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Editorial

The EASST Review has COVID-19

It's been roughly a year now of living with COVID-19. Seemingly nothing has been left untouched or unaffected in many countries on earth. To put it in the words of the EASST council in April 2020: "we have been catapulted into a different world". Yet how different it has actually become will keep us all busy for a long time. It has been a year of changing lives, changing routines, changing work practices, changing relationships, changing mobility patterns, etc. These changes go along with new forms of co-living with microbes; international and national containment policies configuring potential new forms of nationalism; debates no health infrastructures and their economic/social/political/cultural embedding; diverging public health approaches and national risk discourses; public negotiations of scientific expertise; and scientific production processes gaining increasing attention. The COVID-19 pandemic also demands us to ask about disparities in the work place and educational sector, in health measures and health care and – related to that –social and environmental justice.

Since the pandemic has gained momentum, scientific work has also changed along with it: academic labour has shifted into home settings, reshaping boundaries between work and private life; teaching takes place in online formats and so do our meetings, workshops and conferences; empirical work is most often suspended or translated into virtual work e.g. virtual ethnography; the short-term format of third-party funded academics has unveiled its precarious side-effects; the necessity of mobility in and for academic work and careers has been given a different twist.

Along all such interventions into our lives and ways of living, one could say that COVID-19 opens up major tensions of postmodern times. Yet this global state of emergency also makes one thing strikingly clear: the importance and need for STS research. This research is not only essential in and for current social and political developments but will stay important in the aftermath of this current pandemic and for potential pre-waves of new pandemics to come. Hence, we find it of utmost importance to continuously reflect on and channel STS voices on how the COVID-19 pandemic infects our work, and our thinking on presents and futures. Consequently, this issue presents our **'STS Live'** section on COVID-19, containing reflections on its impact on early career research, on research agenda's and new ways of doing STS research. The various contributions share a call to action, from an embodied STS to sowing our thinking in and across societies.

We also present a new section to you called 'Translations'. This came out of longer discussions on the need to pay attention to the multiple languages in which our work is performed, with valuable meanings and understandings getting lost in English translations, and vice versa, some books or articles not reaching those who do not understand the language they are published in. In addition, we hope that this section can host some articles on the impact of STS work, showing translation from academia to society. Our new section wants to give a platform on which we can show and reflect on shifts in meanings of STS and its concepts across borders, languages and times. The inauguration of this section pays atten-tion to 'socio-technical' translations in Latin America and expands the meaning of 'solidarity' through engagement with Austrian healthcare for refugees.

As always, we are grateful for our authors and contributors to the EASST Review, to the above sections as well as our other standing sections, including '**STS Multiple**' featuring the Techno-Anthropology (TANT) group at Aalborg University in Denmark, '**Cherish not Perish**' on the new Manchester University Press STS

book series 'Inscriptions', and '**STS events**' with a report on the webinar "Back to Normal? Social Justice & DOHaD in the COVID Era" hosted by the MCTS (TU Munich) and the university of Southampton. Especially in these pandemic times which often leave no time to volunteer additional time to our STS community, the efforts of those who can contribute are very much appreciated. This also allows us to give a heartfelt thank you to the EASST council members who are leaving us and who have devoted their time to EASST over the past years. And we congratulate our incoming members and new president Maja Horst who has written a welcoming statement in our '**news from the council**' section. We are looking forward to work with the new council in the upcoming years!

Finally, we would like to call on all of you to keep contributing to the Review. All thoughts and ideas for the sections above are welcome. We also are aware that the STS live section on COVID is only giving a glimpse of all COVID related research and challenges, so if you would like to react or contribute, there will be a place for that in the next Review.

Wishing you all the very best and take good care,

the editorial team

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Sarah Maria Schönbauer is a postdoc at the Munich Center for Technology in Society (MCTS), Technical University of Munich. Her work focuses on academic knowledge cultures in transition and the role of life scientists with a specific focus on the environmental sciences. Connected to her interest in the environmental sciences, she is working on human-environment relations and the increasing research on, reporting and political regulation of plastics and microplastics in the environment.

Vincenzo Pavone is a senior research fellow at the Institute of Public Goods and Policies (IPP) of the Spanish National Research Council (CSIC), currently serving as Director of the IPP. His work focuses on the relationship between neoliberal capitalism and the bioeconom(ies), with a special focus on the reproductive bioeconomy. He is also interested in the relationship between lay knowledge, science and public policies, as well as in participatory science and participatory technology assessment. You can find more at: https://unboundingsts.wordpress.com

STS Live

It begins with us: On why our embodied experiences matter in the dis/appearance of worlds

Andrea Núñez Casal

"To 'de-passion' knowledge", writes Vinciane Despret, "does not give us a more objective world, it just gives us a world 'without us'" (2004, p. 131). In this piece, I would like to reflect about us, STS researchers. Bringing the past 2020 joint EASST-4S conference theme's 'Locating and Timing matters' together with the current coronavirus pandemic, I would like to discuss our embodied "significance and agency in the emergence/occlusion of worlds"(Felt, 2020). Usually concealed in the sphere of the 'private', 'quotidian' and 'mundane', I hope to persuade you that your embodied experiences, – always already situated within specific spatio-temporal frames –, matters. It matters, first of all to you/us, being then crucial for establishing inclusive relationships with our colleagues and 'epistemic partners', and, ultimately, for re-passioning our discipline(s).

In all its complexities and demands, our academic labour involves examining, analysing, theorising, writing, explaining, lecturing about scientists, scientific theories, technologies, its policy and innovation frameworks as well as biomolecules, microbes, patients, bodies, non-humans, non-western practices and many *other* elements. That is, these are only a few of the vast and heterogeneous array of elements that populate our work life. Where are 'we' in such a populous list of (*other*) agents, matter, meaning, and worlds in which we dedicate such a substantial part of our lives? The 'we' I am interesting in is an embodied 'we', a challenging 'we', I believe, for many of us. It is challenging because, as academics, we are trained in and we mostly perform a mind-based 'we' instead of an embodied one.

Disembodiment

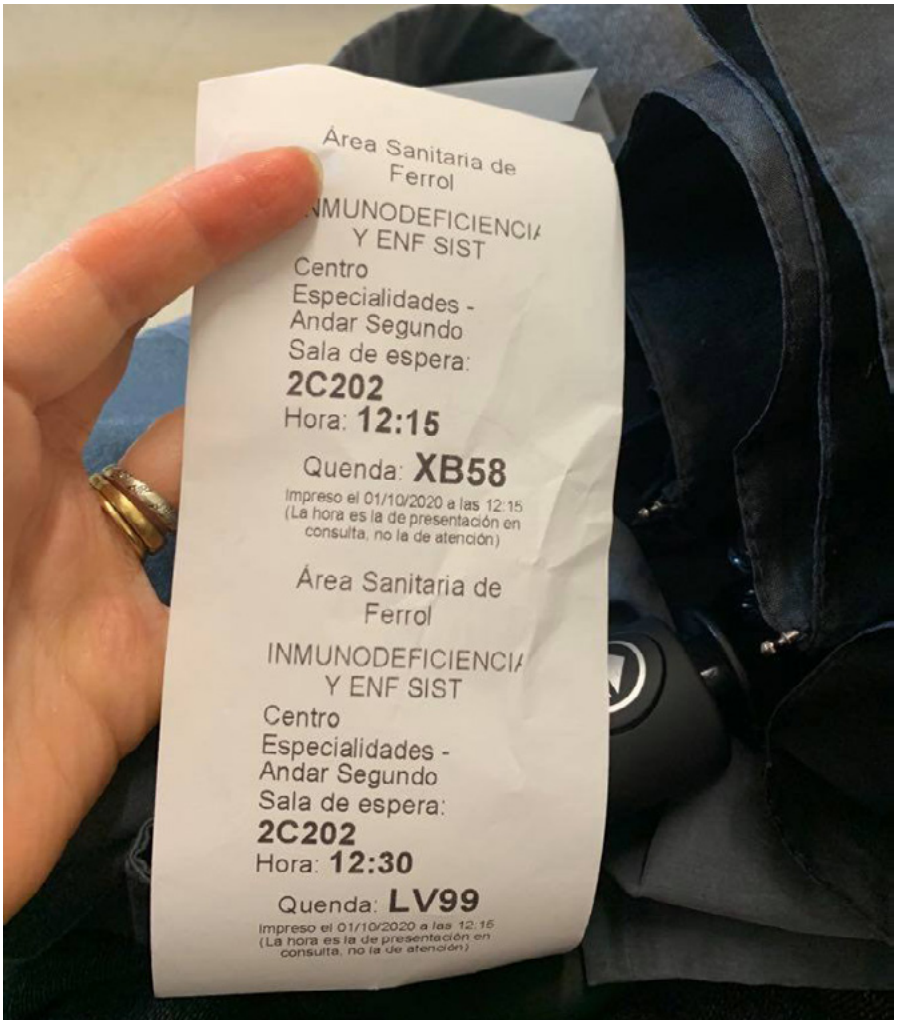
While we deeply study processes of re- and de-naturalisation between science and society, processes of our own bodily des-/re-naturalisations remain largely unspoken. Our own body or 'bodies multiples' (physical, spiritual, psychological, social, biological and so forth), particularly at their perceptual, experiential levels, has been what Chris Chilling refers to as an 'absent present' (2012) in the humanities and social sciences. This is a striking aspect considering that bodies (gendered, racialised, (dis)able, classed, aged, etc) are a key concern of our wider enquiries about ecologies and socio-technics of worlds, particularly with regards to contemporary biomedicine.

The 'absent presence' of our bodies is not only striking; it is also a paradoxical trait of our academic persona with regards to the general consensus within STS against Cartesian dichotomies (subject/object, material/immaterial, nature/culture, rational/irrational). We use the prevalent notions of 'entanglements', 'biosocial', 'naturecultures' and similar material-semiotic companionships and devices as a response to the western precept of the mastery of the mind (read Euro American imperialism and colonialism) over the body (read also non-whites, women, microbes). Yet, in spite of our epistemological registers, I find an evident

mismatch between our theories and how we enact them or, to be more precise, why we rarely enact them by bringing them together with our fleshy bodies and lives. Our individual and collective bodies as academic workers, our 'carnal knowing' (Sobchack, 2004), are systematically elicited and concealed in our research, partly, as I will elaborate below, as an effect of today's academic system focussed on 'outputs'.

A more unpleasant explanation could also be that our bodies and embodied experiences have never been there. Drew Leder (1990) refers to this phenomenon as the 'absent body', by which bodies and related motor abilities disappear from conscious awareness, residing in the 'background' of experience. Ignored and silenced, we seclude our bodies into our 'academic (rational) minds'; as if in a proficient 'habitus' (Bourdieu, 1977) of disembodiment (mind from body) we had transcended them, as if we were… 'transhumans'?

To complicate the matter more, the current passage from bodily to virtual working presence in many European countries in response to the pandemic, has surfaced as well as enlarged such chronic disembodied (or mind-based) 'we' as individuals, collectives and institutions to unprecedented dimensions. However, instead of holding on to dystopian apathy, we might frame this circumstance as a favourable occasion to reflect on the consequences of concealing or even ignoring our physical bodies and embodied experiences from the knowledge-practices we co-create. And if our embodied beings are the fundamental or primal form of engaging with worlds, it begins with me: my own embodied memories and narratives are a required point of passage for the purpose of this reflection-piece.



Asynchrony

Accumulating exhaustion from the many tasks and increasing demands of academic life, we are now reclaiming slower modes of knowledge-practices making (c.f. Stengers, 2018). Yet, together with our 'disembodied habitus', the structural perversity of the web of productivity and success makes it hardly possible to decelerate (for the many, I believe). This, of course, excludes those able to take time (e.g. to publish…fast!). In an inspiring plenary session at the joint EASST/4S Conference 2020, Ulrike Felt addressed this great divide between 'those who can make time and those who are out of time' as the 'real expression of power' (Felt, 2020). Exclusions, she argued,

> "ARE NO LONGER BROUGHT ABOUT BY DEPRIVING PEOPLE OF MATERIAL RESOURCES OR DENYING ACCESS TO SPECIFIC PLACES OR PLACING THEM AT THE PERIPHERY. RATHER, EXCLUSION OCCURS TACITLY, TO SIMPLY MAKING IT DIFFICULT TO HARDLY POSSIBLE TO BE AN ACTIVE PART OF THE SAME TEMPORAL-REGIME; TO BE ABLE TO SYNCHRONISE AND IMPOSING THE EMERGENCE OF SPECIFIC TECHNOSCIENTIFIC WORLDS AND NOT OTHERS"

This quote accurately captures a reality experienced by many of us, especially during pandemic/lockdowns and especially for carers (i.e. mainly women). In my case, having my child during my doctoral years in the country with the most expensive childcare of the world (UK), without shared responsibilities or support network, took a huge toll into my postdoctoral prospects. As for the majority of women with family responsibilities, time and dedication can only be fragmentary. Childcare, housework, funding applications, teaching, a bit of research, and back again.

A bitter consequence of discontinuous time is deceiving those colleagues and mentors who support you and your work. Missing deadlines, conferences, missing 'opportunities'... In brief, not being able to 'synchronise'. These vicissitudes, along with an unfortunate episode of abuse of power and appropriation in the race for 'success', has shrunken my prospects in academia.

In addition, another open secret or taboo that I would like to share is that my identities – women, mother, non-native speaker, precarious early-career– have played a role in my truncated academic 'projection'. I am, after all, easily 'disposable'. That is, it is obvious that my 'profile' (read life circumstances not cv) impedes me to "keep churning out papers" (Aitkenhead, 2013), top requisite of today's academia.

Soon after I started confronting these unpleasant realities about my academic career, in early March 2020, I caught Sars-CoV-2, developing its persistent form, what is now known as 'long Covid' (Callard & Perego, 2021).

Chronobioinequalities

For the past decade, I have been studying how and the extent to which human microbiome science is displacing older ideas of immunity as a guarantor of biological identity and individuality. One of the key findings of my research has been that while microbial science renders notions of the self as bounded, universal, and autonomous increasingly difficult to maintain, it simultaneously instantiates new forms of difference – particularly 'immunitary privileges' based on a higher microbial diversity – and reproduces old ones in terms of neo-colonial practices of bioprospecting biodiversity (Núñez Casal, 2019). Moving beyond current medical humanities and STS work on the microbiome, my latest research develops a feminist critical analysis and embodied methodology that draws attention to lived experiences of health inequalities, the social mobilisation of microbiology and local, traditional and profane healing cultures and practices.

Despite my research being about the entanglements between microbes, embodiment, and inequalities, I succumbed to the Cartesian matrix. Stretched to its limits, my body 'shut down' during and long after infection. Defying multispecies conviviality and thus augmenting the current immunitary post-Covid rhetoric, my body was perhaps protecting itself from precarity and exploitation, for all the mistreatment it endured for a long while. Rushing transformed into stillness. As often occurs when we experience illness (Leder, 1990), unable to talk or walk much for months, my body, its physical dimension at least, reappeared back into consciousness.

Among the millions infected with SARS-CoV2– medically categorized as 'mild' (Callard, 2020) and thus mostly recovering at home – their vast myriad of mutable and debilitating symptoms often last for several weeks or even months. During the long months of my own convalesce, I observed with a cautious enthusiasm that my individual experiences were part of an emerging and growing collective action around shared experiences of recovering from or living with 'bodily manifestations' of Covid-19. I was excited to witness the materialisation of what I call 'feminist para-ethnographies', that is, a material-semiotic device of 'socialised biology' (Riley, 1983) involving the transformation of silenced and private embodied experiences into shared and collective experiences (Núñez Casal, 2018, 2019, 2021). In confinement, these online support groups, communities and citizen science initiatives were firstly established in Spain, Italy, South Korea, the UK, the US, France, and Finland at the beginning of the pandemic. As occurs with other 'recalcitrant infections' (e.g. UTIs) in the absence of appropriate (health)care, dietary changes along with supplements from various medical traditions became crucial elements of online support. They were the only available ways to address the multiple vulnerabilities and inequalities (i.e. healthcare, employment and childcare) experienced by those struggling with 'long Covid' at home.

Illness narratives and embodied knowledge have been fruitful feminist methods to challenge scientific objectivity and positivism for decades (Barad, 2007; Blackman, 2012; Haraway, 1988; Hesse-Biber, 2008; Harding, 1987; Smith, 1999). Embodied experiences of bacterial and viral infections, however, have been underexplored aspects in the social sciences and humanities, particularly in relation to multispecies ethnographies and social aspects of Antimicrobial Resistance (AMR) (Núñez Casal, 2019).

Although embodied biographies figure as an indispensable part of the efficacy of more conventional biomedical treatments for illnesses and disorders such as autoimmunity (Anderson and Mackay, 2014), 'lived experiences' have been largely devalued in the biomedical understanding of health and disease. Here, Western biomedicine is very ill-equipped compared to the integral or holistic ways of seeing health and disease in traditional and complementary medicine (Mathpati et al., 2020). As such, I believe that the pandemic provides an invaluable opportunity to revert this, co-generating and reclaiming other forms of evidence (e.g. embodiment) and of evidence-making (e.g. lay expertise) as well as different ways of healing.

If, as Felt (2020) reminds us, "we experience time mostly through narratives", then attending and listening to embodied experiences is a way through which to "render time visible" (e.g. disease progression, recovery, relapses). A helpful example is the high incidence of long Covid in women (Brodin, 2021). Beyond scientific explanations of the role of sex hormones such as oestrogen and other immune determinants, it would not be too adventurous to hypothesise about non-biomedical factors such as the structural inequalities and exhaustion women's bodies experience (particularly those of the most vulnerable). In other words, being asynchronised produces and reproduces what Didier Fassin calls 'bioinequalities' (2009) or, on the other way round, 'immunitary privileges' (Núñez Casal, 2019), like racial and ethnic disparities in mortality and vaccination coverage during the pandemic, to name a few.

Becoming inclusive

Against the erasure of data that truncates the linear and seemingly 'objective' scientific knowledge production, our role as *connoisseurs*, that is, as 'agents of resistance against a scientific knowledge that pretends it has general authority' (Stengers, 2018, p. 9), is crucial. Yet, becoming *connoisseurs*, requires careful reflection on our own positionality and its entanglements in knowledge production. It is not only biomedicine that has devalued local and traditional health cultures, including the role of embodied experiences in health and disease. For many of us, I believe, our own situatedness in the West, even if in dissidence, acts as an inherent impediment. The blooming field of chronobiology, for example, illustrates this well. At the back of the growing interest of today's biomedicine on temporal environments, metabolism and circadian physiology, there are long genealogies of non-Western medical systems and traditions – knowledge systems that have been studying the spatio-temporal dimension of health and disease for millennia such as Indian indigenous systems of health care like Ayurveda – which biomedical and social sciences and humanities research alike often overlook. Importantly, the ecological nostalgia for a traditional or even 'ancestral' past articulated around 'new' food cultures in the west (e.g. fermentation, wholegrains, fasting and spirituality, etc) is not only about (mostly non-western) local health traditions and belief systems but, crucially, it also entails the consequential role of women in transgenerational health and wellbeing (i.e. unwaged reproductive labour). Our role as *connoisseurs* demands an effort to learn from or acknowledge at least knowledge-practices and actors beyond our own (gendered) Western precepts and situatedness.

To conclude, our embodied being is "not just a location for society and culture" but "*forms a basis for* and *shapes* our relationships and creations" (Chilling, 2012, p. 15). As "having fun, doing something we do well for the sheer pleasure of doing it" (Graeber, 2014), I argue, figures as a form of re-passioning our 'knowledge-in-practice' about our 'bodies-in-action' (Mol and Law, 2004, p. 51). Bringing embodied experiences to the forefront of our critical analysis (either implicitly or explicitly in our research) would (1) make STS research relevant to wider academic and non-academic publics, as well as (2) open up spaces and paces towards 'sensible' (read also sustainable and ethical) knowledge-practices in our disciplinary domains, towards the emergence of (inclusive) worlds, *worlds that begin with us*.

Acknowledgements

I would like to thank my dearest friend and mentor Niki Vermeulen for being always there, 'available', in both the quotidian and the academic. I am very grateful for being synchronised early into Lisa Blackman's pioneering work on embodiment as well as into Louise Chambers' pedagogy of the body at Goldsmiths. I am very grateful to Coll de Lima Hutchison, Mahesh Mathpati, and John Porter and our 'Ksobha' group. Our embodied conversations, compassionate support and generosity are joyful and nourishing sources of inspiration.

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I am an interdisciplinary researcher of the entanglements between microbes, embodiment, and ine-qualities. Funded by 'la Caixa' Foundation, my PhD (Goldsmiths, 2019) was the first critical science study on the topic. It examined how human microbiome science reinstates an immunology of inclu-sion and exclusion through the 'biologization' of social categories of difference (race, gender and class in particular). To date, my research has focused on (1) the socio-cultural aspects of the human microbiome and immunology; and (2) advance feminist 'embodied' approaches and methods to address and remedy health inequalities associated with antimicrobial resistance (AMR) and chron-ic/recurrent infections. This includes an examination of how bioinequalities are being reproduced within science as they move from and between the laboratory, the governmental, the popular, and the embodied. I use a wide variety of theoretical perspectives including Science and Technology Studies (STS), Medical Humanities, Body Studies and Critical Global Health, and qualitative research methods including multi-sited and digital ethnographies, content and policy analysis.

I have been an Associate Lecturer in the Department of Media, Communications and Cultural Stud-ies at Goldsmiths and Research Associate in the School of Science, Technology and Innovation Studies at The University of Edinburgh. I am part of the London School of Hygiene and Tropical Medicine (LSHTM) research 'Antimicrobials in Society' (AMIS) and the EC Sonar-Global network. As a Research Associate in Genetics and Society, The University of Oxford, I am conducting re-search on the cultural implications of non-invasive pregnancy tests (NIPTs) in Taiwan and Den-mark.

My latest research, The Witch and the Microbe: Traditional Food Culturals, Health and Microbial Science, partially funded by the 'EcoSocieties Research Fund' (2020) (The University of Notting-ham), examines the genealogies and statuses of feminised knowledges-practices of microbial healing (local, traditional, profane) as key to resurface and update effective approaches for 'recalcitrant in-fections', those recurrent or persistent with no clear biomedical explanation or treatment focusing on urinary tract infections (UTIs and Long Covid). I am developing part of the project as a visiting re-searcher at the Instituto Universitario de Género, Universidad Carlos III de Madrid (December 2020-June 2021).

The shadow theater of dueling modalities: A note on pandemic simulation

Aiko Hibino, Masato Fukushima

Given humans' ubiquitous desire to know the future, modeling and simulation have arisen as powerful tools for the job. However, the scientific and political aspects of their outcomes—prediction and forecast—can be the target of harsh criticism and dispute. This essay examines recent controversies in the simulation of both seismology and pandemic epidemiology in Japan and elsewhere. We find that disputes over different modalities of perception, as in the intriguing issue of imaging possible alternative worlds versus the singularity of the existing world, may date back to 17th-century philosophy.

I

In the 1980s, one of the authors conducted field research in Java, Indonesia, on a religious sect headed by a spirit medium who allegedly could communicate with spirits of mythic figures. We visited one of the sacred places in Central Java, where the medium was to serve as an oracle for the guardian spirit of Java for the coming year. Arriving at the village near the place, we were deeply disappointed to hear that we had missed seeing President Suharto and his small company. They had just left the place, allegedly having listened to a similarly high-status spirit through the oracle, probably about the prospects for national politics (Fukushima, 2002).

Our irrepressible desire to know the future is all but universal, and analyses of how people construct knowledge about the future are centrally situated among widely diverse fields, ranging from the anthropology of religion to studies regarding "contested futures" in STS. Against this intellectual background, our research group has published an edited book, *Forecasting and Society: How Scientific Narratives Construct Society*, a collection of conducted comparative studies of future-oriented scientific discourse, such as prediction and forecasting in diverse fields of science and technology (Yamaguchi & Fukushima, 2019).

Among our topics, seismological prediction (*jishin-yochi*, in Japanese) has been one of our priorities, given its integral constitution as a complex entanglement of science and policy. Both policymakers and the public in Japan have high expectations for precise predictions of when, where, and how large the impending earthquake will be. In fact, legislation has long been approved for a public action plan when large earthquakes happen (cf. Tomari, 2015).[1]

Such high expectations, however, have met the reality of actual seismological limitations, which fall far short of providing such a high-precision prediction; all they can provide is an imprecise long-term forecast for earthquakes in specific areas, based on a historiographical analysis of past cases (Suzuki & Koketsu, 2019). In fact, seismologists in Japan have carefully avoided using the term *yochi* (prediction) among themselves, instead favoring *yosoku* (forecast), which has a subtly milder connotation; however, such a difference is hardly perceptible to laypeople. The legislation mentioned above was approved specifically on the assumption that scientists would provide precise predictions. It was only in 2017 that the law was changed, partly because seismologists failed to predict the huge earthquake ten years ago in northeast Japan.

1 It is called the Act on Special Measures Concerning Countermeasures for Large-Scale Earthquakes, 1978.

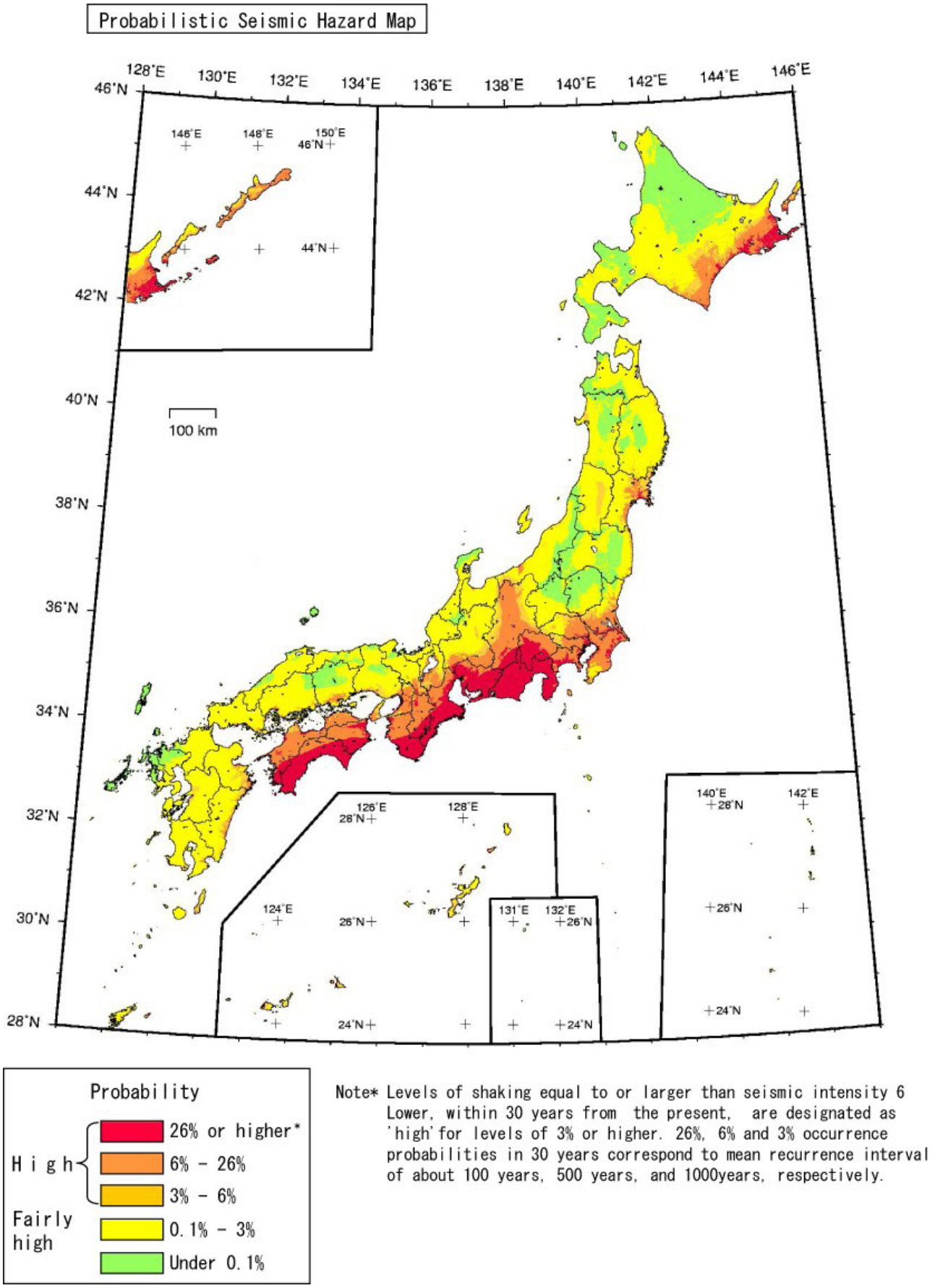

Fig 1: National seismic hazard map for Japan (2005). Source: Earthquake Research Committee Headquarters for Earthquake Research Promotion (2005) Report: 'National Seizmic Hazard Maps for Japan' Fig. 3.3.1-1 Distribution map of probability of ground motions. p33. https://www.jishin.go.jp/main/index-e.html (Accessed December 25, 2020)

II

Pandemic simulation and its relationship to policy seem to exhibit some different characteristics from simulations for seismology. One of the two authors has long been interested in social simulation, which gives rise to notable differences in policy among countries, eventually leading our attention to pandemic modeling and simulation as a concrete subject of study. This already happened before the global catastrophe caused by the present COVID-19 pandemic.

One of the major characteristics of Japan's pandemic simulation is that it has had virtually no place in policymaking, in sharp contrast to the ongoing enthusiasm for seismological prediction. Although concerned specialists regard pandemic simulation as a highly useful instrument for understanding both the expansion of infectious diseases and their prevention, the number of such specialists has been considerably small to be visible to policymakers and, consequently, of little concern.

As we faced some trouble in finding a proper example of pandemic simulation being used for policy, we extended our search to Taiwan, which had experienced failed policy on the SARS pandemic, from which, ironically in the end, they gained global recognition for their success in controlling the current coronavirus. Eventually, we found that policymakers their regard the use of pandemic simulation considerably positively, with various instances that foreshadowed the coming confusion manifest in countries' policy processes at present (Hibino, 2019).

Japan's management of the present situation has exhibited an intriguing contrast with the Taiwanese case mentioned above. After an initial set of blunders in the case of a cruise-ship infection, Japan appeared to succeed in curbing the expansion of the pandemic until mid-March 2020. Subsequently, in late March, ominous signs of its explosion led to heated disputes in various fields on the proper prevention of viruses. Consequently, the government declared an emergency and asked for an "80% reduction in human interaction," a number derived from a pandemic simulation by Professor Hiroshi Nishiura, an authority among Japan's mathematical epidemiologists and a core member of the newly established Action Committee for the Pandemic Cluster in the Ministry of Health. Nishiura even issued a personal message outlining a possible scenario for its expansion: "If no measures are taken, like reducing inter-human interaction, the number of seriously ill patients may reach about 850,000, half of whom will die." This statement worked to inspire public fear.

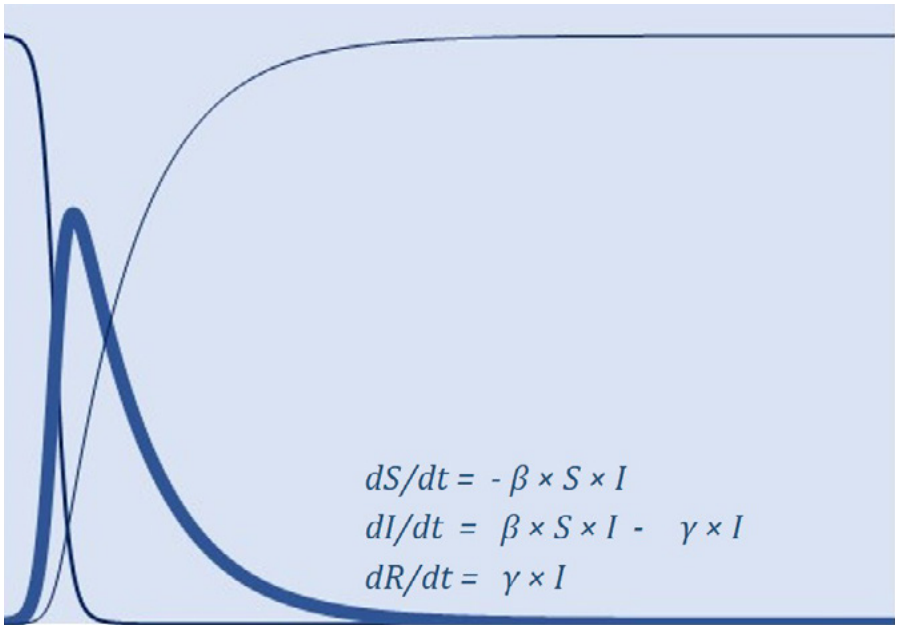

Fig 2 Image of the mathematical models of infectious disease epidemics

(Source: drawn by Aiko Hibino)

2 Fukushima (2019) is an experimental essay on the book.

3 Due to space limit, we leave undiscussed the question of how our stance in the book on the issue is related to the argument in the following section.

In June 2020, when the expansion of the infection seemed to have slowed temporarily, and public opinion appeared to settle down a little, criticism of the foregoing policy measures as excessive rose sharply as the mass media collectively bashed Nishiura, mocking him as "Mr. 80%" by poking fun at his earlier forecast. The reality, however, is not that we succeeded in controlling the pandemic; just as in other parts of the world, we have been hit by second and third waves, which ironically rehabilitated the honors of both Nishiura and his simulation practices.

In terms of policy intervention, one of the visible contrasts between the prediction (or forecasting) of earthquakes and of pandemics is that the earthquake we are concerned with tends to be a massive, single event wherein policy intervention is largely confined to two periods: efforts aimed at disaster prevention beforehand and post-disaster reconstruction from the damage. Conversely, pandemics must be dealt with differently because political decisions have to be made right in the middle of the spread of the disease, and the event itself lasts longer. It follows naturally that the mode of interaction between science and policy may reveal considerable differences as well.

III

Intriguingly, although our concern has been centered on constructing the future, we realize that most of the criticism against meandering pandemic policies often targeted the past, assuming that an untraveled better past has been unrealized because of faulty policy intervention. In fact, as with the criticisms of Nishiura mentioned above, critics seem to claim that measures had not been needed, as if to say that a better world could have been achieved without such measures and that the critics indeed know what it would have been.

We wonder, however, whether we can be reasonably sure of this alternative world wherein allegedly better policies were carried out. Such questions bring to mind *Sliding Doors* (1997), a fascinating movie directed by Peter Howitt, in which the main character, Helen (actor Gwyneth Paltrow), fails to slide into the closing door of a train in the tube in London in one of the two different worlds. In the other, she does succeed in jumping into the train. This results in two different, but similarly gloomy, consequences for her relationship with her boyfriend.

Commonsensically, we think of the world we have already experienced as unchangeable and the future as being at least somewhat dependent on our choices. However, the power of scientific forecasting makes our future look like a world of necessity, and hence our effort in our edited book referred to above (Yamaguchi & Fukushima, 2019) to deconstruct such a view to leave room for the human will.[3] Meanwhile, the rampant criticisms of ongoing pandemic policies—often with rhetoric indicating that things could have been better—remind us of our desperate wish to change even the past or at least to see the other world where we could have slid through the closing door of the tube train.

Obviously, there is no way of conducting a controlled experiment in the real world: at best, either we implement contrasting policies one after another and learn from their consequences, or we scrutinize the outcome of similar policies carried out in other places. Either way, however, things are far from being controlled in terms of ideal procedures in laboratory sciences. Hence, we are obliged to be patient, as the knowledge produced by such a social experiment is fundamentally limited. However, we seem to easily forget such constraints, probably because we are constantly driven to dream of a better possible world, as seen in the harsh criticisms of actual policies in response to either earthquakes or pandemics.

IV

In this context, strikingly instructive is Stewart (2006) on the encounter between Baruch Spinoza and Gottfried Leibnitz in his biographical work that examines their intersecting lives. The pith of this book deals with how Leibnitz tried desperately to attenuate or eventually to annul the destructive impact of the idea of the singular world of necessity advocated by Spinoza, by creating the concept of multiple worlds of possibility. Ultimately, this concept was introduced to save the role of God, who decides upon the best among these possible worlds (cf. Ueno, 2013).

We vaguely understand, in theory at least, what Spinoza insists upon—the need for patience to understand this singular world of necessity owing to our lack of knowledge. However, it is paradoxical and somewhat amusing that we also share the wish to have a glimpse of, or even to jump to, the alternative possible worlds that Leibnitz mysteriously counterposes.[4] At the end of his book, Stewart (2006) refers to Spinoza as the first modern philosopher who thought the world as rigorously singular, whereas Leibnitz is the first modern person with a constant craving for possible better worlds. In this sense, we are all descendants of both these ancestors.

The ongoing situation created by the pandemic is a good laboratory for observing the rapid oscillation, in a matter of a few months or even weeks, between two different ideas about the modality of the world(s). It is like the tropical Wayang theater where the shadow pictures of two modalities, both of which reside in ourselves, are endlessly struggling in a manner quaintly reminiscent of the ancient Javanese philosophy (Matsumoto, 1981).

4 Stewart (2006) notes, however, that their relationship is fundamentally asymmetrical: that is, Leibnitz worked in the shadow of Spinoza's influence, the former both co-opting and resisting the latter, not vice versa.

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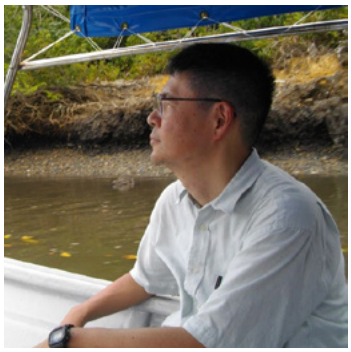

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Pathogenic Imaginaries and Covid-19 Denialism

Renan Gonçalves Leonel da Silva

In September 2020, I and my collaborator Larry Au (Columbia University) received a grant from the Social Science Research Council's (SSRC) "Rapid-Response Grant on Covid-19 and the Social Sciences" for our project "Viral Agnotology: Covid-19 Denialism amidst the pandemic in Brazil, the United Kingdom and the United States". In total, 62 projects received funding from the SSRC, on topics touching on all aspects of the social, economic, political, and cultural impact of Covid-19. The aim of grant is to help put social scientists in conversation with the global scientific dialogue on the pandemic's directions and consequences, and to help spur reflection on how social science can be useful to improve the preparedness of society for future pandemics.

Our project is ongoing, but I gladly introduce our project to readers of the EASST Review to help stimulate the interest of our colleagues on the topic of Covid-19 denialism, and point to ways in which STS as a field can be useful in thinking through this highly politicized topic.

Motivations for the project

By Covid-19 denialism, we refer to a broad range of doubt and skepticism expressed over the existence, severity, and need for public health interventions to mitigate and contain the further spread of SARS-CoV-2. This ranges from anti-lockdown protests, conspiracy theories that Covid-19 is a hoax, and skepticism over the need to wear a mask despite expert support for masking. Curiously, even as the pandemic unfolded and as evidence of Covid-19's dangers piled up, major proponents of Covid-19 denialism continued to downplay the seriousness of the situation. The contentious encounter between expert discourses and Covid-19 denialism was particularly visible in Brazil, the United Kingdom, and the United States. Jasanoff et al. (2021) in a recent comprehensive report published on the Covid-19 responses in 21 countries, categorized these three countries as "Chaos Countries" because of the inability of state and society to cohere around effective strategies to mitigate and contain Covid-19.

Field hospital in Central Park, New York City, March 30 2020 (Source: BBC News by Getty Images).

Deborah Birx and Anthony Fauci listen as former President Trump speaks at a coronavirus briefing at the White House on March 20. (Source: Washington Post by Jabin Botsford).

Researchers in the past have looked to social indicators as level of education, the development of science and technology in society, and public trust on science as factors that contribute to scientific illiteracy. But these factors clearly do not explain the presence of Covid-19 denialism in many parts of the developed and developing world. Other analysts have pointed to the advent of the digital age and unregulated social media, as sources of disinformation and misinformation. While this is undoubtedly a factor in giving rise to Covid-19 denialism, exposure to fringe sources of information occurs in a wide range of societies, yet not all have succumbed to paralysis in rallying support for public health interventions. Further complicating this is the spread of misinformation by political leaders and heads of state.

Studying a topic such as ignorance is tricky, especially in such polarizing times. Nonetheless, our interdisciplinary backgrounds in STS provides us with approaches to broach this subject with care. Our analysis is based on three steps: (1) contextualize the discourses of Covid-19 denialism addressed to specific topic dimensions of the pandemic, (2) trace the discourses of denialism over time, and (3) see how these framings of the crisis are taken up by different audiences. This will enable us to further understand how the frames of denialism are taken up in different societies and how these discourses account for a fast unfolding crisis.

Beginnings of a conceptual framework

Our theoretical starting point comes from Proctor's (2008) discussion of agnotology. As Proctor writes, "we need to think about the conscious, unconscious, and structural production of ignorance, its diverse causes and conformations, whether brought about by neglect, forgetfulness, myopia, extinction, secrecy, or suppression. The point is to question the naturalness of ignorance, its causes and its distribution" (10). Covid-19 denialism arises from actors behaving consciously with mal-intent, as a byproduct of institutional arrangements and technological infrastructures, as well as the unintended consequences of well-meaning policies aimed at combatting the pandemic. It is this latter factor that we focus on.

Covid-19 patient and overwhelmed healthcare professionals at a hospital bedside in

Brooklyn, New York City, USA. (Source: The Atlantic by Go Nakamura/Getty Images)

We also draw on Eyal's (2019) recent book on the "crisis of expertise". As Eyal helpfully notes, there are many parts of science that the public do not question in their day to day lives, like theoretical physics or civil engineering. But when science is asked to make policy decisions that have direct implications on people's lives, then this policy-relevant science becomes the subject of debate and skepticism. Public health as a scientific discipline has life and death implications, particularly during the pandemic, making it perhaps the most controversial part of science during these troubled times. Covid-19 denialism, should therefore be understood in relation to public health expertise.

Furthermore, Jasanoff (2007) demonstrates that such public deliberations over evidence and knowledge can be studied cross-nationally from the lens of socio-technical imaginaries, as how a particular society understands the emerging public health crisis will depend on relationships between experts and expertise with social, political, and economic structures. By taking up the idea of sociotechnical imaginaries, we hope to show how dominant forms of pathogenic imaginaries, as seen in public health expertise, contain blind spots that make them susceptible to populist challenges. These blind spots enable insurgent pathogenic imaginaries to mutate and come to dominate public discourse.

A brief sketch of Covid-19 denialism in three countries

In our study, we show Covid-19 denialism has been particularly noticeable in public discourses in the United States, Brazil and United Kingdom. Characterized by reluctance and delay, those societies bring similarities in the response to the pandemic by policymakers and the presence of significant opposition to public health measures designed to mitigate the spread of the virus. Partly due to this denialism, Covid-19's impact on those three countries have been particularly pronounced. Of course, this is only one part of the story. Other analysis, such as from Kavanagh and Singh (2020), note the lack of state capacity in these countries that contributed to the inability to control the spread of the virus. As of January 2021, these three countries are still in the top five number of COVID-19 cases (along with India and Russia) and deaths along (Mexico), according with Worldometer.

President Jair Bolsonaro promoting Hydroxychloroquine in his periodically unofficial online videos on Facebook. (Source: Gazeta do Povo).

In Brazil, President Jair Bolsonaro publicly disavowed all social-distancing and quarantine recommendations. Bolsonaro suggested that the pandemic was just a global hysteria and insistently perpetuated the myth that it only causes a gripezinha (little flu). Bolsonaro, like Trump, also publicly backed the use of hydroxychloroquine to treat symptoms, even without scientific proof of efficacy and safety. In April 2020, the Brazilian president also fired two health ministers in less than a month who advocated for social distancing and joined protests against a governor who has put economic activities in his state on pause. What little public health guidance that was given, focused on telling the public to "stay home and take care of yourself", which individualized responsibility for Covid-19 without specifying collective actions taken to mitigate the pandemic's risks. In 2021, facing an increasingly pressure to start mass vaccination nationwide, Bolsonaro publicly discourages people to get vaccinated and extensively shares unfounded concerns about potential Covid-19 vaccines-associated severe adverse reactions.

Extraordinary silent in downtown London, March 2020. (Source: BBC by Jeff Overs/BBC).

In the United Kingdom, Prime Minister Boris Johnson initially opted for a "herd immunity" strategy before being confronted with catastrophic projections from an Imperial College research group, while facing high pressure from far-right groups to further ease social distancing guidelines. The primary rallying call for the public was centered on the National Health Services: "stay home, protect the NHS, save lives". While this linked individual action to the desired outcome of protecting the capacity of medical institutions to save lives, the simple dictate to "stay home" provided an easy target for anti-lockdown protesters. In 2021, his attitude completely change since United Kingdom is now the European epicenter of new infections and had unfortunately spreading a new 30% mode deadly virus variant.

In the United States, former President Donald Trump repeatedly undermined his scientific advisors and tweeted out in support of anti-lockdown protests around the country in a bid to re-open the economy. Public health experts, working around Trump's obstruction and sabotage, urged the public to stay home to help "flatten the curve". This imaginary of flattening the curve focused solely on mitigation rather than containment and eradication. The statistical abstraction the pandemic also hindered the ability of the public to fully understand the human toll of the virus. Now, President Biden's administration has to deal with the great challenge to create a vaccine distribution plan that can outpace the rapid spread of Covid-19.

Through our comparisons of these three countries, we hope to further trace the contours of Covid-19 denialism as a reaction to dominant pathogenic imaginaries and public expertise.

Cemetery in Manaus, Brazil, after the second wave of deaths in January 2021. (Source: Michel Dantas/AFP).

Columbia University in the days before the pandemic was declared by WHO. Source: Personal Archive. February 2020.

Working during the pandemic

About a year ago, after enjoying a 3-month visiting appointment at Columbia University's Department of Sociology, invited by the professors Gil Eyal and Diane Vaughan, I left New York City a week before the pandemic was announced by WHO. Since then, me and Larry are working remotely and meeting periodically to discuss different parts of empirical research design, data collection and analysis.

Previous connections with each other were very important to make this work possible, since we have worked together on a comparative project that examines the trajectories of genomics and precision medicine in China and Brazil using a similar organizational process (Au and Silva, 2020). We are very proud of how STS is taking social sciences in account in the great global debates on the pandemic. Studying Covid-19 denialism is being a great opportunity to strength our community around a problem to be solved.

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Going Virtual: The ethnographic gaze in pandemic times

Sophia Rossmann

What happens to the ethnographic gaze when it reorients from a corporeal to a virtual world? In this essay, I reflect on my personal experiences of doing a virtual lab ethnography as a result of the enduring corona pandemic. By drawing on Haraway's (1988) metaphor of vision I trace the specific, situated and partial ways of seeing something when a laptop and its screen become the most important visual technology in doing lab ethnography. I reflect on what we can learn from thinking with ethnographic vision for the research process when going virtual.

Under non-COVID-19 circumstances, I would currently be in one of the vibrant cities of Spain. I would start my second lab ethnography for my PhD project, carefully organised months ago. I would be fully immersed into a foreign research culture, exploring the worlds of epigenetic research in an institute for public health and epidemiology. I would use the breaks between observations, meetings, and talks for a little chit-chat, getting to know new people, their work, their motivations, their day-to-day hopes, struggles and concerns. Instead, I stare absently out of my window and watch cars reversing into parking spaces right in front of my flat in Germany while waiting for the next video call.

After postponing my ethnographic stay several times, I started to play around with the idea of a "virtual ethnography". Virtual, online, or cyber-ethnography is not a new method but has been around since the early 1990s to study online communities and their social interactions in (predominantly) virtual environments (e.g. gamer communities) (Hine, 2008). The corona measures have suddenly transformed my field site, an institute for public health and epidemiology, into such an (temporary) online community. I started to wonder if there was also a virtual way to conduct a *lab* ethnography.

A few months into this virtual endeavour, I ask myself: what happens to the ethnographic gaze – besides staring absently out of windows – when it reorients from a corporeal to a virtual world? By drawing on Haraway's (1988) metaphor of vision in "Situated Knowledges" I explore how to see as an STS scholar when a laptop becomes the most important visual technology for a lab ethnography in pandemic times. Haraway articulates vision as an embodied, partial, and situated way of seeing something. She argues that "[v]ision requires instruments of vision" and that "optics is a politics of positioning" (Haraway, 1988: 586). These instruments of vision are not only our own eyes as an "active perceptual system," building on the brain to translate what we see (Haraway, 1988: 583). They also include visualising technologies, prosthetic devices that render specific aspects of life and not others visible: the microscopes in the labs, the ultrasounds in the clinics, or – in my case – the computer screens mediating images from a different place.

In this essay, I do not attempt to make claims on the method of virtual ethnography as such, but to consider my specific experiences to conduct a lab ethnography online. I will reflect on my partial vision that is unavoidably intertwined with the COVID-19 pandemic as it was less a deliberate choice than a means to an end to move things virtually. If we understand ethnographic vision as affected by

bodily movements, a sensing that is as much part of assembling knowledge as it is seeing (cf. Ingold, 2000), I ask myself: how will physical distance affect the knowledge gathering process in the long run? Proceeding from these reflections, I will trace which specific version of vision emerges in my virtual lab ethnography by exploring three interrelated aspects: technology, immediacy and location. As I'm still in the midst of field work, this essay can only provide a temporary snapshot of my ongoing reflections on this approach.

Technology: screens as prosthetic devices

How does the technical object of a screen interact with the knowledge I'm gathering? Albrecht Dürer's famous "Draughtsman Drawing a Nude" comes to my mind, which Lynch and Woolgar (1990) featured on the cover of their anthology "Representation in Scientific Practice". This painting from the sixteenth century shows a male painter drawing a voluptuous, reclining nude woman by using a perspective grid. The painter divided the sight of the women into geometric coordinates in an attempt of an objective and true transmission onto paper. However, as feminist studies have shown at length such an objective practice is the god trick as this example not only shows how representations construct objects, but also "[t]he gendering of this kind of vision" (Haraway, 1997: 180). Analogously, my laptop and its screen have become my perspective grid positioned between myself and scenes at the institute. They become a prosthetic device – ironically equipped with what a big tech player calls a Retina display. While this device allows me to see into worlds that momentarily seem far away, similar to the painting it prompts the question what kind of different object these visual representations construct and the role of my positioning in this construction.

Some of these scenes that I virtually visit are various meetings: one-on-one interview situations, small project meetings with a handful of people, scientific seminars or consortia meetings with over 100 participants. The cameras that capture these meetings and broadcast them onto my screen offer a specific way of seeing: they mediate curated shots where one only sees the parts of a scene actively made visible. Yet, what about the moments that literally stay invisible, e.g. the aspects of the institutional life that cannot be mediated and escape the video frames? Going virtual creates a mobile world that promises to become accessible from everywhere. Simultaneously, certain activities continue outside the online space, such as carrying out laboratory work even if more restricted by COVID-19 measures. This yields inaccessible spaces where one cannot actively go to if not physically present.

Immediacy: seeing and sensing with screen sharing

Virtual ethnographies need to work with curated shots of institutional life. But they also engender a new kind of immediacy, one where I click on links and instantly become part of a meeting without travelling thousands of kilometres to somewhere. Especially the practice of screen sharing allows us to explore the notion of immediacy and its role for vision in more detail. For instance, one of the central steps in doing epigenetic research in institutes of epidemiology is the statistical analysis supported by computer programs. Researchers use epigenetic data collected in the human cohorts they work with to find answers to their research questions, such as: how does air pollution impact health outcomes via epigenetic mechanisms? Screen sharing allowed me to take part in this practice in at least two ways. Firstly, I attended the institutes' practical hands-on online workshops to better understand how to do statistical analysis for answering these questions. Secondly, I asked my interlocutors to take me with them through their own work flow. Following them step by step through their analysis, I observed how they filled the generic code with life: adding variables such as sex, age, environmental exposures and other data.

This technical accessory mediates the epidemiologists' vision onto my screen, that is, their ways of seeing and interpreting their material. It allows me to engage with their research practice and corresponding tools, to follow their movements, and to verbally point to things that caught my eye. Screen sharing creates immediacy and thereby intimate moments between my interlocutors and me at physical distance. But it is a touch without touching; an experience of the other person's screen and its content by sensing differently than one would if physically present. How does this sensing without touching impact the knowledge I assemble? – I'm not sure yet.

Location: multiple vision in pandemic times

COVID-19 has not only physically impacted my ethnographic work moving it into an online space, but it has also influenced the conversations I have with the epidemiologists and how they need to adjust their research. My interlocutors frequently address issues such as what happens to the regular visits of the cohort's participants to take biological samples and to check their air sensors in the house? How will they recruit new participants when there are more pressing health questions at stake? Asides from concerns over the practicalities of data collection, the pandemic also affects the epidemiologists' own vision, that is, their specific ways of seeing and articulating research and problem definitions. For instance, when talking to a scientist about a project on epigenetic changes through metal exposure she referred to the peculiarity that people living in the same household with a person infected with COVID-19 might not get infected themselves. She explained how thinking with this example helps to make sense of her own observation why some people would be more susceptible to toxic exposure than others. Looking at the infection patterns during the pandemic allowed her to understand the virus and exposure not as discrete entities but as being in relation with social position and experiences, age, gender, health status, and genetic makeup, among many other dimensions.

Closing remarks

These brief examples show how going virtual yields multiple visions from various locations: from Germany to Spain, from my own position as an early career STS scholar, from scientists trained in public health issues, and from the perspective of an ongoing global health crisis. They allowed for reflections not on the method of virtual ethnography as such, but on my specific experiences to conduct a lab ethnography online due to COVID-19, in which an important space – the lab – stayed invisible. Thus, doing virtual lab ethnography engenders a specific way of seeing and gathering data. Yet it does not create material that is more or less 'true' or 'real' than in the physical world. It yields a way of seeing that challenges the ethnographer who has reoriented their vision from a corporeal to a virtual world: how to see (mediated)? What and who becomes visible on the screens? Who gets to talk, who stays invisible? Where to see from? How is virtual seeing affected by the ethnographer's position? What are the limits of virtual vision? What cannot be virtually mediated? How to (physically) sense from distance? And how does virtual seeing translate into written production? While some of these still incomplete questions could also be asked in an on-site ethnography, the need for a prosthetic device, to see with something, makes reflections on vision in pandemic times even more imperative.

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SPROUTs of Hope in Times of Crisis

Hendrik Wagenaar, Barbara Prainsack

[SPROUT] noun 1. a shoot of a plant. 2. a new growth from a germinating seed, or from a rootstock, tuber, bud, or the like.

[SPROUT] noun 1. Spontaneous Flexible, Pragmatic, Political, Rigorous projects creating opportunities in times of crisis

In March 2020, the world famous pianist Igor Levit was stuck at home, unable to travel and perform. His first reaction, as he said in an interview in the American TV programme 60 Minutes, was to worry about losing his connection to an audience and being confined to just making music for himself. Then he did something unusual: He decided to stream live recitals from his living room. He used an old form, the house concert, and brought it into the 21st century. He invited people into his living room by using social media. His live-streamed recitals immediately caught on. For 52 consecutive days his recitals were followed by hundreds of thousands of people. The reactions on social media expressed people's gratitude; people were moved by the beauty of Levit's piano playing, the choice of his repertoire, and his obvious engagement with the music he played. He managed to reach an audience infinitely larger than in the concert hall. Many also discovered piano music they had never heard of.

Levit had taken the classical piano recital to a new institutional form. The format was flexible; he frequently announced the programme on social media no more than a few hours before the event. He often performed in a sweatshirt and slippers, and he was never afraid to show his emotions during beautiful passages, giving the concert an intimacy that is rarely attained in the concert hall. He changed the boundaries between the performer and his audience. His concerts were also political: not so much in what he played, but in the larger context in which he did it. For many of his audience and followers, Levit's musical performance could not be separated from the courageous political stances that he took against anti-Semitism and right-wing extremism. And for environmental causes: Recently he performed, amidst buzzing chain saws, in the Dannenröder forest near Frankfurt that is in the process of being felled to make way for the construction of a highway. His choice of repertoire in the forest leaves nothing to the imagination: Frederic Rzewski's Variations on 'The People United Will Never Be Defeated', a Chilean protest song. The live stream recitals had another subversive element: They offered content that could otherwise only be accessed via expensive tickets for the world's great concert halls. Levit declared that the experience transformed him. It made him change the way that he thinks about music. That it is not a luxury but one of life's necessities.

SPROUTing new initiatives

Early March 2020, in San Francisco, Tomas Pueyo, the Spanish-French vice-president of an online learning platform, found himself stuck at home with his three young children while his wife was hospitalised with suspected COVID-19 symptoms. He felt miserable himself, and was worried about the disease and that people were not taking it seriously enough. He had started to share his thoughts about the new virus on his Facebook page. In an interview with Sumiko Tan, editor

of the Singapore Straits Times, Pueyo said: 'One of the things I love doing is going into big, deep problems and really, really understanding them and then communicating them. That's what I did for the coronavirus.' When a friend asked him to bring his various Facebook posts together in a single blog post to help persuade his friend's employer to allow people to work from home, it was read by over 40 million people. People from all over the world volunteered to join Pueyo in his mission to provide evidence-based reporting on the COVID-19 crisis. Pueyo went on to write seven more Covid-19 related articles, among other things, introducing the famous 'hammer and dance' metaphor.

One of us (Hendrik) first read Pueyo's article in early April via one of Pueyo's tweets. As life-long policy scholar Hendrik was enthusiastic about what he read and decided to write a blog post about Pueyo's work. It had struck him that until then the media had published a lot of data but in a way that obscured rather than enlightened the issues at hand. Pueyo's pieces were, in fact, remarkable pieces of policy analysis that, although chockful of tables and graphs, were always question-driven. The data were organised in such a way that the numbers told a powerful story, a story of the success or failure of policy making. Pueyo introduced creative measures (the 'Hunei') and used historical data to arbitrate in the vexing issue if lockdown kills off the economy.

Both Levit's and Pueyo's initiatives are example of what we have come to call SPROUTs: Spontaneous, Political,Rigorous, Opportunity projects. They both created pragmatic and at the same time political projects that created opportunities in the face of adversity. Relying on social media, they did not merely move something from the analogue world to the digital one, but they created a new form: Levit did so by harking back to an older performance practice that had long been overtaken by modern concert management, giving it a contemporary face. Pueyo took policy analysis out of the university and the government contract and showed how the clever organization of data can effectively address important practical and moral issues. He became a pop-up policy analyst.

Our own SPROUT: Solidarity in Times of a Pandemic (SolPan)

These SPROUTs were brought to life by two creative individuals — but SPROUTs can also stem from groups of people or even formal institutions. They can also be organisational inventions. We ourselves have been involved in one for the better part of last year. When the COVID-19 crisis started, a funding body invited Barbara to submit a project proposal on solidarity in times of a pandemic. Two weeks later Barbara and a small group of colleagues in the participating countries submitted a proposal for a qualitative, multinational comparative study on people's experiences with coping with the pandemic. Just before the project was greenlit, the funding body pulled out due to doubts about the value of qualitative research; some of the decision makers preferred a quantitative survey instead. The news came as a shock. It would not have been the first time that a grant proposal of ours was rejected — but getting an invited one knocked back hurt even more. Instead of reconciling themselves to having lost a few week's worth of their time, the research team decided to go ahead anyhow — without funding. After all, the research design had been finalised, a fine group of researchers in three countries was ready to go, and the research ethics application had been submitted. All members of the project consortium decided to remain on board, and start their work without funding. Members agreed that they would jointly own the research design and all other materials (topic guides, and so on) as well as all the data generated in the project.

When the word spread about the project — which gave itself the name SolPan (Solidarity in times of a pandemic) — colleagues from all over Europe were interested to join. A mere ten days after the decision to go ahead without funding, research ethics approval had been granted, a topic guide had been developed and tested, and interview teams in nine European countries were busy recruiting interviewees. We were keen on starting interviewing early April when in most of Europe lockdowns had just been put in place. We wanted to capture people's experiences with having to go to work worried about getting infected, or with being cooped up in their homes, with working online, with complying with rules about physical distancing and wearing masks. We wanted to know what they thought and how they felt about this, and how they reacted to their governments' efforts in managing the pandemic. We were surprised about the enthusiasm of the group (30+ researchers met in weekly online meetings to discuss progress and troubleshoot problems). So many people were spending time and energy on this project in times when life (homeschooling, online teaching, working from home, caring for children) was difficult enough without a new project to run.

Unbeknownst to ourselves the group had created a research commons. The well-known commons author and activist David Bollier describes commons as people who come together to "manage resources … that preserve shared values and community identity" in fair and participatory ways (Bollier, 2014, 175). The goal is not to chase private gain, but to meet the needs of a community while serving the common good. Particularly pertinent to SPROUTs is his comment that commons "generate value in ways that are often taken for granted — and often jeopardized by the Market/State." (ibid.) In our case, the creation of a research commons was made possible by using established academic institutional forms and resources. SolPan would not have been possible if senior researchers did not have tenured positions and some leeway in using their time. Some of the senior members of the group were also line managers of colleagues who they could give time to work on this project. Junior researchers postponed work on their PhD research projects and other activites but in return obtained invaluable experience in leading task forces and other working groups within the consortium. Many junior colleagues have now become lead authors on publications emerging from the SolPan project. What makes working on SolPan gratifying is that it indeed restores academic values that have increasingly gotten lost in the corporate university.

Like Levit's new form for classical music making, and Pueyo's 'pop-up' policy analysis, SolPan has many of the characteristics of SPROUT. Although it arose spontaneously, like in any large-scale research project, the group takes great care to ensure reliable, precise data collection and analysis. Projects that secure funding prior to their kick-off lock the funder and the researchers into a set of contractual agreements and obligations. But when the world around the project's remit changes, as it inevitably does, it is difficult to change course. The SolPan consortium does not have these constraints. Because SolPan is 'owned' by its members, the project's design is more flexible. Decision making is participatory, inclusive, and deliberative (if not always friction free). Consortium meetings seek to be pragmatic, cooperative, and focused on problem solving. This has the added benefit that it creates strong engagement of many of the members to 'their' project. Besides in its aspiration to work as a research commons, SolPan is political also in the sense that does not merely seek to produce new scientific evidence. Solpan consortium members also write blogs and speak to policy makers and the media. We do this on the basis of evidence from our study, but we do so in forms and ways that go beyond providing morally neutral analyses. At the time of writing this blog, a sister consortium, SolPan+, had emerged that now includes research groups in 14 Latin American countries.

The New World of SPROUTs

The pandemic has imposed constraints and hardship on society. But out of the chaos and despair, new positive and creative forms have emerged, in music, research, and perhaps other fields. Using digital media, different kinds of SPROUTs are redefining established institutional forms and demonstrating new possibilities. In an important way they are reimagining and redefining the core values that govern traditional societal domains such as science and the music industry. Levit reminded us that music making is at heart an intimate process of communicating joy and emotion between musicians and an engaged, committed audience. This joint process gets easily lost in the concert hall or opera theatre with their exclusive and rigid rules and conventions. Similarly, science has once in the past been about two fundamental motivations. Curiosity, or the excitement of understanding the world around us in all its buzzing blooming confusion by discovering and interpreting patterns. And melioration, contributing to the betterment of the world by applying the results of our investigations. In the practices and conventions of institutionalised science, with its reliance on precarious work, its status hierarchy between theory and action, the jealous guarding of disciplinary territories, the outsized power of gatekeepers, the proliferation of auditing procedures, and the transformation of universities into businesses, these basic, generative passions are easily lost. Tomas Pueyo or the SolPan project show how they can be regained. How the joy of working to achieve understanding and contribute to problem solving can be organised in the interstices of traditional institutions. (Other projects in the domain of science that have several of the key characteristics of SPROUT are the CoronaPanel project at the University of Vienna, and the Recovery study at Oxford, a randomised controlled trials in real-world settings to test the effectiveness of Covid medication, just to name a few examples, and recently showcased in the Guardian as showcasing the strength of UK science.)

SPROUTs emerge because practitioners perceive opportunities in situations of personal and collective distress. SPROUTs represent hope. In his interviews, Levit frequently comments on how the live streaming of his concerts helped him get through the lockdown. The often moving reactions of his virtual audience show how people find comfort and solace in his music making. Despite the pressures and obligations that running a multinational comparative project doubtlessly imposes on the project teams, they serve restorative functions for the immediate participants. We found that working together with many of our colleagues in the SolPan project had an openness and generosity that are not easily found in

grant-financed projects. Although we have of course also experienced our share of problems throughout the past months, we think it somewhat miraculous that an unfunded consortium of (now) over 40 members in several countries is still working together after almost a year (during which some country teams have been able to secure funding for parts of their work, but the consortium as a whole is still unfunded).

The spontaneity and improvisatory nature of SPROUTs is essential to their success. Their very essence is that they operate outside established institutional conventions and form an implicit commentary on them. In that sense SPROUTs are, what we would call, 'constructively subversive'. Their aim is not to destroy institutions — without institutional resources, SPROUTers could not exist. But SPROUTs seek to add to them, to remind them of their original mission by reimagining their latent possibilities. It is essential for this utopian function of SPROUTs to function, that they represent the best that the field has to offer: Levit's stunning pianism, Pueyo's brilliant analysis of data, SolPan's rigorous research design and generous collaborative spirit. We think it is this combination of improvisation and quality that draws people to SPROUTs and enkindles a desire to be part of it.

Finally, SPROUTs are about action. They are pragmatic, actionable solutions to the everyday problems of working in a particular field. There are two sides to this. First, every institution requires ever larger maintenance costs to keep it operational. Concert schedules are set years in advance. Recording a musical performance in the traditional way is a major technical and marketing undertaking. Levit discovered that with a camera, a tripod and some basic streaming tools he could reach an audience of hundreds of thousands within a matter of days. He announced his program hours before the actual recital, contributing to the sense of spontaneity and surprise. Similarly, the usual road from idea, via project proposal, grant application, reviews, revisions, re-application, and award, can easily take a year or more. To have a fighting chance to obtain a grant, researchers needs to more or less specify their findings in advance. The unintended effect is that the world of grant application languishes under a thick blanket of conservatism and risk avoidance. If she is lucky enough to have obtained funding, stringent accountability requirements then distract the researcher from her main task of doing research and interpreting findings. SPROUTs strip away many of these opportunity costs and focus all that energy and creativity on that what matters.

Second, SPROUTs are action-oriented in the sense that they emerge from and contribute to real world problems. This quality is perhaps more apparent in science-based SPROUTs then in other domains. The conventions of academia require that researchers specify upfront what theory they draw upon. PhD students are trained to get their theory in order before they get out in the field to collect data. Obviously, we do not want to make small of theory. We need explanatory theories to understand our observations and to interpret the patterns we have inferred. But in institutionalised social science too often abstract theory has become a shibboleth, a marker that signifies to which academic camp we belong. Abstract theory becomes a way to police the boundary between supposedly serious science and the allegedly lower forms of empirical and applied academic work. SPROUTs are informed by theory and seek to contribute to theory — but they are essentially problem oriented. The questions they pursue and to which they contribute are the urgent issues of our time.

The COVID-19 crisis has changed many aspects of our everyday life. We have reduced commuting, conduct our meetings online, cut down on flying, and given up on living in overpriced apartments in big cities. Some of these changes will be enduring. We think SPROUTs are also here to stay. But organisationally complex SPROUTs cannot survive without the nourishing soil that they require to grow and flourish. SPROUTs show what untapped potential our institutions and our societies contain — but they also need a minimum of facilitation to stay alive. For institutions that are open to this, and willing to support their SPROUTs, SPROUTs

can help to reconnect them with their original values. Alternatively, public support for SPROUTs could help societies to expand their organisational repertoires by including creative and innovative practices that break through the very institutional norms, forms and patterns that have led to the crisis in the first place.

We would love to hear from you how to think differently about SPROUT (also if you think we got it wrong!), or if you are aware of other SPROUTs that are worth adding to our list.

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STS Multiple

The digital minced meat

Anders Kristian Munk

A professor emeritus at the University of Copenhagen once used to explain to new students why the Department of Material Folk Culture was located at an open-air museum north of the city by saying that you need to get your fingers stuck in the minced meat if you want to make meatballs. It has become something of a slogan in our lab. Digital STS is in the business of making a somewhat different kind of meatballs, of course, but like those ethnologists who thought it necessary to learn how to wield a turn plough, card wool, or build half-timbered houses in order to study material folk culture, we try to remind ourselves that to study the digital (or, indeed, to study anything on or with the digital) hinges on our willingness and ability to also make and do the digital as we go along.

The Techno-Anthropology Lab (or TANTLab for short) was established six years ago as a digital methods research laboratory under the Techno-Anthropology Research Group at the University of Aalborg in Copenhagen. Techno-anthropology had begun some years prior as a transdisciplinary study program between the faculties of engineering and humanities. Our research group, led by professor Torben Elgaard Jensen, was covering the humanities angle and consisted of scholars with a broad foundation in STS and the anthropology of technology. Common to many of us was an interest in digital methods and digital STS. In the years leading up to the establishment of the lab we had done research visits and longer academic exchanges with some of the pioneering European institutions in the field: the SciencesPo médialab, the Digital Methods Initiative (DMI) in Amsterdam, Noortje Marres' group at Goldsmiths in London, or the Oxford Internet Institute. We all felt that we had witnessed first-hand and in different contexts how working alongside tool developers and information designers made new forms of digital STS possible. Following Latour, we framed it as an ambition to do digital STS in "critical proximity" (Birkbak et al. 2015) with its objects of study.

Our research infrastructure, however, did not really support that kind of working-alongside tool developers and information designers that we had experienced abroad. Our university had an efficient IT support organization equipped with resources for research computing, but it remained a support function which required you to have well-defined problems in order to receive help. For us, the main attraction of making and doing the digital together with technical experts was the ability to reframe and reimagine our matters of concern together. As an example, one of the ongoing challenges in digital methods is how to repurpose online media platforms for research. Understanding what can be done within the technical affordances of platforms that are constantly changing and in general not very transparent or well documented requires a significant amount of practical experimentation and reverse engineering. It rarely (if ever) makes sense to formulate questions and device research designs prior to seeking technical support. What institutions like the DMI or the médialab understood early on was that the technical aspects of tool development had to happen as an integral part of digital STS. Lacking the funding to copy that model and bring a team of research engineers into our digital STS group, however, we decided to try and bridge the gap from the other side: those of us with an SSH background and an interest in digital methods would try to become more technically proficient. Thus, the TANTLab was founded as a mutual pledge to get our fingers stuck in the digital minced meat.

How to practically do it proved to be an altogether different and more challenging question. In the daily competition between preparing your teaching, writing grant applications and trying to get published, prioritizing the necessary time and resources to write a python script, set up a server, master a new technique, or learn a new method can seem like a long shot. There has to be concrete occasions for it and the pay-off must be clearly in view. If it makes sense to frame the various activities we have undertaken over the past six years as 'lab-like', it is precisely because they constitute an ongoing effort to make such occasions available through experimentation. The lab routinely organizes workshops and other events based on a concept we call *participatory data design* (Jensen et al. 2021) where the core idea is to get those who have a stake in the way datasets are harvested, curated, or visualized tinkering with that process. For example, in a project about the way in which the field of obesity research has been the subject of shifting political pressures, we asked ourselves if it would be possible to involve both obesity researchers and STS researchers in designing a semantic mapping of the scientific literature in the field and thereby collectively mapping one of the central objects of study into knowledge (Jensen et al. 2019)? Doing so required skills in natural language processing, but instead of hiring outside support to fix our issues as they arose (the support solution) we took it as an occasion learn some of those techniques ourselves. The motivation was clear enough: if we were to have the flexibility to actually tinker with the more technical part of the methodological setup as part of the workshop with our colleagues from obesity research, we had to know what we were doing and especially what we could be doing.

Fig. 1: A typical tool lunch at the TANTlab.

The obesity project was one of the first we undertook together in the new established TANTLab. It quickly cemented the challenge involved in getting your fingers stuck in the digital minced meat. At the time, only one of us, a student assistant, knew how to code. On top of that a couple of us had managed to learn how to master a piece of software called Cortext for semantic analysis. It was bluntly evident that this was a bottleneck in terms of participatory data design – the limit on how much of the data design our participants could actually participate in was defined chiefly by the time of that student assistant with python skills and secondarily by the time of those of us who knew Cortext. The experience validated to us that these things are worth prioritizing and we have since instituted monthly tool lunches where students and researchers in and around the TANTlab bring their food and exchange technical tips and tricks. The ability to both engage and draw on the skills and resources of our students in this way also turns out to be essential for the ongoing sense of community around the lab. Indeed, the community is not really confined to the lab. On an international level we have been part of establishing the Public Data Lab (www.publicdatalab.org) which brings together a network of similar groups across Europe and we constantly discover sister labs in digital STS, such as the RUST Lab in Bochum, for whom the minced meat is not something you buy prepacked but aim to get your hands dirty doing.

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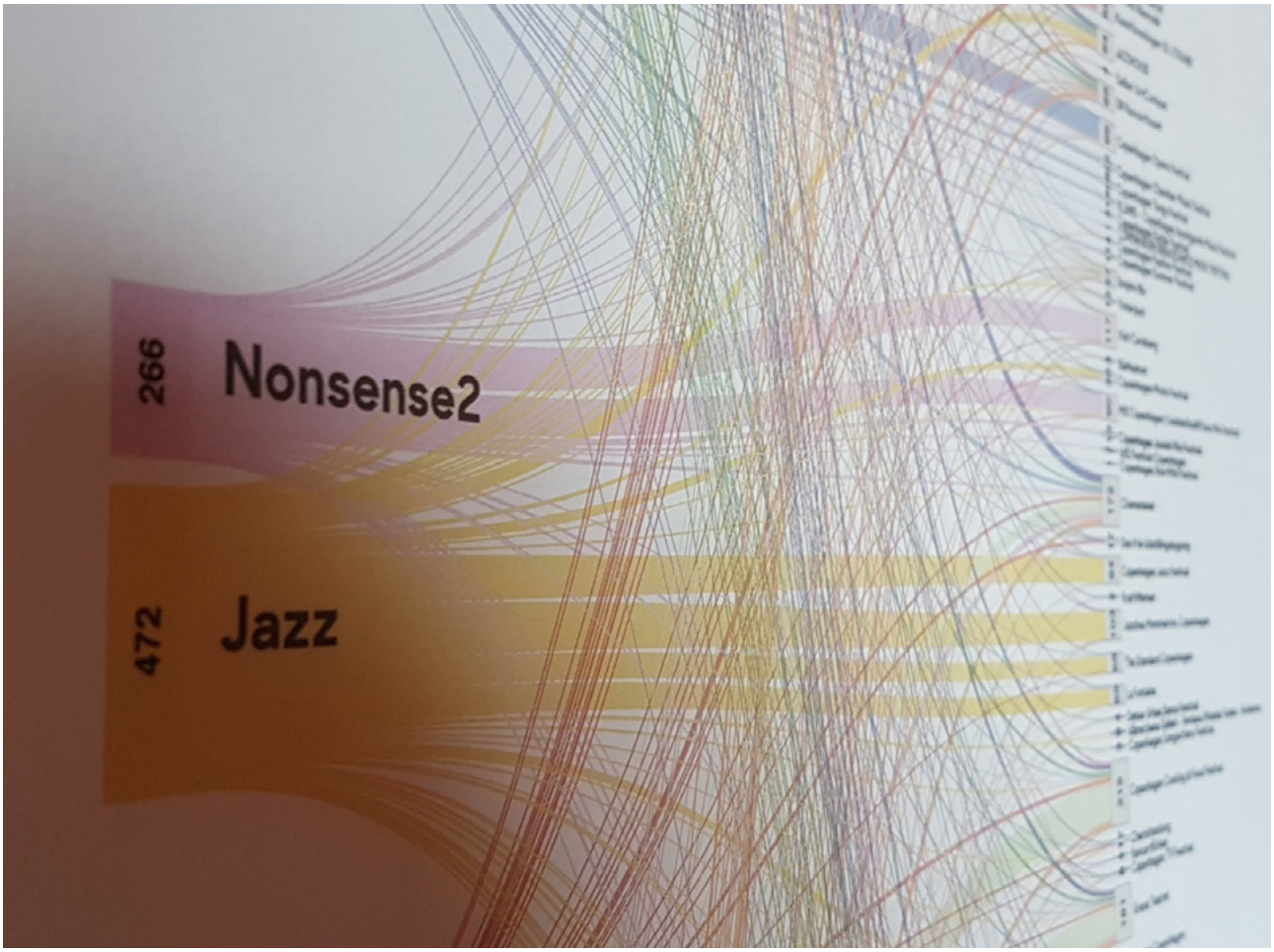
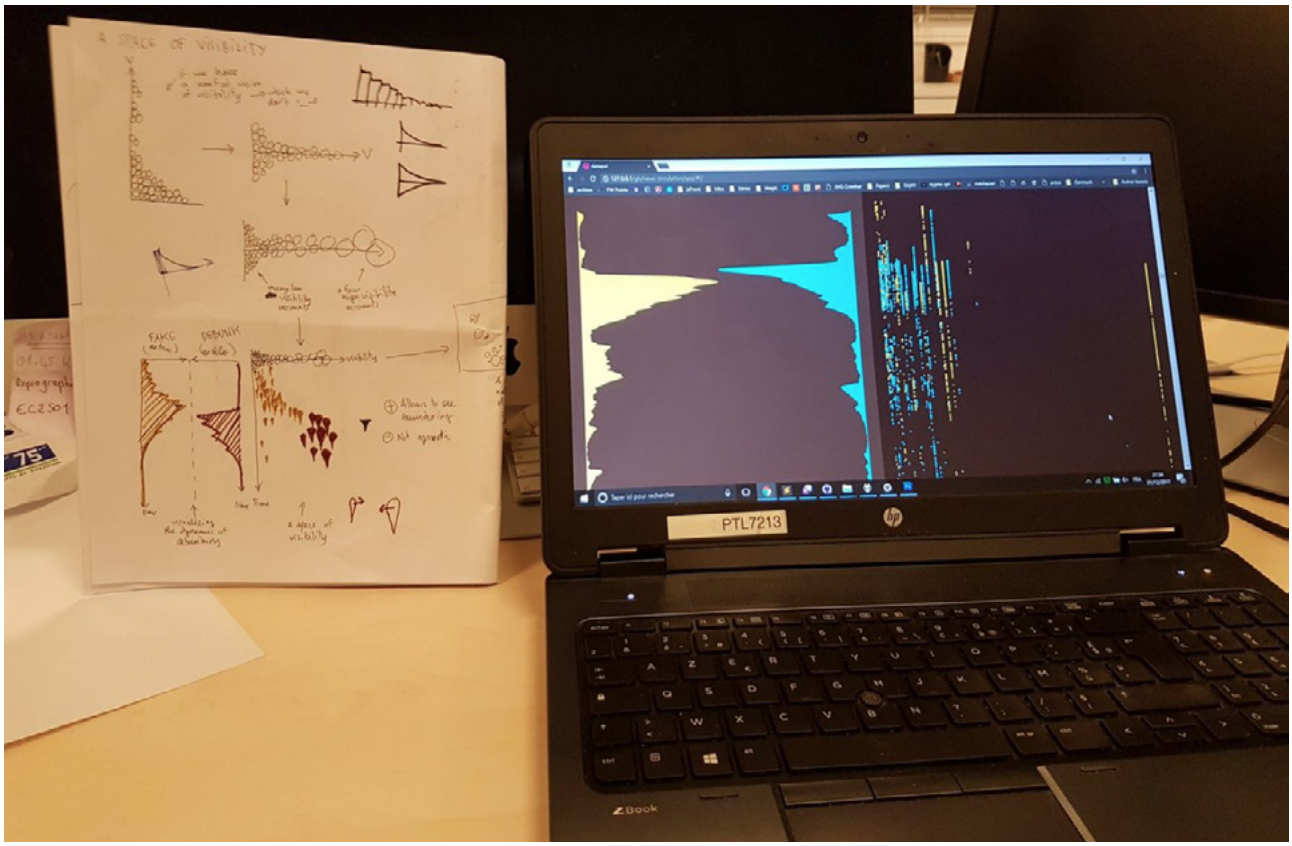
Data sprints and coding retreats

Anders Kristian Munk

One of the ways in which we work with participatory data design is in so called *data sprints* (Munk et al. 2019a). A data sprint is a one-week occasion to prototype a digital methods project together with those who have a stake in it, a.k.a. the *issue experts*. This could be actors in a controversy that the project is attempting to map, the intended users of the results, or groups for whom the results could have adverse consequences. The week begins with the issue experts presenting their matters of concern followed by a Q&A session. In the afternoon of that first day, initial ideas are transformed into protocols for digital methods projects that could be feasibly carried out in a week. There is always this intensity that results have to materialize by the end of the week and so participants tend to engage. Within the first few days we begin to build tentative and exploratory visualizations capable of eliciting feedback from the issue experts. The process makes it clear what can and what cannot be done, of course, but more importantly, it tends to prompt reflection and what we actually came to do. Like in an ethnographic interview, in a sprint, participants tend to discover questions rather than answers (Munk et al. 2019b). Spurred by these reflections, projects are recalibrated or completely redesigned during the course of the week.



Preliminary visualization used to elicit feedback from issue experts during a data sprint with the Royal Danish Theater and their analytics department.



Sketches, coding and mock-up visualization at a coding retreat on tools for visualizing ambiguity with Density Design from Milan.

Another way in which we have engaged with critical technical practice is by inviting tool developers to join us for a coding retreat at the lab. These are also workshop-style events that unfold over several days, but there are no issue experts. Rather, the object in focus is a digital methods tool in need of development. Our visitors would have to take on this task anyway but typically appreciate the opportunity to have some days where they can focus on it without distractions. By providing that occasion we get an opportunity to sit in on their discussions and, if relevant, have a say on key choices that will affect our use of the tool. In several cases we have organized these retreats around specific issues where our concerns as digital methods researchers converged with those of the tool developers, for example on how to visualize ambiguity or define a web entity in a crawl. Taken together, coding retreats and data sprints provide some of the occasions for spending time in critical proximity with the technical, that is necessary for the lab to be lab-like and for us to get our fingers properly into the digital minced meat.

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Cherish, not Perish

Writing the Social Studies of Science

Des Fitzgerald, Amy Hinterberger

INSCRIPTIONS

Since the very earliest social studies of scientific communities, we have known that words and worlds are bound together; that intellectual projects – this was an original insight of Steve Woolgar and Bruno Latour of course – are materialised in sentences, images, figures, *texts*. It remains the case that one of the most important ways to stabilise, organise and grow a laboratory, a group of scholars, even an entire intellectual community, is to write things down.

Over the last decade, social studies of science, including studies of biomedicine, have become some of the most exciting and cutting-edge areas in the social sciences. From human geographers working on animal models of human disease; to anthropologists writing about new ways of governing chronic disease in low-income countries; to sociologists charting the rise of new forms of cyborg embodiment – scholars across disciplines are researching at the frontiers of science and biomedicine, and using insights from these areas to innovate the field of science and technology studies (STS). Yet, in Europe, the monograph form in STS remains perhaps less developed to peer-reviewed journal articles and other kinds of publishing forms. And where book series focused on (or friendly to) STS do exist, especially in the American context of US academic presses, these typically gather under the sign of more well-established disciplines (history or anthropology, in many cases) or else around specific theoretical or empirical interests (experiments, technologies, bodies, and so on).

In 2019 with the help of Tom Dark, a senior commissioning editor at Manchester University Press, we initiated a new STS book series, 'Inscriptions: Writing the Social Studies of Science'. The point of this series is to create new space for the monograph form in STS. As the books we have already published demonstrate the series foregrounds theoretically innovative and empirically rich interdisciplinary work that is emerging in Europe and beyond. Our series is self-consciously hospitable in terms of its approach to discipline (all areas of social sciences are considered), topic (we are interested in all scientific objects, including biomedical objects) scale (books will include both fine-grained case studies and broad accounts of scientific cultures) and authorship (it looks to first-time authors as well as to established scholars; to disciplinary newcomers to STS as well as to widely-known insiders).

For readers and writers, we hope the series signals a new generation of scholarship captured in monograph form – tracking and analysing how science moves through our societies, cultures and lives. Three observations make the urgent need for such a series apparent. First, it is clear that scientific and political transformations in the clinical and life sciences, and in other allied scientific areas, are bringing new technologies and practices, along with the everyday forms of embodiment they constitute, to the forefront of political and social attention. For example, genomics, the study of genes, has made it possible to predict, diagnose, and treat diseases more personally than ever before, leading to what scholars have called the molecularization of life. Similar observations can be made about recent transformations in the digital and informational sciences, in the psychological and brain sciences, and many other areas.

Second, the social studies of science have developed key resources with which to make sense of new advances in science and technology. Part of this comes from changes in scientific and medical practice itself, where social, ethical and political implications of new technologies are recognized as vital to creating productive relationships between scientific knowledge, technological systems, and society. While the social sciences might have been previously bracketed off as a separate 'ethical' concern to science, increasingly scientists and social scientists have been working in collaboration to get to grips with how science and technology come to shape law, politics, public policy, society and culture.

Third, there have been a series of wider shifts in the research funding landscape: an embedded agenda of 'ethical, legal and social impacts' has brought significant new funding-streams to social studies of science and biomedicine, while also pressing social science researchers against the face of cutting-edge developments in the natural and clinical sciences; at the same time, many European funders have dedicated new funding streams to critical social study of the natural sciences in general, and studies of the biomedical and life sciences (including clinical practice) in particular.

These transformations signal that it is a crucial time to bring together work that showcases these remarkable shifts. They also call for a renewed urgency in serious, long-form, interdisciplinary thinking and writing in STS – as well as to spaces that can hold such thinking and writing. The first volumes of the series are appearing now (by Anne Kerr and her colleagues, as well as Adam Hedgecoe, and Gill Haddow) with further volumes in the works; we continue to review proposals, and will be glad to hear from EASST members and affiliates.

Translations

Meanings lost and found: translating 'sociotechnical' for a Brazilian counter-hegemonic agenda

Les Levidow

Introduction

'Lost in translation' has been a familiar lament, sometimes sardonic. It was popularised by the 2003 Hollywood film, whose storyline depicted meanings being lost or found in largely non-verbal ways. But generally the term refers to verbal communication: an original meaning may be lost when translating a phrase across different contexts, cultures or languages. At the same time, a phrase can gain new meanings, which may variously complement, enrich or contradict the previous one.

Actor network theory (ANT) has analysed complementary meanings which can facilitate mutual understanding among disparate actors. Other fields, such as postcolonial and queer studies, have analysed how original meanings are lost through power differentials. Gayatri Spivak criticised such loss through translation into English as the dominant language of power. English 'translatese' obscures the distinctive identity of politically less powerful individuals and cultures, especially in the global South (Spivak, 1993/2004).

Indeed, a phrase can be used with different cultural assumptions, norms or aims, often related to power. Diverse meanings arise in appropriating everyday phrases across contexts. Hence an interpretive framework is necessary for analysing how meanings change across time or place, as well as for making normative judgements on those translations.

STS concepts have helped to analyse how technoscience shapes such translations (e.g. Olohan, 2017), amidst 'Translation in Times of Technocapitalism'. But the converse seems more elusive: How do academic concepts undergo translation? How does each meaning either highlight or obscure socio-political orders of different kinds?

Here let us explore the term 'sociotechnical', which has been pervasive in STS literature. This article first surveys ambiguous meanings of 'sociotechnical', and then introduces our research project on Brazil's solidarity economy. In this context, 'sociotechnical' has been translated for a counter-hegemonic agenda. In translating all citations from Latin American sources, I have attempted to convey the original meanings from my engagement with social movements there.

Sociotechnical: ambiguous meanings

The term 'sociotechnical' has diverse, ambiguous meanings: Sometimes its usage implies a rhetorical contrast with purely a technical content or process. But does the latter exist anywhere? More subtly, the adjective can highlight a specific way of integrating social with technical aspects – by contrast with alternative ways, which otherwise would be obscured or pre-empted.

For example, grassroots innovation has arisen in informal settings, which may remain publicly invisible. An STS research agenda has investigated how a 'socio-technical process' links such innovation with alternative forms of livelihoods and problem-definitions:

We therefore stress again the importance of studying what informal operators and marginalized households and communities themselves do to produce new products, processes, or services. These activities are inevitably going to be rooted in their own ingenuity and knowledge, some of which will be traditional or place-based. Their innovations are as likely to be socio-technical as technological, and these innovations must be included in the research agenda (Cozzens and Sutz, 2014: 25).

Those authors don't presume the existence of an a-social technological innovation. Rather, the latter provides a rhetorical contrast with a distinctive kind of sociotechnical process: 'The more collective the innovative process, the more it will require dialogues, conflict-solving procedures, and ultimately innovation-related governance issues' (ibid: 20). Participants enrich their own roles in knowledge-production, thus shaping how the innovation process links social with technical aspects.

From an STS perspective, conventional top-down, capital-intensive innovation likewise emerges from a sociotechnical process. It entails several possible ways of linking social and technical aspects. If these are obscured or are portrayed as temporary obstacles to an obvious outcome, then the process may appear as simply 'technological'. The reverse can happen through controversy over a technoscientific development, whose sociotechnical character thereby becomes more explicit and obvious.

Hence the need for an STS framework to analyse omnipresent sociotechnical processes for their diverse forms and public representations. For example, the social aspects may be kept implicit, hidden as 'technical' -- or instead may be made explicit by the actors, even changed by them. Likewise there are diverse frameworks to analyse how a sociotechnical process deals with conflicting aims, both internal and external. Given all those parameters, how to conceptualise 'sociotechnical'?

In Actor Network Theory (ANT) an innovation process has been generally conceptualised as sociotechnical assemblages or networks. This concept denotes linkages among various human actors and non-human actants, whereby both can influence the outcome. An enrolment process can link more actors and actants, align their efforts, adjust the original design and make an outcome more robust (e.g. Latour, 2005). These dynamics can help to explain why some initiatives gain success.

In such a process, the category 'actants' has been meant to take account of Nature as an interacting agent, beyond simply a malleable object of human control. According to some critics, however, this framework may do the converse, namely: understand human relationships like interacting things. This can obscure a distinctive human agency, central to pervasive conflicts over societal values, futures and orders.

Keeping in mind that ambiguity, let us return to the original theme: How does the term 'sociotechnical' undergo change, perhaps translation? How can the concept illuminate rival socio-political orders, even facilitate interventions? How to sharpen its meaning? As a modest contribution, this short article will explain how

the concept 'sociotechnical network' has become a strategic concept for a counter-hegemonic agenda, contesting the dominant socio-political order.

Solidarity Economy (EcoSol) in Latin America

EcoSol networks: international and Brazilian

In the past couple decades, boosted by the first World Social Forum in 2002, 'solidarity economy' has become a global agenda to improve livelihoods through reciprocal mutual-aid activities (RIPESS, 2012). In Latin America, continent-wide support networks have linked and stimulated local initiatives for an Economia Solidária or EcoSol for short. This agenda creates solidaristic interdependencies among enterprises, each gaining capacities for democratic self-management. It opposes the dominant socio-political order, where market competition drives labour exploitation through employer-employee power relations (Dos Santos and Carneiro, 2008; Schüttz and Gaiger, 2006; Singer, 2016; RIPESS, 2018).

Through short supply chains, producers are brought closer to consumers, who thereby support production arrangements which are democratically cooperative and environmentally sustainable. Brazil's EcoSol networks have popularized such means towards a more socially just, sustainable development (FBES, 2012). As a key concept, *Bem Viver* has various meanings, e.g. a harmonious life respecting Mother Nature and humanity; it originates from indigenous Andean languages (Bolivia, 2008). Here Nature denotes agro-biodiversity, complementing socio-cultural diversity (Leff, 2001).

For the agri-food sector, for example, the EcoSol agenda has opposed the techno-diffusionist, capital-intensive form of modernisation. This model serves agribusiness interests in exploiting or dispossessing small-scale cultivators, while also degrading national resources. Opponents have promoted agroecological innovation through knowledge-exchange networks, often called *diálogos de saberes*; these link small-scale producers with each other and with external experts who facilitate the process.

The term 'sociotechnical' has become prominent in Brazil's agroecology agendas linking local initiatives. According to a national survey, the 'network' concept denotes the construction of democratic processes: 'Their articulation through networks includes a sociotechnical dimension creating environments more favourable to innovative forms which can articulate among actors, practices and resources. Together these facilitate shared means to manage knowledges' (Schmitt, 2020: 70).

Sociotechnical networks for Economia Solidária

Over the past decade such EcoSol networks have been built within and among many places. The case-study focus here is the Baixada Santista, a coastal area southwest of São Paolo. Training courses brought together diverse participants especially small-scale producers. The main organizers were agricultural extensionists who had rejected the techno-diffusionist model, instead promoting knowledge-exchange among and with agri-producers to improve artisanal agri-food methods.

The organizers elaborated the concept 'sociotechnical network' as follows: The training courses 'had success only when constructing a sociotechnical network and when the extensionists…. promoted the necessary alliances among the other actors for the construction of the network'. This approach gained the confidence of producers who would benefit from the activities (Silva e Pinto, 2015: 3). The organizers cited ANT as follows: A 'sociotechnical network' integrates human and non-human entities, individual or collective – defined by their objective roles, identities and programmes – who are put into intermediation with each other (Silva e Pinto, 2015, Silva et al, 2018, citing Callon, 1999 & Latour, 1987 in Portuguese translation).

For the organizers' agenda, however, the concept 'non-human entities' disappeared, and their anti-capitalist agenda became central as follows: A 'sociotechnical network' integrates diverse actors (e.g. agroecological producers, consumers, extensionists, public authorities, researchers, etc.); each group brings its own objectives and competences. Such a network creates a cooperative interdependent space facilitating innovative practices which were not previously specified. This space enables diverse participants to achieve their respective aims through common practices, which help them to overcome challenges posed by the capitalist market (Silva e Pinto, 2015).

As they also explained, a cooperative space depends on a translation process to facilitate mutual understandings among the network's participants. Such translation can help to avoid or overcome internal conflicts, thus influencing the success or failure of an EcoSol initiative (Silva et al, 2018: 210-211, 186). For this general concept, the authors cited the sociology of translation (e.g. Callon, 1999 and Latour, 2005).

FÓRUM DE ECONOMIA SOLIDÁRIA DA BAIXADA SANTISTA

Left: FESBS logo. Right: EcoSol Mulher (feminist network)

Elaborating those two concepts – sociotechnical networks and translation – EcoSol coordinators have facilitated cooperative relationships that could generate such networks, as both alternative and antagonistic to capitalist social relations. Beyond the government-funded programmes, they extended the capacity-building process through the Fórum de Economia Solidária da Baixada Santista (FESBS, 2020). This Fórum has organised training for collective self-management by continuously mobilizing and linking diverse stakeholder groups, e.g. women producers, civil society, municipalities, academic researchers, etc.

When their EcoSol initiatives faced the Covid-19 pandemic, the concept 'socio-technical networks' informed their strategy discussions and was popularised in newspaper articles (e.g. Silva et al., 2020). *Bem Viver* likewise has been popularised there, especially for a feminist anti-patriarchal agenda around agroecological production methods (see FESBS hyperlink); this concept too has needed translation across different societal groups and contexts.

'Sociotechnical' in translation

In sum: Originating from actor network theory (ANT), the concept 'sociotechnical network' has appeared widely in academic literature and beyond. Through this process, various meanings have been lost and found in translation. As described here, it has been taken up for creating solidaristic alternatives to profit-driven patriarchal social relations, while also seeking to displace them. This is an overtly counter-hegemonic socio-political agenda (which remains rare in ANT case studies). As regards human-nature relationships, its EcoSol agenda abandoned 'non-human actants' from ANT. Instead it promotes *Bem Viver*, whereby agrobiodiversity complements socio-cultural diversity as mutual human constructs. Along those lines, the term 'sociotechnical network' has been appearing more widely in Brazil's EcoSol-agroecology literature (e.g. Schmitt, 2020).

Beyond that agenda, the term 'sociotechnical' has undergone diverse usages and thus translations. Likewise other STS concepts have meanings which may be lost or found in translation. These conceptual translations warrant methods to identify divergent meanings, perhaps at once analytical and normative ones.

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Its trilingual bulletin highlights how EcoSol networks have responded to the Covid-19 crisis (AgroEcos, 2020). Our new journal paper applies STS co-production theory (Levidow et al., 2021).

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Lived Solidarity in the Austrian Healthcare System

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1. Introduction. What is solidarity?

In their daily routine, healthcare workers engage with their patients in various ways, ranging from attentiveness and kindness to inattentiveness or even (un) conscious discrimination. In this article, we analyse healthcare workers' enactment of solidaristic practices to support disadvantaged groups. On the basis of observational data from interactions of refugees with the healthcare system and qualitative interviews in Vienna, Austria, we suggest that healthcare workers play an important role closing structural gaps within a solidarity-based healthcare system. Drawing attention to these often unnoticed solidaristic practices means to acknowledge forms of what we call *lived solidarity*.

SOLIDARITY AS PRACTICE

During the Covid-19 crisis, solidarity has been a widespread, and maybe overused, term. From global cooperation in vaccine development to neighbours running errands for each other, a wide range of practices have been celebrated as solidarity. The longer the crisis lasts, however, the clearer it becomes that people are not only moving closer together, but that the fault lines between people are becoming more pronounced as well (see Prainsack, 2020). Also for this reason, it is important to define what we mean by solidarity before delving into our empirical analysis.

Building on the solidarity literature, particularly in the English-speaking world, we see solidarity primarily as practice: and specifically, as practice that expresses the willingness of people to support others with whom they see themselves as having something in common in a relevant respect (Prainsack & Buyx, 2011: 2017). In each case, the specific practice provides the reference point for what is and can be recognised as relevant commonality: For example, if someone sees a call to donate blood, or even a kidney, that person's willingness to respond to that call will often be influenced by whether they have a personal connection to the issue at hand. If the person has a family member or friend whose life was saved by a blood, or organ donation, then they will often be more willing to respond to the call than if they have no connection to the topic at all.

Moreover, we always practice solidarity in specific situations and contexts. As women, we are not automatically in solidarity with all other women. When we support a woman who has become the target of sexist harassment or discrimination, for example, we may do so because we ourselves have experienced such harassment, or because our friends or family members have. (And one does not

have to be a woman to be solidaristic with women who become the target of such discrimination). But we might not be solidaristic with this same woman if she asks us for support in a political campaign that does not correspond to our views. The concrete context of action indicates, in each individual instance, what commonalities or differences give rise to solidaristic action: No one is solidaristic with others in an abstract sense.

When we observe discrimination and are bothered by it to the extent that we take action against it, we exercise solidarity with those suffering discrimination in a specific instance or context, despite all the other differences that exist between us: the people we support may have different political goals, religious or spiritual beliefs or lifestyles. Solidarity, thus, does not mean ignoring differences and pretending that they do not exist: rather, it means that despite the differences that exist between people, letting the similarities and commonalities become the source of our actions - especially when these similarities or commonalities are not "obvious".

As Prainsack and Buyx have emphasised in their work (e.g. Prainsack & Buyx, 2017), that the "recognition" of similarities or commonalities in a relevant respect, which is the basis for solidaristic action to emerge, is not, however, a mere determination of "objectively" existing commonalities, which may be essentialist or even nativist. To a large extent, the differences and similarities that we see ourselves as having with others are things we have learned to see. A person who grew up in a family and society that placed emphasis on every person being equal, irrespective of their skin colour, gender, and beliefs, will find it easier to see commonalities amidst all other differences than a person who grew up learning to think of everyone who did not have the same religion, ethnicity, or political views as "different". Public and political discourses that play out in different groups of the population against each other can have a big impact on the thinking and perceptions of people in this respect.

We have already given a few examples of the forms that solidaristic practice can take at the interpersonal level: A person recognises a part of herself in another person (or persons) and does something to support that other person(s), even if it incurs "costs" for her (this cost need not be financial, but it can also be time, comfort, or physical well-being - as is the case with the example of blood or organ donation). Building upon Prainsack and Buyx' work (2011, 2017), we refer to this interpersonal, person-to-person solidarity, which is primarily about the concrete practices of individuals, as 'tier 1' solidarity. But of course, solidarity can also take other forms; for example, when it becomes so "normal" within a collective - a group, a community, an association - that it becomes a shared, expected practice ('tier 2'). When solidaristic practice expresses itself in administrative, bureaucratic, or other norms, then we speak of 'tier 3' solidarity. A progressive tax system is an example for this latter, "hardest" form of solidarity, or a solidarity-based healthcare system into which people pay not in proportion to the costs they will incur according to actuarial calculations, but according to their financial means. And from which each person receives not only the services they can or could pay for, but those they need.

These different levels of solidarity are not only helpful in distinguishing "softer" (fragile, frequently changing) from "harder" (more stable, legally enshrined) forms of solidarity, depending on how quickly and easily they can change. The distinction between the three levels also offers the possibility of a more precise analysis of different forms and institutions of solidarity, rather than simply saying that solidarity is increasing or decreasing in a society. For example, during the Covid-19 crisis, some countries had large fluctuations in the intensity and prevalence of person-to-person (tier 1) solidarity, but continuously increasing support for solidaristic institutions such as publicly funded public health programs and institutions, well-equipped and publicly funded or solidarity-based healthcare systems, and even social housing (tier 3) (e.g. Lievevrouw & Van Hoyweghen, 2021).

In the following, we will derive implications for solidarity from an empirical inquiry into the daily work of healthcare professionals in Austria. One of the authors of this article, Wanda, accompanied medical treatments in Vienna as part of her ethnographic research and interviewed healthcare workers such as doctors, pharmacists and opticians. It is through their everyday practices that we can better understand what interpersonal and collective (tier 1 & 2) solidarity mean in practice and how they are connected to institutional solidarity (tier 3), namely as enactment and as corrective.

2. Lived Solidarity in the Austrian Healthcare System

Austria's healthcare system is based on solidarity in the sense that people pay into the system according to their financial means and receive benefits according to their medical needs - regardless of how much they have paid in. Insurance contributions are based on income and deducted from people's monthly salaries. In addition, a tax-financed support system covers the contributions for people who cannot pay anything, such as those affected from involuntary unemployment, or asylum seekers (LSE, 2017). While the solidarity-based health system is an illustrative example of institutional solidarity (tier 3), solidarity at the other two levels, namely person-to-person solidarity (level 1) and solidarity within groups such as doctors (level 2), offers a more nuanced picture. Healthcare providers have a significant influence on whether the health needs of their patients are met. Unsurprisingly, migrant patients, in particular, often have a harder time getting medically necessary services, partly due to language and cultural barriers. Some healthcare workers compensate for these structural deficits in their everyday work by going beyond the intended level of service and care or even breaking rules in order to do what seems right and just to them.

EXAMPLES OF LIVED SOLIDARITY

Wanda accompanied a Syrian woman and her child to an Arabic-speaking specialist. During the consultation, the doctor established trust through a mixture of wit and authority. Almost paternalistically, he inquired not only about his patients' immediate medical concerns but also about other areas of her life such as the language course that the mother was taking, or the child's school performance. He even made the mother promise to improve her German and the child to learn well. At the end of the consultation, the doctor turned to Wanda. The Syrian woman mentioned that Wanda is from Nuremberg. The doctor was visibly pleased and explained that he had studied in Germany and then had moved to Vienna. He hesitated briefly and then added with a laugh: "as a refugee". It was not clear whether he saw himself as a refugee from the country of his birth or as a refugee from Germany to Vienna. He then left the treatment room.

In this instance, the doctor implemented - in the sense of making concrete - the spirit of solidarity that is built into the institutional fabric of the Austrian healthcare system. Knowing that his patients have a migration history, and considering himself a migrant as well, he opened the door to wider conversations than medical needs in the narrow sense of the word. He thereby invited his patients to bring into the treatment room – quite literally – wider issues that bothered them, supporting a holistic approach to his patients' health (probably knowing that the life situation of refugees often is entangled with multiple difficulties).

While healthcare professionals such as this doctor act as the mouths, ears and arms of the healthcare system, solidarity also requires the active closing of structural gaps. An example of how this happens in practice is the following description of a Farsi-speaking general practitioner who takes on gynaecological examinations because there are too few gynaecologists with appropriate language skills in Vienna:

> "THERE ARE MEDICINES THAT, FOR EXAMPLE, ONLY A GYNAECOLOGIST IS ALLOWED TO PRESCRIBE, YES? I ALWAYS APPROVE IT AND ADD: BECAUSE OF LANGUAGE DIFFICULTIES; OR THAT [GETTING AN] APPOINTMENT WITH THE GYNAECOLOGIST, IF SHE HAS FUNGUS, WOULD TAKE THREE MONTHS."
>
> (GENERAL PRACTITIONER)

The doctor went on to explain that many patients with limited financial means went to see private gynecologists with the respective language skills, despite having to pay out of pocket as their services is not covered by their insurance. On the interpersonal level, this doctor engaged with her patients in a caring way (tier 1). Despite the fact that it costs her time and effort, she took the circumstances of her patients into account and went "the extra mile" to meet their needs. But there is also a group identity element to her practice (tier 2): As a physician, and as a representative of a healthcare system that should pay equal attention to the needs of all, she feels responsible to compensate for the shortcomings of the system.

In addition to the solidaristic practices just described, some healthcare workers try to establish new rules, practices, and norms that improve the situation of the disadvantaged and marginalised. For example, members of the Austrian Medical Association are currently campaigning for more doctors with non-German language skills and increased cultural sensitivity to work within the public healthcare system and improve the care of migrant patients.

It quickly becomes clear that solidaristic practices often take place simultaneously at the interpersonal level and at the level of a collective (tiers 1 & 2). The doctors in our study enact solidarity person-to-person and at the group level, as part of the medical community. The following quote clearly illustrates this simultaneity: With a trembling voice, a doctor told Wanda of a child who died of pneumonia because she and her mother were sent home from the emergency room with painkillers for the child. When the child deteriorated and returned to the emergency room, they had to wait for hours to be seen. Shortly thereafter, the child died in the intensive care unit. "That's when we felt," he recounted, "...I felt so guilty with this case at the time because I'm just part of the system. [...] That must not happen, something like that must not happen with us, yes?" (medical specialist in Vienna)

The doctor held back tears. He was visibly moved. According to this doctor's assessment, the tragic consequence had occurred because the medical staff in the emergency room had not interpreted the needs of the patient and her mother correctly. The mother of the child wore a headscarf and spoke broken German. Like many migrants, she was insecure and introverted due to previous discriminatory experiences. The doctor, although having played no part in the tragedy that this family suffered, felt responsible nevertheless: He sees himself as part of this failing system and wants to improve it. He told Wanda of the tragic death of the child as one of the decisive moments for his commitment. Together with colleagues, he now seeks to change the system so that it becomes more receptive and responsive to the needs of disadvantaged groups. For example, he and the other members of his network often refer their patients to specific doctors from whom they expect culturally and religiously sensitive treatment. They also organise information events on these issue through the Austrian Medical Association, which he says are well received by Austrian doctors (tier 2).

Summing up the described instances of lived solidarity, we see three different types of solidaristic practice in our data (Figure 1): In the first (*concretising* solidarity), healthcare workers act as the mouth, ear, and arm of a solidarity-based healthcare system. They shape solidaristic institutions through their everyday practice. In the second form of solidaristic practice (*compensating* solidarity), they fill gaps left open by institutionalised solidarity in the healthcare system. Through these

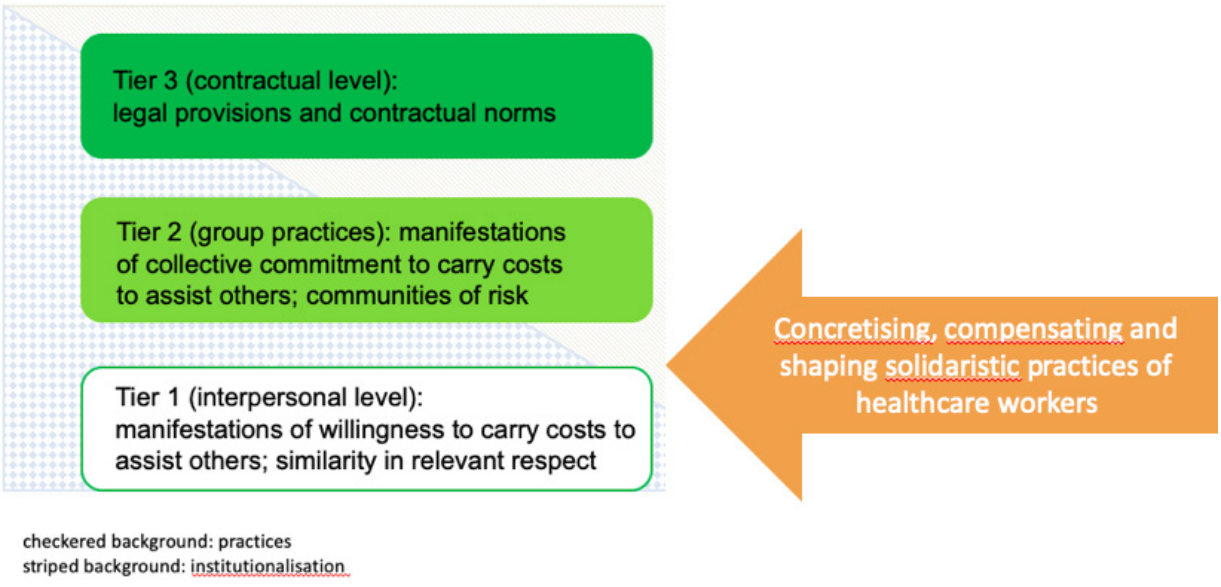
Fig. 1: Forms of solidaristic practice by healthcare workers in the Austrian healthcare system

practices, solidarity becomes an inherent corrective to the system. A third form of lived solidarity (*creating* solidarity) goes one step further by trying to create new rules that change the existing norms and instruments (e.g. new laws, but also new criteria for the allocation of resources, etc.).

	What does the healthcare worker do?	Example
Practice 1: Concretising Solidarity	Healthcare worker concretises institutional solidarity	Medical specialist inquires not only about medical condition but also about other areas of life, e.g. language course for refugees
Practice 2: Compensating Solidarity	Healthcare worker compensates the lack of institutional solidarity	General practitioner takes on gynaecological examinations due to the scarcity of Farsi-speaking gynaecologists and - against the guidelines of the medical association - issues free certificates for cash-poor parents
Practice 3: Creating Solidarity	Healthcare worker tries to create new rules and practices	Advocacy for more multilingual doctors within the public healthcare system

Fig. 2: Interplay between forms of the three tiers of solidarity and lived solidarity of healthcare workers (adapted from Prainsack & Buyx, 2015: 655)

Lived solidarity - in the forms of concretising, compensating and creating solidarity - can contribute to better care, especially for disadvantaged groups. These lived instances of solidarity help to expand upon person-to-person (tier 1) and group based (tier 2) solidarity (Figure 2). They sharpen our understanding of solidaristic practices within the healthcare system and beyond.



WHY DO HEALTHCARE WORKERS ACT IN SOLIDARITY?

Most of the healthcare workers this article focused on are immigrants. That is the case because Wanda's fieldwork, in accompanying refugees in Vienna to medical appointments, often confronted her with doctors whose native language matched the language of the patients. Seeing this and the solidaristic practices she witnessed during such appointments, Wanda oversampled this group of healthcare workers in her interviews - and we can make no claims about the statistical representativeness (or not) of such practices regarding the wider group of healthcare workers in Vienna, or in Austria. What insights from Wanda's fieldwork

show, however, are the forms that solidaristic practice plays within the healthcare system, and what gaps it fills. It was remarkable to see also that the commonality of being an immigrant was not the only - or not even the most important - commonality that shaped concrete solidarity practice. Instead, it was other things that they had in common with their patients - that one was also a mother or father, for example - that guided the actions of healthcare workers. This is apparent also in the following example: written confirmations of certain medical assessments are subject to a fee. These include medical reports for legal proceedings, but also confirmations for schools or employers about the necessity of sick leave. Some schools have made such written confirmations compulsory - which poses difficulties for poor parents. A general practitioner told Wanda that she considered this practice "unfair":

> "I AM A MOTHER MYSELF - AND WHEN I CALL [THE SCHOOL] AND SAY 'MY CHILD IS SICK', IT MEANS MY CHILD IS SICK. UP TO THREE DAYS, THE PARENTS CAN DO IT THEMSELVES [WITHOUT NEEDING WRITTEN CONFIRMATION FROM THE DOCTOR]. NO PARENTS WOULD CALL IF THEIR CHILD WAS NOT SICK. I MEAN, WHAT'S THE POINT, YEAH? SOMETIMES IT'S REALLY ANNOYING, YES, BECAUSE IT'S UNFAIR, I THINK."
>
> (GENERAL PRACTITIONER WHO CAME TO AUSTRIA AS A CHILD FROM A FARSI-SPEAKING COUNTRY)

The injustice that this doctor was addressing was the different treatment of parents whose societal standing is apparently high enough to be believed when they say their child is sick, while other parents need written confirmation to be believed. In addition to being a mother, the doctor based her actions on her sense of justice. Because she felt that the unequal treatment was unfair, she acted in solidarity with the children and their parents: she told Wanda that she regularly calls the school to challenge that a written confirmation (that parents would need to pay for) is required for this particular child. She does not shy away from the emotional effort and time that it takes to deal with the problem. If it cannot be avoided, she even issues appropriate written confirmations free of charge, contrary to the medical association's stipulation that she has to ask a for a fee. It is important to her to ensure adequate care and to do her job well. Some social groups - due to language barriers, certain previous experiences such as traumatic experiences, cultural differences, low assertiveness, or financial limitations - need more attention to have their health needs met. The solidaristic practices of healthcare workers establish justice in the sense of adequate medical care for all insured persons. Finally, the sense of responsibility of individuals plays a role in motivating people in the health sector. Many of the healthcare professionals that Wanda interviewed take responsibility in order to resolve what they perceive to be unjust or simply wrong.

3. What to do?

We have shown that healthcare workers are important actors of solidarity in the healthcare system. We have distinguished three forms of solidarity, namely *concretising*, *compensating* and *creating* solidarity. The lived solidarity of people in healthcare professions is essential to ensure that the promise of justice for people with upright insurance coverage - to receive the same good medical treatment - is kept for all patients. It is clear that many of these solidaristic practices compensate for institutional failures. Some people, e.g. disadvantaged groups, are not visible in the imagination of those who have created the healthcare system. A look at solidarity in practice draws our attention to these invisibilities. However, the forms of solidarity in practice that we have discussed (Figure 2, Practice 1-3) also make clear that healthcare workers take on high emotional, time-wise, and other costs for their actions.

Despite the important role that the practices of healthcare workers play within solidarity-based health systems, the experiential knowledge of these people has practically no impact on research and policy-making. This needs to change: On the one hand, we need to ensure that lived solidarity in the health system can continue to fill the gaps that a formal institutionalised framework necessarily leaves open. It contributes to better and more equitable health outcomes, especially for disadvantaged populations, but also takes pressure off healthcare workers. Moreover, the solidaristic practices of healthcare workers can show us what other gaps in solidarity exist in the healthcare system that need to be filled and closed by a change of practice and policy.

As a first step, there must be a stronger focus on the solidarity work of the health professions in (basic and applied) research. A systematic recording and evaluation of the experiential knowledge of various health professions will provide information on where there are institutional and structural problems, or where disadvantages occur. In this way, we can determine what actions of healthcare workers should be promoted. This also makes it possible to find out where more or different resources are needed - be it through adjustments to the reimbursable services of the health insurance companies, monetary remuneration or the making available of services such as health navigators. Increased attention to lived solidarity enables us to actively decide what forms of solidarity should be institutionalised (creating practices) or more strongly valued by the system (concretising and compensating practices). The Covid-19 crisis has resulted in a re-valuation of solidaristic institutions, including healthcare systems. Now is a particularly good time to anchor solidarity more firmly as the basis of the healthcare system. To this end, it is important to recognise the lived solidarity in the work of the health professions.

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STS Events

Webinar Report: "Back to Normal? Social Justice & DOHaD in the COVID Era"

Michael Penkler

Although the COVID-19 pandemic is far from over, many countries are resuming economic and social activities, with the goal of returning to some semblance of ‚normality'. But how should this new normal look like? This was the topic of an interdisciplinary webinar entitled *"Back to Normal? Social Justice and the Developmental Origins of Health and Disease in the COVID Era"*, which took place on December 7, 2020. The webinar was hosted by the Munich Center for Technology in Society (MCTS) at the Technical University of Munich in collaboration with the International Society for Developmental Origins of Health and Disease as well as the University of Southampton.

The webinar was the result of a longstanding collaboration between Mark Hanson and Chandni Jacob from the Institute for Developmental Sciences (IDS) at the University of Southampton and Ruth Müller and myself from the MCTS. The IDS is a leading center in the Developmental Origins of Health and Disease (DOHaD) field. This biomedical research field is based on the hypothesis that many chronic diseases have developmental origins (Gluckman, Buklijas, & Hanson, 2016). DOHaD traces how environmental influences like nutrition, stress or toxic exposure during susceptible periods (such as in utero or the first two years of life) can condition the developing organism in ways that make it more likely to develop disease decades later in adulthood. DOHaD has received interest from Science and Technology Studies (STS) scholars because it promises to open up a 'biosocial perspective' that considers how social factors shape biological processes and that allows bringing questions of social justice into biomedical thinking and practice (Müller et al., 2017). At the same time, some STS scholars have cautioned against reductionist tendencies in DOHaD that might lead to focusing predominantly on maternal factors and thus re-produce gendered stereotypes that contribute to 'blaming the mother' (e.g., Richardson et al., 2014).

In this context, the webinar was part of our ongoing interdisciplinary collaboration with DOHaD researchers on how STS perspectives can contribute to socially responsible DOHaD research and policy translations (Penkler et al., 2019). It brought together in equal parts researchers from DOHaD and STS to discuss what social justice questions arise in the present pandemic. One of our departing premises was that the current pandemic has dramatically highlighted how social inequalities are tied to unequal vulnerabilities, with disadvantaged groups bearing the biggest social, health and economic burden. While associations of adverse effects

with so-called 'pre-existing' conditions like obesity and type 2 diabetes have been widely reported, it is important to highlight how many of these conditions have their roots in underlying social inequalities. At the same time, the economic and social effects of the current crisis are set to exacerbate existing inequalities, with potentially long-term health consequences as women and children are groups that, while not being at high risks of adverse health outcomes from COVID-19, are particularly affected by the pandemic's economic and social impact (Penkler et al., 2020).

After an introduction by Mark Hanson and Ruth Müller, Martha Kenney from the San Francisco State University delivered the first presentation on *"Social Justice and Recovery from COVID-19"*. In her presentation, she pointed out that a focus on so-called 'pre-existing conditions' like obesity runs danger of losing sight of underlying social inequalities and of locating risk and responsibility primarily at the level of the individual. This could reinforce a eugenic logic that separates healthy 'us' from unhealthy 'others' who are blamed for their own ill-health. Instead, it is important to highlight and address the structural factors that drive health disparities. DOHaD insights on how adverse conditions during early life can increase the risk for later life disease accord with social science insights how social inequalities and structures of inequality become embodied, shaping health outcomes across the life course and generations. Therefore, social justice is fundamental to promoting health in society, and resilience to health emergencies requires systematic rather than individual change. In this context, Kenney ended her talk with recommendations for strengthening the social justice impact of DOHaD research: Collaborating with STS scholars and other social scientists can help design studies that account for both biological and social complexity. DOHaD researchers should further identify concerns and research questions that are relevant to the communities being studied. Additionally, she recommends to focus DOHaD

research on investigating structural causes of inequality instead on lifestyle and individual behaviors, and to conduct research on how to promote community resilience instead of focusing mainly on the negative outcomes of adverse early life conditions.

Tessa Roseboom from the University of Amsterdam delivered a talk that was deftly named *"Using the 'shit' of the COVID-19 crisis as a fertilizer for the soilbase to build a sustainable society for future generations"*. Roseboom's work has focused on the long-term health consequences of prenatal exposures during the Dutch Hunger Winter, which was a famine caused by a German embargo during World War II (Roseboom, de Rooij, & Painter, 2006). Her studies have provided evidence for how adverse conditions during early childhood can have severe long-term impacts on the risk for cardiovascular disease as well as on cognitive function in later life. According to Roseboom, this shows how fundamental early life is for later wellbeing and for the possibility of children reaching what she calls their 'full potential'. In this context, providing adequate conditions for children to grow and develop is fundamentally children's rights issue, as captured by the United Nation's Declaration of the Right of the Child. This is especially pertinent in the current crises, where children and families are particularly affected by increases in domestic violence, a deteriorating economy, increased stress and food insecurities. Given the possible long-term effects, we need to invest in early human development now to lay the foundation for a more just and sustainable future for all.

In her talk, Sarah Richardson reported findings from Harvard University's *GenderSci Lab COVID Project*, which show how social factors mediate and drive sex disparities in COVID-19 outcomes. For example, gender-related behavioral factors influence the uptake of preventive practices (e.g., men are less likely to wear masks). Structural aspects are important, too: Gender differences in occupation effectively lead to a gender-segregated structure of exposure, with men being more likely to work in fields that come with a higher risk of exposure. Together, these findings highlight how context matters for interpreting disparities in health and for explaining sex differences that were originally seen as primarily biological in origin (Shattuck-Heidorn, Reiches, & Richardson, 2020). Richardson argued that this provides an important lesson for DOHaD research. The C-19 pandemic will offer an opportunity to study the long-term effects of prenatal and early life exposures. This corresponds to a well-established research approach in DOHaD to work with so-called 'natural experiments'. However, such study designs run the risk of reducing complexity, as events like the Dutch Hunger Winter or the current pandemic are incredibly complex. The idea that we can study these events at the level of the body is a move that potentially translates modest and uncertain findings into very bold biosocial theories that often locate causality and agency in the intrauterine period. Such an approach risks collapsing very different scales (from the social to the molecular), levels of biological and social analysis as well as different time scales and histories into very specific claims about biological processes like neurocognitive development. According to Richardson, these claims produce potentially very compelling narratives, but they need to be critically questioned. In investigating the long-term effects of the C-19 pandemic, DOHaD researchers should be aware that we are dealing with very complex social factors and that we are reasoning about risk under conditions of uncertainty and large gaps in the data.

In the final presentation, Shane Norris from Wits University spoke on global health and justice perspectives raised by the current pandemic, with a specific focus on South Africa. South Africa had initially a very rapid and successful response to COVID-19 that ended in preventing many hospitalizations. However, this response had also very uneven effects on its population. In particular, it severely disrupted the informal economy on which many South African communities rely. The substantial economic fallout has disproportionally affected women, who work to a larger extent in the informal economy. This is one example of how multiple inequalities in a very unequal society intersect and reinforce each other, with strong

intergenerational effects. According to Norris, we need to pay attention to these inequalities and narrow the gap if we want to achieve better health for everyone. Bringing a better understanding of the social determinants of health and disease to the DOHaD literature is absolutely critical in this context.

In sum, the presentations and the following lively discussion revealed substantial shared "matters of care" (Puig de la Bellacasa, 2011) between DOHaD and STS scholars. Speakers and participants from both fields shared concerns with how to build a more equitable world that provides better health for everyone. There were also some points for debate: for example, some discussants pointed out the danger of deterministic narratives that describe certain population groups as biologically damaged due to adverse experiences in early life, arguing that this could have eugenic implications. But overall, the webinar provided a strong example for how biomedical researchers and social scientists can engage in mutual and symmetric discussions on how to promote the social justice impact of health research. The next step, from my perspective, will be to further explore how to turn these discussions into actual interdisciplinary collaborations that for example include STS scholars into the design and implementation of DOHaD research studies.

You can find a recording of the webinar here: https://youtu.be/6xgOlVYeufo

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News from the Council

EASST ELECTION RESULTS

Dear Members of EASST,

I am delighted to inform you of the results of the election for EASST Council.

President: Maja Horst
Council Members: Nina Klimburg-Witjes, Sarah de Rijcke, Filip Vostal, Michela Cozza, and Brice Laurent
Student Representative: Sarah Rose Bieszczad

We will have a meeting in late March/early April to 'hand over' to the incoming Council members (who will join Richard Tutton and Annalisa Pelizza who will stay on Council for another 2 years).

Please join me in congratulating the successful candidates and thanking the other candidates for standing for election. I know I will be leaving Council in good hands.

All the best,
Ulrike Felt
President of EASST

Statement of the new President

Maja Horst

A new chapter begins in my life as I assume the role of president elect of EASST, becoming the new president when Ulrike Felt steps down in a year. I want to thank Ulrike for suggesting that I run for office – and also for her tireless work on behalf of EASST. She is a very tough act to follow. And I am grateful to all of you who put your trust in me. While there was no other candidate :), you have still chosen to vote for me - rather than against. Let me formulate a few words of what you can expect from my presidency.

Over the years STS has developed into a community of concerned academic citizens with a plethora of interesting tales to tell. Some of us have disciplinary homes within STS departments, educational programmes and groups. Many others are living our academic lives in diverse constellations, where we might feel like visitors and sometimes even intruders. EASST serves a crucial role as a home for us all and a place where we can talk together in our shared languages about issues that concern us. Such a disciplinary home away from home is important – now more than ever as changing career structures and evaluation practices might threaten to marginalize our scholarly activities.

As a professor at the Technical University of Denmark (DTU), I myself experience contradictory influences. On the one hand, a professorship is a rather secure academic position with a lot of autonomy and I cherish this privileged position. On the other hand, DTU does not provide a disciplinary programme or department in STS. What I and my colleagues have to do is to translate our knowledge and make it associable with DTU's core activities. I enjoy this process, but it also adds to the importance of having a scholarly home in STS elsewhere. In this regard, EASST is crucial.

I believe STS knowledge and methodologies can make crucial contributions to all of the most fundamental societal crises that we currently face. To do this, we need to make our voice heard outside of our own journals, conferences and academic circles. STS was founded on interdisciplinary research and most of us are very familiar with disciplinary boundary-spanning. However, I believe we can do more to be heard outside of academia and to have greater impact in policy formulation, public discussion, social and industrial innovation and general public engagement with science and technology. We need to raise awareness of our field and its knowledge contribution. Mostly because we have important contributions to make to social and public solution making. But also because we want our field to flourish and grow.

As president, I will continue the excellent work of the previous president and Council to 1) strengthen the public voices of STS in matters of concern, 2) create more opportunities and venues for us to support each other as a community (to learn, to engage and to have fun), and 3) to diversify further the membership of our society and facilitate inclusive networking. In particular, I would like to initiate a discussion of our meeting structure, as I believe that the time has come for us to consider having an annual meeting of EASST. Sure, it will be more work. However, I think we have all learned from this last year's experience that we need to gather physically to enjoy good company and stimulating discussions. We also have to provide a place for junior scholars to be integrated into the wider academic community. Finally, in the face of the climate crisis we might appreciate using trains instead of intercontinental flights to achieve our scholarly and collegial fix.

Another ambition of mine is to strengthen the collaboration with national and regional STS organisations in order to form a strong European network of STSers. Some countries in Europe have well-established associations and a strong trajectory of STS research. Other countries less so. Let us discuss how we can better support each other's activities.

EASST is a shared resource for all. I am eager to hear from members how you would like to see EASST develop and what kinds of support you need the most. After all, you are EASST. I look forward to working with all of you.

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EASST Review on the Web: http://easst.net/easst-review/

Past Editors: Ignacio Farías, 2015-2020; Ann Rudinow Sætnan, 2006 - 2014; Chunglin Kwa, 1991 - 2006; Arie Rip, 1982-1991; Georg Kamphausen, 1982.

The Association's journal was called the EASST Newsletter through 1994.