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Emergent self-mediating classes in the digital semiosphere

Covid-19 conspiracies and the climate justice movement

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Abstract

In this article, we advocate for media studies to adopt a systematic evolutionary-complexity model, in order to link the study of human culture and knowledge practices to the biosphere and geosphere, arguing that such global phenomena require a new kind of cultural science. For this purpose, we extend Juri Lotman's model of the semiosphere to the "digital semiosphere", superseding inherited adversarial models in both mainstream media and media studies. We contrast the mediation of Covid-19 with that of the climate crisis, using Lotman's model to propose that, in the digital semiosphere, the global emergence of girl-led climate activism and far-right Covid-19 conspiracy groups indicates how new social classes are organising around the means of their own mediation. We discuss ways to study and forecast such emergent processes using the means of cultural data analytics and related approaches.

Keywords: cultural semiotics, cultural science, climate activism, conspiracy theories, cultural forecasting

Introduction

Extending Juri Lotman's semiosphere model (1990, 2005, 2009) to the "digital semiosphere" (Hartley et al., 2020) enables us to situate the evolution of human culture as interoperable with other planetary spheres – the biosphere, geosphere, and "technosphere" (Herrmann-Pillath, 2018) – in order to examine inter-causal relations among these global systems. A systems approach enables the analytic gaze to scale systematically from individual media texts (micro level), to national or regional cultural industry processes and institutions (meso level), to contemporary global media networks (macro level). Modelling digital media in this

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way points to the utility of the semiosphere concept, and of Lotman's analytic apparatus, to help us interpret how the contemporary digital semiosphere affects those other planetary spheres, and vice versa.

Clearly such an agenda goes beyond the scope of one article; however, we want to emphasise the importance of the global aspect of semiosphere studies at the outset. It is part of our larger argument that current crises – including both the Covid-19 pandemic and anthropogenic climate-change – can only be understood at a global scale. Further, we observe that the current era is marked by the expansion of digital media – including both corporately produced entertainment and news and personally generated social media – to a global scale. Digital-global mediation goes beyond modern political boundaries (nations) and cultural-demographic ones (gender, race, class, etc.). It enables any ordinary user with access to mobile devices to identify themselves with the species as a whole and to share responsibility for what happens at the population scale. This applies not only to relations with one another – where examples include Black Lives Matter, the sexual abuse of women and children, solidarity with migrants, and civic discipline in relation to Covid-19 practices – but also to the planet as a whole, where examples include climate justice, environmental destruction, waste, pollution, and the contested shift to renewable, regenerative, and circular economics. Here is where the semiosphere (meaning, conflict) intersects with the biosphere (contagion, extinction) and both the atmosphere and geosphere (global warming, regenerative sustainability).

Because these phenomena are global and knowledge of them is digital, it seems vital to situate media analysis in the macro (system-level) context in order to understand how sense-making works at both meso (institutional) and micro (textual) levels. To do this, we must extend the semiosphere concept from space (sphere) to time (duration and frequency) – from synchronic to diachronic. As Lotman (2005) points out, cultural texts do not suffer extinction as biological species do, but are available for reuse by subsequent cultures. The extension of semiotic texts, media forms, and cultural identities from one place to another, and their persistence from one era to another, is a "panchronic" feature of culture, strongly influencing the cultural functions of we-group organisation, knowledge explanation, and story regulation. Thus, in this article, we proceed from a general consideration of the semiosphere concept in place and time to an analysis of group-making mediation and civic activism, using the Covid-19 and climate crises to demonstrate the primacy of the semiosphere (culture) in dealing with both biosphere (public health, e.g., viruses) and geosphere (private enterprise, e.g., fossil fuels), where we-groups face cultural division and political conflict.

Mediation of knowledge and collective group action at a global scale exposes a paradox; it lies in the difference between the mediation of the climate crisis and that of Covid-19. Mediated knowledge of climate change and the climate emergency went viral in 2018–2019 via activism and social media, using high-level champions like Greta Thunberg and Luisa Neubauer, who called on the global

community to "unite behind the science" (Stockholm Environment Institute, 2019). When the Covid-19 pandemic supervened in 2020, the hope among activists was that the "double crisis" could lead to "multi-solutions":

> The pandemic's most important climate impact could come from people applying the lessons the coronavirus teaches about the urgency of swift action. When the outbreak finally ends, "if we can tell that story of what we just went through and help people understand that this is an accelerated version of another story we're going through that has the same plot structure but a different timeline, that could be transformative," [Elizabeth Sawin] said. (Gardiner, 2020: paras. 27–28)

But the Covid-19 crisis overwhelmed the mainstream media, not multi-solving with the climate crisis but reducing public attention given to the latter, while spawning a multitude of conspiracy theories. Here's the paradox: How is it that "swift action" and society-wide *compliance* with Covid-19 regulations could be understood to have achieved better climate outcomes – reduced emissions and changed social habits, at least in the short term (Le Quéré et al., 2020) – than climate-justice *activism*, which was at least partly submerged under pandemic coverage despite being the dominant global media event of the previous year?

The answer, we suggest, is a matter of culture, knowledge, and semiosis, not of economics or even politics. Our understanding of culture is hereby neither a neoliberal equation with the entertainment industry nor a romantic vision of national traditions and everyday practices. Instead, in a Lotmanian perspective (Lotman, 1970), culture is a semiotic mechanism with the function of generating and storing information to create specific we-groups. We call such groups "demes", or inter-knowing subpopulations (Hartley & Potts, 2014; Hartley et al., 2020). The semiotic mechanism applies to artistic and non-artistic information, everyday chats, regulatory texts, and scientific writing; it pertains to the ways we attribute both contested values and exchange values to certain things in the world and how we agree upon rules for societal living and adaptation to change. Thus, culture refers to humanity's ways of making sense of and organising the surrounding world (semiosphere) and themselves as cultural communities (demes). So, what's going on, and why are the media so central to it?

We start from the observation that thinking globally is not as easy as it sounds, at least at population scale. Humans have emerged into the world of global-digital communication with the group-making tools of scattered, sectional, and competitive self-interest, which drive micro-scale personal and textual expression, meso-scale national and corporate institutions, and macro or system communications platforms, "the whole stack" of computation, and platform capitalism (Bratton, 2016). Disciplinary rules and discourses are not exempt, because training reproduces ideological partisanship and cultural parochialism. The critical attention of media studies has long been focused on contending we- and they-groups, not only as the object of research, but also as the purpose of

analysis. To the extent that both climate-crisis and Covid-19 are reported and understood in these adversarial terms, that's business as usual for news-media representation. The need to study and find ways to develop collective knowledge and action at global and population scale loses out to partisanship and "staged conflict" (Hartley et al., 2020).

Thus far, cultural and media studies have baulked at integrating with the bio-, geo-, and climate sciences, with exceptions like media archaeology and new materialist studies of culture (Parikka, 2015), and of course, the extensive but largely autonomous field of biosemiotics (Barbieri, 2007). The result is that our field is not widely recognised as a science at all. Now it is urgent to develop what might be called the semiosciences (Kull, 2009), in dialogue with other Earth-system sciences. But if there is to be a science of culture – one that is recognised by other sciences, especially in a datafied and digital world – it must develop its own data-based models and consider the possibility of making cultural forecasts based on such data. How should these differ from the predictions that emanate from individualist-behavioural sciences?

Digital semiosphere

We argue that a suitable groundwork for such a model is already available: Juri Lotman's (1990) sophisticated and prescient model of culture and especially the concept of the semiosphere. Lotman co-founded the Tartu-Moscow cultural semiotic school in the 1960s. Their work combined Soviet structural linguistics and literary science with an interest in machine translation and cybernetics, widening the sphere of research from arts and texts to the signifying functions of complex systems more generally. They developed a topological metalanguage to describe texts and cultural systems as structured spaces. They demonstrated that semiosis needs an environment in which to emerge, that is, "a space of culture", which Lotman termed the semiosphere.

This brought along the paradoxical realisation that the elementary unit of signification is not a single sign or even a single language, but the space of semiosis *as a whole*. There can be no sign without another sign, no text without another text, no culture without another culture. In his influential paper "On the Semiosphere", Lotman (2005) illustrates this paradoxical claim with a striking thought experiment: If you cut up a calf you will get steaks; but if you stick individual steaks together you won't get a calf. That is, the living organism creates the circumstances for the existence of individual elements, while a mechanical sum of bits and pieces does not result in a living organism. Hence, the existence of a semiotic universe makes the single signifying act possible.

The idea that culture cannot be understood in terms of linear aggregation of atomic units, but only in terms of dialogue, is also present in Lotman's statements about languages, which are irreducibly relational. He wrote that "the situation of a multiplicity of languages is original and primary", because there never was

a single language; and "more than one language (a minimum of two) is required in order to reflect a given reality" (Lotman, 2009: 2). That is, one language alone cannot signify *the* truth. Adequacy of explanation to reality is a long-run, dialogic, cumulative, comparative, and occasionally explosive achievement. A perfect image of reality cannot be precipitated through any one language, only glimpsed through numerous different but overlapping semiospheric approximations. Lotman (1990) supplies the example of the Italian, French, and Russian semiospheres during the emergence of modernity over several centuries. Each of these language cultures acted in turn as an intense transmitter of new ideas, and at other times as a receiver from others. No one culture could claim a monopoly on change, just as no one language can claim a monopoly on reality, not even mathematics – humans cannot live by data alone.

Lotman's (1990, 2005) approach to semiosis and the semiosphere is irreducibly translational between "at least two" incommensurable systems. Incommensurability here refers to the impossibility of exact translations between two systems of communication. The struggles involved in machine-translating something as simple as a newspaper article from one natural language to another are well known. That situation only gets more complex with translations from verbal systems to visual; visual systems to aural or plastic; and so on. Scientific "method" and "method" acting cannot be reduced to each other, but both offer access to truths.

Nevertheless, these uncertain border zones between languages, codes, and cultures are where we should look for *new* information and meanings. Any attempt at translation and dialogue between systems that are in principle untranslatable (or only partially translatable) are potentially creative and can stimulate innovation (Lotman, 1990). Translation presumes boundaries between cultural subsystems. In other words, every subsystem is first and foremost an enclosed space that is bounded off from what looks extra-semiotic from the insider's perspective. So, inside "our" sphere, we have "our" language and information; outside of it there is relatively meaningless and information-less noise. Of course, that noise might appear meaningful and informative from the perspective of another subsystem knowing the code and speaking the language (Mansell, 2017).

But here, too, we encounter conflict as well as communication: the knowledge that "our" seemingly adequate accounts of reality may be flatly contradicted by "their" version is as much a pretext for mutual suspicion, duplicity, and conflict as for mutual enlightenment and innovation. Boundaries between semiotic subsystems therefore function simultaneously as barriers to and as agents of mediation – "bilingual" and "translatable" filters (Lotman, 2005: 208). From within any one sphere, outside influences are translated and adapted to the needs of the home system. Some examples can include loanwords, ancient visual motifs featured in the latest fashion show, as well as television news broadcasts adopting the visual protocols of a web interface, for example, multiple frames mediating multimodal content.

Besides the external boundary, the internal space of the semiosphere is asymmetrically divided between the core – which includes established, dominant, and therefore stable or rule-bound systems – and the periphery, which is semiotically a much more uncertain and active area. The periphery of any semiosphere is where it encounters others, forming a zone where two systems may infiltrate, invade, capture, or trade each other's semiosis and attendant mediation technologies. Gravitational forces can be traced between the two, for instance, when free-to-air broadcasting was challenged by YouTube and Netflix, leading to their subsequent dominance over the sphere of audiovisual content consumption. In relation to social groups, each deme is both bounded by others and internally divided by subsystems, where the personal identity of individuals is partly determined by their use of a particular repertoire of language, codes, modes of address, and platforms. A particular repertoire may betray users' age-group, gender, ethnicity, class, nationality, and so on, thereby partly determining their relations with other demic groups.

Thus, the global-digital era – in both broadcast and social-media forms – throws different semiospheres and demes together in unprecedented plenitude. Each deme draws on its own embedded strata of codes and content that may precede modernity, even as it faces the uncertainty of new ideas, technologies, and neighbours. Demes are internally multifarious, just as they are externally incommensurable. Successful communication requires user literacy across semiospheres and subsystems, demes, and groups. Culture, then, is a self-regulating process of dialogue among the texts, languages, users, and communities that these users constitute in the very act of semiosis.

Despite the dominant spatial metalanguage of Lotman's model, the semiosphere is panchronic – simultaneously synchronic and diachronic, existing in both space and time. The mechanism of memory is a core attribute that regulates semiospheric dynamics and adaptation over time. Any sign or sign system must be preceded by another sign system. In sum, the semiosphere model is systems-based, dynamic, interactive, multi-level and evolutionary. Simultaneously, one can account for the immense internal heterogeneity of semiospheres for each culture and conceptualise the semiosphere as a bounded system, outside of which semiosis cannot exist.

The axiom that communication requires the interaction of at least two systems applies well beyond the bounds of human language and culture, such that semiosis may turn out to be the distinguishing feature of life, as has been suggested in biosemiotics (Emmeche & Kull, 2011). This discovery, in turn, requires the analyst to construe relations of identity, power, meaning, and usage across incommensurate and mutually untranslatable systems – languages, species, and ecosystems – as well as across different forms of text or social organisation. However, human cultures rarely take a global or planetary view of humanity's interests or dangers as a whole, or in comparison with those of the neighbouring biosphere and geosphere. Attempts to globalise or universalise language, values, technology, trade, education, media, and so on, are typically cast as a competi-

tive contest for global supremacy, where one system seeks to prevail over others (e.g., Ronen et al., 2014). In the nineteenth century, the players were competing European imperialisms; in the twentieth, competing economic and political creeds (East, West); and in the twenty-first, competing trade blocs backed by strategic alliances (US, China, EU). Global governance has proven incredibly difficult to institutionalise and operationalise in these circumstances. Even hard-won treaty-based supranational initiatives – such as the United Nations and agencies like the World Health Organisation or Intergovernmental Panel on Climate Change (IPCC) – are constantly challenged.

Without a concerted global and collaborative framework, the environmental impact of advancing technological progress can go uncontested, including in media studies, which has a long history of neglecting that problem (Maxwell & Miller, 2012). Over the extreme long run, the cumulative global impact of successive human revolutions in agriculture, industry, and energy and resources on the climate, non-human life, and the Earth-system, is accelerating. Yet, it is incalculable – it is certainly not calculated by those who produce it. Human activity may result in global warming, extinctions, pollution, and waste, but these are excluded as "exogenous" from economic models and corporate accounts. Mediation, too, is habitually seen as immaterial, and is treated as if the production and circulation of textuality at the industrial scale leaves no material trace. This outsourcing of consequences, where the producer or publisher bears no responsibility for consumption, makes pollution and environmental damage the responsibility of consumers, who use the products of industry to produce the fatbergs, plastic oceans, and toxic landfills that now threaten to consume them. Retail shoppers pay for packaging but not for regeneration or even recycling of the goods they buy. Global warming threatens further loss of biodiversity and a new wave of extinctions, perhaps including our own. That outcome may feel far distant from the main sites of affluent consumption, as if such an outcome takes place in a non-semiotic "external sphere" – the unreachable outside of the semiosphere (Lotman, 2005).

The Covid-19 crisis, however, has made it clear that the vulnerabilities of the species are interconnected. Viruses aren't choosy about their hosts. Human action has consequences affecting the biosphere, geosphere, and hence their own survival, for which humans can only take *collective* responsibility. Producers, users, and researchers are "one species; one planet".

Comparing the two global crises – Climate and Covid-19

The need for models that support global thinking has been intensified by both climate change and the Covid-19 pandemic. But these crises have been treated – made meaningful and mediated – in quite different ways. In relation to their self-proclaimed socio-centrality, the mainstream news media's core news values (conflict), rhythms (24/7), and horizons (national) can only construe population-scale activism as extremism – that is, peripheral (Lotman, 1990). Climate activ-

ism and Covid-19 conspiracies are both peripheral in this model, but at opposite extremes: far-right conspiracies cluster around Covid-19 (Scott & Overly, 2020), which automatically pushes climate activism to the far left, in typical but unwarranted journalistic-balance mode. Here, the "centre" does not mean the balanced space between left and right – which remain as gladiatorial positions within the core – but the space occupied by state-media agencies and bureaucracies. Those who see it as their job to maintain confidence in economic growth and consumer society can only construe climate activism as a threat to "business as usual". Thus, climate activism is global and digital at the population level, but national jurisdictions can only see it as an external competitive threat. Mass protests of their own citizens are described as "mobs", and the familiar street theatre of militarised policing is applied to them, in a grim semiotic imitation of authoritarian regimes facing democracy movements across the world. Armed police pepper-spray children, even in ultra-democratic Finland: "Several underaged people were among the sprayed and the detained" (Civicus, 2020).

Unfortunately, it seems that mainstream governments and media struggle to see the scope of far-right extremism, partly because these groups have adopted the affordances of global-digital social media rather than the technologies of analogue protest. These global groups are "peripheral" rather than "core", in Lotman's terms. They include various conspiracy-theory and armed-insurrection "groupuscules" (Griffin, 2003), a term which reimagines far-right political extremists on the model of corpuscles, circulating unseen as a fluid movement that – despite miniscule numbers and a lack of leaderships and organisational structures – may nevertheless carry an ideological virus throughout the body politic. Such groups exploit the characteristics of their own mediation, allowing partisans to find each other and populate websites and social media at a global scale. Groupuscules dispense with the "mass" apparatus of political parties and mainstream media alike, which in turn have found them very hard to identify and oppose, even within their own ranks.

Far-right groupuscules have been opportunistic first-movers to respond to the pandemic at the same global scale as climate activism, taking "we" the species as the unit of fear. But they use the digital screen, not the analogue street, as their medium of communication. The outcome is paradoxical: Leftist climate activism is attacked by media, legislatures, and law-enforcement alike, while far-right activists have succeeded in challenging national health officials and government authorities without being identified and policed as a group. Far-right groupuscules seek to accelerate the mounting distrust of governments and experts that impedes compliance with Covid-19 measures, but populist administrations are themselves receptive to conspiracy-based ideas and critical of science-based arguments. Culturally, where governments and authorities are trusted, widespread compliance with Covid-19 restrictions can be achieved immediately. Where populism holds sway, the resulting chaos does not halt the virus, but it does embolden those who call for system change – from both "extremes".

The differential responses to the Covid-19 and climate crises is partly explained by a third dimension: time. Covid-19 is consequential in the here and now, while global warming is a slow burn, with a decades-long period of transition between current (in)action and consequent climate catastrophe. Covid-19 is amenable to immediate "swift action" or "explosive" change (Lotman, 2009) compared with the climate crisis – it's a present-tense problem. For a future crisis, however, there is a temptation to start with gradualist targets and a vague plan to do more in the future – it's a deferred problem. But wasting time until the danger is imminent can itself be dangerous, because climate change is an exponential process – small changes produce exponentially greater effects: "If you wait until you can see the impact, it is too late to stop it" (Gardiner, 2020).

Reporting Covid-19

The paradox of Covid-19 is that it's a global pandemic but requires intimate responses, and there is no available political narrative in which "we" coincide with everyone in the world. Take, for instance, national approaches to the World Health Organization (WHO) as the body tasked to coordinate global responses:

> WHO has made a major contribution in leading and advancing the global response to COVID-19. Its good work is applauded by the international community. At this crucial juncture, to support WHO is to support international cooperation and the battle for saving lives as well. (Xi Jinping, cited in ul Khaliq, 2020)

But despite what the Chinese leader said, this is not how international strategic games are played (Brang, 2020; Veg, 2019). China's support for WHO is political, not planetary, one move in its continuing tug-of-war with the US, and only reported favourably in media sympathetic to China's own "belt and road" version of globalisation (the passage quoted above is from a Turkish news agency). For others, it was further evidence of WHO's failure:

> The WHO is essential, but it is broken. […] Whether or not existing global governance configurations such as the UN and the WHO can be repurposed to address systemic global risks is an open question. […] Its dysfunctions are symptomatic of a broken global political system. (Pegram, 2020)

The news and opinion media are among the causes of this symptomatology, even where the media themselves are used as platforms for critiquing media coverage by others. The bedrock adversarial story structure of reporting focuses on fights and failures, not fixes and futures. Has the virus precipitated the end of globalisation, or ensured its inevitable extension? From the outset, opinion was predictably divided:

- "Coronavirus is a global crisis, not a crisis of globalisation" (Armstrong, Financial Times, 2020).

- "Will the Coronavirus Bring the End of Globalization? Don't Count on It" (Karabell, The Wall Street Journal, 2020).
- "The Spread of Virus Could Hasten the Great Coming Apart of Globalization" (Erlanger, The New York Times, 2020)
- "A Global Outbreak is Fueling the Backlash to Globalization" (Goodman, The New York Times, 2020).
- "Of course there's a globalisation backlash. It has failed billions of people" (Elliott, The Guardian, 2020).
- "The outbreak has been a gift to nativist nationalists and protectionists, and it is likely to have long-term impact on the free movement of people and goods" (Legrain, Foreign Policy, 2020).
- A professor of financial journalism summarised the prospects for "a common purpose": "The world now faces a stark choice. Find a way to harness globalisation to a common purpose, or retreat into isolationism and nationalism that will crash the world economy and increase international tensions. […] Without strong US leadership, the prospects look much bleaker" (Schifferes, 2020).

In short, both journalism "as we know it" and politics "as usual" are unfit for purpose in relation to truly global action or responsibility – they are both pitched at section rather than system. Nation-state rivalry and tribal media (Hartley, 2020a) confine the world to 200-odd mutually opposed countries. Toxic semiosis circulates unchallenged.

Classes form around the means of their own mediation

There is, however, a countervailing force pushing against such internal diversification – a higher-order momentum to aggregate and consolidate smaller subsystems. Historically, big religions, ideologies, and businesses emancipated themselves from the confines of single nations, as did "universal" knowledge systems, from science to storytelling and spectacle. Trade in goods, finance, and data (McKinsey, 2016) are all globalised. As the digital economy has grown, the tech-heavy NASDAQ has reached record highs, even as Covid-affected national and industrial economies tanked. The tech-giants, once peripheral to the analogue economy, now constitute the core of the global digital semiosphere – they are the ones that rule, standardise, and homogenise the global-digital systems.

Yet, any subsystem in the semiosphere generates its own Lotmanian periphery – an unorganised but milieu-sensitive and flexible counterpower, ready to emerge and bring about a different order. We argue that in the digital semiosphere, new classes – sharing knowledge and self-description – are forming around the means of their own mediation, where new modes of organisation and new knowledge

systems emerge with new media technologies. New culture-made demes, inter-knowing cultural communities – Anderson's (1991) "imagined communities" – are bonded by semiotic codes and organised through the media by which their capacity to know themselves as a group is transmitted.

Of course, previous media-made groups persist, serving as the substrate infrastructure needed for emergent transformation. Demic identity is mediated by the means at hand when the deme was originally formed. But mediation from different eras continues in the present. Thus, both demes and their characteristic mode of mediation persist:

- Premodern meeting: Family life, religious rituals, music, and dancing; community singing and democratic chorus (Pawłusz, 2017). Communication is oral, organised into gatherings for seasonal song, dance, and ceremony.
- Modern print (Hartley, 1996): Science, journalism, and the novel are the great textual systems of modernity, organising industrial-scale literate communication to individual readers and national readerships.
- Contemporary screen: Postmodern demes are organised around broadcast audiences, social-media users, and connective-computation businesses. Coordination occurs on and among platforms.

Raymond Williams's (1977) "residual, dominant and emergent culture" can be reformulated as persistent, incumbent, and emergent subsystems of the semiosphere, at micro (text), meso (institutional), and macro (meta-system) levels.

What is missing is a pancultural regulation system, where human-group survival can depend on internal cooperation and high trust across the whole semiosphere, not just in contending subsystems. As new modes of mediation are taken up culturally, the dimension of time introduces dynamic change to class formation. Successive changes supplement rather than supplant legacy media. Pre-existing forms and platforms become substrate for global digital affordances, around which new groups and consciousness emerge, from hackers (Wark, 2004) and extremist groupuscules to influencers. Now, we argue, a new class – based on global-digital mediation that encompasses humanity as a whole – is in the process of formation, led by children, especially girls.

Girls as a class

The very category of news media is by now unstable and, in its industrial form, undermined. The question is thus: What is the global semiotic coordination mechanism for pancultural relations? Any answer to that question begin with digital media, not from incumbent news organisations, which resist emergent sociality. It is no longer their "imagined community" that organises groups, but the tech giants and their legions of user-fan-critics, using multiple competitive platforms and apps. This is why it is necessary to reconceptualise the ways in

which groups are formed and coordinated for the digital-global era. Lotman's semiosphere model is capable of pursuing that question from the details of everyday semiosis all the way up to the planetary semiosphere, such that human cultural systems can be located in the larger context of the biosphere and geosphere.

These domains are not untouched by friend/enemy foe-creation, of course, but they are also the setting for the formation of new "world classes" (Hartley, 2020a) that organise global communities around the means of their own digital mediation. The emergence of one such class – children (Hartley, 2020b) – can be linked to the mediation of climate crises. It is led especially by girls, a coherent demographic group whose presence is valued by other children (Sanson et al., 2004: 240), as well as by tech platforms, corporate marketing, and political activists alike. They have used their supposedly playful, inconsequential, apolitical social-media presence to develop class consciousness, both "in itself" (they exist) and "for itself" (they know it). In-group solidarity has formed around issues of consequence to them. They have mobilised for straightforward political dialogue and campaigning using entertainment platforms. Thus, the same platform can support careless joy and friendship – via dance videos, songs, and pranks – and at the same time promote advocacy and activist causes common to the group. These include personal development and deportment anxieties, led by influencers or entrepreneurial consumers. At the same time, they support global campaigns for climate justice, human and animal rights, environmental sustainability, and a regenerative economy that does not require the destruction of the planet. Here, the poster-children – or, as Emily Bent (2020) prefers, the "public feminist intellectuals" of global activism – include such iconic figures as Greta Thunberg and Malala Yousafzai, and their celebrity admirers like Selena Gomez, Emma Watson, and Gemma Chan. But none of these activists could operate without their millions of followers, and these are gained by nurturing in-group trust, rather than fomenting outsider hatred. What's remarkable is the global extent of both the peer group and the problems it faces.

The history of "world-class" youth activism is just beginning, led by Thunberg and others who have nothing to lose but their futures (see Figure 1). As Thunberg (2021) wrote, "The climate- and ecological crisis can no longer be solved with today's political and economic systems". In response, she "spent a large part of the coronavirus lockdown writing the script for a 90-minute podcast called *Humanity Has Not Yet Failed* (Lifegate, 2020: para. 1). "'This shows that during a crisis we act with the necessary force,' she states, claiming that we should confront the climate crisis with the same urgency with which we addressed the health emergency" (Lifegate, 2020: para. 3).

Figure 1 "Public Feminist Intellectuals"

Comments: German Chancellor Angela Merkel hosted Fridays for Future youth climate activists Luisa Neubauer (Germany), Greta Thunberg (Sweden), Anuna de Wever (Belgium), and Adélaïde Charlier (Belgium). "We asked her to treat the climate crisis like you treat any other crisis", said Thunberg. She also called for Merkel to "be brave" and become a leader in the crisis (DW, 2020).

Source: Neubauer, 2020; Thunberg, 2020

Conspiracy groups

Concurrently, Covid-19 has facilitated the rapid evolution and globalisation of other kinds of groups, organised around various conspiracy theories. According to these misinformation campaigns (a.k.a. lies):

- the coronavirus was bioengineered and weaponised by the Chinese, US, or Israel;
- it was produced by Big Pharma, Bill Gates, or Anthony Fauci (director of the US National Institute of Allergy and Infectious Diseases);
- Bill Gates wants to create a new vaccine that includes microchips to track vaccinated people;
- 5G mobile networks cause the spread of the virus;
- and the virus itself is a hoax, not posing a risk because it doesn't exist!

In ethos, such theories emerge out of individualist perceptions that disregard complex interdependency, and instead see the world as shaped and governed by a few groups competing with each other for dominance. Such interpretations permit followers to refuse to cooperate globally as well as locally.

We propose that conspiracy communities (Jane & Fleming, 2014) constitute another digital class, created through the means of their mediation (Griffin, 2003). Their quick globalisation, however, is associated especially with Covid-19. Social-network platforms have enabled these formerly marginal contrarian groupuscules to self-organise at unprecedented scale and to spread health-related misinformation (Allington et al., 2020). Yet, just as girls communicate about climate action, so conspiracists are increasingly characterised by the semiotic richness of their presentation. They are multimodal and audiovisual, manifesting themselves in memes and videos. Humorous and imaginative descriptions of conspiracies are blended with explanations expressing concern and fear. This interpellates their audiences as half-serious in attitude, merely in search of entertainment (Johnson, 2018; Knight, 2008). The emergence of such conspiracy theories and their underlying productive communities refers to peripheral dynamics, enabled by creative dialogue between existing discourses and bodies of knowledge coming together as a very heterogeneous domain. Such dialogues are not truth-seeking but trust-seeking, and may be downright harmful, but they are still forms of peripheral creativity.

What makes the evolution of Covid-related conspiracy theories peculiar, however, is that these peripheral dynamics have been aided by strategic misinformation campaigns initiated by governments. Former American President Donald Trump used conspiracy theories as an election strategy. Former Secretary of State Mike Pompeo suggested the virus was produced in a laboratory in Wuhan – without any evidence for that. China News Service has been propagating the idea that Covid-19 was a CIA creation to keep China down (Kao & Shuang Li, 2020). A briefing prepared for the European Parliament in April 2020 posited:

> Both Moscow and Beijing seem to be driving parallel information campaigns, conveying the overall message that democratic state actors are failing and that European citizens cannot trust their health systems, whereas their authoritarian systems can save the world. (Bentzen, 2020)

Such government-sourced misinformation campaigns are part of the "infowars" between countries or political factions that utilise various identity claims and their logic of inclusion and exclusion (Nissen, 2015). They aim to create "information fog", causing the audience to lose the ability to differentiate between truth and falsehood. In the process, the general trust levels of societies decrease, and societies lose their sense of coherence. These campaigns are a peculiar form of dialogue between the core and periphery of a society, which is already post-national, as states hack each other. Government-produced "strategic information narratives" (Madisson & Ventsel, 2020) become increasingly similar in their form to "participatory" conspiracies. They are (audio)visual, entertaining, and include sensationalist and deliberately kitsch or playful elements. The far-right – minuscule numerically – can alter the semiotic idiom as well as the ideological content of entire semio-systems, used by adversaries and governments alike.

The fact that conspiracy discourse is playful indicates that the ways these texts and discourses evolve correlates with how artistic texts, myths, and tropes in general emerge and evolve in time. That is, there is much intertextuality, repetition, and usage of existing cultural moulds. As Madisson and Ventsel (2020) suggest, new conspiracy narratives address only specific "model readers" (Eco, 1979). That is, these discourses are generally path-dependent, they constitute closed forms of what Lotman calls autocommunication or systemic self-description, designed to translate or include only suitable elements. This makes conspiracy cultures distinct from other peripheral communities that are, by design, more open to new knowledge.

Kahan (2017), suggests that positions on issues such as climate change or vaccines have become tokens of people's membership in and loyalty to specific groups. They extract from mediated information the parts that help them reinforce the beliefs that are held in their group. Kahan points to political polarisation in the American context. Believers in Covid-19 conspiracy theories have more negative attitudes towards government in general (Georgiou et al., 2020; Jolley & Paterson, 2020). In other words, repeating the theory is not done to communicate knowledge, but to signal demic belonging, so what is said ceases to matter.

Velásquez and colleagues (2020) demonstrate how malicious Covid-19 content exploits the existing online "hate multiverse" to spread quickly beyond the control of any particular platform. According to this study, Covid-19 misinformation narratives took shape in the online communities of extremist and far-right hate groups, which occupy largely unregulated platforms such as VKontakte, Gab, and 4Chan, as well as mainstream ones. Velásquez and colleagues argue that the hate multiverse exploits the pandemic to spread racism and other malicious agendas,

focusing an initially diverse and incoherent set of messages into a few dominant narratives, in line with existing antisemitic and deep-state prejudices. By using links between communities on different platforms, some quite mainstream, the discursive network continues to grow. As a result, racist views can appear on anti-vaccination sites: "The rise of fear and misinformation around COVID-19 has allowed promoters of malicious matter and hate to engage with mainstream audiences around a common topic of interest, and potentially push them toward hateful views" (Velásquez et al., 2020). We can conclude that the formation of a populist hate multiverse is a significant online communal activity relating to Covid-19. It has quickly globalised and mainstreamed material based on, and infused by, various conspiracy narratives.

This contrasts starkly with climate-justice youth-driven global activism, which is notably content-heavy, playing the scientific evidence game. Both movements have been increasingly creative online. A global conflict is taking shape between an intersectional youth segment, promoting global consciousness, solidarity, and trust, and an older group fomenting outsider hatred. Their increasingly articulated conflict in the global digital semiosphere has been evidenced in reflections on how teenage girls and K-pop fans trolled Donald Trump's presidential campaign launch event in Tulsa, Oklahoma in June 2020. Coordinating in emerging social networks like TikTok, they reserved thousands of tickets to the event without the intention of showing up, leaving the arena empty for Trump. As the tweets shown in Figures 2 and 3 indicate, girls self-identified as the counterpower to Trump. And because Trump retweets QAnon conspiracy theories, he has become the personification of the "multiverse" that peddles the misinformation about Covid-19.

Figure 2 "Girls punked Donald Trump"

Source: McElrath, 2020

Figure 3 "K-pop killed the reality star"

Source: MichelleN65, 2020

Cultural science and cultural forecasting

The up-close analysis of discursive textuality and social agency among subaltern groups that characterises cultural studies must be augmented and scaled up to include the data analytics made possible by digital media and globally connected computation. Such work is well under way, of course, with myriad studies testing and improving globally distributed data-collection points (e.g., Manovich, 2020). But much is still to do towards integration into a "modern synthesis" (Barbieri, 2007; Huxley, 1942), as happened when the biosciences were reformed as an evolutionary-complexity science.

How might we achieve such a synthesis? Cultural science – the approach we advocate that builds on the semiosphere concept and on its integration with other Earth sciences – is still at an early stage of elaboration. The shift from cultural studies to cultural science is both enabled and required by the fact that cultural science already exists as a private enterprise sector, for which the poster-child (a.k.a. villain) is Cambridge Analytica. But an open rather than proprietary cultural science would investigate causal sequence in social-group formation to determine how culture makes groups, groups make knowledge, and knowledge makes economics, politics, and identity under uncertainty. The question now is: How do cultural dynamics shape planetary changes?

The semiosphere is culture's causal mechanism and directional pathway, so its regulation, coordination, governance, and limits must be modelled and understood at the planetary scale in order to face the consequences of human activity. Using the means of contemporary data science, network science, cultural analytics, and other ancillary approaches, we can identify, for instance, how demes are emerging via interlinkages; how they autocommunicate by using and producing texts; how they are linked to other systems and bring in new texts and information; how they reframe and translate this information; and how in this way meanings

and cultural forms are evolving over time (see Hartley, 2020a). All this can be carried out not just for single systems but for many – hypothetically, with enough computational capacity and access to data, for all systems in global communication networks. This means that by operationalising Lotmanian concepts such as borders or boundaries, core and periphery, autocommunication, translation, and other aspects of the semiosphere model, a robust and resilient approach to cultural causation, conflict, and consequences can be elaborated.

Nevertheless, it must be recognised that such global modelling of cultural dynamics has its challenges, recalling the story by Borges (1975), "On Exactitude in Science", where the cartographers of an empire produce a detailed 1:1 map of their land. But people find it useless and it gets destroyed. With the arrival of 5G mobile connectivity, the "Internet of Things", and augmented reality, the idea of creating the "the Mirror World" or the "Digital Twin" (Kelly, 2019) of the world are again being toyed with. But we should remind ourselves that as a rule, (meta)data are used for modelling the social, cultural, and physical realities – models imitate, but they also translate and simplify, and as such, are inexact and can tell lies. Here we refer to Umberto Eco's (1977: 7) notorious proposition that semiotics is the study of everything that can be used for lying. As we know by now, from extensive studies into data bias (Milan & Treré, 2019; Perez, 2019) and data justice (Dencik et al., 2019; Heeks & Shekhar, 2019), data tell lies all the time, bringing about new injustices and new conflicts. The special stance of cultural science in relation to data is that analysis must be data-literate, because "lying is natural". If any representation – including by data – also misrepresents, then the research focus should turn explicitly on how such "twisting mediations" contribute to cultural dynamics on all levels – micro, meso, and macro. Lotman's cultural semiotics offers handy tools to interpret creativity – that is, the unpredictable production of novelties – in contemporary cultural databases and how they affect broader cultural dynamics (Ibrus & Ojamaa, 2018, 2020; see also Ojamaa & Torop, 2015). Extending that approach to attempt cultural forecasting will require data analytics to be self-observant, because it will be an important source of change, not just description. Fortunately, cultural semiotics is well prepared for a self-aware gaze. Peeter Torop (2005: 164–165) has put it eloquently:

> A phrase *semiosphere is studied by means of semiosphere* is not a paradox but points to the dialogue between the research object and its description language. The dynamism of culture as a research object forces science to search for new description languages but the new description languages in turn influence the cultural dynamics as they offer new possibilities for self-description [emphasis original].

This means that cultural forecasting must be designed to work towards useful models, those that offer "public value". Thus, we must consider the purpose of data analysis. As of now, most data about our social lives and cultural meaning-making practices are collected and stored by global private platforms. We may

build our own lives, meaningful worlds, and businesses on these platforms, but, as Mazzucato (2018) points out, it is the platforms that extract value from our datafied activities. Couldry and Mejias (2020) call this "data colonialism"; as colonising empires annexed territories to extract resources, so in this new wave a few global platforms and related "datafication industries" colonise our social lives and our private spaces to extract value. As the digital semiosphere grows, especially with 5G, AR, the Internet of Things, and so on, the whole physical environment of the planet is enveloped for data extraction. If cultural science is to avoid the Borgesian fate, it needs to critique rather than contribute to global datafication.

Attempts to forecast cultural trends must be weighed against the effects of data appropriation and use, aiming to maximise "public value" (Benington & Moore, 2011) by sharing knowledge among all creative parties. Cultural forecasting in the interests of good governance recognises that cultural dynamics are driven by difference and multiplicity, and that difference is a productive component of complex systems, not a win/lose binary opposition. Taking a global perspective, data modelling and forecasting can be designed to facilitate heterogeneity, intersectional difference, and the complexity of global cultural flows in order to achieve sustainable, regenerative culture.

Conclusion

We have examined two new classes – girl-led youth climate-justice activism and far-right accelerationist groupuscules – as they are in process of global-digital formation around two contrasting planetary crises: climate and Covid-19. These groups coalesce internally and confront each other externally by means of media forms and boundary-crossing dialogue. They clash in terms of their approaches to global crises and ideological positions, but they are in dialogue – in terms of media modality – co-creating mutually motivating innovations in visual and audiovisual languages, which shape future path-dependencies for collective action.

One of the main insights arising from our analysis concerns the question of global regulation. How do we identify, differentiate, and learn from these planetary processes without falling into the trap of tribalism or the dictatorship of data? The model we derive from Lotman to comprehend these emergent phenomena is not based on abstract individualism or consumer behaviour, but instead seeks to characterise the turbulent mix of contending semiospheres and demes, just as meteorology, founded in the mid-1800s, was eventually able to model the complex planetary dynamics of the atmosphere. Our ambition is for cultural science to model complex-system causation in the semiosphere, suggesting the primacy of culture, whose own function is to regulate economic and political action via group-made and group-making knowledge. Through mediated subsystems, mediated human thought – that is, the semiosphere – is causing irreversible changes to the biosphere and the geosphere. There are numerous natural and

biosciences dedicated to these processes, but not to the systematic role played by human culture and media in its global-digital phase. The question remains for media scholars: How can our discipline avoid armed conspiracies and contribute instead to "childish" demands for system-change?

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