

COVID-19 Transformation

Towards a Knowledge-Sharing Platform

Ophira Gamliel



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About the authors

Ophira Gamliel is a lecturer in South Asian religions at the University of Glasgow. She published on event structures in natural language (colloquial Hebrew and Palestinian Arabic), and performance and ritual structures in Kerala temples and festivals. Her most recent publication is “A Linguistic Survey of the Malayalam Language in Its Own Terms” (Otto Harrassowitz, 2020).

Contact: Ophira.gamliel@glasgow.ac.uk

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About the Special Issue: Discourse Studies Essays on the Corona Crisis

Edited by Jens Maefße, David Adler & Elena Psyllakou

This special issue seeks to collect ideas, reflections and discussions on the multiple aspects of the ongoing corona crisis from a discourse analytical and discourse theoretical point of view. We publish short work-in-progress papers (approx. 1000–3000 words) that take empirical, ethical, psychoanalytical, economic, political and everyday aspects as starting point for developing discourse analytical research ideas and reflections which can be further developed into full research papers at a later time.

COVID-19 Transformation

Towards a Knowledge-Sharing Platform

Ophira Gamliel

The paper addresses the COVID-19 Pandemic as a complex and all-pervasive transformative event with far-reaching implications on the resilience of social-ecological systems to other shocks such as those anticipated by climate change and resource depletion. As transformations induced by disruptions affect the capacity to adapt to systemic shocks, the COVID-19 disruption offers a unique opportunity for qualifying and classifying structural changes in social-ecological systems. As the pandemic-induced transformations are further complicated by fast-spreading “infodemics”, the need for scholars and scientists to improve their communications and public outreach is pressing. However, organizing the scientific knowledge on the COVID-19 transformation is a challenging task, especially given the transdisciplinary approaches required. This paper, therefore, proposes a model for a knowledge-sharing platform for classifying and qualifying COVID-19 transformative changes. The paper approaches the organization of knowledge on transformative responses aligning with research on climate change adaptation and disaster risk reduction. It then proposes to identify functional categories of transformation adapting approaches to event structures, developed in theoretical linguistics.

Keywords: COVID-19, transformation, event structure, information ontology, climate change, infodemic

1. Introduction

The COVID-19 pandemic has caused disruption on a global scale, invoking uneven and uncoordinated responses on national, regional, and international levels (Djalante et al. 2020). Disruptions of similar scale and magnitude have been anticipated by researchers on disaster risk reduction (DRR) and on climate change adaptation (CCA), with a view of enhancing the resilience of social-ecological systems (see, for example, SFDRR 2015–2030; Kelman et al. 2016). The conceptualization of resilience as a bouncing-back mechanism was criticized for its applicability to complex and dynamic social-ecological systems, with the concepts of adaptation and transformation taking over, especially in the CCA discourse. Transformation, therefore, is a concept closely associated with resilience and adaptation of social-ecological systems regardless of their character or scale, from the smallest island nations to the whole planet (Davoudi 2012; Humbert and Joseph 2019; Pelling 2011; Yan and Galloway 2017; Folke 2016).

The unprecedented scale of the disruption caused by the COVID-19 pandemic presents an opportunity to explore the interdependency between disruption, response, and resilience of social-ecological systems – be they megacities or indigenous communities. Take for example the devastating impact of lockdowns and travel restrictions on the tourism industry. The response to the pandemic impacts on tourism ranges in scale from global institutions seeking to coordinate the mitigation on an international level (UNTWO 2020), to metropolitan centers offering virtual museum tours (Voigt 2020), to individuals and communities in low income countries transforming their local economic systems and over-dependence on international tourism (Firdaus 2020). At the same time, the disruptive impacts on tourism contribute to reducing the lev-

els of CO2 emissions and air pollution, thus signifying possible pathways for climate action (Ioannides and Gyimóthy 2020). The question is whether we can collate such cases of COVID-19 transformations and integrate different disciplinary approaches for comprehensive studies on the transformation of the tourism sector. Considering the transformative impact of the disruption on an overwhelming spectrum of human activities, the need for interdisciplinary research on the COVID-19 transformation cannot be overstated. That said, the task of transcending disciplinary silos to advance such research seems gigantic, especially against the backdrop of the diversity and unevenness of the responses. The initiative to develop a digital knowledge-sharing platform aims at addressing this challenge, first and foremost.

But there is another challenge involved in the COVID-19 transformation; the emergence of the COVID-19 biosocial hazard was soon followed by what the WHO director-general, Tedros Adhanom Ghebreyesus, called “Infodemic” (Hua and Shaw 2020, 1–2), with misinformation circulated in viral speed in both social and mainstream media. Metaphorically speaking, misinformation to scientific communication and to the DRR discourse is what the pathogen is to the human body – it is disruptive to information flows and harmful to the coordination of mitigation strategies. An online, open-source encyclopedia centering on the COVID-19 transformation can improve scientific communications as well as public outreach. Take for example the ongoing debate around the herd immunity strategy fraught with political agendas and misappropriation of the term (Medley 2020). It is only seven months after the declaration of the pandemic, that the WHO officially declared that the herd immunity strategy is unethical and unscientific (UN News 2020). By the time, the term had become associated with “models” of public policy and academic “think tanks” based on the circulation of misinformation, disinformation and even conspiracy theories (Aschwanden 2020; Lewis 2020). The herd immunity strategy and its promotion in scientific communication and public discourse are transformation case studies that need to be evaluated against their implications on resilience and disaster management from a comprehensive, transdisciplinary approach.

The proposed knowledge-sharing platform seeks to generate knowledge on transformation dynamics by compiling a typology of COVID-19 transformation cases. The initiative recognizes the need to develop a meta-language for approaching transformation dynamics in a comprehensive, transdisciplinary manner. It builds, on the one hand, on theoretical approaches to the conceptualization of transformation (Pelling et al. 2016; Godfrey-Wood and Naess 2016; Newell 2019). On the other hand, it draws upon existing knowledge on transformation, while distinguishing between descriptive approaches to transformative disruptions such as floods (Pelling 2011 and 2014) and prescriptive approaches to climate change adaptation (O'Brien

2012; Sachs et al. 2019). The distinction between prescriptive and descriptive approaches is best known from linguistics, and it is linguistic theory that is resorted to in conceptualizing the meta-language for the envisioned typology of the COVID-19 transformation. In what follows, I outline a preliminary attempt to formulate the guiding principles for a COVID-19 transformation typology as a first step towards a knowledge-sharing platform.

2. Envisioning the COVID-19 Transformation Platform

In envisioning the platform, the first tool that came into mind was a Wikipedia-like platform to be first shared between scholars and scientists working on different aspects of transformation and located in different parts of the world. Importantly, such a platform should avoid the pitfalls of marginalizing transformation knowledge accumulated over decades of facing ongoing and ever-increasing environmental challenges in the global South. For one, it is clear right from the outset that the North-South divide in terms of the “development” paradigm deepens as the pandemic unfolds (for the development paradigm and the North-South divide, see Hickel 2018). Secondly, and perhaps more importantly, the global knowledge economy leans heavily on global northern knowledge production (Morell 2019). A typology of COVID-19 transformation cases needs to take this into consideration.

Some of the challenges in designing the platform involve sociotechnical issues of managerial protocols and digital taxonomies. While such challenges require a software engineering model to start working around them, other, perhaps bigger challenges relate to what would constitute a valid description of transformation types and cases, with as little bias as possible and an agreed standard on what constitutes factual and neutral description (cf. Niederer and van Dijck 2010). This would require a consensus around agreed terms, concepts, and categories over-arching disciplinary approaches and terminologies.

As a starting point, we hinge on research on transformation as developed by human geographers (see below for more details), while approaching the COVID-19 transformation from the perspective of a linguist parsing event structures across languages (Vendler 1957; Rappaport-Hovav, Doron, and Sichel 2010, 1–18; Truswell 2019, 1–31). In other words, a typology of COVID-19 transformation cases is a typology of events with semantic-lexical categories such as, say, online teaching or mask-wearing, but also syntactic-functional categories such as deliberation, inclusion, and duration. The following sections address firstly the conceptualization of transformation (section 3) and, secondly, the event structuralist approach to the COVID-19 transformation (section 4). Thirdly, section 5 addresses the challenges involved in incorporating the categorization into a digital platform.

3. What is Transformation?

Transformation denotes an overwhelmingly wide range of social-ecological systemic changes in response to disruptions, which is a more radical and far-reaching systemic change than adaptation (Pelling et al. 2015). Mark Pelling, Karen O'Brien, and David Matyas (2015) conceptualize transformation in an abstract scheme of human activity spheres surrounding the adaptation activity space – potentially transformative – based on an analysis initially offered by Marx and further developed by David Harvey (Ibid., 118–119). Their scheme resonates with the idea of Dispositifs or Apparatuses, but to my understanding (limited as it may be), it covers a broader set of activity categories, where the human and the societal are intertwined with the physical realities of the environment (see Fig. 1).

This illustration, the authors state, is for approaching “[a] clearer understanding of the origins and breadth of movement of transformation [that] requires a framework that captures the diverse components of coevolving social-ecological systems” (Ibid., 118). The rectangles chart “activity spheres”, which are, effectively, analytic categories representing (somewhat roughly) major components of social-ecological systems. The dynamics within each “activity sphere” affect the others and, as an aggregate, they all act upon the central circle, the “Adaptation Activity Space”. In other words, the circle at the center constitutes an aggregate of transformative changes in a certain social-ecological system as affected by its components, namely the different albeit interrelated categories of “activity spheres”.

I rely on this abstract representation of the “Adaptation Activity Space” for the preliminary formulation of meta-language to relate to the COVID-19 transformation typology. I “translate”, so to speak, Pelling et al.’s “activity spheres” into broad disciplinary knowledge domains: Social and Political Science, Life and Exact Sciences, Engineering and Technology, Arts and Humanities, and Media and Management. These, of course, may be further expanded, fine-tuned, and altered to account for sub-fields or intersecting fields. There is, however, a smaller set of

functional categories that are left unaccounted for in the schematic representation of the “Adaptation Activity Space”. These are categories of transformation event properties that determine connections and interlinkages in-between the “human activity spheres” and in relation to the central “Adaptation Activity Space”. These properties are deliberation or unintentionality, inclusion or exclusion, temporal qualities (incremental, continuous, or sudden), directional qualities of transformative agencies such as bottom-up or top-down, and of movement of progression toward or regression away from civilizational achievements that can be subsumed under human development indices (HDI) and/or the sustainable development goals (SDG). For generating knowledge on an unfolding process of transformation identifying such functional categories is, potentially, a step forward to a concrete (rather than abstract) and descriptive (rather than prescriptive) analytic framework.

4. How to identify functional categories of transformation?

Several functional properties of transformation and adaptation have been identified by human geographers, even though, so far, they were not explicitly and systematically considered as such (to the best of my knowledge at least). The work of Karen O'Brien (2012, 670–671) is an excellent starting point; she presents the most systematic identification of such functional categories, even though she does not term them as such. The first functional category O'Brien describes is ‘deliberate’ (also ‘purposive’ or ‘directional’), which she contrasts with ‘unintentional’. In the context of qualifying COVID-19 transformation events, different types of lockdowns can be qualified accordingly. A lockdown response due to government-imposed restrictions is deliberate, whereas people staying at home fearing infections is unintentional (cf. Goolsbee and Syverson 2020). The second category identified by O'Brien is ‘bottom-up’ as opposed to ‘top-down’, which she complements with ‘outside-in’ and ‘inside-out’. The distinction between bottom-up and top-down responses relates to the organizational direction of the response, roughly defined as community-led as opposed to government-led responses.

The third category identified by O'Brien is ‘desirable’, which she admits being more difficult to determine and may be conflictual. It seems to me that looking into the consensus attained by UN researchers and officials and formulated as the 17 Sustainable Development Goals (Fig. 2) is a good standard in determining what is desirable and what is less so. Thus, Sachs et al. (2019) outline transformations targeting the Sustainable Development Goals (SDGs): “Each Transformation describes a major change in the organization of societal, political and economic activities that

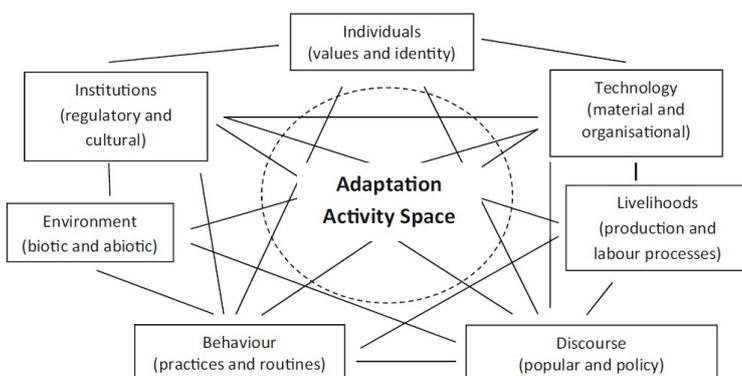


Figure 1: The Adaptation Activity Space (Pelling, O'Brien, and Matyas 2016)

SUSTAINABLE DEVELOPMENT GOALS



Figure 2: The Sustainable Development Goals (UN website)



Figure 3: The Six Transformations (Sachs et al. 2019).

transforms resource use, institutions, technologies and social relations to achieve key SDG outcomes” (Fig. 3). Admittedly, there is growing criticism of the SDGs, especially in the context of their overall reliance on the growth and development paradigms. For example, Ben Robra and Peisi Heikkurinen (2019) argue “that sustainable development cannot be based on further economic growth”. Nevertheless, the SDGs are based on a global consensus of what is currently perceived as a desirable transformation.

In categorical terms, I would refer to those changes that target at least one SDG as progressive, and to those that do not or, alternatively, that regress away from the SDGs, as regressive. For example, the personification of the Coronavirus as a demon is a COVID-19 transformation type that can inform either religious responses against public health advice (Sabarwal 2020), or public health campaign with progressive functions (Agarwal 2020). Unlike the *descriptive* “Adaptation Activity Space” model (Fig. 1), the “Six Transformations” model is *prescriptive*, suggesting that a transformation attaining no SDGs has, effectively, undesirable implications (cf. Godfrey-Wood and Naess 2016). Thus, this model is helpful in identifying desirable versus undesirable transformative functions that can be termed

‘progressive’ (i. e. targeting at least one of the SDGs) or regressive (going against at least one SDG goal or targeting none). A critical evaluation of the COVID-19 transformation(s) should, therefore, address the ‘desirability’ function based on the SDGs (Fig. 2).

Indeed, the COVID-19 transformation exposes unprecedented levels of unpreparedness along with a sudden spike in levels and types of inequalities. Exposure to hunger, homelessness, poverty, exploitation, and oppression is fast increasing for a growing number of people around the world, risking the limited achievements claimed by UN agencies and governments in developing and developed countries alike. Still, some governments, organizations, and communities respond in a more equitable and inclusive way than others. Developing workable standards for functional classification in relation to the SDGs is, naturally, germane to creating a knowledge-sharing platform devoted to the COVID-19 transformation(s).

In addition to these, inclusive as opposed to exclusive functions of transformation events are readily identifiable. For example, the massive digital transformation forced on education systems can be considered inclusive in the sense of providing a safe, physically distanced environment for teachers and learners. At the same time, it potentially excludes communities and individuals with unreliable or non-existent internet connection and the hardware required for online learning and teaching.

Lastly, there are temporal qualities of transformative changes; some are short-lived, others are continuous, some are abrupt, others are gradual. In existing studies, the temporal qualities are noted in passing to differentiate between adaptation and transformation; adaptation is associated with incremental change, while transformation is associated with a radical, long-lasting change of state. I would qualify each transformation event for its own tem-

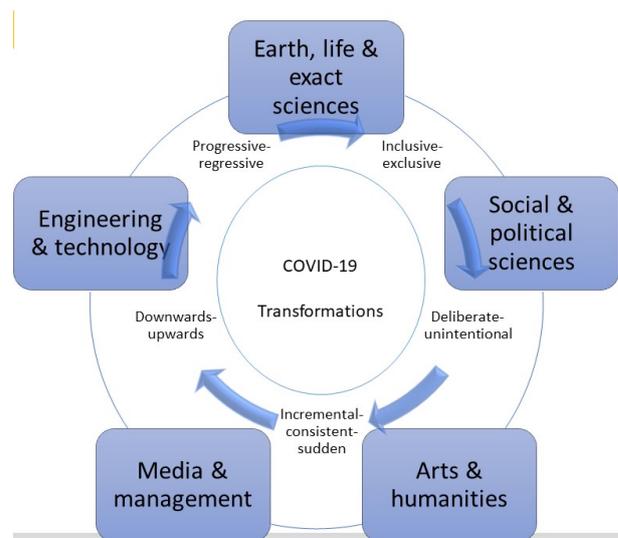


Figure 4: Collating the Adaptation Activity Space and the Six Transformations.

poral qualities. For example, virtual museum tours presented online are consistent throughout the crisis (perhaps even beyond it), while community kitchens are incremental support to the needy in times of crisis. There may be other temporal properties to be identified; in linguistic approaches to event structures, research on the temporal properties of events (aspects) is highly developed and may prove useful in looking further into the matter. For example, the property of suddenness can be attributed to the abrupt and strict lockdown imposed on India within four hours (Bhattacharya 2020).

For sharing knowledge on the COVID-19 transformation across disciplines and against the rising tide of “infodemics”, a typology of transformation events can be schematized as shown in Figure 4, collating the descriptive and prescriptive models of the Adaptation Activity Space, the Six Transformations, and the proposed functional categories that shape the linkages, interconnections, and intersections.

5. The Digital Platform

The suggested typology and categorization of the COVID-19 transformation are presented here as a first step towards developing a digital tool for researchers, journalists, and practitioners interested in improving scientific communications and public outreach in the context of transformative crises such as the COVID-19. The abstract model presented above needs to be translated into taxonomies, microformats, information ontologies, and meta-data modeling to be developed in collaboration with computer scientists and software engineers. Based on a limited, and low-budgeted collaborative research work, some initial ideas for developing tools and modeling data were identified for incorporating them in future research and experimentation.

At this stage, the benefits of an open-source, online encyclopedia for the COVID-19 transformation can be stated as follows. Firstly, it foregrounds the classification and qualification of transformation events beyond and across specific case studies. Secondly, it enables an overview of variations, similarities, and differences in transformation types based on the description of cases. Thirdly, and perhaps most importantly, it presents transformation beyond disciplinary silos as an object of investigation readily accessible to scholars and practitioners from a wide range of disciplines.

The proposed platform is expected to diversify and expand the field of transformation studies, with contributions from the “soft sciences” that are currently under-represented. It is also expected to open up new channels of scientific communication between the global South – better experienced in disaster-induced transformations – and the global North. Lastly, in the context of disinformation and “infodemics”, engaging in a proactive manner in the production

of knowledge might offer new pathways for scientific communication and for dealing with “alternative facts”.

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References

- Agarwal, Soumya (2020). “Kerala classical dancer personifies coronavirus as demon in dance performance on how to fight COVID-19”, *Times of India*, 2/4/2020. <https://www.timesnownews.com/the-buzz/article/kerala-classical-dancer-methil-devika-personifies-coronavirus-as-demon-in-dance-performance-on-how-to-fight-covid/573097> [last accessed 2/11/2020]
- Aschwanden, Christie (2020). “The false promise of herd immunity for COVID-19”, *Nature*, News Feature 21/10/2020. <https://www.nature.com/articles/d41586-020-02948-4> [last accessed 24/10/2020]
- Bhattacharyya, Indradeep (2020). “Why India’s Lockdown Has Been a Spectacular Failure”, *The Wire*, 12/6/2020. <https://thewire.in/government/india-covid-19-lockdown-failure> [last accessed 30/10/2020]
- Davoudi, Simin (2012). “Resilience: A Bridging Concept or a Dead End?”, *Planning Theory & Practice*, 13(2): 299–307.
- Dahir, Abdi Latif (2020). “‘Instead of Coronavirus, the Hunger Will Kill Us.’ A Global Food Crisis Looms”, *New York Times* 22/4/2020. <https://www.nytimes.com/2020/04/22/world/africa/coronavirus-hunger-crisis.html> [last accessed 25/10/2020]
- Djalante, Riyanti, Rajib Shaw and Andrew DeWit (2020). “Building resilience against biological hazards and pandemics: COVID-19 and its implications for the Sendai Framework”, *Progress in Disaster Science*, 6: 100080.
- Firdaus, Fabriana (2020). “‘Bali is not only about tourism’: COVID-19 prompts rethink for island’s residents”, *Guardian*, 1/8/2020. (<https://www.theguardian.com/global-development/2020/aug/01/bali-is-not-only-about-tourism-COVID-19-prompts-rethink-for-islands-residents>). [last accessed 24/10/2020]
- Folke, Carl (2016). “Resilience (Republished)”, *Ecology and Society*, 21(4): 44.
- Godfrey-Wood, Rachel and Otto Lars Naess (2016). “Adapting to Climate Change: Transforming Development?”, *IDS Bulletin* 47, ‘Development Studies – Past, Present and Future’: 49–62.
- Goolsbee, Austan and Chad Syverson (2020). “Fear, Lockdown, and Diversion: Comparing Drivers of Pandemic Economic Decline 2020”, *University of Chicago, Becker Friedman Institute for Economics Working Paper*, No. 2020-80.
- Hickel, Jason (2018). *The Divide: A Brief Guide to Global Inequality and its Solutions*. London: Random House.
- Hribernik, Miha, Sofia Nazalya, and Joseph Parkes (2020). “South Asia at highest risk of civil unrest as food insecurity bites”, *Verisk Maplecroft*, 26/5/2020. https://www.maplecroft.com/insights/analysis/south-asia-at-highest-risk-of-civil-unrest-as-food-insecurity-bites/?utm_campaign=Corporate+Social+Third+Party&utm_medium=bitly&utm_source=Facebook [last accessed 25/10/2020]
- Hua, Jinling and Rajib Shaw (2020). “Corona Virus (COVID-19) “Infodemic” and Emerging Issues through a Data Lens: The Case of China”, *International Journal of Environmental Research and Public Health*, 17: 2309.
- Humbert, Clemence and Jonathan Joseph (2019). “Introduction: The Politics of Resilience: Problematizing Current Approaches”, *Resilience*, 7(3): 215–223.
- Ioannides, Dimitri and Szilvia Gyimóthy (2020). “The COVID-19 Crisis as an Opportunity for Escaping the Unsustainable Global Tourism Path”, *Tourism Geographies*, 22 (3): 624–632.
- Kelman, I., J. C. Gaillard, James Lewis, and Jessica Mercer (2016). “Learning from the History of Disaster Vulnerability and Resilience Research and Practice for Climate Change”, *Nat Hazards*, 82: 129–143.
- Kotz, David M. (2017). “Social Structure of Accumulation Theory, Marxist Theory, and System Transformation”, *Review of Radical Political Economics*, 49(4): 534–542.
- Lewis, Tanya (2020). “Nine COVID-19 Myths that Just Won’t Go Away”, *Scientific American*, 18/9/2020. <https://www.scientificamerican.com/article/nine-COVID-19-myths-that-just-wont-go-away/> [last accessed 24/10/2020]
- Medley, Graham F. (2020). “Herd Immunity Confusion”, *The Lancet Online First Correspondence*, 22/10/2020. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(20\)32167-X/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)32167-X/fulltext) [last accessed 24/10/2020]
- Morell, Robert (2019). “The global South is changing how knowledge is made, shared and used”, *The Conversation*, 25/3/2019. <https://theconversation.com/the-global-south-is-changing-how-knowledge-is-made-shared-and-used-113943> [last accessed 25/10/2020]
- Newell, Peter (2019). “Trasformismo or Transformation? The Global Political Economy of Energy Transitions”, *Review of International Political Economy*, 26(1): 25–48.
- Niederer, Sabine and José van Dijck (2010). “Wisdom of the Crowd or Technicity of Content? Wikipedia as a Sociotechnical System”, *New Media and Society*, 12(8): 1368-1387.
- O’Brien, Karen. 2012. “Global environmental change II: From adaptation to deliberate transformation”, *Progress in Human Geography*, 36(5): 667–676.
- Pelling, Mark (2011). *Adaptation to Climate Change: From Resilience to Transformation*, London: Routledge.
- . (2014). “Transformation: A Renewed Window on Development Responsibility in Risk Management”, *Journal of Extreme Events*, 1(1): 1402003.

- Pelling, Mark, Karen O'Brien, and David Matyas (2016). "Adaptation and Transformation", *Climate Change*, 133: 113–127.
- Rappaport-Hovav, Malka, Edit Doron, and Ivy Sichel (2010). *Lexical Semantics, Syntax, and Event Structure*, Oxford: OUP.
- Robra, Ben and Peisi Heikkurinen (2019). "Degrowth and the Sustainable Development Goals", in Leal Filho W., Azul A., Brandli L., Özuyar P., Wall T. (eds) *Decent Work and Economic Growth. Encyclopedia of the UN Sustainable Development Goals*, Springer: Cham.
- Sabarwal, Harshit (2020). "Covid 'demon' can only be killed by divine forces: Priest body urges PM to reopen temples", *Hindustan Times*, 16/5/2020. <https://www.hindustantimes.com/india-news/covid-demon-can-only-be-killed-by-divine-forces-priest-body-urges-pm-to-reopen-temples/story-sikwTUhOEZDwx9W4MG8D90.html> [last accessed 29/10/2020]
- Sachs, Jeffrey D., Guido Schmidt-Traub, Mariana Mazzucato, Dirk Messner, Nebojsa Nakicenovic, and Johan Rockström (2019). "Six Transformations to Achieve the Sustainable Development Goals", *Nature Sustainability* 2: 805–814.
- SFDRR (2015). *Sendai Framework for Disaster Risk Reduction 2015 – 2030*. <https://www.undrr.org/about-undrr/history#60s> [last accessed 24/10/2020]
- Truswell, Robert (ed) (2019). *The Oxford Handbook of Event Structure*, Oxford: OUP.
- UN News (2020). "Herd immunity, an 'unethical' COVID-19 strategy, Tedros warns policymakers", *UN News*, 12/10/2020. <https://news.un.org/en/story/2020/10/1075232> [last accessed 24/10/2020]
- UNWTO (2020). "UN Policy Brief on COVID-19 and Transforming Tourism", 28/8/2020. <https://www.unwto.org/tourism-COVID-19> [last accessed 2/11/2020]
- Vendler, Zeno (1957). "Verbs and Times", *The Philosophical Review*, 66 (2): 143–160.
- Voigt, Kayla (2020). "How Museums Went Digital in Response to COVID-19", *Lendio Blog*, 30/9/2020. <https://www.lendio.com/blog/museums-went-digital-COVID-19/> [last accessed 2/11/2020]
- WFP (2020). "New report shows hunger is due to soar as coronavirus obliterates lives and livelihoods", *United Nations World Food Programme*, 17/7/2020. <https://www.wfp.org/news/new-report-shows-hunger-due-soar-coronavirus-obliterates-lives-and-livelihoods> [last accessed 25/10/2020]
- Yan, Wanglin and Will Galloway (2017). "Understanding Change Through the Lens of Resilience", in Wanglin Yan and Will Galloway (eds), *Rethinking Resilience, Adaptation and Transformation in a Time of Change*, Cham: Springer, 3–20.