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“Real without being concrete”: the ontology of public concern and its significance for the Social Amplification of Risk Framework (SARF)

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Abstract

Public concern is a pivotal notion in the risk perception, communication and management literature. It is, for example, a central concept with regard to the social amplification of risk, and as a justification for policy attention. Despite its ubiquity, the notion of public concern remains a ‘black box’ presenting a poorly understood state of affairs as a reified matter-of-fact. Paying attention to the deployment and metrics of public concern, and the work it is required to do, will enhance the power of approaches to understanding risk, and policymaking. Thus, the broad purpose of this paper is to unpack the notion of public concern by adopting an ontological yet critical perspective; drawing on a range of literature, that considers ontology. We reflect on how publics and public concern have been conceptualised with regard to the dichotomies of individual/social and private/public, given that they imply different levels and dimensions of concern. We draw on empirical work that illuminates the assessment and measurement of public concern and how the public have responded to risk events. Considering public concern through an ontological lens affords a means of drawing renewed critical attention to objects that might otherwise appear finished or ready-made.

Key words: ontology, public concern, Social Amplification of Risk Framework, assemblage, publics

Introduction

The ubiquitous notion of public concern, and its relation to risk, the media and policy

Public concern is a key concept regularly deployed across a wide range of academic, media and policy contexts. The concept can be mobilised in both explanatory and descriptive modes, e.g. as an effect of risk events, subsequently used to explain policy attention (Smith and McCloskey 1998), or as a prosaic description of how people may orientate to an issue. The rhetorical flexibility of ‘public concern’ establishes its centrality in both the media and in the policy making process (Gottweis 2007), as a motif or recurring element in the narratives used to make sense of the world. As such, it is important to consider the mode in which notions of public concern are mobilised, and the empirical basis for doing so.

However, and more often than not, that there is a concerned public is assumed rather than established empirically. This is especially true of the media, where concern is regularly attributed to the public, or indeed inculcated, with regard disparate issues and as a matter of course. For example, media coverage of a potential avian influenza pandemic in Greece in 2005 resulted in over one million vaccines sales (Falagas and Kiriaze 2006). Within this figure there will of course exist heterogeneity with regard the make-up of groups and types of individual purchasing vaccines. Nonetheless, general public awareness of the influenza did not exist until the media created the perception of a risk. Hence, it can be suggested that the media not only ‘creates’ a [concerned] public, but also proxies of concern, e.g. vaccine sales, or significant increases in emergency department attendance, *independent* of actual disease prevalence within a community (McDonnell *et al.* 2012). In other topics that garner media attention, such as climate change, variation in public concern levels has also been explained in terms of the nature of media coverage about it (Painter and Gavin 2016).

More pertinently, policy makers erroneously take media coverage of risk events as indicative of public concern (Bakir 2006). Hence, identifying valid indicators of concern should be a

routinised aspect of policy development. Public concern often becomes ‘translated’ into regulatory changes attempting to prevent a problem recurring (Smith and McCloskey 1998). In this sense, ‘public concern’ has symbolic meaning beyond any particular referent, serving rather to organise and connect different levels and domains of effect. For example, abstract public concern about commercial fishing and its environmental effects may manifest as social changes to consumption practices, reflecting ethical issues of human relations with the environment. These changes may intersect with policy constraints on catch size and be of concern to individual fishermen, and in a way that differs from non-fisherman. Concern around contaminants in fish introduces an explicit relation with the domain of health.

Risk management is therefore complex and necessitates policies that seek to reconcile harm minimisation with balancing the interests and responses of different individuals and publics (Hooker *et al.* 2017). It is thus important to recognise that any single concern issue involves and affects different publics in different ways with different aspects of the issue becoming more or less salient across time; high unemployment rates, for example, during recessions, ‘crowd out’ concern for the environment (Kahn and Kotchen 2010). Hence, concerns about an issue are not absolute, but exist in tension, overlapping and reinforcing each other, and giving rise to further concerns connected to yet more domains whilst existing concerns diminish. In this sense, situations that give rise to concern are not necessarily self-evident but are constituted by the actors involved in them, including policymakers (Grint 2005).

The Social Amplification of Risk Framework (SARF) and public concern

With regard the risk literature per se, the relationship between public concern and the media is central to explanatory models, such as the social amplification of risk framework (SARF) (Kasperson *et al.* 1988). According to SARF, risks pertaining to a risk ‘event’ or hazard are symbolised, processed and represented by various individual and social ‘amplification stations’, including the media (Kasperson *et al.* 1988). Amplification stations intensify or

attenuate public perceptions of risk, resulting in ‘ripple effects’ which may have far-reaching impacts beyond the risk event itself. The media, key players in relaying information to the public, are therefore implicated in the risk representations the public hold and the behaviours they display. However, whilst bringing risk issues to public awareness, the complexity of risk is usually oversimplified, if not misrepresented (Smith and McCloskey 1998). For example, media amplification of a now debunked study into the link between autism and the measles, mumps and rubella vaccine resulted in a substantial and persistent decline in vaccine coverage (Larson *et al.* 2013).

Despite its heterogeneity, public concern is often presented as a homogeneous object with no ostensible context-dependent variation or complexity (Fellenor *et al.* under review-b). We suggest that within SARF, the notion of public concern is poorly characterised and that because policy makers invoke and do things with public concern, its heterogeneity in terms of material actors, affects, cognitions and other virtual¹ objects requires greater consideration. Thus, despite the inherent relationality that SARF is predicated on, between individual and social amplification stations, risk events and so forth, it over simplifies the complexity of relations (Pidgeon and Barnett 2013); its analytical repertoire is insufficiently attuned to the heterogeneity and complexity of public concern. Nonetheless, because of its uniqueness in seeking to integrate social and psychological responses, SARF provides a starting point for contextualising and excavating the concept of public concern.

Thus, the broad purpose of this paper is to unpack the notion of public concern. We pay particular regard to its role within SARF; an influential heuristic approach that explores the relationship between individual and social factors, including governmental and media

¹ For our purpose, the virtual is an aspect of reality that can have an actual effect without any necessary materialisation, such as an obsession leading to compulsive behaviour. Against the virtual, the ‘actual’ refers to that which has concrete existence or *has been realised as an effect* (Deleuze and Guattari (2005 (Deleuze and Parnet 2007)

institutions, and predicated on the importance of understanding discrepancies between expert and lay assessments of risk.

Aims

Despite its ubiquity the notion of public concern remains a ‘black box’ (Woolgar and Lezaun 2013); a poorly characterised state of affairs presented as a reified matter of fact (Yonay 1994). Paying attention to the metrics of public concern and the work it is required to do, will enhance the power of approaches such as SARF to understanding risk.

The purpose of this paper is twofold. Firstly, to reflect on how publics and public concern have been conceptualised with regard to the relationship between ‘individual’ and ‘social’, and ‘private’ and ‘public’, given the implication of different levels and dimensions of concern. In doing so, we draw on empirical work that illuminates how public concern has been assessed and how the public have responded to risk events. Secondly, we adopt an explicitly ontological perspective to afford public concern, an object that otherwise appears “finished” or “ready-made”, the critical attention that the concept warrants.

That there are publics and that they have concerns goes unquestioned. Yet within this common sense notion lies a conflation of the meanings of concern and the objects it is entangled with. We are therefore dealing with questions about the ontological relations between things. For example, how public concern as a social object relates to concern at an individual level, and how ‘something’ that inheres in a private realm of experience becomes a socio-political macro object that incorporates materiality. Addressing these questions will assist in exploring the extent to which we can differentiate individual concern from public concern and help us understand public concern’s constitutive power.

The research questions addressed are:

1. What is problematic about the notion of public concern?

2. What does empirical work that has focussed on public concern reveal?
3. What does public concern look like through an ontological lens, and can this enhance our understanding of SARF?

The problematic that is public concern

The ontology of public concern: what is 'real'?

Ontology is the study of 'what there is'; a consideration of what is 'real', what can be said to 'exist' and what constitutes 'being'. A further aspect involves how we categorise 'things' and draw conclusions about their characteristics. Implicit in the notion of ontology is a concern with the nature of the procedures and methods by which we address these questions (Hay 2006). The most important explanatory task for ontology is to reflect on the relations between things and whether they are fundamental entities or dependent on other entities for their existence (Berto and Plebani 2015). Given that in the case of 'public', 'individual' and 'concern', we are dealing with the nature of political reality (Hay 2002), adopting an ontological viewpoint is a fundamental step in establishing our knowledge about these objects and the methods we employ to do so (Hay 2007).

How have 'publics' been theorised?

'Public' is a conceptually problematic term (Hallahan 2000) comprising ideological, descriptive, and normative associations. The ideological element implies that the public, and what is for the public good, rests on an imaginary uniformity and consensus (Newman and Clarke 2009); that a matter of common interest unites a population of individuals. The 'issue public' (Converse 2006), for example, captures the way that some people follow a [political] issue more closely than others and, in doing so, exert pressure on policymakers to take certain decisions (Hestres 2014). The broader hypothesis around issue publics is that different issues that in totality make up the political world, engage the particular interests of people. Each issue public has the knowledge required to engage with the politics of their particular domain, even

though they may lack knowledge of other political areas (Henderson 2014). The ‘public’, thus differentiated into mutually exclusive sub-sets, exists in an abstract sense.

Beyond what constitutes a public, the notion has different meanings depending on the context in which it is deployed (Hainz *et al.* 2017). The term is normative in that it helps shape inclusive social identities. For an individual to remain ‘outside’ of a public, which they may otherwise be identified with, can be interpreted as subversive (Laurenson and Collins 2006). It is often the case that publics who unite and respond in an active way are a fraction of the broader, equally affected yet inactive masses. This hidden yet virtual public, perceived by policymakers as disenfranchised and disengaged, is a focal point for the democratic process. Actualising and enfranchising this public, by extending participation and consultation throughout the policy process, is one way of ‘assuaging mistrust’ with regard, for example, the inception of new technologies (Lezaun and Soneryd 2007). For a public to exist, it must occupy a material and/or a virtual space, e.g. the ‘public sphere’ (Habermas 1991). Describing this space invariably involves committing to one ontological foundation or another (DeLanda 2006b). Hence, ‘publics’ intersect with the regulation of spaces and places; transcending a mere ‘body of people’. The political frame around a public is necessarily ontological, with the act of governance conferring one type of subjectivity over another.

Having acknowledged that publics are composed of different types of actor, the next logical step is to explore the reality status of these actors and their interrelations, because the political process builds claims around, and plays a role in, how the world is represented and our interpellation into it.

Ontological politics or the politics of ontology?

The ontological confusion around the reality status of the ‘public’ affords a practical resource for politicians, facilitating the ability to draw on contrasting discourses to effect rhetorical work

(Laclau 2005). The government has the power to make issues appear routinised, naturalised and hence apolitical (Latour 2007), in that they ‘enter public arenas in [a] process of ‘disambiguation’, pulling apart from other issues, become legitimised as a topic of concern, and then established as part of routine coverage, maintained through institutionalised mechanisms’ (Pakulski *et al.* 1998, p. 240). I.e. the status of a public concern changes politically and ideologically as it diffuses and transforms via different actors and practices. Thus, it is reasonable to reflect on concern not as an unchanging and static object but as a process, that, certainly in the sense of worry and anxiety, implies a future-looking orientation. As such, we are dealing with a virtual object yet to unfold: ‘its location and ultimate extent are undefined. Its nature is open-ended’ (Massumi 2010). Thinking about public concern as a process with past, present and future extensions foreshadows the need to interrogate the concept’s temporal dimensions.

Public concern is often reported in relation to key events, such as the emergence of ash dieback disease in the UK in 2012; considered by some commentators as *the* event responsible for effecting a shift around UK tree health policy (Heuch 2014). Ontologically, dieback appears as an ‘event’ that triggers action, and yet, as an object in itself, exists in an abstract sense. Where do we look for this object? What is its spatiotemporal setting? Where do we envisage the ‘event’ beginning and ending? The answers to such questions reveal our political and ontological commitments to the world. Whilst it makes common sense to talk about dieback as an event, common sense results in vague or inconsistent knowledge (Berto and Plebani 2015), setting the stage for conflicted and contrasting claims about what the event means and how to manage it, as was the case with dieback (Fellenor *et al.* under review-a).

Consideration of the status of the objects comprising an ‘event’ illustrates the complexity of the issue. For example, a natural flood exists as a material event that occurs irrespective of whether people assign meaning to it or not (Weichhart and Höferl 2013). The instant the event

is categorised, an ensemble of discourses are drawn upon to make a now 'risky' event meaningful. An individual or community in close spatial proximity to the flood will assign different meanings compared to those removed. Representation of the flood in the media will select and frame some aspects over others, e.g. actual effects such as loss of life, and property damage, but also virtual effects in relation to future occurrences. The flood manifests as an event composed of virtual and actual objects that traverse spatial and temporal scales. Those concretely affected may receive aid. Aid reflects policy. The entanglement of these objects and dimensions is a virtuality that, as it morphs into an actual state, transforms the actual state already in existence (Grint 2005). Meaning is constantly constructed and reconstructed, pointing to events as an ongoing process and this implies that the potential of a situation always exceeds its actuality (Massumi 1998). The event is emergent in the sense that it cannot be reduced to actual antecedents alone, meaning that attempts to construct an absolute version of the event is redundant. Public concern is similarly indeterminate. Thus, the issue of ontology becomes a critical element in understanding the policy response to a risk event (Hay 2006). If policy adopts an 'atomistic' ontology, whereby individual needs and motivations are differentiated from any social influence (Fay 1996), the social cannot be prioritised in formulating solutions to the event. In reality, the political process tends to ontological structuralism, which eschews prioritising individual needs and concerns (Hay 2006). As a rhetorical device and a driver for policy, public concern relies on a representation where, despite the multitude of individual differences, difference is effaced. The assumption is that 'there is an ultimate, given unity behind appearance to which all [differences] reduce' (Catlaw 2007, p. 2). In our flood example, attributing public concern requires sufficient and shared conditions cutting across different publics. However, the flood as 'event' is heterogeneous with respect to the various actors involved. Hence, 'concern' will be equally heterogeneous. This ushers in a further point of reflection, given that policy responses tend to rely on

macroreductionist strategies (DeLanda 2006a), concerning the relation between social/individual and private/public.

How does 'private' become 'public', and vice versa?

If public concern entails the relationship between social and individual then it also entails exploring how concern is 'felt' as private, inner experiences and their relation to the public realm. When public concern appears in the media, it is attached to an environmental issue, food contamination and so forth. The particular framing of concern may be in the form of worry as being justified, or as irrational/misplaced. Engagement with such media may reprise an individual's existing concern, it may trigger a new concern or it may not be identified with it all. For example, in terms of environmental public concern, environmental publics comprise different political, economic and sociocultural groupings. Publics sensitive to green issues tend to closely monitor environmental marketing practices and exercise influence toward making firms' marketing actions environmentally responsible (Leonidou *et al.* 2010). Public concern is perceived as a driver for the general organisation of activity and can be thought of as an already existing state on the public side of the public/private dichotomy.

In response to encountering a concern issue, people often experience an affective², visceral response rooted in 'hunches' rather than verifiable facts. This has been addressed in the risk literature, for example, in relation to the role of affect (Lupton 2012; Slovic *et al.* 2007). The affective response connects to how people call on particular experiences to make sense of social objects of concern. These experiences may not reflect rational discourses about what concern entails. For example, when discussing what constitutes concern with regard to the prospect of proposed affordable housing in existing communities, people often articulate personal experiences that have evoked a visceral response (Rai 2016). A woman at a public meeting

² Affect is ignored in many models addressing risk, or viewed as mere epiphenomena of the [cognitive] decision making process (Leiserowitz 2006).

about a proposed housing development stating that ‘she “wants to go jogging in her neighbourhood” without feeling as if she “is going to be raped” (ibid. p. 174).

Particular, private and affective experiences help ‘collectivise and [...] galvanise consequential [publics and their concerns]’ (ibid). Experiences become re-presented as indicative of a general public concern that is not contingent on private experiences and reflects a composite of issues beyond the ‘core’ problem. The entanglement between everyday experiences and the rhetoric of politics in terms of ‘ordinary affect’ provides a means of exploring and articulating the way that the ordinary connects with the extraordinary (Stewart 2007). ‘Ordinary affects are public feelings that begin and end in broad circulation, but they’re also the stuff that seemingly intimate lives are made of’ (ibid. p.2). This echoes the way in which actualised states of affairs are constantly transformed and reconstituted by the virtual. In the housing development example: imagined scenarios of what *might* be actualised. This is at the root of the metaphysical attempt to unite individual striving with a sense of community (Rorty 1989), i.e. that there *is* a ‘common’ or public aspect of human nature. The sceptical view is that at there is no essential human solidarity; that the sense of such is an artefact of human socialisation. From this perspective, there is no public and concerns are inevitably individual. Hence the need to self-consciously unpack the ontological issues.

Public concern from an empirical perspective

It is useful to reflect on empirical research to understand how public concern is ‘measured’. Public concern has been assessed by methodologies where a) it is elicited and, b), those which recourse to ‘naturally occurring’ data, i.e. non-elicited.

The first approach includes polls, surveys, and solicited written input. Polls and surveys involve methodological issues including whether measures encourage socially desirable responses. For example, a Likert-type measure such as “I am concerned about the risks from issue ‘X’” may

lead the respondent to assume they *should* be concerned, and implies that there *is* a risk attached to issue ‘X’. We cannot be certain about the extent to which a response reflects pre-existing concern, or whether concern was created in situ. How people respond to questions about issues is influenced by what they have ‘heard lately’, e.g. via the media. In this sense, concern obviously entails temporal variation (McLaren *et al.* 2017). Moreover, an assumption is that peoples’ attitudes are explicitly and consciously available for reflection, when in fact they may be implicit and contextualised (Oskamp and Schultz 2014). With polls comes the assumption that public concern about an issue correlates with the proportion of people responding to it as such. However, if separate issues were presented as their own questionnaire, then any issue would result in the majority apparently concerned with it (Funkhouser 2016).

In exemplifying specific studies, the relationship between expert assessments of two hazards, smoke haze and dengue fever, and the role of social media compared to traditional media in risk amplification was explored (Ng *et al.* 2017). Public concern is not considered as a construct that is explicitly operationalised as a thing in itself. Instead, concern is conflated with ‘attention’ and ‘reaction’. Risk perception is framed in terms of cognitive and affective elements and related to behavioural outcomes such as information seeking. Positing affect as a cognitive by-product is problematic in that its non-representational stance overlooks ‘the political fact of different bodies having different affective capacities’ (Tolia- Kelly 2006, p. 213). Eschewing a political ontology of affect ‘risk[s] negating the “political facts” of power [...] as factors in an individual's capacity to affect and be affected’ (Griffiths 2017, p. 620). In relation to SARF, we suggest that a minimum requirement is that it makes explicit its political ontology.

That public concern is assumed to exist, in an *á priori* sense, is exemplified by the disparity between public views and expert opinion regarding remedying oil spills (Leschine 2002). This disparity is frequently identified as a consequence of skewed public concern resulting from a

biased media. Events such as the Torrey Canyon catastrophe laid the ground for ‘a new type of man-made spectacle: the environmental disaster’ (ibid. p. 63). The implication is that events sharing similar properties form a risk trope that frames subsequent events. In actuality, significant variation exists in the contexts around different events. If events of an assumed type demonstrate variability, in what ways can we claim public concern with respect to ash dieback disease, for example, is similar to concern about *E.coli*? There may be a common semblance of concern but each public and hence their concerns are particular. Moreover, how the media and policymakers respond to events intersects with responses from activist groups in a way that ultimately curtails the types of response options open to those dealing with event consequences. Hence, public attitudes towards an issue becomes an element of ‘concern’ recursively shaped by actions taken to remedy and mitigate risks in the first place.

With the approaches discussed thus far, public concern is assumed *á priori*, but explored retrospectively. Establishing concern in this way is implicit in the majority of work that utilises non-elicited ‘naturally occurring’ data. Social media in particular facilitates this analytic approach. Signorini *et al.* (2011) explored public concerns regarding H1N1[‘swine flu’] activity, assessing a large corpus of tweets using pre-specified key words reflecting illness-like symptoms, social context, transmission routes and countermeasures. The premise was that public concern about H1N1 is reflected in the volume of Twitter talk about topics that correlate with it, such as hand-hygiene and the use of facemasks. I.e. an equivalence between volume of talk and concern. Making no ontological distinction between talk about an issue and the broader reality status of the issue³ overlooks the ‘huge invisible ontology’ from which speech emerges

³ We suggest that the status of material objects in relation to language remains fuzzy from a discourse perspective, unless, of course, a specific ontology is adopted.

(Searle 1995). I.e. those institutional forces, functions, events and acts, alongside the realm of ‘brute material reality’ and in which they are necessarily grounded.

Fellenor *et al.* (under review-b) afford a more critical eye on what constitutes public concern that acknowledges some of the aforementioned issues. Their study explored the content and daily volume of emails and phone calls from the general public reporting potential sightings of ash dieback disease (*H. fraxineus*), to the Department for Environment, Food and Rural Affairs (Defra) and Forest Research (FR), during the height of media attention to dieback in the UK in late 2012. Public concern was not assumed *á priori*. Email content was assessed for uses of negative affect language, with the hypothesis that concern might manifest as such. The low level of emails found using negative affect language problematises any claims that concern about dieback was high. In terms of the assumption that public concern equates with public attention, or volume of talk around a topic, findings suggest that whilst these equivalences may hold at a macro level, they largely disappear at the micro level of the individual; reasons for emailing were varied. The results also challenge the notion that media attention can be taken as a proxy of public concern, evidenced by the low representation in emails of media references and lack of media framings of dieback.

In relation to SARF *per se*, (Fellenor *et al.* 2017) carried out an empirical analysis of how ash dieback disease was talked about on Twitter by analysing ‘what’ people were saying, ‘who’ people were and ‘how’ the talk was accomplished. This study did not assume public concern as an *á priori* object. What people talked about largely reflected the themes and trajectory of traditional media representations of dieback, e.g. that the government were to blame. The ‘who’ revealed small groups of users with group affiliations, interests and identities, rather than a broad and ‘general’ public. This finding is crucial because it moves ‘beyond working with a generalised and often decontextualised notion of the public and their concerns’ (ibid. p.14). Individual tweets reflected a complexity that does not simplistically reflect the

characterisations of intensified or attenuated concern attributed to the ‘concerned public’ espoused by SARF. Moreover, the SARF tenet that risk amplification, or attenuation, can result from a disparity between lay and expert understandings of risk is problematised in that Twitter mixes ‘expert’ voices with other more or less expert [lay] users and points, at least at the discursive level, to the heterogeneity of the public and their concerns.

Both of these latter studies adopt a micro-level analytic focus to reveal the heterogeneity and different routes to what is otherwise denoted as [macro] public concern. Nonetheless, drawing down to the micro level, as a means of uncovering the issues associated with the representation of concern is not a solution. It merely serves as one way of highlighting the issue of representation (Catlaw 2007).

Methodological choices are invariably founded on specific ontologies. Keeping an eye on the ontological, while reflecting on the methodological, is instructive. Bausewein *et al.* (2013) employed a telephone survey to assess levels of public concern with regard to different symptoms and problems in advanced cancer care, finding that the main concerns for the last year of life are pain, being a burden, and breathlessness. The authors state that ‘public views are reflected in each person diagnosed with cancer’ (ibid. p.10). This statement presents us with the problem of ascertaining the ontological relation between individual and public, or private and public, given the implicit assumption that individual concerns can simply be aggregated, making the social the product of all individuals. This is a macroreductionist approach; problematic because each individual experience is reduced to an abstract supervenient entity (DeLanda 2017). What is lost is the particularity of individual experience (Fellenor 2015). If an alternative view were adopted, perhaps that there are social representations that circulate independently of individuals and that these affect the way in which individuals perceive their cancer, we would still need to account for these representations. With regard policy, these

issues converge in the problem that the unit of observation (the individual) does not correspond to the unit at which decisions are made (the social) (Getzen 2000).

The key point to take away with regard to how public concern is measured empirically is that, methodologically, too much is taken as read or left unexamined. In the following section, we briefly unpack how this critique applies to SARF.

Public concern through an ontological lens

Public concern and SARF: the amplification of what?

The ways in which SARF has been deployed suggests it is amenable to various ontological perspectives. SARF recognises risk as entangled with a range of ideal (e.g. cognitive, social, and cultural) and material objects, in doing so implicitly affording risk an ontological realism (Rosa 2003). In terms of ‘traditional’ risk characterisation, i.e. probability and harm, SARF tends to neglect equity issues in relation to the differences between social groups (Kasperson *et al.* 1988). Certain realities can become prioritised over others. Moreover, SARF is predicated on a synthesis of ontologically incompatible concepts and theoretical frameworks (Duckett and Busby 2013). If risk reflects something real and ‘out there’ in the world, then a realist ontology is implied, lending itself to corresponding realist epistemologies. Ultimately, SARF adopts an epistemological perspective and seeks a general explanation of how the risk world is represented, but this does not necessarily entail explication of its ontology. In contrast, an ontological perspective would explore the ways by which risk as a multiplicitous object comes into being, emphasising relations of difference that cannot be reduced to a ‘disparity in worldviews (Woolgar and Lezaun 2013).

While SARF acknowledges that social amplification stations are themselves comprised of individuals, individual and social remain conflated; an early critique of SARF being that it prioritises individual over social interpretive processes (Bakir 2005). The conflation of

individual and public is exacerbated by a lack of clarity with regard the status of ‘what’ passes through such stations. For example, according to Kasperson *et al.* (2003) a priority for social amplification research is to understand the ‘mutation’ of trust, i.e. how trust interacts with risk communication and policy. While these authors acknowledge ‘amplification dynamics’, trust is afforded an objective status in that it can be ‘shaped, altered, lost or rebuilt in the processing of risk by social and individual stations’ (ibid. p.33). Trust is deconstructed in terms of attributes grounded in the individual, and which represent further levels of abstraction, e.g. that ‘trust’ can be explained in terms of ‘faith’ (Renn and Levine 1991) or ‘values’ (Siegrist and Cvetkovich 2000). Even when regarded in purely psychological terms, trust is confused with other states, e.g. ‘hope’, in a way that overlooks the social complexity of the phenomena (Kasperson *et al.* 1992). We suggest that it is more useful to frame amplification stations not in terms of what passes through them, but instead how they act as a nexus composed of various types of actual and virtual objects. However, this is not an ontological solution. It merely necessitates exploring the issues of identity and difference, in relation to amplification stations, from a particular and not general perspective (Lynch 2013) and this demands a complementary ontology.

If SARF lends itself to an ontological perspective then this perspective is typically taken as social constructionist because of the belief that trust, affect and so forth can be ideal and universal (Law and Lien 2013). What this perspective struggles to account for is not so much the ontological realism of risk, but rather the representational status of the different types of objects which risk involves and around which public concern develops.

Does an ontological lens help clarify the issues around risk and public concern?

To summarise the issues:

- The notion of ‘public concern’ plays a key role in the policy development and is a recurring element in the narratives we produce to make sense of the world.
- Concern is one way in which individuals locate themselves, and are located, within a risk frame. This acts to constitute [a] public.
- Despite its ubiquity, the ontological status of public concern remains uncharacterised, reflecting its uncritical deployment within the policy process and, from the methodological perspective, the tendency to assume it *á priori*.
- To understand public concern we need to reflect on the relations between private and public and individual and social; an ontological endeavour.

Two important features of public concern which we have made explicit through our discussion is that public concern represents either the macro or micro-reduction of individual/social, and private/public, where the contingent and dynamic relations between virtual and actual objects are reified as a matter of fact. Does adopting a non-reductionist ontological perspective help?

The question of the nature of mutual relations between individual and social determines the kinds of entities whose existence one is committed to believe (DeLanda 2006a). Establishing a solution to this question, by prioritising either macro or microreductionist strategies, remains intractable. A third way, emerging over recent decades, addresses a growing concern with heterogeneity, indeterminacy, complexity, fluidity and the relations between material, immaterial, virtual and actual entities (Venn 2006). The ‘assemblage’ (DeLanda 2006a; Deleuze and Guattari 2005) collapses the notions of individual and social, in doing so inscribing a solution where every actor and its associations has its own distinct reality and setting (Callon 1984; 1986). This is appealing because it mirrors how we increasingly experience the world, and resonates with the recognition within the life sciences especially, that the nature of living systems is ‘undecidable’; i.e. they are not amenable to the causal and deterministic epistemologies applied to the natural sciences (Nadin 2017). To maintain the

illusion of public concern as a measurable, objective, predictable, and stable entity, the ‘knowing subject’ has to be done away with.

With regard to risk management, this appeal is articulated in terms of ‘riskscapes’ where ‘risk’ can be considered as specific assemblages of heterogeneous entities as well as a proliferation of ‘hybrids’ and a ‘space of flow’ (Neisser 2014, p. 98). The standard rejoinder is that risk management needs to address the complexity associated with the assembled, heterogeneous nature of risks and to comprehend the interrelation of risk’s material, social and discursive aspects. The turn to complexity is itself pervasive. However, the nature of complexity means that while it has become part of the lexicon of risk, the reality of complexity is that one can only go so far in mitigating against its more deleterious aspects (Houchin and MacLean 2005). ‘Complexity’ appears to have merely become part of the rhetoric around risk. The reality is that addressing one risk leads to the creation of another, given that our actions have material and social effects that can never be fully anticipated (Busby 2016).

The ontology called upon in these perspectives is relational in nature (Slife 2004), affording primacy to process and change rather than substance and fixity. In this view, all things, including people and their practices, are mutually constitutive. The difficulty for a relational ontological approach to public concern and risk is that beyond the question of what constitutes a ‘relation’, risks are usually couched with respect to a material object or event that hinges around such objects. Hence, when we talk about risk and when public concern emerges, there is a tendency to conflate substance with process. The caveat of adopting a relational ontology is that we have to assume that people and things are intimately connected in ways that remain unnoticed or unacknowledged (Wildman 2010) and this can result in making macroreductionist misassumptions about public concern.

One of the founding questions of SARF was why seemingly minor risk events often resulted in disproportionate public concern. From the relational ontological perspective, this may not be so surprising. If every risk event has its own distinct reality and setting, and if ‘people's actions are always locally defined and emergent’ (Missonier and Loufrani-Fedida 2014, p. 1110), viewing the social amplification of risk through an ontological lens means that discrepancies in perspective are to be expected. Rather than seeking to eradicate them, it may be more productive to avoid establishing public concern as the ‘MacGuffin’ around which risk assessment and policy issues constellate.

Conclusion

The broad purpose of this paper was to reflect on the problematic nature of public concern and its relation to risk, and to consider whether an ontological perspective might help clarify this issue. By exploring how publics have been conceptualised, and framing this with an ontological perspective, we have begun to de-black-box concern.

We suggested that the notion of public concern is a ubiquitous object that enables the justification of policy decision by policymakers and is fully naturalised into the narratives people produce to make sense of the world. While public concern is pivotal in the risk literature and the media, the concept remains black-boxed, i.e. it tends to be presented in an unproblematic manner and as an homogenous object. Doing so neglects the variable aspects of concern, such as which specific groups of individuals are affected by an issue, how these affects are experienced and so forth. Thus, it can be suggested that attributing public concern confers a general subjectivity on otherwise disparate groups of individuals in distinct settings and, as such, acts in a regulatory manner. Moreover, if failing to acknowledge the ontology of public concern is to risk effacing the multitude of individual differences that constitute and shape how a [risk] issue is experienced, then it is also to risk developing abstract policies.

Given the intrinsic relations between risk events and concern, we suggested that greater attention needs to be paid to how the latter concept, the ‘event’, is theorised. As with public concern, ‘events’ are similarly constituted at a rhetorical and discursive level, and talked about in an unproblematic, common-sense manner. Hence, our critique of public concern also applies to events: common sense understandings result in vague, inconsistent knowledge and sets the stage for contrasting ideas with regard how concern and risk events should be managed and inadequate policies.

We argued that concern is predicated on the unresolved dichotomies of individual/private and private/public. The majority of empirical work into public concern and risk issues tends to assume public concern in an *á priori* manner. We contrasted this work with studies which sought to avoid assuming concern in an *á priori* sense and which adopt a micro-perspective, to suggest that public concern is heterogeneous and particular. There are several issues here. Firstly, researchers and policymakers need to reflect on what constitutes a valid indicator of public concern. Secondly, identifying such indicators requires the ontological unpacking of concern, that we have discussed. Thirdly, and assuming that concern has been unpacked and indicators identified, greater attention should be paid to the methodologies employed to ‘capture’ concern. Finally, this connects back to the issue of where and how concern is ‘experienced’, i.e in terms of the relations between its affective, cognitive, private and public aspects.

Via our ontological lens, we also highlighted how the individual/private dichotomy appears to characterise some of the issues levelled, for example, at SARF. If characterising public concern is problematic, then can we adequately account for something labelled as ‘the social amplification of risk’? Does the ‘ripple’ metaphor of SARF continue to apply, unless of course we avoid thinking about it ontologically? Or is it the case that a new metaphor for SARF is required? These are issues that require further thought.

Finally, having highlighted the problems with micro and macro reductionist ontologies, we discussed how a burgeoning understanding of risk framed with complexity has converged with ‘assemblage’ thinking. We suggested that this results in similar issues to macro and microreductionist ontologies. Thus, while a non-reductionist ontology holds intuitive appeal, one that complements evolving understandings of complexity, risk and concern, it takes us no further forward to managing the contingencies of risk. Nonetheless, thinking about public concern through an ontological lens has helped us trace its contours and de-black-boxed some of the problems and hopefully paved the way for further exploration from this perspective.

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