Data, Methods and Writing: Methodographies of STS Ethnographic Collaboration in Practice

Ingmar Lippert

> *Brandenburg University of Technology, Germany / ingmar.lippert@b-tu.de*

Julie Sascia Mewes

> *Ruhr University Bochum, Germany / julie.mewes@rub.de*

Methods have been recognised in STS as mattering for a long time. Indeed, it might be possible to tell the history of STS in terms of attention to and reasoning about method in the social study of science and technology. One might dive into this by attending to how Kuhn's (1970) work with cases has crystallised a large following in case studies of science, which demonstrated that practising case studies simultaneously produced theory. One might note Mulkay's (1981) call for more attention to how data is analysed within the social studies of science. One could fast forward to the study of *Laboratory Life* (Latour and Woolgar, 1986: 273) in which we are presented with archetypical versions of what it "mean[s] to be ethnographic" and to exercise "reflexivity" and learn we can never get at "what really happened". Law's (2008) development stories of STS lean on (laboratory) ethnographies as central to STS, for these matched the earlier historical case studies. These STS ethnographies established a boundary object with which STS scholars could weave a pattern: From such ethnographic accounts, substantively we learn that knowledge is produced locally. Ethnography has over the recent decades been highlighted as a key method in STS (e.g. Knorr-Cetina, 1995; Beaulieu, 2010). And that STS ethnography is specifically shaped by being often configured to consider its

forms of collaboration or intervention in the field (Hess, 2001; Zuiderent-Jerak and Jensen, 2007).

Here is a problem knot: we, STS scholars, have learned that knowledge gets produced locally, supposedly we need to be, or are, reflexive about that (see Lynch 2000), and that ethnography is helpful to understand *how* knowledge is produced. Understanding our method of ethnography ethnographically might then seem to be of highest importance. However, ethnographically produced STS has largely resisted publicly scrutinising its methods by classical disciplinary criteria (validity, reliability). And Law's *After Method* (2004) pushes STS further, suggesting that social science methods add mess to the world, rather than representing 'the real' with precision. This makes us curious – as we often see STS accounts referring to realities that are other than the authors themselves – consider references to fish, to a datacentre, to a country or a city, to a ministry of science, technology and innovation. Here we sense implicit or explicit commitments to 'out-theres'; the real is presumed, even if it is hybrid, contingent, processual, never completely represented.[1] We wonder about the STS scholar's own doing of method in and between field and desk, their doing of data, the meeting between the researcher and the researched and their

collaborations. STS researchers may embrace the conclusion of science in action that methods are unpredictably performative, including our own. However, these sidesteps a more direct troubling of methods: What are our methods, specifically *STS ethnographic methods*, performative of, and how are these methods performative?

This special issue focuses on how methods matter, specifically on how STS ethnographic collaboration and its data are translated into ethnographic writing, or are performative of other reality effects. This shift from methods in general to the narrowly scoped focus on STS ethnographic collaboration and its data deserves a brief explanation: We consider 'STS ethnography' a heuristic with which we hope to momentarily capture certain features and tendencies of empirical research in the field. Approaching ethnography as a heuristic responds to the observation that 'ethnography' might be problematised as a license for 'anything goes' in STS (as one of our reviewers put it). Yet, despite reflexive moves, realist references abound within stories written and plausibilised by both, showing data or research materials or checking interpretations with research collaborators. We do not approach ethnography with an implicit methodological standard of how ethnography, how data or collaboration ought to be practiced. In this absence, foremost, this SI is empirically oriented.

Three sets of reasons motivate us to explore this problem knot. First, ethico-politically, we take the normative position that it is a matter of principle that if STS analyses others' method assemblages, we ought to also analyse our own. We should render our practices subject to analysis, too.

Second, theoretically conceived, analysing our method practices follows from engaging with Feyerabend (1993) and Haraway (1988): We can frame our project as positioned 'against method' when considering methods as set research procedures, as standards or recipes. With Feyerabend's theorisation, we envision law-and-order methods as only marginally fit to analyse an unruly world. Feyerabend mobilises historical materials to show that any kind of research practice might work; whether it works is performed within retrospective accounts – in discourse (see Mulkay, 1985). In practice, methods cannot be explained by

law-and-order accounts sufficiently well; instead, Feyerabend calls for analysing methods in terms of anarchism. In this spirit, our project is to render methods uncertain. Methods, in the remainder of this text, should always be read as situationally practised, as assembling and assembled. We, furthermore, diagnose STS as collectively not paying sufficient attention to its method practices, analysing how and whether these work and for or against something. Drawing on Haraway, we consider the realist researcher as in need to make explicit their situated knowledge practices. Explication serves, here, to enable 'account-ability', and therewith the possibility to take on 'response-ability'. These abilities matter within a collective space, in which different actors hold each other to account, asking each other to respond to questions on the specifics of how knowledge claims are performed in heterogeneous and potentially violent 'apparatuses' (Haraway, 1988; see also Barad, 1998).

Third, beyond the way by which standard methodology makes methods accountable ('methods-as-in-the-textbook'), developing a conversation and a culture of publication that renders methods in situated practice accountable ('methods-in-action') can help in several pragmatic ways, relevant for STS researchers: Constructively, taking on this problem knot promises to generate insight that supports method development. Problematisingly, we might identify implicit patterns across STS research practices, for instance, shared forms of reasoning or politics. And for teaching, the studies produced in reaction to this problem knot offer valuable insight into how STS works.

Exploring the problem knot of STS's own methods-in-action brings to attention the messy landscape of method practice. Our objective in this exploration is to develop a genre of writing about method that fosters response-ability and enables the audience of research output to position themselves between the research materials and practices that were invested into the study. This special issue hopes to contribute to STS engagement with its methods by way of *methodography*. Methodography serves as a genre of analytic writing that articulates specificity and scrutinises the situated practices of producing STS knowledge.

This methodographic project recognises several established forms of relating to our own methods in STS. Heuristically, consider these forms in a space between calls for methodological rigor (Rodrigues and Mulkay, 2018), for seemingly classical disciplining (Jasanoff, 2017) and the celebration of weedy mess, an ecology of methods and composting (e.g. Haraway, 2016). In resonance with the latter, affirmative, approach to messy methods we locate inventing (ever) new methods, which subsequently can be inventorised (e.g. Lury and Wakeford, 2012; Jungnickel, 2020).

The papers in this special issue take part in inventorying STS methods with a focus on how STS ethnographic collaboration configures its data, with what effects. This analytic genre contrasts with the politics of disciplining and standardising method practice. Thinking about method writing as a genre also standardises, not the methods, but how we make method practice explicit and offer accounts of that practice for discussion and analysis. This issue, thus, does not provide method recipes but provides STS with partial articulations of how method assemblages come to matter in shaping analysis, writing and the worlds of collaborators.

We hope this SI on methodography of ethnographic STS collaborative research is generative in multiple ways. We see it as conducting critique, problematising STS methods from within STS. This means the field would improve on its capacity to address the implications of seemingly 'borrowing' methods from other fields (e.g. interviews or participant observation), whilst performing theoretical anarchism and celebrating mess, still performing no-nonsensical realist references to the worlds the ethnographies conduct research *in* and *on* as well as develop scholarly accounts *of*.

This methodographic take can support developing the field of STS by understanding the differential capacity of and within method assemblages to enable response-abilities. Understanding how different cases (or moments) of method practice constrain and enable specific relations in which researchers and participants can hold each other to account does not only further assess how our research is embodied, materialised and always partial, but also stabilises the ground on which we might negotiate our methods in interaction with other inter/in/disciplined scholars and our collaborators.

We hope this SI enacts an invitation to develop the methodographic genre as a form of reflexively, critically and empirically informed practice of attending to our own methods' data practices. However, rather than vague forms of 'being reflexive', we envisage methodographic analytic writing as a practice that articulates the specificities of situated STS method and data practices and how these relate to an antecedent reality or enact realities. This could further collective discussion of STS research-in-action. We hope, the field can draw on this genre not only for established researchers in STS aiming to question and scrutinise their methods but also for graduate students looking for alternatives of a classical 'method chapter' in their theses.

Finally, the methodographic genre furthers STS's opportunity to engage constructively with other fields and disciplines that might value STS's theoretical developments but are troubled by their implications for method. We can showcase how a field can generate a space for carefully problematising its methods without recourse to well-standardised "law-and-order" methods. This matters specifically concerning contemporary uncertainties about the status of social sciences and humanities. We might work towards exemplifying how methods' performativity can be empirically analysed, whilst simultaneously problematising the very enactment of the empirical.

This special issue has emerged in a set of conversations that were infrastructured and supported in relevant direct and indirect ways. We, as editors, have met and conceived of the frame of this project as fellows of Hans-Böckler Stiftung, a foundation operating alongside German labour unions, shaping our process with a political bias to care for labour, including the labour in scientific work; we conducted a workshop in 2018 in Berlin (Lippert and Douglas-Jones, 2019); continued the conversation at the EASST 2018 Lancaster conference; since then delved into the methodographic genre virtually and in meetings in hotels and cafés in Berlin. Some output of this process got published elsewhere (Hahn et al., 2018; Lippert, 2020; Smolka et al., 2021; Borgman et al., 2021), complementing this issue.

This editorial continues by locating the methodographic project in the social sciences and STS, and introducing each of the SI's contribution. It then draws out core concerns about practising STS ethnographic collaboration, problematising what this means for our understandings of data and collaboration, and closes by exploring how this issue nuances our concept of methodographic writing.

Locating methodographic analysis and writing

This SI contributes to the research conversation about the social studies of social science and its knowledge-making.[2] This reflexive orientation emerged around the 1980s and has much grown since the 1990s; STS has had a significant voice in this orientation (e.g. Camic et al., 2011). This conversation's early stages have been circumscribed in a working bibliography by Mair et al. (2013; a more recent review of the field does not seem to exist). Still, Kuznetsov (2019) problematises in *EASST Review* a missing subfield of "social science studies" in STS. Why should STS be interested in an investigation of social science practices, specifically methods?

Following Law and Urry (2004) we think of social science methods, including method use and practice in STS, as making realities – social and socio-material worlds. They ask: "which realities? Which do we want to help make more real, and which less real?" (Law and Urry, 2004: 404). We recognise a range of implicit and explicit political orientations in STS – including for instance critical traditions, feminist technoscience studies, the engaged programme or services for big tech industry. Do scholars with such orientations effectively use methods to achieve the intended effects? But we need to ask more broadly: how are social science methods performative, and of what? The making of worlds appears not as a post-practice effect but as partially configured within research practice. For instance, Strathern (1996) analyses the position of a researcher to cut networks of research strands and lines of investigation. The researcher is positioned in a tricky situation, facing moral and political dilemmas in the way they operationalise method (see, for

instance, the case of ethnography discussed by Fine, 1993). Yet, graduate school method writing training can effect students to fake the qualities of qualitative research – such as when phony positionalities or qualities of collaboration are performed (Macfarlane, 2021). In societies reconsidering the status of sciences and humanities (not least reacting to so-called 'alternative facts'), an empirically informed understanding of our social scientific methods can be helpful in multiple ways, as outlined above.

Two strands of STS literature and conversations are key to our take on the social studies of social science(s) – methodography and, more broadly, the social life of methods.[3] The relevant push for the first, the notion of methodography, comes from Greiffenhagen et al. (2011). They analyse social scientists' reasoning practices. Specifically, they position their approach as interested in grounding an actual account of the production of knowledge (engaging with all the messy details and contingencies of practice), rather than a virtual account, a version of what got done, streamlined for users (say readers of a methods chapter). Following them turns methodological troubles from problems into phenomena for investigation (Greiffenhagen et al., 2015).[4] At the same time, the mundane practices and interaction with material and informational infrastructures of research come into focus. Such practices may seem boring and not well frameable as 'innovative', 'experimental', 'in(ter)ventive'; but the 'ethnography of the boring' is well applicable to this line of inquiry (see Star, 1999).

The second conversation is broader, with two STSy SIs explicitly addressing 'the social life of methods' (Law and Ruppert, 2013; Savage, 2013). This conversation is centrally informed by exploring how social research methods are shaped in social relations, and how these methods shape the social world. A core result of that exploration is that methods can be well conceptualised in terms of their heterogeneous components and relations – humans, pens, paper, computers, whiteboards, rooms, recorders, cameras, algorithms, libraries, teaching amongst other things. Intended and unintended results of method practice are considered an outcome of the configuration of such components and relations. Concepts like

apparatus (Barad, 1998), device (Law and Ruppert, 2013), configuration (Suchman, 2012) or agence-ment/assemblage (Deleuze and Parnet, 2007; Law, 2009) are thus mobilised to address such hetero-geneous components and relations in situated practice. Work contributing to this conversation has been largely interested in other social scien-tists' research work; including experimental and inventive research assemblages. But some work has also auto-(ethno)graphically turned to its constitution (see e.g. the inventory by Lury and Wakeford, 2012; or the collection on practices of comparing by Deville et al., 2016).

Across these two strands, we highlight several analytical foci. One significant methodolog-ical tension cutting across analyses of research methods-in-practice concerns the ability to render observations explicit, the role of the conceptual in that and following strategies of introspec-tion versus extrospection. Where introspective analyses are seen as risking (re)producing virtual accounts of knowledge production (Greiffen-hagen et al., 2011), telling stories of how assem-blages were conceived (Law and Ruppert, 2013), extrospective accounts appear as promising analysis of what happens in method practice (Greiffenhagen et al., 2011; Lippert and Douglas-Jones, 2019). Still, Garforth's (2012) critique of the privileging of observational methods matters, as these are ill-suited to address non-visible and non-audible forms of practice, e.g. thinking. Savage (2013) concludes his analysis of the challenges in analysing the social life of methods in terms of 'making explicit', which however will never be complete, but necessarily displaces the implicit. In parallel, we can consider the discussion of -ology vs -graphy by Lynch (2013): he argues against research limited to philosophically founded concepts and favours "historical and ethnographic investigations" (Lynch, 2013: 459) that come without presumption about the world under investigation. Yet, concepts are necessarily present in making explicit, in both intro- and extrospec-tive strategies. And neither can we imagine all practices in a method assemblage to be subject to investigation. A circular problem, necessitating the cuts that Strathern noted in 1996.

Another analytical focus concerns the empirical. Both, the conversations on methodography and the social life of methods imply an interest in research into empirical realities. But, "what is the empirical?", we get asked – and analysing precisely this theme, Adkins and Lury's special issue (2009) problematises the empirical being given, record-able for the researcher. There is no such thing as raw data (Gitelman, 2013). Generating data about subjects involves questions of politics and justice – who is turned into data, who is given a voice, who silenced, who speaks in data analysis and empirical story-telling, and again questions of in/visibility (e.g. TallBear, 2017). At our 2018 workshop (Berlin), we learned, some empirical researchers try to circumvent these questions, and the troubles of control relations around data, by framing their methods as not generating and analysing 'data', but 'research materials'. We were intrigued: What happens to research practice if 'data' come to stand in for troubling relations of control, and when a researcher seeks to avoid these troubles with a substitute framing ('material')? Method-ology might argue that data troubles cannot be avoided in empirical research. We suggest that practices of avoidance or ignorance might shape research-in-practice.

A related analytical highlight is the dominant move of 'being reflexive', within scholarly discourse in which data and methods cease to be innocent. Reflexivity is called for as an internal and public practice (though, others oppose dominant forms of reflexivity, e.g. Bourdieu (2003), proposing instead participant objectivation; see Lynch (2000) for an inventory of reflexivities): The researcher is to be aware and to show that awareness (see Ashmore (1989) for a classic case in STS). This awareness is to be concerned with the research-er's method configuration and its performative relation to what the research attempts to empiri-cally relate to. Yet, that reflexivity is hard to practice as it is so deeply discursively shaped, to be framed in a mass of relevant conceptual considerations and critical introspection, but inter-dependent with collective intellectual practice (see Campbell, 2004; Macfarlane, 2021). The writing of reflexive, compelling, but not too compelling, accounts is fittingly of significant concern in STS and beyond, e.g. in anthropology and sociology (Clifford and Marcus, 1986; Atkinson, 1990; Lynch and Woolgar, 1990).

A final analytical focus is collaboration. With the making, un- and remaking of ethnographic epistemic and material entities (Pérez-Bustos et al., 2018), ethnography invents and intervenes in the social. Cropping up repeatedly within this literature, collaboration is widely called for; a norm to allow participation or to generatively intervene looms in STS (Hess, 2001; Zuiderent-Jerak, 2015) and beyond, e.g. in citizen science (Strasser et al., 2019). Collaboration has been analysed as shaped by a multitude of forms and power relations (e.g. Hackett and Rhoten, 2011; Niewöhner, 2016), raising questions about the enactment and redistribution of capacities for control (Herberg and Vilsmaier, 2020). Within heterogeneous relations among collaborators, researchers take partially conflicting roles (Balmer et al., 2015). Across such ongoing and emerging re/configurations of roles, control and power, we invited authors to explore how their collaborative research practices shape ethnographic data in multiple ways such as in allowing, preventing and configuring the making, reading and translation of data.

The contributions

Drawing on such developments in the literature by STS on method and STS method, we were curious what kind of knowledge a methodographic analysis could generate. Within the scope of this SI are the situated practices of STS ethnographic collaboration and its data practices, both of which participate in enacting, and jointly shape, what STS ethnography conducts researches on. This SI consists of six contributions that attend to this scope.

Ryanne Bleumink, Lisette Jong and Ildikó Zonga Plájás' analysis, 'Composite Method', compares enacting two methods employed to research the absence and presence of race. The empirical context is facial composite drawing, used in criminal investigations. First, they use observational methods in a natural setting, in a police station's interrogation room, recognise its limits, and subsequently they devise a video-supported experiment that is apt to produce materials that the analysts can differently learn from. The paper highlights how that experiment configured collaboration and creative process,

and it shows how they used their experimental method to substantiate several ways of thinking through and enacting difference in shaping the relationship between individual and population.

Alexandra Endaltseva and Sonja Jerak-Zuiderent focus on 'Embodiment work in Ethnographic Collaborations'. Their empirical object is ethnographic fieldwork by one of the authors with/in a Russian patient organisation. With this empirical material, they show and analyse the embodied work of care in enacting and reflecting on method. This analysis recognises the role and distribution of resources in powering the ethnographic collaboration. Collaboration, they argue, figures as composition, it moves and thrives in pausing. Across their problematisation of ethnographic work, its crafting and maintenance, this analysis is attentive to care by acknowledging the performativity, fragility, and open-endedness in the making of a common world across the temporal space of the epistemic process, from pre- to post-engagement within the field.

Helena Karasti, Andrea Botero, Joanna Saad-Sulonen and Karen Baker analyse 'Visualising devices for configuring complex phenomena in-the-making'. Empirically, their story is concerned with infrastructures for long-term socio-ecological research in Finland and Europe. The authors focus on visualisations that they devised for their own research team's process of understanding the phenomena they were studying, and that they also used to engage with research collaborators and intervene in the phenomena. Quite literally, the analysis of these visualising devices addresses how re-imagination can be achieved, opening up knowledges about the phenomena. In that way, visualisation devices are turned into practices, that con-figure what they re-present. Rather than attempting to stabilise or standardise these method devices, the authors argue for keeping these sufficiently adaptable to achieve the work of in(ter)vention in collaboration.

The PECE Design Team, here specifically Aalok Khandekar, Brandon Costelloe-Kuehn, Lindsay Poirier, Alli Morgan, Alison Kenner, Kim Fortun and Mike Fortun reflexively discuss their making of PECE – the Platform for Experimental Collaborative Ethnography – and how their making involved learning about their experimental ethnographic

methods. They come to understand ethnographic work as moving and they analyse the making of their infrastructure as supporting and accounting for such a 'Moving Ethnography'. They recognise how their specific lineage in conversations in anthropology and STS, about ethnography and critical theory, has shaped their practices and commitments in performing ethnography as well as in infrastructuring ethnographic data and collaborative ethnographic research. Rather than stabilising knowledge, PECE is analysed as opening up – questions, data, findings, possibilities.

Francesca Grommé and Evelyn Ruppert analyse the performativity of a workshop that was aimed at 'Imagining Citizens as More than Data Subjects'. Specifically, they had designed the workshop to intervene in the way citizens were imagined by statisticians working at the national and international level. The analysis employs retrospective narratives of the two authors on the workshop's unfolding to question whether or how in the workshop's interactions re-imaginations were achieved. In the workshop's speculative epistemic collaboration they identify, they argue, 'friction' as characterising the collaborative engagement. Specifically, they show how the workshop did not achieve total alignment or radical rupture, but kept collaborators in epistemic touch, with friction emerging between their differences. This friction, they suggest, was generative of possibilities to sense and adapt to the difficulties in the practices of thinking and developing formulations and visualisations together.

Casper Bruun Jensen's 'Say Why You Say It' engages with the problem of ethnographic practice and writing with a focus on how writing configures data. To illustrate his reconstruction of the problem, he employs retrospective accounts of his work in authoring two ethnographic texts about realities emerging in the world(s) of the Mekong river, in Southeast/East Asia. In his accounts, he problematises the imaginary of delineating ethnographic from rhetorical effects in writing. For that he shows how writing ethnography can involve a back and forth between so-called theory and so-called empirical data, questioning the relationship between ethnography as a method and as writing. Ethnographic

writing, for him, is necessarily putting into proportion and relation texts and realities. Writing, he argues, should be considered as yet another practice that forms a collective of heterogeneous companions – making the author appear as effectively performing a collaborative companionship.

Finally, this issue includes a book review essay by Stefan Laser. He discusses one monograph and two edited volumes that turn STS and ethnographic research practice into objects of investigation. These, he argues, contribute – mobilising a range of disciplinary approaches – to STS method conversation by way of building bridges, mediating between methodological ideals on the one hand and research realities on the other.

Re/con/figuring data and collaboration in STS ethnography

The STS ethnographic genre is described by Pérez-Bustos et al. (2018) as significantly characterised by situating its knowledge production as well as analysing how its ethnographic objects are made, remade and unmade. This issue continues this line of characterisation and explores specifically how ethnographic collaboration and its data are practised. Widely absent from this line of analysis is legitimising method practices relative to prescriptive methodological accounts (such as Hess's, 2001). The focus on practices renders uncertain what ethnographic data and collaboration mean. At the same time, rendering data and collaboration practices as well as their infrastructures explicit makes partially available for collective discussion of how knowledge is situated. Whilst situated knowledge might be heralded in abstract, the contributions of this SI take steps to make explicit the particular circumstances of enacting data and collaborative relations.

Practising STS data

Data appears across a broad spectrum of framings. Marginally, we recognise the framing of data as being collectable, and as found, e.g., in interview transcripts. From this perspective, data seems quite untroubled. However, as we move away from this margin, we find a much more dominant pattern across the contributions of an understanding of data as non-antecedent. Gitelman's

'Raw Data' Is an Oxymoron (2013) comes to mind because it addresses at its core manifold ways of how data is enacted in material practices, always 'cooked', and that the dichotomies of raw versus cooked, the untouched or unprocessed versus the touched or processed, do not sit well with STS work on data production in the sciences. This is because 'finding' data already involves a process, including theoretically or otherwise shaped selections of what counts as data, cuts in recording and transcribing data, and choices in representing data within fieldnotes. Similarly, an implicit concept of data as heterogeneously enacted and actant itself looms in this SI.

We learn from Khandekar et al. (2021) that the idea of data collection involves in practice ongoing decisions of what to turn into data and what not to datafy, thus figuring 'data collection' and 'analysis' as folded into each other. Jensen's (2021) illustration of how concepts from literature shaped attention in the field, thus shaping how data was constituted, powers an argument for understanding the empirical and the conceptual as effects of writing practice. Boundaries between field and concepts become uncertain. Data and field emerge as configured – when data of a field is re-located and placed within visual re-presentations and subsequently offered back to collaborators, intervening thus in how the field appears or in what the field consists of (Karasti et al., 2021).

Yet, not always is ethnographic observation in the 'natural setting' pertinent to the researcher's interests. For instance, research subjects cannot be observed closely when the professional police framework may not allow so (Bleumink et al., 2021), or the research informants might not 'naturally' engage with the question of interest (Grommé and Ruppert, 2021). In such situations, some of the authors engaged in experimental practices. To compose data informing their research interest, Bleumink et al. designed an audio-visual recording experiment in which the practices they wanted to observe were prefigured through an experimental set-up. An interactive workshop setting was used by Grommé and Ruppert to gather informants from different fields and to jointly engage in design practices, which was to show how specific (re)imaginations became possible. Similarly working with design,

Karasti et al. crafted material and digital devices to learn about the field and intervene in it.

Ethnographic data was also recognised as processed in data devices by Karasti et al. and Khandekar et al. The latter analyse their ethnographic commitments as requiring a data infrastructure in which the data container is everything but inert: what surrounds data shapes what and how content in the container is possible. Data, in their infrastructure, is not to be contained but to be kept alive. Data living in, and as, an ecology allows for continuous re-visioning, re-reading, re-framing, powering a research project's analysis as well as others' research, seeding data as generative of collaboration. Specifically, this implies data is rendered available for continuing and conflictual re/interpretations. Open access to data (open data) and open access to the data infrastructure's code is part of their take. They call these multiple ways of relating to data and performing data as opening data, and their analysis can be read as normatively calling for such opening.

Practising STS collaboration

Ethnographic collaboration, we learn, can seek to observe everyday practices in a field, or can seek to engender new practices. Another differentiation appears in whether the methodographic analysis presents the researcher(s) as configuring their method as an experimental collaboration, i.e. whether they analyse their ethnographic method as having to collaboratively enact an experiment to render the practices observable. This involves a concern with quality: achieving the desired effects well.

Collaboration can be understood in terms of the work, the action and the movement involved in achieving the collaboration. Discussing the range of movement(s) involved in collaborative ethnography is one analytic strategy (Khandekar et al., 2021). Alternatively, we can understand collaboration by stressing how movement involves variation of speed, how collaboration can thrive in pausing, as Endaltseva and Jerak-Zuiderent (2021) show. In their take, collaboration depends on slowing down, carefully achieving a collaborative relationship to work together with their collaborators (in their case also the health movement) in solidarity. Collaboration here is

enacted in solidarity with the settings in which the ethnographer seems to find the collaborators. Instead of focusing on forms of movement, collaboration work can be analysed with respect to how researchers and collaborators manage to achieve some form of sync, partial sameness, or, in contrast, how researchers use the collaboration to intervene and create a rupture. In between such extremes, an analytical strategy is to focus on the interests of the participants and explore what researchers and collaborators orientate themselves at. Grommé and Ruppert provide a study of collaboration work in which the collaboration thrives on working with and across such difference of interests.

Collaborators may, however, conduct their practices in settings in which they cannot be observed. Collaboration ethnographically can then mean creating a setting in which the practices can be observed. This is the strategy by Bleumink et al., who attend to how that setting configures the participants, how they can entice actors to participate in their experimental setting, how the ethnographers' learning about the practice cannot be untied from that constructed setting. Collaborative ethnography here takes on a character of an experimental apparatus in which humans and nonhumans 'intra-act' (Barad, 1998). Such an apparatus can be a frame for collaborative intra-action that would not 'naturally' occur but is decisively designed by the experimenters. In between designing experimental collaborative spaces and collaborating within a 'natural setting', collaborative learning can crystallise in the engagement with devices that re-present the setting. Karasti et al. present such devices and analyse how their (visual) re-presentations, or practices of co-designing such devices, intervene in the field that they research as well as how that intervention is also inventing that very field.

Across these contributions, we find many illustrations of the socio-technical resources mobilised for achieving collaborations amongst humans. Jensen's analysis shifts the perspective and addresses how the ethnography-as-text configures the way the ethnographer, their concepts and data are made to work together – here addressing these textual actants as companions rather than as collaborators.

Writing methodography

Writing methodographically can foreground what methods are performative of and how. We find that STS ethnographic method achieves differences with data and collaboration practices. The method is performative of identifying differences in the field and in generating differences. Differences as epistemic and other real-worldly effects are achieved by way of enacting movement and pausing, by configuring and composing method infrastructure's entities and relations, without rendering these inert or inaccessible. Instead, openness characterises the methods analysed in this SI.

To conclude, we reflexively draw together what it means to write a methodography, and we return to what writing methodographies might do for the field of Science and Technology Studies.

The contributions to this issue illustrate a range of strategies for analysing methodographically. Overarchingly, they present methods within the scope of a material-semiotic practico-situated ontology. That is to say, they turn methods into a topic by way of approaching methods as if these are materially-semiotically enacted, achieved in specifically situated practices. We find traces of materiality – artefacts like paper, receipt, camera, pencil, car; living and embodied entities, humans; places and environments; digital visualisations and metadata. We find scholarly STS discourses through and through – for instance concepts of embodiment, devices, experimentation or collaboration – that have shaped method development. We find explorations of the lineages, multi-institutionally and internationally distributed networks within which the design and the enactment of methods are located as well as methods performed – in a cab, in a police station, a living room. Such rich material is analysed by the methodographies in several ways: by way of close descriptions of the embodied and emplaced configuration of methods, the researchers, human and non-human participants or companions; by way of identifying patterns in fieldnote data and teasing out 'meta-method' themes; by way of exploring the performativity, world-making effects, of the method assemblages. And the issue contains an analysis that questions the very rendering of semiotic actants as empirical, and instead analyses ethnographic method as

also achieving textually the divide between the conceptual and the empirical. Across several of the contributions, the practice of conducting a methodography is described in terms of a back-and-forth, for instance, between empirical moments, theoretically informed concepts, mediated by writing and, mostly implicitly, by analysis.

The back-and-forth in the analyses takes the reader close to the weaving of the methodographic story. This matters because particularities of method-in-that-moment are foregrounded, allowing the author to show how, at this moment, things might be made the same, or might be made as different. Difference can be translated (re-presented whilst betrayed) within methodographic writing insofar as different versions of translations can be explored and discussed.

The reader can take a position of interest in this apparatus and the translations it produces by way of engaging with the material-semiotic traces presented. Extrospectively described entities and their relations, articulating the practicalities in the method's configuration, enable the reader to compare these research practicalities to other practicalities, experienced outside of the text.

For the field of STS, methodographies can crystallise interest in methods. We think of interest here with Stengers (2000): *Inter-esse*, being situated in between, can power a collective engagement of those who take part in a research apparatus, without requiring all participants to agree, even the authors do not have to agree (with themselves). An interested analysis of methods provides the reader with the materials that position the reader-participants in a way that allow them to hold to account as well as to consider the contingencies and particularities that, as humans or non-humans, con-figure the research apparatus and its epistemic effects.

To look ahead, we imagine this SI's versions of writing methodographically as part of a broader spectrum of analytical approaches. At one end of this spectrum, we might explore how method practices and infrastructures are enacted in situated action, at another end how such situations might be shaped by a cultural and political economy of methods. The agenda then involves asking what doing research well means at such theoretical intersections. And how can our collective process care for the methods, method users and developers, the fiddling and the mess, whilst considering the disciplinary-economic-worldly situatedness of STS scholar's research practices? We hope this SI supports STS in asking these questions *together*. Beyond methodographic inquiry undertaken individually and in peer constellations, foremost, we hope for collective dialogue and mutually shaped troubling of our method practices.

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Notes

1   This SI presumes that something good emerges out of being more or differently explicit about our method practices. We recognise that contributions to STS can be primarily theoretical or conceptual, not making empirical claims. Yet, how these are related stays for us as interesting as understanding how scientific theories are related to practices in a laboratory. Our concern is with how the empirical is woven into STS theory, even if theory and the empirical are mixed (Jensen, 2014).

2   The reader might find some discussion in this editorial that is not necessarily specific to STS, but relevant to disciplines like sociology and anthropology, too. However, not in scope of this SI is how method development and standardisation in these disciplines shaped the in(ter)disciplined or interconceptual field of STS (for this in(ter)disciplining, compare Schaffer, 2013 and Jasanoff, 2017; for interconceptual, see Lynch, 2014).

3   We recognise a broader literature on (meta)research on research practices in STS, in which methods have not always been the chosen perspective on practice. For instance, Mewes and Sørensen (2017) provide an edited collection of the work with objects in STS ethnography; Lippert and Verran's (2018) special issue on numbers highlights comparatively how putting into practice different analytical concepts (of numbering) are performative of distinct analyses. Hyysalo et al. (2019) show that research designs and study templates matter; Lippert (2014) details the shift between a methodological design for qualitative data analysis and the mess of a mixed paper-based and digital research configuration. A volume edited by Wiedmann et al. (2020) focuses on the troubles and frictions of working with concepts in STS research practice. STS has been deeply interested in the performativity of media, 'novel' digital devices as well as dominant method devices employed by social scientists (Law et al., 2011; Liegl and Wagner, 2013), recognising the role of materiality and human as well as non-human agency.

4   As expected for intra-sociological debate, that very ethnomethodological investigation is also questioned for its lack of turning the methodographic gaze on the ethnomethodologists' practice (Hammersley, 2020).