

Spatializations under the global condition: The spread of SARS-CoV-2/COVID-19

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As the current figures on infections with the novel coronavirus SARS-CoV-2 and the related disease COVID-19 (also: Coronavirus disease) illustrate, trans-national health threats are increasingly part of national and international debates about biosecurity, and the role that globalization plays with regard to the population's health. This novel type of virus, on the one hand, brings light to the downsides of globalization, meaning a decreased capability to counter the trans-national spread of health hazards across national borders given the prevalent intensity of global interactions that further human-to-human transmissions. On the other hand, SARS-CoV-2/COVID-19 has already triggered, and – allegedly – may potentially trigger new debates about how to manage health hazards under the global condition. Furthermore, it raises a number of questions that are of interest for the Collaborative Research Centre 1199 and its agenda to tackle the global condition and its spatial dimensions.

One interpretation of globalization is its description as time-space compression. It is “a concept developed by the Marxist geographer David Harvey to describe contemporary developments in capitalism which have led to the speeding up of the circulation of capital and with it a speeding up of social life in general while simultaneously reducing the significance of place” (Kivisto 2012: 1976). Catchy versions often reduce it to its outcome: a speeding up of transport by technical innovations that allow for enhancing the scope of locations that are in reach in a certain amount of time. Though what is in reach for a certain person still depends on where a person lives and if s/he has the necessary financial resources to travel from A to B, measured by the time that is needed a general ‘compression’ of space can be stated. To put it the other way around: Transport technology has enabled a remarkable acceleration of bodies, produces, money and information on the move, thus compressing metrical distances. This is challenged by COVID-19.

Specifically interesting are the spatial strategies involved in formulating a governmental response to the health hazard posed by SARS-CoV-2: In a world characterized by frequent, continued and fast transgressions of national boundaries through the mobility of goods, people, capital and knowledge, containing a health hazard within a defined territory seems to be as much crucial as futile. As travel bans exemplify, such strategies of disrupting the flow of possible vectors aims at disconnecting networks that would, otherwise, act as highways of contagion. This logic of disconnectivity especially targets gateways of globalizations, the global nodes of mobility in which e.g. air travel intersects and produces large amounts of interactions. Disconnecting these hubs, in a logic of containment (Holmberg et al. 2006), would mean to interrupt contagious flows and isolate spaces of illness and spaces of health.

Such strategies seem to be informed by a set of common logics which, themselves, have a dedicated spatial dimension that aims to shape, limit or selectively allow spatial patterns of human mobility. On the other hand, these logics are clearly connected to specific discursive patterns, aiming at establishing and reinforcing a governmental problematization and furthering certain governmental responses in relation to its specific technological, wo/manpower- and sovereignty-related capabilities. Provisionally, we identify the following set of such spatio-discursive logics a work:

a. Tracking a disease: stating truth and following the vector

Based on a swab of a patient, COVID-19 is diagnosed in laboratories according to defined criteria that transform a potential case into a confirmed case. Cases of COVID-19 cannot be identified clinically as the symptoms are rather ambiguous, often flu-like, and sometimes even faint. Truth is established in a way that is routinized; it is applied to viral events in general: National reference laboratories (“Konsiliarlabor”) publish criteria of determining a certain disease in accordance with the WHO in order to identify and conform cases beyond doubt (Robert-Koch-Institut 2020). This is typically a (tentatively validated) nucleic acid test (e.g. reverse transcriptase polymerase chain test (RT-PCR)) for which the German reference laboratory for viral diseases at the Charité (Berlin) also defines standards of application (ibid.). From a laboratory perspective, a clear identification of cases, their rising and falling according to centrally defined standards is key to a proper description of a disease activity. Local laboratories have to apply the centrally defined standards; in turn, they get support by the respective reference laboratory in all (technical) questions.

The epidemiological perspective—which differs from a laboratory perspective (e.g. Law/Mol 2011)—focuses on the spread of SARS-CoV-2. The virus itself is transmitted from humans to humans (“community transmission” (Robert-Koch-Institut 2020)). Therefore (patterns of) interaction and the necessities and options to interrupt them play a crucial role in epistemological considerations. Vector tracking and containment depend on the existing knowledge about the dissemination of SARS-CoV-2, i.e. a response to and the control of the movements of the pathogen is key to the epidemiological perspective. At the beginning of the current disease event, no case was documented that the pathogen of the Coronavirus disease survives outside its host body (e.g. on non-living surfaces), however, epidemiological expertise strongly and repetitively suggests careful hygiene. Meanwhile, a preprint article in the New England Journal of Medicines assumes a surface stability of 24 to 72 h (depending on the respective surface material), which would mean that a transmission via non-human/non-living objects has been established (van Doremalen et al. 2020).

When the current disease event gained momentum, tracking of the vector became a crucial task. This bears at least two difficulties: First, the vector itself is not easily trackable as it cannot be seen, scented, heard – it travels below the perceptual threshold of humans. Perceptible are only symptoms of a disease. The existence of a causative pathogen can only be established by a technical procedure, i.e. testing, in a laboratory. This costs (inter alia) time from the first “moment of suspicion” to the “moment of truth”. However, even more crucial is the timespan from the “moment of infection” to the “moment of suspicion” during which an undetected vector can spread through a community. People showing symptoms might be taken as the footprints of the vector, however, these footprints are ambiguous, doubtful and only late manifestations of its activity. Currently, some effort is put in developing measures to identify the hosts of the vector, i.e. people who are infected. Singapore, showing only a likewise moderate, linear, not exponential increase in Coronavirus cases, quarantined all persons under suspicion until a negative confirmation of the virus (Wong/Leo/Tan

2020) and set up an early, intense regime of control at all entrances to the city state (e.g. control of body temperature of all incoming passengers at the airports since January, 3rd (Büchenbacher/Kölling 2020)). Beyond this routine that was already carried out in former disease events (Dzudzek et al. 2020), COVID-19 seems to have triggered technical developments such as using data from mobile devices and patients' data to track positive cases and alert others in their vicinity (see Cha 2020).

Second, since the vector is difficult to track, the host becomes the object of tracking for those aiming at slowing down and limiting the vector's journey of contagion. This inevitably includes anticipating psychological responses to threats and to containment (see e.g. Reynolds et al. 2008) and also patterns of potential irrational behaviour (exemplified by stories of quarantined people fleeing quarantine, corona parties, etc.). The human factor, in this regard, implies a degree of unpredictability on an individual level, and with regard to established societal and political norms regarding the authority of state agencies over their citizens. A key concern here has been weighing the probability of transmissions and the potential disruption of health systems by large numbers of critically ill patients requiring ventilation against the potential disruption of social, political and economic activities that would put a strain on everyday life and governmental functionality. These factors exemplify how spatio-governmental responses need to navigate uncertainty and assess whether past responses would fit the current situation, or whether to find new solutions. Stating truth from an epidemiological point of view is, thus, a game based on (often incomplete) assumptions, calculations and probabilities.

b. Upscaling informational politics, trickling down measures

While the clinical responses to COVID-19 happen on the national and sub-national level as health policies are still primarily located within the nation states, many eyes have focused on the WHO and its proclamations, recommendations and the information it circulates. Specifically the interest in its declaration of a pandemic, or its hesitation to do so, was high as it would then encourage or discourage countries to expand invasive measures, and could trigger the provision of financial aids to developing countries to formulate governmental and clinical responses to the challenges of COVID-19. This is an example of a logic of upscaling: Certain responsibilities are attributed to higher levels of hierarchies which are seen to be capable of, e.g. influencing a large number of actors. However, doing this implies that the actions of, e.g. trans-national actors would trickle down to national actions in the form of concrete measures to counter specific diseases. An effective hierarchization of action, thus, is deemed to be crucial to many actors in order to successfully combat the emerging crisis. In Germany, the Robert Koch Institute is the most important actor to translate such international WHO-standards into the national context. Upscaling and trickling down are common spatial logics of global governance. However, what makes this example interesting are calls for more hierarchy, centralized decisions and instructions to combat a/the crisis.

c. Disconnecting by containing (potential) hosts and interrupting their social contacts

The WHO explicitly suggests spatial strategies of containment not as an effective measure in itself—as it won't be effective in the sense of preventing a vector from intrusion into a certain territory/population for a longer term—but “to gain time to initiate and implement effective preparedness measures” (<https://www.who.int/news-room/articles-detail/key-considerations-for-repatriation-and-quarantine-of-travellers-in-relation-to-the-outbreak-of-novel-coronavirus-2019-ncov>, 9.3.2020). Spatial strategies aiming at interrupting processes of circulation—especially those that involve the movement of people—are applied to decompress time. Though the blockage of a cruise ship might not completely prevent the spread of the virus, it might slow down the contagion process for a moment—a moment that might allow for meeting decisions, getting prepared and flattening peak infection numbers. Shutdown of public facilities such as schools and libraries point in the same direction: reducing the likeability to get infected by reducing social contacts. Containment of the hosts is one spatial strategy to react on an outbreak of a contagious disease; however, “it is critical to understand the time course and geographic spread of the outbreak and be able to design/plan effective containment strategies *before* it happens” (Guo 2007: 859, *emph. orig.*). As difficult as it is to (technically) predict how parts of a society could be contained in order to prevent a spread, it raises also question of legal justification and practical execution. Containment and social distancing aim at the same objective though with different strategies: Whereas the first is a perimeter strategy to protect a certain collective of bodies against intrusion, the latter cuts—or at least tries to minimize—connections between bodies. These strategies essentially aim at disrupting networks at two different sites: portals of globalization in order to decrease the number of transnational and trans-local mobility and exchange (e.g. airports, trade fairs, international conferences as hubs of globalization) and local concentrations of people and their everyday embeddings (e.g. sporting events, religious services, care and educational institutions). Yet they also involve reinforcing territorial boundaries to contain global entanglement.

d. Disseminating knowledge by territorialized representations

Discursively, the current case has seen, again, a rise of territorialized visualizations of epidemiological developments in the shape of maps, usually depicting either gross infection numbers within the territory of detection, gross death numbers with the territory where death happened or infection pathways between territories – as far as they had been successfully tracking. Representations of the disease provide another regime of truth: Advanced dynamic maps of COVID-19 such as the one provided by John Hopkins University (<https://coronavirus.jhu.edu/map.html>, 12.3.2020) show what has surfaced so far: numbers of conformed cases, recoveries, and deaths. This is literally fundamental work, as data have to be collected often manually from a number of sources offering data that differ in up-to-dateness, quality and reliability (for the composition of the JHU map see Dong/Du/Gardner 2020). The outcome depends not only on what is reported by different sources of which the reliability is more or less proven but also on how intense the testing of the respective population is—given the clandestine nature of the pathogen that might inhabit human bodies for quite a while

without even producing the faintest symptom if ever. Transparency is also hampered by the fact that the rate of tested cases differs remarkably between countries (<https://ourworldindata.org/covid-testing-10march>, 12.3.2020)—probably not least due to testing capacities, i.e. a shortage of test kits (McCoy 2020).

The JHU map shows data referring to two scales: for most of the countries it is the country level itself, whereas for the US and China data are provided on the state and the provincial scale, respectively. This is interestingly insofar as the map does not (and surely: cannot) show the spread of SARS-CoV-2/COVID-19 but the accumulation of cases in reference to politico-administrative units in charge of monitoring of and responding to biopolitical events (e.g. Holmberg et al. 2006)—which a pandemic event surely is. The spatial logic of dealing with the events, hence, differs remarkably from spatial logics of the vector that is not territorially bound but moves with its human host. Territorially representations of the virologic goings-on, however, are fundamental for assessments of the situation and its dynamic, especially with regard to decisions concerning the shutdown of kindergartens, schools, and universities, for restricting visits to retirement and special-care homes, bans on mass events and a cutback of rights to move and to assemble in the public. However necessary (and probably unavoidable) a territorial representation is, it also triggers a regime of truth that reproduces the national container as the prevalent methodological frame for judgements. It also strengthens the assumption that the territory and its population could be secured by politics of perimeter. Though the current debate focuses on strategies of containment to slow down the dynamic of the pandemic, bordering could turn out as only a weak instrument.

The current spread of SARS-CoV-2 shapes a situation in which authorities have to (re)act while knowledge about the virus and the adjacent disease is still limited (thus growing) and often— from a scientific point of view—insufficiently validated. However, decisions have to be met on the basis of sometimes only rough calculations on the spread and lethality of the disease as well as on often insufficient assumptions on human behaviour in reaction to certain measurements. Non-response is not an option. Space as a medium of social order—as we have tried to argue—informs and structures a critical virologic event which, however, in turn, will surely impact spatial orders in more than one respect. At least two debates cast their shadows already:

At the moment, the pandemic event elucidates global connections that are unseen undercurrents of the everyday “in normal times”. Global connectivity is made visible by the spread of the disease; COVID-19 has become the downside of globalization. “Standstill”, “shutdown”, “distancing” and other moments of dis-embedding bring global connectivity to the fore and turn it literally into global dependencies. Dependency, however, is always a state of non-control, of being without any alternative, of non-redundancy. These dependencies are not one-sided but multiple enmeshments that companies, traders and customers have to deal with not in an abstract way but in their concrete struggles to keep things running. The pandemic as an economic crisis (as it is expected) might lead to efforts of “bringing back” value chains which seems—given the capitalist logic of production—not practicable. However, it will foster debates on how to (re)gain control over economic processes in situations of global crises.

Framed by territorial representations of the COVID-19 dynamics, territorially organized attempts aim at protecting the population by (temporarily) interrupting networks and de-embed social relations. As a consequence, states as well as governments might now be judged by their “strength” or “weakness” in taking measures to protect their respective population. Moreover, re-nationalization via debates on the origin of the disease as well as via blaming “the other” for not having reacted early, strongly and uncompromisingly enough might be another outcome. Xenophobic attitudes have already been observed against people identified as of Asian origin which can be harnessed and further fuelled by right wing politics (Quent 2020; Rist 2020). Beyond these narrow reactions, the pandemic will probably raise a discourse on global biopolitical dependencies, i.e. an intensified debate that is based on the argument that—under the global condition—strong health care measures taken in one country will be essential for the protection of people in others countries. Scientists already call for intensifying transnational collaboration including early sharing of information and early action at global travel hubs (e.g. Peeri et al. 2020).

- BÜCHENBACHER, Katrin / KÖLLING, Martin (2020): Weshalb Chinas Nachbarstaaten die Corona-Epidemie besser beherrschen als viele europäische Länder. In: Neue Zürcher Zeitung vom 12.03.2020; https://www.nzz.ch/panorama/coronavirus-wie-asien-die-epidemie-in-den-griff-kriegte-nzz-id.1544974?utm_source=pocket-newtab [12.3.2020]
- CHA, Sangmi (2020): Mapping coronavirus. South Koreans turn to online tracking as cases surge. In: Reuters vom 24.02.2020; <https://www.reuters.com/article/us-china-health-southkorea-maps/mapping-coronavirus-south-koreans-turn-to-online-tracking-as-cases-surge-idUSKCN20I0HG> [12.3.2020]
- DONG, Ensheng / DU, Hongru / GARDNER, Lauren (2020): An interactive web-based dashboard to track COVID-19 in real time. In: The Lancet Infectious Diseases. DOI 10.1016/S1473-3099(20)30120-1
- DZUDZEK, Iris / EVERTS, Jonathan / FÜLLER, Henning / MIGGELBRINK, Judith (2020): Geographien der Gesundheit. In: Hans Gebhardt / Rüdiger Glaser / Ulrich Radtke / Paul Reuber / Andreas Vött (Hg.). Geographie. Physische Geographie und Humangeographie. 3. Auflage. Berlin: SpringerSpektrum, S. 1033-1044.
- GUO, Diansheng (2007): Visual analytics of spatial interaction patterns for pandemic decision support. In: International Journal of Geographical Information Science 21 (8), S. 859-877.
- HOLMBERG, Scott D. / LAYTON, Christine M. / GHNEIM, George S. / WAGENER, Diane K. (2006): State plans for containment of pandemic influenza. In: Emerging Infectious Diseases 12 (9), S. 1414-1417.
- KIVISTO, Peter (2012): Time-space compression. In: The Wiley-Blackwell Encyclopedia of Globalization.
- LAW, John / MOL, Annemarie (2011): Veterinary Realities. What is Foot and Mouth Disease? In: Sociologia Ruralis 51 (1), S. 1-16.
- MCCOY, Kevin (2020): Coronavirus test component is in short supply. In: US Today vom 11.03.2020; <https://eu.usatoday.com/story/news/2020/03/11/coronavirus-covid-19-response-hurt-by-shortage> [12.3.2020]
- PEERI, Noah C. / SHRESTHA, Nistha / RAHMAN, Md Siddikur / ZAKI, Rafdzah / TAN, Zhengqi / BIBI, Saana / BAGHBANZADEH, Mahdi / AGHAMOHAMMADI, Nasrin / ZHANG, Wenyi / HAQUE, Ubydul (2020): The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? In: International Journal of Epidemiology.
- QUENT, Matthias (2020): “Der ultimative Niedergangsbeschleuniger”. In: Sueddeutsche vom 15.03.2020; <https://www.zeit.de/politik/deutschland/2020-03/afd-rechtsradikale-coronavirus-verfassungsschutz-gefahr> [15.3.2020]
- REYNOLDS, D. L. / GARAY, J. R. / DEAMOND, S. L. / MORAN, M. K. / GOLD, W. / STYRA, R. (2008): Understanding, compliance and psychological impact of the SARS quarantine experience. In: Epidemiology and Infection 136 (7), S. 997-1007.

- RIST, Manfred (2020): «Meiden Sie am Flughafen den Terminal 3». Wie sich Singapurer von Festlandchinesen abgrenzen. In: Neue Zürcher Zeitung vom 19.02.2020, <https://www.nzz.ch/wirtschaft/vermeiden-sie-am-flughafen-terminal-3-ld.1541400> [15.3.2020]
- Robert-Koch-Institut (2020): Coronavirus Disease 2019 (COVID-19) (SARS-CoV-2); https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Risikogebiete.html [9.3.2020]
- VAN DOREMALEN, Neeltje / BUSHMAKER, Trenton / MORRIS, Dylan H. / HOLBROOK, Myndi G. / GAMBLE, Amandine / WILLIAMSON, Brandi N. / TAMIN, Azaibi / HARCOURT, Jennifer L. / THORNBURG, Natalie J. / GERBER, Susan I. / LLOYD-SMITH, James O. / WIT, Emmie de / MUNSTER, Vincent J. (2020): Aerosol and surface stability of HCoV-19 (SARS-CoV-2) compared to SARS-CoV-1. In: New England Journal of Medicine (preprint), S. 1-13.
- WONG, John E. L. / LEO, Yee Sin / TAN, Chorh Chuan (2020): COVID-19 in Singapore—Current Experience: Critical Global Issues That Require Attention and Action. In: JAMA, E1-E2, DOI 10.1001/jama.2020.2467