In, with and of STS

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Introduction

How to do STS? How is STS being performed? What is STS? These questions circumscribe a problem space, in which this essay explores ways of contributing with 'STS' to social scientific developments. I focus on how the 'use of STS' is discussed and analysed. Is 'STS' used to contribute to developments in 'STS', to contribute to other fields, and can we analyse how 'STS' research is practiced?

How to conduct research with STS? This is one way of translating the title of this volume – *Wie forschen mit den "Science and Technology Studies"*? This translation invites a prescriptive response. However, the volume's thrust undergirds that a response would well be grounded in engaging with a reflexive translation: How is research with 'STS' being conducted? Addressing this second question offers a capacity for infra-STs critique, for assessing the state and quality of STS endeavours, for, as the editors Wiedmann et al. (2020) approach it, opening the 'black box' of STS in practice.

Yet, a third question looms in this line of exploration. What is 'STS'? Here I identify a risk of performing a coherence and singularity of what STS is. The questions risk prefiguring a specific form of knowing STS – singularly, STS as unitary. An attempt to know 'STS', to assess or use 'STS', evokes the logic of identifying the core of 'STS', its theories, concepts and methods, and learn how these theories, concepts and methods are (to be) implemented – as if coherent and disciplinarily legitimised answers existed. The editors of this volume employ quotation marks to hedge against this risk of conjuring up simple coherence of STS. Quotation marks, I am told, serve to emphasise the socially con-

structured meaning of STS. These marks supposedly distance the reader from the marked concept – a resonance with Berger and Luckmann's (1966) introduction to the use of quotation marks to mark the social construction of reality. Trust in the power of these marks to denaturalise the three-letter acronym STS has shaped this volume. STS was turned into 'STS' – without discrimination (but where were the limits?), the power of editors. Does such inscription work as intended? Does it clutter or support the arguments put forward? I pause judgement. However, I posit that the risk of imaging the coherence of STS is more intricate than quotation marks can resolve.

At stake is how disciplining operates, how we perform the role of theories, of methods, of concepts. To illustrate this intricacy, consider this exchange between Annemarie Mol and Georg Kneer in the *Kölner Zeitschrift für Soziologie und Sozialpsychologie*. Mol (2010b) reiterates that and how actor-network theory (ANT) is not a theory. This constitutes the frame of her contribution. Positively, her article stresses the capacity of ANT to develop sensitising terms and trace effects – wild effects, unruly effects in unexpected socio-techno-natural relations. Kneer (2010) replies that ANT misses to offer a coherent theoretical and conceptual body. Mol's (2010a) response deconstructs Kneer's attempt to find in ANT a theory. Though, zooming out of their interaction, Kneer's misreading of ANT is well aligned with those who framed their controversy: The *Zeitschrift* issue's editors Albert and Sigmund (2010) identify ANT as a theory (*Theorieprogramm*) and set the expectation of a general explanation of social order and coordination. In my experience of interacting with German social science disciplines, this expectation fits the dominant understanding of a theory in German sociology. A discipline seemingly is in need of coherent theories. So, should we expect such disciplining from STS?

In STS disciplining can be detected; but that disciplining is also contested from within (Jasanoff 2017). How comes this? One plausible story against the practice or imaginary of strict disciplining draws on STS investigations of science in action. We learned from technoscience and other knowledge practitioners that concepts and methods are meaningfully practiced in situations (consider Knorr Cetina 1981; Latour 1987; Mol 2002). To illustrate: a textbook version of a concept may be enacted in a teaching situation by two postgraduate students in a seminar; the 'same' concept may be differently enacted in writing a grant application or in analysing data, or in authoring an article. Achieving a stable and strict reproduction or repeated construction of a concept or method as the 'same' requires much social and material investment, but can never be finalised. When we explore knowledge and science in action, methods and concepts do not exist outside of action. Methods and con-

cepts are enacted in situated action. The same can be said of plans, standards, protocols in technoscience (Bowker/Star 2000; Suchman 2007). In practice, we can expect a multiplicity of methods and concepts.

Exploring the institutionalisation of STS, I cannot register singularity, either. Studying the journals of STS in terms of the interrelations of publications, typically constructs a major split between two camps that are often called 'qualitative' and 'quantitative STS' around respective core journals (van den Besselaar 2000; Martin et al. 2012). Such studies also detect temporal splits, phases of STS. In the core journals of the 'qualitative' STS, periodisation takes place, too. For instance, whilst Collins and Evans' (2002) construction of several waves of science studies generated heated debate, the cut through a key 'STS' conversation 'what is actor-network theory?' – a cut that coined 'post-ANT' – is more widely accepted (Gad/Jensen 2010). In 2015 *EASST Review* editors Ignacio Farías and Josefine Raasch, introduced the section 'STS Multiple' in the Review. That section has since emphasised the manifold ways of conducting, doing, performing 'STS' in Europe.

In short, the field of 'STS' forcefully suggests that STS is not singular but multiple. In practice, STS 'multiplies' – as Mol (2002) words it for enacting atherosclerosis.

Rather than looking for the possibility of strict implementations of an STS concept, method, theory or analytics, a sensibility for the multiplicity of STS shifts the perspective – and this, too, is signalled by the editors of this volume: a progressive point of departure for working with STS is to reflexively engage with STS's concepts, methods, theories and analytics as offering *sensibilities*. Woolgar et al. (2009:21) lay out an understanding of STS as a set of sensibilities:

'[I]t is unhelpful to construe STS as a unitary set of approaches, methods and topics. It is a vast, complex, multidisciplinary enterprise, many of which component parts are at war (often fruitfully) with themselves. Nonetheless, at another level of generality, it is helpful to speak of the "sensibilities" which characterize much STS research. It is these sensibilities, deployed with appropriate reflexive sensitivity and irony, which offer much promise for the illumination of issues and questions in many different fields[.]' (Woolgar et al. 2009: 21)

Deploying STS sensibilities rings well. Whilst I follow the argument for this approach, it remains underspecified how 'STS' sensibilities are used. This volume, its editors and several of the authors make this explicit as an issue: the widespread missing description and analysis of how STS is being put into practice

(Wagenknecht et al. 2018; Kocksch 2020; Müller/Reichmann 2020; Wiedmann 2020; Wiedmann et al. 2020). This volume's concern intersects with my own – with colleagues I explore and wonder about how 'STS' ethnography is conducted in practice, how data is being produced and processed, how collaboration and data reconfigure each other in our STS practice (Lippert/Douglas-Jones 2019; Lippert/Mewes, forthcoming).

'STS' can be used in manifold ways. How a case of 'STS use' establishes a contribution is an open question – not all use of STS generates contributions to STS, some STS inspired studies contribute to classical disciplines such as sociology, anthropology, history and settings in technoscience, industry or social movements. This volume showcases a range of such uses of STS. I use this essay to propose a broad differentiation of uses – using STS to contribute *in STS*, to contribute *with STS* to other fields, or to conduct a study *of STS* itself. I argue that to problematise 'STS research-in-action' STS needs to expand its practice of reflexivity by grounding it in material-semiotic analyses of the research infrastructures in which we develop 'STS' stories.

A note on method and language. I use 'we' and 'our' to imagine myself in as part of, and perform, the 'STS community'. Rather than marking 'STS' with marks throughout, I selectively mark instances of the acronym STS, occasionally in combination, like 'STS community'. To develop my argument, I draw on reading and problematising the chapters of this volume and three of my own articles. It follows a review of stories of STS as a field and an outline of a new direction in narrating STS. In these new ways of narrating STS I identify a promising capacity to scrutinise 'STS's own' knowledge production that resonates with the concern of this volume.

The text is structured in four sections. First, To explore the various ways of using STS, I trace this volume's contribution and propose a heuristics for differentiating studies of the use of STS. Second, instead of using the power of an afterword to subject this volume's contribution to my heuristics, I subject my own work to it. Third, I consider how we narrate of STS, (a) in terms of what this field is; (b) I expand on narrating STS praxeographically, specifically, cartographically, conceptographically and methodographically. Fourth, I close by arguing for reconfiguring how we narrate stories of STS research practice, how we exercise reflexivity.

Analyses of 'STS use' in social scientific research

Wiedmann et al.'s (2020) framing of this volume specifies an interest in how 'STS concepts and theories' are practiced. They describe experiencing STS concepts as black boxes in their research processes, as, what they call 'impervious, self-evident, theoretical artefacts'; and they employ this volume to explore the effects of using 'STS' concepts and theories on research processes. Implicitly their take suggests, using STS concepts configures a research process as part of STS.

The subsequent chapters showcase a great range of accounts of how 'STS' was used in research processes. Meneghello's (2020) study of pneumatic post details the use of historical methods in combination with ANT in the service of a cultural history of technology. Wiedmann (2020) presents an analysis of how she operationalised the ANT slogan to 'follow the actor' and its limits. Effectively this analysis (re)enacts key moves that ANT authors undertook in different contributions (from Latour's (1999) circulating references to Law and Singleton's (2005) object lessons on fluid objects). Marguin et al. (2020) methodologically lay out how they conceptualised operationalising Niewöhner's (2016) 'co-laborative anthropology' to perform 'STS research' focusing on spatial configuration of epistemic processes. Müller and Reichmann (2020) observe that STS concepts and sensibilities generate engagement across a wider range of social sciences and claim that therefore STS concepts can be translated into coherent methodological and theoretical frameworks. Spöhrer (2020) weaves an autoethnographic account of playing a computer game together with Rheinberger's (2001, 1997) work on experimental systems and ANT sensibilities. Kocksch's (2020) ethnographic study of IT security attends reflexively to her conceptual practices of doing critique, a significant *problématique* in STS (Verran 2001; Jerak-Zuiderent 2015). Otto (2020) focuses on how sociological knowledge production proceeds semantically-interpretatively. Meier zu Verl (2020) uses STS sensibilities to reconstruct the translations of a data point in ethnographic work. This contributes to the project of a methodology of qualitative research (Greiffenhagen et al. 2011). Finally, Boersma and Willkomm (2020) analyse the contested meaning of the notion 'academic workshop' in an email exchange amongst colleagues of the wider STS community. In that sense, their chapter analyses the negotiations typically implicit in infrastructuring STS research.

I propose a *heuristic typology* of exercising the genre of reflexive writing about using STS. I organise this heuristic with two concerns – what narration

does the analysis perform, and which method is employed to ground that narration.

What does the narration perform? – My reading process resulted in thinking of three different narratives of the analysis of the ‘use of STS’. The first narrative type *legitimises* how the authors used STS. Typically authors would account for their choices of assembling methods, concepts, theories, implicitly or explicitly arguing that that choice was adequate, operationalisable and successful. The second type tells a story of how the authors used STS to *introduce a concept* to another social scientific or humanities field, not contributing to STS but elsewhere. Third, some texts presented a practice of research and then *analysed and problematised* that practice.

How is the narration grounded? – A different kind of subject matter is foregrounded when exploring the ground on which these narrations work. This constitutes another axis of differentiation, a second three-fold distinction. First, by way of *documenting*, some texts reconstruct the erratic research process, from the armchair, as it were. Second, some texts account for *empirical materials* – traces of their research infrastructure and process – to ground their narration. Finally, other texts use canonical texts of their respective disciplines, method and methodological prescriptive work, to argue about the *logic* of a research process.

If we use the two questions as axes of a two-dimensional grid, we get a 3×3 table. Of course, texts could be characterised in terms of working across the fields of this heuristic device. I offer this heuristics’ questions for these to be of value to scholars crossing the borderlands between STS and other fields, STS scholars as well as analysts of STS; as a resource for problematising how accounts of STS-in-action are narratively and analytically configured.

Operating with/in STS

I wonder how applying this heuristic may be generative in assessing texts that use STS, draw on STS, maybe even contribute to STS. How do narrations of ‘research with STS’ matter in these texts? Instead of using the heuristic typology to perform the voice of an authoritative reading of this volume’s chapters, I apply it on my own work. In doing that, my objective is not to claim that relating to STS and social scientific theories is a breakthrough; instead, I aim to problematise the texts’ semantic-discursive operations.

First, consider this sentence – ‘Here is how I enlist ANT’ (Lippert 2012: 145). This sentence introduces a section in an article that develops a critical contri-

bution to ecological modernisation theory for a special issue by critical scholars of carbon markets. Reflexively, I indicate to the ANT reader that the section offers a translation of ANT, not the claim of a correct implementation of the 'theory'. In this sentence, I perform simultaneously a second move by bringing into play the key idea of ANT of translation and of the enrolment of actants – 'to enlist' actants; the sentence was to signal to the STS reader a key familiarity with ANT's core: in relating actants, interests are translated, shifted, and with the shifts the relation gets stabilised, trying to tie the actants together. This playful sentence, and the section it opened, were to discursively stabilise my use of ANT in analysing carbon accounting and, eventually, to propose to critical environmental readers the idea that within 'facts' of carbon emissions lingers an ontological politics. The narration of the ANT section explicitly performs 'methodology', legitimising the analysis. While the article uses ANT to analyse empirical material, the section of ANT performs an 'ANT methodology', enlisting canonical texts and seeks to exemplify the logic of ANT.

A second case works in many ways similar, but on a different scale. 'Studying Reconfigurations of Discourse: Tracing the Stability and Materiality of "Sustainability/Carbon"' (Lippert 2014) opens by rendering legible to sociology my methodological arsenal for my research into the discourse of carbon – it shouts out 'see the numbers!' – 300 pages of field notes, a catalogue of 281 artefacts, detailing this corpus with 1705 codes and analysing the corpus with six comparative moves and four triangulation processes – a document of my documentation. In that paper I point to ethnomethodology, grounded theory, ANT and feminist technoscience studies. Arsenal might be a fitting notion. However, after detailing 'approaches', 'method and methodology' (34-38), the paper tries to ambivalently and reflexively lay out the decisions taken during the analysis of carbon accounting ('how data matters but gender discrimination is made absent', a defence); and then it considers a strategy of 'generalisation'. In these sections, the paper tries to enact a form of compatibility between sociology and STS, specifically enact my 'STS research' as contributing to a German sociological discourse of 'discourse ethnography' (for the fit see Keller 2019). The paper subsequently shifts away from compatibility: I contrast the ontological underpinnings of a broadly constructed qualitative social science with my reading of Law's (2004) *After Method*. To relate to the STS reader, the paper makes recognisable the agency of analysts in assembling methods in enacting data and an analysis. In retrospective, I identify four moves in the paper – performing the research project as sociological, STS as sociological, STS as going beyond sociology, as well as pushing STS to engage with its research practices

by illustrating the rudiments of an STS analysis of an 'STS project'. Yes, too much.

Whilst my paper tried to engage with the gross research process that produced my PhD, in another case, I tried to question and re-conduct my analysis of a minute component of the PhD. Across five pages I had analysed a calculation in terms of qualculation (Lippert 2013: 94–99). But after my PhD was submitted, I started to engage in more depth with Helen Verran's work. I re-analysed the calculation, interpreting the sensibilities that she develops with her notions of ontic and ontological practices/politics. Considering the overlaps and differences between both analyses generated my paper 'On Not Muddling Lunches and Flights' (Lippert 2018). That paper narrates of analysing comparatively two recent STS analytics of numbers. To conduct the comparison, I re-narrate the story of the calculation. In that process, the story changed, from an account developed using qualitative data analysis to empirical philosophy. For that analysis to go through the peer review process, it felt like all the sociological and anthropological reasoning needed to be carved out – 'A concern with accurate description or grounded theorising would shift the focus away from the kind of empirical philosophy I undertake'. For the point was not primarily to develop a theory of the calculation or tell its situated emergence accurately, but to analyse the analytical approaches – in action. The paper's project to analyse 'STS analytical concepts' comparatively resonates, I think, with the agenda of the present book, analysing how 'STS concepts' fare in the research process.

Each of these three cases shows modes of relating to 'STS' that cut across segments of the heuristic, presented above. In my work I have enrolled STS for narrations that legitimised my analyses, that introduced STS concepts other fields, but I also have analysed how I work with STS concepts. For some of these narrations I documented my research process, or performed its (authoritative) logic, but I also used empirical materials to ground my narrations. Cutting through these cases I identify the textual relations to literature bodies as key in performing disciplinary association or locating myself in specific 'STS' discourses. It becomes clear that a single text typically does not operate across the whole heuristic. A single text might work with STS, but it does not necessarily operate with *in* STS.

Narrating STS

Implicit in this engagement so far is the conversation about what STS is. Narrating 'STS', I suppose, happens alongside enacting a text as an STS analysis. Writing 'STS' is part of constituting the field. To this I turn next.

'STS' – WHAT IS THIS FIELD?

Interestingly, methods-in-practice are not in the centre of the conversation about what constitutes STS. Asking what STS is, I am pointed to encyclopedia entries, to the Handbooks of STS, to more or less heated exchanges between scholars. A core concern needs to be established. 'STS looks to how the things it studies are constructed', writes Sismondo (2008: 13); Dear and Jasanoff (2010: 762) consider a key insight of the social study of science: 'to study how something works is to study what it is'. Jasanoff (2017: 176) writes in her 'A Field of Its Own': 'By using the term 'technoscience,' the field draws its own distinctive boundaries around the subject matter it investigates.' Here is some heavy boundary-drawing, exercising disciplining. Fuller and Collier (2004: 180) explain why we see such disciplining: '*Realpolitik* of academic survival dictates that STS move toward becoming a discipline or die.' Underlying such moves of defining and disciplining I find narrations of the history of STS, occasionally also the histories, typically of the 20th century (Rohracher 2015) – Kuhn, Merton, a too late return to Fleck, STS proper emerging with the Edinburgh School, Strong Programme and EPOR – here is also a mark of feminist moves – laboratory studies, SCOT. Then: 'ANT might be seen to combine the interpretive frameworks of EPOR and SCOT with the materialism of laboratory studies', tells us Sismondo (2008: 16). No surprise, in the present volume I find repeatedly locational moves of 'STS and ANT', aka, 'STS, that is ANT'. Though, quite dominant, too, is of course co-production. These are, or have been, the cutting edge theoretical-analytical conversations in STS. In all of STS?

The first edition of Fuller and Collier's (2004) work framed these conversations as 'high church', demarcating these from the 'low church', coming out – not of 'Science and Technology Studies' but the normatively and politically oriented 'Science, Technology and Society'. This is narrated as the activist corner of STS, not necessarily generating theoretical, conceptual and fundamental contributions to STS, but researching with STS to contribute to radical change or reformist politics (here we find the call, for instance, that STS could be serviceable to policy processes Webster 2007). Sismondo (2008) contests this, arguing that activist STS has also been contributing fundamentally. Jasanoff

(2017: 186) evokes the risk of a 'broad-church approach [that] satisfies liberal academics' deep-seated desire for intellectual democracy, but it also gets in the way of critical stock-taking, meaningful theorizing, and methodological innovation—in short, of *disciplining*. Understanding what STS as a field is, is contested within 'STS'.

At the same time, STS have to negotiate, fight, manage, moderate relations with colleagues in other academic fields, social sciences, humanities, STEM. The relationship to history of science seems still not settled (Dear/Jasanoff 2010). Is STS part of sociology (Law 2008), or a complementary to sociology (Latour 2000)? Does the high church prefer exploring the unruly wildness, whither however well-plausibilised causal sociological explanations (Restivo 1995)? The relationship with anthropology is multiple (De la Cadena et al. 2015), which, I think, holds also for the above mentioned disciplines. It holds also for the natural sciences, which have been relating to STS in myriad ways between fighting STS and using STS as a trophy to tackle requirements in the discourse of 'ethical, legal and social implications' of technoscientific change (Gieryn 1996; Balmer et al. 2015). It is well possible that 'research with STS', as this volume addresses it, contributes, not to STS, but to a development in another discipline, or to an activist intervention, or to stabilising a reformist or hegemonic policy project.

What is this field? STS seems not (yet) disciplined, embracing unruly technoscientific material-semiotic practices and processes, in deep personal, institutional and discursive interrelation with many disciplines and fields. Scientometric analysis identifies such interrelations, too (Vandermoere/Vanderstraeten 2012). Negotiating how 'research with STS' establishes a contribution in 'STS', requires then spelling out how that research conducts relational work: how does research relate to conversations – in literatures – in and of 'the STS community'?

OF *-GRAPHIES

A curious character of narrations of STS as a field is the disjunction between defining what STS is about and using that definition to narrate about STS. If we follow Dear and Jasanoff's (2010: 762) declaration that 'to study how something works is to study what it is', then addressing what STS is should be grounded in the analysis of how STS works, how STS is practiced. I suggest we turn from what these two scholars called, and others, I suspect, practiced – an informed folk history of STS – to a descriptive analysis of how STS is practiced. I use the suffix *-graphy* to underline the need to put into written description

that practice, and to show the analysis of that practice. This gets us to a praxeography of STS, broadly speaking, drawing on the generative methods of, for instance, ethnography and historiography. I identify three contemporary 'graphies' that mark an emphasis on studies of how STS is put into practice, how STS works (or does not).

Cartography – Scientometrics offers a version of this – a version of quantitative cartography of how STS is practiced in citation practices (Vandermoere/Vanderstraeten 2012). An alternative cartography is what we find, explicitly in the section 'Cartography' of *TECNOSCIENZA, the Italian Journal of Science & Technology Studies*, and implicitly in the Multiplicity section of *EASST Review*. In the former, Sørensen (2012), for instance, details 'STS in Norway', conducting an analysis of scholars' movements between research locations, the conversations they take part in, in Norway and beyond. Differently, Marianne E. Lien and Gro B. Ween, in De la Cadena et al. (2015), share autobio/ethnographic stories of how they worked with STS in Norway and the frictions they experienced with Norwegian anthropology. The case of STS in Norway indicates, for me, not that nationality matters, but the significance of locatedness of research, its configuration in scholarly discourses, research policy and the situated political economy of academia.

Conceptography – Sticking to Norway, for illustration, let me consider work by Law and Lien (2013). They carefully observe and think about emerging reals. This work generates new concepts, constantly. These concepts are sticky, they are located in specific empirical relations; they are not designed to work as abstract concepts that can be applied elsewhere, coherently and smoothly. Recall the exchange between Mol (2010b) and Kneer (2010) for how that difference matters. Now, taking part in 'STS conversations' means engaging with others' concepts and stories. No rule for their 'implementation' exists. The STS scholar might then be advised to explicate how they make a concept work, or how they rework a concept in a generative way. This is what I find in much generative STS research. It involves writing about concepts-as-practice. Though it could be stronger – conceptography as a form of reflexive writing about how a scholar works with works, wording words. The present volume is engaged in that endeavour. Otto (2020), for instance, traces scholarly practices in which the sociological concept 'precariat' is enacted.

Methodography – Yet, as good STS research typically engages deeply with messy emerging reals, there is more than concepts and words. More than semiotics. Materiality. How do we research something? There is the thing in something. Thing, a gathering. Rarely do STS researchers describe what they gather, or are gathered with, in their work between some, what in the sciences would

be called, empirical realities, and their words. The methods of gathering, of relating to the myriad of human and nonhuman participants, material and semiotics, are too often not disclosed, rendered available for scrutiny, for discussion. I suggest we should not read Law's (2004) *After Method* as us not inter- or intraacting in relations with these participants. Instead, we are faced with all kinds of 'methods' (Lury/Wakeford 2012; Deville et al. 2016) and devices that we (re)invent in our research, that take part in our epistemic work, ontic, and ontological, too. Our bodies, our selves are part of these gatherings (Balmer et al. 2015), as are rooms (De la Cadena et al. 2015), soft- and hardware, that take part in configuring our research. In this volume, Meier zu Verl (2020) traces inscriptions of reference in the analytical process of ethnologists; Wiedmann (2020) follows the frictions of 'implementing' the concept 'follow the actor' as a method, encountering flip charts, songs and gardens; Boersma and Willkomm (2020) detail a moment of infrastructuring (STS) research, the negotiation of the inclusions and exclusions prefigured in the design of an academic workshop; and Kocksch's (2020) study of IT security details the multiple positions, and their epistemic effects, which her ethnographic method configured. Ethnomethodology may well add something to this conversation – consider Greiffenhagen et al.'s (2011) call for a turn from methodology to methodography – studying the ethnomethods of social science (Mair et al. 2013; Schindler 2017; Meier zu Verl 2018). The genre of methodography narrates of our own handling – our practices and methods, entangled with our and others' selves – of 'data' or 'materials', of 'data handling and processing, translations, semiotic and material practices, epistemic and ontological shifts' (Lippert/Douglas-Jones 2019).

Reconfiguring stories of STS practice

I want to argue for an expansion of how we reflexively address 'STS research practice'. To crystallise a contrast, consider Latour and Woolgar's (1986) Post-Script sections 'What Does It Mean to be Ethnographic?' and 'Reflexivity'. The first tells us of how laboratory studies are ethnographic, but does not empirically explore the question, instead offering an archetypical version of STS ethnography as an answer. The second, an archetype for STS reflexivity, makes the methodological point that ethnographic description cannot get at 'what really happened', at an accurate description, but constructs stories. I consider both as having a continuing key role as reference point for STS. However, I argue that such writing needs to be accompanied by expanding STS reflexivity

beyond limited engagement with STS' own epistemic processes. Reflexivity needs to draw on analyses of the material-semiotic assemblages configuring our research infrastructures.

This volume indexes this expansion and underwrites the need to establish in STS a capacity to turn to, or intensify, a praxeography of STS. Cartographies, conceptographies, methodographies can detail how STS gets enacted. Developing a genre for praxeographic analysis, for collectively learning to narrate how we 'do' or 'use' STS, constitutes a significant investment for individual scholars as for the field. In developing such analyses, I suggest that metaanalysing – testing – the analysis for what its narration performs and how it is grounded, generates decisive awareness.

The heuristic typology presented above offers a scheme to constructively open up how we account for 'STS in practice'. Using my own work as an example and drawing on chapters in this volume, I have detailed how legitimising moves are normal forms of 'relating to STS'. STS is also used to contribute to other fields. For both performances, I observe methodological reasoning as key, partially embedded in documenting a research process. However, I have also identified a different mode of reflexively narrating STS practice: not by legitimising STS concepts and analytics but by problematising these. Such analyses can be grounded in empirical materials, which of course are stories of the empirical; yet traces and translations between the STS story of something and the material-semiotic enactment of that thing can be analysed, problematised. Drawing on Suchman (2012), I imagine such analysis in the form of detailing and problematising a 'configuration' of heterogeneous entities – such as words, software, hardware, field sites, documents or collaborators and informants – and how we (partially 'succeed' to) relate these.

Analysing and problematising STS practice, I propose, can well proceed methodo-, concepto- and cartographically. This effects a reframing of STS reflexivity as well as of folk histories of STS as praxeography of STS. Collective attention to praxeographies of STS, I expect, will reconfigure STS, establishing an effort in the field to analyse how we gather with our subjects matters in space, time, semiotically, materially. This engagement powers the capacity of STS as a field to problematise the practices and qualities enacted – intentionally or collaterally – in doing 'STS'. I foreground this problematisation, embracing the push for the 'social studies of social science' (Mair et al. 2013), primarily to develop a collective engagement with what our stories are made of, our research infrastructure, tools and practices. With a praxeography of STS I hope for re-configured stories – stories that account for the epistemic and ontological

politics of various figures and figurations with which the subject matters of our stories are configured.

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Abstract

How do we narrate about how we 'use' STS for social scientific research? How do we study STS research practices? Do all research practices that involve STS concepts contribute to STS? This text constitutes the afterword to an edited volume that contributes to providing answers in the borderlands of these questions. The afterword problematises how we perform reflexivity, how we are (not) analysing STS's own research practices, and how we tell simultaneous stories of what STS as a field is or might be. With this problematisation, this essay argues for a praxeography of STS, involving methodographic, conceptographic and cartographic analyses.