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Science-related populism: Conceptualizing populist demands towards science

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Keywords: Populism – Science – Attitudes towards science – Epistemology – Theory

1 Introduction

Populist movements have emerged around the globe. Populist politicians and parties, claiming to promote the will of an allegedly virtuous people and challenging established political elites and structures (Rooduijn, 2019), have positioned themselves prominently on issues like immigration and climate change (Berbuir et al., 2015; Hultman et al., 2019) and gained considerable voter support (Lewis et al., 2018). This led some scholars to diagnose an "age of populism" (Smith, 2018).

But populists do not only target political elites. They also criticize other institutions they see as representing the societal establishment (Wirth et al., 2016), such as mainstream media, legal elites, big business – and *academics*, *scholars,* and *experts* (Forchtner et al., 2018). Former UK Justice Minister Michael Gove, for example, famously claimed that the British people "have had enough of experts […] from organizations with acronyms saying that they know what is best" (Simons, 2016). Mexican President Andrés López Obrador contended that corrupt "mafia" scientists would waste government funds for conference travels (Wade, 2019), and US president Donald Trump suggested his "natural instinct for science" superseded scientific evidence (Morin, 2018). Journalists (Yiannopoulos, 2015), celebrities (e.g., Gwyneth Paltrow; see Caulfield, 2020) or businessmen (e.g., Peter Thiel; see Schwab, 2018) have endorsed similar anti-scientific positions.

Opinion polls (Motta, 2018), experiments (Myrick and Comfort, 2020), qualitative interviews (Sarathchandra and Haltinner, 2020), and discourse analyses (Poberezhskaya, 2018) show that segments of the broader public also criticize scientific research, both on controversial topics like climate change (Ylä-Anttila, 2018) or vaccination (Davis, 2019) and on less politicized topics like nutrition or physical therapy (Harambam and Aupers, 2015). Not all of these criticisms follow the populist logic of portraying the people and the elite as antagonists – but some of them do, accusing climate scientists, for example, of being "part of the 'elite groups' who fool people" (Poberezhskaya, 2018: 947), describing climate research as "mob science" that conceals the 'truth' (Sarathchandra and Haltinner, 2020: 56) or suggesting that "experts ought to be less trusted than ordinary people" (Motta, 2018: 483). Further scholarship indicates that such anti-scientific positions can be associated with political populism. Merkley (2020), for example, discovered a strong relationship between populist sentiment and mistrust towards intellectuals and experts. Both Saarinen et al. (2020) and Filc and Lebel (2005) showed that populist party supporters tend to have lower trust in universities. And Oliver and Rahn (2016) revealed that many voters of populist US candidates rather "trust in the wisdom of ordinary people than the opinions of experts".

Such findings illustrate that "it is more relevant than ever to study the linkage between populism and the production and communication of knowledge" (Ylä-Anttila, 2018: 357), and to assess empirically and conceptually whether the abovementioned anti-scientific positions are indicative of recent essayistic diagnoses of "a new anti-knowledge, anti-science era" (Livni, 2016) or a "post-truth world" (Williamson, 2019) in which "expertise is suspect and truth is relative" (Glaubke, 2018). However, scholarship on this linkage has *empirical gaps* and *conceptual shortcomings* so far. *Empirically*, it has only analyzed specific aspects: Scholars have investigated conspiracy theorists (Harambam, 2017) or supporters of far-right ideologies (Hultman et al., 2019) and published case studies of right-wing online platforms (Ylä-Anttila, 2018) or conservative radio shows (Saurette and Gunster, 2011), but were often not, or not primarily, concerned with populism related to science (e.g., Harsin, 2018). *Conceptually*, scholarship on "populism and the production and communication of knowledge" (Ylä-Anttila, 2018: 357) has remained somewhat disconnected until now: Scholars have employed different frameworks and did not scrutinize whether a specific phenomenon with parallels (but also crucial differences) to political populism has emerged – a phenomenon we propose to call *science-related populism*.

Science-related populism, as we understand it, is not intended as an umbrella term for all forms of critique directed against science. There are many variants of criticizing science, some of which *are not* science-related populism – e.g., concerns about the ethical, legal, and social implications of biotechnology (MacDonald et al., 2020), 'counterresearch' commissioned by corporations aiming to contradict scientific findings about smoking or global warming (Oreskes and Conway, 2010) or religiously motivated objections to certain scientific fields (McPhetres and Zuckerman, 2018) – whereas other variants *are*, and with this article, we aim to offer a conceptual framework for them. We therefore propose an analytical model of science-related populism that identifies its key elements and their mutual relations, and can be the foundation for empirical analyses of its prevalence, drivers, and impacts.

2 Political populism, the 'participatory turn', and alternative epistemologies: Reviewing relevant scholarship

Our conceptualization of science-related populism rests on three strands of scholarship. From each strand, we borrow core ideas which serve as building blocks for our conceptualization. First, we rely on scholarship on political populism, because it provides an understanding of the fundamental populist logic, its core protagonists and principles (section 2.1). Second, we draw on scholarship on the 'participatory turn', because it shows that demands for public participation – one of the key principles of political populism – have emerged beyond politics, and that such participatory demands follow different core logics in different societal fields (section 2.2). Third, we rely on scholarship that has focused on the core logic of science, its epistemology, demonstrating that the epistemic authority of science has been increasingly challenged while alternative epistemologies have gained importance (section 2.3).

2.1 Scholarship on *political* populism

Scholars of political populism have had difficulty agreeing on a definition that captures populist phenomena in different cultural and historical contexts (Rooduijn, 2019). Substantial discrepancies concerned the genus of populism (Mudde and Rovira Kaltwasser, 2018: 1669). Some scholars saw it as a political style (Jagers and Walgrave, 2007), others as a discourse (Hawkins, 2010) or ideology (Mudde, 2004). Currently, many scholars agree that populism is a set of ideas describing society as a morally charged conflict over political decision-making *sovereignty* between an allegedly virtuous *people* and an allegedly corrupt *elite* (Mudde and Rovira

Kaltwasser, 2018: 1669; Rooduijn, 2019: 363–364). This 'ideational approach' is related to the notion that populism can be conceived as a *thin-centered ideology* which entails a core of normative ideas about how society should be structured, but is 'thin' as these ideas (unlike 'thick' ideologies) have limited "intellectual refinement" (Mudde, 2017: 30), do not "transcend the proximate context in which they emerge" (Stanley, 2008: 106), and are "moralistic rather than programmatic" (Mudde, 2004: 544)[1].

Our conceptualization of science-related populism follows this ideational approach, not only because it is well accepted in research on political populism[2], but also for other reasons: First, it is able to grasp the 'supply' and 'demand' sides of populism (Hawkins and Rovira Kaltwasser, 2017), i.e. arguments and positions used by populist leaders as well as attitudes held by their followers. Second, it has already been operationalized for both quantitative and qualitative empirical work (Mudde, 2017: 39), which is instructive since only few and mostly qualitative analyses of science-related populism and similar phenomena exist (e.g., Ylä-Anttila, 2018). Third, it can be used to scrutinize possible combinations of populism and 'thick' ideologies (Mudde and Rovira Kaltwasser, 2018: 1670). Fourth, and importantly, it is an analytically clear approach with a fixed set of sub-concepts that are well-suited for further conceptual work (see Mudde, 2017: 34–36). These sub-concepts, which we will adapt later for our purposes, are *the people*, *the elite*, and *sovereignty*.

Core protagonists: 'The people' vs. 'the elite'

Scholars agree that the concept of '*the people*' is key to (political) populism (Wirth et al., 2016: 9). Importantly, the term usually does not denote a concrete physical group of individuals. 'The people' rather functions as an 'empty signifier' that is strategically used by populist leaders and followers to refer to an alleged popular majority supporting their cause (Reinemann et al., 2017). Implicitly or explicitly, populism describes the people as a homogeneous entity of citizens who are considered to act virtuously thanks to their impeccable character (Taggart, 2000). Homogeneity can be defined in different ways, e.g., politically ('those deprived of power'), economically ('those with few financial resources') or culturally ('those who belong to the national community'; Wirth et al., 2016). Due to their alleged homogeneity, the people are seen as having a unified voice and a common will – a volonté générale (Mudde, 2004). And due to their purported moral superiority, this will is considered to be the legitimate foundation for political and societal decisions (Hawkins, 2010).

Taggart (2000: 95–98) adds that populists often commit themselves to a once-existent ideal state of society in which politics and societal life had been pervaded by orderliness, dutifulness, and predictability. He refers to this state as 'the heartland' and conceptualizes the people as its inhabitants. Whenever populists refer to 'the people', he suggests, they essentially call for the (re)establishment of the heartland.

In contrast, *'the elite'* is seen as the villainous antagonist of the people (Mudde, 2017). Sociologists describe elites as societal minorities wielding political, economic, social or intellectual power and influencing each individual citizen (Bottomore, 1964). Generally, this description includes political, economic, legal, cultural, and intellectual elites (Hartmann, 2004). This pluralism renders the term 'the elite' as vague as the term 'the people' (Moffitt and Tormey, 2014: 395). But this very vagueness also makes it possible to conceive elites as

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[1] Scholars describing populism as a thin-centered ideology would argue that populism – just as other thin ideologies like feminism (Freeden, 1996) – has limited capacity to inspire a practical solution for how to tackle economic downturn, for example (see Stanley, 2008). In contrast, the 'thick' ideology of liberalism and its emphasis on deregulation indeed suggest such a solution: lowering trade tariffs, for instance (see Freeden, 1996).

[2] Critics of the ideational approach point out, however, that it does not consider the organizational structures of populist actors (Hawkins and Rovira Kaltwasser, 2017) and lacks a coherent conceptualization of ideological thinness (Aslanidis, 2016). We acknowledge these caveats but think that they do not pose major obstacles to our argument.

a cohesive, monolithic entity detached from the people but ultimately deciding over their future (see Mills, 1956).

Populists suggest that the power of elites over the people is unjust, because elites are allegedly morally inferior to the people. They are portrayed as being "corrupt" (Rooduijn, 2014: 588), "conspiring" (Hawkins, 2010: 5), and "unwilling or unable to address the demands of the people" (Panizza and Miorelli, 2009: 42). In Taggart's (2000) terms, elites are portrayed as invaders of the heartland, keeping the people from reaching it.

Core principle: sovereignty

Populism describes the people and the elites as moral antagonists, perceiving the people as virtuous and the elites as "evil" (Mudde, 2004: 544). These contrasting attributions are due to a conflict over political *sovereignty*, which is why sovereignty has been described as populism's "core principle" (Wirth et al., 2016: 8).

Sovereignty is generally conceived as supreme authority in politics and collective decision-making (Williams, 1996). Authority itself is described as the "right to command, and correlatively, the right to be obeyed" (Wolff, 1998: 4). In democracies, this right is ascribed to representatives nominated by citizens to assert authority on their behalf (Lefort, 1988). But populism rejects the idea of democratic representation (Mény and Surel, 2002). It posits that politics should be an unmediated expression of the popular will, and that representation not only impedes this expression but constitutes an illegitimate claim to sovereignty itself (Abts and Rummens, 2007). Political elites, who enact this representation, are therefore seen as *illegitimate* sovereigns (Wirth et al., 2016). Populism further suggests that, in order to enable politics to embody the popular will, the people themselves must have, or reclaim, this authority as they are the *legitimate* sovereigns (Abts and Rummens, 2007).

The fundamental structure of populism described by scholars of political populism is instructive for us as it has similarities to science-related populism. But as we will see, science-related populism also has distinct qualities deviating from political populism.

2.2   Scholarly diagnoses of a 'participatory turn'

From the 1960s onwards, social scientists have described a decline in traditional forms of citizen or lay participation such as elections (Kostelka, 2017). In turn, however, non-traditional forms of participation have been increasingly demanded in many realms of society, a development labelled "participatory turn" (Bherer et al., 2016), "participatory revolution" (Blühdorn, 2014) or "rebellion of the citizens" (Gerhards, 2001). This development has been connected, firstly, to fundamental changes in social structures. Scholars argued that because social strata had less influence on individual behavior, people were less bound to predetermined social positions, adopted individualized lifestyles, and gained more freedom to participate in various realms of society (Armingeon, 2007). Second, people have been further enabled to do so by the increasing reach and improved quality of education (Meyer et al., 1977), visible in the widening of tertiary education or higher education reforms (World Bank, 2002). Third, scholars described the 'participatory turn' as connected to an increased emphasis on democratic ideals and to the perception that societies do not live up to these ideals. Participatory demands were interpreted as "a strong critique of liberal and representative democracy" (Bherer et al., 2016: 225) going along with "[d]istrust in established elites, dissatisfaction with existing political institutions, and growing confidence in the capabilities of the increasingly educated citizenry" (Blühdorn, 2014: 407), all of which fueled "a general shift of preference from representative democracy to

more direct forms of participation" (Blühdorn, 2014: 407) and a "necessary radicalization of democratic practices" (Bherer et al., 2016: 225).

Two aspects of this literature are noteworthy here. On the one hand, it shows that popular demands for participation – which are also inherent in political populism – have emerged in fields beyond politics. Even though they are pronounced in the political realm (Saurugger, 2010), "participatory discourses and techniques have been at the core of decision-making processes in a variety of sectors of society" (Bherer et al., 2016: 225), from social movements (Della Porta and Rucht, 2013) over companies and trade unions (Lee, 2014) to bureaucratic organizations (Nabatchi, 2010) and art (Bishop, 2012). A rise of participatory demands has also been described for science (Gregory and Miller, 1998), including the implementation of citizen participation in science-related decision-making (Einsiedel and Eastlick, 2000), public control of scientific work (Fähnrich et al., 2015), the (crowd)funding of science (Schäfer et al., 2018b) or citizen science (Füchslin et al., 2019).

On the other hand, scholarship on the 'participatory turn' demonstrates that participatory demands take different forms in different realms of society. Gerhards (2001) interprets these differences using general systems theory: He argues that different core logics prevail in different societal 'systems' and that participatory demands follow these core logics. Accordingly, participation in politics – whose core logic is the production of collectively binding decisions – aims for (more) decision-making power for citizens, participation in art aims for the inclusion of citizens in the creation and evaluation of aesthetic products, and participation in economics aims for the articulation of consumer needs (Gerhards, 2001).

The core logic of science, in contrast, is the cumulative production of 'true' knowledge (Baraldi et al., 1997: 211). This logic has also been addressed by participatory demands. We will illustrate this in the following by referring to a third strand of scholarship, focusing on alternative epistemologies.

2.3 Scholarship on alternative epistemologies

Scholarly literature on public participation in science has focused mostly on formats that are considered productive and instrumental for science, such as consensus conferences or citizen science (e.g., Einsiedel, 2008). Given that the phenomena we aim to conceptualize as science-related populism *challenge* organized science, however, another strand of scholarship is relevant for us. It analyzes the emergence and characteristics of alternative epistemologies that question the way in which science produces knowledge, its methods, and ultimately, its authority to make science-related decisions and claims about 'true' knowledge.

The first wave of such alternative epistemologies emerged in the second half of the 20th century, driven by social movements around issues like environmentalism, international conflict or globalization (van Zoonen, 2012). Recent developments – scholars mentioned the rise of political populism, societal value change towards "civic narcissism" (Papacharissi, 2009), the emergence of social media (Waisbord, 2018), and the increased "heterodoxy" (e.g., Schetsche and Schmied-Knittel, 2018) or "decentralization" (Gosa, 2011: 188) of knowledge in society as driving forces – have led to a second wave of alternative epistemologies. They have been labelled, e.g., "post-truth" (e.g., Waisbord, 2018), "emo-truth" (Harsin, 2018), "populist epistemology" (Saurette and Gunster, 2011), "populist knowledge" (Ylä-Anttila, 2018) or "I-Pistemology" (van Zoonen, 2012). Many of these epistemologies offer alternatives to the scientific epistemology and criticize organized science. As such, they partly or fully address our understanding of science-related populism.

Scholarship on alternative epistemologies describes challenges to science and academic elites in two major ways. First, it has documented denials of the disinterestedness and objectivity of organized science and attempts to replace established knowledge with seemingly better (but still scientific) 'counterknowledge'.

Such challenges to organized science were analyzed in studies of populist online discourse (Ylä-Anttila, 2018) and conspiracy culture (Harambam, 2017; Harambam and Aupers, 2015), for example. Ylä-Anttila, investigating immigration debates in two Finnish right-wing online media, shows how authors and users of these media generally subscribe to the scientific epistemology as a way to determine what is true – but believe that "the multiculturalist-relativist hegemony and the corrupt research community" (Ylä-Anttila, 2018: 369), for ideological reasons or because of personal vices, do not apply this epistemology correctly and thus suppress the actual 'truth'. He observes that supporters of this view "advocate a type of counterknowledge", i.e. a knowledge complying with the general rules of science but produced by "alternative knowledge authorities" which are not affected by the alleged corruption of "mainstream" science (Ylä-Anttila, 2018: 378). Similarly, conspiracy theorists have been shown to adopt at least parts of the scientific epistemology in an attempt to describe epistemic authorities as part of a conspiring "regime of truth" (Harambam and Aupers, 2015: 467). In their view, the ability to truly "connect the dots" does not lie with organized science but, e.g., with charismatic "conspiracy celebrities" (Harambam, 2017: 107–140). It is notable that the right-wing populists and conspiracy theorists analyzed in these studies do not challenge the scientific epistemology per se – in fact, they are described as "pro-science" (Harambam and Aupers, 2015: 471) – but that they see organized science as corrupt and want to replace it with alternative authorities and counterknowledge.

A second challenge to science and academic elites is more fundamental, rejecting the scientific epistemology as such and attempting to replace it with peoples' common-sense, their personal experiences, and emotional sentiments. This has been observed by Saurette and Gunster (2011), among others. In an analysis of a Canadian radio talk show, they describe an "epistemological populism" which "is established through a variety of rhetorical techniques and assumptions: the assertion that individual opinions based upon firsthand experience are much more reliable as a form of knowledge than those generated by theories and academic studies; the valorization of specific types of experience as particularly reliable sources of legitimate knowledge and the extension of this knowledge authority to unrelated issues; the privileging of emotional intensity as an indicator of the reliability of opinions; the use of populist-inflected discourse to dismiss other types of knowledge as elitist and therefore illegitimate; and finally, the appeal to 'common sense' as a discussion-ending trump card" (Saurette and Gunster, 2011: 199). Harsin, analyzing the rhetorical strategies of a right-wing political movement in France, focuses specifically on the 'privileging of emotional intensity'. He finds that the movement promotes an "emo-truth […] where emotion serves as inference (prime or indexical sign, emotional or unconscious affective response, and presto: truth). It is felt (though not necessarily consciously), and not accompanied by long temporal reasoning" (Harsin, 2018: 45). While Harsin sees this emotional focus as an elaborate political strategy, van Zoonen (2012) has argued that individualized epistemologies – which she calls "I-Pistemologies" – have gained importance. She diagnoses a "contemporary cultural process in which people from all walks of life have come to suspect the knowledge coming from official institutions and experts, and have replaced it with the truth coming from their own individual experience and opinions. [...] Where epistemology is concerned with the nature, sources and methods [of] knowledge, then *I*-pistemology answers these questions from the basis of *I* (as in me, myself)" (van Zoonen, 2012: 56–60).

Both of these strands of scholarship offer comprehensive theoretical and empirical analyses of anti-elitist sentiments and challenges to science and epistemic authorities. As such, they address some of the core elements of science-related populism. Particularly scholarship concerned with 'epistemological populism', 'emo-truth', and 'I-Pistemology' is instructive for us as it describes phenomena that are well compatible with the populist narrative, because they contain "the populist celebration of 'the people' and common sense" and also address "the other side of the populist trope – the attack on the elites – to dismiss contending forms

of knowledge and of political opinions. The laudable voices of the people are contrasted with the 'elitist' views of academics" (Saurette and Gunster, 2011: 203).

So far, however, none of these strands or scholars has develop a broader conceptual framework aiming to grasp science-related populism. Some have focused on other, albeit related, concepts (Harambam, 2017; Harambam and Aupers, 2015; Ylä-Anttila, 2018). Some have focused on empirical work, and their conceptual ideas remained sketches embedded in case studies of Canadian talk radio (Saurette and Gunster, 2011) or French right-wing movements (Harsin, 2018). Others have focused not (Harsin, 2018) or not primarily (Gosa, 2011; Saurette and Gunster, 2011) on populist challenges to the scientific epistemology but on challenges to other elite epistemologies. Therefore, we feel that our conceptualization of science-related populism is worthwhile, and that it can build on the conceptual ideas of these works and usefully integrate them.

3 Conceptualizing science-related populism

Scholarship on political populism, the 'participatory turn', and alternative epistemologies provides the necessary building blocks for a concept of science-related populism. This concept adopts the fundamental structure of populism, its core protagonists, and their fundamentally antagonistic relations from scholarship on political populism. From scholarship on the 'participatory turn', it borrows the insight that participatory demands exist beyond politics and address the core logics of the fields in which they emerge. And from scholarship on alternative epistemologies, it adopts a detailed picture of how such demands may challenge science's core logic, i.e. its epistemology.
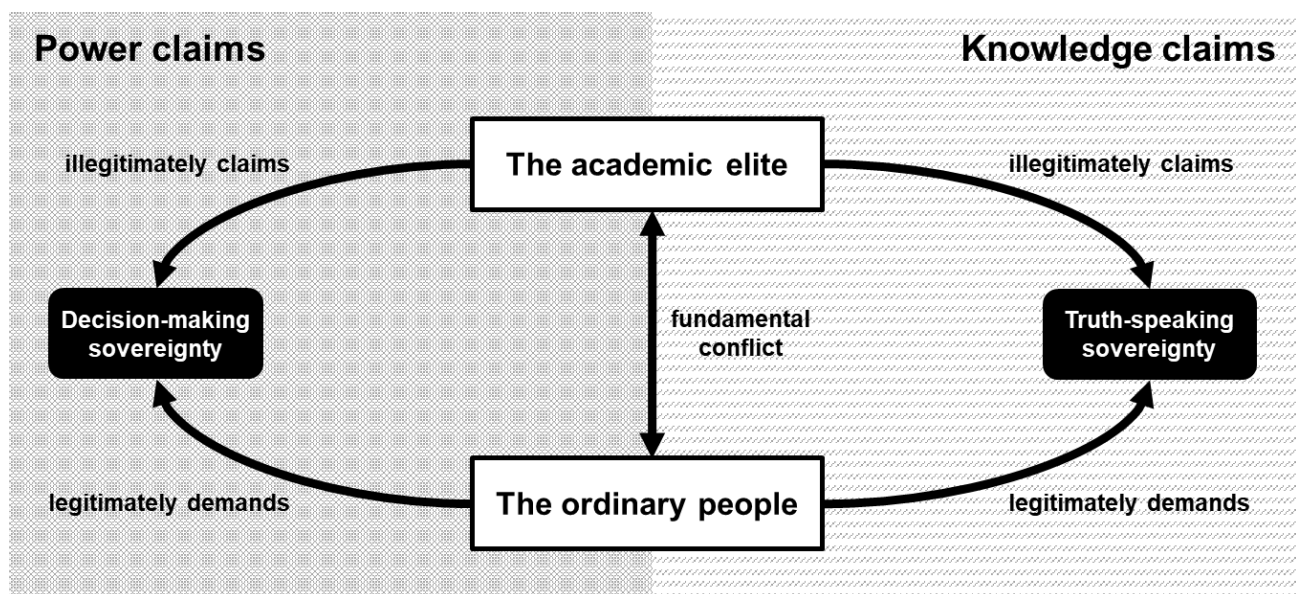

Figure 1: Heuristic model of science-related populism

3.1 Core protagonists: 'the ordinary people' vs. 'the academic elite'

The concept of science-related populism adopts the antagonistic core actors of political populism ('the people' and 'the elite'), albeit with modifications. As science-related populism operates within the realm of scientific knowledge production, 'the people' and 'the elite' have to be understood in epistemological rather than in political, economic or cultural terms. Consequently, it sees 'the people' as being homogeneous not only in their values but also in their common epistemological sense. We refer to this first protagonist in

science-related populism as '*the ordinary people*'. Correspondingly, 'the elite' denotes actors with epistemic authority. We refer to this second protagonist as '*the academic elite*'.

'The ordinary people'

Science-related populism refers to 'the people' as a homogenous collective of allegedly virtuous, lay, 'ordinary' people. But unlike political populism (Wirth et al., 2016: 10), it conceives the people mainly with regard to their alleged *epistemological* ordinariness, homogeneity, and virtuousness. Accordingly, science-related populism derives the ordinariness of the people from their supposed reliance on common sense, everyday experience or even gut feeling (see Saurette and Gunster, 2011; Taggart, 2000). It further suggests that common sense, by reflecting truisms and anecdotes that are seemingly shared among ordinary people, functions as a common denominator of these people, and as such, reinforces their homogeneity. The ordinary people's alleged homogeneity may eventually emerge from seemingly shared values, interests, and emotions that inform commonsensical epistemologies (Harsin, 2018; van Zoonen, 2012). Importantly, science-related populism attributes virtuousness to common sense and therefore to the people themselves. It suggests that commonsensical reasoning is the most – or even only – legitimate mode of thinking because it accounts for authentic everyday experience (Saurette and Gunster, 2011).

Similar to scholars of political populism, the ordinary people can be conceptualized as inhabitants of a 'science-related heartland' – an ideal world in which science does not disrupt people's orderly lives with seemingly unnatural innovations (like gene-editing) and apocalyptic scenarios (like climate science), or by imposing decisions about issues like health, nutrition or mobility on them (see Taggart, 2000). Reference to the ordinary people and commitment to their common sense then essentially become an invocation of that heartland and an attack on a complex and ostensibly paternalistic science: "the heartland represents […] common sense against the knowledge elites." (Priester, 2011: 196).

'The academic elite'

While other forms of populism are concerned with political or other elites (Jagers and Walgrave, 2007: 324), science-related populism focuses on scientific elites, portraying them as antagonists of the ordinary people. These 'academic elites', as we term them, are a subset of a general elite – those who have supreme epistemic authority and can make science-related decisions, i.e. organizations such as universities or research institutes as well as individual scholars and scientific experts (see Hartmann, 2004: 3). Similar to other forms of populism, however, science-related populism also describes academic elites as morally inferior.

Even if academic elites can be affiliated with a broad range of institutions and research fields, and are thus quite fragmented, science-related populism describes them as relatively coherent because they *collectively* decide about science and research (i.e. agendas, methods, publications, etc.) and produce allegedly 'true' knowledge. In the populist view, however, the 'truths' determined by academic elites are "elusive, ephemeral, divided, [and] contested" (Waisbord, 2018: 20). They are seen as fundamentally detached from the everyday life of ordinary people – and so are scientists, scholars, and experts (Saurette and Gunster, 2011). Because their differentiated answers are often hedged and conditional, science-related populism pictures them as incapable of providing simple, hands-on solutions that ordinary people demand; because they apply seemingly artificial methodological procedures such as experiments, they are blamed of disregarding authentic daily-life experiences; and because of their obligation to scientific uncertainty, they are accused of undermining the predictability of an orderly life. Crucially, this apparent disregard of the ordinary people, their demands, and their virtues leads science-related populists to describe academic elites as an immoral collective of "boffins" (Taggart, 2004: 274) who cherish an artificial epistemology and disparage the simple, naturalistic, and reliable epistemology of ordinary people.

3.2 Core principles: decision-making sovereignty and truth-speaking sovereignty

Scholars of political populism see competing claims for political decision-making sovereignty as the underlying reason for the antagonism between the political elite and the people (see Wirth et al., 2016). But science-related populism is operating within the realms of science, whose primary role is to generate knowledge and not to take political decisions. Accordingly, science-related populism suggests that the relation between the 'ordinary people' and the 'academic elite' is defined by competing claims for *epistemic* authority, i.e. for sovereignty over how 'true knowledge' is produced. We propose to conceptualize this epistemic authority twofold: first, as science-related *decision-making sovereignty*, and second, as *truth-speaking sovereignty*.

Decision-making sovereignty

Science-related decision-making sovereignty is the authority over decisions about what is being, or should be, researched when, how, and by whom (see Bimber and Guston, 1995: 557–558). It is the right to shape research agendas, allocate funding, develop study designs or, in turn, curtail research in fields that are seen as problematic – i.e. the right to formulate science-related *power claims*.

What defines one part of the logic of science-related populism (see Figure 1) is a conflict between the people and the academic elite over these power claims. Generally, science-related populism suggests that academic elites possess science-related decision-making sovereignty, which allows scientists to work "behind closed doors" (Smith, 2015) and "do what they think is best" (Lee et al., 2005: 251) without public oversight or control. Therefore, it considers academic elites to hold such sovereignty *illegitimately*. Their decisions are allegedly not guided by objective scientific norms but specific ideological agendas – a "multiculturalist-relativist hegemony" (Ylä-Anttila, 2018: 369), for example – which lead to resources being committed to faulty or even "broken and useless" (Knudsen, 2017: 908) research fields like climate science, gender studies or the humanities in general. Science-related populism may also portray scientists' decisions as driven by the aim to further their own careers or realize personal gains (see Sarathchandra and Haltinner, 2020). Eventually, science-related populism pictures the 'scientific establishment' as a conspiring "big brain league" (Yiannopoulos, 2015) or a "corrupt insiders' club" (Ylä-Anttila, 2018: 372) which ignores the topical interests of the ordinary people and research fields that would contribute substantially to the common good.

From the perspective of science-related populism, *legitimate* possessors of science-related decision-making sovereignty should be the ordinary people – because their ideas about the who, how, and why of scientific knowledge production are allegedly not biased by elite interests and "powers operative behind the scenes" (Harambam and Aupers, 2015: 474) but informed by 'true practical relevance'. In this vein, Brazil's president Jair Bolsonaro, shortly before the education ministry would announce budget cuts for public universities, claimed that legitimate scientific research must "generate immediate return to the taxpayer" (dos Santos Paula, 2019).

Truth-speaking sovereignty

Truth-speaking sovereignty is the authority over defining what constitutes 'true' knowledge (see Bimber and Guston, 1995: 556–557). It is the right to determine valid information about the world, from official statistics about alleged immigrant crimes to interpretations about the implications of global warming – i.e. the right to formulate *truth claims*.

A conflict over these truth claims constitutes the second part of the logic of science-related populism (see Figure 1). Generally, science-related populism suggests that the academic elite holds truth-speaking sovereignty, manifested in a 'scientific establishment' claiming that the scientific epistemology – based on its

particular set of theories, methodologies, and methods – is superior to other epistemologies (see Harambam and Aupers, 2015). The populist view, however, perceives this as *illegitimate*, because scientific approaches to knowledge production do not prioritize the everyday experiences and opinions of ordinary people but rely on seemingly alienated theories developed in the proverbial ivory tower (Saurette and Gunster, 2011) and on "methods [that] are bunk", as Breitbart writer James Delingpole pointed out when trying to refute climate change research (Delingpole, 2017).

Legitimate truth-speaking sovereigns are, according to science-related populism, only those who infer their knowledge from "experience-based common sense" (Ylä-Anttila, 2018: 363), "their proximity to everyday life" (Saurette and Gunster, 2011: 199), and 'truths' that hold up in a public "opinion market" (Lewandowsky et al., 2017: 354), i.e. the ordinary people. Thanks to their alleged homogeneity, this knowledge would not be fragmented but constitute a coherent body of evidence. As Taggart (2000: 96) put it, "it is through their very collectiveness that they [the people] are able to produce wisdom". Such a 'cognitio populi', which rejects 'deference to scientific authority' (see Anderson et al., 2012) by cherishing authenticity and lay negotiation, is seen as contradictory to knowledge generation approaches of academic elites. It provokes a constellation in which "'the people' and 'the elites' hold their own version of truth" (Waisbord, 2018: 25).

4   Science-related populism and its implications

Populism is on the rise in many countries, and its anti-elitist critique does not only target political elites but also scientific elites. In this article, we have proposed a conceptualization of science-related populism. In doing so, we do not suggest that every criticism of science and its epistemology is an instance of science-related populism. Science-related populism has indeed partial overlaps with other challenges to epistemic authorities, such as radical science movements (Quet, 2014), political or industrial efforts to undermine scientific evidence (Oreskes and Conway, 2010), science denial (Hansson, 2017), anti-intellectualism (Hofstadter, 1963), conspiracy cultures (Harambam, 2017), indigenous epistemologies (Horton, 1967) or religious doctrines (McPhetres and Zuckerman, 2018)[3]. But eventually, science-related populism describes only one distinct variant of anti-scientific position – a variant that may be emerging in the wake of broader populist movements, that can be distinguished conceptually from political populism, and that had not been comprehensively conceptualized yet.

We understand science-related populism as a set of ideas suggesting an antagonism between an (allegedly) virtuous ordinary people and an (allegedly) unvirtuous academic elite – an antagonism that is due to 'the elite' illegitimately claiming and 'the people' legitimately demanding science-related decision-making sovereignty and truth-speaking sovereignty. Similar to political populism, this antagonism is seen as a conflict between a morally superior good side (the people) and a morally inferior bad side (the academic elites). Unlike political populism, however, science-related populism focuses on the core logic of science and epistemic authority. As such, it may occur in all contexts where scientific knowledge plays or may play a role, i.e. in practically all areas of personal, organizational, and public life (see Schäfer et al., 2015). Science-related populism may appear in different topical *context*s (from strongly politicized topics like climate change or vaccination to less politicized ones like nutrition or homeopathy), may target different *epistemic authorities* (e.g., individual climate researchers or science in general; see Sarathchandra and Haltinner, 2020), may have different *rationales* (e.g., ideological agendas or vested interests; see Morgan et al., 2018), and may come in

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[3] Most of these overlaps are limited, however. The French radical science movement did not intend to replace the scientific method with common sense, for example, and political or industrial "campaigns of doubt" (Oreskes and Conway, 2010: 686) against scientific evidence do not aim to give any sovereignty to ordinary people.

different *intensities* (e.g., rejection of science per se or resentment towards scientific institutions but acceptance of scientific methods; see Achterberg et al., 2017).

This conceptualization of science-related populism offers a three-fold contribution to scholarship on the science-society nexus: First, it addresses and brings together current public debates, which have sometimes been operating with catchy yet vague labels like "post-truth" (Williamson, 2019) or "anti-science" (Livni, 2016) and may benefit from a more systematic understanding of the phenomenon in question. Second, it integrates existing studies of anti-academic sentiment and discourses (e.g., Davis, 2019; Harambam and Aupers, 2015; Ylä-Anttila, 2018) into a single coherent theoretical framework – which allows for (at least some of) these discourses to be interpreted as manifestations of the same phenomenon. Third, it has the potential to inspire and guide future empirical research on science-related populism, which may assess its prevalence in different national contexts or social strata, the sociodemographic or attitudinal drivers behind it, and its cognitive, affective or behavioral impacts.

Ideally, our conceptualization would also stimulate the development of tools and methods to systematically collect data on manifestations of science-related populism. As our conceptualization relied on the 'ideational approach', which bears good operationalizability (Mudde, 2017: 39; see section 2.1), we are confident that the key elements and principles of science-related populism can be usefully translated into survey scales, coding schemes for standardized content analyses or qualitative approaches to text, corpus or discourse analysis – similar to those that have been developed for measurements of political populism (e.g., Ernst et al., 2019; Hameleers, 2019; Schulz et al., 2018). This would allow for comprehensive investigations of individuals' science-related populist attitudes (the 'demand side' of science-related populism) and science-related populist communication of public figures and organizations (the 'supply side').

In fact, some prior studies have already investigated aspects of the 'supply' and 'demand' sides of science-related populism. They suggest that science-related populism may indeed exist as a 'demand-side phenomenon', indicating that segments of populations in different countries have low confidence in the scientific community (Motta, 2018), are skeptical towards expert opinion (Oliver and Rahn, 2016), distrust doctors, professors, and other experts (Merkley, 2020), feel controlled by science and technology (Finnish Society for Scientific Information, 2016: 16), do not think that scientists act in the interest of the public (Funk et al., 2019), believe that scientists have a power that makes them dangerous (European Commission, 2010), and, in turn, want a say in science-related decision making (Schäfer et al., 2018a) and demand that scientists pay attention to the wishes of the public (Anderson et al., 2012). But these separate aspects have not yet been integrated into a broader framework – and our conceptualization would allow scholars to do so.

Other studies suggest that science-related populism also exists on the 'supply side', describing anti-scientific sentiments in political rhetoric, party programs, election posters, and slogans of populist parties and politicians in Belgium (Pauwels, 2010), France (Harsin, 2018), Germany (Berbuir et al., 2015) or Sweden (Hultman et al., 2019). But even if these studies provide first indications of the existence of science-related populism, they have not been connected to an umbrella framework like the one proposed here, and accordingly, only measure parts of science-related populism.

Furthermore, we hope that our conceptualization proves useful to future empirical research and inspires research aims and agendas. Using methodological tools such as those suggested above, scholars could assess the prevalence, spread, successes, and implications of science-related populism systematically. On its 'demand side', they could analyze the antecedents, consequences, and correlates of science-related populist attitudes. One aim would be to examine to what extent such attitudes exist apart from other populist attitudes, or if they differ along the political spectrum. On the 'supply side' of science-related populism, scholars could scrutinize whether populist leaders try to connect science-related populism to host ('thick') ideologies (see Mudde, 2017), and whether these connections gain traction among followers. Such host

ideologies could be, for example, economic liberalism promoting market solutions over solutions prescribed by experts (Panno et al., 2019), conservatism trying to withstand novel ideas coming from science (Rutjens et al., 2018) or libertarianism emphasizing individual freedom against compulsory measures such as vaccination suggested by medical experts (Kennedy, 2019). Also, scholars could examine the impact of populist leaders such as politicians (Simons, 2016), wealthy industrialists (Schwab, 2018) or media figures (Yiannopoulos, 2015) on the success of science-related populism.

Eventually, the normative implications of any such findings for science and society have to be discussed. On the one hand, wide-spread science-related populist attitudes among populations would necessitate a rethinking of science-society dialogue and science communication. The respective population segments would need to be addressed more specifically, with their specific attitudes in mind (Schäfer et al., 2018a). On the other hand, renewed debates about the role of science in democracy would be required – debates that have already begun but need to be continued in the future (Caramani, 2017; Collins et al., 2020).

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