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Semiotics of Contagion: Models and Media in a Synergistic Epidemic

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Cover: Screened For by **Elaine Whittaker**, 2015, digital prints (16x16 inches each). Self-portraits of the artist wearing medical masks painted with Tuberculosis, SARS, West Nile Fever, Rabies, Malaria, Cholera, Dengue Fever, Rotavirus, HIV/AIDS, Ebola, Influenza, and the Plague. Image courtesy of the artist.
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articles

Introduction

BY: **Gary Genosko**, Guest Editor

This special issue commences with **Sebastián Moreno Barreneche's** study "The Heroes of the Pandemic: On the Discursive Construction of 'the Healthcare Workers' Collective during the Covid-19 Crisis." Focusing on the discursive production of the coronavirus as a villain and the constitution and narrativization of the collective actors known as 'the healthcare workers,' Barreneche exposes the fundamental semiotic mechanisms at work in the largely positive, even heroic, efforts of these frontline workers. Analyzing, in turn, the four mechanisms of segmentation, actorialization, generalization, and axiologization, a rigorous semiotic definition of 'the healthcare workers' as a unit emerges that excavates the cultural contents of these soldier-superheroes and how they are imbued with signifiers of war. In addition, the widespread (across many nations) tradition of applauding healthcare workers, as well as the counter-applause by healthcare workers directed at cooperative citizens, reveals the short-lived nature of such praise and the problematic scapegoating of frontline caregivers as vectors of contagion by their otherwise celebratory neighbors. This points us towards a current cultural mutation in the protests against healthcare facilities such as major urban hospitals (and counter-protests by doctors and nurses) that have erupted within the anti-vaccine movements in Canada, the US, and the UK. In his contribution, **Thomas Bardakis** provides a focused national context in considering the role that humorous memes about Covid-19 played during the lockdowns in Greece. Using a Barthesean approach to imagetext constructions and describing how to read them visually, as well as providing translations into English, Bardakis discovers a range of socio-semiotic scenarios,

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some inter-species (dogs, fish, and their owners), and couple-based relationships under strain, not to mention sarcastic jabs and ironic nods at government bungling, including in the switch to online learning.

In a complex methodological investigation in comparative media studies, "A Semiotic Comparison of Mass Media Representations of the Swine Flu and Covid-19 Pandemics: Observing *Narcissus Narcosis*," authors **Alin Olteanu**, **Florian Rabitz**, and **Augustė Nalivaikė** undertake an analysis of American newspaper coverage of the swine flu and Covid-19 pandemics, in relation to the question of how to characterize the emergence of social media between 2009-2019. The decisive outpacing of newspapers as news sources by social media in the US reveals the extent to which the pandemic is wrapped in an infodemic. Modeling comparative discursive structures, the authors explore Marshall McLuhan's sense of numbness to new media forms in the transition from paper to digital media, and the narcotizing effect is felt twofold in the impact of new media as muting awareness of change and preserving a stable correlation between ideology and topics reported. The becoming viral of networked news flows and the enhancement of alarmist messaging nonetheless stabilize when viewed through topic models and networks. As left-right splits remain constant, their clustering habits persist without much innovation at the level of media reporting, with a few distinctive clusters and nodal concentrations during Covid-19. The role of newspapers is to disguise social change; they offer an "anesthetic meant to render the ongoing media change more bearable." Newspapers are stubborn in their efforts, not always conscious efforts to be sure, to "obscure their integration in the virality of social media networks."

The viral politics of affect and misinformation is the subject of **Benjamin Bandosz**'s contribution, "Right-Wing Media's Rendering of Ro: Media, Misinformation, and Affective Contagion." Utilizing the R-number from epidemiology but "re-tooled" for qualitative deployment as a semiotic model of affect and its influence across the digital and social worlds, Bandosz analyses a series of slogans propagated by Donald Trump and his supporters by mapping their contagiousness and catalytic power to produce new variants. Borrowing from the semiotics of Gilles Deleuze and Félix Guattari, this paper also uses the concept of faciality as a molecular bioassemblage, the mucus membranes of which facilitate transfers of fascism and non-discursive resonances of affect. The semiotic lesson is that meaning is hollowed out in the process.

In addition to the Deleuzo-Guattarian white wall/black hole system of the face, there is a semiotics of mucous utilized in poster format to weaponize the handkerchief and militarize the sneezing body. In "Intersensorial translation of coughing-and-sneezing in an epidemic social context," **George Damaskinidis** situates sneezing historically in the UK during WWII by looking at the public campaign "Sneezes Spread Diseases." Considering how this poster campaign worked from an intersensorial perspective,

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Damaskinidis considers the organization of the senses, the codings of interactions of sneezers and eyewitnesses, and the representation of sneezing as a multisensorial event extending into space. Working with selected posters from this mass personal hygiene campaign aimed at Britons, categories of its operational goals are extracted, and the importance of war production is underlined through the warnings issued, arrangement of auditory signifiers, handkerchief management, and fear of germ colonies. Indeed, the posters signify the lethality of sneezing – by contrast with Bardakis' findings above concerning Covid memes, is no laughing matter – and the consequences of ignoring safe sneezing practices and the disgust of those sneezed upon is a reduction in the military-industrial labor force. It is remarkable to reflect on the fact that public health messaging during the Covid-19 pandemic, in Canada, for example, where 'planking the curve' is fundamentally a public message the goal of which is to protect and respect health care *infrastructure* by inducing a specific set of *rigorous* behaviors in the general population. In WWII, Britons were directed to identify the products of sneezes with the spread of fascism as a kind of atmo-terror. Both the inter- and intra-textualities of these posters are explored in depth.

Roberta Buiani discusses the vicissitudes of modeling Covid-19 in her contribution, "All Models are wrong, but some are useful: mathematical models at the time of COVID-19." While models have acquired new visibility during the pandemic, they have been criticized as inaccurate and incomplete, even though their usefulness may be found precisely in these two factors. Models are designed to generate scenarios based on established parameters. Still, when such parameters are largely unknown, the best one can hope for is a "relative trust" in their effectiveness, and they may be said to achieve a kind of "temporary certainty." It is the problem of uncertainty that Buiani emphasizes. It is the very thing that must be faced squarely by both modelers and the public. Yet, it can easily lead to an implosion of confidence and skepticism, especially when certain factors such as long-Covid remain un-modeled, as it was not thought to be among the acute cases that drove the protection of medical infrastructure in such exhortations as 'plank the curve.' The theoretical foundations of contagion models tend to recede into the background, especially when they are publicly communicated, not only because communication media does not want to investigate them, or simply that modelers see the real world when they look at their models, a consequence of familiarity with them no doubt. Here the backgrounding of the messenger or mediator is underlined.

Modelers are under pressure to deliver, yet there are many unknowns of a novel coronavirus, which must be admitted and addressed. Buiani counsels honesty and clarity, retracting bad results and cleaning up failures by publishing corrections, as well as sensitivity to the temporal variance of models. New data must be quickly and transparently integrated to avoid the infodemic's worst excesses that run alongside

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the pandemic. She notes some promising developments in these directions with new approaches to model building that have recently emerged and that pay close attention to the dynamics of the pandemic.

The final article in this special issue, "Contagion and Capaciousness: The Shifting Worlds of Living Models," is my own. Drawing on affect theory, the central question revolves around the status of living models. Donna Haraway famously made the OncoMouse, a living cancer model, a synecdoche for technoscience. Such living research models come with rigorous product specifications, like the PoundMouse, for obesity research. How is it possible to bear witness to a model animal's relationships that are irreducible to its destiny to develop a disease? Lab animals force us to notice them in other ways – they bite, they excrete, they get mixed up with other sets of animals of the same species in a colony and cause a panic; they stink. We are not lab animals, however, but we can learn from them. Through the introduction of the concept of the parasite, a more fulsome perspective on living models may be taken. Contagion, I argue, is a productive factor in a heterogeneous assemblage that cannot be fully contained in an artifactual lab space. Indeed, this is where things get nicely messy. This paper calls for *dirty* modeling, a wilder understanding, and the practice of living models. To this end, a few examples of the virtues of *dirty mice* are discussed.

Why living models? After all, many of us feel that during the time of Covid, we have become living models. To become a living model, it is unnecessary, for example, to literally volunteer for a human challenge trial for a Covid vaccine and be exposed to a modified infection. This is one direct way of entering into a system of modeling that moves between the *imprecision* of animal and human models. We enter into modeling systems when we are framed as asymptomatic spreaders, subsumed under the reinfection rate, show disease-like illness subject to further investigation, and when we give a sample swab. Does this suggest that we are living in a simulation? Perhaps a cultural matrix perfused with predictive modeling and the highly affective relationships catalyzed by felt qualities of threats, exaggerations, and impingements that bear directly upon embodied experience.

AUTHOR

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The Heroes of the Pandemic: On the Discursive Construction of 'the Healthcare Workers' Collective during the COVID-19 Crisis[1]

BY: Sebastián Moreno Barreneche

ABSTRACT

Besides its impact in health, economics, and politics, the COVID-19 pandemic was the source of phenomena of a discursive nature, specifically regarding the solutions found by societies to make sense of the crisis caused by the uncontrolled spread of the virus. This article analyzes from a socio-semiotic perspective the construction process of the collective identity of "the healthcare workers" during the pandemic. After generally introducing semiotics as the discipline interested in meaning-making and signification, the article studies four semiotic mechanisms present in the discursive construction of any collective identity. It then moves on to its main goal: the analysis of the functioning of those four mechanisms in the specific case of "the healthcare workers," a collective identity that, since the beginning of 2020, has been central in the narratives that emerged around the COVID-19 pandemic. As such, it should render visible the semiotic mechanisms of segmentation, actorialization, generalization, and axiologization.

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1. Introduction

In January 2020, a virus – until then unknown to the scientific community – became global news due to its high contagiousness and rapid rate of spread. Originally considered as a Chinese problem – specifically, of the Huabei province and the city of Wuhan – after the first infections took place in Italy in February of that same year, the threat became more real for the Western world, first for Europe and, subsequently, for the Americas. That is how the *novel coronavirus*, colloquially and simply known as "coronavirus", the cause of the COVID-19 illness and of the longest periods of lockdown and confinement in recent history, came under the spotlight of the media, governments, academics and citizens. 2020 was undoubtedly the "year of the coronavirus."

Beyond the effects of the COVID-19 pandemic on the health, economic and political domains, it was also the source of a series of phenomena of a *discursive* nature, particularly regarding the how societies *made sense* of this crisis. These phenomena are relevant to researchers working in the fields of discourse studies and semiotics – the discipline that examines processes of signification and circulation of meaning within the social sphere. To mention a few examples, a phenomenon of utmost interest for such an approach is that of the construction of the coronavirus as *an enemy*, which in case was even represented with anthropomorphic features such as faces, gestures and intentionality, with whom humanity is *at war* (Moreno Barreneche 2020a). Although the coronavirus certainly exists as a biological entity, its propagation has been accompanied by a series of processes of textual production in which that entity – one that is invisible to the human eye – has been transformed by societies around the globe into something *meaningful* for them.

A second phenomenon of discursive nature linked to the COVID-19 pandemic is that of the construction and use on a discursive level of narratives and imaginaries linked to specific collective actors. These actors are then given a role in the narrative *plot* of the pandemic. Within the broader attempts to make sense of an unprecedented situation that posed a significant threat to normality and the *status quo*, of particular interest were the causal explanations in the form of blame attribution (Moreno Barreneche 2020b) – to start with, several actors used the category 'the Chinese' to assign responsibility to *a whole national culture* for the spread of the virus[2]; subsequently, once the pandemic expanded around the globe, and lockdown measures had been taken in numerous countries, repeated references to the group of 'the reckless' – those that denied the existence of a pandemic and did not respect

[2] As an example, a picture of a Donald Trump's printed speech was major news in March 2020. In the picture, it can be seen how Trump manually replaced the prefix 'corona' that was printed in the text with a handwritten 'China,' to directly refer to the Chinese origin of the virus.

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their government's measures and recommendations – started to circulate, reaching its peak with young Americans unwilling to stop partying arguing that "if I get corona, I get corona" (Noor 2020).

Moreover, depending on the country and the region, other collectives were also used on the discursive level as scapegoats, both by the media, politicians and even citizens in their efforts to make sense of the crisis that the world has been living since the beginning of 2020. In the Southern Cone of Latin America, a narrative quickly emerged in March 2020 attributing blame to the collective of 'the posh' [*los chetos*], a disdainful mode of referring to the wealthiest groups of society, for the introduction of the virus in countries such as Argentina and Uruguay, given that they could afford to travel to Europe and, upon their return, spread the disease to their countries of residence (Abdala 2020).

As it can be seen, multiple interesting discursive phenomena took place linked to the sanitary crisis caused by the COVID-19 disease. Some of them consisted in constructing specific roles that allowed the articulation of narratives to make sense of the crisis, such as an enemy to defeat, someone to blame for the pandemic (given that 'nature' cannot really be blamed, as it is not a moral agent), a victim (humanity) that must make a sacrifice by renouncing *normal life* and social relations, etc. In this general context, another collective actor that was discursively constructed through specific images, narratives, testimonies, imaginaries and other signifying mechanisms was that of *the healthcare workers*. This collective subject encompasses doctors, nurses, paramedics, stretcher-bearers and ambulance drivers, amongst many other social roles that belong to the professional domain of 'healthcare' and that, for this reason, are already known by the citizenry. However, during the pandemic, besides being clearly identified as a group in the form of a collective with a distinct identity, these professional roles underwent *a positive valorization*: they were the "heroes without capes" (France 24 2020; La Nación 2020; United Nations 2020) in a narrative in which the enemy was a natural agent that – through the mediation of the metaphor of war that has been hegemonic during the pandemic – needs to be fought on "the frontline" (Time 2020; El País 2020).

From a semiotic framework – specifically, from a socio-semiotic approach – this article aims at identifying the mechanisms through which the collective identity of 'the healthcare workers' has been discursively constructed within the context of the COVID-19 pandemic. With this goal in mind, the first section briefly addresses social semiotics' core aims and tenets. The second section consists of a conceptualization of the discursive construction of collective identities based on four semiotic mechanisms – segmentation, actorialization, generalization and axiologization. Finally, the third and final section studies the discursive construction of the collective identity of 'the healthcare workers' during the COVID-19 pandemic.

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2. Semiotics and the quest for meaning within the social sphere

Both Saussure and Peirce centered their work on the study of signs. This focus has given rise to a simplistic conception, hegemonic for decades, of semiotics as the 'science of signs' and of a mostly *descriptive* character. However, following the theoretical and methodological expansion of the discipline over recent decades as a result of its attempt to gain autonomy and specificity, the object of study is currently not any longer conceived of as the analysis of signs and sets of signs – i.e., texts *stricto sensu* – but, rather, as the multiple, heterogeneous and complex processes of signification and meaning-making that occur within the socio-cultural sphere (Hénault 2012; Marrone 2018; Verón 1989). As Eliseo Verón (1988: 125) argues, "every social phenomenon is, in one of its constitutive dimensions, a process of sense-making." This approach places within semiotics' field of interest not only the study of textual *corpora* clearly delimited and empirically accessible (such as audiovisual spots, literature, political propaganda, etc.), but also dimensions of a more *existential nature* (Fontanille 2015; Landowski 2012). In fact, for Eric Landowski (2012: 129), the aim of semiotics is to "better understand how, under which conditions and through which procedures our presence in the world becomes meaningful."

A constructivist premise underlies semiotic research: to a great extent, social reality is *constructed* in intersubjective processes of signification and negotiation of meaning (Verón 1988). Such an account aims at overcoming realist, positivistic and materialist accounts of social reality; its purpose is to study *meaning in action* by scrutinizing the multiple and heterogeneous dynamics of meaning-making that characterize everyday life. In his ethnographic studies and drawing on Max Weber's work, anthropologist Clifford Geertz (1973: 5) championed a semiotic account of culture. Accordingly, "man is an animal suspended in webs of significance he himself has spun." Therefore, culture is a system defined by complex processes of production, distribution and consumption of meaning, the study of which requires, rather than a quantitative and mechanical approach, a work of *social semantics* – i.e., an interpretation of a group's cultural practices as if these were texts – to grasp their meaning and the sense these have for those who carry them out.

Within this broad understanding of culture, social semiotics is conceived of as the specific branch of general semiotics whose specificity is defined by its focus of interest: *social* phenomena, mainly in the form of practices (Demuru 2017; Dondero 2017; Floch 1990; Fontanille 2008) and interactions (Landowski 1997; 2016a). Social semiotics is currently interested in studying collective memory (Demaria 2006; Violi 2014); conflict (Mazzucchelli 2010); space (Giannitrapani 2013; Marrone 2013); interactions (Landowski 2016a) and alterity (Landowski 1997), amongst many other

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phenomena, generally and traditionally conceived of as natural, given or pre-social, from another optic, i.e., under the presumption that they are rather socio-cultural constructions that stem from discursive phenomena and from the circulation of meaning within webs of signification that are intersubjective. Eliseo Verón – who was particularly interested in political discourse (Verón 1987; 1989) and the phenomenon of mediatization (Verón 1994; 1997; 1998) – argues that "the semiotic outlook is one that looks at the interstices with the aim of reconstructing sense-making within the inter-discursive networks of our [modern] societies" (Verón 1989: 138).

In short, given the overlapping of their objects of study, current social semiotics conceives of itself as in an intimate relationship with anthropology and sociology. Nevertheless, its focus is centered specifically on meaning-making and signification, as these phenomena constitute its object of study.

3. A semiotic approach to the discursive construction of collective identities

After having introduced the main tenets of social semiotics, this section discusses a number of mechanisms that characterize the discursive construction of collective identities. If social semiotics is interested in studying meaning-making as it takes place in intersubjective, everyday life practices, then grasping how perception of reality is mediated by certain categories of meaning seems to be an object of clear interest for the discipline. Hence, to properly grasp the discursive phenomena of this nature, like the one that interests us here, a combined social and cognitive approach seems necessary: making sense of social reality is a process that depends on mechanisms of a cognitive nature.

The argument that follows has its point of departure in one of the core ideas of so-called *cognitive* semiotics: an individual's perception of the world, both external and internal, has a *narrative* articulation, i.e., it is based on a *principle of narrativity*, according to which "narrativity constitutes the form of meaning" (Paolucci 2012: 303). As this principle was postulated concomitantly both by semioticians and cognitive scientists (Paolucci 2012), cognitive semiotics aims at articulating the two theoretical fields and puts forward the hypothesis according to which perceived experience is organized through the mechanisms used for the creation of stories, i.e., storytelling. This process includes the creation of actors with specific roles in the plots that are constructed. As Claudio Paolucci (2012: 300) argues, cognitive semiotics aims at understanding "how narrativity can influence, modulate and transform the way in which one conceives of cognition." As the author argues, the most recent developments within cognitive sciences are closely related to those within semiotics.

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Given its constructivist character, one of the central tenets of semiotics is anti-essentialism, i.e., the belief that meaning is not given, but that rather emerges through the establishment of *differences* (Eco 1976; Hjelmslev 1943; Violi 2017). In linguistic terms, this means that a word becomes meaningful for a given culture based on an opposition to other terms that differ from it. In socio-cultural terms, this premise also applies to the discursive construction of collective identities – these are units of meaning also based on the establishment of certain borders between social actors, which are conceived of and imagined as different from each other based on specific processes of a semiotic character (Moreno Barreneche 2020c).

As it happens with every distinction between concepts, the establishment of boundary types within the social realm is arbitrary, i.e., it is neither natural nor given. As political theorists Chantal Mouffe (2005) and Ernesto Laclau (2005) have argued in their research on political discourse, the social field has an inescapable antagonistic dimension. This dimension consists of a conflict between collective identities that were constructed based on a dichotomy between 'us' and 'them'. Similarly, Verón (1987) argues that politics is the discursive field in which the management of collective identities in the long term takes place; hence, according to the author, the field has an inescapable adversarial logic.

The mechanism of the discursive (and imaginary) construction of collective identities is not exclusive of the field of politics – it can also be found in everyday life, a domain in which collective actors are constructed permanently to help organize the perceived world in narrative terms. For example, one frequently finds references to 'the politicians' as a general, homogeneous and clearly delimited category of people as a way of making sense of social phenomena, such as when establishing a cause-effect relation based on the belief that politicians – all of them – are corrupt or liars. Something similar occurs with other categories of meaning linked to collective identities, many of them highly problematic not only with regards to their segmentation, but also to their discursive valorization, such as 'foreigners' or 'immigrants' (Bauman 2016; Moreno Barreneche 2020d).

How are these categories linked to collective identities constructed in discourse, so that they can be employed as means to make sense of social reality in narrative terms? In what follows, four mechanisms of a semiotic nature are introduced and discussed – segmentation, actorialization, generalization and axiologization. Although for analytic reasons they will be introduced in a successive manner, all these mechanisms are synchronic; hence, the discursive construction of collective identities is a complex phenomenon in which the multiple dimensions are interlinked and interact permanently.

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The first mechanism to take into account is that of *segmentation*, i.e., the delimitation of a portion of meaning (a semantic field) that is considered as one that differs from other portions and that leads to the identification of the given collective identity as distinct and unique. This mechanism is based on the structural premise of semiotics according to which meaning and sense are not given, but rather emerge relationally, i.e., from sets of oppositions. As Patrizia Violi (2017: 27) argues, "single elements do not have an absolute, ontological value in themselves that is defined once and forever in essential terms; they gain their value and meaning only in the confrontation of what they are not, i.e., in the positional value of a relation with an Other." This anti-essentialist premise is also assumed by researchers that have studied the construction of identities in the political domain (Laclau 2005; Laclau and Mouffe 1985; Mouffe 2005).

When segmenting the *continuum* of all possible collective identities, identifying a particular one as distinct from others implies an arbitrary process of segmentation that follows a logic already identified by Louis Hjelmslev (1943) and systematized in semiotic terms by Umberto Eco in *A Theory of Semiotics*. In the book, Eco (1976: 67) asks: "What, then, is the meaning of a term?" and argues that "from a semiotic point of view it can only be a cultural unit," which he conceives of as "a semantic unit inserted into a system." Therefore, for Eco (1976: 66), "every attempt to establish what the referent of a sign is forces us to define the referent in terms of an abstract entity which moreover is only a cultural convention." The meaning of a term – including more general categories of meaning such as 'the politicians,' 'the youth' and 'the foreigners' needs to be looked for in the differences that are established between that concept and other concepts, which are considered by a given linguistic community as different from each other. Hence, as Eco (1976: 73) argues, "a cultural unit 'exists' and is recognized insofar as there exists another one which is opposed to it." This is a premise that can be clearly visualized in a table that Eco recovers from Hjelmslev's work (Figure 1), in which the Danish linguist compares the different modes in which Danish, German and French deal with the boundaries within concepts.

<table>
<tr><td rowspan="2">trae</td><td>Baum</td><td>arbre</td></tr>
<tr><td rowspan="2">Holz</td><td rowspan="3">bois</td></tr>
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Figure 1. Meaning as a cultural unit. Source: Eco (1976: 73).

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In the table, it can be seen how meaning – conceived of as a cultural unit defined not by looking at its reference, but by taking into account its oppositions to other concepts – varies from one culture to another (in this case, linguistic cultures). As Eco argues quoting Schneider (1976: 67), "in every culture 'a unit ... is simply anything that is culturally defined and distinguished as an entity. It may be a person, place, thing, feeling, state of affairs, sense of foreboding, fantasy, hallucination, hope or idea." When studying the discursive construction of collective identities within a given community, identifying a unit of meaning as different from others reflects this mechanism of conceptual segmentation in relational terms (Arfuch 2005). We shall see in the following section how this mechanism functions in the specific case of 'the healthcare workers.'

Once segmentation has taken place, a process of *actorialization* begins. This consists in constructing in narrative, discursive and audiovisual terms the identity that has been segmented. As semioticians have argued, every social discourse is organized in narrative terms based on relations between actors that fulfill specific roles within the plot. After the *continuum* of all possible identities has been segmented into differential units, these need to be somehow *materialized* so they can become tangible and empirically recognizable. In semiotic terms, they must undergo a process of *figurativization*, which takes place through various mechanisms of *semiosis*, i.e., the linking of a specific content to a set of units in the dimension of the expression, such as names, images, descriptions, stories and graphic visual identities (logos, colors), amongst multiple other semiotic resources. For example, this mechanism is clearly visible in the construction of political parties or groups: once the (blurry) boundaries of the group have been set through an identification with a given set of ideas and programmes, a complex system of semiotic mechanisms must be put in place to render the group's identity tangible; this semiotic work includes creating a name, a logo, flags, posters, specific colors, campaigns, jingles, etc. The result of this mechanism is that the collective actor, whose unity is purely imaginary and arbitrary, becomes more tangible though a process of *semiosis* in which a connection is established between a unit from the dimension of the content and one (or more) units from the dimension of the expression.

At the same time that collective identities undergo the process of actorialization, they normally experience one of *generalization*. In this third process, some common features that are imagined as *essential* of that identity are attributed to every individual imagined as a member of it. In politics, formulas such as "left-wing voters are such and such" and "right-wing voters are such and such" are frequent and leave little margin for internal diversity – a diversity that undoubtedly exists. In social terms, attributive generalizations such as "politicians are such and such" and "foreigners are such and such" are frequent.

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It was argued before that units of meaning linked to collective social actors are not referential – i.e., they do not have a concrete reference outside discourse. Therefore, collective actors are constructed and consolidated through this general and imaginary characterization in which a set of generic attributes (Appiah 2018) is imagined as valid also for the members of that group. This process is characterized by a tendency to simplification that, even if it might be extremely dangerous in socio-political terms, nevertheless occurs and has a substantial impact in how collective identities are imagined and conceived. The most salient example of this mechanism might be the collective identity of 'the people,' particularly as it is employed in populist discourse (Laclau 2005; Moreno Barreneche 2019). As Verón (1998: 128) argues, "a social discourse, whatever its nature or type might be, *does not reflect anything*; it is only a checkpoint [*punto de pasaje*] for meaning."

Once a collective identity has been segmented, and while it is constructed as an actor and some of its attributes imagined as essential are postulated and applied in a generic manner to every member of that identity, a fourth process takes place – arguably, the most interesting of them for social semiotics: that of *axiologization*, also called *valorization*. In semiotic terms, axiologization can be defined following Anne Hénault (2012: 275) as "the static valorization of a given universe of discourse." This definition refers to the attribution of value to units of meaning by recurring to a specific value system. Following Greimas and Courtés (1979), every semantic category can be axiologized through an investment of positive and negative values according to a passion dimension that is articulated as a lineal axis oscillating between the *euphoric* (that what is valued positively) and the *dysphoric* (what is values negatively). This attribution of value takes place mainly in the form of an attribution of connotative marks – both positive and negative – to the actors that are involved in the narrative plot. In this process, the semantic categories linked to collective identities are invested of moral and ideological value. According to Mouffe (2005: 5), this *moralization* is one of the most visible features of the political in the contemporary era: "the we/they, instead of being defined with political categories, is now established in moral terms," i.e., as a struggle between *good* and *evil*. These two units of meaning are contingent, as they are the product of a social construction throughout history; as a result, they are strongly loaded in ideological terms and, hence, do not seem to be useful to capture the complexity of social reality in a proper manner.

The four semiotic mechanisms discussed in this section – segmentation, actorialization, generalization and axiologization – belong to the very ground of the discursive creation of collective identities. The products of this process – the identities – are then emplotted into narratives and discourses as those that take the lead regarding the plot of the social world – a plot that also has a narrative articulation. In the following section we will examine how these four mechanisms have been in action in the discursive construction of 'the healthcare workers' collective, in the context of the COVID-19 pandemic.

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4. The discursive construction of 'the healthcare workers' collective

Before we begin with our study, it seems relevant to mention a key principle of social semiotics, one that is intimately linked to a still ongoing debate within general semiotics – the one concerning whether the research focus should be set on structures or on processes. It was argued above that one of semiotics' core tenets – and, particularly, of its social branch – holds that social reality does not consist of a given or pre-social essence, but that, rather, is the product of intersubjective processes of construction and reproduction that occur through a negotiation of meaning between social actors. Stemming from this premise, meaning started to be strongly tied to the concept of *interaction*. This move has led social semiotics to stop focusing exclusively on studying signifying *systems*, and concentrate on analyzing the *processes* through which meaning emerges (Landowski 2014; Verón 1988). In line with this disciplinary shift, the focus of what follows will be set primarily on the *process of construction* of the collective identity of 'the healthcare workers' during the pandemic.

Any research in the field of semiotics implies dealing with a *corpus* of empirically perceivable materials that allow researchers to postulate the principles that underlie

Figure 2. Mural in tribute to the healthcare workers in Lisbon, Portugal. Source: Pacheco-Miranda and Pinto da Costa (2020).

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Figure 3. Mural in tribute to the healthcare workers in Lisbon, Portugal. Source: Pacheco-MiranMural in tribute to the healthcare workers in Brussels, Belgium Source: Nord Éclair (2020).

the possibility of signification. Therefore, studying the discursive construction of 'the healthcare workers' collective requires gathering a set of materials; these will allow us to study how meaning emerges around this specific collective actor. However, in contrast to what normally happens with a *corpus* composed of texts that are more or less closed and autonomous, the process of our interest is open and *in vivo*; hence, its elements cannot be limited to a single matter; rather, they can be found in expressions of a different nature that span from representations produced *from outside* the collective – such as those created by the media, political actors and artists – or *internally*, such as declarations done on behalf or in the name of the collective, videos thanking citizens for their support, or practices and acts with a political meaning. Therefore, the construction of a *corpus* to study what we want to study here seems to be a complex task.

With the aim of building a *corpus*, in what follows four products – manifestations of meaning, in semiotic terms – will be considered: (1) the creation of visual representations of the collective (Figures 2, 3 and 4); (2) the rounds of applause thanking them for their work (Figure 5); (3) a set of generic and illustrative journalistic texts, taken from the press (El País 2020; France 24 2020; La Nación 2020; Time 2020; United Nations 2020); and, finally, (4) actions carried out by individuals that identify themselves with this collective (The Brussels Times 2020). Hence, we are dealing with a heterogeneous *corpus* that is composed of images, texts and practices – all of them objects of interest for social semiotics.

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This heteroclite *corpus*, made of diverse types of texts (in a broad sense), to which the reader could certainly add innumerable other texts, allows us to identify certain mechanisms that can be postulated as those underlying the construction of 'the healthcare workers' collective actor. To start with, in Figures 3, 4 and 5 there is a prominent reference to the cultural content of the *super(heroic)*; in Figure 3, this content is brought to life through a *gesture* – opening the shirt to reveal the hidden heroic identity – normally done by superheroes; in Figure 4, this figurativization takes place through a visual juxtaposition that overlaps the bodies of well-known superheroes with those of the healthcare workers; in Figure 5, it takes place though the use of the word 'heroes' [*helden/héros*]. Moreover, the fact that citizens developed the habit of applauding this collective from their balconies or windows every evening, together with the references made to this collective by numerous actors from the public sphere, such as the media, politicians, etc. (France 24 2020; La Nación 2020; United Nations 2020), evidence that, underlying enunciation, there is a given collective identity that is assumed as *unitary* and *distinct* from other collective identities. Something similar occurs in those cases in which specific individuals enunciate on behalf of or in the name of that collective, as we will see subsequently.

Figure 4. Mural in tribute to the healthcare workers in Sint-Martens-Lennik, Belgium. Source: Metro (2020).

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Figure 5. Announcement that circulated in social media in March 2020, inviting Belgian citizens to applaud the healthcare workers. Source: La Libre (2020).

Let us start by examining the mechanism of *segmentation*. During the global COVID-19 health crisis, the world witnessed the emergence of new collectives, such as 'those infected by the virus,' 'those infected by the virus that recovered,' 'the elderly that were infected and that recovered,' amongst many others. Within this broader phenomenon, the collective of 'the healthcare workers' is not new: this collective identity existed in the imaginary of societies around the world prior to the COVID-19 pandemic. With regards to its boundaries, the segmentation of this identity is carried out in terms of a professional sector – healthcare; especially, physical health. It is this sphere of professional action what distinguishes the collective identity of 'the healthcare workers' from other collective identities, such as those of 'the businesspeople,' 'the politicians' and 'the university professors.' Nevertheless, all these social categories have in common the fact that their grouping implies postulating *something* that allows a segmentation of a collective out of the addition of multiple individuals. Regarding the extension of this particular collective identity, it includes men and women working as doctors, nurses, general hospital workers, ambulance drivers and any other professional roles linked to healthcare. Therefore, as we are dealing with a collective identity that preexisted the narratives that emerged to made sense of the pandemic, up to this point there does not seem to be anything new.

Things get interesting for semioticians when scrutinizing the process of *actorialization*. Although this mechanism linked to the collective identity of our interest also existed prior to the COVID-19 pandemic, this new context facilitated the emergence of new modes of actorial construction. Before the pandemic, the mode of representing a healthcare worker could consist, for example, in using a particular type of clothing – a face mask, an isolation [hazmat] suit, gloves or a white tunic – or its association with particular instruments, such as a stethoscope hanging around the neck. But *during* the pandemic, new mechanisms emerged to *bring this collective identity to life*. One of those mechanisms consisted of associating the collective actor with the idea that, within the narrative of war that has been hegemonic during the sanitary crisis (Cassandro 2020; Testa 2020), healthcare workers were "in the frontline" on the battlefront (El País 2020; Time 2020).

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Therefore, this collective identity saw its meaning strengthened by drawing on an association with other semantic units that already exist in the cultural repertoire of a society: healthcare workers have always been in the frontline fighting diseases – particularly those with a high infection rate. But it is only now, in a context that *feels* different, given the restrictions imposed by lockdown and confinement measures, that this characteristic that was until now not highlighted in an emphatic manner, acquires a special visibility as a result of a repeated association with soldiers and with (super)heroes. As a result, a new identification of the collective identity occurs based on a feature that, in the context of a global pandemic, becomes relevant and particularly meaningful.

Besides this association, other mechanisms of actorialization of this specific collective were put into play. One of them, of utmost interest for a semiotic and constructivist outlook, is that of the daily rounds of applause that citizens organized in multiple countries around the globe as a mode of recognizing and celebrating the efforts and hard work carried out by this collective social actor – in numerous countries hard hit by the virus such as Italy, Spain, France, Belgium and Argentina (to mention a just a few in which this phenomenon occurred), during the first wave of COVID-19 in 2020 there were initiatives spontaneously organized by citizenry that quickly lead to the creation of a *tradition*: at the end of the workday – the time varied from country to country – many people would go out onto their balconies or syand in their windows in order to pay tribute to the healthcare workers while, at the same time, respecting the confinement rules.

Besides the constructed nature of this collective practice that quickly became a tradition (albeit a temporal one), of interest for a semiotic perspective is the role that an imagined collective actor fulfils as an *invisible receiver* of the applauses: to applaud is a mode of sign production that expresses a content, normally linked to a message of approval (although it can also be one of irony); if applauses are conceived of as an act of enunciation, to whom were they addressed every evening during the first months of 2020? When citizens from country C went out onto their balconies or stood before their windows to applaud the efforts and sacrifices made by the healthcare workers, who are they thinking of? Are they thinking of a particular healthcare worker that they know personally? Are they addressing the representations of the collective actor that circulated in the media during that period? From a semiotic perspective, given that they are a mode of sign production (Eco 1976), applauses become a meaningful resource that contributes to the creation of the collective actor – applauding *the healthcare workers* renders this collective identity, which is one already known by those who applaud, more tangible by worshipping it through applause, an action from the domain of everyday life, also already known by those who carry it out, albeit normally linked to contexts that are not quotidian, such as theatres, concerts, etc.

In terms of actorialization, during the COVID-19 pandemic a series of interesting situations of self-actorialization occurred, that is, acts of enunciation carried out by individ-

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uals who regarded themselves as part of 'the healthcare workers' collective, with the aim of highlighting the nature of that identity as unitary. An example of this mechanism is that of the rounds of applause by healthcare workers dedicated to the citizenry for their staying home and reducing their social contacts. Even audiovisual materials were produced in multiple hospitals around the world with messages of recognition, as in the Belgian city of Louvain (The Brussels Times 2020). But some of these acts of self-actorialization were implemented as a means of gaining strength in the sending of political messages, generally of discontent and dissatisfaction, such as when in May 2020, Belgian Prime Minister Sophie Wilmès visited the Saint-Pierre Hospital in Brussels and was received by two rows of healthcare workers in their uniforms showing her their backs (Hope 2020; Thomas 2020). Through these actions, which have a clear semiotic component, multiple individuals that self-identify as part of 'the healthcare workers' contributed not only to the actorialization of the collective identity, but also to communicate on its behalf.

With regards to the semiotic mechanism of *generalization*, it is interesting to consider how certain specific features resulting from the process of actorialization – and, as it will be discussed below, of axiologization – gave way to a situation in which certain features associated with the collective identity of 'the healthcare workers' underwent a process of generalization, as if they were applicable individually to all its members. Hence, during the pandemic, *every* healthcare worker became, in discursive and imaginary terms, either soldiers fighting the coronavirus in the frontline, or heroes. Although it is known – and evident – that not *every* healthcare worker found themselves in a situation of exposure and exhaustion – think, for example, of an ophthalmologist, whose sphere of action does not seem *a priori* to be related with the fight against the coronavirus – these associations encompass *the whole collective*. As a result of the mechanism of generalization, which is one strongly based on a cognitive need of simplification of reality, this collective was invested with such associations. This phenomenon is particularly interesting given that it allows to visualize the semiotic basis of cognitive processes: once a generic feature has been attributed to a category of meaning (such as "healthcare workers work tirelessly and in risky conditions to fight the coronavirus"), then every single individual case that an observer might associate with the category of meaning of 'the healthcare workers' will also have those features. To sum up, this mechanism does not differ significantly from the one that is in action when formulating stereotypes, such as with regards to national cultures.

Finally, the mechanism of *axiologization* will perhaps be the most interesting of all for a semiotic account, given that it has been clearly active in the specific case of healthcare workers who, during the pandemic, were permanently associated with the figure of *heroes* (France 24 2020; La Nación 2020; United Nations 2020). This association is based on an identification of the features that are normally attributed to heroes – such as courage, sacrifice, bravery and commitment to what is morally righteous – which

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are then projected into the healthcare workers given that, during the COVID-19 pandemic, their actions as a collective identity have reflected those features. This mechanism was enhanced partly due to the fact that one of the dominant narratives during the pandemic presented the virus as an *enemy*; it was normally represented as a *villain* with an evil intentionality that threatens humanity's wellbeing (Moreno Barreneche 2020a). In Spain, to mention an example, the collective actor received in June 2020 the Princess of Asturias Award for Concord, whose jury highlighted the healthcare workers' "outstanding spirit of personal sacrifice" and "unconditional dedication" (El País 2020) in the form of lengthy working hours without rest, the ever-growing number of patients, the permanent contact with death, the lack of appropriate equipment and working conditions, the permanent risk of infection, and even violent situations that originated in their being members of the collective actor (González Díaz 2020).

Hence, the connotation of heroism emerges from the fact of not giving up in their efforts, in a context that easily invites one to do so. This seems to reflect an adherence to certain ethical principles that seem to be unquestioned. Therefore, as the jusy of the Princess of Asturias Prize argued, healthcare workers:

> … with an outstanding spirit of personal sacrifice in support of public health and the well-being of society as a whole, have become a symbol of the fight against the greatest global pandemic that has afflicted humanity in the last century. (El País 2020)

As Olga Velásquez (2020) argues in an op-ed published in the Colombian newspaper *La República*, "the moment that a state of sanitary emergency was declared nationwide due to COVID-19, healthcare professionals, technicians and technologists magically reappeared in the media's radar as heroes and heroines without cape." To this, Velásquez adds that, as a country, Colombia owes "the healthcare workers a major debt, and the government must ensure that the human talent policy for healthcare workers that is demanded by law to actually take place." She also claims that "our gratitude must be shown with concrete and measurable actions."

Nevertheless, even if a positive axiologization was hegemonic in the discursive constructions linked to the COVID-19 pandemic, in numerous particular cases there were also processes of a *negative* axiologization of the collective identity: in multiple unfortunate episodes, individual healthcare workers received anonymous notes from their neighbors asking them to temporarily leave their homes as they might be a source of contagion. The logic underlying those messages seems to be the following: individual I, a member of the healthcare workers collective, is a hero – a positive axiologization – that one wishes to have nearby in the case of an infection with the virus; nevertheless, during normal times, it is better to have individual I far away, as s/he can be a source of infection – a negative axiologization.

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Finally, it seems relevant to point out the *dynamic* character of such processes of identity construction. Once that the peak of the first wave of the COVID-19 pandemic passed, the mechanisms described in these pages blurred – as Bettiza (2020) argues, "around the world, frontline doctors and nurses are being hailed as heroes for risking their lives to treat patients. But in Italy, this love is ebbing away." The author quotes Monica, a healthcare worker who states that "when they were scared of dying, suddenly we all became heroes but they've already forgotten us." These reflections evidence the dynamic and process-oriented nature of discursive phenomena within social life, what renders the task of grasping them *in vivo* a major challenge for the work of social semioticians. The second wave of the pandemic helped render this nature visible – at least in Europe.

Concluding remarks

As stated in the introduction, the goal of this article was to study from a socio-semiotic perspective the mechanisms through which the collective identity of "the healthcare workers" has been discursively constructed within the context of the COVID-19 pandemic. As it was shown, we are dealing with a collective identity that existed prior to the pandemic and that, given the unexpected and sudden change of circumstances linked to the uncontrolled spread of the virus, was the object of a set of processes of meaning and sense-making. These semiotic processes have consolidated it as a key category of meaning within the hegemonic narrative that has been used in numerous countries to make sense of the pandemic and of the radical changes that is has brought with it, both at the macro and micro levels. As it was argued above, collective identities are cultural artifacts that fulfill a central role in the discursive articulation of social reality, given that, because of the principle of narrativity, they work as the units of meaning that allow articulation of the multiple plots that are at work in the social domain – for example, in the form of "justification narratives" (Forst 2017).

To further develop a more detailed mapping of discursive phenomena linked to the COVID-19 pandemic, we should proceed to identify and analyze the semiotic mechanisms discussed earlier in concrete textual *corpora* delimited according to specific parameters – such as media representations (expressions, images, and references used), artistic creations (cartoons, graffiti, murals), testimonials of citizens and workers – together with other forms of enunciation that might allow recognizing the mechanisms of segmentation, actorialization, generalization, and axiologization, particularly those revolving around the healthcare workers. This project could be organized, for example, by country and examined comparatively if the representations – and, with them, the construction – of this collective actor in the various public

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spheres differed. Moreover, once that time has passed and the pandemic starts crystallizing as a historical fact, it would be interesting to trace the diachronic changes in the discourses linked to this collective actor.

As we can see, semiotics still has significant material to examine meticulously and, by doing so, shed light on the signification processes revolving around the pandemic. This could certainly help to recognize the mechanisms through which individuals make sense of their social reality. In this quest, semiotics will contribute substantially to the explanation of discursive phenomena present in multiple societies and, particularly, to understanding the functioning of mediatization, a phenomenon that Verón widely studied. This article attempts to contribute to this goal: theoretically, by looking at the dynamic process of the discursive construction of collective identity through four mechanisms of a semiotic nature; practically, through the study of a specific case from our present.

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A semiotic approach to Greek Internet Memes during the Covid-19 Pandemic

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BY: **Thomas Bardakis**

ABSTRACT

Since late 2019, Covid-19 has spread worldwide, and many people are obliged to stay at home for public health reasons. Confined to their homes, people worldwide flooded the internet by posting photos and images online with funny captions, attracting an abundance of comments, and proving that humor is a vital need even in the most challenging times. This paper focuses on original Greek internet memes (not those translated into Greek) through selected examples. The study aims to investigate fifteen representations about Covid-19 and the Greek experience of lockdown, focused on quarantine lifestyle issues in Greek social media groups (Facebook, Instagram, Twitter). Memes are explored as humorous and composite visual communication works that highlight how Covid-19 and quarantine have affected our everyday lives.

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1. Introduction

The first lockdown in Greece began in mid-March 2020. On March 10, all the educational institutions were closed, and on March 13, coffee shops, bars, restaurants, museums, shopping malls, and sports facilities were also shut down. On March 16, all retail stores were closed, and all religious functions were suspended. By the end of May, most of these restrictions were lifted. The second lockdown was imposed on November 7, 2020, reinstating the previous rules until May 2021. During both these periods, the disruption of regular social activities and contacts adversely impacted the economy, our personal lives, and our psychological state.

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This paper deals with the discourse of the Covid-19 pandemic based on humorous internet memes and highlights connotations of their usage in Greek culture. The study contains memes on Facebook, Twitter, and Instagram from March 2020 – May 2021, using a qualitative content analysis method. The data were collected from fifteen selected posts observed by the author about Covid-19, which are publicly accessible. The qualitative approach taken here sees memes in terms of cultural products that are *"processes of communication"* (Eco 1976: 8) and looks at how observations about lockdowns are constructed. Lockdowns have affected many aspects of everyday life, such as mental-physical-social conditions. The study of humorous memes helps to understand the influence of Covid-19 on Greek society. Many posts published on websites and social media during the pandemic singled out the Greek government's social, economic, and public health practices.

In analyzing the examples of Greek memes created and circulated during the pandemic, the first section will explain what a meme is and what makes memes humorous. Theories about the nature of memes and humor are canvassed. This section concludes with a few brief reflections on the meaning of humor and memes' notion, types, and functions. The second section introduces the mixed methodology of this study, emphasizing its multi-semiotic approach, which directly correlates with the character of the meme as a multimodal semiotic text and image assemblage. This coexistence of two different semiotic systems seems to conduct a semiotic synergy since meaning is created and complemented by different semiotic codes and expressed in a compact semiotic text. The most substantial part of the paper contains the sample memes and interpretations of them. In this part, the main focus is on text-image relationships and how reframing some aspects of social reality into syncretic semiotic texts, such as memes, can lead to humor construction.

2. The notion of a humorous "meme"

According to Shifman (2013: 363), "the word meme derives from the Greek *mimema*, signifying 'something which is imitated.'" A meme is a medium often used to channel humor on the internet and social media (Taecharungroj and Nueangjamnong 2015: 1-2). Shifman (2014) attempts to offer a revised definition of memes to the effect that they seem to be: (a) a group of digital items sharing common characteristics of content, form, and/or stance, which; (b) were created with some awareness of each other, and; (c) were circulated, imitated, and/or transformed via the internet by multiple users (2014: 41). According to Grundlingh (2017), "memes are a common way for individuals to communicate online. Internet users often use memes to reply to each other on social networking sites or other online forums." Also, Grundlingh (2017: 4) believes that "the interpretation of a meme can therefore be seen as a process of signification

[...] both semiotics and pragmatics assist in contributing to a thorough understanding of how memes are used to communicate." Grundlingh underlines that there are two types of 'joke memes':

1. Memes as jokes: The aim of these memes is simply to be a joke; they have no underlying message. Memes are often used to joke about something or someone. The possible content for these jokes is endless but is typically focused on politicians, politics, religion, and current events or celebrities.

2. Memes as humorous comments / opinions: These memes appear to be jokes, but they comment or provide opinions on grave matters. Humor is sometimes a more accessible vessel to use when one wants to communicate an opinion. Humorous memes that are used to comment on political events, for example, often refer to current events (2017: 17-18).

Aondover (2020: 28) considers "a type of meme that is used on social media like Facebook which consists of image, photographs or in the form of cartoons and macros with a concept or catchphrase of Covid-19." Pauliks (2020: 46) argues that "usually if we hear the term 'meme' we think of amusing images and videos on the internet." As regards the circulation of content on the internet, Pauliks observes that:

> The idea that users are infected by viral content and then passively spread it, some argue, is a marketing myth. Instead, they see users as actively involved in the process of deciding what content they will share with other users. The truth no doubt lies between these two arguments. (Pauliks 2020: 46)

Moreover, an internet meme only becomes one when content is copied and changed (Pauliks 2020: 46). Specifically, Pauliks (2020: 47), utilizing Grundlingh's second type of humor, perceives humorous memes as a means that enable users to touch sensitive topics and criticize social aspects with an ironic undertone. Also, he analyzes memes as "collective exchanges," that is, as specific pictorial practices that mirror social reality and need user participation since, without this, they cannot form a group of texts (2020: 49).

3. Methodology: The Interaction of Text and Image

As a multi-semiotic text, the meme designates relations between visual and verbal codes; there is a synergistic effect in combining the linguistic semiotic system, graphics, and color codes. To begin with the basics, it is worth mentioning the popular categorization that Barthes provides about the functions of the linguistic message

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concerning the visual message. Barthes' distinction includes two functions: *anchorage* and *relay* (Barthes 1977: 38). Barthes starts with the anchorage function, "the most frequent function of the linguistic message" (Barthes 1977: 41) and takes for granted that "all images are polysemous; they imply, underlying their signifiers, the reader able to choose some and ignore others" (Barthes 1977: 39). He adds that the text "helps to identify purely and simply the elements of the scene and the scene itself; it is a matter of a denoted description of the image" (ibid). The second function that Barthes notices is the *relay*, which is "less common (at least as far as the fixed image is concerned); it can be seen particularly in cartoons and comic strips" (Barthes 1977: 41). In this case, the text and the image develop a complementary relationship, that is, "the words, in the same way as the images, are fragments of a more general syntagm and the unity of the message is realized at a higher level" (ibid.). Finally, Barthes observes that these two functions of the linguistic message can co-exist in the same visual text (ibid).

Consequently, the relationship between different kinds of texts (verbal and visual) can be quite complicated. For Sipe (1998), transmediation is the most accurate method for studying specific connections (text and image) because it allows us to analyze the phenomenological process of the association of words with pictures. Sipe highlights that the synergy of text and illustration completes each other, and the meaning is built from this interaction. Furthermore, Batič and Haramija (2015: 31) support that the interaction between the verbal and the visual codes provides essential information for the reader to understand the message, and *inter-iconic* links are likely to emerge. Lambert (1986: 139) characterizes inter-iconicity as the fact that one image references another image. For Gamer (2013: 115), the term refers to a general description of visual intertextuality. She defines inter-iconicity as the relationships between images and how they are transformed from one to another (Gamer 2013: 116).

4. Data collection

The main question in the present research deals with how the text-image interaction in humorous memes establishes a kind of discourse about Covid-19. The data were collected from social media platforms and grouped according to the two lockdown periods in Greece from March 2020 until May 2021. The approach utilizes discourse analysis in the framework of visual multi-semiotic communication.

For linguists, a discourse has generally been defined as anything "beyond the sentence" (Schiffrin et al. 2015: 1). Van Dijk (2006) attempts to set up a net of relations between ideology and discourse. He considers that "ideologies are expressed and generally reproduced in the social practices of their members, and more particularly acquired, confirmed, changed and perpetuated through discourse." Fairclough's

(2013: 3) contention is that "ideology is the prime means of manufacturing consent." Ideologies are "representations of aspects of the world which can be shown to contribute to establishing, maintaining and changing social relations of power, domination, and exploitation" (Fairclough 2003: 9). Fairclough sees texts as parts of social events (2003: 21). In addition to this, Fairclough defines social practices as "articulations of different types of social elements which are associated with particular areas of social life" (2003: 25).

The study discusses a selected sample of internet memes used to create humor. There are several alternative ways of reading a meme and many possible ways to understand it. The signs in a meme can be ambiguous. The visual mode of expression, including graphics, drawings, and photographic images, is accompanied by written representations of speech. These representations of speech and visual signs are treated together. Specifically, the idea is to consider "composite, synthetic works (or concepts) that combine image and text," that is *imagetexts* (Mitchell 1994: 89). The interpretations offered of the selected sample memes consider the interactions of text and image constructions, the codes required to read them, the implied narrative mechanics, the relations of implication, and how these are, in some instances, rendered absurd.

Meme 1 [facebook.com]

5. A semiotic approach to 15 Greek memes

The first meme combines two photo frames in one picture, to form a mini-narrative sequence.

In the upper panel, we see the Pope addressing the people assembled in St. Peter's Square, Vatican City, when he suddenly sneezes (indicated by the echomimetic verbal sign "ΑΨΟΥΥΥ" in Greek). In the lower panel, it appears that the people had evacuated the square immediately. This evacuation of the square is implied by narrative mechanics, such as the top-down structure of frames in one image. It is a humorous implication because of the scale (a packed square) and its speed (instantly evacuated from frame to frame) that is realistically impossible. Both scale and speed are vital mechanisms in creating a humorous visual effect. The meme maker added the fake sneeze as a comic element; the consequence is the unrealistic fact that people could leave the square instantly to escape the spray of the Pope's sneeze. This meme shows people's fear about contracting the virus to the degree that they feel the need to bolt from the Pope's presence.

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Meme no. 2 is a cartoon sketch edited with Greek phrases. The overhead title informs us that we are on the 10th day in quarantine to fix the context and determine the point of time. In the bubble,[1] the woman says: "George, can you give me the hairdryer?" The man, probably her husband, gives her a gun instead. This kind of humor implies that the extended confinement at home with the members of one's family during the quarantine has brought tensions and irritation. In other words, it plays on the adverse psychological impact of the quarantine. It is noteworthy here that this impact is associated with the husband. Specifically, we can observe the cultural stereotype of misogyny expressed in the man's hostile facial expression, all the while the female figure, pictured with her hair over her face and asking for a hairdryer, seems to fit the cultural stereotype of a narcissistically self-absorbed female. The semiotic equivalence of the gun handle and the grip of a hand-held hair dryer is significant because it represents barely veiled gender violence.

Meme 2 [facebook.com]

Meme 3 doesn't differ substantially from the previous one, apart from the kind of visual sign, here, a photo. The meme-maker depicts the socio-psychological impact of quarantine and lockdown on couples, this time younger couples. The meme has a title, "2 weeks in quarantine." Moreover, the added speech bubble contains the utterance "Can you blink more quietly, you ASSHOLE?" spoken by the woman, while the man is sitting silent, in a pose suggesting his gloomy mood. The humoristic effect is in the phrase "blink more quietly," highlighting the hypersensitivity towards the behavior of others caused by the condition of confinement.

Meme 3 [facebook.com]

Meme 4 raises the issue of the restriction of entertainment and social outings during the quarantines. The sketch depicts a couple chatting in a sarcastic mood about their entertainment options. The man says: "I suggest we stay in the kitchen today, and tomorrow if the weather is good, I will take you for a walk in the

[1] According to Eco (1994: 155), "the 'bubble' fulfills a specific function." The bubble and the caption in a frame help create "a close fusion between visual information and verbal information."

Meme 4 [facebook.com]

Meme 5 [facebook.com]

Meme 6 [facebook.com]

hall," to which the woman responds: "Great! How about a weekend in the living room?" showing that she follows the conversational mood and enters into the spirit of the imaginative recasting of the domicile as worthy of exploration as if during a vacation.

In Meme 5, we see the humorous treatment of one of the few possibilities for open-air activities allowed during the lockdowns. People were allowed to leave their residence for a series of emergencies but also to walk their pet dogs. In this meme, we can see a man sitting in an armchair alone in a room, looking anxiously at his dog. His dog, represented anthropomorphically as walking on two legs and using the other two as hands, opens the room door and tells him: "Today is Saturday, and there is much work to do. I'll be a bit late. Stay quiet!" The meme creator has effectively reversed the roles of human/pet dog, with the former placed in the position of the home-bound dog, waiting anxiously for his owner to take him for a walk. On the other hand, the dog is placed in the position of a human too busy to spare time for his pet. While the dog is anthropomorphized, the human is animorphized. As his physical pose and general attitude indicate, he is transformed into an obedient, house-broken pet, dependent on its master's whims.

The following meme no. 6 deals with the same human/pet relation topic but with a different focus. The protagonists are again a dog with its owner. In this case, they are in a kitchen, and, once again, an anthropomorphized dog exclaims, "I won't come down!!! You have taken me for a walk 20 times today." The capital letters convey sonic salience to the written text (Nørgaard 2009: 150; Serafini and Clausen 2012: 10) and provide emphasis (Serafini and Clausen, ibid). The frame operates comically by investing in the improbable: a dog refusing to go for a walk and, at the same time, finding refuge high up on the kitchen cupboards, as far away from its owner as possible.

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Meme 7 switches from dog to fish. The caption states the previously mentioned government permission for people to go out for a walk to accompany their pets. The meme showing a man taking a walk with his goldfish satirizes how people used all kinds of seemingly legitimate excuses to get out of their homes.

Meme 8 raises the issue of the poor physical condition that many people suffer due to the constraints of lockdown. This meme is titled "the four stages of quarantine" and contains an inter-iconic, intertextual reference and an inter-semiotic translation of Da Vinci's *Mona Lisa*. Our conventions in dealing with page design affect the way we must read the meme, "from left to right and from top to bottom, line by line" (Kress and Van Leeuwen 2006: 204). This pattern is due to "a sense of complementarity or continuous movement from left to right" (2006: 180). In addition, "the elements placed

Meme 7 [facebook.com]

Meme 8 [facebook.com]

Meme 9 [facebook.com]

on the left are presented as Given, the elements placed on the right as New" (2006: 181). Thus, in the first stage, Mona Lisa appears in her all too familiar, well-groomed, and tranquil pose. In the second stage, we see her playful and carefree, taking selfies, but in the third stage, she appears untidy and messy. The fourth and final stage, Botero's physically exaggerated version of the Mona Lisa, is employed to represent the lockdown's adverse effects on body weight and physical condition. The narrative structure of the meme graphically represents the prolongation of the quarantine as a process of declining mental and physical health. The humor lies in using a cultural icon like the Mona Lisa to allegorize the hardships of the general public. The visual suggestiveness of her transformation makes any additional verbal cues redundant, although Botero's fans are likely to take offense by the satirical use of his picture.

The next humoristic meme is based on the contrast indicated by the two captions: "2019 – lazy dog" *vs*. "2020 – responsible citizen." The meme's structure high-

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lights image-language relations because the same image acquires entirely different meanings with each caption. The creator suggests that in 2019 someone who used to stay at home all day doing nothing was labeled lazy. In 2020, instead, someone who does the same thing was labeled a responsible citizen, following the government's instructions. The implication is that the lockdown has reversed moral and civil duty hierarchies.

Meme 10 depicts a smiling pilot who has just left his airplane to save himself from the coronavirus. His message on the yellow card says: "I am your pilot. Someone has sneezed. Good luck." The meme is humorous because it seems impossible or excessive for a pilot to leave his plane due to a sneeze. However, the meme represents fearfulness and the lengths to which someone would go not to catch the

Meme 10 [facebook.com]

Meme 11 [facebook.com]

Meme 12 [facebook.com]

virus and protect themselves as best they can, under the circumstances. The pilot prefers to take his chances outside the plane than inside a plane filled with the potentially infectious air spray of a sneeze. This meme is linked with the first one as a variation in the reactions due to the sneeze and, thus, it depicts probably the most common way to catch Covid-19 and the urgency of people to escape from the spray range.

Meme 11 was created in mid-June 2020. The strict measures of the first lockdown had relaxed, and people began to return to public spaces. At the time, there was considerable controversy regarding government measures that seemed to risk a new strict lockdown. At the same time, most people felt the need for some degree of freedom of movement. In this meme, we see a crowded bus in a Greek city. Looking at the speech bubbles from left to right, we read: "Would you like to go to the theater tonight?" – "Are you crazy? Do you want to get infected?". The meme lashes out

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against the government's hygiene measures, as it did not invest in public transport and, thus, citizens are crowded together and risk infection. Set in an ironic mode, the meme implies that the real danger for most people is in the full buses and not in the still severely regulated theatre attendance.

Meme no. 12 was released in the second lockdown period, during winter 2020, on an Instagram page. Two people - one of them is from our point of view - play the popular card game Uno. The child, marked as 'Me,' seems happy and carefree, perhaps sure he has a winning hand. Acting as a metaphor for the viewers implies that we are totally naive (childish) to expect the lockdown to be over in a few days. My/Our competitor, Covid-19, seems to have an unbeatable combination of winning cards! A new lockdown appears to be the most likely development. The phrase "The

Meme 13 [facebook.com]

Meme 14 [facebook.com]

Meme 15 [facebook.com]

next two weeks will be crucial" had by then become a cliché, as it was repeated by the Prime Minister and the Greek mass media from the first month of the lockdown until May 2021. Consequently, it lost all sense of hopeful expectation and solidified ironically in public pandemic discourse.

Another critical issue in the quarantine period was the continuation of educational and training activities through online platforms. This meme represents the students' non-participation due to the nature of the channel through which the educational activity occurs. The caption says: "Kerameus [the Education Minister]: Why open universities? After all, online courses work just fine" – "Online courses." The image is taken from the popular television comedy series *Konstantinou kai Elenis* to anchor the viewer's gaze and be recognizable through intertextuality. The verbal part of the meme is sarcastically directed at the Education Minister since it implies that she has no idea how ineffective online classes are. The pictorial part shows in-

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dexically why the mood is sarcastic. The image suggests that students aren't so interested in participating in the lectures. This contrast between the Minister's statement and its exaggerated implementation, as depicted visually, creates a humorous frame.

In this imagetext, we can see a man who covers his head with many masks and wears his glasses over them. He can't see anything, and this exaggeration invites the viewer to ask for an explanation. The verbal part of the meme, "when they tell you that the more times you wear a mask, the sooner the lockdown will end," explains this attitude. The Greek government had proposed that only one mask did not ensure safety and recommended we wear two masks instead. During a crucial period and echoing widespread frustration with pandemic measures, the meme mocks how the government chose to protect people. This meme is grounded on the exaggeration and the unrealistic dimension of the image to create humor.

The last meme titled "how times change…" consists of four frames representing four different decades. Reading from left to right, we see a Greek driver's car accessories in chronological order. A hanging cross acts as a sign of religiousness and a form of protection from car accidents, customary in the '70s. Next, we see various purely decorative accessories from the '80s and '90s. The last frame portrays the protective filtering face mask against Covid-19 that has replaced the previous ones. However, it isn't a decorative accessory but a specialized product to protect us against infection. It has been turned into an element of everyday life, and it has to be accessible at any time. The frame is ironic and stands in contrast to the previous ones because it isn't a car accessory, but a face mask which must not be exposed like (in the harsh environment of the enclosed space of an automobile) this for hygienic purposes.

Conclusions

In this paper, I have attempted to conduct a meme analysis with a social semiotic perspective (Van Leeuwen 2005; Kress and Van Leeuwen 2006), understanding memes as *imagetexts* (Mitchell 1994), in combination with humor theory, to detect and explore the discourse of the Covid-19 pandemic in Greek social media (Facebook, Twitter, and Instagram). The comic usually comes from noticing the oddities and absurdities in the world around us. The strange and unusual conditions generated by the pandemic measures have provided fertile ground for many humorous perspectives. Whether taking issue with the common predicament of fear and confinement or public safety rules, internet memes took center stage in expressing public sentiment. At the same time, the whole social media ecosystem became the preferred arena of the politics of the pandemic, from campaigns for public safety and hygiene to conspiracy theories and denialist manifestos.

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The analysis of the memes' meaning indicates deviations from reality or normality and exaggeration as major modes used to create humor. Furthermore, the synergy of semiotic codes enhanced the comic effect (Kostopoulou 2020: 188, 198). The humorous memes studied here showed that the panic had permeated everyday life and influenced the psychology of the Greek people in the first lockdown period: understanding and prudence were the measures taken against the virus. However, during the second lockdown, the memes reflect the people's weariness, psychological fatigue, and frustration at prolonging the government's strict measures.

The public tends to absorb information quickly and shape their stories grounded on critical circumstances like this, primarily when constructed through humor. The primary role of meme humor in social media is to create a vernacular metalanguage, giving people the opportunity to reconsider their attitudes, beliefs, and actions about significant aspects and issues in their lives through an exaggerated perspective.

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A Semiotic Comparison of Mass Media Representations of the Swine Flu and Covid-19 Pandemics:
Observing Narcissus Narcosis

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ABSTRACT

This paper compares the coverage of the H1N1 and Covid-19 pandemics in ten prominent US daily newspapers. We selected articles that reference disease-specific keywords, published in the period between the declaration of a Public Health Emergency of International Concern by the World Health Organization and the first peak in laboratory-confirmed cases in the USA (20550 articles on Covid-19 and 1705 articles on H1N1). We analyzed the dataset via topic models and semantic networks, which, in a semiotic approach, are understood as iconic models. As the Covid-19 virus produced the first global pandemic in the age of social media, this comparative analysis illustrates how the news media changed the mediasphere in general. During the H1N1 pandemic (2009-2010), newly emerging social media were not mainstream, having a limited impact compared to 2020 at the outbreak of Covid-19. By 2020, social media have definingly changed the mediasphere. Given their affordance for the virulent transmission of media products, the rise of social media stirred the relativization of knowledge and mistrust towards traditional authority and legacy media. Paradoxically, this both democratizes public debate and opens opportunities for misinformation. In this context, the Covid-19 pandemic has been accompanied by a global infodemic, with adverse impact on global health. While the two pandemics are very different, comparing media representations in their early stages, when the viral spread was unpredictable, offers an insight into how

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the emergence of social media impacted traditional newspapers' approach to events of global concern. The analysis reveals that ideological commitments are expressed through the same correlation of topics in both corpora but that, overall, the discourses have different structures. We argue that the remarkable stability of ideological discourses displays what McLuhan termed *Narcissus narcosis*, namely the numbness experienced socially during media changes.

1. Introduction

This paper compares media representations of the Covid-19 and swine flu pandemics in American newspapers through a combination of topic modeling and network analysis. In this way, we observe the similarities and differences in a discourse before and after social media has become the leading news source. These may pass unnoticed, as media changes are difficult to perceive from within. We consider data in newspaper content to reflect on how the rise of social media, not just mere digitalization, alters journalism. In the public discourse on the present Covid-19 pandemic, the 1919 Spanish flu has emerged as the singular historical reference point for a global public health emergency otherwise considered as unprecedented. Such diagnostics face the problem that, even under the theoretical assumption of perfect knowledge in the hands of an "ideal chronicler," the historical significance which, in the future, will be attributed to an event cannot be determined in the present (Danto 2007). The extent of historical precedence, in other words, is not fixed but co-evolves as an event unfolds in time. In respect to the pandemic, up until some point during the year 2020, Covid-19 was not (yet) an event that required observers to look back to 1919 to identify a historical precedent or analogy. Instead, during the first few months when the SARS-CoV-2 virus started spreading worldwide, a range of reasonably comparable cases existed, the most relevant being the 2009 H1N1 (swine flu) pandemic. As the Covid-19 pandemic unfolded in subsequent months, its accumulating effects in terms of public health, governmental responses, as well as social and economic impacts, gradually reduced the plausibility of H1N1, as well as other viral crises (such as the 1968 Hong Kong flu, the 1977 Russian flu or the 2006 avian flu) that have been recurring throughout the world for decades, being relevant historical cases.

And yet, the owl of Minerva always spreads its wings at dusk. Up until a few months into the pandemic, Covid-19 might just as well have been a historically limited-impact event, comparable with the three influenza crises referred to above, rather than the transformational, once-in-a-generation type of event, as it turned out to be. In its early stages, Covid-19 did not display the signs of such a significant and global pandemic. We became aware of that only later and in retrospect.

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Here, we focus on the unfolding of the Covid-19 pandemic in the media, specifically in US-American newspapers, by comparing it with the media coverage of the swine flu pandemic. We ask, to what extent did the public discourse show similarities or differences to such crises during the early months when the historical significance of the Covid-19 pandemic was arguably much more indeterminate than it is today? And what are the broader theoretical implications that we can derive based on identifying such empirical similarities and differences?

Comparing the media coverages of swine flu and Covid-19 pandemics is useful not only because they had a comparable early impact. A particular insight arises from the media change that unfurled in the decade between these events. By the end of 2009, 42% of US adults reported using at least one social media site; by 2019, 72% did (Pew Research Center 2021). In brief, by the time of the swine flu outbreak, social media were just emerging, whereas by the time of Covid-19, these constituted the primary source of news in the US (see Mitchel and Shearer 2021). In the US, social media outpaced newspapers as the primary news source in 2018 (Shearer 2018). The transition from all traditional broadcasting media to digital spaces "caused huge disruptions in the traditional news industry, especially the print news industry" (Shearer 2021), as 86% of US adults report consuming news via a digital device. This medial change is reflected in a semiotic change as the syntax of social media evolves. In 2009 Facebook launched the 'like' button, enabling users to express their appreciation for a post. However, by 2020, the users have at their disposal a code consisting of seven buttons for expressing an emotional response to a post. The need for better differentiation of instantaneous expressions of emotion signals that posting in some new media has become a common practice. In light of such considerations, we compare the coverage of a pandemic before and after social media's rise to dominance in the media environment. The audience behavior and networking on digital social media are quite different from previous media (including digital). Researchers began to notice this in the early 2010s (e.g., Mills 2012; Marwick and boyd 2012; Litt 2012; Litt and Hargittai 2016). In McLuhan's terms (1994: 18), social media are now more impactful in shaping "sense ratios" and "patterns of perception" than traditional broadcasting media, which was not the case in 2009. A first and most crucial observed difference is that the Covid-19 pandemic, the first pandemic of the Digital Age proper, is wrapped in an infodemic (see Cinelli et al. 2020; Hua and Shaw 2020).

2. Models: topic, semantic, iconic

We start with an exploratory and open-ended comparative analysis of the US news media reporting on Covid-19 and the 2009 swine flu during the early months of either pandemic. There is extensive literature on infectious disease reporting in the news

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media, including the rapidly growing number of studies concerning Covid-19. Still, we use a relatively novel hybrid method to identify and analyze discursive structures, which we define in terms of linked semantic elements. In analyzing two corpora, comprising articles from large US dailies, we first estimate two Correlated Topic Models that identify the latent semantic structure of news reporting on Covid-19 and the swine flu. Second, we use these models to generate semantic networks, where nodes are topics and arcs represent inter-topic correlations (Rabitz et al. 2021). The resulting models are iconic in semiotic terminology (Kralemann and Lattmann 2013) since they represent their objects through similarity to bring some of the objects' features to the fore. The approach we adopt follows a semiotic conceptualization of digital humanities modeling (Ciula and Eide 2017: i34), where modeling is defined as "a creative process of thinking and reasoning where meaning is made and negotiated through the creation and manipulation of external representations." Adopting such a pragmatic lens, we apply various network-analytic tools and measurements that illustrate remarkable similarities in the two discursive structures.

We interpret our data models in light of McLuhan's classic media theory, particularly adopting his view on media change. On the one hand, McLuhan (1994: 16, 92-93) considered that an essential feature of the "electronic age" is that, unlike previous historical media changes, the contemporary individual can observe the change and, thus, can become aware of some effects of the newly emerging media technology. In this situation, the old and the new medium are both visible, contrasting each other. The social implications of past media changes, such as those produced by the alphabet or printing press, occurred too slowly to be acknowledged individually. If, until the emergence of electronic media, a human individual would populate one mediatic space throughout a lifetime, currently, experiencing several media spaces throughout a lifetime is inevitable.

On the other hand, while nowadays, it is evident that human societies are undergoing a media change (digitalization), the full effects of this change are not easily perceived from within the changing societies. This is due to the nature of media, to the fact that they constitute the lens through which societies perceive and shape themselves. On a more general level, as per Danto's (2007) argument, we cannot determine the historical significance of an unfolding event.

McLuhan (1994: 42-43) also argued that media changes cause a type of *numbness*. Comparing media discourses on the swine flu and the Covid-19 pandemics offers insight into the specific media change brought about by digitalization. Our argument rests on observing a certain degree of iconicity between the models stemming from the two corpora. The two models share certain structural similarities that are not immediately visible by comparing the corpora. The models we operate with are iconic; namely, their representational quality is based on "a similarity relation be-

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tween themselves and their objects" (Kralemann and Lattmann 2013: 3998), that is, the two corpora.[1] Instead of comparing the corpora, we compare the models, which give direct access to the characteristics of the corpora in which we are interested. The iconicity of topic models is a little-explored semiotic quality. As both models are iconic signs, the features of the objects they exhibit are easy to compare.

In the spirit of Kralemann and Lattmann's iconic modeling theory, we adopt Charles S. Peirce's (see CP 4.561n²) notion of iconicity, explained simply by Stjernfelt (2007: 49) as "the sign-relation making one phenomenon signify another by similarity in some respects." While similarity can be a relatively trivial criterion for modeling, iconicity is defined "by the direct observation of [an icon] other truths concerning its object can be discovered than those which suffice to determine its construction" (CP 2.279). Genosko (2012: 6) agrees that the defining feature of icons, in the Peircean sense, is "discovery, concept generation and experimentation based on observation." Stjernfelt (2015: 37) clarifies that "[t]his surplus of information is accessed via manipulation of or experimentation with the icon - actions realizing deductive inferences." Adopting this perspective, we deductively infer our models to reflect on newspapers' representations of pandemics of global concern before and after the social media revolution (in this regard, see Mitchel and Shearer 2020; Pew Research Center 2021). Notably, we relate our deductions to Marshall McLuhan's concept of *Narcissus narcosis* (1994: 55).

Our analysis revolves around the observation that ideological commitments are expressed through the same correlation of topics in both pandemics but that, overall, the discourses have different structures. This means that the newspapers' coverage of the two pandemics is similar, while political, social, and media contexts differ. The remarkable stability of correlations between ideology and topics before and after the mainstreaming of social media accounts, even if only in part, for what McLuhan termed *Narcissus narcosis* (1994: 55), namely the numbness experienced socially by the extension of the human body consisting in the emergence of new media technologies. The stability of the relation between ideological commitments and topics enduring in an old medium, while more contemporary media have become mainstream and determined changes of discourse, is a "counter-irritant," which "produces a generalized numbness or shock that declines recognition" (McLuhan 1994: 43). Of course, as McLuhan's myth-inspired concept is philosophical, what we observe in empirical data is only an indication of such numbness. In all of its complexity, the idea of *Narcissus narcosis* is more encompassing and, at the same time, elusive than an empirical dataset can capture.

[1] Some of us started developing such an uptake of semantic networks in a semiotic key in Olteanu et al. (2019), where we investigated the structure of semantic networks of environmental sciences.

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Nevertheless, we claim that the comparison of models of the datasets brings to light some evidence for the *narcosis* that accompanies media changes. Primarily, McLuhan's *Narcissus narcosis* serves as the guiding abduction for this study. In a Peircean view of science (CP 1.240-242), the *Narcissus narcosis* concept here serves as the abductive (intuitive) stage of an inquiry which we take to coenoscopic (deductive) and idioscopic (inductive) stages by the observation of data that, respectively, are analyzed in a media semiotic lens. As such, we are led to infer back on the phenomenological reality described by what McLuhan termed *Narcissus narcosis*.

This exploration also finds justification in more recent social semiotics, according to which changes in social environments imply changes in the design (form-content articulation) of messages (Kress 2010: 50). Digitalization must have impacted the content of newspapers in specific ways. At the same time, aligned with McLuhan's theory, social semiotics also observes that "past ways of doing things may be 'hardwired' in technologies" (van Leeuwen 2001: 52). For the consumer of newspapers, hence, the stability of the ideology-topic correlation may give the impression that not much has changed socially, that newspapers remain the accountable source of news they have traditionally been. As van Leeuwen (2001: 52-53) adds, resistance to semiotic change is also exercised "because people with a vested interest in past ways of doing things see their traditional values threatened and try to hold back change," an attitude which is ideologically embodied in technology. While the choice between newspapers or social media as a news source is ideological, newspapers are becoming integrated into digital networks and thus indistinguishable from social media (see Hong 2012; Canter 2013; Ju et al. 2014). This is why, as McLuhan further clarified the *Narcissus narcosis* concept, "Self-amputation forbids self-recognition" (1994: 43). In brief, the old medium is extended into and transformed by the new one without the consumers' awareness of media products.

In the spirit of van Leeuwen's (2005) and Kress' (2010) social semiotic theory, we offer insight into digitalization by reflecting on the resistance and adaptability to change of newspapers during the unfurling of digitalization semiotic change. This means considering how changes of form, as afforded by mediality, correlate with meaning changes(semantic content, in the case of newspapers). This leads to observing possible new resources for meaning-making that new media are making available for a previously existing medium. This hybridization of the newspaper is also, arguably, a cause for much confusion surrounding the pandemic. Canter (2013: 472) remarks the scholarly "concerns that the wealth of information online is detrimental to journalism." Pressure to compete with social media results in need to produce quantitatively more content and, at times, compromise journalistic inquiry for commercial interests, rendering the newspaper a less reliable medium. In the case of pandemics, this situation might fuel the dramatization of news reporting.

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3. Infectious diseases, news media and the case for semantic networks

Viral pandemics, towards the top of the list of threats to global health security, are part of a larger pandemonium of infectious diseases that have long preoccupied human imagination and, consequently, the mass media. In the past, scholars prioritized the analysis of legacy media, typically via single case studies (Saguy and Almeling 2008; Vasterman and Ruigrok 2013; Raupp 2014; Klemm et al. 2016; Sell et al. 2016) or comparative research designs (Blakely 2003; Wallis and Nerlich 2005; Ungar 2008). In the context of Covid-19, the respective discussions among scholars and policy-makers increasingly include the role of social media and, interconnectedly, of disinformation, propaganda, and "infodemics" (e.g., Au et al. 2020; Bright et al. 2020; Cinelli et al. 2020; Hua and Shaw 2020). Social media are not necessarily less reliable than legacy media, although their comparatively lower transparency and public accountability standards make them more vulnerable to disinformation. More importantly, for this paper, what characterizes social media is the virality implied by the networks they constitute (see Marwick and boyd 2012; Mills 2012; Litt 2012). Virality describes the flow of information through social media networks, not the content and conveyed information (and its truth value). The unique response that the current pandemic received can be partly explained by considering the particular media context (Merchant and Lurie 2020) within which the pandemic is unfolding. While socio-technical change is driving a broader shift in research priorities, from the big-picture perspective, several key themes stand out in the literature on infectious diseases in the media.

First, the media play a crucial role in the social amplification of risk. For instance, Klemm et al. (2016) highlight the part of the mass media in the "dramatizing" of the swine flu pandemic. For the alleged obesity epidemic, Saguy and Almeling (2008) similarly emphasize media dramatization, with Boero (2007) referring to the production of moral panic. Krishnatray and Gadekar (2014) and Goodall et al. (2012) raise similar points regarding the swine flu coverage in, respectively, the Indian and US news media. The related theme of media-induced "fear culture" has been analyzed for Covid-19 in the UK and China (Chaiuk and Dunaievska 2020). Vasterman and Ruigrok (2013) identify "alarmism" in the Dutch media response to the swine flu.

Second, this existence of risk amplification, moral panic, alarmism, or fear culture coincides with the media's crucial role in the indirect management of infectious disease risks. Particularly instructive here is the finding of Ungar (1998), who, studying Ebola in the former Republic of Zaire, finds that media framing shifts from alarmism to management-oriented pragmatism once moral panic poses a plausible public disorder threat. This management-centric media orientation also extends to the cognitive ordering of infectious disease threats. This can happen, for instance, by situating public

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health impacts and policy responses within broader political and economic contexts (Raupp 2014). It can also manifest itself through the supply of heuristics that simplify the socio-cognitive processing of complex and multidimensional public health threats. This notably includes blame attribution through geographical markers (Blakely 2003) or framing morbidity in terms of individual responsibility (Saguy and Almeling 2008).

Alarmism is enhanced by social media, given the viral flow of information on social networking sites. This is clearly illustrated through how an infodemic accompanies the Covid-19 pandemic. After more than a year into this pandemic, whether the stringency and scope of response measures are proportionate to the objective epidemiological profile of SARS-CoV-2 is still a subject of controversy in the media (e.g., Andersen 2020; Cinelli et al. 2020). Cinelli et al. (2020: 1) explain:

> The case of the COVID-19 epidemic shows the critical impact of this new information environment. The information spreading can strongly influence people's behavior and alter the effectiveness of the countermeasures deployed by governments. To this respect, models to forecast virus spreading are starting to account for the behavioral response of the population with respect to public health interventions and the communication dynamics behind content consumption.

Objective, medical differences between the two pandemics explain the different public reactions only to a limited extent. Particularly in the initial stages, the evolution of either pandemic was unpredictable, which caused some confusion among the public. While both the swine flu and the Covid-19 pandemics have been the target of attempts to disinform, only the latter is accompanied and made worse by a full-blown infodemic (Cinelli et al. 2020; Hua and Shaw 2020). The fact that it is only in the recent pandemic that misinformation had such momentum testifies to the role that digitalization plays in the formation of an infodemic. While, on the one hand, social media allowed for the spread of misinformation about Covid-19, on the other, it also facilitated the prompt campaigning of expert bodies, such as, first of all, the World Health Organization (WHO 2020b, c; 2021). Remarkably, the WHO (2021) strategy to tackle misinformation is focused on social media platforms, proposing tactics such as using designated hashtags to denounce false information. This confirms Genosko's (2012: 14) observation that the digital network "is inseparable from deception: deceivers are consubstantial with senders and receivers." As the official and traditional authority on health, the WHO has the difficult task of vouching for information by maintaining its authorship clear in an intrinsically virulent network.

The WHO (2020a) stressed the uniqueness of the ongoing pandemic, having explained that "COVID-19 has been the most urgent test of national capacities to

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respond to a health emergency in more than a century." In the early stages of the pandemic, the rate at which the virus spread and its consequences were unpredictable in all areas of human life. Paradoxically, both effective response measures for limiting infection, on the one hand, and confusion and indecision, on the other, are due to the current unprecedented high accessibility to information that new media technologies entail (Merchant, Lurie 2020).

Affording new ways of communication and social organization, the new media reshape the public- and media-sphere in their entirety (e.g., Stjernfelt and Lauritzen 2020: 201-202), while traditional media (e.g., newspapers, radio, TV) have to adapt to the new, content-creating publics (Canter 2013; Ju et al. 2014). Besides the harm caused by disseminating factually wrong information, the coronavirus infodemic leads to a generalized suspicion towards information conveyed by traditionally trusted sources. In this situation, the overall impact of the Covid-19 pandemic on public health globally is boosted, as the overexposure to both correct and wrong media content about the new virus creates confusion and uncertainty. This adds to the strain on mental health, which the pandemic and consequent restrictions already affected (Garfin et al. 2020). In turn, the implications on public mental health have a toll on public opinions about the pandemic. At the same time, digital technology and communication networks offer new opportunities and ways of tackling a crisis that proves critical. Besides responsibly disseminating essential information promptly by expert bodies (e.g., WHO), digital technology makes it possible to keep areas of the economy and society active while strict physical distancing measures are observed.

For this reason, Merchant and Lurie (2020) consider that social media reveal the possibility of enabling a culture of preparedness for crises. Indeed, the WHO has been using its official communication channels (which includes social media) to promptly disseminate information about the pandemic and, also, to counter disinformation with a global outreach. At the same time, we also note that the WHO's responses to the swine flu and Covid-19 pandemics raise questions related to transparency, accountability, and potential conflicts of interest.

4. Methods and data

Our data consists of articles published (as of 2020) in the ten largest US daily newspapers, respectively referencing the keywords 'H1N1'/'swine flu' or 'coronavirus'/'COVID-19'/'SARS-CoV-2.' We chose a common time frame during which, arguably, the two pandemics possessed a significant degree of comparability: from the day after the declaration of a Public Health Emergency of International Concern (respectively April 25, 2009, and January 30, 2020) by the World Health Organization until the date of the first peak

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in laboratory-confirmed cases in the US (respectively June 14, 2009, and April 11, 2020). This yields 20.550 articles for Covid-19 and 1.705 for the swine flu.

We then proceeded in three steps. First, we preprocessed the two corpora to reduce the overall amount of noise in the data: we concatenated key expressions (such as 'New York' or 'swine flu') to treat them as single, rather than separate terms; normalized acronyms (for treating expressions such as 'CDC' and 'Centers for Disease Control' identically); and removed common stopwords (such as 'the,' 'and,' 'or,' as well as some corpus-specific terms). We removed all special symbols and punctuation and applied a lemmatizer to remove inflections (e.g., transforming all instances of 'took' or 'taking' into 'take').

Second, we estimated two separate topic models. These are a class of statistical methods that identifies 'topics' as clusters of words that are semantically related. Topic models display two types of associations: between topics and terms (e.g., a topic that broadly covers vaccine development might have strong associations with terms such as 'AstraZeneca,' 'mRNA,' 'clinical' and 'trials') and between topics and documents, that is, the extent to which any given document in a corpus is composed of different topics. In semiotic terms, then, a topic model is an iconic model that represents a corpus by highlighting its inner semantic associations between topics and terms, and topics and documents. The similarity between the model and the corpus consists of these associations, which are rendered more easily perceivable and, hence, operative by stripping the model of the corpus's other semantic and syntactic elements. As such, topic models generally enable the discovery of a "low-dimensional latent structure that can explain high-dimensional data" (Roberts et al. 2016: 57). They are already in use in the emerging literature on Covid-19 in the media (e.g., Jo et al. 2020; Quandt et al. 2020) and have been used in media analysis more broadly, for instance, for the identification of frames (Klebanov et al. 2008; DiMaggio et al. 2013). As the details of model estimation are highly technical, we here simply note that we use a standard procedure for identifying a narrow range of viable topic numbers before estimating several hundred separate models within that range. Finally, we retain only those that perform best on key indicators (semantic coherence and exclusivity). We then use the resulting models for gauging the overall semantic content of each corpus. This also allows for observing the role of political ideologies in the framing of discourse: to what extent are the conservative-liberal orientations of the various newspapers in our corpus associated with variation in document-topic loadings? In other words, do conservative and liberal newspapers differ in their emphasis on different topics, and to what extent do such differences replicate between our two cases?

Third, we use our topic models for generating topic networks, which increases the degree of iconicity, as pragmatic to our aim. As texts are mixtures of topics, topic models can provide intertopical correlations of the sort: if text A is about topic X,

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it is *also* likely to be about topic Y. The possibility of transforming such correlations into networks is often mentioned in the literature yet rarely applied in practice. Topic networks, where topics are nodes and edges are correlations, represent the discursive structure behind a given body of text. They lend themselves towards standard network-analytic methods. Here, we apply network analysis at three levels: node-level centralities (i.e., how 'important' or 'influential' are particular topics within the network?), community structure (i.e., which topics form larger semantic clusters), and network centralization (i.e., how strongly is the network dominated by a single, or a few, topics?). We apply this method from the vantage point of comparing the discursive structures of news media reporting on Covid-19 and the swine flu.

5. Results

The two topic models summarize the broader semantic content of the two corpora (coverage of the H1N1 and, respectively, the Covid-19 pandemic) and the relative share of a given corpus that each topic accounts for in figure 1. There and below, to summarize the content of each topic, we provide the three top terms associated

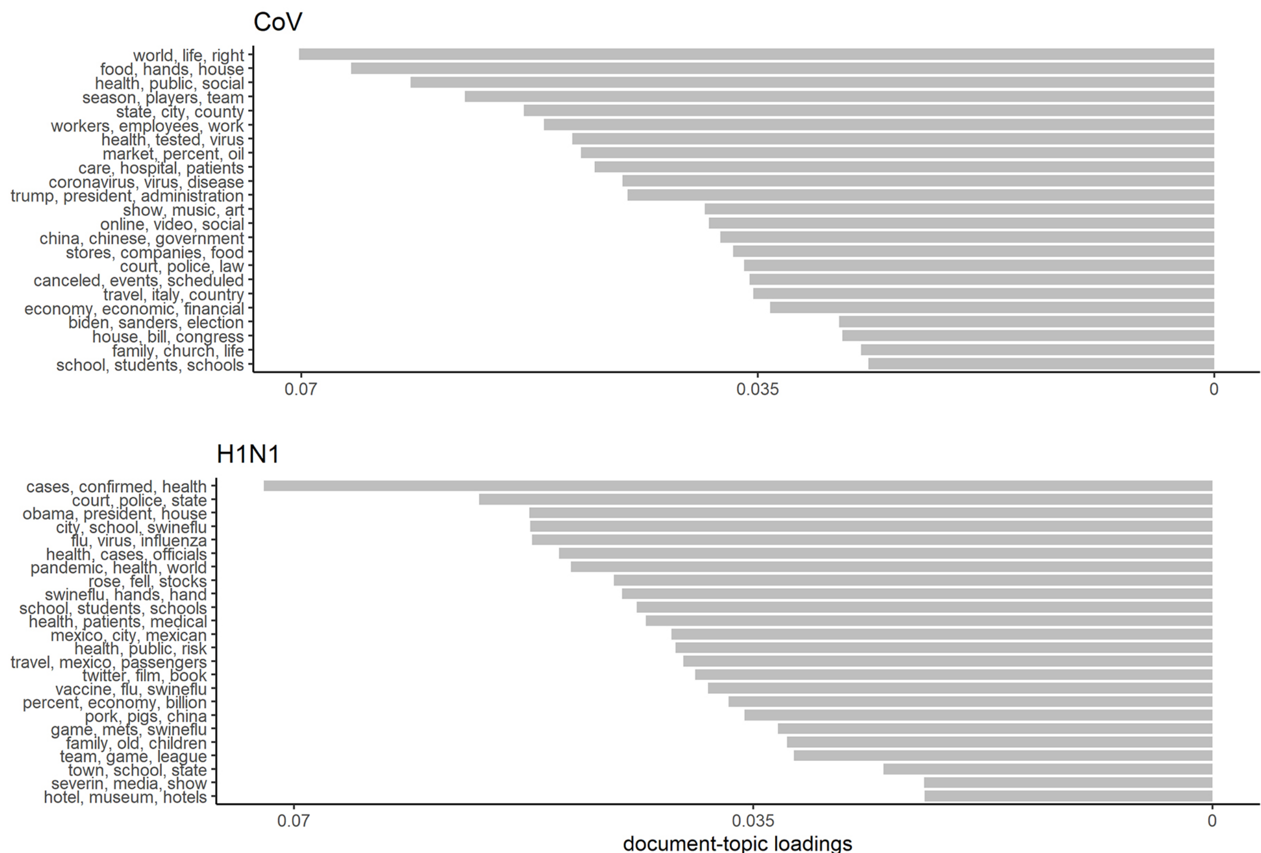

Figure 1.

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with each. For instance, in the case of our swine flu model, the topic 'travel, Mexico, passengers' covers the entry of (possibly or actually) infected persons from Mexico (the epidemiological origin of the swine flu pandemic) into the US territory. For our Covid-19 model, the topic 'Biden, Sanders, election' addresses the pandemic in the context of the 2020 US Presidential elections and the democratic primaries.

We also find that differences in topic weightings between liberal and conservative newspapers are relatively stable across cases (see figure 2). For Covid-19 and the swine flu, we find that conservative newspapers place a significantly stronger emphasis on the economic aspects of the respective pandemic. This effect is mainly driven by our inclusion of articles from the *Wall Street Journal* and its specific focus on economics and monetary policy. The overall stability in terms of left-right effects on document-topic loadings is remarkable. It indicates that, for the newspapers under consideration, the increases in affective polarization and partisan sorting, which various studies have identified across the US polity, are absent at the level of media reporting.

We now turn to network analysis. For each corpus, we generated an undirected and weighted network of topics and intertopical correlations. Figure 3 visualizes

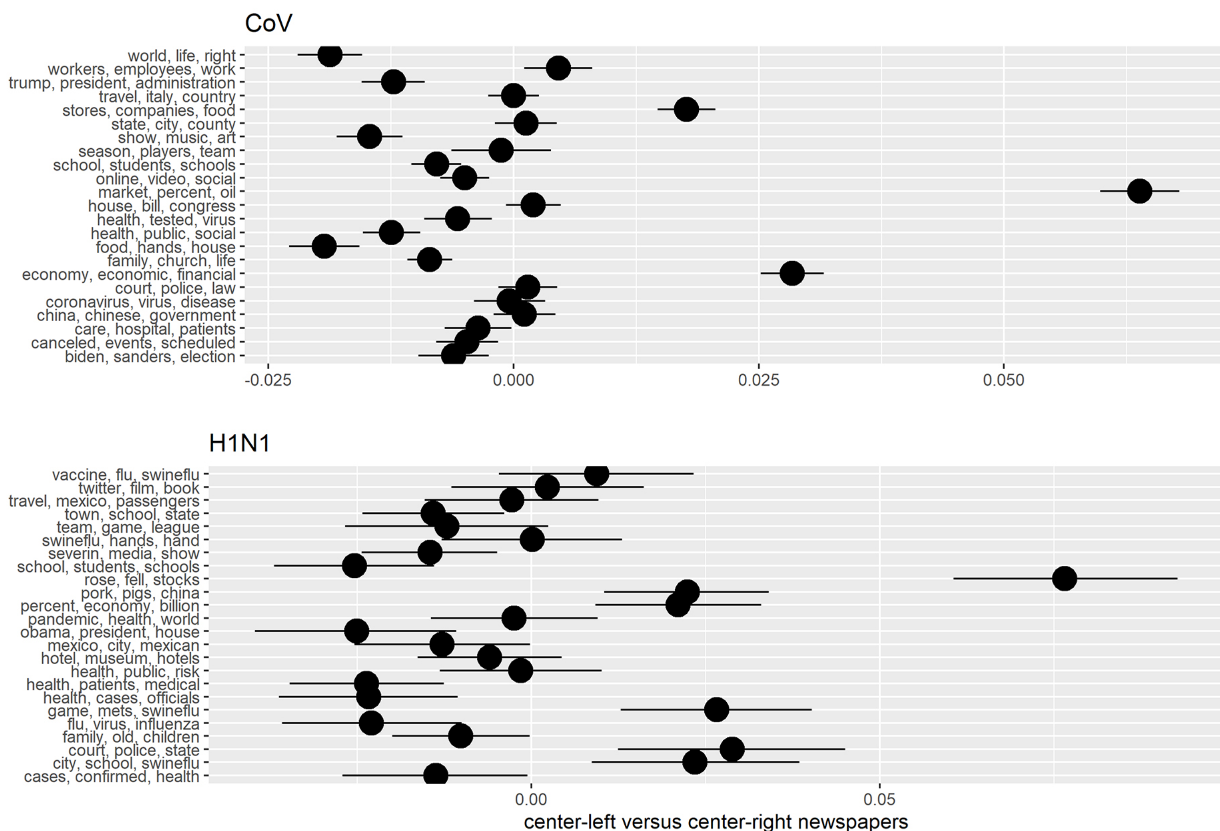

Figure 2.

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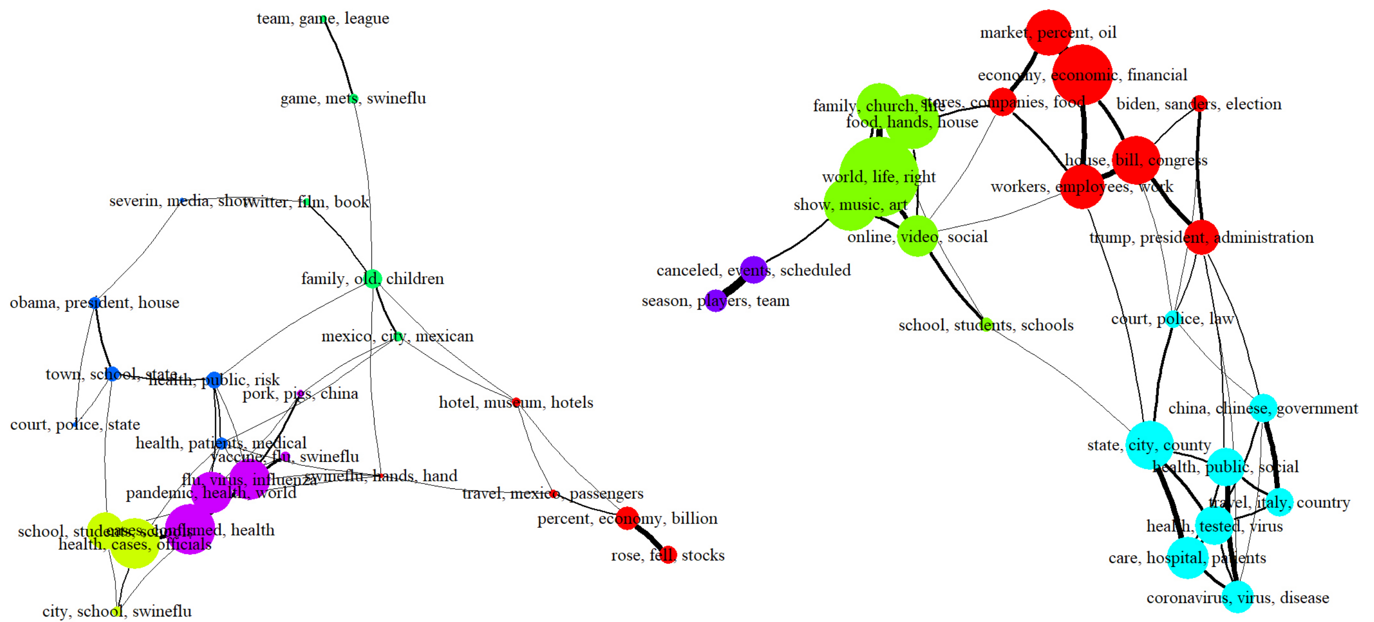

Figure 3.

these networks, highlighting respective community structures (represented by node colors). The topic network for the swine flu breaks down into five communities and the network for Covid-19 into four. The community structure for Covid-19 has a clearer semantic concept than is the case for the swine flu, as we can identify distinct discursive clusters that respectively relate to leisure time, sports, policy, and economics, as well as policy and public health. For the swine flu, we identify clusters that similarly deal with leisure time and sports, as well as policy and public health. In addition, we find a cluster that merges economics with travel and culture, a cluster on influenza pandemics and global public health, and one on schools. While community detection thus highlights significant similarities, the relatively low number of articles in the swine flu corpus translates into an unfavorable signal-to-noise ratio when analyzing the community structure in the respective topic network.

The similarities in network topology become more evident once we compare various key indicators: average clustering coefficients (the degree to which a given node forms closed triplets with the nodes in its neighborhood); average strength (the summed weights of all edges incidental to a given node); average node betweenness (the degree to which a node lies on the shortest paths through a network and thus serves as a mediator); strength centralization (total network centralization as calculated on edge weights); and betweenness centralization (total network centralization as calculated via edge betweenness). Figure 4 shows that, for four out of those five

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measurements, differences between Covid-19 and the swine flu are marginal: in each network, nodes have, on average, comparable probabilities of forming closed triplets, as well as similar betweenness. For both strength and betweenness, network centralization is highly similar as well. Only for average node strength do we see a notable difference, with the correlations among the topics of the Covid-19 corpus generally being stronger than is the case for the swine flu corpus.

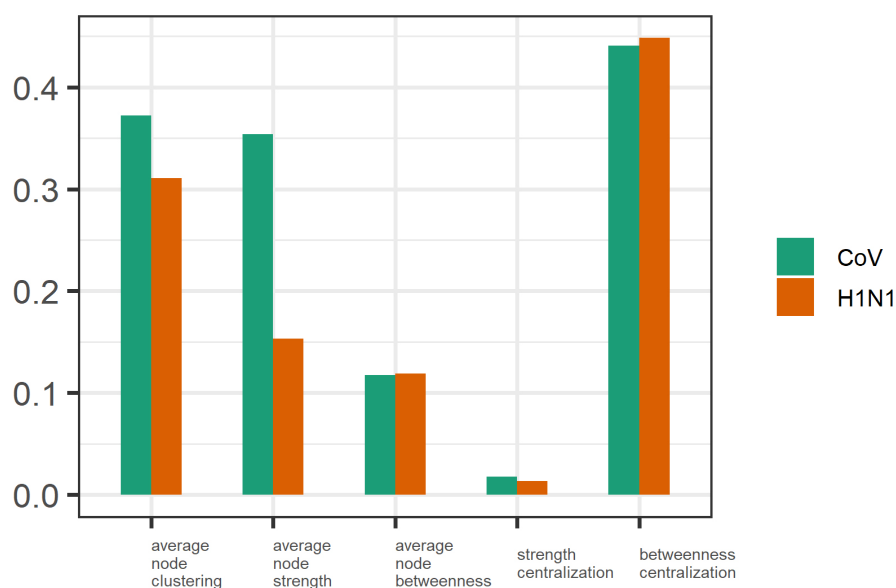

Figure 4.

Overall, our analysis thus highlights some differences in the news media representation of the two pandemics. The distribution of document-topic loadings is somewhat more skewed for the swine flu than for Covid-19; the community structure of the former has a more ambiguous semantic concept than is the case for the latter, and Covid-19 sees stronger linkages between the different discursive elements. At the same time, our analysis also shows strong similarities in content, left-right framing, and various measurements related to node clustering and centrality, and total network centralization. These results can indeed be interpreted in different ways, considering that some differences (notably for the analysis of community structure) likely derive from the relatively low amount of newspaper articles available for the swine flu case.

6. Discussion

The comparison of the semantic networks, understood as iconic models, resulting from topic models of the two datasets reveals several similarities but also some differences

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between how American newspapers reported on the H1N1 and the Covid-19 pandemics during periods when these two were broadly comparable. We argue that the particular structure of semantic similarities and discursive differences between these models indicates elements of a *Narcissus narcosis* phenomenon displayed by newspapers' reporting. It would be incorrect to claim that the models reveal merely an overall similarity or difference. Instead, in the broader picture of the mediascape and in light of the specific media changes that occurred in the meantime, the models point to a disguised (consciously or not) social change. To put it more simply, the discourse changed, along with the media, but as the semantics of newspaper articles broadly remain the same, it may give the impression that nothing (or not much) changed. The main similarities that we note consist in: (1) the absence of affective polarization according to ideology, (2) the presence of the same clusters of topics, and (3) similarities in network topology.

First, the similar left-right document loadings show that newspapers remained as polarizing during Covid-19 as they tended to be during H1N1 (see Figures 1 and 2, above). This is a relevant finding because the overall discourse changed. Recently, other media, particularly social media, display a much more stringent affective polarization in American politics (e.g., Bail et al. 2018; Stjernfelt and Laurizen 2020: 40).

Second, identifying many of the same clusters in both models (see Figure 3, above) means that newspapers approach the same topics in both pandemic contexts, tending to convey the same type of information. In the spirit of Peirce's iconicity-based graph theory (i.e., Existential Graphs), which lies at the foundation of the modeling concept we adopt, these co-localizations (see also Stjernfelt 2019) of topics imply a relation of a subject-predicate type. As each model exhibits the same propositions, we infer that these newspapers have been conveying the same kind of information about the same subjects for each pandemic. Such clusters are leisure time and sports, policy and public health, travel and culture, pandemics, and public health and schools.

Third, we note that the topologies of the two networks are remarkably similar, as indicated by several critical indicators (see Figure 4 above).

7. Conclusions

Comparing the swine flu and Covid-19 pandemics offers insights into the social impacts of the recent rise of social media. We comparatively interpreted models of newspaper corpora before and after the mainstreaming of digital social media. Of particular importance is that social media forces newspapers to change as a medium by collapsing the media content producer/consumer dichotomy of broadcasting. Social media enable any consumer, with however a limited digital literacy, to be(come) a content creator, which also means that they are characterized by a virality that renders content creators

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too little control over the circulation and distortion of their content (Marwick and boyd 2010; Mills 2012). As such, information publicly conveyed by medical professionals about Covid-19 can reach various publics in variously distorted forms through a variety of viral channels. At the time of the swine flu pandemic, spiraling wrong information about a pandemic into a full-blown infodemic was not yet possible. Therefore, comparing the media coverage of these two pandemics offers an insight into this media change that is otherwise difficult to perceive while living it, as we find ourselves in, using McLuhan's (1994 [1964]: 55) celebrated expression, a "Narcissus-narcosis." In brief, newspapers, the older medium, manifest a numbness as necessary to settle in the new extension of humans onto social media. As McLuhan's concept is philosophically broad and, to some extent, speculative, it cannot be pinned down with precision by a chunk of data.

Nevertheless, we argue that this concept is descriptive of the conclusions drawn from our comparison of data models. The comparison does not merely indicate that a specific change took place or not. The relatively subtle argument to which the comparison leads is that by stubbornly reporting in the same rhetoric before and after a significant media and discursive change, newspapers are behaving like a 'counter-irritant,' an anesthetic meant to render the ongoing media change more bearable.

This masks the fact that digitalization is manifest, among other ways, by social media taking the place of older media as the primary source of news. It is only very recently that, at least in the US, social media toppled television as the primary source for news (see Shearer 2018; Mitchell and Shearer 2020). In this regard, this media change is different from the emergence of, for example, radio and TV broadcasting. The latter has been the primary source of news for a long time, but it did not replace or alter newspapers from becoming a different medium than they used to be. The newspaper medium has probably undergone some adaptations once it had to run alongside, say, radio, but the newspaper could not altogether move into a radio format. By contrast, newspapers now have to interact with their publics through their channels on social networking sites. The interpretation of current broadcasted information should not overlook that digitalization does not consist only in the emergence of new media, but it also implies the digitalization of older media. We observe Narcissus narcosis statistically, as the stability in the correlation of ideology and topics across two different discourses. Simplifying, while newspapers, too, illustrate that the new media context changed the discourse on pandemics altogether, they still address the same matters as before this change. One possible reason the newspaper medium, in particular, acts as counter-irritant consists of the characteristic of articles to be assigned distinctive authorship. They lack the virality and anonymity that are intrinsic to social media dynamics. At the same time, the virality of social media likely influences the content of newspapers. In McLuhan's terms, newspapers (or, rather, their publics) are experiencing a "numbness" that allows ignoring or, instead, renders invisible the amputation necessary for the extension.

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To conclude, while newspapers have been the primary source for news in the modern age, digitalization pushes them to change style and, arguably, their overall mediality (e.g., Hong 2012; Ju et al. 2014). To survive, newspapers now have to meet the requirements of the public accustomed to the dynamics of social media. As such, newspapers seek to expand their social media networks, which become integrated, not without their agency, however limited, in virulent social networks.

Comparing representations of the two pandemics in newspapers is insightful because newspapers are well-established communication channels with an assumed conventional type of authority. Traditionally, newspapers are perceived as accountable (different from reliable), without deceivers intrinsic to their infrastructure, as is the case of new media (see Genosko 2012). The stubborn rhetoric of newspapers proves a strong anesthetic, obscuring their integration into the viral dynamics of social media networks. Consuming newspaper content under this assumption displays a lack of media literacy, as newspapers tend to assimilate the discourses circulating in new media. The virality of social networking sites cannot be comprehended by old models of communication consisting of unidirectional messages originating in an identifiable source, such as many oversimplified uses of the classic Shannon and Weaver information-based model (1964; for similar criticism, see Kress 2010: 36; Genosko 2012: 30-31). Neither can such models describe the work of newspapers anymore, as these adapt to and are assimilated into digital networks through a process of "viral transduction" (Genosko 2012: 14). Our observation that, at least in respect to the swine flu and the Covid-19 pandemics, we are currently undergoing a Narcissus narcosis, contributes to the argument that, given the virality of media networks, linear communication models are insufficient for cultural criticism and the analysis of social representations. We presented one alternative consisting of a semiotic outlook on media content organized in topic models and semantic networks.

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Right-Wing Media's Rendering of R_0: Media, Misinformation, and Affective Contagion

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BY: **Benjamin Bandosz**

ABSTRACT

The election of Donald Trump in 2016 signaled a definite shift in the global spread of a new nationalist, populist, racist, political Right. This sweeping trend was fuelled and is sustained by social media's vast networks that disseminate (mis)information and efface the subject's body by mediating reality through digital interfaces. Intensified right-wing news media and politics mutate the socio-semiotics of digital networks, rendering affective slogans that destabilize language and inform user subjectivity. Facebook re-posts and 4chan memes re-articulate refrains chanted at rallies, such as "Stop the steal," intensifying their affective resonance and causing them to speak in and through subjects, rather than being spoken by them, engendering incorporeal transformations on bodies in the sociopolitical field. Stripped of semantic meaning and referential reality, these slogans operate through affect to produce collective phantasies that channel users' unchecked desires. These slogans affectively interpellate users by pulling apart their individuation, weaving them into endless threads, sites, and networks that amplify and spread fascistic imaginaries of a Great America under Trump, the God-Emperor. Slogans' affects and their resulting phantasies function as coefficients of digital networks' innumerable connections, exponentially proliferating and catalyzing microfascisms via ever-multiplying rhizomatic connections – a sociopolitical recalibration of the R_0 formula models these affective transmissions, a calculation otherwise used to measure a disease's potential transmission among a vulnerable population. The affective intensification and spread of right-wing discourses

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were a prelude to the Covid-19 pandemic and function in tandem. As economic shutdowns and stay-at-home orders augment financial precarity and digitize quotidian life, media networks intensify the spread of (mis)information among susceptible users, leading to anti-mask protests, political rallies, and unsafe work environments that, in turn, increase Covid-19 cases. Right-wing media's affective, digital contagion and the Covid-19 pandemic produce a feedback loop of transmission, mutually amplifying their R_0 values as both mutate and spread.

1. Introduction

Before and during the Covid-19 pandemic, media ecologies facilitated a contagion of misinformation. Popular social media platforms such as Facebook and Twitter, as well as alternative forums like 4Chan and Reddit played and continue to play central roles in the global spread of easily consumable, highly affective, but ultimately empty stories, memes, and slogans. Neoliberal erosion of political discourse has informed increasingly ineffective politicking, which results in political parties' systematic misdirects and hollow promises in the face of looming economic, climate, and humanitarian crises. Unsurprisingly, the growth of right-wing populism in Western democracies exploited neoliberal politics' alienation and institutional ennui by conjoining inflammatory rhetoric with the consumability of sound-bites and memes, formulating a viral offshoot of misinformation for a digitally mediatized public. Politicians, pundits, and click-baiters circulate slogans deprived of substance that infect online communities, transmitting affect through users, who, in turn, mutate and spread it through their likes, links, and posts. Misinformation and its related slogans and memes actualize a viral politics of affect highly prone to radicalized mutations, capable of transmitting from user to user through social media networks and infecting mainstream discourses. The expressions, permutations, and proliferation of molecular, semiotic components within and through users galvanize molar trends of extremism and its materialization. In this regard, readapting a model used to study infectious disease dynamics to analyze the socio-semiotics of affective contagion can map the digital and bodily transmissions of more contagious strains of misinformation.

A socio-semiotic recalibration of the primary reproduction number, or R_0, provides a timely modeling of political misinformation's functions in the sociopolitical field. The basic reproduction number is "an estimate of contagiousness" of a given virus, which considers both social and biological factors of humans and pathogens (Delamater et al. 2019: 3). Retooling this measure of transmission into a socio-semiotic model of affect will not solely rely on a descriptive comparison of viruses and language. Rather, it will emphasize how signs inherently function beyond discourse within and through bodies by exploiting the social hyper-connectivity of online networks. This modeling

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and analysis will build upon Félix Guattari's theories on semio-pragmatics and subjectivity, which offer a "language of mutation, proliferation, and molecularity […] to think through the capacity of fascism to spread throughout the social body" (Genosko 2018: 111). In line with Guattari's modeling practices, Covid-19's reorientation of labor, social, and medical models offers a novel modeling of media and language's intensified existential entanglements in the real world (Watson 2009: 82). The R_0 modeling of misinformation's socio-semiotic contagion of affect will analyze how politicized language directly intervenes in the sociopolitical field through the porous border between the digital and real. It will map right-wing media content's affective spread, tracking how it mutates into more virulent, radical strains of alt-right misinformation and populist imaginaries.

2. Communicable Diseases: Language, Bodies, and the Digital

In the contemporary global media landscape, misinformation has gained a pre-eminent presence in the news feeds of social media networks and on mainstream media platforms. The term misinformation, as used throughout this paper, reworks its standard definition as "[c]communication of false information without intent to deceive," a subset of disinformation, or propaganda, "designed to manipulate a target population by affecting its beliefs, attitudes, or preferences [...] to obtain behavior compliant with political goals" (Benkler et al. 2018: 37, 29). Such an understanding of non-factual memes and stories foregrounds user intention but neglects how their semiotic dimension functions within individuals and broader media ecologies. Indeed, misinformation's language functions beyond its inherent content, which can be easily dismantled and dismissed, and relies on other factors for its consumability and transmission. For example, rather than evaluating the logic or evidence of a given theory or story, users and viewers mainly consider other contextual cues so that misinformation content is inconsequential to its efficacy (DeWitt et al. 2018: 324). Whether containing half-truths or nonsensical inaccuracies, shared by bad actors or duped users, misinformation relies on non-discursive means to spread through social networks, digital and otherwise. It is not so much a question of (mis)representing sociopolitical reality as a singular intervention within sociopolitical life by ordering an individual's relation to the world (Porter 2009: 14, 17). Though the recent growth of political dis/misinformation in the media can be understood as an 'epistemic crisis' preventing a unified understanding of the world and abetting polarization, it also figures as a totalizing media affect that shapes the body politic and its realia (Benkler et al. 2019: 20; Massumi 2002: 43). Misinformation, therefore, can be understood as inaccurate communications that primarily function through affect to intervene in the

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sociopolitical field, with the aim of broader dissemination. Such communications find themselves in the newsfeeds of diverse users, whether through algorithmically suggested videos or 'weak links,' and circulated by news outlets of various political leanings; misinformation's affective reach, in this regard, encompasses the media ecology's totality.

Twenty-first-century populism and its alt-right derivatives effectively harness the affective means of misinformation to cultivate a highly virulent strain of Right-wing media. Much more dangerous than the strenuous inaccuracies circulating through mass and social media, the new variant of Right-wing misinformation ushered and sustained a twin digital pandemic. The populist Right, especially in the United States, refined the 'affective jingoism' of former US President Ronald Reagan, who, as Brian Massumi explains, "was unqualified and without content. But, his incipience was prolonged by technologies of image transmission and then relayed by apparatuses such as the family, the church, the school, or the chamber of commerce, which in conjunction with the media acted as part of the nervous system of a new and frighteningly reactive body politic" (2002: 41-2). Mass and social media's permeation of the body politic enables radical ideologies to disseminate through non-ideological means; that is, the mutable affective potential of media is locally received and realized by disparate users, viewers, and readers. In other words, the alt- and populist Right present politics "as a set of affects and not a set of beliefs" through their misinformation (Danskin 2019). The content of Right-wing political messages can, in this sense, become increasingly senseless and radical, while its affective contagion gains traction; whether it is a convinced user, who shares an inaccurate article about vaccination, or a serious journalist, who critiques and disproves the article's claims, the misinformation's affect spreads throughout the social body as individuals respectively localize it.

This affective jingoism exploits the widespread mistrust of government and media held by many citizens, both right- and left-leaning (DeWitt et al. 2018: 327). As Daniel Pipes highlights, paranoid thinking is predominant on both sides of the political spectrum but differs in argumentative and linguistic registers. Leftist conspiracy theories present more sophisticated arguments that emerge out of a "tradition of high-powered political theory." In contrast, rightists' disinformation "contain obvious self-contradictions as well as errors of fact," often relying on "pseudoscience and fanaticism" (1997: 160-61). The alt- and populist Right continue this trend by circulating radical memes and theories with premises that buckle under their inconsistencies – this often extends to their crude (edgy) and incoherent semantics. In this sense, they weaponize the body politic's skepticism through a totalizing media effect, bombarding the senses (cognitive and bodily) with misinformation that affectively shapes their reality. This results in a hyper-charged, paranoiac tautolo-

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gy that formulates "a vast, historical, all-encompassing conspiracy" on the Right (Pipes 1997: 162). For example, the alt-right's pizzagate interprets leaked emails of the chairman of the 2016 Hillary Clinton campaign, John Podesta, as coded messages about pedophilia and postulates that a widespread, liberal-elite, pedophile ring operates through Washington D.C. pizza parlors; it compares the parlors' and Clinton-affiliated charities' logos to pedophilic symbols, links the Podesta brothers to the 2007 disappearance of Madeleine McCann, and claims that Serbian performance artist, Marina Abramović, aids in the ring's Satanic sacrifices. Any liberal entity, event, or personage can be linked to pizzagate. If researchers or journalists debunk it, it is an attempt to censure or bury the truth, thereby further evidencing the theory's actuality. Radicalized right-wing misinformation's far-reaching affective intervention in the sociopolitical field operates reciprocally with a globalized paranoia, achieving unprecedented dissemination and pervasiveness through mass and social media.

With its capacity to transmit itself through individual hosts to rapidly spread through social networks, many researchers have compared misinformation's media dissemination to a viral infection. The analogy dates back to European anti-fascist struggles before WWII, when the Popular Front leader Léon Blum described the rise of fascism and its propaganda as a 'contagion.' In the twenty-first century, the analogy gains even more relevance through the constant and instantaneous interconnectivity of the global media network. In 2018, Heidi Larson used the viral analogy to identify super-spreaders "who propagate misinformation through social media" as a significant health risk during a pandemic (309). Three years later, the comparison acts as a grim reflection of the Covid-19 pandemic – a "pathogenic allegory for modern information" (Grimes 2020). A recent media study, understanding the global spread of misinformation as an infodemic, confirms that super-spreaders (politicians, journalists, influencers) as well as more local peer-to-peer transmissions, can effectively spread misleading information throughout the media ecosystem without regard for borders, much like a pathogen (Aengus Bridgman et al. 2021). Super-spreaders and average users operate within a globalized infodemic sustained by a complex intermingling of troll armies, bots, incentivized click-baiters, advertisers, algorithms, and data mining. These insights, however, refrain from delving into how the semiotics of misinformation factor into its pathogenic capacity to spread through media ecologies and the sociopolitical realm. In addition, their analogous models fail to identify a valuable function of infectious diseases, namely R_o.

Referred to as the primary reproduction number, R_o is a mathematical, epidemiological model that calculates "the number of secondary cases one case would produce in a completely susceptible population" (Dietz 1996: 19). The model has been used widely in epidemics and the current pandemic to project case number dynamics. This quantitative metric, however, is predicated on qualitative factors. As Paul Delamater

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states, “R_0 is a function of human social behavior and organization, as well as the innate biological characteristics of particular pathogens” (Delamater et al. 2019: 2). R_0, therefore, is based upon the complex, reciprocal entanglements between molecular biological functions and the molar structures of social dynamics. Another important parameter is a disease’s mutation rate, which is affected by various factors, including cellular microenvironment and replication mechanisms. Furthermore, viruses mutate non-linearly, meaning that the initial mutant strains may be ineffective and not spread.

In contrast, others that develop subsequently (either from mutants or the original virus) can be more effective and become the dominant strain (Sanjuán and Domingo-Calap 2016: 4433). A variant may attain more efficient transmission or a higher fatality rate, potentially rendering immune populations susceptible, thus ultimately altering its primary reproduction number (Feng et al. 2019: 1; Flores and Cardozo 2020: 1). In this sense, the primary reproduction number’s deciding factors supplement the analogy of misinformation like a virus. However, these essential, qualitative factors belie the mathematical formula; social dynamics, for example, cannot be reduced to a numeric value.

Similarly, many of the above studies that analogically compare misinformation to pathogens solely use quantitative measures. Where R_0 and viral models fall short, an analysis of misinformation’s socio-semiotic, affective contagion supplements the respective lack of qualitative attention to sociopolitical dynamics and semiotics’ central role in the infodemic. A recalibrated viral R_0 model will examine how the socio-semiotics of misinformation permeates individuals, spreads through a hyper-connected social field, and potentializes more radical variants. By reframing the primary reproduction number in qualitative, socio-semiotic analysis, a helpful conceptual model will demonstrate how viral misinformation’s affective potential intervenes in the material sociopolitical field.

Semiotic theories of affect foreground the interpenetration of language and the body, which elaborates R_0’s intermingling of human social dynamics and a virus’s biological characteristics. In particular, Guattari’s radical, materialist understanding of language’s innate functioning within and through social assemblages corresponds to how R_0 accounts for the intermingling of humans’ molar social dynamics and the pathogen’s molecular biological aspects. As Janell Watson highlights, Guattari adopts a molecular logic in his theories, “[choosing] complexity [...] his semiotics must include the molecular-level physical-chemical processes intrinsic to organic life” and grounds semiosis within a complex, material sociality (Watson 2009: 74). Indeed, Guattari himself quips, that “[a]ll things considered, I think it’s better to biologize than to linguistify,” referring to the necessity of grounding semiotics within the physical (Guattari 2006: 76-77). A key concept that embodies this inherent conjunction between semiotics and physiognomy is faciality, which “designates the fact that language always ema-

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nates from a face, and cannot be understood outside of the context of that face" and "makes manifest Guattari's insistence on the constant interaction among physiological and semiotic components" (Watson 2009: 76, 86). Without discourse, the face orders and restricts language, subsuming it as though a landscape. Faciality prefaces meaning by asserting "'it's just like that,' an expression of a semiological coup de force establishing that, once and for all, 'that' will always mean something," cementing semiotic components in a highly stratified system of signification indicative of "the reigning socio-semiotic order" (Guattari 2011: 77). The mass-mediatized face's mouth, nose, and eyes capture signs and order them to transmit socio-semiotic structures through the viewer, who, in turn, reproduces and spreads them. Faciality "per se [does] not signify and [does] not convey information, although [it] work[s] alongside semiotic elements like signifiers and information" as a unique mechanism that intensely inscribes language within the body (Watson 2009: 76). Guattari's socio-semiotics of faciality refracts R_0's rendering of a pathogen's biological characteristics that rely on human sociality. In particular, it understands the face's mucous membranes (mouth, nose, eyes), a virus's points of entry, incubation, and transmission as instrumental in potentializing and transmitting the affective contagion of misinformation.

Whether it is a politician's face blown up on a screen, or any talking head on the news or social media, the composite, mass-mediatized face surcharges language with non-discursive particles that infect the body and subjectivity. For the North American alt- and populist Right, the face of Donald Trump iterates slogans, memes, and theories, catalyzing a politics of affect that intervenes in and shapes the sociopolitical realities of disparate communities. Trump's trademark hair and his unmistakable visage are synonymous with celebrity, business, and capitalist excess; they offer the Right's fanaticism a dear leader, through which "[e]very proposition [...] receives its social weight of truth" (Guattari 2011: 82). His face contextualizes communications, such as the 'Lock her up' chant in response to FBI investigations concerning Hillary Clinton's emails, but also diffuses them through individuals by reaffirming social syntaxes, such as laden sociopolitical binaries male-female, corrupt globalists-disempowered citizens, minority-hegemony, and so on. As the slogan loses semantic substance – becoming less so about the emails and more about demonizing political opponents – it functions more efficiently and affectively by resonating with various political phyla. This is evidenced by Trump's appeal among blue-collar conservatives, as well as "David Duke, Jared Taylor, the Klan, and other members of the fascist movement" (Ross 2018: 295). Trump's verbal incoherence and gestural idiocy channel and amplify Reagan's affective politics, an "embodiment of an asignifying intensity doubling his every actual move and phrase [...] the continuity of his discontinuities" (Massumi 2002: 40-1). The nonsensical register of his slogans, held together by his facial and bodily jerks, parse his communications into stops

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and starts imprinted within viewers, who then arrange them locally. Hence, Trump, just as Reagan, is "so many things to so many people" (Massumi 2002: 41). Faciality ensures the spread of socio-semiotic order through non-linguistic functions, acting as a non-discursive superego that permeates the social and individuated body. Supporters corroborate such an interpretation by acknowledging that Trump's messages are taken seriously but not literally (DeWitt et al. 2018: 330). That is to say, supporters perceive the incoherence of his statements about the economy, immigration, and women but register them as legitimate politics. Therefore, the affective, asignifying particles emitted from Trump's face transmit empty populist, alt-Right slogans as an affective contagion that infects and spreads through the body politic.

A diffused, composite Trumpian face enunciates misinformation through mass and social media, which continuously mutates as it intermingles the digital and bodily. The constant and instantaneous network connectivity realized by personal handheld electronics guarantees constant exposure to Right-wing theories and memes, which achieve existential consistencies through this technological prosthesis that subsumes the body. Berardi describes that "[t]he connective paradigm [...] infiltrates the deep fabric of the human biosphere, permeates the organism's barriers […] [t]he mutation invades the individual's self-perception, and integrates it in the connective framework of the socio-technical continuum of the net" (Berardi 2017: 55). Therefore, the user uses her device to connect to the Internet, her neurology and biology synch to the network. Populist and alt-Right misinformation, thus, expresses itself through the body and directly intervenes in the sociopolitical field. The contagion is far-reaching, as memes, slogans, and theories spread through social media newsfeeds, left- and Right-leaning news platforms, and other online forums; pundits, trolls, users, and viewers consume and repeat them through overlapping rhizomatic networks. These networks viscerally interpellate users and function as their reality interface. Digital reality, reverse-engineered from the user's preferences and search history, subsumes the body and shapes its relation to the world in tandem with language. Online echo chambers function like all-encompassing feedback loops of misinformation, intensifying the global paranoia of Right-wing theories. The Covid-19 pandemic is shadowed by a twin infodemic, as the default position during the global lockdowns has been online; more than ever before, within networked life and labor, "the individual body is [...] exposed to the constant intensification of neural stimulation, and insulated from the physical presence of others" (Berardi 2017: 50). Immobile and socially isolated, individuals avoid infection but expose themselves to misinformation, constantly increasing their viral load of affective contagion.

As with the spread of an actual disease, an extensive saturation of misinformation leads to mutations within and through users. Through continuous circulation, communications evolve as posts reframe them through additional commentary or

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reactions. As Gabriele Marino notes, online media are defined by "modalities of diffusion that are repetitive, adaptive, appropriative, and – in general – participative," enabling widespread diffusion and mutability (2015: 50). Misinformation's re-posted, incoherent redundancies thus pair with its homogenizing resonance that spreads across the Right's political spectrum, this "recentres and disempowers the semiological redundancies and empties them of content, but at the same time, machinically super-empowers them by granting them autonomy" (Genosko 2018: 99-100). Incubating and multiplying through users, who share and intensify misinformation, the affective contagion receives reciprocal energy with which to mutate. Even though Trump's diffused, mediatized face orders the slogan's words with a supervalent affective charge, viewers, and users reinvest it with their desire, which may result in much stronger conformity, a radical departure, or a synthesis of both. In the case of right-wing misinformation, the slogans and memes of the 2016 presidential campaign evolved into increasingly extreme maxims and theories, namely the QAnon narrative. Its affect and spread growing inversely to the absurdity of its political claims; even as predictions, court cases, and theories break down, it works ever more efficiently through its affective potential that takes hold in the right-wing info-economy. As Right-wing, affective politics intensifies, it normalizes the empty but fanatical, fascist claims it circulates; in turn, this leads to a new and more dangerous actualization of politics, as exemplified by QAnon proponents' violent demonstrations and congressional representation in the United States.

3. Empty Resonance: Strains of Right-Wing Political Misinformation

The 2016 American presidential campaign catalyzed a new era of right-wing, affective politics. Trump's successful campaign and subsequent administration encapsulate the populist reorientation of Western democracies, an evolving political paradigm still in effect. In this regard, the case study below will use a socio-semiotic model of affective contagion to trace how Right-wing misinformation of the 2016 election campaign intervened in the sociopolitical field by spreading through media ecologies and how it subsequently mutated into more infectious and radical variants. The incoherence of American Right-wing politics will first establish the contagion's milieu, how Trump's Republican candidacy epitomizes the empty center of contemporary nationalist-populist trends. Misinformation repeated by Trump resonated and spread through various media ecosystems, such as popular social media platforms, news stations, and alternative online forums; theories and slogans incubated, multiplied, and mutated through these environments, most prominently on Reddit, 4Chan, and 8Chan. One of the central slogans was the 'Lock her up' chant turned meme, which mutated through

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such forums and social media into increasingly fanatical and absurd political discourses, such as assertions that Democratic lawmakers operate a satanic, pedophile cabal. These mutant strains affectively spread through the body politic with sociopolitical repercussions, like the QAnon conspiracy theory that progressively gained momentum and overtook mainstream media and Capitol Hill.

The ideological incoherence of the contemporary Right-wing paradigm is made manifest by the contentless discourse of the 2016 election campaign, which informed its misinformation. Traverso points out that right-wing "populism is above all a style of politics," more than an ideology, which foregoes the formulation of an intelligible political platform to prioritize the hollow rhetoric of marketing (2019: 15). The Republican Party's nomination of Trump as its presidential candidate encapsulates this strategy. Trump's stance is anti-establishment, a poise "all the more paradoxical given that he [was] the candidate of the Republican Party, the so-called Grand Old Party (GOP) that stands as one of the pillars of [the] establishment"; and, as noted, he is synonymous with the economic elite, a real-estate millionaire and TV celebrity, therefore a proponent of the establishment (Traverso 2019: 22; Müller 2016: 33). His rallying call was 'Make America Great Again' that pledged to bolster the American economy through job growth and security, despite his embodiment of the neoliberal establishment, which globalized markets by relocating industries to other countries for cheaper production and eroding the strength of trade unions, ultimately ushering an era of unprecedented economic precarity and wealth disparity. This is epitomized by the iconic MAGA hats sold at Trump's rallies that are made in China; even the 'official' hats made in California by Cali-Fame contain imported fabric, bills, and stiffeners – not to mention the Trump family's private companies' products, which are predominantly made in Asian countries (Horwitz 2016). In other words, the current right-wing-populist paradigm is ideologically and politically empty, thriving on self-contradiction.

Trump's communications embody this incoherence. His criticism of the Obama administration's nuclear deal with Iran from July 2016 is regarded as a testament to his inarticulate politicking:

> but you look at the nuclear deal, the thing that really bothers me – it would have been so easy, and it's not as important as these lives are [...] but when you look at what's going on with the four prisoners […] but when it was three and even now, I would have said it's all in the messenger; fellas, and it is fellas because, you know, they don't, they haven't figured that the women are smarter right now than the men, so, you know, it's gonna take them about another 150 years – but the Persians are great negotiators [...] and they, they just killed, they just killed us. (Mikkelson 2016)

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This excerpt from the 285-word, run-on sentence exemplifies Trump's contentless political messages. His starts and stops interrupt progressions of semantic meaning, suspending his criticism in incomplete limbo, while the jerks of his body mirror the cuts between clauses. It is all held together through faciality, which orders Trump's "semiotic salad" to affectively register within viewers and users (Bennett 2016). The inchoate redundancies are rendered through the face's socio-semiotic physiognomy. They generate a resonance through the social and individuated body; despite the political and semantic nonsense, such communications are localized and expressed through individuals who legitimize them. Trump's initial remarks on the Iran nuclear deal also gained existential consistencies, like the US's abandonment of the diplomatic effort and the discriminatory flight ban enacted shortly after his election into office. Such contentless and affective politicking is far from the exception for Trump's 2016 campaign and administration.

Throughout the 2016 presidential campaign, the Republican's most prevalent misinformation pertained to Hillary Clinton. The 2016 Republican National Convention's unofficial slogan was 'Lock her up,' which the crowd chanted as speakers and politicians repeated misleading claims about Clinton's mishandling of national security while Secretary of State (Gass 2016). This resulted from months of Trump's claims that his Democratic rival was guilty of wrongdoing and should face jail time; following the convention, the chant became routine at the Republican candidate's campaign rallies. Despite the context of the FBI's investigation of Clinton and her political past, Trump's reiterations of the slogan surcharged it with sociopolitical redundancies of a political insider-lone outsider, feminine frailty-masculine virility, and over-privileged minority-silent majority, giving way to hegemonizing political polarization, unprecedented in past US politics. Rally-goers' chants and Trump's repetitions of the slogan were overlaid onto a right-wing media ecosystem comprised of significant news stations like Fox News, as well as popular social media and alternative online forums. The slogan's socio-semiotic affect thus diffused through digital networks was simultaneously consumed and reproduced; user individuation was pulled apart and woven into continuous threads of posts, messages, and memes. The emptiness of Trumpian politics was charged by the unfettered desires of users and supporters of more radical camps, drawn in by the supervalent misogyny and white supremacy of the campaign's slogans, resulting in surprising mutations (Genosko 2018: 110). Within this insular info-economy of the alt- and populist Right, 'Lock her up' redundancies intensify through its hegemonic resonance. Toward the end of the presidential campaign, the slogan radically mutated into a more affectively charged and virulent strain of misinformation.

A new variant of anti-Clinton misinformation emerged from the alt- and populist Right media ecosystem and quickly proliferated through the broader media

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Figure 1. Trump's tweet of the History Made meme

landscape, eventually formulating the QAnon theory. Trump campaign staffers directed by former Breitbart News chairman Steve Bannon, internet trolls turned supporters, and more radical online elements exploited Wikileaks' leaking of stolen emails from the Democratic National Convention (DNC) to initiate and later escalate the so-called Great Meme War of 2016 (Merrin 2019: 209). The DNC's preferential attitude toward Clinton over other Democratic primary candidates was unearthed, leading to anti-Clinton memes that mutated the already popular 'Lock her up' slogan. Initially circulating and likely made on 8Chan's /pol/ board, the History Made meme reconfigures the Trump campaign's slogan (Schreckinger 2017) (see Figure 1).

The meme satirizes the Clinton campaign, using its fonts, color scheme, and tagline of making American history with the first female US presidential candidate. Its tripartite structure of a text, image, text establishes an imagistic rhythm that echoes the slogan's pulsating chant at rallies (Marino 2015: 55). The originally red star of David's caption (later a circle), 'Most Corrupt Candidate Ever!', paired with the background of $100 bills, demonstrates how the resonant redundancies of the slogan channeled the /pol/ board's extreme anti-Semitism and misogyny. In July 2016, Trump tweeted the meme to his 9.5 million followers with the caption, 'Crooked Hillary - - Makes History!', resulting in yet another debacle for the campaign. The meme nonetheless achieved more attention and shares (Rappeport 2016). The movement from mainstream to radical periphery back to mainstream exemplifies the non-linear mutations of misinformation through various formats, channels, and demographics, intensifying its affect's resonance through a multifaceted media landscape. The Right-wing info-economy began circulating another variant that proved highly affective and transmissible in the months following the History Made meme.

With Wikileaks' October batch of DNC emails leaked, the 'Lock her up' slogan's affective contagion intensified and mutated into the spirit cooking meme. In John Podesta's emails, meme makers from 4Chan, 8Chan, and other alt-Right hubs found mention of a 'spirit cooking' session "with the performance artist Marina Abromović whose 1996 book *Spirit Cooking* included ingredients like breast-milk, semen, and

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"jealousy"' (Merrin 2019: 208). Clinton's alleged corruption morphed into memes and theories about her involvement in child-trafficking rings and satanic rituals, conjuring up the patriarchal-Christian imago of a witch and confirming the anxieties of the Satanic Panic of the 1980s that "Satanists [operate] at all levels of society, from powerful politicians to teenage vandals" (Laycock 2015: 136). The pizzagate theory complements the spirit cooking claims by alleging that Podesta's emails use a secret code for pedophilia, as among online forums, "'child porn' was often abbreviated to 'cp,' which then became known as 'cheese pizza'" (Merrin 2019: 208-9). Posts soon postulated more elaborate paedophilic codes at work within the emails, such as 'Hotdog = Boy / Pizza = Girl / Cheese = Little Girl / Pasta = Little Boy […] Map = Semen / Sauce = Orgy / Dominoes = Domination,' through which trivial emails became absurd messages about sex-trafficking and rituals. For example, an email to Podesta that states, "The realtor found a handkerchief (I think it has a map that seems pizza-related. Is it yours? [sic]," suddenly becomes a workable piece of misinformation through the suggested code (Wikileaks). Users could find similar trivial emails through this cipher and express increasingly nonsensical and affective messages; their already benign content was emptied and saturated with inchoate information that intensified political polarities and convictions. Users on 4Chan and Reddit thus incessantly hollowed out and charged such emails with indefinite conjectures regarding pedophilia, leading to more affective misinformation. For example, Washington D.C. pizzerias' logos are interpreted as secret pedophilic symbols marking the restaurants as communal hubs for rituals and child abuse.

On November 3, 2016, the spirit cooking meme and pizzagate story infected the broader Right-wing media ecosystem. The misinformation's decentralized circulation on alternative sites like Reddit, 4Chan, and blogs was redirected into news sites like Infowars, the Drudge Report, The Washington Times, Gateway Pundit, and eventually, Sean Hannity's program on Fox News; that day, the hashtag #spiritcooking trended on Twitter (Benkler et al. 2018: 232). Alternative Right-wing forums and Right-leaning news platforms operated as mutual resonators. The former's misinformation heightened the affect of mainstream discourse, while the latter enhanced the spread of the misinformation and galvanized its affect with the attention of a wider audience. This mutation of the initial 'Lock her up' slogan circulated heavily, progressively charging Trump's hollow, populist narrative of outsider versus corrupt establishment with theological-political dimensions and materializing a phantasy about an appointed savior rooting out society's hidden evils. Through their multiplatform spread and contagious permeation of a massive user base, the innocuous slogans and memes midwifed Trump's presidency while catalyzing his empty politicking through an affective contagion that potentialized sociopolitical phantasies.

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4. The QAnon Variant

Spirit cooking and pizzagate's spread led to the most contagious and radical variant of Right-wing misinformation, the QAnon conspiracy theory, and its subsequent plague of misinformation. Initially conceived on 4Chan and 8Chan's /pol/ boards, the QAnon conspiracy began as a cryptic amalgam of transfigured memes and slogans from the 2016 presidential election. After a string of anonymous posters (anons) claiming to be part of intelligence and law enforcement agencies circulated so-called intel about investigations into the Clinton Foundation and the DNC leaks, an anon claiming to have the Department of Energy's Q-level clearance to top-secret data, hence the eponymous Q, or QAnon, began posting about Trump's shadow war against a cabal of satanic, liberal elites leading a global sex-trafficking ring. On October 28, 2017, in a 4Chan/pol/thread about the Mueller investigation, one of Q's first traceable posts echoes a familiar slogan repeated by Trump and his supporters: "Hillary Clinton will be arrested between 7:45 AM - 8:30 AM EST on Monday - the morning on Oct 30, 2017" (Q 2017). Q then claims the Mueller investigation is part of Trump's strategy to indict corrupt elites, including Clinton's former aide Huma Abedin, Barack Obama, and George Soros. Such anti-Semitic and racist views were not uncommon on /pol/, but the subsequent spread through social media and mainstream media was unprecedented. While there was an evident dissemination effort of 4Chan moderators and bloggers, QAnon distinguishes itself from previous misinformation through its highly affective socio-semiotics that reconfigured and channeled the so-called meme magic of Trump's campaign. Reconfiguring the anti-Clinton 'Lock her up' slogan, QAnon exploits Trump politics' intensification of the sociopolitical binary of Left vs. Right, its homogenization of various center and Right-wing fringe groups, as well as the Manichean pizzagate theory, to produce a hyper-virulent strain of alt-Right misinformation.

QAnon's more intricate posts function through Trump's composite, mediatized face and empty themselves of semantic and informational content to maximize their affective potential. What was and continues to be essential to QAnon is that all its claims are enunciated through the diffused faciality of Trump. The POTUS functions as the misinformation's ordering nucleus; Trump's inconsequential tweets and statements, routine staff meetings, and functions all instill Q's assertions with the weight of a sociopolitical truth. QAnon's anonymity also facilitates faciality's functioning, in that the anonymous posts are untraceable to any identifiable individual. Still, since language always emanates from a human face, the posts re-articulate themselves through Trump's disembodied, mediatized face. In this sense, the posts' dissemination is facilitated through a Right-wing faciality that spreads misinformation through the digitized public and shapes its sociopolitical reality.

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QAnon posts thus require a minimum of information to express and inscribe themselves within users, who, in turn, legitimize their affects as politics (Caló 2021: 278). Take, for example, Q's post from November 11, 2017:

> Who funds MS13?
> Why did BO instruct HS & BP to release MS13 captures at the border?
> What agency has direct ties to (2) major drug cartels?
> Why is AG Sessions / POTUS prioritizing the removal of MS13?
> Why is AG Sessions / POTUS prioritizing building the wall?
> Immigration?
> Drugs?
> Who do you hire for a hit?
> Who can be eliminated after the job is complete?
> Seth Rich.
> Who was found dead (2) shortly after his murder?
> What affiliation did they have?
> Classified. Q (Q 2017)

Referred to as 'crumbs,' this post of short, incomplete phrases exemplifies a form often used by Q. Staccato statements, and rhetorical questions interrupt Q's progression of logic and meaning. They are impoverished semantically, functioning through a cascade of punctums about political figures, events, organizations that form an inchoate linkage, subjectively hailing the user through a suffusion of affect. As with Reagan and Trump's politically affective incipience, Q's 'crumbs' operate through logical and semantic *coupures* that implicate users by galvanizing them to fill the gaps with their inherent biases, desires, and speculations. QAnon's misinformation thus enunciates itself through the faciality and tone of Trumpian politics, galvanizing its contentless communications with asignifying particles that affectively transmit them through users. The affective contagion of QAnon spread throughout the right-wing media ecology, gaining ever-greater resonance and existential consistencies during the Trump administration.

Similar to how the spirit cooking and pizzagate stories bled from alternative forums and blogs into the right-wing info-sphere, Q's pro-Trump speculations about the deep state first circulated within 4Chan's /pol/ board, but its redundancies were soon charged by their resonance across the alt- and populist Right info-economy. Six days following Q's first post, 4Chan moderators asked YouTuber and former talk show host Tracy Diaz from the Tea Party news network, Liberty Movement Radio, to cover the QAnon posts; subsequently, Diaz and the moderators established Reddit forums, which then filtered a broader audience to 4Chan and 8Chan (Zadrozny

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and Collins 2018). This resulted in QAnon gaining traction on Facebook, Twitter, and other popular media platforms, eventually reaching Fox News. Indeed, throughout Trump's presidency, Q and their supporters often cited Fox News host Sean Hannity as a fellow patriot involved in their investigation of deep state corruption; Q even encouraged fellow posters to watch his program. Hannity's reporting elaborated the crumbs mentioned above through his program, including the murder of DNC staffer Seth Rich and Clinton's "web of corruption" (Hannity 2017). Local community spread and superspreaders like Hannity amplified QAnon's affective misinformation through the incessant image- and information-based economy, leading to its oversaturation of Right-wing media ecologies and user desingularization; anything Trump did or said, any scandal within the Democratic party or whatever peripheral event of potential interest was interpreted through QAnon's misinformation about the deep state. The Right-wing info-economy operated through this redundant resonance, incessantly hollowing out politics to charge them with affect. Both Fox viewers and 4Chan posters were constantly exposed to the affective contagion of cross-contaminated, Right-wing misinformation. It encapsulated everything within its global paranoia, and the constant consumer attention, dissemination, and participation populated its emptiness. Misinformation functions through users to intervene in the sociopolitical sphere, "[shedding] light on the mechanisms of power that work through and/or within language, beyond the linguistic" (Caló 2021: 281).

Through digital media's user subjectivity and body stimulation production, QAnon achieved existential consistencies through real-world interventions. QAnon's misinformation intensified the intermingling of digital and real, materializing in misdirected, politically-motivated action and even violence – language expressing itself through the body. By 2018, QAnon supporters were donning Q merchandise at Trump rallies across the US and congregating with each other to discuss the president's covert war against the deep state. In June of the same year, Q's misinformation expressed itself through Matthew Wright. He set up an armed barricade on Hoover Dam and demanded that the government release the OIG Report, which, according to Q, contained a secret report concerning Trump's counter-operations against corrupt politicians (Mansell 2020). In March of the following year, Anthony Comello – another QAnon supporter – murdered Francesco Cali, believing him part of the deep state's corruption ring (Li 2019). One of Q's sign-offs for his posts echoes their misinformation's saturation of Right-wing news media and these instances of real-world interventions: "You are the news" (Q 2019). The reciprocal digital-real diffusion is a coefficient of right-wing misinformation, which augments its affective contagion within and through social and individual bodies. Misinformation operates through molecular and molar registers, its socio-semiotics of affect, and the social dynamics of digital media, which, in turn, reciprocally intensify one another and blur the digital and real-world divide.

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With the Covid-19 pandemic and 2020 Presidential Elections, sociopolitical realities have revealed themselves to be unmediated expressions of QAnon's affective contagion. Misinformation related to QAnon has affected, and continues to affect, an unprecedented number of people, its materialization and spread augmented by the digitization of life and labor caused by pandemic lockdowns. Before its sweeping ban of QAnon, Facebook reported having over three million users affiliated with QAnon groups in mid-2020 (Sen and Zadrozny 2020). QAnon's misinformation evolves by adapting to and reconfiguring users' subjectivities, informing their sociopolitical realities. In tandem with stay-at-home orders, Q politicized the pandemic response: "What is the primary benefit to keep the public in mass-hysteria re: COVID-19? Think voting. Are you awake yet?" (Q 2020). Posters immediately elaborated the 'crumb' with responses about mass mail voter fraud, mandatory vaccine microchipping, and an impending police state that will seize power in an economic collapse. QAnon's amplifying resonance captured the mass disillusionment of unemployed workers from the service, leisure, and restaurant industries, as well as the mistrust of the pharmaceutical industry's greed and the government's faltering pandemic response. It is unsurprising that the Covid-19 conspiracy theory video, Plandemic, which exploits anti-vaccination and anti-establishment perspectives, initially premiered on a QAnon Facebook group. The video exponentially spread through other social media platforms garnering millions of views and interactions shared by influencers and politicians like Dr. Christiane Northrup and Republican campaigner Melissa Ackison (Frenkel *et* al. 2020). Right-wing news media circulated similar opinions to Q: Hannity claimed: "the virus [is] a fraud by the 'deep state' trying to spread panic, manipulate the economy, and suppress dissent" (Peters and Grynbaum 2020). As before, Q's affective contagion actualized in real-world interventions: anti-lockdown protests began in April 2020 and are ongoing throughout North America – QAnon signs often commingle with open-carry firearms and pro-Trump paraphernalia. The increasing existential consistencies of QAnon-inspired misinformation led to its unmediated political injunction in the 2020 Presidential election and beyond.

The 2020 election and its aftermath exemplify how the malfunctioning, right-wing misinformation machine is predicated on a material intervention in the sociopolitical field. As the right-wing media ecology spread QAnon's affective contagion, gaining even more impetus through anti-lockdown demonstrations, it produced new political realities. In the general election, six QAnon exponents were on ballots, and two were voted into the US House of Representatives as Republicans: Lauren Boebert and Marjorie Taylor Greene (Gregorian 2020). Both representatives unwaveringly support former president Trump, sought to overturn election results, and voiced their belief in the QAnon theory before and after taking office (Bump 2021). Greene exemplifies how misinformation inscribes itself within the body and expresses itself through it.

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On social media and at public events, she has promoted the QAnon narrative and related theories; she held that the Sandy Hook and Parkland school shootings were false flag events intended to heighten gun control legislation, and, at one point, she physically confronted and mocked a Parkland shooting victim (Hananoki 2021). Boebert and Greene's elections into government offices exemplify right-wing misinformation's inherent existential dimensions that result in molecular and molar political interventions.

Trump's loss in the general election and his failure to realize mass arrests of liberal politicians manifested the hollowness of QAnon's misinformation, mirroring his empty politicking. This emptiness once more resonated through their supporters, who filled it with their attention and energy. The more the misinformation broke down, the more affectively it functioned through adherents by taking new forms and intervening in the sociopolitical field. Trump's lawyers consecutively failed in their voter fraud lawsuits. Still, supporters, pundits, and politicians intensified fraud claims and rallied to oppose the certification of the election – encapsulated in the 'Stop the steal' slogan and movement. Galvanized by Republican lawmakers' statements and Trump's rhetoric, on January 6, 2021, a mob of roughly nine thousand people – Christian Dominionists, the Oath Keepers, the Proud Boys, die-hard Trump supporters, and QAnon adherents, all coalescing around the latter's theories – surrounded the Capitol building to stop the electoral vote certification (Willis 2021). A contingent of roughly three hundred rioters stormed the building, many of which were marked QAnon supporters, seeking to confront and harm Congresspeople and Senators. Right-wing media discourses' affective infection of the individuated subject and social collective's bodies resulted in political violence – an insurrection – that left five dead and hundreds of others injured. Devoid of sense and over-saturated with affect, the socio-semiotics of right-wing misinformation innately operates within and through the sociopolitical field to realize incorporeal and corporeal transformations.

5. Conclusion

By extrapolating the primary reproduction number's qualitative factors of viruses' micro-biological characteristics and humans' macro-social dynamics to the socio-semiotics of affect, the analogical modeling of misinformation as contagion addresses the question of language and the body more comprehensively. It maps the commingling of the body, semiotics, and the digital, how misinformation operates through these dimensions by non-discursive means through sets of affects that permeate the social and individuated body by exploiting the digital network's extension of the human nervous system. A composite, diffused faciality spreads this affective contagion; its eyes, nose, and mouth emit non-linguistic particles that order misinformation's

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empty language, imbuing it with supervalent, social syntaxes. Within the Right-wing media ecosystem, this faciality is more often than not informed by Trump's unmistakable face, which superimposes itself upon slogans, stories, and theories. This socio-semiotic model of affective contagion demonstrates how the repetition and intensification of an empty slogan, like 'Lock her up,' through a digitized body politic can result in unexpected, radical strains of misinformation that shape individual and collective political realia.

The intensification and spread of misinformation through Right-wing media ecologies signals a shift in contemporary politics. Slogans, memes, and their related discourses embody "a new politics of affectivity" that rely less and less on the cohesion of political messages and platforms (Merrin 2019: 222). Instead, they increasingly exploit the social dynamics of digital networks and signs' non-discursive capacities. User subjectivity is thus informed by language's extra-linguistic components, operating through molecular power mechanisms that inscribe themselves within the body, not unlike a contagion. Applying R_0 to a pragmatic framework of semiotics not only demonstrates that language "is inseparable from a concrete world which it affects and is affected by," but shows how signs embody communicable diseases and require equally complex analyses of their molecular and molar effects (Caló 2021: 269). Earlier analogies of an infodemic found a macabre expression in the Covid-19 pandemic. As anti-lockdown and anti-vaccination protests continue and misinformed individuals disregard public health warnings, the community spread of Covid-19 and misinformation reciprocally grow. Right-wing media's affective contagion and the pandemic mutually augment each other's basic reproduction numbers, undermining the work of vaccination efforts and eroding productive political discourse. This interpenetration of media and human ecosystems further evidences the unstable border between the digital and the real, and misinformation's supervalent physical affectation as a contagion and through the virus, Covid-19. These drawn parallels and R_0 modeling of the socio-semiotics of affective contagion highlight the dangerous potentialities of misinformation's growth and influence in the sociopolitical realm, which require critical investigation and measured counter-responses, much like a public health crisis.

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Intersensorial translation of coughing-and-sneezing in an epidemic social context

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BY: George Damaskinidis

ABSTRACT

The British Ministry of Health's poster campaign Coughs and Sneezes Spread Diseases brought World War II to the British home front by making it personal and served as a visual call to arms for civilians. Although involving visual materials, the campaign provides a case for examining how posters engage people's extra-visual senses in responding to this call. By using the concepts of intersensoriality and synaesthetic metaphor, we discuss the possibility of enhancing the audience experience of print posters by associating verbal and visual language with the rest of the senses. Premised on the assumption that it is possible to establish an interrelation between the senses related to sneezing, we argue that, once synchronized, all associated senses may increase the perception of propaganda experienced in the poster campaign.

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1. Introduction

The advent of visual culture led to a pictorial turn in the humanities and social sciences in which scholars questioned the privileging of language in their disciplines. The increasing importance of visual communication in contemporary culture has created a space for exploring not only vision but all the senses as signifying systems (Howes 2006). In this context, we examine how posters were used to rally public support in

[1] The posters are artworks created by the United Kingdom Government and are in the public domain. (http://www.iwm.org.uk/corporate/privacy-copyright/licence).

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Great Britain during World War II. A poster is defined as "a mass-produced graphic presentation, usually a combination of text and illustration on paper, intended for public display, and designed to announce and persuade" (Terrence 2003: 70).

The posters in question belong to the British home front propaganda campaign called Coughs and Sneezes Spread Diseases (Imperial War Museums), which brought the war to the home front by making it personal and serving as a visual call to arms for civilians.[1] These campaign posters carry the same central health-related verbal message, while each conveys a social idea through different imagery. A question that arises is why the same verbal "coughs and sneezes spread diseases" is repeated for each visual idea and how it engages people's senses in responding to the call made by the campaign.

Andri Yatmo and Atmodiwirjo (2013: 193) "propose the idea of sneezing as a manifestation of how an active body responds to its surrounding space." They argue that sneezing in a specific space could serve as a natural indicator of the quality of that space and as an instrument to comprehend that space. Here, the notion of coughing and sneezing, two interrelated natural body reflexes against particular external stimuli, is put forward as a manifestation of how body awareness is regulated by the socio-historical context and its surrounding space. By mapping the sneezing-and-coughing effect on its socio-spatial context, the awareness of the body in society and space is not (merely) interpreted in visual but also in kinaesthetic terms.

The intersensorial translation of the phenomenological action of coughing-and-sneezing (by examining posters of the past) can give us an interesting glimpse of the current Covid-19 epidemic. While modern technology provides a variety of multimodal, digital means to illustrate the transmission of the virus, back in the WWII period, a poster campaign was deployed to convey the same message. Just as Domino, Pierce, and Hubbard (2021) introduced spatial and temporal elements into their digital modeling, the print posters were expected (or aspired) to present in a multisensorial way the risks of exposure depending on separation distance, exposure duration, and environmental conditions.

There are some distinct ways in which the different senses are interconnected to produce a sensed environment. Briefly speaking, these ways include cooperation between the senses, the hierarchy between different senses, sequencing of one sense from another, the effect of a particular sense that makes operative another sense, and reciprocal relations of a sense with the object that seems to afford it an appropriate response (Rodaway 1994). Howes (2005) uses the concept of intersensoriality to refer to such interrelations and/or transmutations of the senses. According to intersensoriality, the senses may be arranged and deployed along a continuum of dyads: the synergetic dyad along the cooperation/opposition continuum; the hierarchical along the hierarchy/equality continuum; the interconnected along the fusion/separation continuum; and the sequential dyad along the simultaneity/sequentiality continuum.

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The senses have become an object of study and means of inquiry in the humanities and social sciences. However, Proulx et al. (2012) point to the gap in the existing bibliography of the examination of visual, auditory, and multisensory perceptual learning over the past 50 years, as it concerns the ability to bring together all senses under the same theoretical structure. In an attempt to bridge this gap, in this paper, I also consider the significance of expanding the five-sense sensorium by examining the meanings and uses attributed to the kinaesthetic senses in British culture during the historical period of World War II. Ultimately, the notion of a sensorium is further extended and enriched by recognizing that the sensorium is a social fact.

I further intend to discuss poster design for war propaganda and stimulate the discussion about the possibility of enhancing visual-verbal communication utilizing all the senses. Considering the likelihood of an associative process, I explore the association between the senses using verbal language as a mediator.

2. Theoretical framework

2.1. Intersensoriality: transcreation and transmutation of the senses

According to Howes (2006), sensory studies offer a new way to study the senses and sensory perception by foregrounding the sociality of sensation. Social science has long suffered from verbocentrism and textualism to the extent of being characterized as a discipline of words (Grimshaw 2001), relying mainly on verbal or visual data. However, we make sense of the world not just through language or vision but also through all our senses and their extensions in the form of diverse media. This sensory approach does not entail shutting one's eyes but rather turning them to various directions and focusing them differently. Additionally, the senses and sense-based media have access to research areas and fields that words do not. As early as the 18th century, French intellectuals tried:

> to complete an encyclopaedia on world languages, [and] claimed that all the senses can be expressed in language. A painter only reproduces visual perception, a musician is limited to the auditory, but language, even if it does not represent vision, touch, or audition directly, can reflect these by offering different descriptions referring to a multiplicity of sensory feelings. (Coessens 2012: 328)

Although these attempts were not successful, their premise keeps on inspiring several researchers. Wathelet (2011: 371) considers the invitation to researchers to "go concrete [as] one of the great contributions of the senses to the social sciences." He refers to a series of studies that approach sounds as sensory materials (i.e., the quality

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behind objects or things, matter itself). In other words, sounds could become mediators between humans and their environment that reveal how music builds intimacy and power by literally creating spaces made of these materials.

Vannini, Waskul, and Gottschalk (2011: 15) argue that "as we sense, we also make sense" (i.e., find or attribute meaning). At the same time, if we endorse Stahl's (2008) approach to sensoriality, we could go even further and start thinking of "meaning" as "sensing." This would release "meaning" from its logocentric chains, in the sense that meaning is understood as linguistic signification, enabling us to embrace more "bodily ways of knowing" from a cognition point of view. However, if we think of meaning as sensing and release it from logocentrism, we must accept that we never truly know what anyone means when they describe sensing something since they do this through the filter of language. For example, to allow sight to occur without visual input through the eyes, visual information can be transformed by a sensory substitution to see through the ears or tongue (Proulx et al. 2012). For example, a plaster cast tactile version of a painting could be seen through touch; by allowing the visual sense to occur without its sensorial input (i.e., the eyes), sensory information is transformed by a sensory substitution through the sense of touch.

People may use a sensory system to evaluate the perceptual qualities of a stimulus through receptors that are not sensitive to these qualities. Empirical research has shown that participants use the olfactory sensory system (i.e., nose) to qualify the odor of vanilla as sweet, despite sweetness being typically associated with stimulating the sense of taste (Stevenson and Boakes 2004). Perception is not solely a mental or physiological phenomenon. According to Bull et al. (2006: 5), "[t]he perceptual is cultural and political [and] [t]he senses are everywhere." They mediate the relationship between idea and object, mind and body, self and society, culture and environment. This relationship should consider the differentiation of the senses by factors such as gender, class, and ethnicity.

If *ekphrasis* is a "poetic description of a pictorial or sculptural work of art" (Spitzer 1962: 72), an intersensorial description that aspires to suggest rather than explicate might be an alternative to the verbal-based description. Coessens (2012: 333) argues that "looking at a painting, humans can have the experience of walking around in the painting, of hearing noises coming from the painting, experiencing the feeling of the brushstrokes, and so on." From this perspective, color may have important implications for our understanding of the role of the senses. Elliot (2007) describes color's influence on the perception of consumables, such as alterations in food taste or the olfaction of beverages. She also describes color as "a mark of individuality" (ibid. 46) which could be seen as a reflection of someone's values and interests.

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An analogous way to enrich the experience of viewing multisemiotic documents (i.e., texts consisting of various semiotic signs) is to find alternative means of accessing them. Smith (2003: 222), for example, describes such an experience (in the first person) as "[u]sing vivid description, and engaging my senses of touch, hearing, and smell, they can give me a greater level of access than they would to many researchers with sight." This approach to sensory studies would emphasize the dynamic, relational (intersensory, multimodal, multimedia), and often conflicted nature of our everyday engagement with the sensuous world.

The reflections about the multiple modes of sensory interconnection highlighting the relations among the senses, above and beyond their informational content, relate to intersensoriality. Intersensoriality refers to the senses' interrelation and/or transmutation, which may take many forms: cooperation/opposition, hierarchy/equality, fusion/separation, and simultaneity/sequentiality (Howes 2013). These forms suggest that the senses are not simply passive receptors but are interactive, both with the world and with each other. This intersensoriality could be discussed in terms of people who cough and sneeze and the senses involved in this physical activity.

2.2. Sneezing as a way of exploring intersensorial experience

Sneezing is a personal matter in which an individual develops a tendency to react against external stimuli (for example, environmental conditions and animals) and/or internal stimuli (for example, an allergy or a pathogenic cause, such as flu). It is hard to control sneezing, and any attempts to block it (by pressing the nose or closing the mouth) would only make it worse. Usually, an instance of sneezing is physiologically signaled by a slight backward tilt of the head, eyes shut tight, the mouth opening, and a deep inhale.

If the sign of someone sneezing in a public space can be expressed through words, then we must find ways to convey the feelings and sensations of the people close to the sneezer that are only invoked or raised through feelings. This expression should also be seen from the perspective of those people who do not sneeze. In this case, sneezing is experienced by people in a multi-sensorial way, depending on the surrounding space and their distance from the sneezers; that is, visually (by actually watching both the sneezer and the germs in the form of a cloud of droplets, in certain lighting conditions), olfactorily (by smelling the unpleasant odor emitting from the mouth), gustatorily (by tasting the cloud of droplets sprayed inside their mouth), somatically (by feeling the cloud of droplets on their skin) and auditorily (by hearing the distinctive sound). Therefore, sneezing is an internal body process that is further materialized into an external physical action that may trigger several responses in the affected people. In this respect, the sneezing body should be seen in terms of the space surrounding it.

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Sneezing is a vocal signal that is usually excluded from paralinguistics. Crystal (1969: 131) defines such signals as 'vocal reflexes' because they are typically uncontrolled and physiologically determined. The noise produced is the distinctive sound and reverberation coming out of the mouth and the nose. However, sound has largely been neglected as a paralinguistic object of study, though it offers a fundamentally different world knowledge than vision (Smith 2002). According to Puwar (2011: 332-33), "[n]oise is whatever the signifying system, in a particular situation, is not intended to transmit – be the system a poem, a piece of music, a novel, or an entire society" [emphasis in original]. Noise interferes in information communication as a disturbance that cannot be placed in a recognizable pattern. It is a relative term – a disorder (Attali 1985).

Human acoustic communication beyond paralanguage (and, of course, music) includes some other phenomena that have not yet been (and perhaps will never be) recognized as a sub-discipline of semiotic study. So far, only Wescott (1996) has proposed studying this "communicative body noise" area under the designation of strepistics. His examples of "strepitative behavior" are hand-clapping, foot-stamping, face slapping, tooth gnashing, whistling, and spitting. According to Wathelet (2011), sounds are described as mediators between humans and their environment, revealing how music builds intimacy and power by literally creating personal spaces made of sonic materials. If sensory activity were based on materiality, it would be relevant to assess and describe its agency and ability to act on human bodies and selves as a key dimension of sensory experiences, activities, and structures (ibid). For what Wescott (1996) calls *strepistics*, this sensory material, the quality related to the object or thing, its concrete substance has yet to attract the interest of the social sciences. A related issue is how to transcribe senses on paper without relying solely on the verbal element. O'Dell and William (2013: 317) have demonstrated "manners in which transcriptions can be rethought as sensory experiences geared to move and engage different audiences," such as leaving a space between words to emphasize issues of distance and disjuncture.

While language is of no great help in describing sensory perceptions, at times, it may also be a real barrier (as in the case of Chinese for Europeans) or may risk dampening or trivializing cultural subtleties. By privileging the verbal in our analyses and descriptions, significant and seemingly obvious embodied, perceptual, and kinetic aspects of human experiences remain hidden for discourse and science. Exploring how the opposite pole of sound, silence, can be put into play in a series of associations would make it possible to sense the agent of silence (for example, a poster) beyond the verbal and visual interactions. This leads us to consider sneezing as a sensorial metaphor.

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According to Lakoff and Johnson (1980: 5), "[t]he essence of metaphor is understanding and experiencing one kind of thing in terms of another [but] metaphor is not just a matter of language, that is, of mere words." Forceville (2008: 463-476) argues that visual and multimodal metaphors, especially in opposition to verbal ones, have a high degree of specificity resulting from their perceptual immediacy. They are more easily recognized across languages and cultures since they do not rely on language codes. They have medium-determined ways of cueing the similarity between target and source, and they have a more substantial emotional impact. Moreover, human thought processes are largely metaphorical. In other words, "[m]etaphors as linguistic expressions are possible precisely because there are metaphors in a person's conceptual system" (ibid). The interrelation of the senses points to the importance of human synaesthetic possibilities and how these could be integrated into a broader account of semiotic theory. Such a theory, according to Kress (1998: 76), would "acknowledge and […] account for the process of synaesthesia, the transduction of meaning from one semiotic mode in meaning into another semiotic mode, an activity constantly performed by the brain."

Ullmann (1964) assumes that the movement of synaesthetic metaphors is not haphazard but conforms to a basic pattern. For example, the pattern vision > hearing might be read as vision will evolve towards being discussed in terms of hearing. This transduction of the senses would involve:

> the process of moving meaning-making from one mode to another – from speech to image, from writing to film. As each mode has its specific materiality – sound, movement, graphic 'stuff,' stone – and has a different history of social uses, it also has different entities. Speech, for instance, has words, the image does not. That process entails a (usually total) re-articulation of meaning from the entities of one mode into the entities of the new mode. (Kress 2010: 125, emphasis in original)

An example of such transduction could be seen in several kinds of movement other than the actual physical motion. Oittinen (2008) speaks of objects that move (such as a car on the road) or human minds that make the object move. For instance, if we take a picture of someone who is about to sneeze, we have a specific memory of what the act of sneezing will look like. We are tempted to see motion where there is none, and we can add the missing details with our imaginations, such as the sound of breathing in just before expelling the gust of air. The transduction of meaning from one semiotic element (here, the vision of a picture) to a different semiotic element (here, the multisensory action of sneezing) is a kind of intersemiotic translation, as already pointed out by Jakobson (2004[1959]).

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2.3. The sensorial power of war propaganda

During WWII, there were two major British propaganda campaigns, the Home Front and Allied Unity (Finch 2011). The first campaign was overtly intended to influence the minds of Britain's citizens, while the second one was to covertly convince the citizens of the United States to join the Allied cause. The British Ministry of Health needed to change its citizens' civic thoughts and actions into appropriate wartime behavior pertaining to their hygiene. Governments are aware of the power of the civilian population and that civilians' actions or beliefs in a conflict can significantly determine the outcome (Sun Tzu 2005). For that reason, countries need propaganda to convince their people to endure hardships and acts of sacrifice for their nation (Finch 2011).

The overarching strategy of this home front campaign was to use "white propaganda" (Finch 2011). The campaign can be considered white propaganda because the recipients (the British people) knew its primary source (Ministry of Health), and the goal was communicated (use a handkerchief when coughing and sneezing to avoid spreading diseases). The explicit purpose was to remind and influence the British people to remain healthy and avoid spreading diseases to other people. And this type of propaganda is best for communicating a clear message to people. For that reason, posters with short snappy texts and powerful images were designed. The poster is a democratic medium as it is not site-specific and can be put anywhere. Thus, any Briton could be exposed to a poster no matter their social class. The creators of the campaign's posters knew what they were trying to achieve and intentionally used such media affordances to their advantage.

The home front campaign involved direct use of the tool of "social-psychological adaptation" (Lee 1945). This approach capitalizes on the overpowering core emotions all human beings have: fear, hope, love, and hate. Emotionally charged messages were a regular tactic in Britain, such as Winston Churchill's patriotic speech "We Shall Fight on the Beaches," which intended to deliver a message of hope to the British nation. Witkowski (2003: 69) argues that "[g]overnment institutions and political actors have used media, rhetoric and visual representation of their time to reach citizens with messages about what were considered desirable, as well undesirable, consumption practices." To this purpose, audiovisual technologies have historically become central to war coverage (Sontag 2003) and facilitate emotional propaganda. Such a type of propaganda targets a society's unique, emotionally patriotic elements that arouse in people overwhelming feelings of loyalty while quashing reason. This tactic calls upon the source (for example, a film, a poster, or a radio broadcast) to use people's emotions, like fear, hate, love, and hope, as a vehicle for the message to impact the recipient effectively.

Therefore, it is not enough to see propaganda; one also has to experience it. For that reason, Coughs and Sneezes offers an opportunity to explore propagandistic experiences beyond the visual. It is possible to measure the effect of coughing and sneezing on

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the home front by mapping how the poster's message is written-seen-heard-felt-tasted. Also, the reciprocal relationship between the poster and the home front is realized through the experience of not coughing and sneezing. This alternative experience is realized by the poster's message that is unwritten-unseen-unheard-unfelt-untasted. In other words, all of the senses need to be employed to appreciate the campaign's message fully.

The Ministry of Health launched its propaganda campaign using posters as a communication medium. The message was unambiguous: "Coughs and sneezes spread diseases." Health during the war was a big worry for Britain. The public needed to keep fit and healthy to work and keep up production in the factories and farms. In the case of the Ministry of Health's campaign, the posters drew on the emotional ties of the citizens by referring to their sense of civilian duty in times of war. The message, therefore, is shaped around the unique social and mental makeup of British culture. From this perspective, this home front campaign provides a good case for an intersensorial study.

3. Methodological considerations

3.1. Research design

To experience the senses in the "Cough and Sneezes" campaign, I discuss and analyze the posters qualitatively through the lens of the Intersensory Redundancy Theory (Bahrick et al. 2004). This theory refers to "the spatially coordinated and temporally synchronous presentation of the same information across two or more senses and is therefore possible only for amodal properties (e.g., tempo, rhythm, duration, intensity)" (ibid. 100). This is an approach used to help explain how selective attention is achieved and how it guides the development of perception and cognition. Additionally, it is intended to facilitate the analysis of a broader range of phenomena and a more concrete inscription of the senses into the regime of social sciences (Wathelet 2011). This research design will be applied to examine if exposure to print posters could be considered as a form of multisensory experience.

3.2. The posters as data-texts

The British Ministry of Health and Central Council for Health Education sponsored the WWII home front campaign posters,[1] appropriating or remediating artworks created by commissioned military artists during their active service duties in World War I. The collection consists of fifty-four posters, of which only twenty are today available for viewing (at the collection section of the Imperial War Museums). In general, the posters' images and text are set against a colored background. The main title "The Ministry of Health says: COUGHS AND SNEEZES SPREAD DISEASES," the subtitle "trap the germs in your handkerchief," and the authorship line "ISSUED BY THE MINISTRY OF HEALTH

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AND THE CENTRAL COUNCIL FOR HEALTH EDUCATION," are also positioned in various parts of the poster (capitals in original). The same applies to further text that is integrated and located in multiple sections. As far as their materiality is concerned, these posters are lithographs printed on paper with an average 100 x 50 cm dimension.

In the corpus of this research, all poster artists are unknown save for humorous artist and cartoonist Henry Mayo (H.M.) Bateman (1887-1970, England), to whom are attributed Figures 2b, 3a, 3b, and 4a. For inclusion into this research, each poster meets two criteria: first, it verbally denotes the campaign's central message, "Coughs and sneezes spread diseases"; and, second, it is complemented with at least one visual element, such as a graphic representation of reality, photograph, sketch, etc. We excluded four posters because they repeated the same theme. Finally, the fourteen selected posters have been grouped into main themes to keep the qualitative analysis concise. The bracketed number below each poster indicates the collection number.

3.3. Method of analysis

This analysis of the posters focuses on how a sensory substitution transforms the campaign's operational goals to realize the broader strategic objective. Referring broadly to visual phenomena, De Coster and Muhleis (2007: 193) state that "one can give an idea of visual ambiguity […] if a comparable ambiguity exists in another sensorial field (touch, hearing)." Considering that the posters' verbal messages are repetitive and uncomplicated, we will examine the sensorial substitution in the posters in terms of the concept of "synaesthetic metaphor" (Ullmann 1964). This examination involves re-articulating the meaning of all the semiotic elements and entities of the posters that transduce the senses.

It will also be examined how the posters' sensory stimuli are substituted so that the senses: a) keep their individual qualities of sensation, b) form a new sensation (where the components of the senses would lose their individual qualities of sensation), or c) form a single percept that could be perceived as a whole but remains analyzable when we specifically attend to each component (Auvray and Spence 2008). Given that a poster's verbal reading elicits only part of the story and assuming that the visual's bi-dimensionality binds its sensing, I use four elements that lend themselves to poster multisensorial translation: vivid details, reference to other senses, explanation of intangible concepts, and information on the social context (De Coster and Muhleis 2007).

For this study, we will complement the five ordinary senses (touch, sight, smell, taste, and hearing) with a sixth sense (kinaesthesia) to account for intersensorial cases where the perception of movement is also involved. This division is entirely arbitrary and heavily reflects cultural biases. Non-Western cultures conceptualize differently modes of perception and have other counts and divisions for those perceptions.

4. Data analysis and discussion

4.1. Experiencing the posters

For the purposes of this study, the fourteen posters have been grouped under five themes that connote issued warnings which in military terms could be translated into operational goals: protective measures (Fig. 1), proper behavior (Fig. 2), unprofessional conduct (Fig. 3), public danger (Fig. 4) and the cost of sneezing (Fig. 5). In this way, the posters are presented as issued warnings that constitute a sensory experience. Since all the people depicted spreading diseases have their eyes shut tight, we can assume that they are sneezing rather than coughing, and for this reason, they are called sneezers here (rather than sneezers and coughers).

The Ministry of Health intended the posters to be read both by the agents of the action (the sneezers) and the people affected (that is, those sprayed with the germs). The campaign's title "coughs and sneezes spread diseases" rhymes, creating a distinct sound effect that is easily recalled by the readership. The subtitle "trap the germs in your handkerchief" is a second-person motivation and direct use of social-psychological adaptation. The synaesthetic metaphors and their related sensory substitutions discussed in Figures 1-5 and summarized in Table 1 are based on the researcher's analysis.

Table 1. Synaesthetic metaphors

		Metaphor	
FIGURE		NAME	SENSORY SUBSTITUTION
1	a	armed breath	keeps individual qualities
	b	red/green/yellow sneeze	single percept
	c	sneezing defence	forms new sensation
2	a	cloud-attack/sneeze-defence	single percept
	b	happy sneeze	forms new sensation
3	a	armed sneeze	forms new sensation
	b	unproductive sneeze	keeps individual qualities
	c	food trap	single percept
4	a	viral shopping	keeps individual qualities
	b	hovering commute	forms new sensation
	c	germ chamber	single percept
5	a	fratricide sneeze	single percept
	b	armed handkerchief	single percept
	c	outlaw sneezer	forms new sensation

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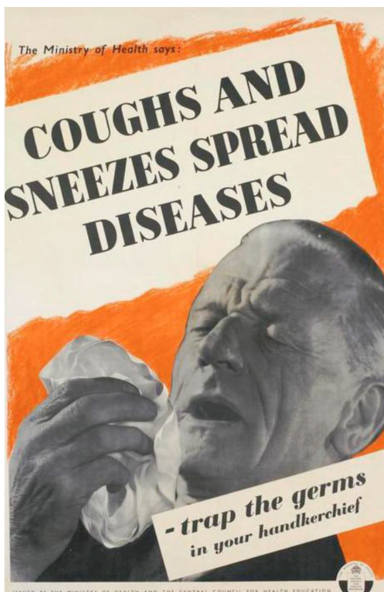
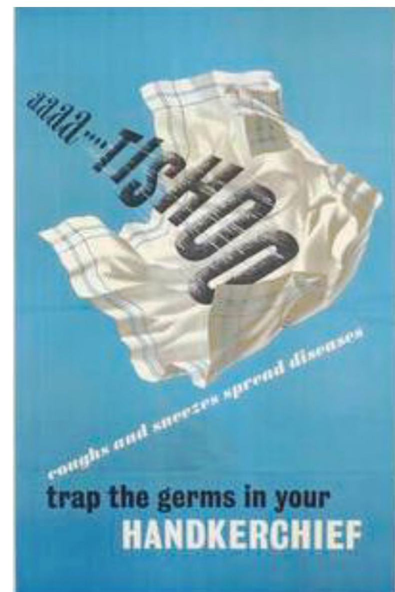
Figure 1 depicts three posters that deliver a central message: using a handkerchief to protect against sneezing. The older man (Fig. 1a) is about to sneeze and is holding a handkerchief to his face. Figure 1b shows another older man who is also about to sneeze (upper image) and then actually sneezing while holding a handkerchief up to his face (lower image). The central image is a handkerchief. All three images in Figure 1b are integrated into a traffic light style design. Figure 1c illustrates a sneeze captured in a crumpled handkerchief set against a blue background. It transcribes a symbolic representation of the sound effect through the verbal "aaaa...TISHOO." The lower-case letters and small font of the former in the background and the bigger font and capital letters of the latter in the foreground suggest an auditory sequentiality of "aaaa" followed by "TISHOO."



1a

1b



1c

Figure 1. Protective measures

Figure 1a is an armed breath stimulus, a sound (breath) placed in terms of the tactile arm (touch). The word arm describes the action of making a weapon ready to fire; the backward tilt of the older adult's head resembles the cocking of a gun (pulling the hammer back) before pulling the trigger. This sensory stimulus keeps its individual qualities, showing what the handkerchief looks like (visual) and how to hold it properly (touch). Figure 1b constitutes a red sneeze stimulus (how to control sneezing), a yellow sneeze stimulus (what the protection looks like), and a green sneeze stimulus (how to sneeze safely). The single percept red/yellow/green (visual) describes the sneeze (kinaesthetic) in that the latter involves a sound, vision, and movement. Figure 1c is

a sneezing defense, protection (tactile) against the sneeze (sound), where sneezing is presented here as a sound. The space (in the form of dots) between the word "aaaa" and the word "TISHOO" is an instance of sensorial transcription of sound that forms a new sensation.

In Figure 2a, the two upper images are a portrait of a man, in profile, sneezing without restriction, and a plate illustrating the bacteria released in his sneeze. The two lower images are portraits of the same man, again in profile, sneezing into a handkerchief and a plate illustrating the resultant lack of bacteria. The plates (illegible in the figure) read, "There are 19,000 colonies of living germs … See the cloud of germ-laden droplets broadcast into the air by a careless sneeze" (Top plate), and "Only one colony of germs got past when the sneezer used his handkerchief" (Lower plate). Figure 2b shows a portrait of a sneezing man, holding a handkerchief up to his face. The smaller images are smiling pictures of various male and female military and civilian personnel.

Figure 2a visualizes the single percept cloud attack – sneeze defense. While the upper image is a visual (cloud of droplets) put in terms of the tactile "attack," the lower image is a visual sound that describes protection against sneezing. To deter people from spreading diseases, the poster designers and producers present sneezing as lethal as firing at people. Additionally, the poster viewer is drawn into a laboratory setting to acquire a scientific experience of the effect of sneezing by examining it through a microscope. Figure 2b forms the new sensation of a happy sneeze, a visual sound (sneeze) visually reflected in the nine smiling people. Practicing safe sneezing allows other people (here professionals) to keep on doing their daily tasks.

2a

2b

Figure 2.
Effects of proper behaviour

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Figure 3 shows people in the workplace: a female munitions worker standing behind a factory work surface covered in artillery shells (3a), a woman standing in an office (3b), and a man waiting in a queue in a cafeteria (3c). The three sneezers expel an exaggerated gust of air without using a handkerchief, while their colleagues are standing close by recoil in disgust.

Figure 3a forms the new sensation armed sneeze, a graphic representation of the expelled gust of air (visual-sound) put in the form of the tactile artillery shell (touch). Figure 3b keeps the individual qualities of an unproductive sneeze, a gust (visual-sound) put in the form of dropping several sheets of paper (visual-sound-touch). Figure 3c shows the single percept food trap, the tactile (germ)

3a **3b** **3c**

Figure 3. Unprofessional conduct

trap (touch) put in the form of tactile food (taste). The onlookers experiencing the sneeze effect have the same disapproving look on their faces that unavoidably creates an unpleasant working environment. While in 3a and 3b, the sneezer's colleagues experience the sneeze both visually and auditorily, in 3c, the worker that is to "be sneezed at" receives just an auditory warning and turns around for a visual contact only upon hearing the sneeze, and potentially upon sensing the cloud of germs on his skin. Therefore, sneezing becomes to the bystander as lethal as an artillery shell, makes workers careless, reduces their productivity, and sneaks up on unsuspecting people.

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Figure 4 shows three sneezers, two older women and a man, standing in a fabric shop, in an elevator, and on the underground, respectively. One woman (4a) and the man (4b) jump slightly in the air as they expel an exaggerated sneeze, while the onlookers (customers, staff, commuters) recoil in disgust. For this research, these posters are considered to illustrate public spaces.

Figure 4a keeps the individual qualities of viral shopping, a commercial activity (kinaesthetic) put in terms of the cause of the disease (visual-sound). Figure 4b forms the new sensation hovering commute that refers to an everyday activity (kinaesthetic) where the force of the sneeze makes the commuter jump and unable to hold on to the handle grip (kinaesthetic) in a moving train. Figure 4c is the single percept

4a 4b 4c

Figure 4. Public danger

germ chamber, a space (touch) hosting the effect of sneezing (visual-sound). Thus, shopping sets a(n) (bad) example of buying behavior that has adverse consequences (similarly to shopping therapy), public transportation is a risky endeavor, and a lifting device is turned into a deadly trap full of germs.

Figure 5a shows the consequences of improper sneezing behavior: fewer workers, a lost war. Three civilians sneeze on those around them Today while those sneezed at are illustrated as a white outline Tomorrow, indicating their absence. The three images on the right are photographic depictions of a military facility, an industrial workplace, and a secretarial pool. Absent workers are shown as a white silhouette.

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In Figure 5b, the upper image is the profile of a man sneezing, and below it is a handkerchief. The text in the colored insets directly relates the effects of sneezing (colds and flu) on defense industry production. The text-inset in the form of an arrow pointing to the handkerchief connotes its relation to the sneeze effect. Figure 5c shows a human figure on a wall of bricks with a warning that he is wanted for sneezing. The subtitle below the word "DANGER" reads "…and coughing without due care and [probably] attention"; as such, the man is a danger to the public. The curved lines around the sneezer's head suggest a sneeze-induced trembling of the head.

5a **5b** **5c**

Figure 5. The cost of sneezing

Figure 5a forms the single percept 'fratricide sneeze,' a biological reaction where the graphic representation of the gust of droplets falling on people (touch) is put in terms of a civil war act 'fratricide.' Here, the cost of spraying people is represented as civilians (rather than military) missing in action (kinaesthetic). Figure 5b form the single percept armed handkerchief, a means of health protection (touch) that minimizes the cost for the military industry, presented here in the form of verbal information (visual). Figure 5c forms the new sensation outlaw sneezer, a graphic representation of the head's movement and the gust of droplets (touch), put in terms of the social cost of holding up the sneezer to public ridicule.

4.2. Translating the campaign's intersensoriality

This analysis of the posters was influenced by Jay's (2002: 88) argument that it is "necessary to focus on how [posters] work and what they do, rather than move past them too quickly to the ideas they represent or the reality they purport to depict." In the posters, we can identify various triggers in the spatial surroundings that may cause people to sneeze or particular spatial situations where sneezing occurs.

Coughing and sneezing is an alternative way of mapping Britain's home front and becomes a trigger for further action. People's scornful looks directed at the sneezers and the happy faces (only in Figure 2b) are examples of the emotional propaganda tool of exaggeration. This is known as a 'hot potato' technique (Bernays and Miller 2005). The wrongdoing draws the viewers' attention to the negative aspect of the enemy (that is, sneezing Britons) to make them look good by comparison. This technique was combined with "emotional propaganda" (Lee 2011) to capitalize on two core overpowering human emotions. The campaign's title is an emotionally charged message of fear, for the consequences of this act are therein labeled as unpatriotic and hate towards the perpetrators.

In recent empirical research of public attitudes to Covid-19, many participants described strong reactions to others' coughs and sneezes in public spaces. For example, a participant told how "we have gone from being polite and saying 'bless you' to now having to defend people's coughs and sneezes. If somebody does cough, it draws a powerful negative reaction towards them" (Williams, Armitage, Tampe and Dienes 2020).

The campaign used the archetype as a propaganda tool. This tactic focused on simplifying characteristics of people into two clearly stated roles: the "sneezer" and the "eyewitness." These archetypes were made to deliver a clear message about how (irresponsible) British people act and how responsible citizens should demonstrate their contempt. This is one way to demonstrate how patriotism is measured by the way sneezers act during their day-to-day tasks. Thus, posters were essential in making every citizen a soldier and connecting people to the war effort.

The posters illustrate the contextual location where coughing and sneezing took place and the social and societal consequences of this act. More important for us today is that they highlight the potential of coughing and sneezing as an alternative way of comprehending the sensorium. They become a representation of how senses and sensorial qualities are expressed through verbal and visual elements. The analysis records sensory substitution and suggests an alternative way of conducting 'sensory-oriented research' (Wathelet 2011: 368) in the social sciences. This type of simulation is now enhanced with computer models, which allow for a more sophisticated, scientifically driven, and multi-sensorial experience of the social effects of coughing and sneezing in the Covid-19 period (DOE/Sandia National Laboratories 2021).

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The reciprocal relationship between seeing and experiencing propaganda is also realized through the act of not sneezing, not responding to the surrounding environment. The experience of not sneezing can be seen in the rest of the people in the posters who look down scornfully on the sneezer. This behavioral attitude is a second-level, connotative type of white propaganda that sets the example of a responsible code of conduct. The campaign posters positioned the British people as not just citizens but soldiers, militarizing public spaces while seemingly maintaining a public/democratic way of everyday life. Through these posters, the citizenry's democratic duty is reduced to a single action, in which the only meaningful choice equated to selecting only one protective measure is nothing short of a patriotic act: your handkerchief is your weapon.

The posters produce what Gordon (2008: 20) calls a "tangled exchange of noisy silences and seething absences," a type of multi-sensory dialogue hinged on the impossibilities of hearing via a visual channel and of seeing with naked eyes. This missing exchange is recovered by reversing the role and function of the mediums and channels realizing it. That is, the posters visualize the sneezing action graphically. They give voice to the people on whom the germs were inflicted through their defensive postures and scornful looks, while the spread of germs becomes visible by resorting to a medium (staged photography) to which the affected people have no visual access.

Further, the posters demonstrate the human body's capacity to act as an instrument for comprehending the importance of the social environment. This is an active process through which the poster viewer makes sense of the society it represents. The agents in the posters are both passively and actively involved in this social practice. On the one hand, the sneezers receive the stimuli from a given social context and, on the other hand, exercise an impact by spreading germs in this environment. Reciprocally, the British people respond to this sound effect and feeling of touch (germ particles on their bodies) and possibly of taste (through breathing) visually, by giving scornful looks, and kinaesthetically, by distancing themselves from the germ carrier. This is an intersensorial way of describing social exclusion as an instance of grey propaganda.

The negative connotations of the word spread can also be found in the abstract idea of tyranny and evil spreading (Bernays and Miller 2005). Issued to the American people as a warning of the imminent danger and aspiring to convince them to join the Allies, the verbal spread, commonly used to allude to fascism, as in "fascism spreading" (ibid.), becomes a substitute for the sensation of fear. Such a sensory substitution device is similar to translating images into formats that the blind or blindfolded can process with sensory modalities other than vision (Proulx 2012).

The Health Ministry's campaign also has several similar allusions that make it highly cohesive in its intertextual and intratextual references (Kristeva 1980). While in intertextuality, each text exists in relation to others, a related kind of allusion called intratextuality involves internal relations within the text. This relation occurs on "a horizontal axis connecting the author and reader of a text, and a vertical axis connecting the text to other texts" (ibid. 69). These two types of reference are essential to intersensoriality so that the senses present in the posters are not left unattended by the reader. Thus, a fuller reading will be realized across biographical, historical, or socio-economic injections within the posters campaign.

An intertextual reference can be seen in Figure 6, which shows barrage balloons over London in WWII. They are giant balloons tethered with metal cables, used to defend against aircraft attacks by damaging the aircraft in collision with the wires, making the attacker's approach more difficult. Figure 1c evokes a similar defensive posture, where we can see the collision of an attacker (the sound effect of a sneeze) on the means of protection (handkerchief). The angle of view (from below) and the background (blue sky) puts the poster's viewer in the position of the Londoner looking up in the sky for air attacks.

Figure 6. Barrage balloons (Crown copyright)

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Figure 7. Gas chamber (Wikimedia, Creative Commons)

Another intertextual reference is made visible in Figure 7, where we see a gas chamber in the Dachau concentration camp in WWII. Such chambers were disguised as shower facilities, where SS officers told the prisoners to undress to take a shower and undergo delousing. Instead of this, poisonous gas was dumped on the victims through vents in the roof or holes in the side of the chamber. All victims were dead within 20 minutes. Figure 4c illustrates a similar dangerous chamber. A British civilian delivers an infectious gust of droplets, discharged through her mouth, and dumped on her fellow British people, who have no escape route.

The third intertextual instance appears in Figure 8, which shows a wanted poster, a poster distributed to let the public (in this instance, a newspaper) know of an alleged criminal (here Hitler) whom the authorities are looking for. They generally include a picture of the alleged criminal or a facial composite image produced by the police or a government body for display in a public space. Figure 5c alludes to a similar poster that illustrates a careless sneezer and the consequences of this action (wanted as a public danger). Thus, sneezing violates social, wartime norms measured by a public health (rather than law enforcing) authority.

In addition to these intertextual references, the campaign is characterized by intratextuality. Taking as a point of reference the traffic light style design of Figure

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1b, there are ten instances of a red sneeze (2a (top photo), 3a-3c, 4a-4c, and 5a-5c), and three green sneezes (1c, 2a (bottom photo) and 2b). Also, a yellow sneeze is suggested by illustrating the form, rather than the use, of a handkerchief (3c, 4c and 5b), while an orange sneeze (1a, red + yellow) shows a semi-safe sneeze, the very moment between a red and a green sneeze. Thus, the campaign focuses on exemplifying bad sneezing practices to keep the infection rates as low as possible. Here, we should note that the intertextual and intratextual references derive from the author's intuitive knowledge. No matter how plausible they seem to be, they remain highly subjective and not generalizable.

Finally, print posters are transformed into cultural products reflecting the British government's practices and perspectives during WWII, conveying culturally coded meanings to its citizens. The synergy that takes place in the viewer's experience, in the exchange between the British people and their environment, as a multi-modal input and stimulus, is what makes the posters so moving, the sound of sneezing so emotive, and the stories so tactile and visual (Coessens 2009). On the other hand, it should be acknowledged that despite the various assumptions made about how the 1940s audience would have seen these posters, no substantiated findings are provided if indeed there was a kind of sensory response.

Page 10 THE DAILY MIRROR Monday, September 4, 1939

WANTED!

FOR MURDER . . . FOR KIDNAPPING . . . FOR THEFT AND FOR ARSON

ADOLF HITLER

ALIAS

Adolf Schicklegruber,
Adolf Hittler or Hidler

Last heard of in Berlin, September 3, 1939. Aged fifty, height 5ft. 8½in., dark hair, frequently brushes one lock over left forehead. Blue eyes. Sallow complexion, stout build, weighs about 11st. 3lb. Suffering from acute monomania, with periodic fits of melancholia. Frequently bursts into tears when crossed. Harsh, guttural voice, and has a habit of raising right hand to shoulder level. DANGEROUS!

Can be recognised full face by habitual scowl. Rarely smiles. Talks rapidly, and when angered screams like a child.

Profile from a recent photograph. Black moustache. Jowl inclines to fatness. Wide nostrils. Deep-set, menacing eyes.

FOR MURDER Wanted for the murder of over a thousand of his fellow countrymen on the night of the Blood Bath, June 30, 1934. Wanted for the murder of countless political opponents in concentration camps.

He is indicted for the murder of Jews, Germans, Austrians, Czechs, Spaniards and Poles. He is now urgently wanted for homicide against citizens of the British Empire.

Hitler is a gunman who shoots to kill. He acts first and talks afterwards. No appeals to sentiment can move him. This gangster, surrounded by armed hoodlums, is a natural killer. The reward for his apprehension, dead or alive, is the peace of mankind.

FOR KIDNAPPING Wanted for the kidnapping of Dr. Kurt Schuschnigg, late Chancellor of Austria. Wanted for the kidnapping of Pastor Niemoller, a heroic martyr who was not afraid to put God before Hitler. Wanted for the attempted kidnapping of Dr. Benes, late President of Czechoslovakia. The kidnapping tendencies of this established criminal are marked and violent. The symptoms before an attempt are threats, blackmail and ultimatums. He offers his victims the alternatives of complete surrender or timeless incarceration in the horrors of concentration camps.

FOR THEFT Wanted for the larceny of eighty millions of Czech gold in March, 1939. Wanted for the armed robbery of material resources of the Czech State. Wanted for the stealing of Memelland. Wanted for robbing mankind of peace, of humanity, and for the attempted assault on civilisation itself. This dangerous lunatic masks his raids by spurious appeals to honour, to patriotism and to duty. At the moment when his protestations of peace and friendship are at their most vehement, he is most likely to commit his smash and grab.

His tactics are known and easily recognised. But Europe has already been wrecked and plundered by the depredations of this armed thug who smashes in without scruple.

FOR ARSON Wanted as the incendiary who started the Reichstag fire on the night of February 27, 1933. This crime was the key point, and the starting signal for a series of outrages and brutalities that are unsurpassed in the records of criminal degenerates. As a direct and immediate result of this calculated act of arson, an innocent dupe, Van der Lubbe, was murdered in cold blood. But as an indirect outcome of this carefully-planned offence, Europe itself is ablaze. The fires that this man has kindled cannot be extinguished until he himself is apprehended—dead or alive!

THIS RECKLESS CRIMINAL IS WANTED—DEAD OR ALIVE!

Figure 8. Wanted poster
(Copyright: John Frost Newspapers)

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5. Concluding remark

This research has shown that the British Ministry of Health used a poster campaign to reach British citizens with a health-related message about what was considered desirable and undesirable social practices when coughing and sneezing. The occurrences of sneezing in the posters suggest the importance of understanding various aspects of propaganda beyond those gathered by the visual senses. When senses such as touch (here, the feeling of a cloud of droplets on people's bodies) and hearing (here, the sound of sneezing) are present in a printed medium but are unattended by the reader, a fuller reading is missed — an experience similar to missing allusions and intertextuality within a work (here, a series of posters).

The home front campaign brought a new set of feelings into play that brought the front to British people's homes by generating a dialogue between the posters and their beholders. Through these posters, the act of sneezing became a way for people to sensorially experience and actively respond to patriotism. It was a means to get people committed to the cause of defense and of supporting the war itself. The posters can be considered a multisensorial experience because they vividly invoke mental images of touch, hearing, and smell. Whereas tri-dimensional art, such as sculpture, lends itself readily for multi-sensory experiences (e.g., through touching), bi-dimensional works of art, such as posters, pose a real challenge for multi-sensory communication (Neves 2012). On the other hand, the multisensory action of sneezing is phenomenological, not semiotic. Its representation, in this case, is visual and verbal, and it leaps to make them prove the intersemiotic translation is happening.

Following this work, a promising line of research is related to a body of research called haptic visuality, a kind of seeing that uses the eye as an organ of touch. As the curators of Anteros Museum put it, "to know how to […] touch with the eyes means […] that preconceptions cease to be an issue to freely learn about the real beauty of things" (cited in Neves 2012: 282). However, this statement highlights a pedagogical implication, as it concerns training in using synaesthetic senses.

The campaign's objective to give a plain and clear message about health protection is not successful. The intersensorial description demonstrates that the interpretation, explication, and meaning-making of the posters are ambiguous. On the other hand, the posters are a testimony of war and manipulate the multisensory properties of sneezing by turning an involuntary / reflexive action into an irresponsible / deliberate act of hostility by Britons against Britons. This transformation ties into the larger reality of war and domestic social life, where all citizens could contribute to the war effort.

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Partitions, masks, social distancing, and staying home when feeling unwell are still essential to help cut down transmission (Domino, Pierce, and Hubbard 2021). The ability to employ all senses in identifying the semiotic means that illustrate these measures could help people have a more comprehensive understanding of the Covid-19 pandemic. In the context of a health-related situation (i.e., Covid-19), the relatively innocuous behavior of coughing and sneezing is (re)experienced (just like the WWII health campaign) as a significant, dramatic and anxiety-provoking event (Williams et al. 2020).

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All models are wrong, but some are useful: mathematical models at the time of Covid-19

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BY: **Roberta Buiani**

ABSTRACT

Epidemiological models have been crucial tools throughout all stages of the 2020-21 Coronavirus pandemic: using promptly available or historical data, they have studied and tried to anticipate its progression, providing valuable guidelines for public health officials, policymakers, and other medical and non-medical audiences. While useful, models are not designed to be infallible, and for this reason, they have been frequently subject to criticism. There is a discrepancy between what models do and how they are presented and perceived. Several juxtaposing factors, including current beliefs about scientific reliability, the role of quantification, and the epistemic values grounding the field, are at the core of this discrepancy. While scientific literacy may play a role in addressing this discrepancy, analyzing and becoming better aware of these factors may suggest long-term strategies to address, acknowledge, and communicate the pandemic's inherent complexity and stochastic qualities.

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1. Introduction

In an opinion piece in the Canadian newspaper *The Globe and Mail*, Kumar Murty, Director of the Fields Institute for Research in Mathematical Sciences (Toronto, Canada), reflected on the increasing visibility of mathematical models. Before the pandemic, models were mainly unknown to the general population outside of science and mathematics circles. Fast forward to March 2020, and they have become a daily view, dominating the news on some occasions, especially when their publication ought to influence public policies and other critical collective decisions (James et al. 2021; Murty 2021).

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Mathematical models have been crucial tools throughout all stages of the pandemic: using promptly available or historical data, they seek to explain a phenomenon and to study how different factors affect its course. In the case of the coronavirus pandemic, mathematical models strive to study its progression, to anticipate or prevent possible scenarios, and to warn about the dangers and benefits that certain behavioral modifications and policy adoptions could have on its unfolding. Policymakers and administrators have often turned to modelers to help them decide whether to reopen businesses and schools or adopt or relax safety measures (Cepelewicz 2021). Models are frequently the subject of criticism: some controversial models, for instance, have led to disastrous decision-making. Others were "deemed unreliable or inherently flawed" (Holmdahl and Buckee 2020) and were accused of providing numbers that later turned out to be inflated or exaggerated (Murty 2021).

Epidemiologists and modelers are well aware of the inability of models to provide complete and accurate predictions. Adam Kucharski argues that a model "is just a way of understanding a particular process or a particular question we're interested in. The point is to understand what is the trend, what is the qualitative take-home message you get from this" (Cepelewicz 2021). Murty warns that models "are not perfect because they are designed to fit a particular epistemology, and they are not perfect because the spirit of science is not about exactitude but experimentation" (Murty 2021). According to Timothée Poisot, models are "a little bit like fables…[They] are tools to help us think generally about how infections spread, not tools to help us predict"(Poisot 2020).

These positions are not uncommon among the mathematics and modeling community. Famously, "all models are wrong, but some are useful" is an aphorism uttered on several occasions in the seventies and eighties by statistician George Box to point out that it is not the exact result that counts the most in a model, but how useful it is to help understand a phenomenon (Box 1976). However, when models emerge in the public domain and become instrumental in making crucial life-saving policy decisions, their quantitative content, not their qualitative usefulness, is most valued. When they go public, models are (and must be) presented as reliable. Then, when reality does not match the predictions, criticisms turn into a complete lack of trust (Holmdahl and Buckee 2020; Tufekci 2020).

There is no doubt that instrumentalization and politics, on the one hand, and scientific illiteracy, on the other, contribute to creating a discrepancy between what models do and how they are presented and perceived. However, this same discrepancy also signals an epistemic tendency to overemphasize the role of quantification in dealing with the pandemic. Realizing that quantified content is ineffective in tackling such a complex issue may intensify the general sense of uncertainty that has already dominated the current situation. When this discrepancy becomes exposed, it reveals how current beliefs and assumptions about scientific reliability are caused by many juxtaposing factors, not just by whether or not a model is correct. These factors are all

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equally contributing to fueling or dissipating uncertainty. Analyzing this discrepancy may suggest few long-term strategies to address, acknowledge, and communicate the pandemic's inherent complexity and stochastic qualities.

2. Modeling: a risky business

In her popular book *Weapons of Math Destruction*, Cathy O'Neil explains that modeling is a mental exercise we all do daily: based on specific parameters and experience, we anticipate potential scenarios and act upon them (O'Neil 2017). These scenarios may or may not self-realize, as several unknowns may intervene to change each situation. In an interview, she explains: "a model takes in data … and trains to learn to seek patterns. And then the model becomes a way of predicting" (Sonnad 2016). According to Metcalf et al. (2020), mathematical models "can be used to estimate parameters of pathogen spread, explore possible future scenarios, evaluate the efficacy of specific interventions retrospectively, and identify prospective strategies." To achieve these results, parameters, Subramanian and Kattan (2020) explain, "require a number of assumptions to be made," that is, speculations regarding population behavior and mobility, virus' Ro, disease incubation and length, and many other quantifiable values and inputs.

In the classic SIR model (or compartmental model) and its many variations, the arc of a pandemic is based on three types of populations: the Susceptible (the individual who could contract the virus), the Infectious (the already-infected or potentially infected individual informing the rate of spread) and the Recovered (the one who is no longer contributing to the spread, because they are either vaccinated or dead). The more variables we introduce, the more complex the model becomes. For instance, in the agent-based or individual spread model, the individuals' infectivity and exposure depend on whether they infect family, colleagues, people they meet in public, or during other random occasions (Hoertel et al. 2020). When people are represented in a network model, individuals are treated according to graph theory. Instead of being 'hosts' and 'contacts,' or 'actors' and 'relations,' they become nodes and edges in a complicated lattice: "In each case, it is the presence of a relationship between individuals in a population that is the issue of concern" (Keeling and Eames 2005).

It is important to remember that although sometimes very accurate, epidemiological models – especially when they contain a considerable number of historical data – are simulations. They propose a 'what if' scenario based on what is currently known. Not unlike bacteria studied in a controlled environment such as a petri dish, a population is evaluated according to a set of established – though constantly growing and diversifying – parameters. Even when these parameters are fed into an AI system, many unknowns are unavoidably left uncovered. Models are not just to make exact predictions but to persuade, especially during circumstances such as a pandemic (O'Neil 2020), where the

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resulting predictions are meant to convince a school or a government to pass new regulations, to modify one's behavior to suit, or to change course from, the prediction.

This is what happened in mid-March during the early phase of the pandemic when a research team at Imperial College London used an agent-based model to convince governments that refusing to implement any form of quarantine would have had disastrous consequences. Its projection predicted up to half a million deaths from Covid-19 in the United Kingdom alone and 2.2 million deaths in the US if nothing was done to mitigate the spread (Ferguson et al. 2020: 9). The model was not supposed to provide exact numbers but to persuade policy-makers to act urgently (Cepelewicz 2021). As a result, British Prime Minister Boris Johnson almost immediately announced stringent new restrictions on people's movements. The United States announced social distancing rules soon after (Adam 2020). Similarly, in 2021, models released by the Ontario Covid-19 Science Advisory Table were used to prolong the lockdown in specific areas of the province most severely hit by the B.1.1.7. variant of concern (CBC News 2021).

Policymakers and governments maintain a relative trust in models. Of course, until they fail. Trust quickly turns into criticism when the numbers predicted by these models look inflated or don't match the expectations. If the projection were proved correct, it would mean that it has failed to persuade (Cepelewicz 2021). Models like the one produced at the Imperial College were picturing a purposely exaggerated doomsday scenario. In this case, because governments took precautions, cases and death ended up less numerous than expected.

Outcomes do not always turn out better than expected. When the projections produce unexpected adverse consequences, criticism leads to mistrust or outmost rejection of the modeling practice, threatening its value and validity. The unfortunate failure of the model created at the University of Illinois at Urbana-Champaign (UIUC) is a case in point. To preserve the safety of students and staff as they were returning to campus, physicists Nigel Goldenfeld, Sergei Maslov, and their research team created a networked-based predictive model, which they complemented with frequent Covid-19 tests and – they assumed – strict surveillance strategies. The primary purpose of the model was not to make precise predictions but to help administrators make informed choices on the best way to allow classes and other activities to resume safely and smoothly (Chang 2020). The result was a complex and expensive operation: 40,000 students were asked to take specially designed fast-diagnostics saliva tests twice a week (the university paid $10 each). In addition, students had to register for a contact tracing app: if their test turned positive, they would lose access to the university buildings and would have to be confined to their dorms. Despite the current social distancing restrictions, the model had even introduced a variable anticipating that more than 7,000 students would go partying three times a week (Nadwordny 2020).

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However, mere weeks after the opening of the campus, it became clear that the model had failed. In trying to contemplate all the possible variables, the two scholars and their interdisciplinary team had assumed that students would follow the recommendations established by the university administration. Even though they knew that students are notorious for breaking the rules, they did not anticipate that several would continue to go to parties even after testing positive. Some of these students even "tried to circumvent the app so that they could enter buildings instead of staying isolated in their rooms" (Chang 2020).

As a result, the model could not predict the speed at which (infected) students would spread the disease among their (susceptible) peers, compromising the validity of the simulation and leading to dramatic real-life results. Cases immediately grew exponentially, reaching in one week the numbers that had been estimated for months later. Several media outlets and skeptical critics, and (especially) flat-out anti-science politicians read this case as one more reason to mistrust all models and ultimately all scientific projections (Cepelewicz 2021).

During the past 15-18 months, people worldwide have been caught in a constantly changing, fast-paced, and intense flow of information. They believed that reliable models turned controversial and/or inaccurate; doomsday scenarios have not (or not entirely) self-actualized; competitive models have sometimes provided opposed outcomes. A flood of contradictory information originating from news, social media, and other – often questionable – sources have made the already unstable situation even messier. In the examples above, mathematical models have functioned to bring some temporary certainty to an uncertain future by quantifying this future. In other words, they tried to "…turn the variability that we see in the world into a tool that can quantify our uncertainty about facts and numbers and science" (Roberts 2020). While quantification is unlikely to bring indisputable results and eliminate all unknowns, it does indeed create a false, if a temporary sense of certainty, obtaining a considerable degree of comfort. However, during the pandemic, the confidence created by facts and numbers was short-lived and hasn't satisfied the public need for certainty. Who to believe? What to make of the tentativeness of mathematical models vis-à-vis claims to their accuracy? And how is uncertainty generated and aggravated?

3. Uncertainty and data

The cases above offer a fascinating window into how institutional science and the public carry similar preconceptions about what science does, what accounts for reliable evidence, and what is worth trusting. It would be easy to dismiss the complicated public reception of mathematical models as symptoms of a lack of understanding of

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science or scientific literacy. Since models are also instruments of persuasion, the circumstances that prompted their creation (i.e., the urgency to persuade policymakers to implement specific rules) utilize cues that the public, policymakers, and scientists value equally. Interestingly, the very elements that are most likely to generate confidence are also the ones causing skepticism.

Epidemiological models emphasize quantification because it is collectively interpreted as superior and more persuasive than simple verbal recommendations. The general belief is that science is "a monolithic collection of all the right answers" (Roberts 2021). The so-called "right answers" here come in the form of statistical data, big data, and algorithms. The problem with mathematical models is twofold: first, although they contain all the above elements, which in the eyes of the public and many data lovers constitute the perfect examples of successful quantification; they also have errors and elements that cannot be easily predicted (Metcalf et al. 2020). In addition, models may use different datasets, quickly changing datasets to reflect new findings, or datasets that are not entirely reliable (Griffin 2020). These are not severe problems if they lead to constructive critical reflections on the role of projections and their helpful message. However, in most cases, errors and discrepancies are treated with immediate criticisms and harsh attacks.

Second, to produce models, scientists must utilize measurable and accepted parameters. However, epidemics and outbreaks are determined and transformed by many factors and behaviors complicated by many variables or cannot be anticipated. For instance, while human behavior can be interpreted and simulated, it cannot be precisely predicted, partly because individuals' reaction to outbreaks and health emergencies depends on their personal and collective circumstances, health condition, socio-economic status, age, etc. The failure to predict irresponsible student behavior at UIUC is a clear example. Furthermore, it was only when racial and ethnic minorities in the United States (first African American, then Latinos) were found to be three times more likely to be infected and gravely impaired from Covid-19 than other people that the trend was more closely studied (Strings 2020).

Models use parameters commonly accepted as relevant by the medical community. For example, "long-Covid" has been one of the most challenging phenomena to track during the pandemic. The so-called long-haulers are Covid patients, who, in increasing numbers, suffer from lingering and often life-altering symptoms weeks and even months after official recovery (Barber 2020). In addition to being a condition that can vary dramatically in length and intensity from individual to individual, long-Covid was mostly considered a rare occurrence. Importantly, although these patients suffered debilitating symptoms, their condition was not regarded as acute. As well, they were no longer infectious. Thus, long-Covid was not included in any epidemiological model (Rubin 2020). It was neither quantifiable (because so diversified) nor deserving the same attention of death and hospitalization cases.

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As Fulvio Mazzocchi reminds us, "…the emphasis on numbers and data—which can be seen as collections of facts (e.g., values or measurements)—is another way to frame the notion or myth of the objectivity of scientific knowledge. It seems like an attempt to find in computational power what we have not found in human cognitive abilities" (Mazzocchi 2015). The belief that facts and data provide objectivity and exactness has its origins with the scientific revolution and continued throughout the enlightenment, finding confirmation with the advent of cybernetics and Artificial Intelligence. During this long period, deductive reasoning, characterized by hypothesis-driven, theoretical research seeking validation, was contrasted and gradually challenged by empiricism, a form of inductive research based on experimental data instead of preconceived theories. Yet, deductive and inductive research are complementary, and the practice of mathematical modeling is a testimony to this coexistence.

Rob Kitchin notes that an inductive strategy of identifying patterns "does not occur in a scientific vacuum but is discursively framed by previous findings" (Kitchin 2014). Many of the mathematical modeling exercises that we see today improve one progenitor SIR model conceived by Kermack and McKendrick (Kermack et al. 1927) almost one hundred years ago. Although finding patterns and correlations play "an important role as heuristic devices…they have to be further analyzed — using models and experiments to assign them a meaning and to distinguish between meaningful and spurious correlations" (Mazzocchi 2015). In other words, data are not "out there." Although the process of model building is driven by the large amount of data produced and is less dependent on theoretical presuppositions or hypotheses, it is still informed by epidemiological principles, research objectives, previous theories of contagion, and assumptions about human behavior. The parameters used in today's Covid-19 models are mainly based on fixed and historically established values. In addition, they are selected to draw hypothetical scenarios to help policy decisions and behavioral recommendations: this means that their focus tends to lie on acute cases, that is, those cases that could cause sudden medical infrastructure overload or economic breakage.

Today, we are experiencing the culmination of inductive reasoning due to the rise of big data. Instead of acknowledging the role of theory as the foundation (or the objective) of induction and the import of assigned values in shaping epidemiological models, this new wave of empiricism prioritizes data and their correlations as the sole principle for understanding all phenomena. In his widely quoted and much-debated article "The End of Theory," Chris Anderson argues that "rather than testing a theory by analyzing relevant data, new data analytics seek to gain insights 'born from the data'" (Anderson 2008). The collection and processing of these data are brought to us today thanks to an increasing degree of mechanization of technologies, such as high-powered computation and new analytical techniques. In turn, the mechanization of data collection strengthens the assumptions that data are neutral, comprehensive,

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and more accurate. This gives the illusion that data "speak for themselves," that is, large quantities of data, on their own, will be able to provide answers about the world without the need of theorizing it. In reality, data collection is never neutral ut reflects "the technology and platform used, the data ontology employed and the regulatory environment, and it is subject to sampling bias" (Kitchin 2014).

The end of theory claim supported by Anderson is reflected in the way mathematical models are perceived. Of course, the collection of data is not merely an empirical activity. Science does not collect data randomly as "experiments are designed and carried out within theoretical, methodological and instrumental limitations" (Mazzocchi 2015). However, the theory of contagion, the theoretical speculations supporting the model, and the lessons (theoretical or practical) it proposes, are pushed to the background when introduced publicly: what counts are the predictions based on the data used to create the model. It is precisely because of the assumption that data can produce the answers on their own and free of bias that the mathematical model, when it doesn't live to its expectations, is more likely to create surprise and disappointment and become the easy target of accusations of manipulation and incompetence.

4. Modeling and the Unknown

The deep sense of uncertainty that the pandemic has precipitated has put unfair pressure on the model as a reliable tool. Its self-imposed confidence creates an initial degree of comfort until – like everything else in the pandemic – it turns into something that can't, or can only partially, provide indisputable answers and clear guidelines. Modeling, although helpful, is then seen as a failure because it does not perform as expected. This leads to rejection and counterproductive reactions.

During a public outreach workshop on modeling, mathematician Deirdre Haskell explained how the recent models published work today. Models have reached such complexity that it is tough for a non-mathematician to "distinguish the forest from the tree" (Fields Institute 2021). However, all mathematical models tend to all stem from relatively simple and easy to explain formulas. Therefore, the resulting general lack of understanding of mathematical models points to a need for better science and mathematics literacy. The relative simplicity of their foundation suggests that better descriptions and explanations of the numbers and the graphs published periodically would go a long way in enhancing such literacy. However, since both the public and the modelers share the same general principles of validating scientific knowledge, they end up confirming – or becoming complicit in – the old rhetoric that attaches exactness to numbers and bias to discourse. In other words, neither the public nor the scientists acknowledge the flaws of mathematical models as quantitative tools. At the

same time, the qualitative values that models represent and the significance they carry as non-quantitative guidelines are often ignored or underestimated.

Siobhan Roberts refers to the general "uncertainty about facts, numbers, and science" that we are experiencing today with the pandemic as epistemic uncertainty (Roberts 2020a). Navigating a sea of unknowns and dealing with unexpected outcomes is how science has always functioned and is at the center of experimental practice. However, scientists may be reluctant to publicly admit to the inherent uncertainties that prevent them from giving exact solutions. Many fear that being honest will discredit their work, falling again for the belief that science, and its quantified rigor, will provide the correct answer. Roberts suggests that admitting the imperfection of science in general and mathematical models, in particular, may create a healthier relationship between the public and science. A study from Cambridge University on uncertainty has concluded that "people have a positive reaction and trust information more when the communicator is being open about uncertainties in facts and figures" (Roberts 2021).

Although I generally agree with Roberts' argument and its potentials, I suggest that we further unpack how epistemic uncertainty operates. In fact, during the pandemic, being honest about the possibilities or the partial failure of a mathematical model may still not be persuasive enough to a public accustomed to more assertive tones. It takes time for a cohort used to listening to reassurances, answers, and specific recommendations to accept uncertainty. The public is still searching for clear guidelines at this point. Yet, honesty could become a long-term solution to transform how the public listens to and trusts science eventually.

For instance, recent statements issued by the Canadian National Advisory Committee on Immunization (NACI) regarding the safety of the Astra Zeneca vaccine, after thousands of eager individuals had flocked to the pharmacy to receive their first shot, caused countless debates in the news and on social media. Anxiety had spiked among the population of Ontario after a less than successful vaccine rollout was accompanied by a rapid rise of cases of coronavirus variants of concern (VoC). In March 2021, the province of Ontario went into total lockdown. To ease the pressure on overwhelmed hospital ICUs, and to facilitate immunization as quickly as possible, NACI and other public health agencies advised the public to take the first, and at that time most readily available, vaccine, Astra Zeneca. This recommendation was made upon considering that even though the vaccine had been known for causing very rare blood clots in specific individuals, data about the current situation indicated that the benefits surpassed the risks. Eligible individuals were quick to follow the suggestions. However, as the hospital bed situation improved and new data about vaccine side effects and safety had become available, NACI posted another statement, this time indicating that "The benefit-risk analysis determines that the benefit of earlier vaccination with the viral

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vector Covid-19 vaccine [Astra Zeneca] outweighs the risk of Covid-19 while waiting for an mRNA Covid-19 vaccine [Pfizer and Moderna]" (Public Health Agency of Canada 2021). Many concerned individuals were alarmed by a statement indicating that mRNA vaccines were preferred and voiced their disappointment: not only had NACI somehow changed their preferences, but they also had only decided to warn, rather than reassure the public about the vaccine side effects (Jee-Yun Lee 2021; Rabson 2021).

The announcement was welcomed with panicked reactions and accusations of incompetence, not because the statement was or was not true, but because NACI had not provided clear guidelines about further actions. In fact, despite the existence of widely available data on vaccine side effects since early vaccine rollout in Europe a few months before (Mahase 2021), and the abundance of information, complemented with statistics, describing the risks, the public in Canada had generally trusted public health and followed their recommendation. Now new data seemed to download responsibility upon the people rather than rely on orders was deemed inconceivable. Further criticism was voiced later when it was left to the public to decide whether to match different vaccines or continue with the same (while knowing the risks), as concerned individuals vented on social media about the ambiguity of communication and the lack of clarity provided to the public (Menaka Pai 2021).

One factor that complicates the understanding of models and creates more uncertainty is their temporal variance. To understand the function and behavior of SARS-CoV2 – a novel coronavirus that is a virus we knew little about before it emerged in December 2019 – science is constantly upgraded and redacted. This factor is unfortunately aggravated by the tendency of the public to hang on to early findings rather than to embrace changing situations (Connecticut Public 2020). Retracting obsolete information or even preventing it from being recirculated repeatedly is equally tricky, even though "a key responsibility of any journal is to correct erroneous information that it has published, and as quickly as possible" ("Retraction Challenges" 2014). New evidence is released quickly and often as pre-print, causing older and more recent findings to coexist, sometimes side by side. The significant quantities of models circulated today correspond increasingly rich and constantly transforming datasets.

Relatively simple data have been complicated with more variables and hypotheses, as old theories have been debunked and new findings have been gradually incorporated. For example, models had to be changed to accommodate new medical and infectious disease data; non-medical interventions such as the obligation to wear masks and vaccine rollout have all been introduced. As Zeynep Tufekci points out, "model-makers have to work with the data they have, yet a novel virus, such as the one that causes Covid-19, has a lot of unknowns" (Tufekci 2020). Not only did the early models only contain a limited amount of data coming from the countries that had recorded the first outbreaks, allegedly Italy and China, but these data were often inaccurate, either be-

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cause of a lack of transparency from the governments or because of lack of tests and insufficient surveillance prevented accurate counts. In addition, data related to the means of transmission (droplets or airborne?) and modes of protection (are masks useful?) were not accounted for in the early phase (Yong 2020). As newer models benefited from richer and better data, human errors (like the one inadvertently committed by Goldenfeld and Maslov at UIUC), and new findings, later simulations need to account for additional unknowns as potential transformative factors. From here, building increasingly complex and comprehensive mathematical models on time has become crucial.

During the Covid-19 pandemic, the flow of information has been intense. In addition to sparse and ever-changing data, transforming science, and a steep medical and scientific learning curve, political agendas and narcissistic personal goals created an explosive cocktail of misinformation and disinformation, contributing to uncertainty in significant ways. Armchair epidemiologists with data science experience but little epidemiology knowledge would generate their models and data visualizations, publishing them on opinion platforms such as Medium or disseminating them on social media. While there is nothing wrong with engaging with the data available, these self-published individuals labeled themselves as experts, assuming competencies they didn't have. Missing real experience and knowledge in epidemiology, their products contained frequent mistakes or provided misleading analyses (Muir 2020). As Poisot observes, "these models are not wrong." They are that special brand of 'correct' that simply does not translate into 'useful,' which is arguably the point of most mathematical models" (Poisot 2020). In addition, since the very start of the pandemic, social media have become the preferred repository for conspiracy theories, contrarian theories, and other unproven news that would equally confuse naive and experienced readers. The amount of inaccurate and manipulative information was so diffused that the World Health Organization (WHO) declared that they were fighting two battles: one against the pandemic and one against the infodemic (Caulfield 2020; Muir 2020).

A seldom mentioned factor in the propagation of uncertainty is a personal and collective experience. Quarantine and physical distancing fatigue, paired with changing recommendations, have made even the most informed individual undecided and insecure about the integrity of mathematical models and the honesty of public announcements or the implementation of general measures. Depending on personal and social circumstances, attitudes towards models have been swinging between blind and hopeful reliance on [the god] model to complete disregard and disbelief for its predictions. These aspects are never considered when analyzing pandemic perception and trust in science. In many cases, those individuals maintaining skeptical opinions regarding models are not necessarily anti-science, poorly educated, or manipulated by conspiracy theories: they are simply concerned and probably very anxious about the uncertainty of the pandemic: anxiety paralyzes.

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5. Conclusion

Among the many unknowns and twists we have seen during the pandemic, mathematical models have found themselves at center stage for the helpful guidelines they provided with their projections but have often been blamed for their errors and lack of accuracy. Yet, models are not the only contributors to the deep sense of uncertainty we are experiencing today. The spread of a novel virus made it difficult to build models and predictions from the limited and non-existing data available at the pandemic's beginning. The pace of discoveries and evidence emerging and the variables to be accounted for as the pandemic expanded were equally challenging to monitor. Furthermore, while the mistakes and erroneous projections led to disastrous outcomes and human loss, the overlapping of new and old data, misinformation and disinformation, scientific illiteracy, and hubris threatened to lead to equally damaging consequences.

Since the beginning, several obstacles have complicated the understanding of the pandemic without doubting the veracity of the information being disseminated or the motives behind its dissemination. Epidemiological models have come under particularly harsh criticism in this condition of many unknowns because they initially assumed absolute trustworthiness. The fact that these models are presented as accurate is both an obligation to conform to and an implicit acceptance of a given system of beliefs. Despite or because of their illiteracy, the public is trained to trust information packaged in a quantified form.

Although we are still operating with solid beliefs about the superiority of quantified information, the fallibility that mathematical models have demonstrated may lead to epistemic transformations and to adopting different approaches to help better comprehend complex phenomena such as pandemics. On the one hand, the current belief system prefers, even requires, that solid language be used over tentative and non-incisive statements. The current social media battleground's risk is to favor informed and misleading inadvertently– yet well distributed and well packaged – sources. On the other hand, honesty and transparency can encourage a healthy debate and a gradual change in the very epistemologies underpinning the science of modeling and how it is generally understood.

There have been a few notable cases championing new approaches. For example, the model created by ecologist Madhur Anand and mathematical biologist Chris Bauch combined two types of models: an epidemiological model of virus transmission and a "game-theory model, [which] factored in human behavior and drew on Google data that revealed who went where and when in Ontario from March to November" (Roberts 2020b). Specifically, the model applied the prisoner's dilemma game to model how, during the pandemic, individuals exercise their choices by weighting them against the choices made by others. The model studied how human behavior could transform the course of

the pandemic in the presence of higher vaccination rates and non-pharmaceutical interventions (Jentsch et al. 2020). While this model emphasized the relational nature of the pandemic, by treating human behavior "as a flux and as a set of dynamic exchanges, rather than a constant" (ibid.), the categories and inputs it employed remained unchanged. Thus, the model is innovative in processing information, but not how it is collected and classified. However, it is still an important example, expressing the need to acknowledge the dynamics of pandemics and the importance of looking outside of traditional modeling paradigms and disciplinary constraints to understand complex phenomena.

All in all, while the latest modeling efforts (including Anand and Bauch's) do not represent a radical transformation in the way science and the public value quantified data, they voice an urgent need for newer analysis that is not limited to what newer technologies and data processing can do. Instead, it focuses on reflecting on and transforming the principles, values, and parameters comprising them. To accomplish this task, we must engage in an increasingly interdisciplinary discussion that equally emphasizes quantified information and qualitative discourse.

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Contagion and Capaciousness:
The Shifting Worlds of Living Models

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BY: Gary Genosko

ABSTRACT

Today, most models are computer-generated simulations of some kind. However, there is a vast world of living models that serve the biomedical industries. Mouse models are discussed here, but in the context of the questions they raise about agency. Living models, it is maintained, can have abundant relations with their laboratory worlds, that is, they have a capaciousness that may be enhanced by processes of dirtying and wilding. The controlled introduction of contagions allows for living models to get messy in a productive way, expanding their lifeworlds as well as those of their handlers. Configurational enunciations of lively assemblages are detailed in terms of more robust microbial encounters, as well as the affective attunements and attachments of the dirty mice initiative in biomedical laboratories.

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Introduction

The approach to modeling recommended in this paper puts the emphasis on activity and change and the onus is on the vibrancy of models, no matter how unlikely, in a world of unfolding relations. This approach defines modeling as a process that is not fully complete or finally defined, even if it is typically contained and constrained by a number of design and operational factors. What is restored to off-the shelf-models, and to living models, specifically lab mice, is respect for their potentiality, despite, in the case of some transgenics, their teleologies. The expectation that models capture something does not entail that they are themselves

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captured by this function alone, or any other function they may actualize; their power to become, no matter how small, is irreducible. Their potentiality is not drained by demonstrations or solutions but persists in multiple imbrications – in the situations in which they appear and reappear and resignify, forcing thought, sharing affect. Lifting the burden of intentions frees the object from the requirements of an exclusively cognitivist demonstration, and attunes one to the force of nonhuman animals, their environments, in highly heterogenous inter-assemblage relations. Opening cracks in worlds of lab mice, it is argued, positively resignifies contagion as a productive force that is semiotically nuanced but also evident in new research processes characterized by messiness, the construction of dirty mice models, and by the re-wilding of living models.

Dirty modeling invokes Michel Serres' sense of the parasite: noise-producing disorder, a disruptive break yet one that is highly productive because "noise gives rise to a new system" (2007:14). Consolidation of the new follows from interruption of the old. For Serres, this transformative force is an entire epistemology in its own right: that of invention sitting at the "intersection of relations" (2007:43). Dirty modeling regarding lab mice arises against the regimes of experimental design that attempt to reduce the parasite to almost nothing in guaranteeing, for instance, pathogen-free samples (pathogens for which the samples have been tested are listed as product attributes). The husbandry skills of lab animal technologists are used to identify and treat ailments, if possible, by eliminating the parasite or its carrier. Yet, these technologists, too, can introduce noise into the system with their affective interests. They can also be makers of noise and purveyors of dirt. The parasite, argues Serres (2007: 79), is "the essence of relation."

Of Modelers

The idea that models are constructed with physical materials within a bench knowledge tradition has given way to the widespread use of computational modeling involving software that is often commercially available 'off-the-shelf' or in some cases written for a single experimental purpose within a research project. Commercial off-the-shelf software is good for training purposes as it is cost-effective. Its major drawback is that it is not modifiable as no access to the source code is provided and it regularly poses interoperability issues between different proprietary products and packages. The purchase versus write distinction is posed as a distinction between selection and construction: buy or build.

However, for the purposes of this essay, I want to focus on another characterization of this distinction: between low-level identification of an appropriate product

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and high-level or original model construction. Philosophers of science like Michael Weisberg (2007) who make this kind of distinction do so towards two ends: to get modelers, that is, their intentions, into the discussion in order to understand the emphases that individual modelers place upon their creations; and to swerve around the more difficult problem of excluding or diminishing model selection as construction's poor cousin. While the stuff of which models are made vary widely, modelers who do not construct their own models are diminished by Weisberg: "In less path-breaking investigations [than those of Volterra on Adriatic fish species populations and predator-prey balances], modelers often use 'off-the-shelf' models, structures that have already been applied to other phenomena of interest. In such cases, the first stage of modeling involves identifying the appropriate model, rather than explicitly constructing it" (2007: 222, n. 8). Weisberg's passing remark suggests that 'off-the-shelf' models are non-specific or multi-purpose and have already served other purposes, and in sense are somehow diminished. And the uses of these 'used' and 'pret à porter' models are connected to lesser breakthroughs.

Weisberg suggests that the question of 'who models?' and the ways in which these intentions may be construed cannot be easily studied when an 'off-the-shelf' model is at issue. One does not answer the 'who' question when the model is identified as a mass-produced commodity with a corporate name, logo, etc. Such models are, apparently, unsigned or unassignable to specific individuals, except by lawyers or within the sealed memories of private corporations. My question moves this discussion in a different direction. What are the surrogate forces that arise in everyday research contexts with commercial and so-called off-the-shelf models? Denied access to intentions, and thus blind to construal issues marking a model's intended scope, emphases, fidelity criteria, etc., my preferred recourse is to acknowledge the anonymity of models, allow for it, and adjust to it, rather than swerve around it.

The first task here is to dissipate the misleading equation of off-the-shelf models and lesser research results, supported rhetorically by the contrastive valorization of construction. Recourse to the lesser is highly recommended by mid-twentieth century pioneers such as Claude Shannon whose interest in building a chess-playing computer focused not at all on grandmaster-level talent but on a "reasonably skillful game" (1950: 49) or, just as Alan Turing noted with regard to the kind of brain a thinking machine might possess, not a powerful one, for sure, but a "mundane brain" (Gleick 2011: 205). Searching for the mundane goes hand-in-hand with denying pride of explanatory place and sovereignty to intentionality, acknowledging, as Jane Bennett states, that intentions are "less definitive of outcomes" than an agential assemblage of things (2010: 32). Thus, the shift towards thing-assemblages away from intentions is a move that also entails a rethinking of 'off the shelf' apparatuses,

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including models. What if off-the-shelf models are allowed to partake in vibrancy and enjoy a vividness hitherto denied to them and captured by their allegedly static, isolated, completeness, and disconnection with the so-called greater, original work of construction?

The second task is to clarify that the focus is on the non-intentionalist, generic solutions, everyday labware, ready-to-use platforms and materials, and their uses in collaborative environments, regardless of whether they are commercial or free, or not. Eschewing the rarified for the widespread and everyday, I want to consider the lessons of overlooked models that serve as vital tools in research activities. This may be accomplished with reference to a number of diverse examples. However, I want to consider *living models* in their assemblages. Such commonplace models, lacking authors but not trade names and marks, and indeed more often identified with strains, sub-strains, and lab names, are orientation devices: in networked arrays, they display an agential force that contributes to the relationality in which they are found. They are neither neutral nor deterministic, but dynamic and constitutive (Barad 2005: 816). Indeed, this insight helps us to dispense with the idea that any thing or creature is completely and statically pre-formed and deprived of becoming, even a lab mouse. Paraphrasing Karen Barad: "[Models] are not preformed, interchangeable objects that sit atop a shelf waiting to serve a particular purpose. [Models] are constituted through particular practices that are perpetually open rearrangements, rearticulations, and other reworkings" (2005: 816-17). Even off-the-shelf models can enjoy a capaciousness (one of Bennett's felicitous terms now taken up in the affect theory community) that find expression through the relations to whose formation they contribute. In short, there are elements of construction at play even in the use of off-the-shelf models, especially when they are living. This happy admission lifts the dead weight from things like off-the-shelf models and repositions them in terms of their power to intervene. Therefore, I will reject the exclusivity accorded to construction by Weisberg and have recourse to the configurative power (Knuuttila and Merz 2009: 155) of models.

The claim I will advance here is that a semiotics of contagions must be focused on what may be counted among and valued as belonging to the capaciousness displayed by mass-produced living models. The paradigm is the mouse model, this animal platform that has proven to be so valuable in investigating infectious disease pathogenesis. My focus is not on what the platform was designed to do, through inbreeding, outbreeding, xenografting, etc., but what is expressed when something happens that was not intended, even if this something was in some cases predictable given the conditions in which the mouse model lives. To this end, I will look at some of the literature on mouse model health and welfare and attempt to regain in a new way a research direction that may be described as getting messy.

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Living Models

It is hardly news that standardized and genetically engineered animal models are commercially available and shipped worldwide for use under license from global mouse factories in biomedical research. Donna Haraway famously made the OncoMouse a synecdoche for technoscience and an exemplary example of how scientists mistreat non-human creatures. While Haraway asked us not to neglect generally "rodent feelings and mousy cognition" and to reflect on the "extensive semiotic-corporeal commerce" between species, her tendency is to emphasize how OncoMouse's world is "fully contained" by the laboratory and "fully artifactual space" of technoscience (1997:83, 255). In other words, there is no obvious "adventure of co-becoming" (Stengers 2010: 8) between biomedical scientists, student trainees, and technicians and a mouse fabricated to model terminal diseases.

Such living research models come with rigorous product specifications perusable in catalogs like those of Charles River Laboratories (http://www.criver.com), with its array of trademarks (The PoundMouse for obesity research). Obviously, here, strain data is more important than intentionalist analysis. It would be ridiculous to claim that reliance on living animal models precludes 'breakthroughs' in basic biomedical research. But does biomedical research on transgenic nonhumans preclude recognition of obligations demanded by the creatures in terms of the relations formed with the humans who interact with them in experimental practices and the interventions into these relations by the creatures themselves? (Stengers 2010: 17). Such living models are perhaps ironically furthest away from the capacity granted to other non-living models, even things like plastic bags, which pose questions to us and seem vital, for authors such as Gay Hawkins (2010: 128), in their plastic materiality. Yet surely, despite the best efforts of Haraway and Stengers, this is not so, as they themselves prove admirably in their critical responses: they elaborate a relationship with living models by responding to the ethical issues they pose. Going back to the mundane, well below this philosophical 'commerce,' it should be possible to find other responses that bear witness to an animal's relationships that are irreducible to its destiny as a disease model for human scientists. Lab animals force us to notice them – they bite (sometimes each other, sometimes human hands), they excrete (sometimes properly, other times not), they get mixed up with other sets of animals of the same species in a colony, and cause a panic. "The smell is overpowering … I love it," as one lab technician put it. These animals have the capacity to surprise, even in dying (Anft 2008).

These kinds of entanglements count as the affective force of a living or non-living model. Indeed, perhaps the clearest statement of the foregrounding of relationality among transgenic species and the assemblages in which they participate beyond the lab is transgenic art. In posing ethical questions of companionship, and arguing against animal patents, Eduardo Kac attempted in his GFP Bunny artwork to explore

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"rabbit agency" (Kac 2005: 273), that is, the unique individual and species communicative Umwelten, as well as constructing an artificial transgenic ecology with GFP mice, plants and fish. The exploration of the entanglements with and among transgenics is for Kac a key indicator of the future and for thinkers like Bennett, a way to describe the mutuality of human-nonhuman intimacy, perhaps "porosity" is a better term (2010: 115-16), raising a "more subtle awareness of the complicated web of dissonant connections between bodies [that] will enable wiser interventions into that ecology" (2010: 4).

Configurational Modeling and Enunciative Capacity

My approach to the mundane world of modeling emphasizes how models are handled. How do models interact? In being arrayed among other models, apparatuses, and programs by buyers, creators, and users, with sundry personnel and automated systems, towards the generation of knowledge, models themselves gain agency in the heterogeneous assemblages which they help to configure and reconfigure in ongoing processes. Boundary drawing and erasing is a restless activity that takes place alongside including, excluding, relating, performing, entangling: "Agency," Barad writes," is not an attribute but the ongoing reconfiguring of the world" (2003: 818).

A configurational model is neither completely tutored by the subject nor disciplined by its object or theory. Rather than speak of the "agency of assemblages," it is complementary to ask about a model's capacity to enunciate within a non-totalizable and collective assemblage consisting of human and non-human components. Hence, the goal is to cast off the linguistic preference for the bickering couple of the subject who speaks and the subject of the statement (constituted by the utterances it receives), in favor of an impersonal, non-individuated force that manufactures subjectifications through the consistency acquired by multiple components (preserving some of the powers of each and together but not as a solidified whole) that arrange themselves around an incorporeal nucleus, less as a set and more by affective contamination. An enunciation is not primarily that of an individual operating at the center or even one dominant assemblage but of a collective assemblage that remains both open and unsorted. Models enunciate their relationality with regard to multiple alterities, both human and non-human. They eschew the centrality of representation and rigor of pure parallelism between themselves and their objects. It is hard to predict effects and designate future states of a distributed agency and a collective enunciative capacity when the assemblage at stake is in "constant variation" and "constantly subject to transformations" (Deleuze and Guattari 1987: 82). The relationality enunciated by a model is not yoked to its object, nor to a subject, and the statements produced in the process sit among other signifying and a-signifying expressions, as well as among the pragmatically reconfigured bodies and things under ordinary working conditions.

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Contagion and Models

The semiotic overcoding of living mouse models cannot be taken reductively given the approach in this paper. The relationship between inbred (established after 20 generations of brother-sister mating) strains and their congenital issues is often a consideration for model ailments in health and welfare studies. Hundreds of generations of black mice (BL) from the parental strain C57BL have been used widely in biomedicine since the late 1940s. Sub-strains such as C57BL/6, with an added letter or letters to indicate the location of the closed colony, for example, J (Jackson Laboratories) or N (National Institutes of Health), are known to have specific issues; for J, the "unique disease susceptibility" is ulcerative dermatitis (Burkholder 2012). All labs adhere to standard genetic nomenclature, and transgenic strains are built from engineered DNA fragments of the substrain and are indicated following a dash, such as 6 – Tg, followed by the specific construct. A predictable ailment is compounded with a spontaneous ailment such as the high prevalence of fight wounds (Marx 2013); it is, in addition, a concern to diagnose outbreaks of viral diseases and to act on them in a humane manner. Despite a range of drawbacks, mouse models can be "fine-tuned" (Hendricks 2010) genetically, and some of the problems associated with "closed" colonies remedied through re-naturalization processes. The latter is of great interest in terms of expanding and introducing heterogeneity by opening colonies to enhanced inter-assemblage relations. There are a number of terms used for these practices in the immunological literature, including the *wilding* approach with bi-directional leanings: bringing into lab colonies mice from pet stores and the wild; moving lab colonies outwards to naturalized outdoor areas (Graham 2021), both resulting in greater and more diverse microbial encounters and thus a robust, wilder microbiome.

Perhaps the most semiotically charged trend is the so-called *dirty mice* initiative undertaken in the form of a critique of the blind spots of the mid-twentieth century concept of the Specific Pathogen Free colony that is troubled by the introduction of specific pathogens and by the creation of environments conducive to the natural transmission between animals of a diverse range of infectious viruses and bacteria (Masopust 2017). The use of dirty mouse models answers this paper's call to reposition contagions as a semiotically productive and innovative force given to assemblage complexity, variability, and a critique of the drive to cleanliness that negatively constructs any intrusive organism. As one researcher put it when she placed her lab mice in an outdoor enclosure, "they were blissed out, they pulled a couple of all-nighters" (Quoted in Willyard 2018: 17). Ethnographic studies of animal technologists have revealed a range of affective attunements and attachments across species, as well as the stories told about lab animals. These technologists both possess a "skillful gaze" and empathy sometimes

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expressed in considering some mouse models as "pets," something they are taught not to do (Greenhough and Roe 2018). The latter is no mere anthropomorphic gesture but, as the re-wilding initiative suggests, encourages a reflexive recreation of an enriched mouse environment and how this affects, even in transgenic mice, outcomes.

Conclusion

The activity of modeling involves simplification – a model is always less than that which it models while marking an indirect route to the phenomenon in question; some parts are emphasized, and others are downplayed or ignored. However, too much simplicity detracts from the modeling process and thus leads to a failure to grasp the complexity of the phenomenon at issue, whereas a highly sophisticated and advanced model may be uncritically adopted and misapplied. Simplicity works well with parsimony as plausibility may be achieved through a spare and compact design. In the case of living models, cleanliness and SPF status can overplay simplicity and limit the pertinence of complexity understood as dirt. The evaluation of a model's pertinence returns one to the question of whose needs it meets – those of the modeler or modeling organization (strain and sub-strain constructs by biotech firms), whose intentions and foci put it serves; those of the user (biomedical researchers), into whose problem-solving tasks it provides insight. But when re-wilding occurs, the intentionalist focus on the user's deliberate introduction of defined pathogens opens a process to more random infections and natural transmissions (i.e., parasites that are not part of the model) and inter-assemblage passages of microbes across porous barriers. While it is possible to inquire into the origins of oncomice, for instance, explaining who filed the patent, which researchers won the race, as it were, it is in keeping with our approach that discoveries are not reducible to the intentions of a creator, but "rarely come unilaterally or in a vacuum but rather evolve out of a melting pot of ideas, results, failures, unexpected outcome, and collegial interactions" (Hanahan et al. 2007: 2268). There is tolerance of imperfection and imprecision, then, in living modeling inspired to overcome an overly simplistic clean/dirty dichotomy. It shifts from strictly human intentions to configurational assemblages that distribute affects across themselves and the objects that constitute them. Such configurational enunciations can contain the intense human reactions to smells and the joy of rodent sociality and expanded semiotic breadth of behaviors, but also encompass the ways in which *better* models are built, how humane animal management advances, even within an industrial-scale production of standard living models, the historic C57Black of the Jackson Laboratories, that Karen Rader (2001: 7) so elegantly describes as being "adapted and constructed for a scientific culture that valued genetically controlled answers to biological and medical questions. Laboratory mice,

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then, are only as human and as natural as they need to be." Overlapping genomes, yet *us and not us* in a classic Haraway formulation (1997: 82): a model of the human, through cancer; an engineered model of hybridity, and of therapy development for shrinking tumors; a model that is a living mouse. Twenty years later, the boundaries of the natural are being opened up a little to expand the worlds of living models, modifying standards, and enhancing the capacities to enunciate shifting relationalities. Models are gaining in complexity as one clean system becomes a dirtier system, recalling Serres's idea that the parasite increases complexity and is transformative. Building another mouse model turns out to involve recognizing affect as a form of contamination (Wolodzko 2019-20) and not so much welcoming contagion or even praising it, but caring for the disorder it brings and the enriched relations thus entailed. Permitting living models to inhabit zones of approximateness and imprecision and expanding their worlds with as much contingency as possible.

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Political Semiotics – Democratic Normativity

BY: **Ulf Hedetoft**

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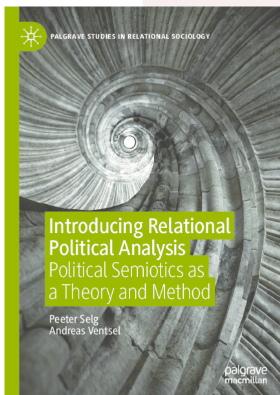

Peeter Selg and Andreas Ventsel

Introducing Relational Political Analysis. Political Semiotics as a Theory and Method

Palgrave Studies in Relational Sociology. London: Palgrave Macmillan, 2020. 313 pp + Index. ISBN 9783030487799 (HBK), also in PBK, EPUB.

This is a book about wedding semiotics and political analysis in new and refreshing ways. The two authors aptly name it "political semiotics" – an alternative way of approaching and analyzing political processes and political communication. As they remark towards the end of the book, it is "an attempt to outline an approach to the political that would be relational throughout" (313).

In fact, "relations" are crucial to understanding the theory and the method they propose, which, as we know, is also the case in foundational semiotic theories of both the Saussurean and Peircean kind. A sign is a relational entity; for Saussure, a combination of *signifié* and *signifiant*; for Peirce, involving *sign*, *interpretant*, and *object* in an ongoing and, in principle, a process of endless semiosis.

The authors clarify their relationalist perspective by citing Terence Ball's hammer-and-nail image:

> from the[a] hammer is a hammer because it has certain uses or functions, e.g., driving nails. What a hammer is, is defined relationally. Qua physical object or body, a hammer does not even exist. A thing is not a hammer unless and until it is used as a hammer, which is to say, put to human uses (driving nails, building

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> shelters, etc.) by human beings (carpenters). *A hammer is what it is by virtue of its being a constitutive element in an ensemble of relations* and not merely by virtue of its size, shape, weight, or other physical characteristics. (Ball 1978: 105)

The relationship between hammer and nail is constitutive of the meaning of 'hammer.' The link is not causal, and the hammer cannot be seen as a stand-alone and isolated object. As the authors repeat over and over, hammer and nail can be considered separately but not as being separate. Throughout, they make a distinction between self-actionalism, inter-actionalism, and trans-actionalism, clearly privileging the latter. However, the above quote also allows us a glimpse into the possible over-interpretation of their view of the world. "A thing is not a hammer unless and until it is used as a hammer, which is to say, put to human uses" just can't be true. The hammer is, after all, a separate thing that can be (mis)used for some other functions (killing people, destroying property) or just left in the toolbox without being put to any use at all. It is still a hammer.

This stretching of the relational approach becomes even more evident when the authors state that "from the relational perspective, substantialism would be like imagining winds that do not blow" (23) and continue by averring that "[f]rom the relational perspective imagining the As and Bs as existing somehow prior to the relations in which they are constituted, it would be as absurd as imagining a non-blowing wind" (29). That would indeed be absurd, since 'blowing' is not just constitutive of 'wind' but an inherent property of 'wind.' Their imagined 'substantialism' thus builds on a false premise, a misinterpretation, which may be common, but does not match the reality of things, neither in the object world nor in the world of meanings. There is, in other words, a substantial difference between the constitutive relationship of, on the one hand, hammer and nail, and, on the other, wind and blowing. We can hold a hammer and not have access to a nail, but it is impossible to imagine a wind that does not blow. The authors are aware of this; still, they cite it as an example of their approach to social and political reality.

The book consists of nine chapters and a conclusion, taking us from the "relational turn in the social sciences," via "relational approach to the political: power, governance, and democracy," through "three concepts of semiotics," "a framework of political semiotics: political logic and the semiosphere" and "political semiotics and the study of the political: power, governance, and democracy," onwards to a core chapter on abductive methodology: "political semiotics as a constitutive explanation and abductive research logic," while wrapping up with two chapters (8 and 9) on the application of the proposed theory and method on empirical processes: "From methodology to methods and applications: introducing political form analysis" and "application of relational political analysis: political semiotic explanation of

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the constitution of digital threats." Finally, the conclusion addresses "the subject and agenda for relational, political analysis." Altogether some 300-odd pages of thorough, detailed, logically structured, and well-referenced exposé, which is ambitious, innovative, even to some extent ground-breaking, and is well-versed in classical and recent sociological and political literature.

The book's principal theoretical ambition is to forge a happy mix of the Essex School of political analysis (building mainly on the theories of Mouffe and Laclau) and the Tartu-Moscow School of semiotic analysis. Although the former never accepted semiotics as a valid approach to political reality – in fact, they rejected it outright – Selg and Ventsel think they did so for the wrong reasons and find a host of common denominators tying the two theories together, which mutually enrich both and give them added interpretive weight. The concepts of 'empty signifier' and 'hegemony,' in particular, derived from the Essex School's discursive approach, are convincingly brought to interact with Roman Jakobson's communication theory and Yuri Lotman's semiosphere. And the Laclauian abstractness as regards empirical analysis benefits from the combination with semiotic and communicative precision, highlighted especially well in Chapter 9, which convincingly analyzes the security risks connected with the widely publicized Estonian ID cards scandal in 2017. Nevertheless, we might consider the possibility that we could have achieved the gains obtained by this strategy of combining two otherwise incompatible theories with less intellectual bravado. Mouffe and Laclau are interesting but not indispensable to the effort of constructing political semiotics, to which the late inclusion and discussion of Critical Discourse Analysis – at least as pertinent – testifies.

Another relevant inspiration, only marginally related to the Essex School (through their mutual Gramscian background), is Bob Jessop's theory of 'metagovernance,' which comes close to Selg and Ventsel's notion of 'transactional governance.' However, where one might have expected that the theory of transactionalism would be seen as a replacement of and improvement to 'self-actional' and 'inter-actional' theories of the state, this is not so. Transactionalism is instead seen as an addition to the well-known theorems of political science:

> Jessop's point, however, is that governance in a narrow sense or inter-active governance is bound to fail too, and what he calls *metagovernance* is a response to governance failure. Of course, we must clarify that the failure he is talking about is basically a failure at governing wicked problems. We unpack this connection below, but here it suffices to recall again that many societal problems are 'tame' rather than 'wicked,' and therefore, both self-active as well as inter-active forms of governance might not necessarily fail in addressing them. (…) Inter-active governance fails to address wicked problems due to various

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> "structural contradictions, strategic dilemmas" (Jessop 2002: 240) inherent in it. But we could even say in a general analytic manner – concerning the nature of social reality as such – that "given the growing structural complexity and opacity of the social world, failure is the most likely outcome of most attempts to govern it' (Jessop 2002: 106)." (69-70)

Thus, Selg and Ventsel distinguish between simple, complex, and 'wicked' problems. Self-actional and inter-actional approaches "might not necessarily fail" when it comes to analyzing 'tame' and 'soluble' problems, but this does not apply to the third group of 'wicked' problems, which they define as follows:

Wicked problems are usually characterized as being undefinable; as having constantly changing background conditions; as being often comprehended retroactively after a particular solution has been implemented; as bringing along other problems (often wicked too) whenever there is an attempt to solve them. (70)

These problems cannot be solved but are instead 'de-problematized' or 'de-politicized' by being displaced to another semiotic sphere – more on this in a moment.

First, however, it is essential to stick with the relativization of the theory of relational transactionalism that seems to emerge from the above quotes. Standard approaches "might not necessarily fail," we learn; on the other hand, the social world is increasingly complex and opaque, so failure is likely to result from most attempts to govern it. In other words, transactionalism would seem to be the most appropriate analytical approach – possibly to every single problem? Moreover, we have been told that the entire world is constitutively 'relational' in all its aspects, modes, and variations. This epistemological uncertainty about the ontological status of Selg and Ventsel's semiotic approach to the political world characterizes the entire *exposé* and could do with some additional conceptual clarification. Are "standard approaches" sufficient for specific problems, or can the whole world be better analyzed using transactional theorems? The authors waver on this core issue, leaving the reader at a loss.

Oscillation also characterizes their use of abduction: "We argue that constitutive explanation entails abductive research logic that cannot be reduced to deductive hypotheses testing or inductive generalizations (…) it is in that sense that semiotics can be considered explanatory research. (…) abductive reasoning views theory and observations as interdependent rather than dependent or independent as do deductive and inductive forms of reasoning or logic" (216 and 228). However, they admit that "abduction can be used to put forth causal explanation too" (234), and while there is no reason to argue with their use of abduction as a methodology with which to open the semiotic Pandora's Box, their unflinching nexus between theory and method is more baffling. The abductive structure they use is the well-known Peircean

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triad: the surprising fact C is observed; but if A were true, C would be a matter of course; hence, there is reason to suspect that A is true (p. 230). However, as many philosophers and semioticians have pointed out, this is, at best, the beginning of the research process. First, how do we come to think of A at all? Second, A might just be one possible explanation out of many, so there is no reason to believe that A is true. Third, step two is itself a deductive approach. Fourth, to verify or falsify this hypothesis, we need inductively sampled evidence.

And finally, fifth, it is doubtful that science can or should be reduced to a question of seeing the world as a "matter of course." Semiotic webs of signification and Peirce's view of semiotics as infinite semiosis support this. Karl Marx rightly noted that all science would be superfluous if the surface and the essence of things coincided; in other words, if the actual composition of the world were immediately visible. Unfortunately, scholarship requires hard work and deep thinking, whether we use inductive, abductive, or deductive methods – or better, all of them together.

This is, fortunately, what the authors do when analyzing actual political problems (chapters 8 and 9), as the Estonian Bronze Night affair of 2007 (see 250 ff.), the Migrant Crisis of 2015 (see 256 ff.), or the ID card scandal of 2017 in Estonia (chapter 9). This they do while stressing that their investigations focus on political form analysis centered around the problematization and de-problematization of 'wicked' issues and on 'democratic'/metonymic versus totalitarian/metaphoric forms of communication. The first is replete with inductive facts, the second with deductive hypotheses, while the third contains all three approaches – spiced with securitization theory and CDA. Let's take a closer look at this third and most thorough analysis, pivoting around the public communication and the ensuing public image of the Estonian ID card and e-threat scandal.

> At the beginning of September 2017, the Estonian public was notified that the almost 760,000 identity cards of the new type (i.e., issued from October 2014 until October 2017), produced by Gemalto, have been identified as having a theoretical vulnerability in their software. (280)

Thus starts the chronological account of the scandal, which developed over November and December 2017. The private company responsible for producing the cards and state institutions (government, police, security forces) mutually blamed each other for the security lapse, more and more harshly as the case unfolded. After a thorough account of the events, Selg and Ventsel acutely note the following:

> Metalingual problematization was dominant regarding the journalistic language used for mediating the crisis. (…) An important aspect in representing

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> e-threats is the expression of their urgency, or in other words, the way they are depicted as in need of a fast and forceful reaction. This, in turn, presupposes the outlining of terrifying future scenarios which illustrate the realization of threats (Hansen and Nissenbaum 2009, p. 1164). Another significant rhetorical device in representing the potential consequences of cyber threats is the construction of analogies to tragic historical events, for example, 9/11, Pearl Harbor, or natural disasters (Jarvis et al. 2016, p. 620). A third discursive strategy with which to emphasize the unavoidability of threats is based on charging utterances with emotions. Especially negative emotions attract the public's attention and intensify the sense of fear. This strategy is present, for example, in expressions of concern or in condemnations of certain developments, in the usage of value judgments (e.g., *terrible, dreadful, dangerous*), or the employment of vocabulary with negative tones (e.g., *problem, conflict, damage*). (290)

Now, having thus framed the problem in emotive language, the two authors ask what for them is the crucial question, i.e., that public communication did not pivot around "referential/deliberative communication since containing e-threats can only work successfully if the e-threats are somehow defined" (294), and, true to their abductive thinking, set out to unearth "what would make such a situation an unsurprising fact or a matter of course." In other words, why did emotive, conative, metaphorical language dominate the public discourse rather than down-to-earth, technical, metonymic explanations?

They answer that if we look at it from the point of view of the Estonian cultural context rather than as an isolated e-problem, the issue becomes a "matter of course." Following independence, Estonian national identity has to a significant extent been constructed around the country's reputation as an advanced e-country and "e-Estonia, as an essential anchor of Estonians' identity, is subverted as a whole through the reputation damage stemming from the media coverage of the ID-card crisis and replaced by national identity as a securitized reference object" (302). Reputation damage becomes an 'empty signifier,' and the 'problem' is apparently 'de-problematized.'

However, I allow myself to question whether 'de-problematization' captures the actual process, which seems to be one of problem-shifting rather than de-problematization. Rather than solving the most immediate problem, this is displaced to another arena and crops up as another much more serious (existential) issue.

Nevertheless, there can be little doubt that the authors have produced a convincing analysis and explanation of the e-threat events and their treatment by journalists, spin doctors, and political actors. However, whether the issue of 'reputation damage' is a simple 'matter of course' is more doubtful. It rests on insights into the relationship between small and more powerful states, on knowledge about national identity and its basically

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affective constitution, the semiotic interaction between (signs of) people and (signs of) state within a given social and historical structure, and hence the crucial interdependence of material and ideal constituents in the construction of national identities.

On the other hand, perhaps it is not surprising that the authors see it as a matter of course, for they generally tend to overlook the materiality of the problems they analyze. They approvingly cite Alexander Wendt for arguing that "money, the state, and international society are made largely of ideas," just like "social things or kinds" (225) – in other words, the human world in its entirety – and R. A. W. Rhodes for contending that "symbols do not simply 'represent' or reflect political 'reality,' they actively constitute that reality" (224). As the authors programmatically state: "This is why the political, which we propose to analyze as hegemony with its dimensions of power, governance, and democracy is first and foremost for us an issue of different rhetorical translation strategies that are realized in communication (*public* communication as we specify below)" (174).

Selg and Ventsel's semiotic universe is not just interpretive, but thoroughly idealistic and normative at the same time, its own overriding 'empty signifier' consisting of an idealized vision of (metonymic, deliberative) *democracy*, in Laclau's words, the "universal representative of the signifying system as a whole" (151). Democratic communication would seem to be entirely rational, deliberative, and non-emotional, in contrast to the poetic, symbolic displacement of wicked problems in forms of communication that tend to be either populist or downright totalitarian. Their semiotics has a decidedly Habermasian twinge. Whether one sympathizes with this tendency is a matter of taste. Personally, I am somewhat skeptical.

For a book based mainly on theories of linguistic sign (though applied to the domain of politics), it is, unfortunately, linguistically uneven. It is replete with linguistic omissions, prepositional repetitions, awkward expressions, misprints, and erroneous English. A few examples, chosen at random. "All this enabled to subvert" (123); "…lets itself perceived as meaningful" (124); "opposes to…" (125); "insist a certain trajectory" (127); "semiotics is primary the study of…"; "by putting put forth" (173); "with which we already got acquainted with…" (175); "…and tend trans-act and constitute new combinations" (178); "Camping slogan" (for 'campaigning') (187); "Schumpter" (for 'Schumpeter'); "that the latter ought discern" (192); "In this chapter, we want to bring to the prominence…" (267); "an hyper-securitizing style…" (292); "Our journey continued in Chapter 4 with an excursus to the neglection of semiotics" (311), etc. Some passages are fine, but these examples of sloppiness, oversight, or awkwardness are a real nuisance and leave the reader with an impression of a work that lacks the final finishing touches. I do not blame the authors for possibly not having a perfect command of the English language – and, incidentally, the errors do not interfere with the basic understanding of the points the authors want to offer – but the publisher should have paid more attention to detail in the language editing process.

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I have noted some critical comments on this volume. Nevertheless, it can be recommended, both for its laudable ambition to demarcate the route towards political semiotics proper and for its logical and meticulous way of structuring the *exposé*. We should add the comprehensive and thoughtful insights into the literature on semiotics, particularly and social and political theory, secondarily. The authors realize that, in a sense, this is a work in progress: "The journey in the pages of this book is, of course, a beginning (…). As an introduction, it is also an invitation to discussion and a call for criticism and further development in all its aspects – conceptual and empirical" (313). We should appreciate the intellectual contribution of the authors and, as I have done in this review, accept their invitation to discuss and further their path-breaking semiotic undertaking.

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The semiotics of the pandemic

BY: **Alexandros Ph. Lagopoulos**
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André Helbo (ed.)

Crise sanitaire et marqueurs sémiotiques. La variation.

Special double issue of Degrés, No. 182-183, Summer-Autumn 2020. 174 pp. Subscription €70.00 (ISSN 07708378).

The special issue of *Degrés* devoted to the Covid-19 pandemic is both timely and exciting. It is a pleasure to see a contemporary social issue addressed by semioticians with solid theoretical foundations. The articles are of such quality that they invite us to take up the authors' challenge and, while presenting their contributions, continue the discussion comparatively and critically.

1. Theory and variation

Next to the issue's main title, André Helbo has added the subtitle "variation," a rather broad concept related to different aspects of this special issue. First, it appears in connection with the concept of a *system*. Paul Bouissac's article, focusing almost exclusively on semiotic theory, oscillates between four different kinds of variation: synchronic (such as different regional accents) and diachronic variation, both forms of *transformation*; lexical differences between languages, which in the case of related languages are transformations, but when referring to different language families are *parallel* and non-communicating phenomena; and variation as the moving force of *evolution*, which is his central theme.

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In his introduction, Helbo approaches variation from another point of view, passing from the system to its use, i.e., *discourses*: first, its use in the form of texts, whence he points out the mechanism of de- and re-contextualization, that is, transformation through intertextuality, as well as the appearance with the pandemic of *new texts*, those of confinement – on the variation of the texts on the pandemic, see also Fernando Andacht. On a more general level, Eric Landowski studies the variation of categories and classes of discourses. On a more abstract level, Jacques Fontanille discusses various forms of verifactuality, the processes by which truth is established.

Helbo adds the different *situations* in communication, such as those of production or consumption of texts. With Jean-Jacques Boutaud, we have a variation of *practices*. Finally, Helbo, through a reference to Paolo Fabbri, touches yet another aspect of variation, still situational but concerning *theory* instead of texts: the variation of semiotic models, which according to Fabbri should be adapted according to the temporal, geographical, and social situation.

Bouissac focuses on variation from a biological perspective – for Darwin, it is variation in reproduction, while for Lamarck, variation is due to the inheritance of acquired characteristics. He suggests that Darwinian evolution is a hidden assumption of Saussure's theory because Saussure considers time as the essence of language. Bouissac is undoubtedly correct in pointing out that time (in the form of tradition) is a factor that Saussure takes seriously into account because, for Saussure, time indeed acts on *langue*. Time is a factor of its mutability and, in conjunction with society, also explains its immutability. Time *"permettra aux forces sociales s'exerçant sur [la langue] de développer leurs effets"* (Saussure 1971: 113). These "social forces" are at the foundation of semiotics; for the *"phénomène sémiologique," "la collectivité sociale et ses lois est un de ses éléments internes et non externes"* (Saussure 2002: 290; on the above, see also Saussure 1971: 104, 107, 108, 111-13). *Sémiologie* follows the laws of *la collectivité sociale* and not natural laws, and the same is true for temporal changes of *langue*. Here, variation is not attached to any kind of evolution but to *social* movement, transformation – one of Lévi-Strauss's key concepts. And, as we know, the radical essence of Saussure's theory is neither diachrony nor parole, but synchrony and the systemic nature of *langue*.

This fundamental position of Saussure offers the real explanation of the quotations from Rudolf Engler that Bouissac uses to support the un-Saussurean position that Saussure believes in the *"autonomie ontologique [of language] par rapport à l'espèce humaine."* From the semiological point of view, *langue* is for Saussure the foundation of thought. Still, from the processual point of view, this foundation is grounded in society by articulating semiotics with social dynamics. We could, then, agree with Bouissac's statement that humans *"sont sous l'emprise des langues"* but to interpret this as an indication of the ontological autonomy of language would lead us to identify *langue* with Lévi-Strauss's a-temporal, a-historical, super-synchronic unconscious matrix, which inspired later

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poststructuralist ideas of the dissolution of 'man' through a double regression from the 'I' of an individual or a culture to the 'us-matrix' of humanity and then from 'us' to biology / nature. This continuous regression ends, for Lévi-Strauss, with the integration of life within its physicochemical origins (Lévi-Strauss 1962: 326-28, 347).

If Saussure is Darwinian, Peirce becomes Hegelian. Bouissac relates Peircean theory to three kinds of variation: *tychastic* or *tychism*, *anancastic* or *anancism*, and *agapastic* or *agapism*. Actually, Peirce's philosophical evolutionism, intended to account for the origin and development of the cosmos, is summarised in three classes, each including three types: (a) propositions about modes (here belong the above second terms of Bouissac); (b) modes of evolution (including Bouissac's first terms), about which Peirce knew it is difficult to avoid some overlapping with the actual evolutionary process; and (c) synthesized doctrines of evolution, which include the theorizations of the second class. Bouissac is correct in pointing out that the first class is Darwinian, but relating the second class to Lamarck comes up against Vincent G. Potter's view, who connects Lamarckism to the third class (for the above, see Potter 1997: 177-181, 185).

It is not without interest to point out the close connection of this typology to Peirce's three categories. His modes of evolution follow a precise order, just as the categories, and correspond respectively to Firstness, Secondness, and Thirdness (Potter 1997: 182, 186). This correspondence supports Bouissac's view on the (non-) relation between Saussurean and Peircean theory, namely that *"Malgré les efforts déployés parfois pour concilier les deux, leurs approches contrastées sont fondées sur des ontologies et des épistémologies incompatibles."* Fernando Andacht's article allows us to identify one primary reason for this incompatibility. Following Peirce, Andacht differentiates between the immediate object and the dynamic object. The former is one of the well-known summits of Peirce's structure of the sign (in the broader sense, not that of the *representamen*). Of the latter, Andacht writes that "the dynamic object is the object as it really is regardless of how or what it is represented to be in any given representation of it" (our italics). The immediate object is an incomplete facsimile of the dynamic object, the latter being the *object* that generates a chain of signs. The sign aims to arrive at a full understanding of an object. In other words, the dynamic object is Firstness, the driving force for the production of semiosis. The Peircean theory is grounded in the referent, which is anathema to Saussurean (and Greimasian) theory, despite Eco's attempt to reconcile them (Eco 2000).

Finally, Bouissac (in an appeal to cognitivist theory) suggests that narrativity, and the ability to conceive of others as being similar to oneself, are evolutionary adaptations that developed because they enhance human ability to process and transmit information. He points out, however, that evolutionary adaptations also have potential risks. In the present pandemic situation, a convincing narrative coming from a source perceived as 'one of us' may, irrespective of its factuality, lead to catastrophic changes in individual and collective behavior.

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2. The causes of the pandemic

Apart from Bouissac's article, we can distinguish three thematic groups in the *Degrés* articles: (a) a main group dealing with discourses on the pandemic, and two smaller groups on (b) the causes of the pandemic, inevitably raising ecological issues of an extra-semiotic nature, and (c) practices in response to the pandemic. There are also some reflections about another extra-semiotic topic, economics. Since there is a logical course from (b) to (a) to (c), we shall follow this order in our discussion.

Massimo Leone and Eric Landowski pose the question of causes. Leone's paper is an in-depth case study on the face but within a broader theoretical framework. Leone argues that the pandemic has forced us to wear a medical mask, like a muzzle; a muzzle is something we use on animals, which do not have faces in our conception, but humans are animals, and animals also have a face. Thus, the reference of Leone is to fauna and not to life forms such as viruses. He develops his argument along two axes, one linguistic and the other essentially philosophical, which joins semiotics on a high level of abstraction.

Leone analyses the words used in various languages to differentiate between the human and the animal face and argues that they simultaneously create a value hierarchy. The terms for the human face move in a semantic field focused on the eyes and the gaze, while for animals, the corresponding field focuses on the mouth or the nose. He assumes that this distinction is universal, something that we can also deduce from the plethora of examples he cites from dozens of languages, contemporary or ancient. Leone then turns to philosophy, particularly the phenomenology of Emmanuel Lévinas, pointing out that philosophy also sees the face as the essential distinction between humans and animals. While arguing that philosophy does not recognize either the animality of humans or the independent existence of the animal, he elegantly demolishes the anarchist discourse of Gilles Deleuze and Felix Guattari and ends with a look at Derrida's encounter with his cat in the essay *L'animal que donc je suis*.

Leone attributes the causes of the pandemic to this conception of the muzzle that we impose on the animal world, animated by an ideology – a semiotics – of exploitation of the environment served by technology, and assigns to semiotics the call for ecological change, thus participating in what the philosophers call environmental ethics. However, the exclusive focusing on ideological hegemony as the cause of environmental degradation cannot find an ally in Gramsci, as Leone wishes. Leone's discourse appears to be based on the idealist epistemological premise that our ideas shape the world, in total contrast to Gramsci's Marxism. Gramsci recognizes that there is such a thing as intellectual, moral, and political hegemony, but it is not self-generated. It is due to the hegemony of a dominant social class, emerging from the material forces of production (see Gramsci 1971: 12-13, 53, 57, 59, 180-81). In contemporary terms:

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the degradation of the environment, which has increased exponentially starting in the mid-20th century, is not due to ideology in general but specifically to *capitalist ideology*, which did not suddenly appear on the scene but is the product of a particular socio-economic system, capitalism.

Even if there is a universal tendency to differentiate the human from the animal face semantically, it does not follow that this necessarily expresses a corresponding value hierarchy. It is not fortuitous that Leone refers to advanced technology, that is, contemporary societies. But in almost all precapitalist societies – by which we mean all Western societies before the Renaissance, both traditional, socially complex non-Western societies and the so-called primitive societies – the human relation to the animal world is far from obeying Leone's hierarchy, quite the opposite. Zoomorphic gods are found in many cultures, and totemism offers a striking example of societies' relation to animals. In his criticism of the concept of totemism in *Le totemisme aujourd'hui*, Lévi-Strauss writes that *"Les animaux du totémisme cessent d'être seulement ou surtout des créatures redoutées, admirées, ou convoitées"*, to arrive at the famous formulation that *"les espèces naturelles ne sont pas choisies parce que 'bonnes à manger' mais parce que 'bonnes à penser'"* (Lévi-Strauss 1965: 128). And he opens the book as follows: *"Le totémisme est d'abord la projection hors de notre univers … d'attitudes mentales incompatibles avec l'exigence d'une discontinuité entre l'homme et la nature, que la pensée chrétienne tenait pour essentielle"* (Lévi-Strauss 1965: 4).

3. The discourses on the pandemic

In his introduction, Helbo poses the question of the various discourses on the pandemic: media discourse, political discourse, scientific discourse, conversational discourse, persuasive, assertive, opacifying. He argues that discourses proliferate: we are swamped by information that we cannot verify. Discourses behave like the virus: messages 'go viral,' texts 'contaminate' each other until the boundaries are blurred between real and fictional, logic and feeling. The pandemic has transformed social media into meeting places. Still, communication on social media tends to be phatic, creating a sense of community rather than making verifiable statements about the world. Helbo concludes that there is a pressing need for semiotics, which as a discipline is concerned with the role of signification in society, to address the fundamental issues raised by the pandemic.

The article by Jacques Fontanille takes a great dive into the semiotic depths to answer the question triggered by the pandemic crisis of "post-truth," the canceling of the difference between true and false. The passage to these depths is carried out through a transition from static structural semiotics to dynamic processual semiotics. Fontanille

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starts with the former and the well-known concept of veridiction, expressed in the opposition *being* vs. *seeming*. Here, the second-level semiotic square is constituted by the axis of contraries *secret* vs. *lie* (or, we would add, illusion) and the axis of contradiction by *truth* vs. *falseness*. Fontanille argues that this structure covers only 'veri-diction,' truth-speaking; to find how truths are *made*, we must proceed deeper, beyond enunciation, to the conditions and practices through which subjects conceive of their facts and construct their different worlds. For these processes, he coins the interesting concept of "verifactuality," founded on the practical interactions of a collectivity's "universe of meaning" and anchored in human experience. The construction of a "verifactual referent" is what allows us to assert the existence of a fact and found value judgments on it, enabling us to decide what we will believe and not believe.

To better understand Fontanille's epistemology in this article, we need to go back to his previous writings. For him, the experiential world (the sphere of the ontic horizon, belonging to Hjelmslev's substance and studied by Greimas and Fontanille's semiotics of passions) exists before subjects and objects acquire their identity. More specifically, we can insert Fontanille's view of verifactuality within the broader approach he has developed in an article he wrote with Didier Tsala-Effa (2017). In the latter, we find the proposal of a set of "methodological regimes," that is, levels of semiosis corresponding to different levels of immanence and recessing from signs to texts and objects, to practices and forms of life and, finally, to modes of existence, which comprise the deepest level. Different forms of life give rise to different subjective "worlds."

In the present paper, Fontanille uses Jakob von Uexküll's spatial concentric zones of the *Umwelt* as a model to construct these worlds, his "anthroposemiotic topology." This use is metaphorical since he refers to mental spaces while von Uexküll to physical spaces, but it is a legitimate metaphor. Fontanille formulates four verifactual worlds or spheres; in other words, four manners of operating in the truth-falseness domain. (a) The first is the familiar experiential world of "I" (*je*). Beyond this is (b) the world of "us" (*on*), which corresponds to von Uexküll's second zone, *"une extension plus ou moins dissociée de la demeure"* (12), more distant but with links to subjective experience and reciprocal interaction, that is, including both "us" and a more general environment. More distant still is (Ω) the world of "them" (*il*), the impersonal sphere of generalized exchange in which he situates scientific discourses, among other things. It contains various discourses, which the subject-I cannot verify through subjective experience or interaction with trusted others. Finally, there is (И) the world of "it" (*ça*), the "magical" sphere of imaginary, fictional or symbolic interactions, such as conspiracy theories. The process of verifactualisation, of deciding what to accept as true, begins in our own experience and extends beyond that to the reported experience of people we trust. This is why Fontanille defines his spheres in terms of interpersonal interaction: we trust people that we know.

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The media diffuse the discourses of the two last worlds. Helbo rightly argues that the present crisis has resulted in a proliferation of various kinds of conflicting discourses, among which he names political discourse and media and scientific discourses. In the third world, we should differentiate between original scientific and political discourses recorded *in* the media and the media's elaboration on them and public opinion.[1]

Fontanille's approach is close to symbolic interactionism, based, as it is, on the idea that meaning arises out of the social interactions of a person with other persons in society. The labels used for these spheres have a phenomenological (and hence psychological) hue. However, this must not mislead us because Fontanille's last three worlds refer to collectivities.[2]

The model leads Fontanille to some interesting observations. He invites us to imagine a "universe of meaning" in which all views are freely expressed and considered equally valid (in other words, something very close to the world of social media today). Such a universe of meaning lends itself to the proliferation of pseudo-knowledge, alternative interpretations, emotional opinions, collective passions, individual impulses, and a proliferation of different verifactual referents and "alternative facts," since it is impossible to agree on how facts are to be established.

For Fontanille, a possible solution to the problem is "the intuition of a sense of solidarity" between facts established in the different worlds of verifactuation (19). For this, he borrows from quantum physics the concept of "entanglement," that is, influence at a distance. The entanglement of the different worlds makes possible "navigation" and communication between them in a collective actant's universe of meaning. Their combination is, for Fontanille, the semiotic definition of the real world. It is also, as he remarks, the foundation of tolerance, as opposed to post-truth and totalitarian views. This is the theoretical framework Fontanille uses to understand the semiotization of Covid-19 and the conspiracy theories he opposes to scientific theories.

Fontanille's original and elaborate topological model seems to be generalizable since, instead of focusing on verifactuality, we may select any other deep semiotic process according to which a concept, such as ethics or aesthetics, is individually produced. The set of (and interaction between) these concepts, a "*credo*" grid, would thus constitute an individual worldview. It is socially improbable that these worldviews will be unique for each individual, and it is reasonable to expect the appearance of socio-semiotic groupings. Fontanille's proposal in this light would not be far from a semiotic theory of ideology, in the sociological sense, though different

[1] Given the above, Fontanille's model appears to be too dense, because such an addition leads to several parallel sub-spheres in the world of 'them.'

[2] Actually, this is also true for the sphere of "I", since the "I" is the vehicle of a cultural competence.

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from a sociological theory of ideology, such as the one by Gramsci, which articulates ideology with and explains it by extra-semiotic factors.

Landowski, unlike Fontanille, is not concerned with the process of production of discourses (at the plane of substance) but focuses on already formed discourses (at the plane of the form) and formulates a very interesting typology of discourses on the pandemic. We note that this typology is not *the* typology of discourses since there are different possible more specific points of view on the pandemic discourses. It is, nevertheless, a strategic point of view since it focuses on the semiotic relation between humans and the virus.

Landowski begins by dividing discourses on the pandemic into two categories: discourses of *coincidence* that see the appearance of the virus as accidental, and discourses of *interaction*, perceiving it as the result of human actions. Coincidence is further divided into two classes, between which, according to Landowski, oscillate both the public and the politicians. The first is to prevent the danger through persuasion and/or changing habits (that is, planning), and the second is to accept the risk and change habits as little as possible. On the other hand, interaction implies the conception of the pandemic from a different viewpoint as a set of signifying practices. This conception is, for Landowski, located at the intersection of the natural sciences and ecological thinking. It is also divided into two classes. The first is the quest for understanding, which reveals a meaning, namely the partial responsibility of humans. The second is an adjustment, the inclusion of the virus in our lives, given the conciliation of interdependent forms of life, which for the author implies a radical approach to meaning, but is also the most difficult to implement.

At this point, Landowski meets Leone because conceiving the pandemic as a form of interaction between humans and the virus relates it to an eco-systemic crisis and hence to ecological ethics. Landowski himself oscillates, for a good reason, between the class of adjustment, which is his favorite, and realpolitik, admitting that *"le virus reste une puissance létale."* To state this ambiguity in our own words, in the case of a tsunami or a volcanic eruption, the general recedes before the particular, good intentions before survival.

Landowski states that his model is general, but it can nevertheless illuminate the present crisis. We find this model in his discussion of Greimas's view on the teaching of semiotics, about which he complains that it is limited to the opposition *planning* vs. *accident*. To this category of coincidence, Landowski adds the category of interaction. He considers that his above "meaning regimes" overlap with Fontanille's modes of existence (Landowski 2017: for example 8-9, 27, 28).

On the analytical level, the typology proposed by Landowski is solid and convincing. He operates formally with the isotopy 'coincidence,' forming the relation of

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contrariety of his semiotic square: *preventing the danger (planning)* vs. *accepting the risk (accident)*, and connects it, through the relations of contradiction, to the isotopy 'interaction,' forming the relation of sub-contraries *manipulation* vs. *adjustment*. These isotopies are combined into a well-formed semiotic square, completed by an equally well-formed second–level square.

However, parallel to the analysis of discourses runs an axiological rhetoric, which is open to critical discussion. Landowski uses dualism for his value judgments. He operates with the oppositional pairs *"La Science" ("en toute orthodoxie positiviste")* vs. *non-positivism* (implied); *epidemiology* vs. *biology*/the *ecosystemic* perspective; *non-systemic* (implied) vs. *"approches systémiques."* These oppositions cannot be easily supported because biology and the ecosystemic perspective are also positivist, as are all natural sciences; (ecological) epidemiology is indeed the *ecology* of infectious diseases and studies the interactions between hosts and their pathogens, without, of course, denying that ecology is more general and overarching than epidemiology. Epidemiology is equally systemic with general ecology and uses, among others, deterministic models for infectious diseases (Hethcote 1989).

In the class of discourses looking for an understanding of the pandemic, Landowski praises what he considers a scientific minority believing in the protection of the ecosystem, a community he sees as unpopular with politicians and without access to the centers of power. This is a rather odd statement because the concern with ecology goes rather far back in time. It started in the sixties with the first indications of an impending environmental crisis and came forcefully into the foreground with the initiatives of the Club of Rome, the result of the gathering in April 1968 of 30 people from 10 countries, at the instigation of an Italian economist and industrial executive, to discuss the future of humankind. The Club commissioned a particularly ambitious study, the Project on the Predicament of Mankind, which presented a global systemic model of the trajectory of humankind prepared by Professor Jay Forester of MIT, published in 1972 as *The limits to growth*. This study is one of the sources of environmental ethics and the landmark of the broad wave of environmentalism. Following the second report in 1974, environmental strategy became a central concern of both governments and national and international institutions in the eighties, mainly because of the first oil crisis of 1973. After the proposal of *The limits to growth* for 'zero growth,' the theoretical and political discussion focused on the key idea of sustainable development. The cornerstone on this matter was the UN Earth Summit in Rio in 1992 (Lagopoulos 1992). Since then, there have been ten international meetings under the auspices of the UN. In Rio, the concluding statement, *Agenda 21*, was signed by 172 governments; chapter 15 of the Agenda is entitled 'Conservation of biological diversity.' Sustainable development is today at the core of all European and international legislation, so an unpopular minority of ethical scientists seems to have succeeded after all.

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Media discourses on Covid-19 are the object of Fernando Andacht. He discusses their proliferation regarding television news and talk shows in Uruguay, which were greatly expanded by all private television channels as soon as the government declared a health emergency in March 2020. As his subtitle indicates, he considers that the presentation of the pandemic covered the whole range from extreme cuteness (a TV interview with a 6-year-old schoolboy) to unsettling threat, as well as almost every possible genre from criminal and economical to political and educational. He concludes that the dynamic interpretant emerging from these discourses is the power and deadliness of the virus, demanding the respectful behavior shown by the schoolboy. We suggest that the conclusion's generality does not point to the dynamic interpretant, i.e., the interpretation of a sign by "any mind," which "is different in each from that of the other." Instead, it fits better with the final interpretant, i.e., "the effect the sign would produce in any mind."

Andacht provides an interesting sample of the reactions to the virus in a Latin American country. The way he discusses the data presented implies an axiological tendency towards Landowski's "accepting the danger" or even maybe "adjustment." But this is not the central point of interest for a theoretical discussion. Since Andacht starts his article with Peircean semiotics, we would expect a Peircean analysis to follow. But this is not so. The presentation of the data is empirical, so the Peircean terminology is simply added without any analytical impact.

François Jost's paper is refreshing because it lightens the atmosphere of the epidemic discourses with his turn to one particular type, the humouristic discourse of memes (which, of course, does not imply any light treatment of his topic). His general approach is doubly interesting because his objects are pictorial texts, more specifically memes about Covid-19. His discussion extends to the message's reception (consumption) side, including its encyclopedic, cultural and transcultural context. In this way, he integrates the communication circuit. Of course, this side of the circuit involves the views of real people, whence a multiplicity of readings of the same text. Jost moves in this direction because he understands interpretation as the actors' position concerning his three worlds – real, fictional, and ludic (which we should understand as metalinguistic– see Jost 2011: point 29).

Jost defines memes as a form of decontextualization, picking up, frequently but not always parodically, older texts or images and investing them with a new meaning. Although there are memes with artistic ambitions, he argues that art is not the purpose of memes (a view supported by the fact that they are usually anonymous). They are part of a democratization process: internet sites allow users to produce their memes by adding text phrases to given pictorial templates.

Jost points out that the meme has a binary structure, opposing an image to a caption, though he argues that the memes referring to the pandemic are more complex.

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He proposes a typology including memes based on (general and) universal understanding and memes depending on (specific and shared) encyclopedic knowledge. He completes discussing the epidemic with memes that create new and unexpected relationships between cause and effect.

Jost replaces the views of actual addressees, real people, with his analysis, a traditional (and generally accepted) procedure in linguistics and the human sciences that, however, has the drawback of merging the analyst's position as a metalinguistic subject with that of himself as a spontaneous semiotic subject. This is why some of his more general observations (such as the knowledge of painting required to interpret the memes of Edvard Munch's *The Scream*) may well be valid, but, unless empirically tested, conclusions based on the premise of the analyst analyzing his interpretations can only have the nature of a working hypothesis. A sociologically informed approach would consider the variables differentiating the public, such as gender, socio-professional groups, age groups, ethnic origin, etc. The significant number of combinations of these variables shows the various aspects of the actual public.

Jost operates in this paper mainly on the one half of the communication circuit, its reception side. There are some hints of the production side when he observes, on the occasion of the dinosaur meme, that his *séméiologique* – recalling Lévi-Strauss's identification of anthropology with a *"science séméiologique"* – takes account of the image as "symptom," which relates to the process producing the sign. This is part of Jost's general approach to the semiotics of the visual media, cinema, and mainly TV, which focuses on the background of texts. It is conceived in the form of a pragmatics of the production of, for example, the televisual text, including the socio-economic conditions of its production and the general political situation (Jost 2011: for instance, points 1, 9, 15, 17, 30, 32, 34, 40). Jost is critical of immanent analysis and wants to introduce a new paradigm. What differentiates his approach from Fontanille's is that Jost marginalizes immanent analysis in quest of a new and different paradigm. He thus epistemologically splits semiotics into two paradigms – as is also the case, for example, with biosemiotics − while Fontanille aims at a unified semiotics, expressed in the articulation of the processual with the immanent, by using key concepts of the latter for the analysis of the former.

4. The practices of the pandemic

Two articles focus on the practices introduced by the pandemic. Jean-Jacques Boutaud focuses on dietary practices. He argues that, due to the limitations imposed on movement, the pandemic radically upset both habits and significations related to eating, offering new possibilities to rethink our relation to food. Boutaud associates alimentary

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practices with changes in a deep underlying system of values. He defines two pairs of opposition: *health* (nutritional well-being) vs. *conviviality* (new – negative – conditions due to confinement) and responsibility (carefully considered nutritional choices) vs. *proximity* (to the actors of food services and valorization of the local), which he attempts to project on a semiotic square. Boutaud thus attempts a typology of pandemic discourses from a different point of view from Landowski.

Boutaud projects these two pairs onto a semiotic square, but the square is not entirely coherent. Proximity and the local are not in a relation of contradiction to health, nor do they stand in a relation of implication to conviviality or make a satisfactory set of subcontraries with responsibility.

Considering this structure as the abstract background, Boutaud then turns to its actualization on the level of practices, his "figurative" plane. Using (through Jean-Marie Floch) the distinction in the *Dictionnaire* of Greimas and Courtés, he argues that the study of dietary variations in the new conditions of confinement has to go beyond the axiological system, even if this gives us a glimpse of the implied ideologies, and focus on practices. He attempts to relate his procedure with Fontanille's model discussed above, admitting some liberty in his interpretation. He thus identifies the modalities of alimentary practices with different forms of living. But this interpretation goes too far because Fontanille's forms of living are situated at a causal depth *before* the emergence of the formal level of axiologies – as we saw with verifactuality – while Boutaud's practices are a *consequence* of the axiological grid produced by this depth.

Boutaud's point is the conversion of values to practices. He creates a very interesting gradation of scale in respect to consumption, from the micro-scale dietary practices of small groups (families) to the mesoscale systems of action to the macro-scale practices of whole social groups – related to the sociological variables differentiating the public that we referred to above – adding a 'meta' factor of symbolic forms. He argues that new dietary practices have emerged from the pandemic. For example, the value 'responsibility' is expressed in the reappropriation of dietary practice and sharing. The value 'health' implies better nutritional choices at the micro-scale, the gathering of more targeted information on good nutrition at the mesoscale, greater attention to positive developments in the dietary system at the macro-scale, plus the symbolic profits attributed to beliefs concerning the relation of healthy nutrition to the project of living.

There are interesting parallels to, but also divergences from, a very different tradition, Anglo-Saxon critical discourse analysis. Thus, Norman Fairclough, in his semiotic-Marxist approach, borrows the Foucauldian concept of 'order of discourse' as an umbrella term for the 'discourse types' present in society. So far, this fits with Boutaud,

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as well as Fontanille and Landowski. A specific text is, for Fairclough, a "discursive practice." Then, Fairclough integrates this text within a communication circuit of production and consumption (Jost's preoccupation) that he calls "social practice." Finally, he connects practice to the existing order of discourse, but also –, and this is a further step rarely taken by sociosemiotics, but included by Jost in his approach – more broadly to partly non-discursive social conditions, such as economic or institutional. Thus, discourse analysis is supplemented by the study of broader material, social processes (Phillips and Jørgensen: 2002: 64–71, 81–89).

Boutaud argues that the impact of the new dietary practices stemming from confinement, such as the pursuit of fresh and local produce, home cooking, and the recent reconfigurations of the supply chain, could shake the alimentary sector. In this manner, we pass to a second extra-semiotic factor in addition to ecology, that is, economics, something we shall return to below.

Gianfranco Marrone's article is based on a personal journal that he kept during the quarantine. He observes that for the media, the pandemic has been a windfall; the public's thirst for information transformed *bad news* into *good news*. In pertinent parallelism with traditional societies, he notes that the new conditions led to a quest for signification (one of Landowski's categories of discourse). His journal is organized along semiotic axes: meditations on proxemics, nutrition and confinement, the body, and behavior. Like Boutaud, Marrone argues that the pandemic has focused greater attention on food culture and that nutrition acquired a central position, invested with a meaning beyond subsistence as lived experience.

Marrone also points out that the pandemic has caused a change in spatial relations and a weakening of physical contacts, such as handshakes and hugs. He makes an anthropological excursion to various forms of greeting and the surreptitious links of power that they hide and reproduce, pointing out that proxemic changes have led to new semantisations and expressing an optimistic hope– a welcome change, just as Jost's, in today's gloom – that we could benefit from a time of imposed critical reflection.

This optimism, however, does not accompany what we could consider as a kind of phenomenological proxemics referring to the body. Marrone distinguishes between two different ways of conceiving the body: the external physical body, presently the focus of attention, and the subjectivity of the experiential, phenomenological body. To explain this second dimension of the body, Marrone uses the concept of "intercorporeity," taken from Maurice Merleau-Ponty and meaning the sphere in which corporeity and alterity are bound together. Marrone observes that, on the contrary, the pandemic has led to a distancing of bodies; he locates the experience of confinement between the above two corporal dimensions.

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Beyond semiotics, Marrone is concerned with the economic impact of the pandemic. He argues that we face severe problems with agricultural production, commerce and tourism, the stock exchange, and air transports. It is the same concern we found in Boutaud and Landowski, who see a collapse of employment and paralysis of the economy. There is no doubt that there is a global economic depression, but to what degree? And what are the prospects of economic recovery? These matters are not for the semiotician to answer but the economist. Whatever the case, allow us to briefly offer some data, which unfortunately support the pessimism of these authors, but maybe also send a different message for our immediate future.

The fall in GDP due to the pandemic allows comparison to other economic crises, and we shall start with them. We owe an in-depth analysis of capitalist crises to David Harvey (1989). According to him, the central process of capitalism is the accumulation of capital; capitalism is subject to periodic crises due to the over-accumulation of capital, resulting in an inability to realize the expected rate of profit. Harvey identifies the first crisis of over-accumulation in the mid-nineteenth century. He argues that these crises upset the organization of society and simultaneously – something that is of particular interest to semioticians – lead to radical transformations of philosophical thought, systems of representation, and cultural formations.[3] In this framework, he considers that the oil crisis, starting in the late 1960s and reaching its peak in 1973, led to a new regime of capitalist accumulation, which opened the era of postmodernity.

The present economic crisis is not one of the periodic crises of capitalism since it has a different cause. Still, it is expected to have a severe negative impact on the global economy and is thus directly comparable to them. The European Union Commissioner for Economy, Paolo Gentiloni (2019-), considered the present crisis "an economic shock without precedent since the Great Depression" of 1929-1939. It has also been compared to the US Great Recession of 2007-2009 – the subprime mortgage crisis, then the worst economic crisis since the Great Depression – during which GDP fell by -4.3%, the deepest recession since WWII. In the EU, the same decline appeared in 2009. The present situation has also been compared to the Spanish flu pandemic, which infected 500 million people, about 30% of the world's population, and drove down GDP by -6.0% over the period 1918-1920.

Fortunately, this is probably too pessimistic. The forecast in an amplified pandemic scenario for 2020 Europe, verified by the International Monetary Fund, is a decline in GDP equal to -4,0% (much less than the prediction of the European Commission's Spring 2020 Economic Forecast, which was -7.4%). Of course, this is only an average; regional disparities are marked.

[1] By culture, Harvey means the "complex of signs and significations (including language) that mesh into codes of transmission of social values and meanings" (Harvey 1989: 299).

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To give us a chance to catch our breath, and even though the economic forecasts depend on the extent of the pandemic and the success of the vaccination campaigns, a recovery is expected. The EU Winter 2021 Economic Forecast projects 3.7% and 3.9% GDP growth for 2021 and 2022, respectively.

5. To conclude

This issue of *Degrés* is a pleasant exception to the kinds of discourses that have surrounded us for the last one and a half years. The scientific discourses of the epidemiologists are rigorous; governments take them as their point of reference, but their decisions are made in the context of their political agendas (which tend to be remarkably similar for most countries and all political parties); the media incorporate both scientific and political discourses according to their priorities, and conspiracy discourses abound. But the articles in this issue are a rare exception. They offer a metalinguistic and many-faceted approach to the pandemic by highly qualified researchers with solid theoretical backgrounds. The issue displays the theoretical power of semiotics emphatically and brings it close – and this is, unfortunately, an exception – to the actual social arena. It is refreshing, revealing, and *unicum*.

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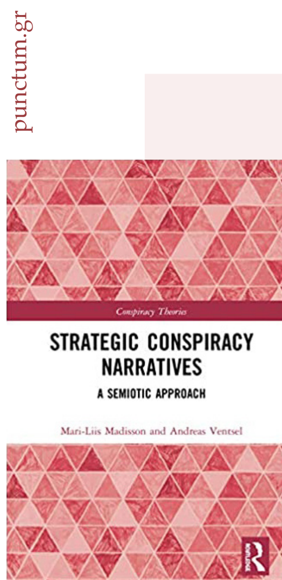
Frightening conflictual identities and reassuring affective ties in our contemporary conspiracy narratives

BY: Anna Maria Lorusso



Mari-Liis Madisson and Andreas Ventsel

Strategic Conspiracy Narratives. A Semiotic Approach

London, Routledge, 2021 £96.00 (Hardback, ISBN 9780367030988), £29.59 (eBook, ISBN 9780429020384), 144 pp.

Mari-Liis Madisson and Andreas Ventsel's book deals with conspiracies in an original, systematic, and *semiotic* way. I highlight the word 'semiotic' because there is not much semiotic work on this topic (except for a research group coordinated by Massimo Leone at the University of Turin) despite its relevance. And yet, the semiotic take on conspiracies has an impressive forbear: Umberto Eco, to whom Madisson and Ventsel make ample reference. Eco has dealt with this topic extensively, both in non-fiction (first and foremost in The *Limits of Interpretation*, 1990) and fiction (all his novelistic plots, from *Foucault's Pendulum to Numero Zero*, are centered on the organization or unraveling of conspiracies).

The book is divided into two parts. The first one is dedicated to building the theoretical framework, whereas the second is to the semiotic analysis of Soros-themed conspiracy narratives. The theoretical part mainly focuses on the category of conflict (I.1) and identity (I.2), against which the narrative specificities of the conspiracy theories are defined and articulated.

The question of identity is central from the first chapter, and the entire conflictual dimension is appropriately viewed

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in these terms. Conspiracy narratives construct conflictuality, or rather, presuppose an existing conflictuality, defining identities in a polemical relationship that clearly divides the world between us vs. them, good vs. evil. In doing so, they simplify reality and are 'convenient,' as they help us put things in order. Madisson and Ventsel make this clear (12):

> The identity of a semiotic unit (protagonist, antagonists, event, etc.) is not characterized by any authentic or primordial properties but rather defined through constantly developing processes of meaning-making, transformed in interplay with an altering socio-cultural context (Campbell 2008: 410). The processes of identity creation are not predetermined by certain essential (material or social) factors but suggest the making of semiotic choices, as well as a degree of contingency and unpredictability. The cultural semiotic approach sees the processes of identity creation as an integral part of communication and follows an antiessentialist perspective that treats identities as a matrix of difference. (Madisson 2016b: 22)

Throughout this process of the social construction of identities, Madisson and Ventsel need to keep in mind Lotman's lesson. As we know, he was particularly insistent on the identity mechanism through the category of the border, which finds the definition of the ego's perimeter in the demarcation of the other's space. We construct a non-ego, or an Other, precisely to establish our identity space, reinforcing it through a precise perimeter.

This construction of identity in conspiracy narratives assumes three functions:

1. Generating effects of inclusion/exclusion through a straightforward and Manichaean narrative;
2. Mobilising reactions: identity narratives do not just want to provide a world view, but to solicit pragmatic responses;
3. Confirming already existing social ties through the repetition and amplification of shared emotional elements.

In the second part, the authors find these characteristics in the anti-Soros conspiracy narratives. According to these, Soros is "the 'umbrella enemy,' the puppet master, allegedly pulling the strings of the biased mainstream media, the corrupt educational system, the European Union that undermines traditional values and nation-states, and the non-profit associations, etc., that advocate all possible kinds of minorities" (58).

The authors identify three strategic areas in which the 'legend' of Soros circulates most, always catalyzing the entirety of the case's negativity, fishing through the collective memory for fears, narrative frames, and keywords, subsequently used al-

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most obsessively. First are the political narratives whose primary purpose is to form a political agenda. Then come strategic narratives, which offer an alternative vision of the world that, in turn, shapes institutions and educational systems. And finally, we have the marketing discourses that generally serve to capture attention and as infotainment. Anti-Soros conspiracy narratives work as a system and, at the same time, cut across all three of these areas. They advance a real war scenario at a political level; reinforce the nationalist worldviews of the different countries that espouse them (and I highlight the variety of countries, to underline how these rhetorical strategies adapt to and function in the most diverse contexts), and exploit anti-Semitic narratives. Simultaneously, at a marketing level, they fuel a series of anti-brand positions that target Soros as a man linked to large multinationals.

In the final chapter, the analysis concerns mainly the transmedial narratives of some Estonian radical right-wing sites. Here, Madisson and Ventsel focus on the use of the emotional dimension of conspiracy narratives - narratives made up not only of verbal language but also, and increasingly so, of visual and video elements.

This is the book's broad outline. However, I think it is essential to highlight its methodological and heuristic merits, which are many. First of all, the use of Umberto Eco's categories of model author and model reader (but above all, model author). Madisson and Ventsel very appropriately claim their usefulness for this type of conspiratorial narrative that we cannot trace to some defined empirical authorship. As they clearly state, "the question of attributing intentionality is one of the most complex problems in studying strategic communication on social media. From the perspective of our model, however, this is not a question of primary importance" (62). Still, it is not just a question of the specificity posed by social media and transmedia narratives. The fact is – and I am sure Madisson and Ventsel would agree – that conspiracy narratives present a widespread enunciative responsibility, whereby there is not only one enunciator responsible but a set of subjects which, in different ways and different discursive spaces, relaunch, perhaps with variations, the same conspiratorial core. Madisson and Ventsel do not consider enunciative categories but highlight this problem and rightly find in the category of Model Author a valuable tool to define a common and characterizing core. This, however, is determined textually, not empirically, through the set of texts that contribute to a conspiratorial narrative.

Madisson and Ventsel then recall Eco's hermetic semiosis, as defined in *The Limits of Interpretation* (1990). For the authors, the salient points are the following two. First, the tendency to see signs wherever one wants to see them and thus constructing interpretative chains with very weak logical links but apparent similarity links. Secondly, the tendency to see occult secrets at the heart of reality and share them within communities that become even more close-knit based on this esoteric knowledge.

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There is, in my opinion, another point of tacit consonance between Madisson and Ventsel's book and Eco's theories, and it concerns the symbolic dimension, crucial (according to the authors) in conspiracy narratives. In the first part of the book, our authors use the idea of the symbol as a semiotic function that, on the one hand, maintains persistence and recognisability over time and, on the other, transforms itself according to contexts. In this sense, for Madisson and Ventsel, symbols play a fundamental role as functions of the collective cultural memory. Conceiving symbols in transformation and their mnemonic function is, in my opinion, in harmony with Umberto Eco's preference, in *Semiotics and Philosophy of Language* (1980), for the expression 'symbolic mode' to 'symbol' to highlight that symbols are not particular types of signs but a special type of semantic-pragmatic attitude, a particular type of interpretation. More precisely, it is a matter of identifying links between expressions already defined (i.e., already assigned to a specified content) and a nebula of content that the encyclopedia offers for association with that expression – a nebula authorizing a non-exhaustible range of interpretations. For Eco, therefore, the symbolic mode adapts to context while having an expressive recognisability. For this reason, it represents a particularly relevant resource for conspiratorial narratives, which widely exploit the openness of interpretations.

On this, however, another relevant aspect of the volume should be highlighted: Madisson and Ventsel, in their theoretical framework, highlight how, in the narrative logic of conspiracy, there is a double register, so to speak, that is both discrete and continuous. We find a discrete logic in the oppositional schematizations typical of conspiracies. Manichaeism presupposes clear demarcation boundaries; the war scenarios often exploited, constructed and reinforced are based on a clear clash of fronts. This, however, does not exclude a logic of the continuous: confusing, based (in an Echian sense) on analogies and similarities, which goes hand in hand with the crucial role of symbols, which, as we have just said, function as open-ended functors.

This is how, in a discursive landscape characterized by large swathes of 'information fog' (as the authors put it), conspiracy narratives can circulate freely, exploiting the fog, while making a show of offering their audience a key with which to understand the world (and dispel that fog).

Finally, one last aspect I would like to note as particularly interesting in the volume is its attention to the *phatic* dimension of discourse. "In such communication, the meaning of words is nearly irrelevant. The expressions are rather used in the function of confirming social ties, which can be expressed in, e.g., establishing an intimate atmosphere conducive to social connection. The information exchanged in the course of phatic communication is indexical rather than referential; it reflects the (in)acceptance of the communication partner and attributes a certain status to them" (40).

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I believe that this aspect of conspiracy narratives (and perhaps much of current infodemics) has not been sufficiently emphasized so far. Beyond and even before any worldview, I believe that conspiracies aim to create social bonds, and for this reason, they have no problem with taking even contradictory positions. There is no logical contradiction that is relevant. What is relevant is maintaining the flow of communication and affection, thus a continued compacting of one's community and its eventual expansion.

As Madisson and Ventsel point out in their conclusions, it would be interesting to test this theoretical framework on an extended corpus of conspiracy theories; in fact, the book only deals with the Soros case (admittedly, a very relevant case). To see, for example, whether there are differences in semiotic functioning between countries with very different political histories (do conspiracy theories work in the United States as they do in Argentina or the former Soviet Union?); whether the cultural histories of different countries have 'pre-formed' different recurring scripts or whether the contemporary multidirectional memory that Michael Rothberg talks about has also produced multidirectional conspiracies, which with slight variations circulate in the same way; how conspiracy theories change or adapt when non-human subjects enter the scene (a virus, a natural catastrophe).

In short: semiotics still has a lot of valuable work to do! This volume demonstrates convincingly that Umberto Eco and Juri Lotman have left us many useful heuristic tools to analyze conspiratorial 'pathologies.' Perhaps the integration with some socio-semiotic reflections (I am thinking of Landowski's studies) and enunciative ones could further enrich the heuristics of our view.

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Renewed semiotics, revisited concepts, new proposals. A few gazes at Maria Giulia Dondero's approach to the image

BY: **Katarzyna Machtyl**

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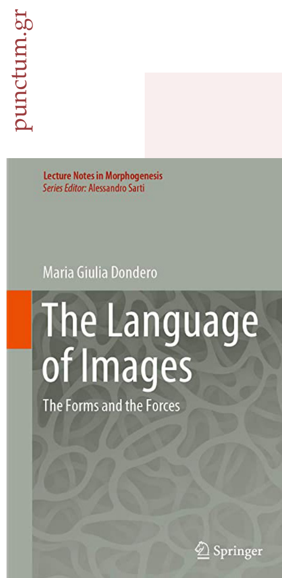

Dondero, Maria Giulia 2020

The Language of Images. The Forms and the Forces

Lila Roussel. Cham: Springer Nature Switzerland AG, 147 pp. € 124,79 (hardcover, ISBN 978-3-030-52619-1), € 96,29 (eBook ISBN 978-3-030-52620-7).

To say that reading Maria Giulia Dondero's book *The Language of Images. The Forms and the Forces* is a journey through the fascinating world of images is not enough. To say that it is another of the many books devoted to visual semiotics is to say nothing. The book I am reflecting on here is a proposal for an innovative gaze (sic!) at a single image, an image in relation to other images, and, finally, at big visual data in semiotic optics.

For a researcher inducted into visual semiotics mainly through Roland Barthes' or Umberto Eco's works, such as myself, reading Dondero's book was an exciting encounter with an intriguing new conceptual framework employed by the author in a no less fascinating way. Sharing at this point a personal reflection, it is with an undisguised pleasure that I want to mention Maria Giulia Dondero's visit to my department (Department of Cultural Semiotics, Cultural Studies Institute) in April 2019. During that short visit, Prof. Dondero presented two significant issues later discussed in the book, so I am exceptionally fortunate to be a reader and, at the same time, a listener of Prof. Dondero's latest research.

Dondero's book is both interesting and highly complex. The author consistently follows a structuralist path. From the

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first chapter onwards, the issues of language, system, *langue* and *parole* are crucial for her, and so she refers to the sources of structuralist thought in the humanities. She takes Greimas and Greimas-inspired semiotics as the foundation of her approach, i.e., she draws directly on the thought of the author of *Du sens*, as well as his followers, with Jacques Fontanille at the forefront. As I have mentioned, so far, I have been closer to Barthes' and Eco's approach to visual semiotics, which I will discuss in a moment. At the same time, I admit that Greimas' and the Gremasian approach have been less familiar to me.

1. Languages: verbal, visual, meta-. Greimas-inspired semiotics

The book's departure is summarized by the key statement that "verbal language [is not] the 'global interpreter' of all other semiotic systems." (Kuhn 2020: vi). In general, structural semiotics and semiology have taught us to see in visual representations the structure of verbal language. A prominent example of this is the Tartu-Moscow School, which proposed a semiotics founded on the conception of culture as a sign system based on natural language – just to recall their early thinking concerning primary and secondary modeling systems. A no less noteworthy example of the assumption of the verbal foundations of visual objects is the so-called 'rhetoric of the image.' Its very name points to the foundation of what is visual on what is verbal. Barthes and Eco were the leading champions of the 'rhetoric of the image' approach in the 1960s and 1970s. While Barthes, in his *Rhétorique de l'image*, analyzes the advertising image in close reference to the verbal language system, Eco, in *La struttura assente*, points out that the semiological study of the image does not have to be based on linguistics. Instead, we should try to render it independent of linguistics (2003: 123). Both authors, though, develop their 'rhetoric of the image' in relation to linguistic rhetoric. However, in the case of *La struttura assente*, besides the tropes typical of the latter, Eco makes an effort to create tropes specific to visual rhetoric. Not wishing to delve unnecessarily into this issue, let us just note that, as Dondero points out, Barthes' and Eco's semiologies of the image paid too much attention to image content and ideology.[1] At the same time, in line with Greimas-inspired semiotics, she is more interested in the composition of the image and its relationships with other images. As far as ideology in visual studies is concerned, in an interview with Kaan Tanyeri from Turkey Semiotics Cycle in April this year, the author stated:

[1] Let us note that for some authors this is an unquestionable advantage of semiotic analysis - e.g. Gillian Rose sees a very strong critical load in these concepts, which she assesses unequivocally positively (Rose 2001: Ch. 4).

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> I think that what has changed in recent times is that we understand that images can be studied in a more profound way than along the lines of Barthes' approach or according to a philosophical approach. Semiotics allows people to understand that an image is a discourse and that it may produce arguments and meta-reflection. The field of visual studies also contributes to the understanding of images, but the problem with visual studies is the ideology that guides the reading of images and prevents from understanding the meaning of an image based on the analysis of its spatial composition as such. (Dondero 2021)

Regarding the author's distance from other significant achievements in scientific reflection on the image, one should mention Dondero's skepticism towards visual studies, specifically William J.T. Mitchell. While becoming acquainted with the author's problematic in *The Language of Images* during live meetings and through reading, I got the impression that some of her concepts are almost parallel to Mitchell's findings, especially his critical iconology. In a nutshell, the latter postulates that the icon should overcome logos, free the image from the dominion of language, and analyze images through other images (1994). Dondero, however, has more than once expressed her distance from the American author's thought, whether in a live discussion or her book. Dondero is closer to Gottfried Boehm's thought and his *ikonische Wendung* (Dondero 2020: 4, footnote 17), whose approach is more comparable to Greimas-inspired semiotics.

Knowing more or less where Dondero stands in relation to visual studies and rival, so to speak, concepts that emerged in the second half of the 20th century in the field of visual semiotics, let us move on to the essence, i.e., to outline the foundations of the author's concept presented in the book under review. As I have already mentioned, the reflections proposed here are of a rather general and selective character; a summary of the whole book makes no sense and would be impossible here. Therefore, I will refer to those elements of the book I consider essential and encouraged me to revise my stance. Let us begin with the distinction between semiotics and semiology. As Dondero observes:

> The research conducted by Barthes (1977) on the relationship between verbal and visual languages is based on the attempt to uncover a manner of decomposing photography into units. Such units, according to Barthes, would correspond to lexical segmentation, which entails that his semiology conceives of verbal language as the sole metalanguage capable of describing all other languages. Semiotics, for its part, aims to demonstrate that there are metalinguistic procedures in all non-verbal languages such as the language of gestures,

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> of images, of music, etc. […] Semiology is therefore conceived by Barthes as a translinguistics by virtue of which verbality would lie at the core of any signification. (Dondero 2020: 76).

Verbal language, according to Barthes, is a metalanguage for visual language, while the author, following the path marked out by Greimas, sees things quite differently. Greimas-inspired semiotics, i.e., plastic semiotics, assumes "the plastic reading of an image"; let us note here that there is no question of resigning from the structuralist approach. Nobody says that there is no such thing as a visual language or a language of images. These findings are common for Barthesian semiology and Greimasian semiotics. However, the difference is dramatic: for Barthes, verbal language is a metalanguage for the image, whereas plastic semiotics speaks of a visual metalanguage. As Dondero notes, Greimasian semiotics abandons the distinction between denoted and connoted messages and the idea of "the dependency of images upon the divisions of verbal language" (2020: 77) thanks to the postulates of plastic semiotics and the concept of uttered enunciation to which the author devotes a great deal of attention.

According to Dondero, plastic semiotics enabled us "to conceive images as relations of similarity and of difference, or of relations of contradiction, contrariety, similarity, opposition, expansion, and contraction which make sense within a frame." Thus conceived, the image "will consist in a composition of forces in tension rather than in an addition of separate units" (2020: 77).

Hence, we have here an almost Saussurean account of the system in terms of identities and differences, but also a typically Greimasian reliance on logical operations inherent in the Greimasian semiotic square, as well as in the modalities associated with it, to which, by way of Fontanille's account, Dondero repeatedly refers.

2. Conflicting gazes, contradictory forces

Dondero looks at images comprehensively, interested both in the single image and in large collections of images. Drawing on the computer tools used by Lev Manovich for cultural analysis, she examines visual grammar but also "the social *statuses* and the interpretative frameworks which govern the functioning of the images" (2020: 1). One might get the impression that there are too many threads here, but nothing could be further from the truth. Dondero's argument is lucid and develops methodically, with each chapter building upon the findings of the previous ones. The theoretical perspective for the entire monograph is the Greimas-inspired semiotics.

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Regarding the concept of enunciation and in the context of what we have already established in the first part of this review, let us now consider the question posed by Dondero: "How does one look at an image?" (2020: 3). This question points to what distinguishes Greimas-inspired semiotics: enunciation and modalities. It is not so much the meaning of the image itself (or the meanings, if we think of implicit or connotative meanings) that is relevant, and since this is the case, neither is its interpretation relevant. So what is essential? So how "the images' planes of expression and content are established" (Dondero 2020: 3), the gesture of establishing the image, both by its producer and spectator, is essential. The author's statement, "it is useful to stress from the onset that the goal of the semiotic approach is not to interpret the image, but to analyze it," should now become easier to understand. (Dondero 2020: 3). It may seem surprising, especially to those eager to combine semiotics with hermeneutics, but it is perhaps the most semiotic possible point of view.

"I am looking at the eyes that looked at the Emperor" (2000: 3), Barthes writes in his late book on photography. This is no longer the Barthes of the early, structuralist period of *The Photographic Message* (1977) or *The Rhetoric of an Image* (1977). Barthes' delight at looking at the eyes that looked at another person in the past recalls the multiplicity and conflict of gazes examined by Dondero. Applying Benveniste's concept of enunciation to the field of visuality has resulted in the coining of the term visual enunciation, by which Dondero, following Fontanille, means "a relation of conflict between the enunciator and the enunciatee (Fontanille 1989), that is, between the simulacrum of the images' producer and the simulacrum of its spectator" (2020: 7-8). The term considers spatial relations and relations between enunciator and enunciatee who actively participate in a given visual discourse.

Thus, within the image, we can speak of a "system of gazes" (Dondero 2020:24), and this is, in my opinion, one of the most intriguing issues presented in the monograph. The image, moreover, has the power to determine the position of the spectator, so we have the gazes of the 'sender' and the 'receiver,' to use terms from a slightly different dictionary, but also the gaze of the 'image,' of the subject depicted in it. *Susanna and the Elders* (1555-1556), the painting analyzed by Dondero, is an exquisite example of such circulation of gazes. She admits that "It is a painting by Tintoretto which, in a very exemplary manner, is presented as a conflict between gazes and perspectives which construct an irreducible tension between the forces at work within the painting" (2020: 33). The analysis proposed by Dondero is highly complex and surprises me every time. The same is true for the examples analyzed by the author, be they paintings or photographs. What is striking in all of these is the application of the theoretical construct, the notion of visual enunciation, to the analysis of concrete images, the reference to Fontanille's semiotic square, and the attention paid to metapictorial devices such as mirrors, reflections, openings and anything else which "extends the boundaries of the visual field" (Dondero 2020: 38).

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3. The temporality of a still image

Dondero's attention to the temporality of an image is quite surprising. The generally accepted division of arts is that between spatial (e.g., painting) and temporal (e.g., music) arts. As Virginia Kuhn notes in the book's Foreword,

> [S]ketching her argument for a theory of 'uttered enunciation' with regard to the language of images, Dondero remarks, almost in passing, that narrativity in still images has seldom been considered by visual semioticians, due to the 'cumbersome opposition, inherited by the contemporary world, between the spatial arts and the temporal arts.' (Kuhn 2020: v)

while the author herself argues that:

> The major challenge is to demonstrate that narrative transformation, which necessarily involves temporal extension, may be supported by a single, isolated, discrete image. Because if we multiply the images, as occurs in press reports and fashion photography series, we necessarily obtain an effect of sequentiality and of duration, where gaps between the images are filled and in which contiguity is established, thereby producing an effect of deployment. Temporal disengagement in the single-scene still image has only been rarely addressed by semiotic studies. (Dondero 2020: 25)

Dondero is not the first to raise this issue, but she is undoubtedly the first to present it in such an interesting way. In Chapter 3, devoted to portraits in the context of the representation of presence, the dialogue between the portrayed and the viewer, the conflict between background and figure, and above all temporality, Dondero asks: "Is presence always conjugated in the present tense? If so, is the portrait's present durative, or is it punctual?" (2020: 50). The question remains what opens a reader to subsequent issues, such as subject's identity, "the gradients of a subject's presence, the model which the image is indeed capable of deforming," etc., which in turns draws attention to the fact that "Even in the case of single-scene still images which seem constituted solely by a figure-ground relation, photographic portraits will present a subject who is temporalized, or even aspectualized" (Dondero 2020: 51). Positioning a portrait on the axis: temporality – aspectuality and past – present – future, and the portrayed person in the context of duration and temporality allows us to look at the still image of which the portrait is, after all, a perfect and at the same time particular example, in a very new way but also to convince ourselves that the division into spatial and temporal arts is very conventional, which semiotics perfectly demonstrates.

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Dondero also notices the conflict of gazes mentioned about Tintorreti's painting in portraits. It is about the relation: the gazer the gazed with the indication that gazes in a painted portrait and a photographic portrait are different: the painter, so to speak, translates a sequence of gazes onto the canvas with her/his hand, while the nature of a photographic portrait is different, the creative gesture is based on the is based on a gaze and light and is immediate (Dondero 2020: 53).[2]

4. Metalanguage – visual langue – the metavisual

Metavisuality is another critical issue addressed by Dondero. Drawing on Saussure, she is interested in the relationship between *langue* and *parole* concerning visual language. In the beginning, we have established that the book's central thesis is to deny the claim that verbal language is a universal language for others, including visual language. However, it remains an open question whether visual language has its metalanguage, and thus a metavisual language. What would be visual *langue* and *parole* in this context?

> It is […] difficult to maintain the two following (extreme) postulates: on the one hand, the existence of a universal visual langue and, on the other, the idea according to which each painting may constitute a system in itself, by instituting its own microlangue. (Dondero 2020: 19)

As Dondero suggests and following the path paved by Greimas and Groupe μ, she continues her ponderings.

Dondero considers not only artistic images but also scientific images,[3] mainly from biology, astrophysics, and geophysics. The author observes noticeable differences between artistic and scientific images, but also elements they have in common. For example, Dondero indicates the parallel between a window in an artistic image and a window in images used by biology (see: 2020: 91, 93, 99). In this context, she analyses individual scientific images and, above all, images in sequence, in mutual relations, which allows her to develop a specific *visual langue*; not a universal one, but rather a *microlangue*.

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[2] In this context Jean Baudrillard's concept is worth mentioning. *In his Why Hasn't Everything Already Dissapeared?* he pays attention to the distinction between something created by a human hand and automatic light-writing: "I dream of an image that would be the écriture automatique of the world's singularity, as dreamt of by the Iconoclasts in the famous Byzantine controversy. They contended that only the image in which the divinity was directly present […] was authentic – an écriture automatique of the divine face without any human hand having intervened ('acheiropoietic') through a kind of transferprinting analogous to the negative of the photographic film. […] [t]he photographic act is, in a sense, 'acheiropoietic.' As automatic light-writing that neither passes through the real nor the idea of the real, photography may be said, by this automaticity, to be the prototype of a literalness of the world, with no interference from human hand." (Baudrillard 2011: 51).

[3] It is necessary to remind here Dondero's previous book, which she wrote together with Fontanille: *The Semiotic Challenge of Scientific Images. A Test Case for Visual Meaning* (2014).

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The final significant point for consideration is "media visualization" in the context of visual metalanguage and big visual data. Here, the concept of Lev Manovich and the Cultural Analytics Lab is applied, and the qualitative tools of semiotic analysis meet the quantitative methods of the computation analyses of images. It is noteworthy that a large number of images is a rarity in semiotic analysis. Even the use of computer methods for this purpose may come as no small surprise. However, this is not the end of the story; in a harmonious and coherent way, Dondero combines semiotic (Greimasian) analysis, methods of computer analysis of big visual data (Manovich and Cultural Analytics Lab), and the thesis on the existence of metavisual language, i.e., the possibility of referring images to themselves:

> The computational visualizations of images we will now examine are images of images. The purpose of calling them "visualizations" is to thoroughly distinguish them from the images which are at their source—and which constitute their objects of study. Indeed, the objects of these visualizations are large corpora of archived images (Big Visual Data) and they pursue a fundamental objective: Analyzing the images by situating them in a measurable and numerically-controlled space. (Dondero 2020: 101)

The author thus combines the 'microview' with the 'telescopic view,' i.e., a single image and thousands of images in one set (diagram or montage) are analyzed.

5. Content – expression – material substrate

The last issue that moved me while reading *The Language of Images* which I wish to share in this review, is the 'other side' of the sign itself and the visual representation understood as a sign structure. To this end, Dondero draws on Hjelmslev's distinction between the plane of expression and the plane of content and, within their framework, the form of expression, the substance of expression, the substance of content, and the form of content. As we have established, the content interests her least: "I'm not very interested in the hidden meaning of images! I'm more interested in studying their composition, their genre, and their status," she notes in the interview (Dondero 2021). The same is true for the use of semiotic theory in the big visual data analysis in Manovich's approach: "With Manovich's approach, we are invited to explore vast collections of images where a multitude of parameters intersect so as to allow the singularity of an image to emerge from a corpus, rather than to achieve its semantic stabilization." As Dondero herself points out (2020: 120), this is a structural defense, for it is difficult to deny the structuralist overtones of this perspective.

Since we have established that the content is of least interest to the author, let us see how she problematizes the expression, which is the focus of her interest.

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> [i]n the case of images, the plane of expression has been explored exclusively from the standpoint of the form of expression. […] Greimasian semiotics did not take into consideration the substance of the plane of expression, so as to not diverge from its structuralist orientation. […] [w]hat the semiotics of images has succeeded in accounting for was the relation between the form of expression and the form of content through the development of semi-symbolic coding […]. This coding left aside the substrates of the images. (Dondero 2020: 129-130)

In the late 1990s, the distinction between the formal and material substrate made it possible to look at an image as a material object. The materiality of the image is a highly topical issue and is recognized in many different disciplines. The material turn has been taking place for a few years now in the arts and humanities. Dondero's engagement with the image's material aspect combines structural semiology and post-Greimasian semiotics, which might seem impossible at first glance. Interestingly, the question of a painting's materiality is raised by Dondero in the context of digitalized paintings. There is no question of paper and silver halide, not to mention canvas and paint. In the interview quoted earlier, the author is quite explicit: "Current visual semiotics is also studying the image as materiality and is contributing to the material turn that began in visual anthropology" (Dondero 2021). I find it a fascinating path for the development of semiotics, as the author herself writes in the *Conclusion*:

> The approach which values the syncretism of an image's substrate and that which is applied to it fills a gap in semiotic studies and proposes methodological tools for the material turn. […] – and at the same time it is an attempt [add. K.M.] – to reconcile the material turn with the computational analysis of large collections of images. (Dondero 2020: 145)

6. Renewed, revisited, reasserted

Maria Giulia Dondero's latest book presents "Dondero's enhanced semiotic theory," as Kuhn stresses in the *Foreword* (2020: iv). The author draws on classical semiotic premises and their more recent transformations and shows how we can use them to analyze both artistic and scientific images and digital big visual data. The author convinces her readers that verbal language is not a universal metalanguage for various sign systems. Instead, one can speak of a visual metalanguage and individual *microlangues*, a rare position in visual semiotics that reinforces the conviction that we can practice visual semiotics in many ways.

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In a way, this book defies the obvious: it exposes the narrativity and temporality of the still image, focuses on its form and substrate rather than its meaning, and gradates rather than uses simple oppositions. Maria Giulia Dondero's book opens the reader's eyes to the image and allows a different perspective on visual semiotics and a new way of thinking about seemingly obvious issues.

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Expanding translation studies: a (bio)semiotic approach

BY: Margherita Zanoletti

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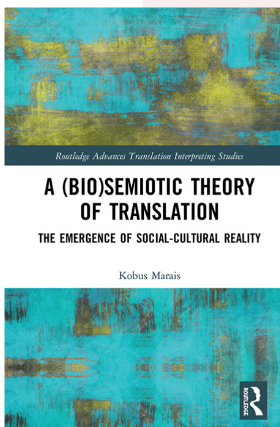

Marais, Kobus.
A (Bio)Semiotic Theory of Translation:
The Emergence of Social- Cultural Reality.

London: Routledge, 2019, 208 pp. £ 37.00 (pbk, ISBN 978-0367-584-139).

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This is a first-person book, in which the author's 'I' author guides readers, step by step, along a multidisciplinary journey that merges semiotics, social semiotics, translation studies, cultural studies, and development studies. *A (Bio)Semiotic Theory of Translation* provides a narrative, ground-breaking discussion on the very concept of translation, in dialogue with an impressive variety of data and ideas. It is a radical and ambitious project aimed at shaking the foundations of translation studies.

The author's aim is declared in the opening pages and then repeatedly, almost rhythmically recalled to readers through the chapters. Kobus Marais' leading concern is that translation studies, which should deal with all process phenomena, have mostly limited itself to the notion of interlinguistic translation and urgently needs to reconsider its roots. As Marais explains, some "trans," "hyper," and "inter" terminology has been employed to expand the notion of translation beyond the interlingual paradigm. However, such terminology has broadened the context in which interlingual translation is studied more than its conceptualization. Definitions of translation restricted to verbal language have become limited and inadequate for a rapidly evolving scenario. The urgency of this reconsideration is in everyone's eyes. Modern communication has turned increasingly hybrid and multimedial (Susam-Saraeva 2016), while "pure" interlingual translation is set to decline. More and more often, under digital technology and the ability to construct meaning in multiple

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forms, current culture experiences the simultaneous release of movies with videogames, apps, gadgets, and tools, etc. Even services (and not just products) are semioticized as multi-channel. Put simply, communication is becoming more and more complex. However, the ever-increasing complexity of communication is not the only reason why Marais considers the exclusive focus on language a bias. Since time began, humans do not communicate with words only but with various semiotic tools, and a linguistic-only conceptualization of translation studies is overly narrow. Besides, human language is not the only medium of communication worthy of interest: it is about time to rethink our relationship with non-human organisms and account for a whole range of biosemiotic interactions as providing the context for specifically human communication. Marais wishes for a breakthrough to occur. Translation studies scholars should adopt a broader theoretical framework and shift their interest from translations and translators to *translationality*. The founding stone for this new framework should be Charles Peirce's view of translation. Peirce's semiotic theory can lay the foundation of a renewed perspective in translation studies.

Roughly speaking, *A (Bio)Semiotic Theory of Translation* is structured in two parts: a *pars destruens* and a *pars construens*. Although destruens elements and *construens* elements are often integrated (the first part of the book contains previews of Marais' theorization illustrated in the second part, and vice versa, the critique contained in the first part is recalled and reinforced in the second part), the *destruens* component sounds particularly strong. To be fair, such an engaging discussion would have deserved more room than 190 pages in all. But overall, Marais' intent is achieved. The book is effectively structured and written. Each chapter starts with an overview of the steps taken in the following pages, reminding readers how particular topics fit the whole project. Densely and solidly, the author proves himself capable of making his point, fuelling the discussion, and laying the groundwork for further reflection.

In the *pars destruens* of the book (Chapters 2 and 3), Marais provides a guided overview of crucial past contributions to the conceptualization of translation, intent on probing and exposing their linguicentric and anthropocentric bias. Marais claims that since becoming a discipline, translation studies in the Western world has been conceptualized almost exclusively in terms of language, literature, and culture, basing itself mainly on Roman Jakobson's renowned tripartition featuring intralingual, interlingual ('translation proper'), and intersemiotic translation (Jakobson 1959[2004]). Although Jakobson did consider translation processes between nonverbal and verbal sign systems, observes Marais, he turned Peirce's broad notion of semiotics as a theory of all signs into a conceptualization of the semiotics of verbal language. Consequently, following generations of translation studies, scholars grew up with the notion of translation as interlingual translation, and the bias perseveres.

Several attempts have thematized the relationship between semiotics and translation, but Marais contends that the implications are not fully explored. Examples

abound. Among the authors discussed, Eugene Nida (1964) considered translation, in whichever form, to be a matter of meaning. Still, his understanding of semiotics, argues Marais, was limited to human communication and linguistic semantics. Similarly, James Holmes (1972[2004]) too had interlingual translation in mind when conceptualizing the field. The efforts by Gideon Toury (1995), George Steiner (1998), Mona Baker (2006), Maria Tymoczko (2007), and Ubaldo Stecconi (1994, 2004, 2007, 2010) are seminal but incomplete. As recounted by Marais, Toury prefigured the subsequent arrival of translation sociology; Steiner extends translation far beyond the verbal medium and takes it as a process that explains all meaning-making, while Baker discusses translation, communication, and conflict. Marais acknowledges Tymoczko as "one of a very few scholars who engage the topic [of conceptualizing translation studies] philosophically," including practices and styles from all over the world and empowering translators to become agents. Stecconi is "the key figure, after Jakobson, to consider a semiotic theory of translation," distinguishing between semiosis as a larger category and translation as an instance of semiosis. Yet, these different authors have in common that they keep referring to a theory of language. In their work, nearly all references are to languages and texts, limiting their analysis primarily to interlingual translation.

In the same period, Christiane Nord's functionalist approach, André Lefevere's notion of rewriting, and Susan Bassnett's cultural turn expanded translation studies to include the biosemiotic, semiotic, and cultural aspects of linguistic communication, enabling the conceptualization of translation as more than linguistic interaction. But semiotic thinking on translation has increased even more significantly in the last fifteen years. For instance, Sergey Tyulenev (2012) defines translation in systemic rather than linguistic terms. Yves Gambier and Luc Van Doorslaer (2016) emphasize that within translation studies, theoretical issues are often ignored in favor of pragmatic, marketable solutions and assume that a deep-going view of translation entails a metaphoric use of the word translation. Douglas Robinson (2015) attempts a dialogue between East and West and stretches the notion of translation beyond the rational, arguing that translation is based on empathy. Karen Littau (2016) wants to consider materiality in translation, questioning the focus on ideas to the exclusion of media. However, all these authors only use examples of interlinguistic translation, and their dominant notion of translation continues to be interlingual. In effect, their perspective expands the notion of interlingual translation but not the notion of translation.

In the following chapter, Marais *destructor* turns his attention to semiotics and considers authors based on Peircean semiotics. In this case, as with translation studies scholars, logocentrism and anthropocentrism are radically critiqued. Although among semioticians, concedes Marais, the conceptualization of translation is broader than among translation researchers, three biases are still evident: first, they tend to see sources and targets as stable rather than dynamic elements; second, they often

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indulge in examples of interlinguistic translation; and third, they rely on concepts such as equivalence, source text and target text, which limit their perspective.

According to Dinda Gorlée (1994), for example (whom Marais recognizes as the first author attempting to align the notion of translation with Peircean semiotics), the entire set of semiotic phenomena is greater than the set of linguistic phenomena. Both humans and non-humans make and take meaning that is not linguistic. In a similar vein, in *Kant and the Platypus* (1997), Umberto Eco explores how new information from the natural world is "semioticized" into cognitive systems of meaning. This morphological process, stresses Eco, is the most basic form of translation occurring in all living organisms. Amongst the authors reviewed, Susan Petrilli is considered by Marais as a "pioneer" of intersemiotic translation. Petrilli (2003, 2015) maintains that semiotics and translation study the same process from different perspectives and that "to translate is to interpret," to create relationships. Moreover, according to her, we must overcome anthropocentrism and logocentrism, as "verbal signs constitute only a tiny sector of the signs on our planet." She emphasizes that signs are always in translation, unstable, in the process of being translated into further signs. Petrilli's contribution is labeled by Marais as paramount, although to this date, he laments, her work has been considered far too limited by translation studies scholars.

Marais considers Peeter Torop as another forerunner on thinking on intersemiotic translation. A follower of Jurij Lotman, Torop has strived to show how culture emerges out of translational activities and to expand the notion of translation to include all aspects of culture (*Total'nyj perevod [Total translation*], 1995). To him, translation is relational and connected with thought, while culture results from manifold translation processes. He underlines that even monomedial texts entail more semiotic dimensions than merely the linguistic (e.g., font types, colors, etc.) and devotes much of his study to intermediality. Another influential author discussed by Marais is Evangelos Kourdis. Kourdis emphasizes that, in modern communication, registers have become both pictorial and linguistic, making intersemiosis the norm and the distinction between words and images difficult. Finally, Joao Queiroz raises the point of biosemiotics, proposing that translation is not a binary process between a source and a target, but rather, along Peirce's lines, a triadic process involving representamen, object, and interpretant. With Queiroz, furthermore, the themes of evolution and non-human communication are added to the agenda.

All this is grist for Marais' mill. One after the other, authors are reviewed and criticized when not dismantled. Their reasoning always seems to lack one central point: interlingual translation is not the paradigm. Marais claims that Gorlée does not account for non-human semiosis and focuses on examples of interlingual translation. She devotes ample time to the problem of equivalence, talks about original and translation, and concentrates on the translation of symbols, neglecting iconic and indexical

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signs. Similarly, according to Marais, the most significant limitation of Eco's work is restricting the notion of translation to interlingual translation, which explains why Eco considers translation a subcategory of the broader process of interpretation. When citing Jakobson, Eco refers to "translation proper." To him, therefore, "interlingual translation" appears to be the proper meaning of the term.

Debatable, according to Marais, is also Petrilli's terminological distinction between intersemiotic and endosemiotic translation because all translation must be viewed as occurring between semiotic systems anyway. Likewise, Marais criticizes Torop's insistence on "semiotic fidelity," on the relation source/target, which tends to suggest a static view of translational processes, and on his adoption of the linguicentric word "text" to refer to cultural artifacts. And Kourdis and Queiroz are not spared faults: the first lacks a biosemiotic view, while the second focuses on aesthetic data only, ignoring social and cultural data.

In the last part of his critical overview, Marais discusses three big names of multimodality thinking: Gunther Kress, Lars Elleström, and Göran Sonesson. The shared idea is that meaning rarely occurs in one mode of communication but is primarily multimodal. Therefore the complexity of communication requires a complex theory of translation. Also, their research line clarifies that the meaning-making process starts with perception, not with the formation of ideas. According to Elleström, for instance, "all kinds of sign systems … must be seen as part of a vast field including the material, sensorial, spatiotemporal and semiotic aspects".

In Chapters 4-6, readers are plunged into the *pars construens* of Marais' argumentation. Here, by exploring the relationship between translation and semiosis, the author illustrates his conceptualization of translation, opening the discussion to future developments. His purpose is to address the linguistic bias in the field, shifting the debate to the semiotic level and the multitude of 'inter' and 'trans' phenomena in which language does not play a role at all and traditional translation studies are not able to tackle. From this perspective, the author attempts to integrate previous works and authors, including those mentioned in his pars *destruens*, into a constructive theory.

The starting point is Peirce's notion of translation, which Marais presents and discusses as the engine and basis of his conceptualization in the fourth chapter. As is well-known, according to Peirce, all thought is in signs: we think by relating signs to one another. A sign consists of and is a process of connecting three semiotic functions: representamen, object, and interpretant. Moreover, even those least acquainted with Peircean semiotics are aware of his distinction among three categories of signs: icons, indexes, and symbols. Language, we recall, is symbolic, as it has a conventional or arbitrary relation with the object. At the same time, icons relate to the object by resemblance, and symbols are connected to the object by a nexus of causality.

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In his definition of translation, Peirce does not mention languages, as Jakobson unfortunately does. In Peirce's theorization, semiosis is a never-ending process, and translation is a technical term that refers to the semiotic process in all its guises. According to the semiotician, translation generates meaning by relating two things out of the universe's chaos. The outcome of the process is interpretation, namely, the creation of interpretants. From this perspective, translation entails all types of meaning-making and meaning-taking actions: it pervades not merely language and not only all human culture and society, but the whole cosmos.

The all-pervasiveness of translation is tackled in the last part of the chapter, where Marais refers to biosemiotics as a crucial area of study that can contribute to expanding translation studies. Biosemioticians agree that human beings have the most developed semiotic abilities and that language is the most complex and developed semiotic code. Yet, language is only an aspect of translationality (Dizdar 2009), and humans are not the only organisms with semiotic skills. In fact, biosemiotics engages in a discussion within theoretical biology about overcoming the assumption that meaning-making and meaning-taking are only human activities. From a biosemiotic perspective, intentionality and communication are ubiquitous in living organisms.

Even within the *pars construens*, Marais does not lose a chance to unleash his critique and repeat his mantra: the linguicentric bias caused by Jakobson's addition of the term "lingual" to his definition of translation has limited and weakened the field of study. An evident symptom is that "traditional" translation studies have studied only or mainly symbols (in *primis* words), while iconic and indexical signs have received inadequate attention. Moreover, non-human semiosis has remained undertheorized by translation studies scholars. The lack of a general theory of meaning-making and meaning-taking constitutes a severe flaw, echoes Marais, and this situation needs to be corrected. The use of language must be embedded in a wide-ranging theory of signs such as Peircean semiotics, able to explain what is common to all types of signs.

In Chapter 5, Marais further expands his *constructio*. The author begins from one straightforward premise: at stake are not instability and indeterminacy, but instead stability and determinacy (Fuchs 2009). Traditionally, the source text has been regarded as something static, having stable, formalized meaning. According to Marais' line of thinking, in contrast, the problem of translation is not turning one (stable) instance of meaning into another (stable) instance of meaning, but rather the process of change that triggers meaning-making and meaning-taking.

Marais' thought has also been inspired by Floyd Merrell's work on semiotic processes. Two main points of Merrell's theory are emphasized as particularly significant. First, the reality is motion and interplay; therefore, semiotic processes are not linear but require a complexity perspective. Merrell calls translation the negentropic process of change that

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turns signs into more endangered signs, allowing meaning to emerge from entropic chaos. Second, semiosis is not abstract but concrete. Usually, translation studies only focus on conscious, cognitive, and conceptual things: humans tend to lingualize or symbolize all signs. On the contrary, Merrell coins the terms "bodymind" and "bodymindsign" to indicate the unity between phenomena that we tend to conceive as separate. From this perspective, Marais stresses that language is not the only mode of meaning-making: iconicity and indexicality provide information that language cannot convey. We need to find ways of understanding meanings that we cannot express in words.

Besides Merrell, another primary source of Marais' inspiration is complexity thinking. According to the author, a complexity approach to translation aims to explain the emergence of semiotic organization, habit, trajectory, and pattern that arise through the translative process. Complexity thinking assumes chaos or nothingness as the origin of everything. Similarly, as Marais argues, culture emerges through translation as negentropic work: the chaotic stream is constrained to a particular form because of the causative effect of semiotic possibilities that have not been realized.

In the second part of the Chapter, drawing on the premises announced earlier and, across and above all, Peircean semiotics, Marais *constructor* unveils his conceptualization of translation. He provides definitions for translation and translation studies and proposes to replace Jakobson's categories.

Marais' conceptualization of translation derives mainly from Peirce. Marais defines translation as negentropic semiotic work, in which any one or more of the components or relationships between components of a sign system or the relationship between the sign and its environment are transformed. This processual work is never-ending and historically irreversible. In Peirce's view, semiosis is the continuous creation of relations between triads of representamen, object, and interpretant; all signs are related to other signs; they *are* relationships. Translation thus entails any movement or change in either space or time to existing relationships, the creation of new relationships, or any shift in the space-time context in which the translative process occurs. From this perspective, Marais proposes to replace the terms "source text" and "target text" with the terms "incipient sign system" and "subsequent sign system" to emphasize the time-based, intersemiotic and intersystemic nature of all translative processes. In this context, it is now clear that the focus of translation studies should not be the final product but rather the process. The real questions ought to be: how does the translation process unfold? By what is it constrained? In Marais' view, equivalence is irrelevant, whereas the main point is to investigate the constraints under which processes become determinate. Everything could have a translational aspect to study.

In line with this view, the categories of translation put forward by Marais are categories of process, not types of things. He suggests the categories intra-systemic,

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inter-systemic, and extra-systemic, irrespective of what those systems are. This theoretical framework renders Jakobson's tripartite schema (intralingual/ interlingual/intersemiotic) obsolete since all translation happens between semiotic systems. Another categorization distinguishes among translation processes initiated by a change to the representamen, the object, and the interpretant, respectively. As the process unfolds, we should add, neither of the three elements remains unaffected.

Representamen translation entails changes to the materiality of the representamen, that is, the material nature of the sign-vehicle. This category is currently studied in interlingual translation studies, adaptation studies, multimodality studies, and multimedia studies. Marais specifies that we can have five subcategories of representamen translation: visual, aural, tactile, olfactory, gustatory. In addition, the representamen can be purely mental (a thought, an idea, a dream).

Among the book's critical insights is the remark that object translation is the weakest of the three tendencies in translation. However, it offers conceptual tools for gaining insight into the emergence of society/culture. This type of translation entails changes to the object, i.e., the other to which the representamen stands in a relationship. Any change in the object will also affect the interpretant. For example, a dog can be a companion in one culture and food in another; or we can translate a medical textbook into a general public book. Concerning object translation, Marais makes a digression on John Deely, who explores the concept of relationality as the basis for the construction of meaning, and whose work affects Marais' theorization. According to Deely, meaning relates three elements, and knowledge is based on complex relationships. All things exist in the world as interdependent, and we construct and co-construct through negotiation. Translation is the process by which such relationships are established.

Interpretant translation implies that the interpretant is changed, and signs become other than what they are. For instance, reading a novel for the second time would be such a case. In this type of translation, an interpretant is taken as a representamen and translated through the semiotic process into a more or less developed interpretant.

In Chapter 6, Marais takes the final step of his *pars construens* and applies his conceptualization of translation to the emergence of socio-cultural phenomena. To start with, the author explores the implications of William Deacon's book *Incomplete Nature* (2013), whose central idea is that ententional process-phenomena emerge through a process of imposing constraints on possibilities. Deacon's thinking is particularly significant, as it contends idealism in cultural studies, stressing that representations and ideas are not immaterial but rather made of physics and chemistry. The term "ententional" is a neologism that applies to the class of objects and phenomena that refer or relate to something not present. All living organisms are ententional, namely, driven by future outcomes. By incorporating Deacon's theory into his theory, Marais'

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definition of translation as negentropic work becomes "negentropic imposition of constraints on semiotic processes." According to this definition, societies and cultures emerge through semiotic work that counters entropy (translation).

Deacon coins the term "ententional" to refer to all teleodynamic processes or systems: in other words, the processes driven by an as-yet-unrealized set goal. Following Deacon, Marais argues that all translation is teleodynamic, that is, aimed at the imposition of constraints on semiotic processes. Once an energetic or informational asymmetry develops because of constraints, it tends to cause further constraints, enlarging the asymmetry. Such asymmetry becomes an attractor, namely, a tendency with a causal effect.

In the last stage of his *pars construens*, Marais suggests a research paradigm based on object translation, focused on indexical signs that imply a causal connection between representamen and object; this paradigm allows the study of sociocultural forms as indexes of the processes that formed them. This conclusive argument develops in four main steps.

As a first step, Marais emphasizes that humans do not exist merely in the world of ideas but rather in a mixed weave of ideas and physics, matter, and dreams. The notion of meaning must therefore be non-idealist and pragmatic. He mentions how Bruno Latour's and Eco's work pointed at object translation as relevant for the sociology of knowledge. In particular, Latour argues that knowledge is thoroughly social and that non-human and even non-living things are intertwined. Semiosis is the interface between nature and culture: the "social" that we can observe corresponds to the traces of the processes by which it formed. For Latour, translation (world-making) is the process by which data or ideas are turned into semiotic phenomena.

As a second step, Marais maintains that the Peircean notion of degenerate sign, namely, indexical signs in which the relationship between representamen and object is not constructed conventionally but is regulated by cause and effect or proximity (for example, the physical symptoms of an illness), provides scholars of sociocultural emergence with a conceptual tool to study non-linguistic and pre-linguistic meaning-making. In this way, it contributes to understanding how socio-cultural forms emerge. Much of culture and society happens at a pre- or non-verbal level, and studying indexes would give us access to the preverbal and practical dimensions.

As a third step, Marais expands his reflection on the relevance of indexicality to understanding socio-cultural emergence. He observes that an index entails a representamen that is "really affected" by its object, pointing to meaning-making in reality. From this perspective, culture can be interpreted as an indexical sign of the process of its emergence. Realizing that there are also indexical signs, signs that presuppose a material context and causal relationships, implies recognizing that the Other, the context, the environment also play an essential role in constructing meaning. Translation

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theory should make room for all types of meaning-making, and the study of indexes is vital to realize that meaning is co-constructed under the constraints of reality.

Marais aims to suggest a meta-theory of translation able to explain any particular approach to translation, whether narrowly linguistic or broadly sociological. As a fourth and final step, Marais leaves readers in a provisional, almost provocative way. Admittedly, a few aspects relevant to the theme and scope of this book are left unexamined. However, the author poses five questions that foster and anticipate further studies. His ambition, it turns out, is not only to sow a novel theorization but also to lay the groundwork for future growth.

In the concluding chapter, aligning himself with a few scholars who are working towards a unified theory of matter and mind, Marais strongly advocates that "we from the humanities" are liberated from individualism and realize that we are co-constructed by innumerable Others: "people, living organisms, energy, matter, and laws of the universe."

So Marais ends as he began. Translation, he concludes, must be thought of not as a speech act but rather as a condition underlying communication as a whole. He predicts that translation studies are likely to become increasingly irrelevant in a world moving toward multimedial communication and away from anthropocentric views. Only a (bio)semiotic translation theory makes it possible to conceptualize the translational dimension of culture, society, and living organisms. Is this perspective too radical, too revolutionary? Time will tell whether Marais' ambition has gone too far or may push ahead further as new interpretants unfold for such a robust translation theory.

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