Introduction to post-factual politics

'Don't bother me with facts' is no longer a punchline. It has become a political stance. (Higgins 2016)

I was nine years old when Czechoslovakia underwent the 'Velvet Revolution'. A substantial part of the regime change in the country was the exchange of textbooks at schools. The history books were focused on mainly because they were evaluating history from the point of view of communist ideology that had reigned in the country since 1948. All these books were brought into the cellar in our school's basement. There were tons of them. 'Why would we get rid of so many books?' I asked our teacher. 'They're not true anymore,' she replied. It was a strange feeling. That feeling did not go away, as I encountered some of these books during my first year at the university. We found older textbooks of French history in the library that were complemented by ideological evaluations of historical events. We used some of these textbooks because there were good summaries of events that helped us to orient faster in our courses. Sometimes, we talked about it during breaks: that we could tell which paragraphs were added so as to comply with the ideology. These paragraphs would even be in chapters about the history of the Middle Ages. We laughed about that because we thought it naïve to imagine that a paragraph could change people's minds.

The smile slowly disappeared from my face as I progressed in my studies, while the strange feeling I had as a little girl staring at the tons of history books which were not true anymore stayed with me. That it could be otherwise, that there is another story to be told, and that our cognitive biases can be more powerful than we would admit to ourselves, is thus the point of departure of this book, proposing to look at truth through the lens of emotions. It is possible that by the time this book is in your hands, post-factualism used as a discursive label for describing the alleged crisis of expertise in politics has become part of history. The disinformation campaigns of populist movements and online magazines will have been rolled back, and the declaration of an attack on truth analysed in this book will no longer seem to be a threat to scientists and to democracies. The trend to describe political fights and public controversies as symptomatic of a trend to praise emotions and moods over facts will have reversed. However, it is precisely this recurrent manifestation of an attack on truth

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through emotional appeals that needs to be put under analytical scrutiny. We need to shift our attention away from identifying the times we live in as 'post-factualism', toward the discursive registers and binary oppositions that lie behind such identifications.

The discussions on post-factualism have returned to the spotlight the well-worn arguments that truth is a social construction, that it is full of power plays and has never been really a virtue in politics. Critical inquiry into truth production, as proposed in this book, does not mean advancing relativist positions on truth. That we can distinguish critical inquiry from the undermining of scientific knowledge, that we can distinguish ambiguity of expertise from exploitation of that ambiguity by science denial, is at the heart of the discussion this book wants to spark. To achieve this, we must analyse the discursive registers through which we talk about emotions and emotional appeals in both science and politics. The book thus aims to turn attention to the ways in which people's understanding of facts is mediated through emotional appeals to certain values and beliefs, that may well conceal the way in which emotions play a role in science and expertise, and also in politics.

It is also possible that by the time this book is in your hands, truth, as we knew it, has become part of history. The institutions that have been established within modern democracies as custodians of truth, to the extent that they have been delivering more or less socially robust and fact-based knowledge to support governments in organizing societies, will have lost their governing power. Misinformation campaigns will have become the new normal, and dominate political opinion. No one will care any longer what the facts are; everything will be regarded as mere opinion. This is what people I talked to in American academia during 2017 have feared since Donald Trump became the President of the United States. This is what they have been writing on their blogs; this is what they went onto the streets for. Was it too far-fetched to think that? This book does not give an answer, as its aim is not to be an 'if-then' book about post-factual politics. The book takes this atmosphere of fear and anxiety as a point of departure to reflect upon the emotional dynamics of truth and truth production that has an impact on the interrelation of science and politics.

The reflection in the following chapters shows that modern democracies have used science – its rationality, objectivity and neutrality – as a discursive register to legitimize their actions, and have succeeded in hiding behind the veil of science the notion that knowledge is emotionally embedded, and involves irritations, anxieties or hopes. The year 2017 reveals a perfect mirror to show us how science and politics have been sustained in a dominant socio-political order of modern democracies that needs to unpack its relation to how it has referenced emotions. To fight the

post-factual argument that everything is relative, and that everything can be true from certain angles, we must turn our attention to the binary of factual knowledge and emotions that is constitutive of this socio-political order. Although we have been abundantly reminded by science and technology studies that knowledge is socially interdependent (Nowotny 2003), and that interests and values coproduce truth (Jasanoff 2005), we seem to have overlooked that these values and interests are presented either as 'factual' or 'emotional' in the public discourse of science, and we lack a diversified language on emotions to understand these presentations. The analysis proposed in this book thus makes a move from 'truth' towards its 'scenography' in public debate, that is, to the analysis of discursive registers – codes, narratives and rhetorical figures – that are used to present the truth as something against emotions and emotional appeals, and to characterize the actors who defend truth as well as agencies that are affected by it as being on the side of facts and, subsequently, not on the side of emotions. The analytical turn to these particular ways of presenting and mediating facts displays that while the discourse on post-factual politics blames emotions and the 'emotional public' for disturbing and undermining the rational scientific and expert inquiry, the factual and emotional components are actually interrelated.

The analysis suggests two specifics dimensions of that interrelation. On the one hand, it introduces the term 'vexatious knowledge' to bring to our attention that new discoveries and new facts always subvert the established truth around a phenomenon and, since this subversion involves emotions, vexatious knowledge challenges the way our societies have imagined the rationality and objectivity of scientific knowledge as something that would be opposed to emotions.[1] On the other hand, the book revises the notion of 'partisanship' in science and in truth production more generally. Including emotions in the presentation of facts has been traditionally imagined as subverting the neutrality of scientific knowledge, and this perception persists in the discourse on the March for Science; yet the book shows through its examples that emotions are part of scientific practices. Unpacking the emotional dynamics of science – and reflecting upon the role of emotions for both scientists and scientific discoveries – does not mean to advance relativist positions or even to support science denial, but rather to reflect more accurately the interests and values that are produced and reproduced by science that often remain unspoken by the current public discourse on science.

Nobody was really surprised when, in 2016, the *Oxford English Dictionary* named 'post-truth' the word of the year. Many political events over the course of the year exposed the failure of facts and academic expertise to reach citizens of Western democracies. The June 2016 Brexit

vote in the United Kingdom was repeatedly cited as an illustration of the dichotomy between 'the people' and 'experts'. The underlying argument of that dichotomy was that truth is placed in the hand of experts who should, or need to, persuade the public. Political events have thus increasingly been analysed through the lenses of misinformation of the public that seem to get in the way of experts' knowledge. During the United States (US) presidential campaign, the spread of so-called 'fake news' was subsequently investigated as a related phenomenon to this dichotomy. Indeed, the spread of fake news was much faster than the spread of actual news, as multiple analyses reported (Doshi et al. 2018; Fourney et al. 2017; Howard et al. 2017; Shao et al. 2017). These analyses confirmed the general trend of easy, eager and rapid spreading of lies through social platforms (Vosoughi et al. 2018) and through changes in the media landscape and media communication in general (Polletta and Callahan 2017). Donald Trump won the 2016 election despite not telling the truth in his interviews, rallies and statements to the press. Political analyses of his victory brought by the media concluded that, by inventing an image of himself as the anti-expertise, anti-Washington establishment guy among the candidates, Trump was the magnet that drew supporters and then suddenly crushed the hopes of the Democratic Party in November 2016, which both experts and media had expected to become Hillary Clinton's presidential party. So it seemed, to many, that 'people' do not really care about truth any more.

And so the year 2017 began with Donald Trump, as the 45th President of the United States, lying about the crowd size at his inauguration, labelling media reports that disclosed this inaccuracy as 'fake news', and introducing through his Counsellor Kellyanne Conway the term 'alternative facts' (Graham 2017) to dispute any critique about the inaccuracies of his statements on any subject. This clash was followed by CNN, the *New York Times*, the BBC, the *Guardian*, and other media outlets critical of the new administration, being banned from White House press briefings. With such stories as these, a fracture in the institution of truth that we thought to be a cornerstone of the delivery of facts for democratic governing was already beginning to be exposed. Not that it would be new to lie in politics; it just seemed that the political legitimacy of truth has been recurrently perverted and parodied by misinformation campaigns, media shaming and, most importantly for this book, by a marginalization of science in shaping policies reaching to the top positions in the US administration. The hypothesis of Russian meddling in the US presidential election (that story is still developing as of the time of writing in spring 2018), during which fake accounts on Facebook and Twitter were established with the intention of influencing public opinion by spreading and sharing fake news, was followed by an investigation that uncovered disturbing

meetings of Trump campaign members with Russian representatives, and undermined further the legitimacy of the Trump presidency, marked by historic plunges in presidential popularity and trust in government. At the same time, the disappearance of the climate change agenda from the White House website immediately after Trump took office, and subsequent actions by his administration to sideline scientific expertise (reported and screened by Sabin Center for Climate Change 2017) – most prominently by the Environmental Protection Agency (EPA)[2] – highlighted for many the urgent need to take action. Journalists started to struggle to understand this assault on all possible points of reference of what used to be the rationality of democratic governing and its legitimacy and accountability assured by a free media and uncensored science.[3]

While the investigation of the role of truth in politics is hardly new, and actions to ban the media from revealing uncomfortable information about those who govern have made waves in politics before, the year 2017 brought into play a new dimension: the active and explicit engagement of scientists in the public defence of truth. When science has been on the political negotiation table, scientists have in the past stood up for fact-checking and signed petitions for maintaining or increasing public funding of science. This time, however, many took to the streets to defend the public value of science, defending the core of scientific inquiry outside their ivory towers and beyond the usual science advocacies. Many of them stood up against the Trump administration explicitly, seeing its attack on science as an attack on values of democracy, which subsequently ought to be actively defended through highlighting the need for scientific expertise in the democratic political order. The early high point of this defence was the organization of the March for Science in April 2017, which represents the main area of analysis in this book. Although in the US context the discussions around what the march framed as 'the attack on truth' were directly connected to concrete political developments in the science policies of the Trump administration,[4] they were also framed by the public discourse surrounding the march as a crucial moment of the failure of scientific truth in the Western world. Through this emphasis on the attack on truth, the march extended the global reach of the narrative that democracy is under siege because facts are threatened by ever-growing ignorance of science, among both those who govern and the emotional publics that believe them. Activities around the March for Science echoed the urgent call by many within the scientific community beyond the US context for scientists to stand up against post-truth movements and to defend systematic scientific inquiry (Brown 2016; Higgins 2016; Kucharski 2016; Suiter 2016). Initiatives to track the actions of the US government to control science by way of appointments to leadership functions in scientific bodies,

and to report on censorship or misinterpretation of scientific facts by the Trump administration, have further strengthened this call.

Aimed at uniting all the actors in civil society of Western democracies in a defence of truth and science as the custodians of democratic governing, US scientists' initiatives that sprang up in 2017 made apparent several contestations in the way science is performed as opposed to emotional appeals. This book argues that 'truth', 'expertise' and 'fact' have been legitimized through their opposition to 'emotions', to societal moods and anxieties, and to irritations that might arise when science is discussed by the public and in politics. The following analysis in this book uncovers that while scientific expertise is legitimized as a 'fact' or 'truth' through the alleged neutrality and objectivity of science, it is actually coproduced by a binary of factual knowledge and emotions. This binary becomes a powerful discursive register, privileging some orders of knowledge and some types of arguments. Specific ways of referencing emotions and evaluating emotions in public discourse form a substantive part of it. The analysis thus shows how emotional appeals to facts operate inside scientific knowledge, and explains the consequences that the strict separation between emotions and facts has for post-factual politics. The manifestation of this opposition of facts to emotions as core to science and expertise is thus the angle of investigation of the notion of truth in this book.

In particular, the March for Science, orchestrated as a momentum of celebration and of public defence of science and truth by scientists together with civil society, uncovers that science's ties to civil society are fairly ambivalent. On the one hand, the analysis shows this ambivalence through the uncertainty of whether and how scientists should perform their public defence of science's role in stating truth, without being viewed as detached and arrogant experts. On the other hand, this ambivalence shows a necessity to reflect on the emotional dynamic that becomes part of scientific discoveries. That truth appears as a 'vexatious knowledge' has consequences for the enrolment of the public debate, because emotions appearing in the context of any new information can easily be misinterpreted as opposed to facts and not as an intrinsic part of them. Similarly, in blaming someone's 'partisanship' based on their emotionality, or on the emotionality of the debate that the scientific discovery sparks, the distinction becomes blurred between what is a scientific breakthrough and what just parodies it in order to support particular interests in politics. To illustrate this ambivalence, the analysis of the March for Science is further contextualized by the Silencing Science Tracker and the Harvard University's Program on Science and Technology Studies blog *First 100 Days*, and their roles in the public debate. The Silencing Science Tracker, a joint initiative of the Sabin Center for Climate Change Law and the

Climate Science Legal Defense Fund, which started to monitor Trump's 'anti-science behaviour' after his election and continued to do so throughout 2017, shows that the way scientific facts feed into political discourse contains emotional dynamics. The March for Science offered a concrete stage upon which to react to the American political 'attack on truth' and science, and offered imaginations of science, politics and partisanship that were extensively discussed by the *First 100 Days* blog launched by the Harvard University's Program on Science, Technology and Society prior to the proclamation of the March for Science. This blog followed the narrative of 'normalization' and 'disruption' that the Trump administration set forth with its agendas. This blog has thus put the events into the larger context of the role of scientists in the defence of democracy, done mainly by the Center for Science and Democracy mounted by the Union of Concerned Scientists who were among the first to endorse the movement of marching scientists.

The 'attack on truth' and the discussion around the rise of post-factualism is usually portrayed by all these actions as a threat to the rationality of modern governing. To understand these actions, we must understand how the rationality of governing operates through truth, while simultaneously framing it. We know from Michel Foucault that 'truth' indeed organizes the rationality of governing, as it implies that the state does not act in the name of the evil interests of some irrational actors, but that it develops policy measures that will bring health and wealth to its population. This does not mean that the true knowledge asserted by those who govern is universally accepted, or that it is interpreted univocally. The pledge to act upon truth is a discursive register making power legitimate (Foucault et al. 2004; Howarth 2010; Foucault et al. 1997; Foucault 2008). We also know from Michel Foucault that the rationality of governing must therefore be submitted to a subtle socio-cultural and historical analysis of language codes, metaphors and narratives – discursive registers – that hold it together. Through these discursive registers we can understand how power is made legitimate and how it subsequently governs through concrete policy measures seen as 'rational' (Foucault 1966, 1990, 1971; Diaz-Bone 2006; Lorenzini and Tazzioli 2016; Lemke 2000). In modern Western governments, such legitimacy of policy measures has to a large extent been claimed through scientific truth: fact-based knowledge gained through a supposedly objective, neutral and rational inquiry. The book aims at understanding the socio-cultural and historical background of the discursive register, through which 'scientific truth' has operated and continues to operate as opposed to emotions. The criteria and the debate over what counts and what does not count as scientific evidence henceforth enters front and centre in political analysis.

Such opposition calls for the analysis of discursive registers that have caused scientific truth to be viewed as something beyond personal interests and beyond ideological divides, and that have made scientific expertise the indisputable condition of modern political rationality, precisely because it excludes emotions. The rationality of modern democratic governing has been coproduced by science (as abundantly discussed in the scholarship on science and policy, such as in Torgerson 2013; Braun and Kropp 2010; Jasanoff 2003a; Nowotny 2015), and this coproduction has created what this book conceptualizes as the cultural ascendency of scientific knowledge. To understand the current post-factual politics with its attacks *on* science, we need to understand that, through the creation of its legitimacy, the rationality of governing creates a powerful dichotomy of rational and non-rational that – in the public defence of truth – is manifested through the binary of factual knowledge and emotions. The cultural ascendency is subsequently sustained through this binary opposition of factual knowledge to all sort of emotional appeals, and the analysis turns to particular scenographies of truth that make scientific knowledge appear 'neutral' and 'objective'.

Numerous scholars have already submitted that the Enlightenment, with its focus on civic authority and rationality (Kant 2004; Mignolo 2009; Porter 1996; Weber 1926), was the main source of such cultural ascendency of scientific knowledge. Together with the rise of Western industrial societies, the Enlightenment engendered the need for scientific expertise as a 'sound knowledge' to support politics. This sound knowledge has framed politics in developing 'instruments', 'designs' and other institutional settings to advance measures to govern societies (as shown in the analysis of, for example, Lascoumes and Le Galès 2007; Le Galès 2016; Lasswell 1971; Torgerson 1985; Majone 1989; Fischer 2015). That same cultural ascendency has been simultaneously challenged by the right to know the truth; the crucial pillar of liberal democracies, that gives the people the right to ask, to demand clarification and to hold the governing elites accountable for their eventual misinformation or lies. These circumstances gave rise to a discursive arena, in which scientific expertise can be debated, defended, believed in, but also denied, contested and challenged. The advent of the post-war 'evidence-based' policy analysis working with the sound knowledge coming from science, although supposedly adhering to the principles of cultural ascendency of scientific knowledge, also signals a dramatic retreat from what had been the roots of the orientation of modern politics: the very idea that policy is to be based on rational, neutral and objective knowledge. Opening knowledge toward the right to know the truth, and toward the debate what counts as 'fact' or 'evidence', puts forward the argumentation and the performance of that knowledge (Fischer 2003;

Fischer and Forester 1993; Gottweis 1998, 2003; Majone 1989; Stone 2002; Wagenaar 2011; Yanow 1996, 2003a; Yanow and van der Haar 2013; Zittoun 2014, 2015). All these works, proposing a critical inquiry of knowledge in policy studies, have thus agreed upon the socio-political interdependence of truth production, involving a battlefield of values and beliefs as the main part of such interdependence.

The analysis proposed in this book furthers the understanding of this interdependence by making visible the emotional boundaries within which scientific expertise comes into being and is legitimized in politics. The aim of this analysis is to show that this cultural ascendency of scientific knowledge in politics holds together through a binary of factual knowledge and emotions. All the scientific undertakings through 2017 to track 'anti-science behaviour' and to claim the 'attack on truth' and the disregard of expertise as the ultimate threats for democracy – albeit they revealed the central role of truth in the rationality of democratic governing – also show that embracing scientific expertise solely as a rational system leading unambiguously to a better and more democratic future misses the target of post-factual politics. If observed from the perspective of some of the post-factual proclamations, we see that being labelled an expert has become an insult, a synonym for not caring about 'real people'. Being a scientist has received traits of cultural identity (see Figure 0.1), and is used by populists as a target of hate, denial and contestation. We thus need to analyse the emotional contexts of scientific expertise to understand how this contested identity of science and scientists is crafted by the binary of factual knowledge and emotions. Most importantly, the establishment
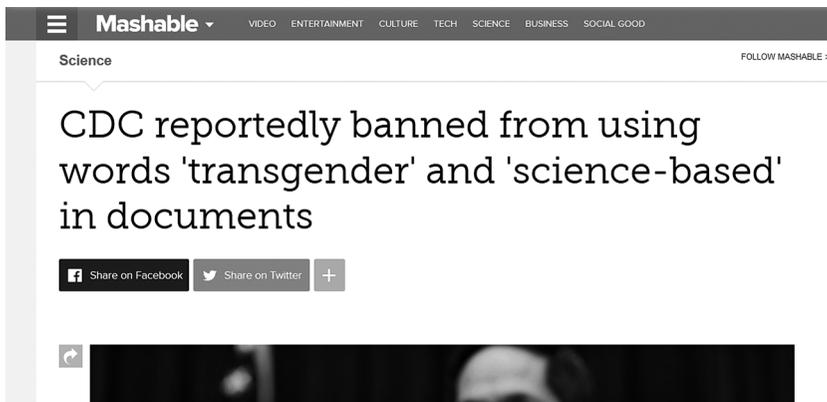

Figure 0.1   Screenshot from the title published in Mashable, juxtaposing 'transgender' and 'science-based'

of the opposition between rational and emotional spheres of our lives is important in visualizing the differentiated legitimation of references to emotions put into place by the context of the culturally ascendant status of scientific truth and evidence-based politics. This division implies a range of codes and narratives that have developed around the use of scientific knowledge for democratic governing, among them the most prominent one that creates an image of science as a rational, and sometimes even technicist, enterprise, and that opposes this image to an emotionalized, irrational, and even ignorant public.

Two current observations of what is recurrently characterized as post-factual politics invite us to put the binary of factual knowledge and emotions under critical scrutiny. First, the public, consuming news and distributing them through social networks, seem not to care much that lies are being disseminated (as shown by the most recent studies on misinformation; Berinsky 2018; Lazer et al. 2018; Swire et al. 2017) or that scientific evidence is banned from official policy documentation in the Trump administration. The latter was, for example, the case of the Center for Disease Control and Prevention (CDC) being urged to avoid terms such as 'scientific evidence' in its reports (WashPost 15 December 2017). The advent of a new 'war on science' – as events of 2017 are repeatedly portrayed by scientists in all disciplines and by journalists – does not appear to influence voters' electoral choices. Rather than with getting to the truth, some of the public seem to be concerned with the image of science as something that contravenes their everyday experiences, eventually stealing their beliefs and prejudices (see in Latour 2004). Science experienced this mood back in the 1980s, which led to critical assessment of how science produces its knowledge (see, for example, the debate in Losh 2013; Frazier 2009; Michaels et al. 1997; Stokes 2009; American Association for the Advancement of Science 2000; Mooney and Kirshenbaum 2009), upon which social sciences started to design the democratization of science (Callon and Latour 2013; Callon et al. 2001; Barthe 2006; Borraz 2008; Beck 1986). Overall, the idea of democratized science set the agenda for the public's understanding of science, and the related critique of viewing scientific inquiry without its socio-political interdependence. Talking about science with the lay public, and inviting them to participate in it, have nevertheless failed to increase the acceptance of science as expected (see the multiple analyses revealing ambivalent results concerning the expected rise of trust and engagement of the public in science, such as, Irwin and Horst 2016; Irwin 2003, 2001; Wynne 2010; Wynne 2006; Levidow 1988; Harding 2008). In addition, it seems from recent political developments, these tools from the production of critical inquiry into truth have proven to be

just as malleable and effective when used by populists and fact-deniers for quite different purposes.

The second observation is that characterizing science as a rational and neutral enterprise, which has been the main response to all these post-factual audiences, does not reveal the whole picture. We have been repeatedly reminded by the theory of science that scientific knowledge can be revealed as erroneous. In fact, it must initially be mistaken, since scientific development occurs only by correcting previous errors (Feyerabend 1976; Fleck 1979; Gillies 2005; Kuhn 1962; Popper 2005). This dynamic of science has been at the core of the argument of the critical approaches to scientific knowledge stating that science is performed through public concerns, while simultaneously defining them (see the leading works in the sociology of scientific knowledge: Berger and Thomas Luckmann 1967; Bijker et al. 2012; Bloor 1976; Brown 2009; Fay 1996; Cetina 2009; Latour 1993, 1995, 2012; Callon and Latour 2013; Woolgar and Grint 1996; Callon and Latour 1992). Moreover, an unshakeable trust in scientific expertise has not always been referenced as positive. Several controversies in the second half of the twentieth century, such as those on asbestos (Henry 2017; Gilbert and Henry 2009) and thalidomide – sold first in West Germany as 'Contergan Forte' – (Schwerin 2009; Friedrich 2005; Kirk 1999; Quirke 2013; Scheindlin 2011) have shown that having institutions and societal norms oversee scientific practices can prevent harm to the public, lower the risk already caused by scientific errors, and settle litigation or assign financial compensation to the victims of such errors. Despite the potential for state institutions to block innovation by insufficient financial support, measures that are too rigid, and censure in the name of ideology, these political interventions are enrolled in the name of the state's pledge to protect its citizens. The line is ultimately very thin between censorship and what we might call the reasonable regulation of science in the name of the democratic principles of a society.

While discussing the threat of post-factualism that emerged throughout 2017, this book aims to offer at the same time a historical mirror on the persistently highlighted neutrality, objectivity and rationality of scientific inquiry. The famous historical controversy around hand disinfection launched by the Viennese gynaecologist Ignaz Semmelweis between 1846 and 1849 is used here as a blueprint for how the binary of factual knowledge and emotions has been imagined and presented in the public debate on science in modern times. In modern times, Semmelweis's story has been read as a quintessential example of a scientist who was vilified in life because his thesis did not correspond with the paradigmatic theories of the period, but celebrated in later times (as analysed in Durnova 2015a). However, this portrayal of Semmelweis is emblematic of the culturally

supreme position of science in societal developments having trouble considering and integrating emotional appeals to facts and discoveries. When Ignaz Semmelweis claimed back in 1847 that 'childbed fever', a disease that afflicted many women giving birth in hospitals, may actually result from doctors not disinfecting their hands before assisting in birthing, he was considered an irrational threat to doctors' profession, and a radical creature blaming achievements of modern medicine for mothers' deaths. His discovery divided actors into either advocates and opponents, with no options in-between, and it also turned the moral code of the times upside down as it defined the doctors as the perpetrators of wrongdoing, while the powerless victims were mostly unmarried women from the lower classes. Although everyone wanted to put an end to the rapid rise of childbed fever at the time, Semmelweis's discovery was nevertheless unacceptable to the established authorities and to established obstetrical practices of his day. Through this apparent emotional dynamic, the Semmelweis controversy shows that every scientific discovery might get vexatious in relation to everyday practices, and in that way it is also 'partisan', because it supplies debating parties with arguments and facts, and that is how the case speaks directly to current post-factualist politics.

   Although admitting that science does not exist in a socio-political vacuum and that it needs some degree of regulation by public institutions, the tracking endeavours of 2017 overlapped with the advent of a cultural divide between those who know and those who do not. This book argues that this divide might reside in the binary of factual knowledge and emotions that has been accompanying scientific knowledge since Semmelweis. This binary is analogous in both science and politics, and it has in fact sealed their mutual legitimacy and accountability in modern governments. This fundamental relationship is now shaken through post-factual politics. On the one hand, the fields of both the history of science and the theory of science have devoted much ink to how science and rationality are seen and treated as logical complements, and how – in post-World War II science in particular – scientific rationality has therefore been attacked by the 'adrift public' (see, e.g., Frazier 2009; Mooney and Kirshenbaum 2009; Solovey and Cravens 2012; Trachtman and Perrucci 2000; Collins and Pinch 2008). Science's preoccupation with neutrality and objective inquiry, which were conceptualized by scientists themselves as guarantees against the politicization of science, revealed itself to be a form of 'politicization' (see, especially, Porter 2009, 1996; Solovey and Cravens 2012). Politicization created discursive registers affecting what is debated and how it is debated, since neutrality and objectivity shape some sorts of knowledge as acceptable, rational or factual, while framing other sorts of knowledge as partisan, politicized or irrational.

On the other hand, both argumentative and deliberative approaches to policy studies, although bringing into the discussion of fact-based knowledge the highly relevant dimension of socio-political interdependence of knowledge and the need to analyse how this interdependence coproduces facts also sustained the same binary code, for deliberation was too often seen as a rationalizing instrument that pacified emotions but did not analyse them (see the critique of deliberation in van Stokkom 2005; Thompson and Hoggett 2001; Newman 2012; Hunter 2015). This implicit reference to emotions encompassed all sorts of references to emotional appeals, without distinguishing further what kind of interests and values are hidden behind these. Simply opposing 'emotions' – without any further diversification – to rational governing and scientific inquiry did not enable an argumentative arena on how some emotions might affect the enrolment of public debates, and how they inevitably become part of the subsequent qualification of the relevance of issues being discussed, as well as of the actors discussing them.

That is why this book strives to understand how this discursive opposition between facts and emotions has produced discursive registers affecting how, and by whom, truth is presented to the public, as well as publicly defended against from attacks from science deniers and populists. The analysis of the scenography of truth therefore looks more carefully at the codes, narrative and rhetorical devices through which emotions are opposed to facts in the public defence of scientific truth, although the production of truth in science is linked to emotions. While being labelled in the public discourse on science as the counterpart of 'evidence' or 'facts', emotions gain credit as incorporating personal experience with the struggles of the Western world, as being a gateway to understanding the so-called real problems of people. In such a view, 'post-factual' represents more than just a simple denial of a fact for not being oriented toward a concrete solution or opposed to a concrete proposition on how to advance particular policy measures. The important dimension in post-factual politics, visible through the analysis of discursive registers presenting truth, is the very process of contesting, implying the process of challenging the governing elites, such as the scientists, or simply those who are perceived to have a privileged position. Through this process, post-factual politics becomes a dynamic political stance, offering a feeling of empowerment to those who feel that they do not have a voice in a policy debate.

While stressing both socio-political and cultural dimensions of this conflict over truth, it is important to emphasize that this book refers to a strongly interpretive understanding of 'culture', being defined as a dynamic site of meaning-making, full of binary codes that create narratives, and practices that are negotiated to legitimize our values and beliefs:

> The codes, we have argued, inform action in two ways. Firstly, they are internalized, and hence provide the foundations for a strong moral imperative. Secondly, they constitute publicly available resources against which the actions of particular individual actors are typified and held morally accountable. (Alexander and Smith 1993, 196)

Binary (Alexander and Smith 2001; Alexander 2018) captures analytically why some actors' emotions are presented as relevant or legitimate for the public debates and for choices being discussed, whereas others are presented as irrelevant or illegitimate. The approach using binaries does not state that all public debates and all arguments framing them take place solely within such an oppositional structure. On the contrary, binaries are a strong analytical tool, which shows how within the diversity of public debates binary oppositions become the argumentative device to create a range of legitimate actors to discuss an issue. The analysis of the binary of factual knowledge and emotions shows, in that sense, that while the alleged post-factual politics are intimately connected to critique and empowerment, we must unveil the particular references to emotions presented in the public discourse in the context of such critique and empowerment.

BOOK OUTLINE

Chapter 1 of this book sets the stage to unravel this puzzle by identifying current post-factual politics as a result of the way in which references to emotions have been placed outside truth production in modern science and politics. Evidence-based political responsibility that called for the integration of scientific knowledge engendered the dichotomy of modern societies of 'civil rationality' being threatened by 'uncivil emotionality' (Alexander 2006a), and the chapter proposes a basis for a nuanced analysis of this dichotomy. One crucial consequence has been that emotions have served as a way of delegitimizing knowledge and actors that have harnessed emotions. Being consequently limited to the tools of social movements, empowerment strategies, and the tools of revolution, emotions have been raised to virtues *sine qua non* by those who are against the establishment and against accepted truth. And these virtues gained even more importance through participatory democracy.

Although participatory democracy and the rise of critical inquiry seem to ease the inclination toward and the spread of post-factualism, it is not the ultimate consequence. There is a way to make emotions a legitimate part of the public defence of truth. In Chapters 2 and 3, the book suggests searching for the remedy in analysis of how references to emotions affect

knowledge-making and enrol a particular scenography of truth in science. Borrowed from French linguistics, the term 'scenography' reflects the strategic use of symbols, references, arguments and rhetorical devices to give meaning to a situation (Maingueneau 1999; see the use of the concept for political analysis in Durnová 2018). Scenography of truth is thus seen here as a useful tool to visualize how the discursive registers operate to present truth and the actors involved in the presentation of truth. Looking at truth production through the lens of scenography enables highlighting two emotional dynamics of truth: its subversive character, which makes it 'vexatious knowledge', breaking with what we know and what we imagine; and its embeddedness in the public's concerns, which makes its defenders 'partisans' of knowledge. Pointing out these two characteristics traces, on the one hand, how references to emotions take the role of evaluative judgements of the values and beliefs that truth implies. On the other hand, these two characteristics resume the post-factual mood because any 'knowledge' – however superficial – can easily be portrayed in the public debate as an uncomfortable truth fought for by vilified partisans, who will later be celebrated as truth pioneers. Chapter 2 looks at the scenography of vexatious knowledge that is used by both scientists defending new discoveries and those aiming at undermining the role of science. Since all new knowledge in the debate on science is 'vexatious', because such new knowledge causes irritations, surprises or anxieties in relation to what was thought to be known, and is thus revealed as emotional, it is necessary to analyse the particular contexts of such emotionality of the vexatious knowledge. The analysis goes beyond the mere allegiance of emotionality and looks at the values and interests that are concealed behind it. Chapter 3 focuses on how the notion of partisanship of science feeds into the identity conflict of marching versus non-marching in the case of March for Science. Since all scientific knowledge creates partisanship, it is necessary to analyse the contexts of how partisanship is used as a strategy to undermine the scientific knowledge being presented. A diversified glance at how emotions are used in these strategies helps to show how actors exploit the uncertainty and doubt of the public regarding scientific controversies, and how they can do so because we lack a diversified language on emotions in both politics and science.

Chapter 4 subsequently argues and concludes that we need to revise our approach to how emotions are portrayed and referenced in public debate on both politics and science. Referencing emotions as either 'good' and 'useful', or 'disturbing' and 'irrelevant', reveals a larger socio-political order that legitimizes some emotions while it rejects others, and qualifies actors as relevant on the basis of their emotionality. The binary of factual knowledge and emotions is constituted through such referencing, which is

why this book looks at specific codes, narratives and metaphors to show how truth is coproduced by both facts and emotions. A rich vocabulary of classifying the emotional sphere of our lives in affects, urges and motivations has emerged from the sociology of emotions (Barbalet 2002b; Jasper 2011; Dixon 2012), which has also extensively theorized the socio-political dimension of emotions (Czarniawska 2015a; Kleres 2011; Hoggett and Thompson 2012; Hunter 2015; Bondi 2005). The latter area of scholarly work – viewing emotions as collective semantic boundaries having socio-historical contingency (Berezin 2009; Hochschild 2003; Zelizer 2005) – is what forms the background of the discussion of the post-factual binarity between factual knowledge and emotions. How emotions are articulated in their cultural and socio-political dimension (Ahmed 2013; Barnes 2008; Clarke et al. 2006; Gould 2013; Hochschild 2003; Zelizer 2005), and how they are both enabling and constraining these dimensions, is what the analysis focuses on. Emotions are endowed with meanings, and as such develop within knowledge-making. This analytical focus sheers away from the 'rational science versus emotional public' divide, enabling us to go beyond the discussion of what emotions 'really' are or are not and how they can – or cannot – be measured. They are part of values and beliefs; they react to them, affirm them, and reject them. The proposed analysis of the diversified data material is therefore interpretative and analyses the discursive registers used. It also pays particular attention to codes and narratives that reference emotions either as opposed to factual knowledge (as disturbing, problematizing) or as embracing it. The proposed analytical framework helps to distinguish post-factualism from critical inquiry as opposed to truth production because, by identifying emotions on both sides of the cultural divide, it turns attention to values and beliefs which are wrapped up in these references. This also implies that emotions are neither limited to a specific topic, and fields related to what can be seen in the modern rational discourses as emotional sphere of our lives, nor can they be reduced to urges motivating scientists' and experts' actions. Focusing on emotions in scientific inquiry, most importantly, does not mean yet another report on misinterpreting science, advancing religious beliefs or ideology before scientific rationality: it means to strengthen science against such misinterpretation by offering it an epistemological and analytical path to embrace emotions in its public image.

NOTE ON METHODOLOGY AND DATA MATERIAL

Three scholarly traditions underpin the development of the book's argument: the way scientific knowledge is entangled with socio-political

circumstances in that it emerges and gets established as expertise – as it has been dominantly discussed in science and technology studies (Wynne 2006; Irwin 2003; Harding 2008; Callon and Latour 2013; Jasanoff 2006) – is investigated here from the perspective of critical policy studies. This approach offers concepts to analyse how the sound knowledge shaping public concerns is based on expertise, while simultaneously being shaped through the interaction of experts with actors of civil society (Howarth 2010; Fischer 2011; Turnbull 2017; Fischer et al. 2015). Finally, analytical tools proposed by cultural sociology enable analysis of the ways in which knowledge enters public concerns, because they offer ways to interpret references to emotions in all sorts of textual data (Alexander et al. 2016; Alexander 2006b; Alexander and Smith 1993). This approach also supports analytically the move from truth toward its scenography, that is, the rhetorical, metaphorical and narrative figures through which truth is presented in the public debate, and the specific performances through which it is staged during the public manifestations.

With these three traditions, the book subscribes to a reflexive and interpretive analysis of knowledge (Durnová and Zittoun 2013; Yanow 1996; Wagenaar 2011; Yanow 2003b) through which social actions can be explained. The book uses a variety of data, relates them to each other and mirrors them in previous investigations on the topic, to propose an analysis of the binary of factual knowledge and emotions creating the post-factual politics. This perspective also yields a set of analytical skills to retrieve meanings from textual data, and these meanings can demonstrate and explain the set of beliefs and values related to post-factual politics as well as the interactive process of performing these sets.

It is important to clarify how the textual material has been approached. At the beginning of the reflection on post-factual politics stands a detailed analysis of the Semmelweis controversy. The investigation of this historical case examines a wide variety of textual data gathered through archives and encompasses correspondence, lectures of Semmelweis, as well as biographies on his person and historical analysis on his work (see also Durnová 2015a).[5] The analysis of this data material pays attention to both the past and the present significance of Semmelweis as illustrating the dynamics of scientific truth and the various contestations surrounding scientific discoveries in general (see other historical examples in Latour et al. 1979; Shapin 1994). The results of the analysis show that, contrary to the usual explanations of the Semmelweis controversy, Semmelweis's personal character and his confrontational way of arguing cannot fully explain his failure, because that each truth starts by being uncomfortable, subversive, and in a way 'vexatious'. By creating a new knowledge order, the new discovery subverts all sorts of path-dependencies and this subversion creates the emotional

dynamics that the analysis conceptualizes by the term 'vexatious knowl-edge'. Related to that, this new knowledge order creates groups of actors that either support or reject the new discovery. It also creates arguments for both those who will take profit from the new discovery and those who will not. Through this dynamic of actors, the new discovery implies truth is 'partisan' because it engages the actors in the surrounding socio-political dynamic.

Through the focus on this emotional dynamic of truth production in new discovery, the historical case of Ignaz Semmelweis forms the basis for lessons demonstrating the interconnectedness of truth and emotions in our times. The Semmelweis controversy shows that the binary of factual knowledge and emotion is highly problematic because it creates artificial distinction between the rational pursuit of evidence and the emotional behaviour of scientists, including the values and beliefs they hold in their lives that affect their scientific inquiry as much as they influence how the results of their inquiry will be acknowledged. At the same time, his case shows that this binary has been a powerful discursive strategy to sustain the cultural ascendency of science and its superiority to other forms of knowledge in the modern notion of scientific evidence, which has formed the basis for how evidence, and expertise that brings this evidence, have been sustained in modern governments.

The proclamation of 'post-truth' as the *Oxford English Dictionary*'s Word of the Year 2016, launching a vast debate among scientists about what truth is – and what role a scientific truth, in particular, has to play in democratic politics – has subsequently created an ideal discursive setting in which the binary opposition of factual knowledge and emotions has become visible. The year 2017 – as experienced through the proliferation of truth-finders and media fact-checkers and campaigns in major US print outlets (*New York Times*, *Washington Post*) and, most of all, as this book follows it in scientists' manifestations of the importance of scientific truth for democracy – returned Semmelweis's story to the stage to offer a unique reflective momentum of the role of emotionality in our understanding of truth production in scientific expertise, and the way it is used for politics.

The book therefore analyses the most prominent manifestation of US scientists reacting to and commenting on the first year of Trump presidency: the March for Science. Besides the analysis of the preparation of the march and the event itself, two projects to track the Trump admin-istration's 'attack on truth' and the 'anti-science behaviour' helped me to contextualize that manifestation and understand it better: the *First 100 Days*[6] blog, and the Silencing Science Tracker. A widely acknowledged and followed blog from Harvard University, the *First 100 Days* blog was used for the analysis as a pool for identifying the specific focus on the public

defence of scientific truth, because it was created after Donald Trump was elected and offered a platform for reflection on what is to be expected, and what the election of the anti-science president will mean for US democracy. The Silencing Science Tracker systematically scrutinized the Trump administration's concrete actions and helped me to get a sense of the everyday threats that scientists are confronted with under this administration. The data sets are therefore complementary, combining the prospective tone of what is feared and expected, with the enumeration of concrete threats. These actions were further contextualized through endorsements by US scientific associations of the March for Science, and editorials in scientific journals that discuss the attacks on science by the Trump administration, or that discuss 'truth', 'post-truth' or the 'post-factual' throughout 2017, and that raise the questions about the legitimacy of scientists taking action in the public defence of truth in US politics.

The data on the march consist of two interrelated sets. The first data set for analysis consists of the preparation and enrolment for the 2017 March for Science. Articles were gathered through the Google News tool on the keyword 'March for Science', collecting all US electronically archived press titles, personal blogs, and statements made by universities or non-profits endorsing the march during the preparation period from 31 January 2017 through 22 April 2017. In addition, the leading US media outlets (*New York Times*, *Washington Post*, *Time* and CNN) were scrutinized on 'science' and 'truth' during the same period.[7] In all, 650 text units and 95 images were collected through this search. The second data set concerns the event of the march. It consists of participant observation of the event of the March for Science in New York. I took part in the rally, paying attention to both the posters that were used and the performances that took place. I assessed the atmosphere of the march through fieldnotes and through tweets posted with the hashtag '#MarchForScience' through the day of the march, and contextualized it through supplementary video material, mainly the livestream from the main rally at Washington, DC and other video posts from New York, Boston and Los Angeles. I also integrated in the analysis of the event the 2018 book *Science Not Silence: Voices from the March for Science Movement*, put together by the organizers as a way to commemorate the 2017 march. I also talked to several participants and observers of the US actions and attended debates on the topic in academic settings in the US during spring 2017. The gathered information is used here as a background context of the analysis.

The analysis offers a scenography of truth, through which the language codes, narrative metaphoric and rhetorical figures that are used to display truth in public debates can be depicted. At the same time, the way emotions are referenced in these scenographies make it possible to show how

concrete actions of scientists are situated within the binary of factual knowledge and emotions, and how this binary reveals a set of values that seem to be compatible with the advanced image of truth, while others are not. This analysis occurred in two stages. After identifying different meanings attributed to 'politics', 'science' and 'truth' in the data, these categories were further analysed by relating pieces of data to each other in order to depict the specificity, differences and analogies among the meanings used. The analysis examined the presented values and beliefs attributed to 'politics', 'science' and 'truth' by looking at how reactions to opposing values, beliefs and interests are transmitted, and which rhetorical, metaphorical and narrative figures are used to display them. The use of these figures is understood in terms of 'scripts' as analysed by cultural sociology (Alexander and Smith 2001; Alexander 2004). Scripts bring forward narrations of truth and choreograph the binary of factual knowledge and emotions. All data sets were subsequently interpreted to uncover what narratives and codes were used to describe the truth and 'the attack on truth', searching to explain why, in particular situations, the references to emotions were either endorsed/acknowledged or obliterated/criticized.

This approach to interpretation implies a notion of text as a dynamic semantic boundary offering performances of values and beliefs through particular modes of language used in the text (Maingueneau 1999, 1998, 1996; Charaudeau 2000, 2005; Kerbrat-Orecchioni 2005, 1999). 'Text' is subsequently not only a set of communication acts, but a set in which all the different discursive registers enter into a negotiation with the historical and socio-political context as well as other textual sources that precede or succeed them. In their analytical fashion, textual data include traces of which actors speak to which communities (subject), where this happens (context), and through what codes and rhetorical devices these refer to specific cultural, historical or situational standards (mode of language) (for the development of the analytical scheme see Durnová 2018). The concluding Chapter 4 on emotions offers some further specification on how this analytical framework visualizes the role of emotions in discursive registers better.

To further illustrate two necessary tools through that scenography of truth is put in placed – the 'vexatious knowledge' and the related 'partisanship' – and to visualize their persistence beyond the particular context of Semmelweis case or the March for Science, the book expands the context of this analysis through other illustrative examples from the history of medical controversies, among them the Contergan (thalidomide) scandal, in West Germany in the 1960s; the debate following the discovery of AIDS, in the US media in the 1980s; and the US debate around the person of Andrew Wakefield, the doctor claiming in the 1990s the mumps–

measles–rubella (MMR) vaccination–autism link. These examples are not submitted to analysis properly speaking, but are included here to offer a broader background of the various ways in which scientific discoveries are being publicly debated and contested, and how emotions play part in all these public debates. Despite their differences in their historical contexts, these events illustrate the mediating prominence of the binary of factual knowledge and emotions that persists in the modern notion of truth.

NOTES

1. This term has been chosen to capture analytically how emotional appeals to facts are mobilized in the public discourse on science. It does not refer only to knowledge that is denied or dismissed (see for this the 'uncomfortable knowledge' in Rayner 2012) and it does not necessarily include strategic forms of ignorance practiced by institutions (see for that the 'awkward knowledge' in Heimer 2012).
2. An example of how EPA suggested limiting the use of science to craft new policies and regulations is discussed in Chapter 2. The proposition of Scott Pruitt was to use only publicly available research to inform policy decisions; https://gizmodo.com/epa-pulls-public-documents-regarding-its-transparency-p-1825445999/amp?__twitter_impression=true (accessed 7 May 2018).
3. 'Fake news' and science denial created a political momentum in Europe as well. In Germany, searching for legal ways to limit the production and spread of fake news in social media culminated in a law in September 2017, urging social platforms such as Facebook, Twitter and YouTube to withdraw any 'obviously illegal content within 24 hours' from the web. In nearly all of the European national elections of 2017 – including those in France, the Netherlands, Austria, the Czech Republic and Hungary – fake information then became an important persuasion weapon of electoral campaigns, with some non-governmental fact-checkers fighting back to defend the truth, as do US truth-finders and media fact-checkers, including the ongoing campaigns of the *New York Times* ('The Truth') and the *Washington Post* ('Democracy dies in darkness'), and the *Washington Post*'s Fact Checker site, https://www.washingtonpost.com/graphics/politics/trump-claims-database/?utm_term=.cc933652d40c&wpisrc=nl_evening&wpmm=1.
4. https://www.washingtonpost.com/news/speaking-of-science/wp/2016/11/09/what-will-president-trump-mean-for-science/?utm_term=.9c78df3b60c3.
5. The data analyses are listed in the Appendix.
6. http://first100days.stsprogram.org.
7. Excluded from the coverage were texts on marches outside of the United States unless they were opinion pieces explaining the reasons for endorsing the US movement.