have long represented a common trait linking the future STS and Organization Studies?

Let's read the first lines of 'Work and Tools':

> Man [!], alone of all animals, is capable of purposeful, non-organic evolution; he makes tools. This observation by Alfred Russell Wallace, co-discoverer with Darwin of the theory of evolution, may seem obvious if not trite. But it is a profound insight. [...]. One such implication is that from a biologist's (or a historian's) point of view, the technologist's identification of tool with material artefact is quite arbitrary. Language too is a tool, and so are all abstract concepts. This does not mean that the technologist's definition should be discarded. All human disciplines rest after all on similarly arbitrary distinctions. But it does mean that technologists ought to be conscious of the artificiality of their definition and careful lest it become a barrier rather than a help to knowledge and understanding. This is particularly relevant for the history of technology, I believe. According to the technologist's definition of "tool", the abacus and the geometer's compass are normally considered technology, but the multiplication table or a table of logarithms are not. Yet this arbitrary division makes all but impossible the understanding of so important a subject as the development of the technology of mathematics. Similarly the technologist's elimination of the fine arts from his field of vision blinds the historian of technology to an understanding of the relationship between scientific knowledge and technology. For scientific thought and knowledge were married to the fine arts, at least in the West, long before they even got on speaking terms with the mechanical crafts: in the mathematical number theories of the designers of the Gothic cathedral,' in the geometric optics of Renaissance painting, or in the acoustics of the great Baroque organs. And Lynn T. White, Jr. has shown in several recent articles that to understand the history and development of the mechanical devices of the Middle Ages we must understand something so non-mechanical and non-material as the new concept of the dignity and sanctity of labour which St. Benedict first introduced.

We may note several things: first that gender studies, cyberfeminism and 'political correctness' is yet to come (but later has proved very influential in STS); the idea of semiotic-material artefacts was already there; so was the awareness of the power of categories and categorization; the link between scientific knowledge and aesthetics had already been problematized (but later was almost forgotten); finally, the symbolism of work was taken into consideration.

We were in 1959 and at that time I was at primary school and was not reading Technology and Culture. Today, by the way, I am surprised by this text and I like to see it as a precursor of STS vocabulary.

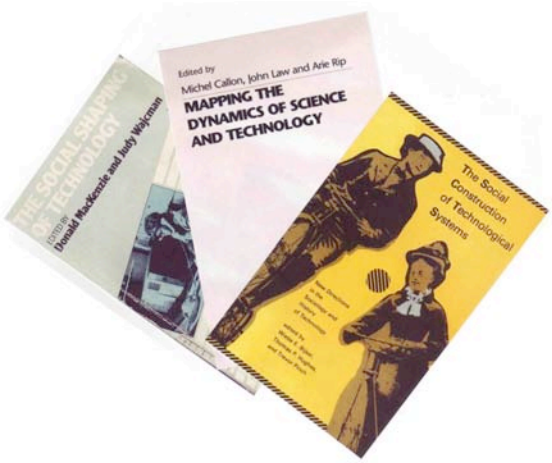
20 years later, a new actor – the computer – enters the scene and with it computing, the cultures of computing and so on, but… what is a computer?
Sherry Turkle, in "Computer as Rorschach", Society 17 (1979: 15-24) gave an answer:

Computers are projective objects, akin to Rorschach tests, those inkblots designed by a Swiss psychiatrist in order to reconstruct the inner world of respondents on the basis of their interpretations. Also for Bruno Latour (1996) and Donna Haraway (1999), computers may be seen as a projection screen, but what kind of images are seen on that screen? According to Bernward Joerges (who is a friend and a colleague who visited Trento several times in the '80s) what people see are Butterflies and Bats.

Butterflies and bats are common interpretations in the Rorschach tests that Joerges uses for interpreting sociological images of technology. Like any proper metaphor - Joerges writes - this one is meant to evoke several interpretations. In the first place, it stands for the "projectivity" of machine technology, quite in tune with Turkle's initial notion that technologies are manifestations of cultural projects. Beyond this, I use it to indicate the "dual face," the ambiguity of technology as a pervasive motif of social-science interpretations of technology. Last, however, bat and butterfly stand for the "fluttering" approach some sociologists take-now coquettish and seductive, now frightening and aversive in dealing with the new machines.

Metaphors of the field (either butterflies or bats), supercharged with meaning, were put to conceptual uses, as a theoretical resource for a sociological study of technology. In 1990 (and before in *Romancing the Machine*), Joerges was pointing at the 'distance to artefacts' in sociology. So far (in the late '80s, beginning of the '90s) sociology has not had much to say on technology *per se* and distance to artefacts was still characteristic of most sociological studies of technology.

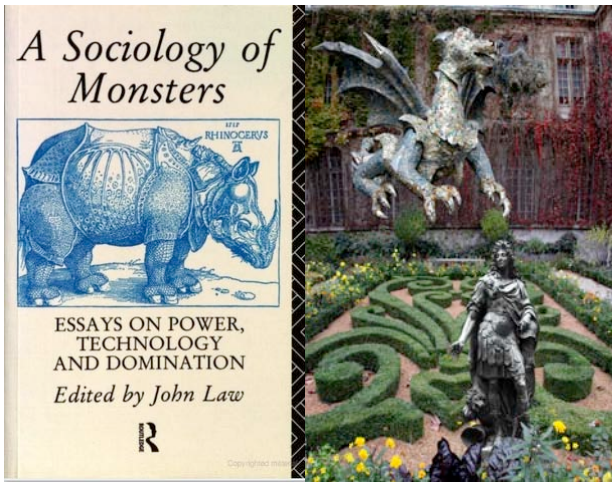
But at that time STS was about to change it:



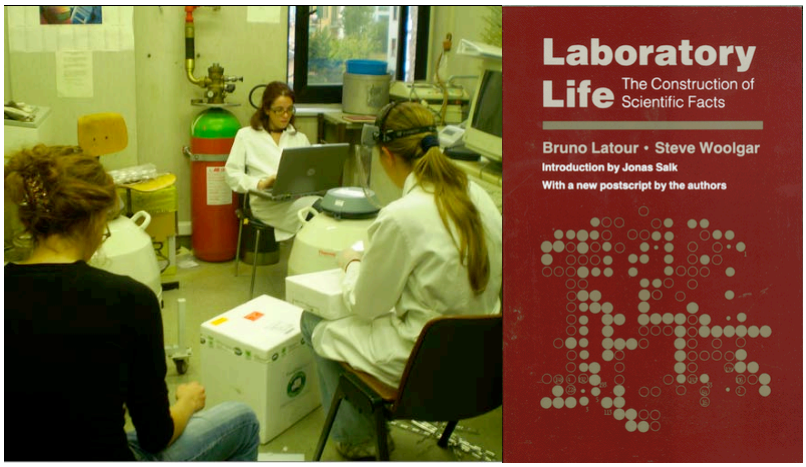
1985, *The Social Shaping of Technology*; 1986, *Mapping the Dynamics of Science and Technology*; 1987, *The Social Construction of Technological Systems*. These books have been my teddy bears (or my dodoo as my French friends would call them) and maybe they have been a generational phenomenon. My group was introduced to these books by Attilio Masiero, a former colleague of ours who was so passionate about them that he transmitted his passion to us; although we have never been able to convince him to write a line in STS style (and nor did we!).

While this trilogy of books were opening a strand of thought based on the metaphor of construction, the reference is of course to Sergio Sismondo and his definition of STS as 'STS looks to how the things it studies are constructed'.

More or less at the same time, a terrifying reprimand was going around: science and technology become 'monsters', when they sever their connections with the social conditions of their production (Haraway 1991; Law 1991; Star 1991).



Another metaphor became an icon of STS and it resonates more with the empirical and methodological reflection that our group was conducting in those years. I think of *labor*-atories studies.



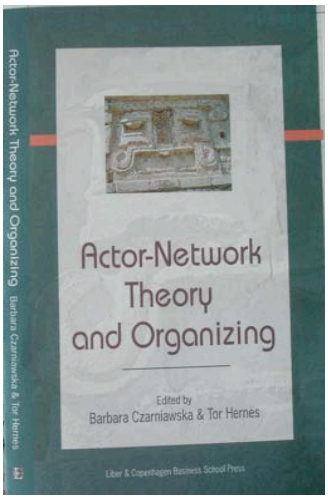
They helped me/us to get rid of the industrial model of work/worker/ technology and to see work differently. Scientists negotiated the nature of data and other results in conversation with each other, working toward results and argument that could be published. Scientists *work*, like many other human beings…but also non-humans work with them and make them work. Sometimes, they go out from the

laboratory; sometimes they go to the Amazonian rain forest; or, better, the Amazonian rain forest goes into their lab.

The early work by Bruno Latour, who visited Rucola a couple of times, had a large impact on the way we were developing our approach to knowing in practice in those years.

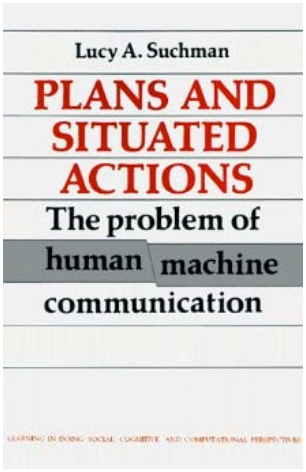
Science as practice and technology as a social practice are labels grounded in symbolic interactionism. In fact the symbolic interactionist approach treats science and technology as work, taking place in particular localities, using objects as symbols that enable work and through work the creation of scientific knowledge and technological results. This approach was nearer to our educational background in sociology and to our engagement in those years with the theme of organizational culture and with the Standing Conference on Organizational Symbolism. Our world became richer, full of boundary objects, bandwagons, ecologies of knowledge, categories and so on.

Nevertheless, it was Actor-network theory (with or without the hyphen) that offered the most powerful and enduring metaphor: a network of heterogeneous elements. Maybe it was ambiguity to offer this image a competitive advantage, but for sure ANT is the larger of the two contact points between STS and Organization Studies.



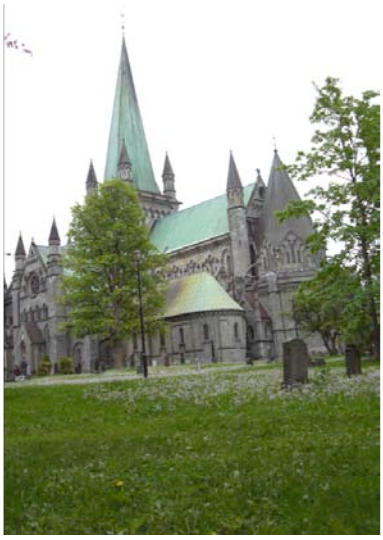
The other important contact point was the one between STS and Information Systems and, within it, with the two communities of Computer Supported Cooperative Work and Participatory Design, who were dealing (in parallel) with the design of technologies. IS, like other approaches oriented to the study of workplaces, is interested in the relations between knowledge, the individual, the collective, social structures and technology. What STS has offered to this area of studies, is an enlarged understanding of the user and the information system, an awareness of the importance of practice and the materiality of knowing, notwithstanding a qualitative-ethnographic methodology.

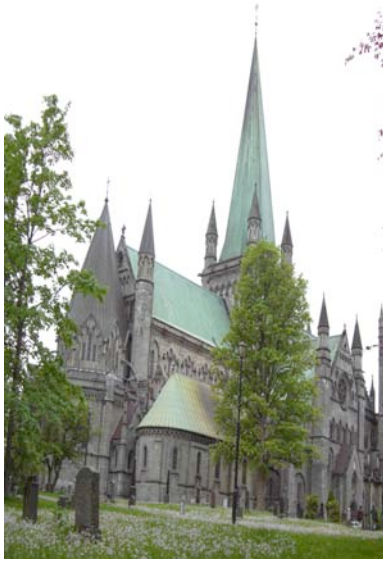
At the crossroad of STS, ANT, IS and OS, there was a very powerful concept, *situated action,* that acted as an 'affiliative object' (Suchman, 2005). In fact, objects are not innocent, but fraught with significance for the relations that they materialise.



In the aftermath of 'ANT and After' (Law and Hassard, 1999) I dare to say that we had 'stormy weather' full of images such as Collins and Evans third wave:

Not to mention the high church and the low church of Fuller (some years before).





These houses cut across science and politics, reconceptualising epistemic processes so that all parties can participate at all stages. An Upper house has the power to take into account; the lower house has the power to put in order; and both together have the power to follow up. I should say that the symbolism of the house, of the upper and the lower, of the division of labour, recall a gendered subtext (the story of Thales and the young servant girl) that contrasts with the presence within STS of feminist voices and epistemologies.

For STS in the years 2000s, I have the image of stormy weather. Mine is an image coming from outside but consider the voices from inside.

A growing concern for engagement seems to contrast the traditional debates on politics: STS becoming repetitive is the worry (or joy?) of Guggenheim and Nowotny in 2003, where being repetitive means that for STS there are always further artefacts to deconstruct; STS losing its provocative power is the concern for Woolgar. And in a very telling special issue in 2009, entitled 'Does STS mean Business', Woolgar, Coopmans and Neyland explored the nature and consequences of STS coming in contact with Organization and Management studies. In their introduction, the authors are more concerned with management studies (and maybe that the encounter between STS and management is recent, but the influence of STS on organization studies is long lasting, as I have tried to argue so far). But this

is not the point. I want to stress a change in vocabulary and imagination. In that special issue, Woolgar and colleagues talk of STS as a set of sensibilities, meaning that 'it is unhelpful to construe STS as a unitary set of approaches, methods and topics'. And in the same issue Lynch calls for a time out.

During the 2000s we took a time out, and we developed some themes that were in common and were somehow labelled as STS themes differently, but we avoided to use a bland version of STS.

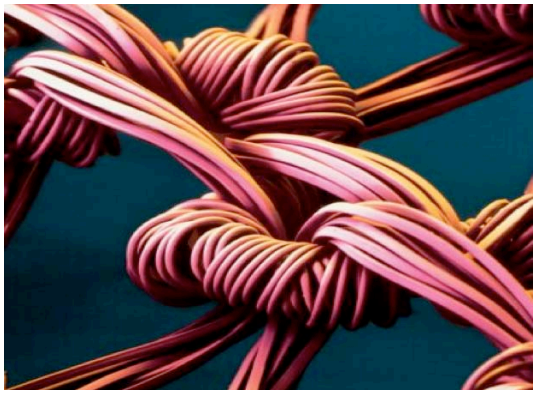
STS have been the humus, the breeding ground, of our theoretical growing up, but now our group – Rucola (http://www3.unitn.it/rucola/) – is known for the other acronym of PBS (Practice-based Studies…acronyms are a classic form of social control, limiting the imagination by offering mechanisms of social ordering, in Woolgar's words!). Together with another new 'brand' (the aesthetic approach), Rucola has taking up the theme of what knowledge is, how knowing is collectively accomplished, how sociomaterial relationships produce social effects, what taste means for organizational practices…and more generally a search for a non rational-cognitive view of knowledge and organizations.

Our preferred image/metaphor is that of 'texture'.

The philosophical referent for the concept of texture is the contextualism of the American philosopher Stephen Pepper: "It is doing and enduring, and enjoying: making a boat, running a race, laughing at a joke, solving a problem, communicating with a friend". These acts are composed of interconnected activities with continuously changing patterns (notice the similarities with a concept of practice).

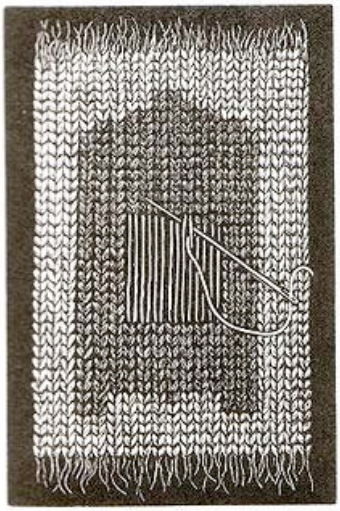
The metaphor of "texture" was taken up by a group of scholars whose reflections were published in a special issue of the *Journal of Management Studies*, edited by Robert Cooper and Stephen Fox in 1990: "The key to understanding texture is the idea of 'connectedness in action'; this phrase brings out the definitive features of texture, its endless series of relationships which continually move into each other".

The woven text has a texture that stretches and shrinks, and "to follow the pattern and interlacing of the composition requires the weaver's art of looping and knotting". *Weaving*, i.e. following the multivalent process that constitutes texture, is the analytical metaphor most appropriate for its understanding and for linking text with texture, the semiotic and the material.



Practising may be considered a mode of ordering the different elements that go into a practice. And weaving becomes the metaphor for knowing in practice, since knowledge is seen as a collective activity and not as an object.

Weaving is a traditional female craft/art and the gender subtext is strongly intended! The fabric of practical knowing and its repair in case of breakdown can necessitate different forms of weaving:



Darning is the art of invisible mending. It is a repair technique. And repair is not at the margins of order, waiting to be deployed if something goes wrong. Instead it is a practice at the centre of social order: repair work makes workplaces 'normal'.

Patching is the art of remedial mending. Patching is a practice intended to forestall any further damage and embroidering is the art of decorating quilting as a *bricolage* and the art of recycling which does not seek to conceal but instead to historicize continuity through change.

What I tried to do through this presentation is an old patchwork cover, even if my cover is made of texts and not of colourful, fancy fabrics.

Every quilter makes decisions as to what to choose or cut, what to put together to obtain good results. I left behind many nice STS images: onions, lizards, aeroplanes, oncomouses, coyotes, tricksters, simians, cyborgs, monsters…..

Quilters usually meet to exchange scraps of fabric and patterns, this being also an opportunity to communicate, to stay in touch, to build some sort of dialogue. I hope that the Trento conference will be a good place for quilters to sew their text into a collective quilt.

In the intricacies of my welcome speech I tried to include a couple of things which could prompt further discussion:

1. that in STS there are recursive images and metaphors and the repetition of these metaphors and their associated imaginaries have social and material effects;
2. that STS texts become affiliating objects that connect ideas and imaginaries in a texture of research practice;
3. that STS research practice has given momentum to a project of revising sociology's concept of the actor. The change in this concept is a change in epistemology, moving towards a relational, in-between, intra-action or interstice epistemology whose specificity is the questioning of the knowing, materially embodied and socially embedded subject.

Thank you.

References

Bijker, W.E., Hughes, T.P. and Pinch, T. (1987) *The Social Construction of Technological Systems. New Directions in the Sociology and History of Technology,* Cambridge, The MIT Press.

Callon, M., Law, J. and Rip, A. (eds) (1986) *Mapping the Dynamics of Science and Technology. Sociology of Science in the Real World,* London, The MacMillan Press.

Collins, H.M., Evans, R. (2002) *The Third Wave of Science Studies: Studies of Expertise and Experience*, in "Social Studies of Science" 32, pp. 235-296.

Cooper, R., and Fox, S. (1990) *The "Texture" of Organizing,* in "Journal of Management Studies", 27(6), pp. 575-582.

Czarniawska, B. and Hernes, T. (2005) *Actor-Network Theory and Organizing*, Copenhagen , Copenhagen Business School Press.

Drucker, P. (1959) *Work and Tools*, in "Technology and Culture", 1(1), pp. 28-37.

Fuller, S. (1997) *Constructing the High Church-Low Church Distinction*, in "Bulletin of Science, Technology & Society", 17 (4) pp. 181-183.

Guggenheim, M. and Nowotny, H. (2003) *Joy in Repetition Makes the Future Disappear. A Critical Assessment of the Present State of STS*, in B. Joerges and H. Nowotny (eds) *Social Studies of Science and Technology: Looking Back, Ahead*, Dordrecht, Kluwer, pp. 229-258.

Haraway, D. and Goodeve, T.N. (1999) *How Like a Leaf: A Conversation with Donna Haraway* , New York, Routledge, 1999.

Haraway, D. (1991) *Simians, Cyborgs and Women: The Reinvention of Nature*, New York, Routledge.

Joerges, B. (1989) *Romancing the Machine, Reflections of the Social Scientific Construction of Computer Reality*, in "International Study of Management & Organization", 19 (4), pp. 24-50.

Joerges, B. (1990) *Images of Technology in Sociology: Computers as Butterfly and Bat*, in "Technology and Culture", 31(2), pp. 203-227.

Latour, B. (1996) *Aramis or the Love of Technology*, Cambridge, Mass., Harvard University Press.

Law, J. (1991) *Introduction: monsters, machines, and sociotechnical relations*, in J. Law (ed.) *A Sociology of Monsters: Essays on Power, Technology and Domination. Sociological Review Monograph*, Routledge, London, pp. 1-25.

Law, J. and Hassard, J. (eds) (1999) *Actor Network Theory and After*, Oxford and Keele, Blackwell.

MacKenzie, D. and Wajcman, J. (eds) (1985) *The Social Shaping of Technology,* Maidenhead, Open University Press.

Sismondo, S. (1996) *Science without Myth: On Constructions, Reality and Social Knowledge,* Albany, Suny Press.

Star, S.L. (1991) *Invisible Work and Silenced Dialogues in Representing Knowledge* in I.V. Eriksson, B.A. Kitchenham, and K.G. Tijdens (eds) *Women, Work and*

Computerization: Understanding and Overcoming Bias in Work and Education, Amsterdam, North Holland, pp. 81-92.
Suchman, L. (1997) *Plans and Situated Actions: The Problem of Human-Machine Communication,* New York, Cambridge University Press.
Suchman, (2005) *Affiliative Objects*, in "Organization", 12(3), pp. 379-399.
Turkle, S. (1979) *Computer as Rorschach*, in "Society" 17(2), pp. 15-24.
Woolgar, S., Coopmans, C. and Neyland, D. (2009) *Does STS Mean Business?,* in "Organization", 16(1), pp. 5-30.

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