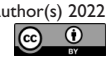
Article

new media & society
2024, Vol. 26(7) 3951–3966


Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/14614448221108449
journals.sagepub.com/home/nms


When friction becomes the norm: Antagonism, discourse and planetary data turbulence

Sebastián Lehuedé
University of Cambridge, UK

Abstract

The ideal of unfettered data circulation has fallen into crisis. As of today, a growing number of actors are introducing measures to ensure a greater degree of control over the global data pipeline. Combining critical data studies and political theory, this article conceptualises the current technopolitical conjuncture as one of 'planetary data turbulence' in which divergences regarding the production and circulation of data have become the norm. The concept of data turbulence emerges from studies on data friction, but this article contends that the current state of affairs requires expanding the emphasis on technosciences and materiality in these works. Drawing on Ernesto Laclau and Chantal Mouffe, the article shows that attending to antagonism and discourse makes it possible to account for the eminently political forces shaping the circulation of data. The strengths of this framework are illustrated by looking at the articulation of digital sovereignty in different geographies.

Keywords

Critical data studies, datafication, friction, geopolitics, open data, planetarity, political theory, sovereignty

Introduction

Not so long ago, few people disputed the idea that the free circulation of data could usher in economic growth, political freedom and scientific advancement across the world. In contrast, some recent events reveal a completely different scenario. Data took the mainstage in global scandals such as the revelation of the surveillance system built by the

Corresponding author:
Sebastián Lehuedé, Centre of Governance and Human Rights, University of Cambridge, Alison Richard Building, 7 West Road, Cambridge, CB3 9DP, UK.
Email: sal92@cam.ac.uk

United States and other countries' intelligence agencies (MacAskill and Dance, 2013), and the use of social media data without consent in political propaganda produced by the British consultancy firm Cambridge Analytica (Crabtree, 2018). Moreover, data are now considered a relevant economic asset in and of itself: it is not only 'the new oil' (*The Economist*, 2017), as the UK-based *Economist* magazine asserted, but also a means for poorer countries to pursue development (World Economic Forum, 2015). In light of this context, data have come to represent far more than a neutral output for knowledge production; instead, it constitutes a cherished source of political power and economic wealth.

From an analytical vantage point, the current context requires expanding the frameworks privileged by critical data studies and related fields. One of the main notions employed in the study of data flows so far has been that of 'data friction', but this concept's focus on technical actors and the material properties of data will not do in the current technopolitical conjuncture. The notion of 'data turbulence' proposed in this article was put forward almost a decade ago in passing by infrastructure studies scholar Paul Edwards (2010) as part of his account of 'data friction'. At the time he was writing, asserting that data was a material entity whose movement-generated physical resistance constituted an eye-opening move. In particular, it provided a counterbalance to thinkers focusing on the increasing 'flows' brought about by globalisation (Appadurai, 1996; Castells, 2010). However, important limitations to Edwards' thesis and similar formulations of data friction have obscured how divergences of a predominantly political character are ushering in tensions and conflicts in the governance of data.

This article makes a contribution to the study of data flows by developing the notion of 'planetary data turbulence' to depict the current global technopolitical conjuncture. Planetary data turbulence signals a transition from a world of seamless data flows to one at which divergences regarding the governance of data have become the norm. In the current context, few actors consider that a *laissez-fare* approach on this matter would benefit them. Such a conjuncture has been brought about by the concurrence of at least three phenomena: (1) the platformisation of the web, (2) the articulation of digital sovereignty in different contexts and (3) an increasing awareness of the role of data in the current environmental collapse. As a result, actors are now more focused on introducing rather than removing barriers to the production and circulation of data.

In order to enable a political analysis of data friction, this article turns to Ernesto Laclau and Chantal Mouffe's post-Marxist theory of conflictuality. These authors' work is particularly helpful in the current context due to its capacity to grasp the eminently political forces impinging upon the circulation of data. In particular, Laclau and Mouffe's ideas make it possible to acknowledge the ineradicably conflictual character of decisions regarding the governance of data, as indicated by the concept of 'antagonism', as well as the relevance of the analytical dimension of 'discourse', which is where material-physical phenomena acquire a properly political character. Such a proposal departs from data friction's initial emphases on technosciences and materiality, an approach insufficient for speaking to the current situation where data circulate in public discourse and when the actors at stake are not only those working closely with data anymore. The analytical and political strengths of the proposed framework are illustrated with references to articulations of digital sovereignty emerging in China and other contexts.

The article's argument is developed in three sections. The first unpacks the emergence of data friction and refers to work that has built upon this term to look at cases beyond the sphere of technosciences. The second section pinpoints the notion of planetary data turbulence and discusses three phenomena causing such a turbulence, which is followed by a review of the limitations of existing formulations of data friction to account for this technopolitical conjuncture. The final section develops an approach to data friction based on Laclau and Mouffe's concepts of antagonism and discourse. The strengths of this approach are demonstrated by referring to the articulation of digital sovereignty in different contexts.

Data friction in the sciences and beyond

From flows to friction

At the turn of the 21st century, influential authors employed the notion of 'flows' to account for the increase in the circulation of people, capital and digital information across the planet in the context of globalisation (Appadurai, 1996; Castells, 2010). Against this backdrop, infrastructure studies scholar Paul Edwards (2010) pointed out that such visions were missing an important piece of the puzzle. Based on his study on efforts in climate science to generate a global knowledge infrastructure, he argued that data should not be approached as an abstract and free-floating entity but rather as a material 'thing' (Edwards, 2010: 84) whose movement inevitably encompasses physical resistance. Along those lines, the notion of 'data friction' came to represent 'the cost in time, energy, and attention required simply to collect, check, store move, receive, and access data' (Edwards, 2010: 84). Such an acknowledgement made it possible to foreground some of the previously overlooked tensions and conflicts that emerge as different actors share digital data among different groups, disciplines and geographical locations. Under this lens, data would not merely 'flow' but also break down, become difficult to parse and usher in misunderstandings and divergence. Certainly, standards, institutions and machines could help 'lubricate' (Edwards, 2010: 432) data circulation and reduce friction. However, due to data's material-physical character, resistance will never decrease to zero.

In the wake of Edwards' formulation, studies have delved into the data frictions emerging in different scientific contexts, such as in relation to cross-disciplinary work (Edwards et al., 2011) and the tools and standards employed in astronomy (McCray, 2014). Among such works, Bates et al.'s (2016) stands out for its thorough conceptual characterisation. Looking at the case of weather data in the United Kingdom, these authors argue that friction is one of the phenomena that emerge when analysing 'data journeys', which they understand as the 'breaks, pauses, start points, end points' (Bates et al., 2016: 4) that come into play in the movement of data. A particularly relevant aspect for Bates et al. is the practices through which actors seek to overcome or maintain frictions. In their account, the digitisation of analogue data and regulation advocacy are part of the set of actors purportedly interested in ensuring the removal of barriers obstructing the free exchange of data. Because of this, factors as diverse as data's physical properties, as well as the values and beliefs of different actors, can increase or decrease data friction.

Data friction outside the sciences

A long-standing concern for scientists and engineers, questions about data have now become increasingly relevant for a broader range of groups. As Douglas-Jones et al. (2012) state, '[t]he world is talking "data"' (p. 9). Under this light, it is not surprising that critical data studies research has taken up the concept of data friction to explore phenomena taking place beyond the sphere of technosciences. For example, non-technical actors, such as regulatory bodies in Finland (Aula, 2019) and police officers in Colombia (Barreneche, 2019), can also get involved in conflicts and tensions regarding the governance of data.

Jo Bates' (2018) article *The Politics of Data Frictions* constitutes one of the most solid attempts to account for the role of a broader range of actors in the circulation of data. Bates analyses how infrastructure, as well as socio-cultural and regulatory forces, can generate tensions in relation to research data and data derived from people's online activities. When looking beyond the sciences, the negative connotation of data friction as an impediment to progress does not always hold true. For example, actors concerned about surveillance might deliberately seek to generate friction in order to obstruct the operations of transnational technology companies such as Facebook. Based on this, Bates argues that data friction is political inasmuch as it can shape the relationship among actors who do not hold the same power to control data's circulation. Under this account, data friction can become a site of struggle among parties holding different degrees of power.

In addition to Jo Bates, Alison Powell (2021) has also contributed to pinpointing the politics of data friction, although she did so by looking at civic initiatives in the context of the so-called smart city. Powell shows that data friction offers an opportunity to oppose the principle of neoliberal optimisation underpinning data-intensive technologies. Studying a data commons project in Bristol, United Kingdom, she argues that frictions can help reveal the limitations of data for advancing the common good and, at the same time, engendering new forms of relationships. As communities make decisions regarding what data to collect and with what purpose, they become aware of existing structural inequities. In such cases, '[a] kind of data solidarity might then emerge from the friction and contention around meaning, power, and social benefit' (Powell, 2021: 134). These insights question the idea according to which data necessarily has to circulate in a seamless way and without much effort from the side of users.

Bates' and Powell's work undertook a similar task: taking away data frictions from the domain of sciences and employing it to identify power dynamics in areas such as social media platforms and the smart city. As a result of this move, the politics of data friction became more complex since, far from a mere impediment to the advancement of the sciences, it can also constitute a form of resistance against appropriation and engender generative forms of bottom-up community building. For the purposes of this article, these accounts demonstrated the necessity of attending to the way data friction plays out outside the sciences in order to grasp fully its significance for society.

Planetary data turbulence

Edwards' notion of data friction made a significant contribution by countering the narrative of data as a free-floating entity, an effort that was expanded by authors such as Bates

and Powell as they applied this concept outside the sciences. However, the current technopolitical conjuncture requires undertaking even more ambitious steps.

When considering some ongoing sociotechnical shifts, it is possible to affirm that the current situation is marked by different actors' attempts to set up barriers to the free movement of data. Based on this observation, I term the current technopolitical conjuncture 'planetary data turbulence', a state in which divergences regarding the circulation of data have become the norm rather than the exception. Whether it is nation-states seeking to assert sovereignty, digital platforms building data silos or local communities opposing the construction of data centres, the ideal of free circulation of data as a source of socioeconomic development has been replaced by divergent visions on how to channel the movement of data. Importantly, this is not only a change in scale, that is, an observation that there is *more* friction than there used to be. Instead, the rise of planetary data turbulence signals a *qualitative* shift in which the transformation of frictions into the norm is opening up a technopolitical conjuncture involving a different class of data politics.

By choosing the term 'data turbulence', I am following the conversation initiated by Edwards since this is a term he proposed, albeit in passing, in his original formulation of data friction. As he argued: '[F]riction can also create *turbulence*. In social systems, friction means conflict or disagreement, which (metaphorically) consume energy and produce *turbulence* and heat' (Edwards, 2010: 85; emphases added). In the case of this article, the use of 'turbulence' suggests that the current planetary technopolitical conjuncture has rendered friction insufficient to account for the high degree of political divergences regarding the governance of data. Furthermore, the choice of 'planetary' rather than 'global' to depict this situation is not a coincidence. Following Gayarti Chakravorty Spivak (2003: 72), while 'globality' suggests seamlessness, flows and homogeneity, 'planetarity' acknowledges friction and asymmetries.

Three phenomena conjure up a new technopolitical conjuncture

At least three sociotechnical shifts are contributing to the generation of planetary data turbulence. The first of these tendencies is the rise of the platform as the dominant model of the web, a phenomenon that Anne Helmond (2015) calls 'platformisation'. Unlike previous web pages or social networking sites, a platform can be understood as a relatively self-contained environment in which other users can participate and build their own tools. However, a platform does not need to be open as the web used to be; users need to register and might not be able to share content across platforms or on the web. As Srnicek (2016) points out, the business model of platforms is based on the extraction of data; this means that technology companies such as Google and Facebook have clear incentives to lock in users and impede the sharing of data. In the end, platforms become silos, only 'pouring' (Helmond, 2015: 6) data to the broader web when it might be convenient in economic terms. Rather than a phenomenon circumscribed to a few actors on the Internet, platforms have become the infrastructure supporting an increasingly high number of online interactions and, even more, a logic permeating different areas of society (Plantin et al., 2016).

The second tendency is the increasing adoption of sovereignty principles in the formulation of policies regarding digital and data infrastructure. One of the direct goals of such initiatives, or at least in the cases of China and Russia, has been to subject the production and circulation of data to the jurisdiction of the nation-state (Couture and Toupin,

2019). Initiatives mandating the territorialisation of data, that is, the storage of processing of datasets within the nation-state, are an example of such policies. However, alternative approaches to digital sovereignty in places such as Germany and Latin America are also seeking to reassert the capacity of individuals and collective groups to govern datasets. In the German case, where the focus has been put on the individual, the rubric of 'sovereignty' has been employed to frame data protection initiatives. As Milton Mueller (2017) argues, sovereignty initiatives have indeed introduced *intentional* restrictions to data access and circulation, challenging the idea that dominated in the 1990s and the 2000s in which the Internet used to be presented as a realm not subject to the laws of the offline world. As I discuss at length in the next section, studies on data friction have overlooked the rise of digital sovereignty due to the eminently political character of the latter phenomenon.

The third phenomenon generating data turbulence concerns the increasing awareness of the link between the storage and processing of data and the environmental crisis. As studies show, the circulation and processing of vast amounts of data are altering centuries-old geophysical processes and territorial-based ways of living in at least three ways: (1) through the large-scale extraction of minerals and elements such as lithium, (2) the release of heat by data centres that employ vast amounts of energy to store and process data and (3) the electronic waste generated by the dumping of digital devices (Ensmenger, 2018). Certainly, the environmental awareness over the environmental costs of data is an emergent phenomenon whose effects might not be as clear as in the case of platformisation and digital sovereignty. However, different grassroots mobilisations and regulations are already seeking to address the environmental damage brought about by data circulation, which makes this phenomenon one that is worth paying attention to. Facebook and Google are reconsidering their intention to build data centres in the Netherlands (Roach, 2022) and Chile (Arellano et al., 2021), respectively, in light of the opposition of local communities. As these examples show, the association of data with environmental damage is threatening the expansion of the infrastructure that makes data production and circulation possible in the first place. It is expected that this phenomenon will become an increasingly relevant source of friction as the environmental cost of data circulation becomes clearer to local organisations and regulatory bodies.

Some might argue that data protection initiatives implemented over the last few years could also be introducing data turbulence. However, as Julia Cohen argues, the free circulation of data has been facilitated by an 'enabling legal construct' (Cohen, 2019: 48) that would take decades to dismantle. As I discuss in the next section, the three aforementioned sociotechnical shifts – the platformisation of the web, the rise of digital sovereignty and an increasing environmental awareness – present a challenge to the way research has addressed data friction.

The limitations of data friction

Despite the contribution of the concept of data friction, recent sociotechnical shifts as the ones I described earlier have rendered this notion ill-equipped for grasping the implications of a planetary data-turbulent conjuncture. Perhaps the clearest demonstration of this is the fact that work on data friction has not yet addressed the rise of digital sovereignty, one of the most relevant forces impinging upon the free circulation of data at a

world scale. Two main reasons can explain such relevant oversights: these studies' emphases on technosciences and materiality.

As I explained earlier, Edwards formulated his concept of data friction in relation to climate science efforts to build a global knowledge infrastructure. Many of the studies employing this term have also examined technical or scientific contexts. To some extent, this choice is not surprising. Before planetary data turbulence, the most obvious way to find out about the politics of data was by turning to those working closely with vast volumes of data, such as engineers and scientists. Moreover, work conducted in the register of science and technology studies (STS) has a long tradition of reflections on the role of data in knowledge generation. One example of this is Bruno Latour's (1999) concept of 'immutable mobile' through which he sought to explain how truths-claims could travel without losing stability. Nowadays, accounts originating from fields such as political economy (Couldry and Mejias, 2019; Srnicek, 2016) and political theory (Beer, 2016; Bigo et al., 2019) have gained purchase as holistic frameworks to account for the relationship between data and society. Such shifts indicate that work on data friction would benefit from expanding its range of concerns to be able to speak to the current technopolitical conjuncture.

The second limitation of existing formulations of data friction is tightly connected to the first, and refers to this concept's primary concern with the materiality of data and its infrastructure. This aspect is already clear in Edwards' metaphor of 'friction', which takes its inspiration from the property of resistance present in physical systems. More profoundly, Edwards (2010) himself frames data friction as a predominantly material phenomenon when he states that, after all, 'underneath the glistering surface of free-flowing information, computing remains a *material* process' (p. 83; emphasis added). It is understandable that, when looking at groups working closely with data, data's physical material properties, such as its minimum but nonetheless existing weight, could become a relevant factor. Certainly, initial formulations did acknowledge that data friction also encompasses a social dimension, hence the use of terminology such as 'sociotechnical' (Edwards, 2010: 84) and 'sociomaterial' (Bates et al., 2016: 3). However, in the two aforementioned cases, the energy invested in elaborating on materiality contrasts with the lack of discussion on what exactly the 'social' means. In Edwards' case, even the non-material aspect is explained through a material analogy, as when he affirms that data frictions 'have both physical and social aspects, consuming both physical and human energy' (Edwards, 2010: 85).

Work on data friction has shown an interesting trajectory, moving from the sciences and engineering towards broader contexts such as digital platform use and bottom-up smart-city initiatives. However, this transition did not involve questioning the extent to which the conceptual baggage of 'data friction' has impeded drawing attention to, and undertaking a profound analysis of, broader political tensions and conflicts. Such a move is particularity relevant for studying the context of planetary data turbulence. As I show next, the work of Laclau and Mouffe on conflictuality can be particularly helpful for addressing data friction's limitations.

Antagonism, discourse and the case of digital sovereignty

Ernesto Laclau and Chantal Mouffe's political theory can be used to expand existing formulations of data friction due to this framework's emphasis on the ineradicably conflictual character of society. It is important to note that Laclau and Mouffe's proposal constitutes a

thorough theoretical framework informed by a broad range of strands of thought such as Marxism, psychoanalysis, poststructuralism and linguistics. Nonetheless, the account I provide below constitutes a selection of concepts that are particularly relevant for grasping the political forces underpinning data friction and turbulence. Since Laclau and Mouffe's work was formulated in a highly theoretical basis, I illustrate the analytical strengths of each concept with references to the articulation of 'digital sovereignty' in different contexts.

Foregrounding antagonism

As I argued earlier, one of the limitations of existing formulations of data friction is that they have not provided a clear account of what they mean by 'social'. It is in this regard where Laclau and Mouffe's understanding of 'antagonism' can be particularly relevant as a means to draw attention to the ineradicably political character of the forces shaping the circulation of data nowadays. This does not mean that antagonism is the *only* relevant category to look at but rather that it is in a privileged position to account for the type of conflicts taking place under planetary data turbulence.

The origins of 'antagonism' is tied to the context in which Laclau and Mouffe developed their ideas. Whereas many authors portrayed the political conjuncture opened up after the end of the Cold War as 'the end of politics', Laclau and Mouffe were of a very different view. For them, the emergence of movements such as gay and lesbian liberation and environmentalism required a different approach. In particular, for them political phenomena could not be reduced to the field of the state or the political parties. Instead, what they considered to be political phenomena criss-crossed all spheres of society, including seemingly neutral ones.

It was in this context that Laclau and Mouffe (2014) turned to antagonism, an element whose presence makes it possible to identify a phenomenon as properly political. In their account, antagonism has two main characteristics. The first is that, because antagonism traverses all areas of human activity, it is not restricted to the field known as politics. Actors might try to conceal or suppress antagonism, but it nonetheless always manages to endure even in the most apparently neutral fields, such as the sciences. Moreover, Laclau and Mouffe considered that the very constitution of the social is based on an ineradicable antagonism among different parties. In relation to data friction, turning to antagonism makes it possible to narrow down what it means to look at the 'social' dimension of the divergences obstructing the circulation of data.

In order to understand antagonism's all-encompassing character it is necessary briefly to discuss the theoretical grounds of Laclau and Mouffe's framework. A reasoning that is particularly relevant on this matter stems from linguist Ferdinand de Saussure, who argued that the construction of any identity always emerges based on a relational dynamic. For example, the meaning of 'dog' is derived to a large extent from that of 'cat'. Because of this, every identity, that is, everything that is taken to exist, has a 'constitutive outside' (Mouffe, 2000: 12), an exterior that both enables and threatens said identity. In the words of Mouffe (1993): '[T]he condition of existence of every identity is the affirmation of a difference, the determination of an "other"' (p. 3). As long as practices and discourse are intelligible, and regardless of their sphere, they are inevitably constructed through a logic of opposition.

Radicalising the consequences of Saussure's observation, an antagonism takes place when a particular identity is considered a threat to the realisation of another identity. In such cases, a constitutive outside becomes an enemy that needs to be destroyed or defeated so as to ensure the realisation of a given identity. In antagonism, 'the others, who up to now were considered as simply different, start to be perceived as putting into question *our* identity and threatening *our* existence' (Mouffe, 2013: 5, emphases in the original). It is important to note that in this article, I do not understand antagonism as a call for declaring war on or annihilating the other, but rather as inducing a change and symbolically undermining the identity of the threatening other.

Laclau and Mouffe's focus on antagonism can provide data friction with a different focus to the one that accompanied the formulation of the term. Attentiveness to antagonism can enable a two-way analysis in which the tensions and conflicts arising from the governance of data across sites and actors cannot be dissociated from existing societal conflicts and rivalries, and, at the same time, such conflicts and rivalries can also shape data circulation. Moreover, it is only when acknowledging antagonism that a political analysis of data friction can emerge. As Chantal Mouffe (2013) would say, '[i]t is only when division and antagonism are recognized as being ineradicable that it is possible to think in a properly political way' (p. 15). The fact that this dimension of the social has remained outside the immediate interest of data friction explains why works employing this term have overlooked relevant political phenomena shaping the production and circulation of data, such as the emergence of digital sovereignty.

Antagonism and digital sovereignty

The case of digital sovereignty, one of the phenomena ushering in planetary data turbulence, provides an excellent vantage point from which to illustrate the strengths of the notion of antagonism. Over the past decade, different actors have put into place a varied range of initiatives, policies and regulations that, under the rubric of 'cyber', 'data' or 'digital' sovereignty, have sought to reassert some degree of control over the generation and circulation of data and its associated infrastructure (Pohle and Thiel, 2020). Initiatives such as data localisation policies mandating companies to store their data within the national borders, or the development of bottom-up autonomous infrastructure, illustrate how digital sovereignty materialises in practice. Initially pushed by countries such as Brazil, Russia, China and India, sovereignty principles have also recently been adopted by a range of actors in Western liberal democracies, such as policymakers and activists, in their approach to digital technology (Couture and Toupin, 2019). The particular meaning of digital sovereignty differs in each context but, for the purposes of this article, it could be said that all articulations point to reassert the capacity of different subjects to exercise self-determination in a context of technologically facilitated globalisation. One of the consequences of such a stance is questioning of the idea that the free circulation of data can benefit everyone, everywhere.

Recent studies looking at the cases of China and Russia show the relevance of antagonism in the emergence of digital sovereignty frameworks. In the example of China, the notion of cyber sovereignty (*wangluo zhuquan*) emerged around 2010, when, along with Russia, that country put forward an international code of conduct on the Internet

based on sovereignty at the 2011 United Nations General Assembly. Since then, different initiatives, such as the so-called 'Chinese Firewall' filtering the exchange of data with outside countries, and the introduction of censorship technologies in cyber cafes, have also been regarded as part of cyber sovereignty. These measures have allowed the ruling Communist Party to exercise discretionary control over the circulation of information within its national borders, while at the same time coinciding with China's approach to foreign policy.

As Rogier Creemers (2020) argues, narratives of cyber sovereignty in China have tended to highlight its technical and regulatory dimension in a way that overlooks the fact that it emerged as part of a broader approach to global order tensions. In the Chinese case, the concern over sovereignty arose as a response to the imperialist actions of Western countries after the First World War, especially in relation to geographical concessions and the handing over of disputed territories to Japan. This situation shaped the Chinese Communist Party's approach to international law, which was conceived of as a field subject to power dynamics rather than to neutral rules. In the wake of the Cold War, and especially after the 1989 events in Tiananmen Square, ensuring stability became a primary objective for the Chinese government, transforming the support of sovereignty into a means for impeding international intervention. For Creemers, the articulation of 'cyber' and 'sovereignty' gained currency more recently as China came to understand technology as both a source of political control and a means for economic development. As this example shows, the rise of cyber sovereignty in China, which is currently shaping the production and circulation of data across its national borders, cannot be understood without attending to long-standing international antagonisms.

The embrace of digital sovereignty by Russia can be seen under a similar light. For example, Stanislav Budnitsky (2020) considers that, although Russia's advancement of digital sovereignty is usually attributed to Vladimir Putin's illiberal regime, there are relevant long-standing political factors behind the push for digital sovereignty that have not been seriously taken into account. Having enjoyed the position of a great power in the form of the Soviet Union during the Cold War, Russia has aimed over the past few decades to challenge the emergence of a unipolar world order based on the hegemony of the United States. Along those lines, initiatives such as the territorialisation of data and the active role of Moscow in instances such as the United Nations' (UN) International Telecommunication Union (ITU) respond to broader efforts to advance a multipolar world order, which also apply to the sphere of Internet governance; Budnitsky calls this vision *digital multipolarity.*

From the angle of antagonism, the emergence of cyber sovereignty in China and Russia, which is obstructing the circulation of data in countries with a great number of users, cannot be disassociated from attempts to build a multipolar world order and a desire for self-determination. To a large extent, these visions respond to an antagonistic relationship with the United States, which is perceived as the dominant player in the governance of the Internet and therefore better able to define the rules informing how and when data can circulate. Going back to the concept of data friction, foregrounding antagonism makes it possible to identify how, besides *material* factors, rivalries such as the ones exposed in this section can shape the production and circulation of data.

Discourse and semantic struggles

It was argued earlier that existing conceptualisations of data friction have tended to focus on the analytical dimension of 'materiality', that is, the capacity of data and its infrastructure to shape its generation and flows. The issue with this choice is that paying a close attention to materiality does not guarantee that antagonism would come to the surface, running the risk of overlooking the political forces shaping the circulation of data. Seeking to address this gap, in this section, I propose that studies of turbulence need to pay attention to 'discourse', which I approach here as developed by Laclau and Mouffe. This analytical dimension can complement the emphasis on materiality present in works on data friction, and is particularly well-suited for underscoring the political character of the tensions and conflicts underpinning data turbulence.

A good starting point is to explain why it would be necessary to attend to discourse in the first place. For Laclau and Mouffe, material phenomena do not have a political character in themselves. They explain this point through an example: '[t]here is nothing antagonistic in a crash between two vehicles: it is a material fact obeying positive physical laws' (Laclau and Mouffe, 2014: 109). It is only when material phenomena such as data friction are constructed on the basis of antagonism that they become political in the strict sense. And since antagonism responds to the rules of intelligibility, it is only by looking at how actors make sense of reality that the political can be grasped analytically. Discourse analysis seeks to precisely do that.

In Laclau and Mouffe's discourse theory (DT), meaning-making constitutes a field of struggle in which different accounts seek to construct reality in a particular way. From this angle, a discourse represents 'a structure in which meaning is constantly negotiated and constructed' (Laclau, 1988: 254). Differing discourses construct meaning in different ways, making some things appear as simply 'natural' and others as subject to debate and contestation. Moreover, discursive struggles never achieve total fixity. Following Saussurian linguistics' idea that the connection between the sign and the signifier is always arbitrary, all discourses are contingent since they could have been different. The always contested character of discourse grants Laclau and Mouffe's DT a particular sensitivity to tension and conflict, a relevant point for enabling a political analyses of data friction.

DT claims that *all* phenomena are both discursive and material at the same time. For Laclau and Mouffe (1990), all practices, including seemingly material ones such as constructing a wall (p. 100), are discursive inasmuch as they are intelligible. As Nico Carpentier would argue, discourse and materiality are always interacting, and none of them have the power to determine the other one. Following this logic, concrete forces shaping the circulation of data, such as regulation and governance initiatives, are not *either* material *or* discursive but both at the same time. Unfortunately, Laclau and Mouffe did not provide guidance on how to conduct analyses sensitive to these two dimensions, but recent proposals such as Nico Carpentier's (2017) discursive-material analysis (DMA) have put forward thorough frameworks where both discourse and materiality are understood as mutually constituted and deeply entangled.

Without paying attention to discourse it is impossible to foreground antagonism, generating a situation in which physical phenomena such as the rules of motion can gain an excessive weight in analyses of data flows. Discourse matters because it makes it possible

to foreground the antagonistic character of the decisions underpinning the introduction of regulations and protocols under planetary data turbulence. For example, data territorialisation initiatives certainly comprise material aspects such as laws and capacity building, but discourses of industrial development and nation-state sovereignty are equally relevant forces underlying the introduction of such measures.

Based on Laclau and Mouffe's theory, in the next section, I undertake a brief analysis of the discursive struggle underpinning 'sovereignty' in relation to the digital. As I will show, an important dimension of digital sovereignty encompasses a struggle over the meaning of 'sovereignty' in the context of technology-driven globalisation.

Digital sovereignty as a discursive struggle

Attending to discourse provides the analysis of digital sovereignty, and data friction, with an additional layer of complexity. In particular, it shows that digital sovereignty also constitutes an attempt to fix certain understandings of what exercising sovereignty, or the very word 'sovereignty', means in the context of technology-driven globalisation. At stake in this struggle is the opportunity to make a well-established principle, that is, sovereignty, work in favour of the vision and interests of particular actors.

The first and broadest struggle over meaning underpinning 'digital sovereignty' concerns *who* is able to exercise control and self-determination. The notion of sovereignty became relevant in the so-called Age of Discoveries (Anghie, 2013), when it worked as a justification for colonialist rule inasmuch as it divided the world into those with sovereignty and those without sovereignty, providing European empires with legitimacy to dominate the colonies. In an interesting move, sovereignty and digital sovereignty are mobilised nowadays as a means to highlight the capacity of non-Western countries to rule themselves and to reject the hegemony of the United States and other countries. The fact that some of the first mobilisations of digital sovereignty were put into place by Brazil, Russia, India and China in the wake of the Snowden revelations (Zhao, 2015) confirms this idea.

A second discursive struggle taking place in relation to digital sovereignty points to divergences over whether sovereignty is a principle compatible with the essence of the Internet. Initially, the rise of the Internet was accompanied with an emphasis on its decentralised architecture and bottom-up governance model. Such observations translated into the idea that nation-states would not be able to exercise sovereignty in the same way that they do in the 'offline' realm. However, this vision is not shared by those sustaining digital sovereignty. For them, the technical architecture and governance model undergirding the circulation of digital data respond to a large extent to the interest and vision of the United States. For example, a relevant actor in the governance of the Internet is the Internet Corporation for Assigned Names and Numbers (ICANN), a private entity in charge of the management of the domain name system of the Internet. As an effect of the efforts of China and Russia, since 2016 ICANN does not have formal links with the United States government (Creemers, 2020: 119). From this angle, 'digital sovereignty' also entails a divergence regarding whether exercising 'sovereignty' over the global Internet network is possible in the first place.

Finally, the semantic struggles associated with digital sovereignty also comprise divergences between different articulations of the term emerging in different regions of

the world. Over the past decade, this notion has been applied in relation to different and even divergent political projects. The cases of Germany and Latin America provide two examples of this. In the former case, one of the components of the digital sovereignty discourse entails a claim over the right of individuals to exercise citizen and consumer rights, and to create the conditions for an autonomous and deliberative engagement with technologies (Pohle, 2020). In Latin America, the notion has been mobilised by grassroots groups, such as activist and local communities, developing alternatives to counter what are considered the imperialist and colonialist dynamics conducted by transnational technology companies (Ricaurte and Grohman, 2021). In this way, the Chinese, Russian, German and Latin American articulations encompass divergences regarding the continuity of imperialist means through Internet governance, whether it is possible to imbue 'sovereignty' into the governance of digital networks and who is the sovereign subject.

It is tempting to think of digital data, networked systems and technology governance as 'technical' issues rather than discrepancies regarding meaning-making. However, I have shown that analyses of digital sovereignty should not undermine the extent to which data turbulence is emerging as a consequence of discursive struggles. Without attending to discourse, planetary turbulence could be regarded as a mere physical phenomenon shaped by the constraints posed by the material properties of data and its infrastructure. Foregrounding discourse reveals that measures aimed at obstructing the free circulation of data do not only respond to data's physical properties or to 'social' phenomena broadly defined; instead, adopting the lens of discourse foregrounds the importance of meaning struggles in decisions regarding data circulation. Under this lens, it is not a coincidence that so far studies on data sovereignty have not employed data friction as a privileged conceptual lens. As I argued earlier, data friction's focus on materiality does not provide the required tools to delve into the clearly political forces leading to the articulation and adoption of digital sovereignty.

Addressing these limitations, in the provided framework, existing initiatives inspired by sovereignty are seen as intertwined with long histories of geopolitical rivalries and struggles over the meaning of sovereignty. In the vocabulary of discourse theory, digital sovereignty has become what Ernesto Laclau called a 'floating signifier', that is, a sign 'that different discourses struggle to invest with meaning in their own particular way' (Jørgensen and Phillips, 2002: 28). In the cases I explored, discourses of state power, self-determination and individual and collective rights are filling 'digital sovereignty' with different content to make it work in relation to different political projects.

Conclusion

This article has proposed a framework to conceptualise the current global and technopolitical conjuncture of planetary data turbulence. In particular, it has argued that the platformisation of the web, the rise of digital sovereignty in data and Internet governance and an increased awareness of the environmental costs of digital technologies have given rise to a technopolitical conjuncture marked by conflict and divergence regarding the production and circulation of data on a world scale. The notion of 'turbulence' implies that in the current context, the phenomenon of data friction has become the norm. Unlike after the turn of the 21st century, when it was necessary to underline that data does not simply 'flow', the current situation is one in which states and other actors are questioning the

ideal of free data circulation and introducing concrete measures to oppose it. Whether it is through developing siloed platforms or putting into place a 'Great Firewall', a diverse set of actors are asserting their capacity to shape the generation and movement of data.

In addition to the above, this article has argued that the current conjuncture requires a reconceptualisation of data friction, a notion that has been employed to identify and explore the tensions and conflicts emerging in relation to the circulation of data. Data friction was proposed by Paul Edwards in relation to global efforts to build a climate science knowledge infrastructure. In his wake, more recent work has employed the term in order to look beyond the sciences, demonstrating that this concept's focus on technosciences and materiality has rendered it impervious to relevant phenomena for the circulation of data, such as the emergence of digital sovereignty.

To address the limitations of existing accounts of data friction, this article turned to Ernesto Laclau and Chantal Mouffe and advocated for incorporating antagonism and discourse as two relevant concerns into the exploration of data flows. When approached in this way, conflicts of a predominantly political character and struggles over meaning become relevant phenomena impeding the free circulation of data. This piece provided a glimpse of how such a political analysis of data friction would look by referring to the emergence of digital sovereignty governance principles, one of the most relevant forces shaping the movement of data, but one that has remained outside the radar of studies on data friction. Departing from previous approaches to data friction, I unpacked the political dimension of this phenomenon by referring to the historical geopolitical divergences (antagonism) and struggles over the meaning of 'sovereignty' (discourse) as relevant considerations when looking at the forces generating friction.

Finally, it is important to note that, although antagonism and discourse constitute fundamental lenses for approaching data friction, by no means are they the only analytical categories relevant for grasping planetary data turbulence. Two examples of this are work in the line of political economy that would emphasise the global distribution of labour and feminist inquiries on the analytical category of affect. Certainly, attending to such dimensions of the problem might provide a more holistic account. But, reiterating the ideas expressed in this article, it is important to note that accounting for antagonism and discourse represents a basic condition for grasping the eminently political dimension of the forces generating data turbulence at the current technopolitical conjuncture.

Author notes

The author has agreed to the submission and the article is not currently being considered for publication by any other print or electronic journal.

Acknowledgement(s)

I appreciate the valuable feedback and support provided by Ella McPherson, Sharath Srinivasan, Kat Higgins, Tomás Ojeda and Carrie Hamilton. I am also grateful to the anonymous reviewers, whose attentive reading made it possible to strengthen and clarify the arguments of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Sebastián Lehuedé https://orcid.org/0000-0003-0432-8727

References

Anghie A (2013) Western discourses of sovereignty. In: Evans J, Genovese A, Reilly A, et al. (eds) *Sovereignty: Frontiers of Possibility*. Honolulu, HI: University of Hawai'i Press, pp. 19–36.

Appadurai A (1996) *Modernity at Large: Cultural Dimensions of Globalization*. Minneapolis, MN: University of Minnesota Press.

Arellano A, Cifuentes L and Ríos C (2021) *Las zonas oscuras de la evaluación ambiental que autorizó 'a ciegas' el megaproyecto de Google en Cerrillos* [The Dark Zones of the Environmental Assessment that 'Blindly' Authorised Google's Megaproject in Cerrilos]. Available at: https://www.ciperchile.cl/2020/05/25/las-zonas-oscuras-de-la-evaluacion-ambiental-que-autorizo-a-ciegas-el-megaproyecto-de-google-en-cerrillos/

Aula V (2019) Institutions, infrastructures, and data friction – reforming secondary use of health data in Finland. *Big Data & Society* 6(2): 1–13.

Barreneche C (2019) Data corruption: the institutional cultures of data collection and the case of a crime-mapping system in Latin America. *Canadian Journal of Communication* 44(3): 343–350.

Bates J (2018) The politics of data friction. *Journal of Documentation* 74(2): 412–429.

Bates J, Lin YW and Goodale P (2016) Data journeys: capturing the socio-material constitution of data objects and flows. *Big Data and Society* 3(2): 1–12.

Beer D (2016) *Metric Power*. New York: Palgrave Macmillan.

Bigo D, Isin E and Ruppert E (eds) (2019) *Data Politics: Worlds, Subjects, Rights*. London: Routledge.

Budnitsky S (2020) Russia's great power imaginary and pursuit of digital multipolarity. *Internet Policy Review* 9(3): 1–25.

Carpentier N (2017) *The Discursive-Material Knot: Cyprus in Conflict and Community Media Participation*. New York: Peter Lang.

Castells M (2010) *The Rise of the Network Society*. 2nd ed. London: Wiley-Blackwell.

Cohen J E (2019) Between Truth and Power: *The Legal Constructions of Informational Capitalism*. Oxford: Oxford University Press.

Couldry N and Mejias UA (2019) *The Costs of Connection: How Data Is Colonizing Human Life and Appropriating It for Capitalism*. Stanford, CA: Stanford University Press.

Couture S and Toupin S (2019) What does the notion of 'sovereignty' mean when referring to the digital? *New Media & Society* 21(10): 2305–2322.

Crabtree J (2018) *Cambridge Analytica Is an 'Example of What Modern Day Colonialism Looks Like,' Whistleblower Says*. CNBC. Available at: https://www.cnbc.com/2018/03/27/cambridge-analytica-an-example-of-modern-day-colonialism-whistleblower.html

Creemers R (2020) China's conception of cyber sovereignty: rhetoric and realization. In: Broeders D and van den Berg B (eds) *Governing Cyberspace: Behavior, Power, and Diplomacy*. London: Rowman & Littlefield, pp. 107–144.

Douglas-Jones R, Walford A and Seaver N (2021) Introduction: towards an anthropology of Data. *Journal of the Royal Anthropological Institute* 27: 9–25.

Edwards PN (2010) *A Vast Machine: Computer Models, Climate Data, and the Politics of Global Warming*. Cambridge, MA: MIT Press.

Edwards PN, Mayernik MS, Batcheller AL, et al. (2011) Science friction: data, metadata, and collaboration. *Social Studies of Science* 41(5): 667–690.

Ensmenger N (2018) The environmental history of computing. *Technology and Culture* 59(4): S7–S33.

Helmond A (2015) The platformization of the web: making web data platform ready. *Social Media & Society* 1(2): 1–11.
Jørgensen M and Phillips LJ (2002) *Discourse Analysis as Theory and Method*. Thousand Oaks, CA: SAGE.
Laclau E (1988) Metaphor and social antagonisms. In: Nelson C and Grossberg L (eds) *Marxism and the Interpretation of Culture*. New York: MacMillan, pp. 249–267.
Laclau E and Mouffe C (1990) Post-Marxism without apologies. In: Laclau E (ed.) *New Reflections on the Revolution of Our Time*. London: Verso, pp. 97–134.
Laclau E and Mouffe C (2014) *Hegemony and Socialist Strategy: Towards a Radical Democratic Politics*. 2nd ed. London: Verso.
Latour B (1999) Circulating reference: sampling the soil in the Amazon forest. In: Latour B (ed.) *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, MA: Harvard University Press, pp. 24–79.
MacAskill E and Dance G (2013) NSA files decoded. What the revelations mean for you. *The Guardian*, 1 November. Available at: https://www.theguardian.com/world/interactive/2013/nov/01/snowden-nsa-files-surveillance-revelations-decoded
McCray WP (2014) How astronomers digitized the sky. *Technology and Culture* 55(4): 908–944.
Mouffe C (1993) *The Return of the Political*. London: Verso.
Mouffe C (2000) *The Democratic Paradox*. London: Verso.
Mouffe C (2013) *Agonistics: Thinking the World Politically*. London: Verso.
Mueller M (2017) *Will the Internet Fragment? Sovereignty, Globalization, and Cyberspace*. New York: Polity.
Plantin JC, Lagoze C, Edwards PN, et al. (2016) Infrastructure studies meet platform studies in the age of Google and Facebook. *New Media & Society* 20: 293–310.
Pohle J (2020) *Digital Sovereignty: A New Key Concept of Digital Policy in Germany and Europe* (Research Paper). Bonn: Konrad Adenauer Stiftung.
Pohle J and Thiel T (2020) Digital sovereignty. *Internet Policy Review* 9(4): 1–19.
Powell AB (2021) *Undoing Optimization: Civic Action in Smart Cities*. London: Yale University Press.
Ricaurte and Grohman R (2021) *Data Sovereignty and Alternative Development Models*. Bot Populi. Available at: https://botpopuli.net/data-sovereignty-and-alternative-development-models/
Roach A (2022) *Meta Halts Plans for Large Dutch Data Center on Rising Opposition*. Available at: https://www.bloomberg.com/news/articles/2022-03-29/meta-halts-dutch-mega-data-center-plans-amid-rising-opposition
Spivak GC (2003) *Death of a Discipline*. New York: Columbia University Press.
Srnicek N (2016) *Platform Capitalism*. London: Wiley.
The Economist (2017) *The World's Most Valuable Resource Is No Longer Oil, but Data*. London: The Economist.
World Economic Forum (2015) *Data-driven Development: Pathways for Progress*. Geneva: World Economic Forum.
Zhao Y (2015) The BRICS formation in reshaping global communication: possibilities and challenges. In: Nordenstreng K and Thussu DK (eds) *Mapping BRICS Media*. London: Routledge, pp. 66–86.

Author biography

Dr Sebastián Lehuedé is a Postdoctoral Scholar at the Centre of Governance and Human Rights at the University of Cambridge. His research examines the governance of digital technologies from a global social justice perspective, looking at cases such as astronomy data in Chile and the geopolitics of digital rights.