It's Not the Technology, Stupid: How the 'Echo Chamber' and 'Filter Bubble' Metaphors Have Failed Us

Axel Bruns
Digital Media Research Centre
Queensland University of Technology
Brisbane, Australia
a.bruns@qut.edu.au
http://snurb.info/
@snurb_dot_info

Paper presented at the IAMCR 2019 conference in Madrid, Spain, 7-11 July 2019. Submission no. 19771.
Mediated Communication, Public Opinion and Society Section.

It's Not the Technology, Stupid: How the 'Echo Chamber' and 'Filter Bubble' Metaphors Have Failed Us

Introduction

Following the surprise victories of Brexit and Trump in 2016, even the outgoing U.S. president Barack Obama (2017) warned in his farewell speech that "it's become safer to retreat into our own bubbles", thereby linking increased electoral volatility and ideological polarisation with concepts such as "echo chambers" (Sunstein 2001) and "filter bubbles" (Pariser 2011). The politicians, journalists, and scholars who support these concepts suggest that, with online and social media as the primary sources of information for a growing percentage of the public (Newman *et al*. 2016), echo chambers and filter bubbles are chiefly responsible for the emergence of communities that espouse contrarian and counterfactual perspectives and ideologies, and for their disconnection from mainstream public debates.

Echo chambers are said to enable these groups to reinforce their views by connecting with like-minded others; filter bubbles to shield them from encountering contrary perspectives. Such disconnection from and ignorance of alternative perspectives is assumed to result from a combination of individual choice, in selecting the news sources to consult or the social media accounts to follow, and the algorithmic shaping of such choices, as news portals, search engines, and social media platforms highlight and recommend some sources over others. As platform algorithms learn from the users' choices, and users make those choices predominantly from the options promoted by the algorithms, a self-reinforcing feedback loop gradually curtails choice to an increasingly narrow and homogeneous set of options.

Rigorous empirical evidence for the operation of such processes is sorely lacking, however. Building on empirical studies that show no significant evidence of filter bubbles or echo chambers in search or social media, this paper argues that echo chambers and filter bubbles principally constitute an unfounded moral panic that presents a convenient technological scapegoat (search and social platforms and their affordances and algorithms) for a much more critical problem: growing social and political polarisation. But this is a problem that has fundamentally social and societal causes, and therefore cannot be solved by technological means alone.

The Metaphors We Communicate By

At their core, 'echo chambers' and 'filter bubbles' are highly evocative yet unfortunately ill-defined metaphors; their apparently commonsensical nature explains both their considerable appeal in scholarly and mainstream media debate, and their conceptual vagueness. Introduced and popularised by legal scholar Cass Sunstein in a series of books since the early 2000s (Sunstein 2001a; 2001b; 2009; 2017), the 'echo chamber' concept builds explicitly on Nicholas Negroponte's mid-1990s vision of the *Daily Me* (Negroponte 1995): a Web 2.0-enabled, personalised news portal that would serve only those news items that are of relevance to the known interests of its user, and would therefore vary significantly across individual users. While Negroponte's own vision of this service was largely positive, Sunstein took a considerably more dystopian view and saw the *Daily Me* and similar services as leading to a fragmentation and atomisation of society that would mean that there was no longer a guarantee that all citizens participating in democratic processes would do so on the basis of a shared and broadly comparable information diet; in particular, he viewed the deep political divisions revealed in the disputed U.S. presidential election race between George W. Bush and Al Gore in 2000, and in its acrimonious aftermath, as a clear sign of such coming societal disintegration. Subsequently, Sunstein's focus has shifted

away from Web-based news platforms and towards the role played by social media services and their algorithms; here, too, the personalisation of content feeds to suit the interests of individual users is seen as a driver of fragmentation. However, critics point out that the exact meaning of the concept has remained vague even after nearly two decades: for example, David Weinberger writes in a review of Sunstein's 2017 book *#Republic* that "despite his frequent use of the term …, Sunstein never defines echo chambers" (2017: n.p.).

Similar critiques can be mounted for the related 'filter bubble' concept. Developed and promoted predominantly by the tech entrepreneur and activist Eli Pariser, it builds fundamentally on an anecdote Pariser recounts in his 2011 book *The Filter Bubble: What the Internet Is Hiding from You*:

> in the spring of 2010, while the remains of the Deepwater Horizon oil rig were spewing crude oil into the Gulf of Mexico, I asked two friends to search for the term "BP." They're pretty similar – educated white left-leaning women who live in the Northeast. But the results they saw were quite different. One of my friends saw investment information about BP. The other saw news. For one, the first page of results contained links about the oil spill; for the other, there was nothing about it except for a promotional ad from BP. (Pariser 2011: 2)

The 'filter bubble' metaphor suggests, then, that if such divergent patterns result systematically from the customisation of search results for individual users, each user will come to be enclosed in a "personalized universe of information" (Pariser 2015: n.p.) that may share very few overlaps with the information universes of others; again, the metaphor suggests that societal fragmentation eventually results from this disintegration of shared informational environments amongst citizens. However, Pariser, too, fails to adequately define his central concept beyond such anecdotal evidence; indeed, like Sunstein he has pivoted in his subsequent writings from a concern with search engines as the driver of filter bubble formation to a focus on social media platforms and their algorithms, suggesting, for example, that "the Facebook news feed algorithm in particular will tend to amplify news that your political compadres favour" (Pariser 2015: n.p.).

As both echo chambers and filter bubbles have therefore remained somewhat moving targets in both public discourse and scholarly inquiry, one result has been the gradual conflation of the two. Even as a growing number of research projects have sought to provide evidence for or against the existence of echo chambers and/or filter bubbles, the two terms have been used increasingly interchangeably; indeed, some scholarly publications openly use language such as "filter bubbles (aka 'echo chambers')" (Orellana-Rodriguez and Keane 2018). Such confusion is thoroughly understandable, given the lack of interest in providing more concrete definitions that has been shown by the terms' primary proponents – but it does not aid our ability to develop methodologically sound and empirically rigorous tests for the existence and strength of echo chambers or filter bubbles.

Indeed, one critical question which must surely be asked as we investigate the validity of these concepts is *at what point* diverging information diets between individual users should be considered to constitute echo chambers or filter bubbles, rather than merely expressions of differing personal interests. After all, well before the introduction of our current online and social media platforms – indeed, well before any form of electronic media – different groups in society have always already informed themselves from different sources that suited their specific informational interests, needs, or literacies, and have formed communities of interest, professional associations, learned societies, or political parties to further that information exchange amongst the cognoscenti. If such diverging information diets predate the Internet and its various communication forms, have the echo chambers and filter bubbles that these new technologies are supposed to have caused always existed? Given that society and democracy have persisted nonetheless, should we even worry about them? Or do the proponents of these new metaphors argue that contemporary search engines and social media and their personalisation algorithms have measurably worsened communicative disconnects and dysfunctions in society, and continue to do so? Put simply, what is new here, and how is it different from before?

From this perspective, we need to develop measures that assess the level of dysfunction, possibly against a normative ideal: these would determine *how severely* individuals and groups are disconnected from the

available diversity of information, and set one or more threshold points at which mere interest in specific fields and types of information (preferential attachment) turns to an active rejection of other material (selective avoidance) – in simple terms, such measures would create a scale from 'balanced information diet' through 'informational specialisation' to 'dysfunctional disconnection'. At some point along that scale, individuals or groups may then be assessed to have entered echo chambers or filter bubbles, yet where that point lies must remain unclear for now: there is little agreement amongst the users of these metaphors about whether a 'true' echo chamber or filter bubble would require the hermetic severance of all informational ties with the outside, or whether less complete disruptions to the flow of information into and out of the space are already problematic enough to warrant the use of these terms. Here, again, the metaphors we use are obstructing our progress: the image of 'chambers' and 'bubbles' seems to suggest an entirely closed off space that is both inescapable and impermeable, yet – as we will soon see – some of the existing literature begins to speak of echo chambers and filter bubbles already in the context of far less significantly constricted flows of information and communication that leave their participants connected to the outside world.

The Unbearable Sameness of Search

While much of the subsequent discussion will focus on social media platforms as the proposed locus of echo chambers and filter bubbles, let us first briefly consider these concepts in the context of search, since both Sunstein's and Pariser's early work – and indeed Pariser's foundational anecdote for the 'filter bubble' metaphor – reference search engines as important drivers of informational fragmentation.

A series of recent studies have largely debunked such claims. Working at different scales, across several countries, with a focus on both *Google Search* and *Google News*, and variously using made-up user profiles, human clickworkers recruited via Amazon's Mechanical Turk service, and data donations generated by thousands of everyday users installing a browser plugin, studies by Haim (2018), Nechushtai & Lewis (2019), and Krafft *et al*. (2018) each found the very opposite of the experience reported by Pariser: different users searching for the same search terms were served very similar information, and in 5-10% of all cases saw identical search results "even in the same order" (Krafft *et al*. 2018: 30; my translation). Substantial differences occurred, not unexpectedly, only for users based in different countries and/or using their browsers in different languages.

Very much in contrast to the picture painted by the filter bubble metaphor, therefore, this evidence shows "only minor effects of personalization on content diversity", if any (Haim *et al*. 2018: 339); as a result, Krafft *et al.* go as far as to categorically "deny the algorithmically based development and solidification of isolating filter bubbles" (2018: 53; my translation). Indeed, in their discussion of the findings for their U.S.-based study, Nechushtai & Lewis even express the concern that, "despite the platform's algorithmic capability of constructing a much more diverse and/or tailored news experience" (2019: 302), *Google News* provides *not enough* personalisation, and instead directs its users predominantly to the same four or five prominent mainstream media news sources. While this should not be misunderstood as an explicit call for the construction of filter bubbles, it nonetheless points to the fact that some degree of personalisation – to address the individual user's interests, geographic location, socioeconomic context, and levels of news and media literacy – may in fact be desirable, and beneficial to their ability to realise their full potential as an informed citizen.

These findings show that if there are echo chambers or filter bubbles in search at all, they appear to encapsulate the entire population of a given country rather than fragment it into separate groups. But in reality this stretches these metaphors beyond breaking point, since they were originally introduced explicitly to address apparent dysfunctions *within* contemporary societies; instead, what these studies of search results appear to have uncovered is the fact that in spite of the considerable transformations experienced by national and international media ecologies since the widespread adoption of digital media, the afterimages of national public spheres that are sustained by a handful of leading mainstream media outlets continue to linger.

Echo Chambers and Filter Bubbles in Social Media

Even before the emergence of this comprehensive evidence against echo chambers or filter bubbles in search, much of the debate about these metaphors had shifted towards social media, where a number of studies claim to have found genuine evidence for the existence of communicative fragmentation and dysfunction. Here, too, the thorough empirical evaluation of these concepts has been frustrated by the lack of clear definitions for either of them, however; 'echo chamber' and 'filter bubble' are often used interchangeably, and there are wildly varying thresholds for when a mild preferential attachment to other communication partners on social media platforms (that is, the formation of communities of interest or clusters in the network) is seen as turning into an exclusionary detachment from and selective avoidance of mainstream discourse.

Elsewhere, in order to address some of these shortcomings in the current scholarship, I have proposed new and more explicit definitions for 'echo chamber' and 'filter bubble' that are better suited to their study in social media contexts (Bruns 2019); in particular, these distinguish between patterns of connection and practices of communication on these platforms. While there is not the space to discuss these definitions in detail in the present paper, this central distinction maps well onto the affordances of leading social media platforms such as *Facebook* and *Twitter*: using these definitions, the 'echo chamber' metaphor then addresses the structure of *Facebook* friendship or *Twitter* follower networks, while the 'filter bubble' metaphor focusses on the actual networks of communication that may or may not follow these connection structures (on both platforms, it remains possible to communicate with other users who are not friends or followers). Further, under this definition echo chambers and filter bubbles would amplify each other if the dysfunctional connection and communication structures overlap closely with each other – that is, if individuals and groups are both connecting *and* communicating only with their chosen in-group, and information flows to and from the outside are thus entirely severed. Finally, these new definitions also make it possible to assess more systematically exactly *how* disconnected the denizens of such suspected echo chambers or filter bubbles really are: most simply, it would be possible to use network metrics such as the E-I Index (Krackhardt & Stern 1988) to compare their volume of connection and communication with others *external* or *internal* to the group (cf. Bruns 2017; Bruns & Enli 2018 for applications of this approach to the Australian and Norwegian Twitterspheres).

This repurposing of echo chambers and filter bubbles from loose commonsensical metaphors to empirically verifiable concepts is already foreshadowed in some much earlier work. Focussing on the previous generation of social media – blogs – in their influential study of interconnection patterns amongst political blogs during the 2004 U.S. presidential election, Adamic & Glance (2005) famously found significant preferential attachment amongst partisan blogs on either side of the major political divide in the United States: Democrats were more likely to link to other Democrats, and Republicans more like to link to other Republicans, than they were to connect to the other side. Nonetheless there were some connections between them that linked to ideologically divergent content, even if perhaps only to criticise and attack such opposing views. The study therefore described the progressive and conservative blog networks it uncovered only "as mild echo chambers" (2005: 41), yet without further qualifying or explaining that term; the obvious question that flows from this classification is whether such 'mild' preferential attachment tendencies should be considered to be echo chambers in the fuller sense of the term at all, or whether they simply reflect the diverging ideological orientations amongst different partisan groups that should be expected in any election campaign, but which are not in themselves damaging to society. Indeed (ignoring for the moment the difficulties in translating the relevant metrics from blogging to subsequent forms of social media), an even more interesting question is perhaps whether such partisanship amongst social media participants has become measurably more severe in subsequent U.S. elections.

Studies of such connection and communication patterns within the current generation of mainstream social media have provided a similarly mixed picture. Amongst a multitude of such studies (see Bruns 2019 for a more detailed review of the current state of the field), the research by Williams *et al*. (2015) into the structure of participant communities in discussions about climate change on *Twitter* serves as a useful example for such work: the authors examined connection (via follower relations) and communication (via @mentions

and retweets) patterns amongst the lead participants in a number of relevant hashtags that variously reflected an acceptance of the scientific consensus, a neutral stance, or an outright denial of the science. In the definition sketched out above, therefore, they tested for both echo chambers (connection) and filter bubbles (communication), across a range of ideological contexts. Their findings are decidedly mixed: follower networks are often polarised, yet not entirely bifurcated (indicating perhaps a mild to more severe tendency towards echo chamber formation, depending on the hashtag); retweet networks show similar patterns; yet @mentions generally see partisans from all sides of the debate interact freely with each other (undermining any suggestion of ideologically determined filter bubbles amongst them). The researchers see this as evidence for both "open forums" *and* "echo chambers" (Williams *et al*. 2015: 137), even within the same hashtags.

Such potentially contradictory findings – which are also documented by a number of other studies, across a wide range of issues and topics – are further complicated by the fact that such studies often only investigate communication patterns within selected *Twitter* hashtags or *Facebook* pages, and like Williams *et al*. (2015) often only focus on the most active and most persistent contributors within these spaces. Further, these communicative spaces are often selected specifically because they represent controversies known to engender strong partisanship – for instance, Smith & Graham (2017) examine anti-vaccination pages on *Facebook*, while Garimella *et al*. (2018) explore divisive hashtags such as #obamacare, #guncontrol, and #abortion on *Twitter*. That such spaces are often highly polarised, and that their most committed participants also show the greatest levels of partisanship, is hardly surprising – yet similar patterns are not evident when these studies also consider inherently non-political cases for comparison: for Garimella *et al*. (2018), this includes hashtags such as #gameofthrones or #foodporn. Here, there appears to be no appreciable tendency towards the formation of echo chambers or filter bubbles, or towards any form of polarisation, amongst the participant communities.

Busting the Bubble

Indeed, even the apparent echo chamber or filter bubble tendencies that some of these studies claim to have observed in highly polarised *Facebook* pages or *Twitter* hashtags must be relativised if we consider that the very platform affordances that such research studies – pages and hashtags – are designed to connect users and make their communicative contributions visible to each other. Even if participants from different sides of an ideological divide choose neither to follow nor engage with their antagonists within such a space, each will still see the posts made by the opposite side, and the accounts that posted them, if they follow the page or hashtag feed (and here especially the posts made by those most active and potentially most ideologically orthodox lead users on either side). Only if – through spiral of silence effects (Noelle-Neumann 1974) and similar mechanisms – oppositional voices have been entirely purged from a given communicative space can such environments be considered as genuine echo chambers or filter bubbles.

Such processes are more likely to occur in cases where membership in such a space can be controlled by the community or its leaders – this is impossible for *Twitter* hashtags, which may be created and used by any user at any time, but more likely for *Facebook* pages and especially *Facebook* groups. The members of such spaces could seek to deliberately cut themselves off from the broader communicative environment around them, in order to perpetuate their in-group narratives without fear of disruption or contradiction. But in order to form 'hard' echo chambers or filter bubbles, they would then also have to refrain from using any of the other affordances of these platforms, to avoid connecting and communicating with non-orthodox outsiders even serendipitously. To do so is not impossible, but would require almost cultish levels of devotion and rigour, as O'Hara and Stevens argue (2015: 416).

By contrast, even if they are members of one or more of such closed, ideologically orthodox social media spaces, most ordinary social media users would also continue to use the same platforms for a variety of other purposes ranging from everyday social interaction to following current developments and discussions across various non-political interests. Through such activities, they remain likely to be exposed serendipitously to a wide range of participants and views that will diverge from and thereby counteract the ideological monoculture they may be experiencing in their closed spaces. In fact, as Helberger notes, "even Sunstein

concedes that unexpected exposures may help to 'promote understanding' and open-mindedness, and thereby also advance democratic goals" (Helberger 2011: 454). Here, it is therefore crucial to adopt a more holistic perspective on the various connective and communicative affordances and processes that a given user is likely to encounter on a social media platform over the course of an ordinary day, and indeed also to understand the social media platform itself only as one waypoint in their navigation of a much more complex media environment that incorporates multiple analogue as well as digital channels, from face-to-face encounters to electronic messaging (Dubois & Blank 2018). Unfortunately, the echo chamber and filter bubble metaphors tend to misrepresent the connective and communicative patterns they describe as symptomatic of users' entire experience of social media platforms, rather than as only one aspect of a much more diverse range of encounters.

Each of the components of this complex and interwoven media ecology offers different affordances that various close off or open out avenues for deliberate or serendipitous encounters with sameness and difference. Even within a single platform such as *Facebook*, we may argue that while its groups can indeed serve as engines of homophily, enabling like-minded users to connect and communicate with each other and exclude the outside world, its personal profiles serve as engines of context collapse (Marwick & boyd 2011), where contacts from the many facets of the user's personal life – family, friends, acquaintances, workmates, and others – connect and communicate with each other in an unruly and often uncontrollable mêlée. Whatever orthodox information diets participation in the former might have sought to create, these are thoroughly undone for most users of such a platform by the serendipitous "wild flows of messages" (Habermas 2006: 415) across the latter.

Even the platforms' recommendation and filtering algorithms, often presented as a significant culprit in channelling such wild flows into monocultural feeds, cannot undo this diversity, even if they do affect it. Eli Pariser is simply and fundamentally wrong in his assessment that "the Facebook news feed algorithm in particular will tend to amplify news that your political compadres favour" (Pariser 2015: n.p.), which we encountered earlier, for the simple fact that the users of *Facebook* and other mainstream social media platforms do not select their friends and followers on these platforms simply because they are 'political compadres'. Rather, as research by the Pew Center found even in the context of the exceptionally divisive 2016 U.S. presidential election, "a notable proportion of users simply don't pay much attention to the political characteristics of the people in their networks" (Duggan & Smith 2016: 9), and as a result are indeed often surprised and frustrated by the amount of political content they encounter in their networks that does not align with their own ideological views. Yet such cross-ideological connectivity can also be highly beneficial for these users' information diets: data gathered for the Reuters Institute's *Digital News Report* demonstrate that with the help of the habitual newssharing (Bruns 2018a) performed by the friends and followers in their network, social media users generally encounter a greater diversity of news sources than non-users do (Fletcher and Nielsen 2018: 2459). Far from the concerns of the proponents of the echo chamber and filter bubble metaphors, in order words, mainstream social media platforms and practices enrich rather than impoverish their users' information diets.

This does not rule out that extreme hyperpartisans on the fringes of the political spectrum will display highly divergent communication practices, and will indeed only connect with their own political compadres on these platforms, or even communicate only on the smaller niche platforms specifically designed to cater to particular ideological groups. Yet in order to complete their enclosure in a self-selected echo chamber and/or filter bubble, even such political extremists would then need to abstain altogether from also engaging with more mainstream platforms (for instance to maintain social connections with their non-political friends or family), and even from using mainstream media services altogether. Given the very hyperpartisan nature of their ideological stance, however, such cultish disconnection from the ordinary world would be inherently counterproductive: in order both to shore up their own ideological worldview against outside challenge, to evangelise for new converts to their ideological orthodoxies, and to be able to attack the perceived flaws in the arguments put forward by their opponents, it is critical for these hyperpartisans to also maintain their presence in mainstream social media conversations and to continue to monitor mainstream and opposition

media content (Garrett *et al*. 2013: 131). As a result, those users frequenting the most extremely partisan conservative sites in the United States have been found also to be more likely than ordinary Internet users to visit the centrist *New York Times*, for instance (Gentzkow and Shapiro 2011: 1823).

From this whole-of-system perspective, then, it appears exceptionally unlikely that ordinary social media users would find themselves entirely enclosed in connective echo chambers or communicative filter bubbles, even if they actively pursue homophilous connections with like-minded others in the context of specific interests or activities: on the mainstream social media platforms themselves, and even more so across the contemporary media ecology as a whole, the forces of context collapse in a complex and thoroughly interconnected mediasphere are simply too powerful. This is borne out by studies that attempt to take a more comprehensive perspective: a major study of overlaps in the *Facebook* page likes amongst supporters of different political parties ahead of the 2017 German federal election showed significant shared interests even in spite of diverging ideological views, except for the neo-fascist AfD party (Brunner & Ebitsch 2017; Rietzschel 2017), while comprehensive analyses of the follower network structures in the Australian and Norwegian Twitterspheres (Bruns *et al*. 2017; Bruns & Enli 2018), and of interaction patterns amongst Australian *Twitter* accounts (Bruns 2017) detected clear tendencies to form network clusters around shared interests, but saw no evidence of active disconnection from other groups. Such findings remain in line with earlier studies of online news use in the United States, which found that "exposure to highly partisan political information … does not come at the expense of contact with other viewpoints" (Garrett *et al*. 2013: 132): the overall picture that emerges here is that online and social media do of course make it easier for individuals to pursue their interests, and to preferentially connect and communicate with like-minded others in doing so, but that this does not mean that they also withdraw from engaging with other contacts as a result. An element of homophily in one's online interactions does not mean an equal and opposite element of heterophobia at the same time, therefore; preferential attachment around political and other interests does not inevitably damage the user's overall information diet.

Conclusion: The Dumbest Metaphor on the Internet

This detaches the echo chamber and filter bubble concepts, which we have redefined as empirically measurable divergences in connection and communication patterns from an idealised, cluster- and community-free network structure, from the inherently negative consequences – chiefly, societal and ideological fragmentation – that Sunstein and Pariser have attached to these metaphors. In many online and social media environments, mild or more severe tendencies towards homophily may well exist, for particular users and groups, across a wide range of contexts, and we could apply terms such as 'echo chamber' or 'filter bubble' to such patterns if we so choose, but it is not at all clear that this has any inevitable impact on these users' information diets or democratic participation. In light of the strongly negative connotations that these terms now have in both scholarly and mainstream discourse, however, it may be difficult to salvage them for future use as more value-neutral concepts.

Similarly, there no longer appears to be any direct and inescapable link between participants' involvement in such homophilous preferential attachment to like-minded others on the one side, and the digital media technologies they employ in pursuing it; this homophily, to the extent that it occurs, results in the first place from users' own personal, professional, and political interests. By contrast, as O'Hara and Stevens observe, "the echo chamber argument seems to suggest that technology is a homogeneous influence on an individual whose social context is, if not fixed, at least not particularly multidimensional. Yet this does not accord with experience" (2015: 412): it is the very complexity and multidimensionality of everyday life, experienced most viscerally at times of context collapse, that counteracts the homogenising tendencies of preferential attachment to like-minded others in any one specific social context, online or offline. Even the organising algorithms employed by search and social media platforms to channel and manage this complexity cannot counteract such fundamental human traits, although they are at times able to dampen and ease the rapid transitions between different social contexts.

In the face of such complexities, it is therefore difficult to see justifications for continuing our use of terms such as echo chamber and filter bubble other than in exceptional and extreme situations, and a growing chorus of scholars have come to take an explicitly critical view of these concepts. In a major review of the existing literature, for example, Zuiderveen Borgesius *et al*. come to the conclusion that "at present there is little empirical evidence that warrants any worries about filter bubbles" (2016: 1). But the concepts remain present in mainstream discourse, appearing as we have seen even in presidential farewell speeches, and from such platforms continue to exert a significant influence on the popular understanding of contemporary digital media platforms; this is deeply problematic, and a symptom of a larger moral panic about the impacts of such new communication technologies on society, politics, and democracy. As Weinberger put it as early as 2004, the echo chamber "is a myth just waiting to concretize into common wisdom" (Weinberger 2004: n.p.) – by now, the concrete has set, and this deeply flawed metaphor may well be used as a basis for political decision-making as further regulation of online communication platforms is developed.

This is concerning: "one lesson we should have learned from the past is that panic does not lead to sane policies" (Zuiderveen Borgesius *et al*. 2016: 11). Yet echo chambers and filter bubbles, and the platform affordances and algorithms that are said to be instrumental in their emergence, have been cast amongst the chief villains in the rise of populist and illiberal political movements in North America, Europe, the Asia-Pacific, and elsewhere. This is sometimes done explicitly with an ulterior motive: the echo chamber "meme … plays into the hands of those who are ready to misconstrue the Net in order to control it" (2004: n.p.). But even in the absence of such more sinister motivations the echo chamber and filter bubble metaphors represent at the very least a technologically determinist fallacy that is likely to have consequences for how current crises are addressed: as Meineck puts it, these metaphors are "the desperate attempt to make technology responsible for ... societal problems. Whoever speaks of filter bubbles evidently sees the causes of radical users in algorithmic newsfeeds or monstrous online platforms that push their helpless visitors in despicable ways into bubbles of opinion" (2018: n.p.; my translation) – an unacceptable oversimplification that fundamentally, cynically deprives users of their personal identity and agency. Meineck therefore calls the filter bubble "the dumbest metaphor of the Internet" (*ibid*.), and this criticism is not unreasonable.

The fundamental problem, ultimately, is that the echo chamber and filter bubble metaphors both draw our attention to the specific technologies on which they focus: personalised content portals, search engines, and – most recently and most forcefully – social media platforms. They correlate the emergence of the phenomena they decry with the widespread adoption of these tools by a mass userbase, and by extension suggest that similar patterns of homophily and heterophobia did not exist before their advent. But as we have seen, there are now both substantial challenges to the veracity of claims about the societal fragmentation and impoverished information diets that echo chambers and filter bubbles are supposed to cause, and significant questions about whether mere preferential attachment to others over shared interests is a particularly novel phenomenon, and in any way different from such tendencies even in offline environments.

If there are crucial and confronting challenges to societal cohesion in many nations of the developed and developing world at present, therefore – as there clearly are –, the echo chamber and filter bubble metaphors are doing us a fundamental disservice by misdirecting our attention to online platforms as the root cause of these problems. This does not absolve the operators of these platforms from all culpability, of course: *Facebook*, *Twitter*, and other major stakeholders could and should be doing a great deal more to militate against abuse and hate speech, suppress the circulation of mis-, dis-, and malinformation, and deplatform extremists, and they should engage in a much more transparent manner with the scholarly community in finding social as well as technological solutions to these issues (Bruns 2018b), rather than relying only on the limited expertise of their in-house teams. However, the rise of hyperpartisan, populist, and illiberal ideological agitators and propagandists from the fringes of the political spectrum, and their rejection of established democratic principles and processes, is not principally a phenomenon related to the communications technologies they use: it is, centrally, a societal problem. Our continuing debate about ill-considered metaphors such as 'echo chambers' and 'filter bubbles' is a distraction that we can no longer afford, because if keeps us from confronting far more important matters head-on.

As we have seen, even – indeed, perhaps especially – the most hyperpartisan users still encounter material that challenges their perspectives, and engage with others who represent opposing views (e.g. Garrett *et al*. 2013; Weeks *et al*. 2016). The central question now is *what they do* with such information when they encounter it: do they dismiss it immediately as running counter to their own views? Do they engage in a critical reading, turning it into material to support their own worldview, perhaps as evidence for their own conspiracy theories? Do they respond by offering counter-arguments, by vocally and event violently disagreeing, by making *ad hominem* attacks, or by knowingly disseminating all-out lies as 'alternative facts'? More important yet, *why do they do so*? What is it that has so entrenched and cemented their beliefs that they are no longer open to contestation? *This* is the debate we need to have: not a proxy argument about the impact of platforms and algorithms, but a meaningful discussion about the complex and compound causes of political and societal polarisation. The 'echo chamber' and 'filter bubble' metaphors have kept us from pursuing that debate, and must now be put to rest.

Acknowledgments

This research is supported by the Australian Research Council Future Fellowship project *Understanding Intermedia Information Flows in the Australian Online Public Sphere* and LIEF project *TrISMA: Tracking Infrastructure for Social Media in Australia*.

Bio

Prof. Axel Bruns is a Professor in the Digital Media Research Centre at Queensland University of Technology in Brisbane, Australia. He is the author *of Are Filter Bubbles Real?* (2019), *Gatewatching and News Curation: Journalism, Social Media, and the Public Sphere* (2018), *Blogs, Wikipedia, Second Life and Beyond: From Production to Produsage* (2008), and *Gatewatching: Collaborative Online News Production* (2005), and a co-editor *of Digitizing Democracy* (2019), the *Routledge Companion to Social Media and Politics* (2016), *Twitter and Society* (2014), *A Companion to New Media Dynamics* (2012), and *Uses of Blogs* (2006). His current work focusses on the study of user participation in social media spaces such as *Twitter*, and its implications for our understanding of the contemporary public sphere, drawing especially on innovative new methods for analysing 'big social data'. His research blog is at http://snurb.info/, and he tweets at @snurb_dot_info.

References

Adamic, Lada A., and Natalie Glance. 2005. "The Political Blogosphere and the 2004 U.S. Election: Divided They Blog." In *Proceedings of the 3rd International Workshop on Link Discovery (LinkKDD '05)*, edited by Jafar Adibi, Marko Grobelnik, Dunja Mladenic, and Patrick Pantel, 36–43. New York: ACM. https://doi.org/10.1145/1134271.1134277.

Brunner, Katharina, and Sabrina Ebitsch. 2017. "Von AfD bis Linkspartei – so politisch ist Facebook." *Süddeutsche Zeitung*, 2 May 2017. https://www.sueddeutsche.de/politik/politik-auf-facebook-rechte-abschottung-ohne-filterblase-1.3470137.

Bruns, Axel. 2017. "Echo Chamber? What Echo Chamber? Reviewing the Evidence." Paper presented at Future of Journalism 2017, Cardiff, 15 Sep. 2017. http://snurb.info/files/2017/Echo%20Chamber.pdf.

———. 2018a. *Gatewatching and News Curation: Journalism, Social Media, and the Public Sphere*. New York: Peter Lang.

———. 2018b. "Facebook Shuts the Gate after the Horse Has Bolted, and Hurts Real Research in the Process." *Internet Policy Review*, April. https://policyreview.info/articles/news/facebook-shuts-gate-after-horse-has-bolted-and-hurts-real-research-process/786.

———. 2019. *Are Filter Bubbles Real?* Cambridge: Polity.

Bruns, Axel, and Gunn Enli. 2018. “The Norwegian Twittersphere: Structure and Dynamics.” *Nordicom Review* 39 (1): 129–48. https://doi.org/10.2478/nor-2018-0006.

Bruns, Axel, Brenda Moon, Felix Münch, and Troy Sadkowsky. 2017. “The Australian Twittersphere in 2016: Mapping the Follower/Followee Network.” *Social Media + Society* 3 (4): 1–15. https://doi.org/10.1177/2056305117748162.

Dubois, Elizabeth, and Grant Blank. 2018. “The Echo Chamber Is Overstated: The Moderating Effect of Political Interest and Diverse Media.” *Information, Communication & Society* 21 (5): 729–45. https://doi.org/10.1080/1369118X.2018.1428656.

Duggan, Maeve, and Aaron Smith. 2016. “The Political Environment on Social Media.” Washington, DC: Pew Research Center. http://assets.pewresearch.org/wp-content/uploads/sites/14/2016/10/24160747/PI_2016.10.25_Politics-and-Social-Media_FINAL.pdf.

Fletcher, Richard, and Rasmus Kleis Nielsen. 2018. “Are People Incidentally Exposed to News on Social Media? A Comparative Analysis.” *New Media & Society* 20 (7): 2450–68. https://doi.org/10.1177/1461444817724170.

Garimella, Kiran, Gianmarco De Francisci Morales, Aristides Gionis, and Michael Mathioudakis. 2018. “Political Discourse on Social Media: Echo Chambers, Gatekeepers, and the Price of Bipartisanship.” In *Proceedings of the 2018 World Wide Web Conference*, 913–22. Geneva: International World Wide Web Conferences Steering Committee. https://doi.org/10.1145/3178876.3186139.

Garrett, R. Kelly, Dustin Carnahan, and Emily K. Lynch. 2013. “A Turn toward Avoidance? Selective Exposure to Online Political Information, 2004–2008.” *Political Behavior* 35 (1): 113–34. https://doi.org/10.1007/s11109-011-9185-6.

Gentzkow, Matthew, and Jesse M. Shapiro. 2011. “Ideological Segregation Online and Offline.” *The Quarterly Journal of Economics* 126: 1799–1839. https://doi.org/10.1093/qje/qjr044.

Habermas, Jürgen. 2006. “Political Communication in Media Society: Does Democracy Still Enjoy an Epistemic Dimension? The Impact of Normative Theory on Empirical Research.” *Communication Theory* 16: 411–26. https://doi.org/10.1111/j.1468-2885.2006.00280.x.

Haim, Mario, Andreas Graefe, and Hans-Bernd Brosius. 2018. “Burst of the Filter Bubble? Effects of Personalization on the Diversity of Google News.” *Digital Journalism* 6 (3): 330–43. https://doi.org/10.1080/21670811.2017.1338145.

Helberger, Natali. 2011. “Diversity by Design.” *Journal of Information Policy* 1: 441–69. https://doi.org/10.5325/jinfopoli.1.2011.0441.

Krackhardt, David, and Robert N. Stern. 1988. “Informal Networks and Organizational Crises: An Experimental Simulation.” *Social Psychology Quarterly* 51 (2): 123–40. https://doi.org/10.2307/2786835.

Krafft, Tobias D., Michael Gamer, and Katharina A. Zweig. 2018. “Wer sieht was? Personalisierung, Regionalisierung und die Frage nach der Filterblase in Googles Suchmaschine.” Kaiserslautern: Algorithm Watch. https://www.blm.de/files/pdf2/bericht-datenspende---wer-sieht-was-auf-google.pdf.

Marwick, Alice E., and danah boyd. 2011. “I Tweet Honestly, I Tweet Passionately: Twitter Users, Context Collapse, and the Imagined Audience.” *New Media & Society* 13 (1): 114–33. https://doi.org/10.1177/1461444810365313.

Meineck, Sebastian. 2018. “Deshalb ist ‘Filterblase’ die blödeste Metapher des Internets.” *Motherboard*, 9 Mar. 2018. https://motherboard.vice.com/de/article/pam5nz/deshalb-ist-filterblase-die-blodeste-metapher-des-internets.

Nechushtai, Efrat, and Seth C. Lewis. 2019. “What Kind of News Gatekeepers Do We Want Machines to Be? Filter Bubbles, Fragmentation, and the Normative Dimensions of Algorithmic Recommendations.” *Computers in Human Behavior* 90: 298–307. https://doi.org/10.1016/j.chb.2018.07.043.

Negroponte, Nicholas. 1995. *Being Digital*. New York: Vintage.

Newman, Nic, Richard Fletcher, David A.L. Levy, and Rasmus Kleis Nielsen. 2016. “Reuters Institute Digital News Report 2016.” Oxford: Reuters Institute for the Study of Journalism, University of Oxford. http://reutersinstitute.politics.ox.ac.uk/sites/default/files/Digital-News-Report-2016.pdf.

Noelle-Neumann, Elisabeth. 1974. “The Spiral of Silence: A Theory of Public Opinion.” *Journal of Communication* 24 (2): 43–51. https://doi.org/10.1111/j.1460-2466.1974.tb00367.x.

Obama, Barack. 2017. “President Obama’s Farewell Address: Full Video and Text.” *New York Times*, 10 Jan. 2017. https://www.nytimes.com/2017/01/10/us/politics/obama-farewell-address-speech.html.

O’Hara, Kieron, and David Stevens. 2015. “Echo Chambers and Online Radicalism: Assessing the Internet’s Complicity in Violent Extremism.” *Policy & Internet* 7 (4): 401–22. https://doi.org/10.1002/poi3.88.

Orellana-Rodriguez, Claudia, and Mark T. Keane. 2018. “Attention to News and Its Dissemination on Twitter: A Survey.” *Computer Science Review* 29: 74–94. https://doi.org/10.1016/j.cosrev.2018.07.001.

Pariser, Eli. 2011. *The Filter Bubble: What the Internet Is Hiding from You*. London: Penguin.

———. 2015. “Did Facebook’s Big Study Kill My Filter Bubble Thesis?” *Wired*, 7 May 2015. https://www.wired.com/2015/05/did-facebooks-big-study-kill-my-filter-bubble-thesis/.

Rietzschel, Antonie. 2017. “Wie es in Facebooks Echokammern aussieht – von links bis rechts.” *Süddeutsche Zeitung*, 11 July 2017. https://www.sueddeutsche.de/politik/mein-facebook-dein-facebook-wie-es-in-den-echokammern-von-links-bis-rechts-aussieht-1.3576513.

Smith, Naomi, and Tim Graham. 2017. “Mapping the Anti-Vaccination Movement on Facebook.” *Information, Communication & Society*. https://doi.org/10.1080/1369118X.2017.1418406.

Sunstein, Cass R. 2001a. *Echo Chambers: Bush v. Gore, Impeachment, and Beyond*. Princeton, N.J.: Princeton University Press.

———. 2001b. *Republic.Com*. Princeton, N.J.: Princeton University Press.

———. 2009. *Republic.Com 2.0*. Princeton, N.J.: Princeton University Press.

———. 2017. *#Republic: Divided Democracy in the Age of Social Media*. Princeton, N.J.: Princeton University Press.

Weeks, Brian E., Thomas B. Ksiazek, and R. Lance Holbert. 2016. “Partisan Enclaves or Shared Media Experiences? A Network Approach to Understanding Citizens’ Political News Environments.” *Journal of Broadcasting & Electronic Media* 60 (2): 248–68. https://doi.org/10.1080/08838151.2016.1164170.

Weinberger, David. 2004. “Is There an Echo in Here?” *Salon*, 21 Feb. 2004. https://www.salon.com/2004/02/21/echo_chamber/.

———. 2017. “Pointing at the Wrong Villain: Cass Sunstein and Echo Chambers.” *Los Angeles Review of Books*, 20 July 2017. https://lareviewofbooks.org/article/pointing-at-the-wrong-villain-cass-sunstein-and-echo-chambers/.

Williams, Hywel T.P., James R. McMurray, Tim Kurz, and F. Hugo Lambert. 2015. “Network Analysis Reveals Open Forums and Echo Chambers in Social Media Discussions of Climate Change.” *Global Environmental Change* 32: 126–38. https://doi.org/10.1016/j.gloenvcha.2015.03.006.

Zuiderveen Borgesius, Frederik J., Damian Trilling, Judith Möller, Balázs Bodó, Claes H. de Vreese, and Natali Helberger. 2016. “Should We Worry about Filter Bubbles?” *Internet Policy Review* 5 (1). https://doi.org/10.14763/2016.1.401.