Raw milk, regulation and multiplicity: uncovering the object(s) of regulation

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BSc

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Law
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Abstract

The production, consumption and regulation of raw milk is highly contentious. In Australia, the sale of raw cow milk for human consumption is banned as regulation requires that all milk must be pasteurised for public health and safety reasons. However, this regulatory conclusion is not universally accepted. Some people challenge the conclusion that raw milk is dangerous, and there are those who still choose to produce it or to source and drink it. Using an approach that draws on the theory of ontological multiplicity, this thesis undertakes a new examination of this contestation. It focuses on three key lines of questioning: how raw milk is enacted in multiple ways as an object of regulation; if and how different versions are accounted for in regulation; and what greater recognition of multiplicity could mean for food safety regulation. To answer these questions, this thesis has analysed the accounts of two distinctly different participants in the regulatory process – producers of raw ‘bath’ milk and Food Standards Australia New Zealand. The thesis concludes by suggesting that recognising multiplicity offers potentially tangible benefits for regulation and regulatory policy by enabling an approach that is more responsive to, or inclusive of, contested ‘objects’ of regulation.
Thesis including published works declaration

I hereby declare that this thesis contains no material which has been accepted for the award of any other degree or diploma at any university or equivalent institution and that, to the best of my knowledge and belief, this thesis contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

This thesis includes three submitted publications. The core theme of the thesis is related to the interactions between ontological multiplicity theory and the regulation of raw milk. The ideas, development and writing up of all the papers in the thesis were the principal responsibility of myself, the student, working within the Faculty of Law at Monash University under the supervision of Associate Professor Kate Seear and Professor Christine Parker (The University of Melbourne).

In the case of Chapters 2, 3 and 4 my contribution to the work involved the following:

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I have renumbered sections of submitted papers in order to generate a consistent presentation within the thesis.

Student signature:  
Date: 30/10/2018

The undersigned hereby certify that the above declaration correctly reflects the nature and extent of the student’s and co-authors’ contributions to this work. In instances where I am not the responsible author I have consulted with the responsible author to agree on the respective contributions of the authors.

Main Supervisor signature:
Date: 29/10/2018
Acknowledgements

I would like to thank the many people who have helped me undertake this project and ensure it was finally completed.

First, I cannot thank my fantastic supervisors, Kate Seear and Christine Parker, enough. They have provided innumerable insights, suggestions and feedback that have helped shape this project. They have also provided great support throughout the ups and downs of this project.

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It has been a juggling act balancing work and study commitments, and so I also would like to thank my bosses, teams and colleagues, who have supported me undertaking this research on the side of work for the last five years. Without the time away for fieldwork, conferences and writing, it wouldn’t have been possible to make this happen.

I also really appreciate the many friends who have let me discuss in great detail the topic of raw milk regulation. Thanks to Naomi for making many writing sessions much more enjoyable, I feel we have got to know Ulladulla very well. Thanks to Jess too for letting me talk through theory over coffee and wine, and your words of support around publishing.

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A very huge thanks goes to my parents, who have spent an amazing amount of time entertaining my daughters, Sunday and Clementine. They have spent so
many hours putting babies to sleep, walking and playing with them, and travelling to Melbourne with me, so that I could do my research. Another big thanks also to John and Robin, whose help has been invaluable, also spending a lot of time taking care of the girls, including looking after sick girls during my study leave.

For Clementine and Sunday this project has been going on for their whole lives and I’m sure they will be glad that I don’t have to go ‘writing’ as much anymore and can focus on making cheese with them, as promised.

The final thanks goes to my partner, Nick, who has been supportive throughout, even if unsure at times why I was inflicting this craziness on our household. In so many ways, Nick has been central to making this happen, including keeping the girls entertained while I wrote, using his annual leave to spend 5 weeks driving around rural Victoria while I did interviews, and patiently listening to my numerous attempts to explain what is ontological multiplicity and why it has tangible implications for regulation.
1 Introduction

‘Don’t eat anything your great grandmother wouldn’t recognize as food.’

Michael Pollan

Food, along with water and air, is one of the fundamental things humans need to survive. However, what is food is perhaps not as straightforward as might first appear. Famous food writer, Michael Pollan, for example, suggests a division between ‘real’ foods, on the one hand, and edible ‘food-like substances’, on the other. Pollan sees the advent of the latter as a concerning output of modern industrial food systems and ingredients. In making his critique of food and food systems in industrial (and western) society, Pollan’s delineation offers a particular version of what is food and what is not. Such a delineation reflects a specific ontology of food, where ontology refers to the nature of existence or being, but it is also not the only possibility.

Pollan’s work illustrates that what food is can be complex, diverse and contested. There can be blurry lines around whether or not a certain object is a food or whether something should be, or can be, consumed. This can be seen, for example, in the eating of meat and animals where there can be overt tensions over whether a substance, such as dog meat, is a food; in the development of highly processed food products, as in Pollan’s commentary; and (the focus of this thesis) in the drinking of raw milk, where there are clashes over whether this substance is a healthy food to consume or a dangerous substance that must be avoided. The question of what is food, and what makes something a food, has also been the subject of considerable academic examination, where it is found to have shifting, contested and multiple states.

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1 Michael Pollan, In Defence of Food: An Eater’s Manifesto (Allen Lane, 2008), 148.
2 Ibid, 147.
4 See Pollan, above n 1.
Sitting alongside considerations and debates over food as an object is a vast array of systems, rules and frameworks that govern what is eaten and how it is produced. Food safety regulation is a key part of these governance systems and it significantly shapes the production and availability of food. The primary purpose of these systems, typically to ensure safe food and to protect public health and safety, is undoubtedly important. Despite this, the regulatory decisions made in delivering such an outcome, as well as the normative assumptions that frequently underpin food safety frameworks, are frequently the focus of considerable debate and contention.

This contention is visible in the varying levels of power and influence held by different participants and the degree to which they are heard in regulatory processes. Such debates often also include questions regarding who should decide and control what can and cannot be produced and consumed; the challenges and burdens such controls pose for different market players, such as small scale farmers and retailers; and how this intersects with alternative approaches to food production and consumption. In short, there is a considerable body of work offering important analyses and critiques of food systems and food regulation, which illustrates how both food and its regulation are intrinsically linked to questions of politics, ethics, culture, power and gender, among other things.

Crucially, much of the existing literature is underpinned by a common assumption that opponents in such debates are talking about the same thing. More specifically, it is often assumed that there is a common object around which different, and at times competing, knowledges, perceptions and understandings

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8 See, eg, Paxson, above n 5; Alison Shaw, "What are they doing to our food?": Public Concerns about Food in the UK" (1999) 4(3) Sociological Research Online.
9 See, eg, Laura B. DeLind and Philip H. Howard, 'Safe at any scale? Food scares, food regulation, and scaled alternatives' (2008) 25 Agriculture and Human Values 301; Jason S. Parker et al, 'Including growers in the "food safety" conversation: enhancing the design and implementation of food safety programming based on farm and marketing needs of fresh fruit and vegetable producers' (2012) 29 ibid 303.
10 There is a significant body of literature examining alternative food systems and networks and its role in contesting modern industrial food systems. Examples include David Watts, Jo Little and Brian Ilbery, "I am pleased to shop somewhere that is fighting the supermarkets a little bit": A cultural political economy of alternative food networks" (2018) 91 Geoforum 21-29; Jane Dixon and Carol Richards, 'On food security and alternative food networks: understanding and performing food security in the context of urban bias' (2016) 33(1) Agriculture and Human Values 191-202; Patricia Allen et al, 'Shifting plates in the agrifood landscape: the tectonics of alternative agrifood initiatives in California' (2003) 19(1) Journal of Rural Studies 61-75.
exist. In turn, it is often assumed that it is because of these different perspectives that there is debate about what to do with it, the (single) object in question.

This thesis takes another approach and questions the normative assumption of ontological singularity that often figures in debates about food. Drawing on the Science and Technology Studies theory of ontological multiplicity, this thesis explores the possibility that there is another reason why regulation is contested; this is that people who are engaged in debates about food and food safety may, in fact and perhaps unknowingly, be discussing different versions of a food. That is, participants in regulatory processes may be at odds because the starting point of the debate is not aligned. They may be talking about the same kind of substance – such as ‘raw milk’ – but they are not talking about the same thing. Such an approach allows this thesis to make a significant contribution to the small, but growing, body of work exploring ontological multiplicity in relation to food and food safety regulation.

A focus on raw milk

To ground questions of versions and ontologies, this thesis focuses on debates over the regulation of raw milk. It asks questions about what raw milk is, and how assumptions about its ontology may have misdirected or confused debates, as well as regulatory responses, to date.

Ordinarily, in a thesis such as this, it would be customary to put forward at least a working definition of what raw milk is, as well as an overview of its key features. Typically, producers, consumers, regulators and other key stakeholders use the term ‘raw milk’ to describe a substance that is milked from an animal and used without any subsequent processing, such as pasteurisation or other treatment designed to transform the microbiological content of the milk. However, there are challenges – and problems – with attempting to provide any more detail about


raw milk beyond this simple definition. The reasons for this will become clearer through the subsequent chapters, but include an important underpinning argument of my research: raw milk is not necessarily an ontologically singular object, with stable and predictable characteristics. For example, some would argue that raw milk is an inherently dangerous substance, with biological properties that pose an inherent danger to human health. Others would argue that raw milk is an inherently healthy substance, with health-promoting and/or life-giving properties.

Frequently, in debates such as these, researchers make choices about how to navigate these apparently differing perspectives, finding ways to work around and through them in their description of an object or substance. However, in recent years, researchers such as Annemarie Mol and John Law\(^{13}\) have cautioned researchers against the use of simplistic overviews, encouraging them to instead acknowledge complexity, contestation, mess and uncertainty, and to interrogate what such complexity might mean. Accordingly, rather than viewing the above conclusions about raw milk as merely different perspectives on a common, singular object, this thesis disrupts such an approach and asks us to consider how these differing definitions can be understood. It argues that there is a case to be made for thinking about raw milk as an ontologically multiple object, and that there is value in holding mess and complexity together, rather than erasing or seeking to ‘make sense’ of it, in pursuit of ontological neatness and order.

Noting that ‘raw milk’ can come from many different species, such as cows, goats, sheep and camels, as well as humans, the focus of this research has centred on debates around raw milk from cows.\(^{14}\) This focus was chosen given that cow milk dominates the raw milk market, but is also highly contentious in a number of western societies. Its sale as a food is prohibited in countries such as Australia, Canada, Scotland, as well as parts of the United States of America, on the basis that its consumption poses too great a risk to public health and safety; a regulatory conclusion that is contested and countered by certain producers and consumers. At the same time, while the attention of this thesis is on debates in Australia, it is important to note that this regulatory approach, and the way in which risks are identified and responded to, are not uniformly accepted. In

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\(^{13}\) Law and Mol, above n 11; John Law, *After Method: Mess in social science research* (Routledge, 2004)

\(^{14}\) While not the focus here, there is a notable body of work looking at tensions in how milk from different species is examined. There is not room to examine these here but a useful example is Yoriko Otomo, ‘The Gentle Cannibal: The Rise and Fall of Lawful Milk’ (2014) 40(2) *Australian Feminist Law Journal* 215-228.
particular, regulators have taken an entirely different approach in a number of comparable jurisdictions, with raw milk permitted as a food in countries such as England, Ireland, New Zealand and other parts of the United States.

The existence of such diversity in regulatory approaches and conclusions suggests that there could be more at play than merely different perspectives on raw milk and the risks that it poses. Rather, it points to the possibility that the object being regulated is not always the same, and that there is a need to understand what raw milk is and to examine what multiple food ontologies could mean for the regulation of food.

**The regulatory context for raw milk in Australia**

As noted above, debates around raw milk are closely linked to the nature of the regulatory framework and the conclusions reached by regulators. In Australia, food safety regulation is the shared responsibility of all tiers of government, with food policy, food standard setting and enforcement separated into different responsible entities (see Table 1 for a general overview). Like many western countries, the approach to food safety standards and regulation in Australia is structured around a risk analysis approach, which is based on the risk analysis framework set out by the Codex Alimentarius Commission and involves the key steps of risk assessment, risk management and risk communication (FSANZ, 2013).

**Table 1: Overview of food system oversight in Australia**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Who is responsible?</th>
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<tr>
<td>National Food Policy Setting</td>
<td>The food policy framework for Australia is set by the Australia and New Zealand Ministerial Forum on Food Regulation, which consists of health and agriculture ministers from the states and territories, and the Australian and New Zealand governments.</td>
</tr>
<tr>
<td>Food Standards Setting</td>
<td>The Australian New Zealand Food Standards Code is developed to reflect the food policy framework, noted above. FSANZ develops the Code with advice from other government agencies and input from stakeholders.</td>
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Based on FSANZ, *Australia’s safe food system* (2014).
The result of the above arrangements is that there is a single common set of national food standards, the Australia New Zealand Food Standards Code, which are legislative instruments under the Legislation Act 2003. The Food Standards Code sets out how food should be produced and labelled in Australia, which is then implemented and enforced separately by each state and territory. This division means that states and territories are also able to add in state-based regulation that may be more, or less, restrictive than the national standards. Implementation and enforcement occurs through separate legislation in each state and territory, which is based on the Model Food Provisions agreed to by the Council of Australian Governments in 2000. Examples include the Victorian Food Act 1984, and the New South Wales Food Act 2003 and Food Regulation 2010.

Within the Code, there are a number of provisions that govern the production of raw milk in Australia. In particular, Standard 4.2.4 Primary Production and Processing Standard for Dairy specifies in detail the production, processing, collection and transport requirements that must be met for all dairy products, including any permissible raw milk product.

Within the requirements of Standard 4.2.4, Clause 15(1) is the most contentious in debates about raw milk regulation. This is because it establishes a default requirement that all milk must be pasteurised, albeit subject to a number of specific exemptions found both within the Clause and later in the Standard.

The first exemption allows for the use of any other process that provides an equivalent to or greater effect than pasteurisation, in terms of the destruction of microorganisms that could otherwise make someone sick. For example, this exemption has been used to allow the sale of a ‘cold-pressed raw milk’ product that has been subjected to high-pressure processing instead of traditional pasteurisation, on the basis that the producers are able to deliver an equivalent outcome to pasteurisation (NSW Food Authority, 2016). It is worth noting here that, while the product itself is labelled ‘raw milk’, the Food Authority in NSW has stated explicitly that it does not consider the product to be raw, given the
processing involved (NSW Food Authority, 2016). The second exemption is at the end of Clause 15(1), where there is an explicit allowance for the applicable state or territory legislation to provide for an alternative approach. This exemption has been followed in relation to the production and sale of raw goat’s milk in NSW, Queensland, South Australia, and Western Australia, which has been made legal under each state’s own legislation. The third exemption to the requirement that all milk must be pasteurised was introduced in January 2015, and permits the production of certain raw milk cheeses.

The Code is then implemented and enforced through state-based legislation, which establishes the framework within which producers must operate. For example, in the jurisdiction where my interviews took place (Victoria), the relevant governing legislation is the Food Act 1984. Section 16 of this Act requires that all food sold must comply with the requirements of the Food Standards Code. Alongside the general requirements of this Act, dairy producers are specifically regulated by the Dairy Act 2000. Under s22 of the Dairy Act 2000, anyone who owns premises where cows, goats, sheep or buffalo are kept and milked for the purpose of producing milk for profit or sale requires a licence from Dairy Food Safety Victoria. This licence requires compliance with the Food Standards Code and is the key regulatory tool used to implement and enforce national food standards in Victoria, including the requirement to pasteurise.

**Thesis focus and approach**

This thesis seeks to examine three core research questions:

1. How is raw milk enacted in multiple ways as an object of regulation?
2. Are these different versions acknowledged in regulation and, if so, how?
3. What would greater recognition of multiplicity mean for food safety regulation and food consumption debates?

The value of considering the above questions is twofold. First, they offer a new and theoretically novel way of looking at contested food safety regulation, and the food objects at the heart of such processes. Drawing on empirical research, they offer a way of reconceptualising raw milk (and, by extension, other foods) and opens up a space for new possibilities and better “regulatory conversations”¹⁶ about food, risk and approaches to regulation. Second, thinking about the ontologies of food highlights a potentially important consideration in contested

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food systems. In particular, there are a range of alternative food production systems occurring, which are not accounted for in regulation or are inhibited by regulation. This thesis suggests that the existence of such food systems could reflect a tangible outcome of food having multiple ontologies. It also finds that looking at such ontologies is important in understanding how such alternative and mainstream food systems intersect, collide or, in the future, could co-exist.

To explore these questions, this thesis focuses on the ontologies of raw milk as enacted in, and by, the accounts of two key participants in regulatory conversations around this foodstuff.

The first of these participants is Food Standards Australia New Zealand, which, as the developer of the Food Standards Code, sets the regulatory framework and parameters that govern how, and if, raw milk can be produced and marketed as a food, as well as how its production and/or sale should be regulated. The accounts from FSANZ were drawn from the consultation publications it released as part of its review of raw milk regulation. This review process is one particular ‘regulatory conversation’; it is a communicative process occurring between the regulator (FSANZ), dairy producers and others, including consumers seeking greater access to raw milk. The documents represent a key element of FSANZ’s communication processes and offer a window into how raw drinking milk is conceptualised, and in turn enacted, as an object of regulation.

The second participant, or rather group of participants, are former producers of raw bath milk in Victoria. Their accounts were obtained via a series of semi-structured interviews. None of the producers make this product anymore publicly, with some having moved into other aspects of dairy production, or into other industries. On this basis, these interviews offered a way of obtaining accounts of the practices that took place, despite these practices having ended. They also offered a way of understanding practices and processes that were previously undertaken. I argue that these practices were performative, working to enact particular versions of bath milk. By studying the practices and processes utilised by different participants, I was able to gain rich insights into how raw milk was enacted. At the same time, as I shall explain in later chapters, these data also offered opportunities to explore the extent to which raw milk is, or can be ontologically multiple.

A key premise of this thesis is that the interviews and texts are both performative, and will enact specific versions of raw milk. The accounts from both groups of
participants were analysed qualitatively as written texts, using NVivo to assist. This approach reflects that taken in a number of studies that utilise ontological multiplicity theory, such as analyses of drug education material, 17 parliamentary debates, 18 interviews about food addiction, 19 and public health documents. 20

Thesis outline

The findings of this thesis are set out in four chapters:

Chapter Two 21 provides an outline of the contextual literature and provides the theoretical rationale for the research approach used in this thesis. In particular, it reviews debates around food safety regulation and risk, and suggests that there is significant scope to explore tensions in this area by applying a new methodological approach, which considers ontological multiplicity in regulatory conversations around food. This chapter explores the value of exploring ontologies in food regulation debates and concludes by suggesting that recognising multiplicity offers potential benefits for regulation and regulatory policy, as this enables an approach that is more responsive to, or inclusive of, contested ‘objects’ of regulation.

Chapter Three 22 presents the first of two accounts from different participants involved in regulatory conversations about raw milk. Focusing on the accounts of FSANZ, this chapter explores the enactment of raw milk within the context of FSANZ’s decision to continue to mandate the pasteurisation of milk for human consumption. Drawing on the analysis of six FSANZ documents released as part of a raw milk regulatory review, this chapter discusses the practices that stabilise raw milk as being always risky; these processes are found to wash away the possibility of other, potentially safe, versions of raw milk. It concludes by finding that such stabilisation has tangible impacts for policy and regulation, including limiting the parameters within which debate can occur, and precluding the

19 Suzanne Fraser, David Moore and Helen Keane, Habits: Remaking Addiction (Palgrave Macmillan, 2014).
21 Alanna Linn, ‘Food safety regulation and multiplicity: uncovering the object(s) of regulation’, submitted to Social and Legal Studies (July 2018).
possibility that other versions of raw milk could exist, or be accounted for, in food safety regulation.

Chapter Four discusses the findings of interviews with raw bath milk producers based in Victoria, Australia, where ‘bath milk’ is raw milk that is labelled for ‘cosmetic purposes only’ but which was often bought for drinking. While there has been significant work looking at why people drink raw milk, there has been little work exploring the views and practices of these farmers. This chapter, through exploring the accounts of a number of farmers in Victoria, Australia, finds that these farmers explicitly rejected the normative definition of raw milk as inherently dangerous and the associated regulatory framework. Instead, they developed their own structured practices that were designed to produce a version of raw milk that could be drunk, but which existed outside the food regulation system. This situation highlights how different practices can enact different versions of a food and, at the same time, the challenge for food safety regulation in being able to engage with, and account for, alternative and more complex versions of food and risk. Together, Chapters Three and Four seek to provide examples of how raw milk is enacted in multiple ways, as well as to explore what this has meant for the specific regulatory processes discussed.

The final chapter, Chapter Five, draws together the analysis in this thesis. This chapter finds that raw milk, as a food, does not have a single ontological status – there may be versions of raw milk that are risky but that is not the only possibility. It observes the inability, to date, of Australian food safety regulation to acknowledge such complexity and suggests that there is a role for greater acknowledgement of multiplicity in regulatory systems. Finally, it argues that there is clear scope for further consideration of multiple ontologies in regulatory research.

Chapters Two, Three and Four have been submitted for publication as separate journal articles. Reflecting the multi-disciplinary nature of this research project, these papers have been submitted to journals in law, sociology and rural studies. Given the different journals, a variety of formats and referencing styles are visible throughout. However, the thesis is continuously paginated and a full bibliography is provided at the end of the thesis.

2 Food safety regulation and multiplicity: Uncovering the object(s) of regulation

Alanna Linn, Faculty of Law, Monash University (Submitted to Social and Legal Studies, July 2018)

Abstract

There is considerable contention over many aspects of food and its consumption. One area where this has been particularly visible in recent years relates to regulatory policy around food safety, where debate often centres on questions of how safe or how risky something may be to eat. In this paper, I review debates around food safety regulation and risk, and suggest that there is significant scope to explore tensions in this area by applying a new methodological approach that considers ontological multiplicity in regulatory conversations around food. I explore what these concepts mean, discuss how they could be used in examining food regulation debates and conclude by suggesting that recognising multiplicity offers potentially tangible benefits for regulation and regulatory policy by enabling an approach that is more responsive to, or inclusive of, contested ‘objects’ of regulation.

Keywords: Food safety, multiplicity, ontological politics, regulatory conversations.
Introduction

Ensuring a safe food system is the primary objective of food safety regulators. However, this role often places regulators in the unenviable position of needing to navigate complex science, contested definitions of risk and diverse stakeholders’ expectations and assumptions, particularly from consumers and the wider public. Regulating for safe food can also be challenging given the diversity of players in the food regulation space, which goes beyond traditional government regulators to include others such as private sector businesses and non-government organisations (Havinga, 2015), and the diversity of regulatory structures. Again, these go beyond more traditional state-led oversight to include hybrid and private regulatory processes (Havinga, 2015; Hutter, 2011).

The current approach to food regulation in western society is focused primarily on managing the potential risks associated with food consumption (Demeritt et al., 2015; Ansell and Vogel, 2006; Hutter, 2011). The emphasis on risk is not unique to food, with links to broader government deregulatory agendas and public sector management reforms (Hutter, 2005) but, at the same time, it has been driven by a number of food-specific factors, particularly the perceived failures of existing systems to appropriately handle major ‘food scares’, such as chemical contamination, BSE and avian flu (Devaney, 2016; Rothstein et al., 2013). The emphasis on risk is not unique to a single jurisdiction either. Food safety regulation in countries such the UK, Ireland, Australia, New Zealand, Canada and the United States, while different in some respects, also have a key thread of convergence: risk analysis and assessment are the key basis for underpinning regulatory decisions about foods (Demeritt et al., 2015; Devaney, 2016; Hutter, 2011). In practice, this has seen food safety regulation become a system that emphasises assessing, managing and preventing risks potentially posed by the consumption of food; risks such as microbial contamination, artificial additives, biotechnology developments and even bioterrorism.

Given that the focus of regulation is managing risk, it is unsurprising that much of the literature analysing food safety regulation also focuses on how risk is constructed, contested and problematised by various stakeholders. This includes, for example, tensions and disagreements around what foods and food processes are identified as safe or risky (Nestle, 2010), the risk tolerance of regulators (da Cruz and Menasche, 2014) and the subsequent prohibition or permission of certain foods and food production processes (Paxson, 2008). This paper starts
from this literature and suggests that there is space for another approach to analysis. This paper argues that, when stakeholders contest food regulation, it is not just the nature of the ‘risk’ that is being contested, but it may also be the nature of the food.

This paper therefore proposes a methodological approach that closely examines the focus of regulation; that is, the material ‘objects’ of food safety regulation. Bingham and Lavau (2012, p1592) identify three ways in which food safety regulation has an object: the first is what they call the *purposive* object, such as the high-level strategic aims of a given regulator; the second is the *referent* object, which is about the beneficiaries, such as consumers, for whom the regulator acts; and the third is the *material* object, which is the object that regulation ‘handles, works on, deals in’. Like them, my primary interest is the third of these objects: to grapple with the complexity of what the material object of regulation ‘is’ and, in turn, consider what thinking about this question could add to understandings of regulation beyond an understanding of different risk perceptions.

Making the material object of regulation a focus of research facilitates a small but significant shift in analytic gaze from the presumed ‘nature’ of the risk to the various actors’ enactment of food. This shift helps to expand and deepen understandings of how and why food safety regulation is contested. That is, it suggests that contestation does not flow merely from different assessments or trade-offs of risk, but rather from quite different ontologies of the object of regulation itself. This has implications for how both regulatory conversations and regulatory processes might be improved. Such an approach reflects, and contributes to, the growing number of conversations among scholars about food, regulation and/or risk through an ontological sensibility (see, for example, Ibáñez Martín and de Laet, 2018; Lavau, 2017; Yates-Doerr and Mol, 2012; Jackson et al., 2018).

This paper is structured in four parts. The first part reviews the ways in which existing literature has examined contention in relation to food safety regulation and how the ‘object’ of regulation has figured within this. The second discusses the potential for interrogating food safety regulation contestation through a methodology that looks at ontological multiplicity in regulatory conversations about food, and asks whether there are multiple (and possibly contradictory) versions of the object of regulation at play. The third part of the paper identifies a
series of questions that could be used to explore multiplicity in food safety regulation, drawing on examples from recent work applying this approach to the contested regulation of raw milk in Australia. The fourth and final part concludes by suggesting that recognising multiplicity may help to identify other ways regulation and regulatory conversations could occur, which would be able to be more responsive to, or inclusive of, contested ‘objects’ of regulation.

**Contested food safety regulation**

Food regulation is often contentious, with tensions around food governance having been the subject of various levels of interest over the past two centuries from a range of angles and theoretical framings (Draper and Green, 2002; Krebs, 2005; Mendelson, 2011; Nestle, 2010). However, as this section will show, while research into such debates has been wide-ranging, a more explicit focus on the material object of food regulation could offer a new way of understanding this contestation.

A key research thread in the above literature has been an exploration of debates over how modern food safety regulation is undertaken, where contention over the form, practices and processes of regulation have been explored. For example, this can be seen in the emphasis of modern food regulation critiques on technical risk assessments, microbiological studies, scientific evaluations and quantification processes. In such literature, it has been argued that giving predominance to such processes enables experts to assert the dominance of particular perspectives (Ansell and Vogel, 2006; Winickoff and Bushey, 2010; Sage, 2011; Speake, 2011); enables selective risk identification (to the exclusion of other risks that are not considered) (Lavau, 2017); and provides regulators with a ‘trump-card’ to deploy in debates around food risks and safety (Winickoff and Bushey, 2010, p360; Sage, 2011). Other research has questioned the regulatory focus on risk assessment more generally, with some authors concerned that such an approach values hygiene and cleanliness to the detriment of other food characteristics and values, such as quality, flavour or artisan knowledge (Paxson, 2008; Sage, 2011; Paxson, 2013; Wilson and Worosz, 2014; Paxson and Helmreich, 2014).

Contested regulatory process is also visible in a growing body of literature that explores interactions between regulation and questions of scale. Here, it is argued that there is a need for more research into how regulation can be adapted
to different scales of food production (Taylor, 2008), be more sensitive to the spectrum of risks posed by such production (Hassanein, 2011; Miewald et al., 2013) and to move away from a ‘one-size-fits-all’ regulatory approach (DeLind and Howard, 2008; Parker et al., 2012). As part of this work, the scale of food supply and production is often linked to how risk is perceived and understood. Local production, among other characteristics, has been correlated with perceptions of lower risk (Draper and Green, 2002; Enticott, 2003a; Enticott, 2003b) and consumers have responded by seeking out the ‘local’ (see, for example, Murdoch et al., 2000; Richards et al., 2011). In such scenarios, a common theme is that of trust and locally based community relations (Draper and Green, 2002; Enticott, 2003a; Richards et al., 2011; Enticott, 2003b), overriding national concerns about food safety, such as in relation to BSE and locally produced beef (Caplan, 2000) and raw milk (Enticott, 2003b).

Research has also explored regulatory debates in terms of tensions over regulatory risk appetite. Risk ‘tolerance’ or ‘appetite’ refers to the amount and type of risk that an entity or individual is willing to accept in fulfilling its role without taking action to reduce that risk (FSANZ, 2013). Food safety regulation, like other risk-based approaches to regulation, is susceptible to competing views as to which risks should be focused on and what the appetite or the tolerance level for risks should be (Beaussier et al., 2016; Black, 2006; Baldwin and Black, 2016). Both Paxson (2008) and Buchler et al. (2010) highlight the tensions faced in regulatory policy when deciding how much risk is tolerable. Tensions over risk appetite have also been found to go both ways, with some research exploring situations where regulators are seen as having too high a risk tolerance for certain issues, such as the introduction of food-related biotechnologies and genetic modification (Lucht, 2015), while other research examines situations where a risk appetite is considered to be too conservative, such as in discussions around emergent narratives of ‘zero-risk’ (Matsuo and Yoshikura, 2014; Wilson and Worosz, 2014; da Cruz and Menasche, 2014). This latter scenario can be where regulators seek (potentially improbably) to ensure that food is safe (Demeritt et al., 2015), and in relation to the regulation of specific foods, such as bans on raw drinking milk (Paxson, 2008).

Related to the above, there is a substantial body of literature focused on tensions over whether a food is considered to be ‘safe’ or ‘risky’, and the ways in which regulators make, as well as respond to, such categorisations. This has been
explored from many disciplines and theoretical directions, with the concepts of ‘safe’ and ‘risky’ found to be open to various constructions (Enticott, 2003b; Shaw, 1999; Sage, 2011; Nestle, 2010) and understandings (Shaw, 1999; McCarthy et al., 2007; Nestle, 2010; Buchler et al., 2010; Allan et al., 2010; Paxson, 2013; Yamaguchi, 2014). Within this space, there is considerable literature that explores divergent perceptions and expectations of food risks and food safety regulation. This includes work in relation to food-related production practices and processes, such as pesticide use (Saba and Messina, 2003), food additives (Shan et al., 2015; Buchler et al., 2010), genetic modification (Popek and Halagarda, 2017; Bray and Ankeny, 2017) and nanotechnology (van Dijk et al., 2017; Frewer et al., 2014), as well as in relation to more general risks in the food system (van Kleef et al., 2006; Tiozzo et al., 2017; Miles and Frewer, 2003). At the same time, more in-depth work on tensions as they relate to the regulation of specific foods has been undertaken, such as on raw milk (Markham et al., 2014; Enticott, 2003a; Giacometti et al., 2017), artisan cheese (Le et al., 2014; da Cruz and Menasche, 2014), eggs (Whiley et al., 2017) and meat (Siegrist and Sütterlin, 2017; Caplan, 2000; Shaw, 2004).

The above analyses have been valuable in highlighting the way in which the concepts of safety and risk can be ‘relative’, rather than an ‘inherent biological characteristic of food’ (Nestle, 2003, p16). They have also shown that the ways that individuals perceive, understand and respond to a specific ‘risk’ can be shaped by their own values and life experiences (Nestle, 2010), socio-demographic elements (Buchler et al., 2010), social relations and the characteristics of food beyond its biological and physical elements, such as taste, provenance and production method (West, 2008; Sage, 2011; Murdoch et al., 2000). Perceptions of riskiness have also been found to be fluid, with ideas about risk both changing over time and shifting in relation to how food-related issues are constructed, for example, as an ‘environmental’ issue or as a ‘food scare’ (Loeber et al., 2011). However, as discussed below, there remains scope to take such research further.

As this summary of the extant literature reveals, there is a considerable body of work on food safety regulation. However, in these discussions, while the material object of regulation may be discussed both in general and specifically, it remains primarily an underlying ‘given’ (Foucault, 2007) that is discussed as the cause of tension, but is rarely the tension. That is, while the material object of regulation in
discussion shifts from being *food in general* (i.e., just ‘food’), to *food as a category* (e.g., ‘meat’) or to *specific foodstuffs* (e.g., raw milk, cheese, beef), these objects of regulation are rarely unpacked as specific tension points. Instead, they are ‘givens’ around which different regulatory processes, perspectives and risks are all debated.

Furthermore, food is frequently conceptualised as a material object to which regulation responds, and as existing prior to and outside of discourse and practice. For example, Knutson et al. (2010) and Kurtz et al. (2013) question the consumption and regulation of raw milk from different theoretical and disciplinary standpoints. Both these papers problematise the way that risk is understood, the knowledge people use to make food decisions and the power and nature of regulation. However, while raw milk is explicitly identified as the material object of regulation in both papers, the debate does not engage with ontological questions, such as what *is* raw milk but, instead, on the different *understandings of* the impacts, risks and uses of this foodstuff, as well as how regulatory processes should control its use. Importantly, foodstuffs are described as ontologically singular, with such ontologies remaining unquestioned. That is, the discussion, in this case of raw milk, focuses on debates about what people think about the food and what they do with the food, not about what the food ‘is’.

Another observation on the literature outlined in this section is that much of the existing work on food has an analytical focus on risk – how it is understood, managed and articulated – which seems to largely overshadow the material object of regulation, food, both generally and specifically. Given the emphasis of modern food safety regulatory processes on risk and risk assessment, such an emphasis is not surprising. Indeed, this focus reflects discussions in wider social theory on risk, where risk is explored as a constructed concept, a concept that is manufactured as a product of modernity (Beck, 1992) and which is shaped by theoretical, ideological and cognitive frameworks (Baldwin and Black, 2016). However, this emphasis on risk means that possible tensions related to the material objects at the heart of food safety regulation have been left largely unexamined, such as whether the food in question is always the same thing and, if it is not, then what this might mean for thinking about risk. In other words, when the focus starts with risk, then the main questions asked relate to what the risk is (or what the risks are), how are they assessed and understood, and how such considerations are contested. The food being regulated sits as a singular object
around which these risks and questions emanate. The approach outlined in the following sections provides a means to flip this around and start with the food: to ask, instead, whether it is sometimes possible that there is more than one version of a food, whether these versions are the same and what risks, if any, relate to these different versions.

**Contested object(s) of regulation – looking for multiplicity in regulatory conversations about food**

The previous section outlined the considerable body of work examining food safety debates and observed the potential for a greater focus on exploring tensions as they relate to the material focus, or object, of regulation. This section argues that one way of doing this is to examine regulatory contestation using an approach that marries ontological multiplicity with regulatory conversations around food, two concepts that are elaborated upon below.

**Regulatory conversations around food**

The concept of regulatory conversations refers to the ‘communications that occur between regulators, regulated and others involved in the regulatory process concerning the operation of that regulatory system’ (Black, 2002, p170). Black (2002) suggests that such conversations can be seen as interactions that are central to the constitution of regulatory process, which can form the basis for coordinated regulatory action, and which are important sites of conflict and contestation. Accordingly, they provide potentially useful windows into how specific regulation and ‘rules’ are developed, understood and interpreted.

Certain aspects of regulation are more marked by such communicative interactions than others, with Black (2002) finding that regulatory conversations are particularly visible in regulatory situations where there is uncertainty, where definitions of problems are complex and shifting, and where regulation is attempting to manage risk. This description suggests that food safety regulation, with its uncertainty over risk and contested decisions, is likely to involve a range of such conversations, and these conversations can be used as sites of analysis.

One reason for focusing analysis on regulatory conversations is that it lets us bring a wide range of data into frame and provides a means to look broadly at input into regulatory processes. There are a range of communication points that could be viewed as regulatory conversations, including those relating to:
regulatory rule-setting and review, such as stakeholder forums and consultative processes held by regulators; compliance and enforcement, such as interactions between producers and/or retailers and/or the regulators responsible for compliance and enforcements; the sale and consumption of a particular food, such as interactions between consumers and retailers, and consumers and regulators; and formal enforcement action, such as court cases. All of these involve communicative interactions and could provide useful insights into different elements of the regulatory process.

A second key reason that analysing conversations is valuable is that they provide a means to think more broadly about who may have input into the process, irrespective of whether their input or voices are heard. By looking at a conversation, it is possible to think about what was said along the way, whose voices are shaping regulatory outcomes, which parts of the conversation have been influential and which have been ignored (e.g., are certain participants’ input being excluded, dismissed or not able to be heard?).

Finally, using conversations offers scope to explore the extent to which different participants in a specific conversation are engaging with each other. That is, the question can be about whether a conversation occurs in a way that participants understand each other, or if are they instead misunderstanding or talking past each other. Black (2002) discusses this issue of conversation engagement in terms of whether conversations do, or do not, ‘work’ – where success is defined in terms of whether coordinated regulatory action, with shared meanings and understandings, is able to occur. Putting questions of the normative desirability of this outcome to one side (as Black also does), I am suggesting a step further back, to ask a more fundamental question about why participants may or may not be able to engage with others: are they even talking about the same thing? By this, I mean: is the regulatory object in question, whether raw milk, beef or genetically modified corn, the same thing for all participants? In order to answer this question, the other part of my proposed analytical approach is needed – the concept of ontological multiplicity.

**Ontological multiplicity and food regulation**

Ontology is a branch of philosophy that is focused on the nature of existence. In recent years, there has been a noted ‘turn’ to ontology occurring in Science and Technology Studies (Mol, 2002; Law and Singleton, 2014; Woolgar and Lezaun,
2013; Law and Mol, 2011), geography (Mather, 2014; Simon and Randalls, 2016; Greenhough, 2016; Hinchliffe, 2015) and elsewhere (Zegwaard et al., 2015; Lynch and Cohn, 2017; Garnett, 2017). These works have variously explored the reality of objects and concepts, such as foot-and-mouth disease (Law and Mol, 2011) contraceptive IUDs (Dugdale, 1999) or anaemia (Mol, 1999). To use the words of Woolgar and Lezaun (2013, p333), the above studies use ontology to ‘interrogate the whatness of things’ and how they come to exist. These scholars argue that objects, such as anaemia or an IUD, are not as singular, stable and uniform as they may first appear. Instead, they are multiple, with different versions potentially co-existing, interacting and/or clashing. Ontological multiplicity is an approach that acknowledges the possibility that there could be more than one version of an object. To put it another way, ontological multiplicity lets us think about more than one version of reality (i.e. ‘realities’).

There are a number of points that it is useful to elaborate upon further here. The first is that ontological multiplicity sets us on a path where there is no longer one stable, pre-existing reality. This proposition, with roots in Actor Network Theory, has been developed by Annemarie Mol and John Law over the last two decades (Law and Singleton, 2014; Law, 2011; Law and Mol, 2011; Mol, 1999, 2002) and subsequently explored and developed by many others. Through their work, Law and Mol have found that there can be more than one reality, and that these realities are made by actions and practices. The multiple nature of reality means that there is ‘no other (founding) reality [lurking] behind’ (Fraser et al., 2014), or an ‘in-general’ reality that sits underneath the objects and phenomena that are part of our lives (Law, 2011), and Mol (2002) finds that realities (or versions of an object) are specific to a site and the specific practices underway there. That is, all the phenomena that make up the world are actively made and remade in practice. This might mean that different participants in regulatory conversations enact particular foods in specific (and different) ways. Regulatory conversations, and the sub-parts of these conversations, about a specific food are thus all potential sites of enactment and sites where different versions of ‘a food’ are being performed at the same time. What such multiplicity means is twofold. First, the understanding anyone can have of an object, such as a food, is only ever partial. Some versions may be able to be identified, but not all. Secondly, there are no objectively ‘right’ or ‘wrong’ versions of an object, as this presupposes a prior ontological reality against which to measure. Instead, versions may hold
together in different ways, or one may become more dominant or stabilised over others, through processes that will be discussed shortly.

A second key point involves how different versions or realities come into being, where language becomes important. Law (2011) and Mol (1999, 2002) both emphasise the active nature of this process, with versions being *performed or enacted by practices* (in specific contrast to being *seen or perceived* differently). This is illustrated in the following example of how different veterinary traditions (the clinic, the laboratory and epidemiology) enact foot and mouth disease. Law and Mol (2011) found that different versions of this disease are enacted by the practices of people in different parts of veterinary science: the clinic enacts the disease through the practice of physically looking for deviances in animals; the laboratory enacts it by the practices of detecting the presence or otherwise of the virus through specific tests; and epidemiology enacts it through the practice of examining statistical patterns of transmission in populations. The outcome is that each professional grouping uses the same name for ontologically distinct phenomena. Such multiplicity highlights what Mol refers to as the ‘manyfoldness’ of an object, which may be drawn together under ‘a single name’ (Mol, 2002, p84). In this example, the *practice of naming* is one of the key ways that ontologically distinct objects are made to ‘hang together’ as a singular, seemingly distinct, stable and compatible ‘object’.

Importantly, even though ontological multiplicity may sound similar to analyses that involve looking at multiple perspectives of objects, this approach differs from those. While perspectivism and pluralism are related to ontological multiplicity, in that they allow for an object, or indeed reality, to be seen or constructed in different ways, both of those approaches are still centred around an object that remains singular, stable and ‘untouched’ (Mol, 1999, p76); they do not multiply the object being looked at. Ontological multiplicity differs from this approach by arguing that this difference is not simply a product of diverse ‘worldviews’ (Woolgar and Lezaun, 2013, p322) but is the *enactment* of multiple versions of objects through practices and actions, which results in many versions of reality. As Mol (2002, p4–5) observes:

> it is possible to refrain from understanding objects as the central points of focus of different people’s perspectives [...] If practices are foregrounded there is no longer a single passive object in the middle, waiting to be seen from the point of view of seemingly
endless series of perspectives. Instead, objects come into being – and disappear – with the practices in which they are manipulated.

I suggest that this approach to thinking could be valuable for looking at contestation in regulatory conversations around food safety because it lets us explore how different participants in a regulatory conversation may be talking about different food objects, rather than talking differently about a single food object.

Bingham and Livau (2012, p1601), in examining meat as an object of food safety regulation in the UK, find that this object is made multiple through various practices; they find that it is, at once, a substance that is being made ‘safe’ through a series of biosecurity practices, a potential health risk sitting dripping outside the fridge, and one that is made ‘edible’ as it goes to the customer on a plate. In this way, they illustrate the potential, as well as the need, for more research that intertwines regulatory studies with a more complex analysis of what is (or are) the foods being regulated. Building on this, I suggest using ontological multiplicity to look at debates in food safety regulation and ask the question: what if there is more than one version of a food, such as raw milk or genetically modified corn? Or, more specifically, what if part of the reason that food risks and regulation are contested is because the participants in these regulatory conversations are not talking about the same thing? As evidenced by others also applying such thinking to food, risk and regulation (e.g., Yates-Doerr and Mol, 2012; Lavau, 2017; Forney, 2016), using ontological multiplicity provides a means to uncover the potentially different versions of a food that are being enacted by participants in regulatory conversations.

Examining whether ontological multiplicity is a factor in regulatory debates is, however, only the first step. Once this line of questioning is opened, it leads us to questions about what happens when there are multiple versions of an object. Can, and do, these co-exist and interact? What if they do not fit together? Finding answers to these questions places us into the arena of ontological politics (Mol, 1999; Mol, 2002; Law and Benschop, 1997). This term, coined by John Law and developed further by Annemarie Mol, refers to the questions and issues that emerge once there is a focus on how multiple worlds or versions coordinate; that is, how the different versions of things ‘go together, or don’t’ (Law and Benschop, 1997, p176). To put this another way, the existence of multiple versions of
objects can lead to struggles between different versions of reality, which Law (2011) summarises as moments of ontological politics.

Mol’s (2002) work on the disease atherosclerosis illustrates what this could mean, finding that different versions of this disease are enacted within a single hospital setting. Some of these versions are able to hang together through different modes of coordination, such as hierarchical ordering. However, at the same time, tensions between versions are also observable. Mol finds that, at times, one version of reality may win over another, and that other versions may be discarded or explained away. If this is considered in a food safety regulation context, it suggests that certain versions of a food may dominate within regulation or, to put it another way, a certain version or versions of a food may be stabilised as the singular object of regulation, to the exclusion of others.

**Considering ontological multiplicity and regulation in practice:**

**Contested raw milk regulation in Australia**

Following the above discussion of the core concepts, this final section draws on both theory and the outcomes of my research into contested raw milk regulation in Australia (Linn, 2018a; Linn, 2018b), to look at how this approach can be applied and what new tools and questions it may offer for undertaking analysis of food regulation debates. Building on suggested empirical considerations of Law (2011) and Mol (1999), this is broken down into four questions to ask about the ‘object of regulation’ in food regulation processes and debates:

1. Where could different versions of the ‘object of regulation’ be found?
2. How can different versions be enacted?
3. Are there commonalities, differences and tensions between versions?
4. How are different versions held together, or not?

**Where could different versions of the ‘object of regulation’ be found?**

Law (2011, p171) states that it must be remembered that ‘wherever you look, whether this is a meeting hall, a talk, a laboratory or a survey, there is no escape from practice. It is practices all the way down, contested or otherwise’. This suggests that versions of things, versions of realities are being performed, and thus made, everywhere. That is, once this premise of ontological multiplicity is accepted in the context of food regulation, it introduces the possibility of
questioning and critiquing the normative assumption that a particular food is one thing and, instead, leads to the question: where might different versions of a food, as the object of regulation, be found? While a simple answer is ‘everywhere’, another answer would be to start looking at the regulatory conversations about a specific food, as these provide potentially useful windows into how different participants and practices enact an object of regulation.

In examining regulatory debates about food, there is a seemingly endless range of sites where food can be enacted, such as on a farm, in a factory, in a regulator’s office and in a consumer’s home. However, while much of the work around ontological multiplicity and practices draws on ethnographic field research that seeks to observe practices ‘in the field’ (Mol, 2002; Bingham and Lavau, 2012), enactment does not occur solely in physical places. Objects, such as food, may also be enacted ‘on paper’, with a strong precedent existing for exploring ontological multiplicity in, and through, written texts (see, for example, Law and Mol, 2011; Law, 2011; Farrugia, 2017). This occurs on two levels: first, written documents can offer representations of practices and windows into how an object is being enacted by the author; and second, the writing/preparing of the document is a practice that may, itself, enact specific versions (Law, 2011).

My research into raw milk provides a number of examples, as discussed in more detail in Linn (2018a) and Linn (2018b). What emerges from these works is that different versions of raw milk were able to be found in sites such as: documents released by Food Standards Australia New Zealand (FSANZ) as part of a major review of raw milk product regulation (Linn, 2018a); submissions from the public to this review; and accounts of producers who made raw milk outside the regulatory system (Linn 2018b). All of these ‘sites’ form places where raw milk, as the ‘object’ of regulation, is being discussed, debated and, most importantly, enacted.

**How are different versions enacted?**

Once possible sites of enactment are identified, there is a need to look for is what is being done; that is, what practices or performances are occurring to enact the object of interest. As Mol (1999, p75) states, ‘reality does not precede the mundane practices in which we interact with it, but is rather shaped within these practices’. In this way, there is a need to look at what practices are occurring to make different versions of an object.
Thinking about this in the context of food safety regulation, existing research, including my own, has begun to illustrate the many practices that enact food as the object of regulation. For regulators, this includes numerous desk-based practices, such as calculating risk statistics, reviewing international literature, doing risk assessments and writing reports (Linn, 2018b), as well as practices that are ‘in the field’, such as farm, factory or shop inspections, and practices that are laboratory-based, such as sending off, or directly testing, food samples (see, for example, Bingham and Lavau, 2012). The role of such practices was apparent in the analysis of FSANZ’s raw milk review documentation (Linn, 2018a) where, for example, it was possible to observe how desk-top risk-assessment practices, including data aggregation, data assumptions and modelling, enacted a very specific version of raw milk that was dangerous to consume and likely to make people sick. In making this ‘representative’ version, the practices underway displaced the variability that existed in the supporting field-based studies in order to make raw milk singular and stable in its ontology; a substance that posed a significant health risk to people, and was therefore always risky. It was this version of raw milk that became the ‘object of regulation’ and drove the ultimate prohibition of raw drinking milk.

At the same time, non-regulator participants in the regulatory process have their own materials and practices that will also enact food in a specific way. These include, for example, practices such as growing, manufacturing, eating and cooking food, as well as, more specific to regulatory conversations, the writing of submissions to regulatory reviews and other participation in, and engagement with, debates over how a food is regulated. Each of these practices are also not performed in the same way all the time; they are located in specific locations and times, and thus enact versions specific to those places and times (Law and Singleton, 2000). Returning to raw milk again, accounts of raw milk producers operating outside the regulatory system show how other versions of raw milk can be possible (Linn, 2018b). Through conscious practices such as animal care, cleaning and milking, they each, through their accounts, enact a distinct version of raw milk that is quite different to that which is made through the regulatory processes; it is a raw milk that is healthy, pure and, most importantly, safe.

Looking at the two examples together, it may appear to be very similar, or even the same as, people having diverse perspectives on an object, such as foot-and-mouth disease. However, as discussed earlier in this paper, ontological
multiplicity is not the same as perspectivism. The key difference is the underlying starting point for analysis. As noted by Mol (2002, p22) in her examination of atherosclerosis, thinking in terms of perspectives implies that there is a single central object that is seen in different ways but it is, in essence, *the same thing* and is ‘untouched’ by those looking at it. In other words, thinking in terms of perspectives starts with an assumption that an object (such as a disease or a food) exists independently of those looking at it. In contrast, the ontological multiplicity approach advocated in this paper does not start by assuming that the object is independent from its observers. Rather, the assumption is that people’s practices can enact different versions of objects such as diseases or raw milk. Therefore, there is a need to look at what practices people do and how such practices each enact an object, and whether different versions result.

**Are there commonalities, differences and tensions between versions?**

Returning to Law (2011, p171), once multiple realities, or versions, are recognised, the next step is to ‘look for the gaps, the aporias and the tensions between the practices and their realities – for if you go looking for differences you will discover them’. To put this another way, once multiple versions are identified, it is important to then ask what is being made to matter and what is being erased from view (Farrugia, 2017).

Previous work reveals, for example, tensions between the ways laboratories, epidemiologists and vets enact different versions of foot-and-mouth disease (Law and Mol, 2011; Law and Singleton, 2014), in how a tractor ‘works’ (Law and Singleton, 2000) and how gender is enacted in drug and alcohol education documents (Farrugia, 2017).

Bingham and Lavau (2012) have shown that tensions between versions are possible in relation to food. In looking at meat, they draw on the work of Annemarie Mol to observe that this regulatory object is many things at once: it is ‘mingled’ and is continually ‘enacted’ by different practices, sometimes as ‘safe’ but also (sometimes at the same time) as possibly risky and, again, also edible. Such versions may not always neatly cohere and illustrate how there can be tensions in examining the object of regulation (Bingham and Lavau, 2012, p1601). Looking once again at raw milk to illustrate, some obvious and fundamental differences emerged between versions, such as producers enacting
(and self-regulating) a substance that is healthy and pure (Linn, 2018b), and
FSANZ enacting a version that is always dangerous (Linn, 2018a).

*How do versions hold together or not in regulation?*

This last question brings us squarely back to the ontological politics of multiplicity – that is, if there is more than one version of a thing, how do (and can) these co-exist together?

Mol (2002) has identified a number of different mechanisms that may help this occur, such as ordering (where one version may be considered in advance of another) and inclusion (where one version may overlap with another). At the same time, it may be that one version also results in the discarding of another (Mol, 2002). Law (2011, p171) has also considered this and suggests that the dominance, or stabilisation, of a particular version is something to consider, noting that the importance of thinking about how a particular reality becomes one that ‘manages to hold steady’ and asking ‘how this process works to delete the way in which this sense of a definite exterior world is being done, to wash away the practices’. The above mechanisms were central to examining tensions in raw milk regulation. As outlined in more detail in Linn (2018a), despite multiple versions being enacted, stabilisation occurred in a number of ways, including through the establishment of a ‘representative’ milk, the use of a generic risk assessment framework, and the strategic use of uncertainty around contamination and the likelihood of falling sick from consumption. Reflecting other similar analyses of stabilisation, for example, in relation to Hepatitis C (Fraser and Seear, 2011), all traces of multiplicity were swept away.

Law and Singleton (2014) suggest that the question of how versions hold together gets to the heart of what is really important (apart from the practices themselves) about this approach. Asking this question in the context of food regulation opens up the opportunity to examine the ways in which certain versions of a food may become dominant, or be brought together or stabilised (Mol, 2002), to appear singular or uniform for regulatory purposes. For example, while there may be multiple versions of a food or specific foodstuffs, such as raw milk or beef, enacted in a regulatory conversation, not all versions may be considered equally. Asking this question opens up the possibility of thinking about whether there are versions of a food that are no longer part of the regulatory conversation, and how different versions of a food are being related (or
excluded) in order to deliver a coherent, and singular, material object of regulation.

Conclusions

This paper has examined existing analyses of food regulation debates and risk, and suggested that thinking about ontological multiplicity in the context of regulatory conversations offers a potentially useful tool for unravelling some of the contestation around food. I have argued that it is important to examine not just how versions of the material object of regulation are enacted, but also how they diverge and/or hang together through regulatory systems. Focusing on food objects and their emergence in regulatory conversations provides an opportunity to examine the ontological politics at play within regulation. Such an analysis could, of course, be extended to other objects of regulation, as well as other elements of regulation, including the process of regulation itself. I suggest that thinking this way lets us explore whose and which versions are dominant as well as how, and if, they interact within regulatory processes.

The approach discussed in this paper also offers more than a different theoretical angle. It also has potentially tangible outcomes for regulation and regulatory policy. Looking at regulatory debates this way offers us a new way of understanding why some regulatory conversations may not be working or perhaps, even, why they may be doomed to fail from the outset. If, for example, different participants are talking about completely different versions of raw milk, but this difference is not recognised, then it may be that the conversation will not go anywhere productive. Different participants may consider that they are being misunderstood or ignored which, in turn, could perpetuate debates over regulatory processes, decisions and outcomes. It may lead to a reluctance to comply with regulatory approaches or, as discussed in Linn (2018b), to producers developing their own ‘do-it-yourself’ regulation and compliance regimes outside of the formal system. In considering what ontological politics might look like in action, Mol (1999) notes that, among other challenges, if there are multiple versions, then there may also be options between versions. The question of which option to choose thus becomes an important (and avowedly political) one.

So what could ontological multiplicity mean for regulation? The first implication is that recognising the possibility of multiplicity could change the nature of regulatory conversations. It provides a means for exploring other reasons,
beyond different knowledge levels and divergent risk perceptions, for why certain regulatory processes are contested. In my work on raw milk regulation, I have suggested that the lack of consensus over whether raw milk should be legally available for retail sale, or not, could stem from different players in the regulatory process enacting and experiencing different versions of raw milk – some of which are dangerous, but some of which are not. This is not a disagreement over how to assess scientific evidence regarding the degree of riskiness of the same object. Rather, it is a disagreement over what that object is and how it should be considered by regulation; that is, there are multiple versions of raw milk at play. For example, raw milk is enacted by regulators as a substance that is inherently unsafe and must be purified and processed before it can become food but, at the same time, it is a substance that is enacted, and consumed, by others as a food that is pure, natural and life-giving. Expecting that a rational conversation about the evidence of risks will overcome difference and lead to consensus is illusory, if the fundamentally different starting points about what an object is – not just how to assess its risk – are not taken into account. To put it another way, one reason why conversations may not be ‘working’ (Black, 2002) could be due to a failure to recognise what is (or are) the material object of regulation being discussed.

A second implication is that not thinking about multiplicity both limits what questions can be asked about why regulation is contested and what tangible regulatory options can be on the table. For example, in thinking about raw milk regulation, it becomes possible to argue that an understanding of multiplicity could allow regulation to seriously consider the option of developing a legal pathway to permit raw drinking milk in Australia. Prohibiting the sale of raw drinking milk is to deny the reality of those people who drink it and it needs to be negotiated with care. To start from the presumption that the question to be asked is: How risky is raw milk? is to start from the assumption that raw milk is an ingredient that must be purified and processed, and which is inherently risky; this excludes the possibility that there are other versions of raw milk. A more open and inclusive process could begin with questions such as: How is raw milk made? What risks and benefits come with different versions? and How can regulation minimise the risks and maximise the benefits? This leaves open the possibility of recognising that some raw milk may be an ingredient to be processed but it may also be a food to be consumed raw. This, in turn, provides options of alternative regulatory pathways that could support each version of raw milk; that is, it would allow the recognition of difference within regulation. It is
important to note that this does not mean that everything and anything should be permitted; but rather, that the possibility of multiplicity could be engaged with as part of the regulatory process, even if not all versions are eventually permitted.

My arguments in this paper also open up the possibility of thinking about how to regulate food risks in the first place. I suggest that the possibility of multiplicity is not being recognised which, in turn, is contributing to the outcomes of regulation being contested. If regulation can be open to the possibility that there could be different versions of a food, then it opens up opportunities to look at whether these different versions may pose different risks. This is by no means a new idea in regulation generally – much risk-based regulation does recognise that regulated populations do pose different risks, for example, the regulation of different-sized businesses in a number of fields (Gunningham, 2002; Black, 2006). However, I suggest that thinking about this overtly in relation to food, especially foods where safety regulation is contested, has considerable potential.

In summary, asking the questions outlined above offers two different but related potential benefits. The first is more analytical, in that it offers an approach that facilitates the uncovering of aspects of regulation that may otherwise go unseen; that is, by grappling with food as a more complex ‘object’ of regulation, it forces an analysis of what might be otherwise unseen, as well as questions what may otherwise be considered a given. The second benefit is more practical, in that it provides a new opportunity to consider if regulation could work better. In this way, recognising multiplicity provides an opportunity to explore whether there are other ways that regulation and regulatory conversations could occur, which would be able to be more responsive to, or inclusive of, contested ‘objects’ of regulation. This is the likely value of this approach, and one where there is considerable scope for further work.


FSANZ (2013) Risk Analysis in Food Regulation.


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3 Raw milk is always risky: Stabilising the danger of raw milk in Australian food safety regulation

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Abstract

The sale of raw drinking milk from cows is banned in Australia, due to regulatory requirements that all milk must be pasteurised. Such a prohibition is based on concern about public health and safety risks, and was upheld in the most recent review of raw milk product regulation undertaken by Food Standards Australia New Zealand (FSANZ). However, this decision is not one that is universally accepted, with some people challenging the conclusion that raw milk is dangerous, and choosing to still source and drink it. In this paper, the contested regulation of raw milk is examined by questioning the normative assumption that the object in question, raw milk, is a singular entity, and one that is always dangerous. Drawing on an analysis of six FSANZ documents, released as part of its raw milk review, this paper discusses that the practices that stabilise raw milk as always risky; processes that are found to wash away the possibility of other, potentially safe, versions of raw milk. It concludes by finding that such stabilisation has tangible impacts for public health policy and regulation, including limiting the parameters within which debate can occur, and precluding the possibility that other versions of raw milk could exist, or be accounted for, in food safety regulation.
Introduction

In Australia, cow milk must be pasteurised before it can be sold as drinking milk, effectively prohibiting raw drinking milk. In 2012, following an extensive regulatory review, Food Standards Australia New Zealand (FSANZ) determined that this requirement would remain in place, a decision based on the conclusion that raw drinking milk posed too high a risk to public health and safety. That conclusion was based on FSANZ’s concerns about the risk of contamination, the inability to guarantee that raw milk would be pathogen-free,¹ and the risk of public illness from the consumption of raw milk.

However, such concern and the subsequent ban on raw drinking milk are not universally accepted. Internationally, the approach to raw milk regulation and risk is divided. The consumption of raw milk has, on the one hand, been likened to ‘playing Russian roulette with your health’ by the US Food and Drug Administration (Bren, 2004, p. 29) but, on the other hand, it has been found to be an acceptable and manageable risk for most consumers by the English Food Standards Agency (Wearne, 2015). Such divergent positions are mirrored across western jurisdictions; there are prohibitions in countries such as Scotland, Canada, Australia and some parts of the United States, while it is permitted in New Zealand, England, Wales, other states in the US and much of Europe, subject to a range of regulatory measures.

Debates over raw milk are not a new phenomenon. Raw drinking milk and its regulation have been both contentious and emotive since the start of the 20th century (Draper and Green, 2002; DuPuis, 2002). There is an extensive body of work looking at why people do or do not drink raw milk (Buzby et al., 2013; Enticott, 2003b; Knezevic, 2016; West, 2008), as well as literature exploring the debates over its regulation and risks (Draper and Green, 2002; Dunn, 2011; DuPuis, 2002; Knutson, Currier, Ribera, and Goeringer, 2010; Kurtz, Trauger, andand Passidomo, 2013; Paxson and Helmreich, 2014; Rahn, Gollust, and Tang, 2017). Studies in various countries have attributed a preference for raw milk to a range of factors, ranging from ignorance (Knutsonet al., 2010) through to societal structures (Enticott, 2003a) and to fundamentally different constitutions

¹ Pathogens are bacteria, or other microorganisms, that can cause disease. FSANZ is particularly concerned about the potential for bacteria such as Campylobacter, enterohaemorrhagic E. coli (EHEC), Listeria and Salmonella, to be present in raw milk and cause adverse health impacts for some people (FSANZ, 2009).
of health, body and wellbeing (Kurtzet al., 2013; Sage, 2011). Notwithstanding differences in the approach and theoretical basis for these works, what emerges is the recognition that many consumers who choose to drink raw milk do not necessarily consider it to be a ‘risky’ behaviour, but something which can and should be safe, and even good for you (Paxson, 2008).

This paper seeks to add to this body of work by building on recent studies that have developed our understanding of the complex ontologies of objects, including food (Bingham and Lavau, 2012; Joks and Law, 2017; Yates-Doerr and Mol, 2012) and disease (Fraser and Seear, 2011; Mol, 2002). This paper examines debates over raw milk regulation in Australia by focusing on the contested ontologies of raw milk, where ontologies points to the possibility that there can be multiple versions of an object (in this case raw milk) in existence. In particular, this paper explores how FSANZ conceptualises the ontological status of raw milk, as well as how, in the process of examining, describing and regulating it, FSANZ enacts – and stabilises – a version of raw milk as ontologically singular and always dangerous. I argue that FSANZ discounts any possibility of the existence of other versions of raw milk, such as that which could be drunk safely, and examine the implications of this. Such findings contribute to the growing body of literature that gives attention to the ontological complexity of food, risk and regulation (see, for example, Jackson, Evans, Truninger, Meah, and Baptista, 2018; Lavau, 2017; Yates-Doerr and Mol, 2012; Yates, Harris, and Wilson, 2017).

The paper is divided into four parts. The first part sets out the context for the discussion in this paper, outlining the regulation of raw milk in Australia. The second part summarises the methods used and theoretical approach informing this paper; a theoretical approach that seeks to draw on thinking around both regulatory conversations and ontological multiplicity, in order to offer new insights about contested regulation. The third section discusses the findings from an analysis of a series of consultation papers released by FSANZ over the period 2008–2012. The analysis presented here focuses on FSANZ’s accounts of raw milk and risk in these documents, as well as the practices of FSANZ that enable it to stabilise raw milk as a substance that is ontologically singular and always risky. The final section concludes by observing what such stabilisation can mean for regulating the health risks of food, noting in particular that such stabilisation sets
(and limits) the parameters of this regulatory conversation by enacting raw drinking milk, as the object of regulation, in a specific way.

**Background – raw milk regulation in Australia**

Food safety regulation in Australia is based around a single common set of national food standards, the Australia New Zealand Food Standards Code (the Code), which set out how food should be produced and labelled. The Code is developed by FSANZ then implemented and enforced separately by each state and territory.

Within the Code, there are a number of provisions that govern the production of raw milk products in Australia, including those relating to information and labelling, microbial limits, and (of most relevance here) production and processing. This last provision, *Standard 4.2.4 Primary Production and Processing Standard for Dairy*, specifies in detail the production, processing, collection and transport requirements that must be met for all dairy products, including permissible raw milk products, namely certain types of raw milk cheeses.

Within the requirements of Standard 4.2.4, Clause 15(1) is the most contentious in debates about raw milk regulation. This is because it establishes a default requirement that all milk must be pasteurised, unless it meets one of the small number of specific exemptions available under the Clause or elsewhere within the Standard. These exemptions allow for the use of any other process that provides an equivalent or greater effect as pasteurisation, in terms of the destruction of microorganisms that could otherwise make someone sick; allow applicable state or territory legislation to provide for an alternative approach; and apply to the production of certain raw milk cheeses, where different requirements set out in Division 5 of the Standard must be adhered to instead. The outcome of this requirement is that the sale of raw drinking milk is largely prohibited in Australia.  

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2 Food Standard Code 1.2.3 - Information requirements – warning statements, advisory statements and declarations
3 Food standards Code – 1.6.1 – microbiological
4 Standard 4.2.4 - Primary Production and Processing Standard for Dairy
5 The exception to this is raw goat milk, which is permitted in four states - NSW, SA, QLD and WA.
Approach and method

The approach taken in this paper draws particularly on theoretical work by Mol (for example, 1999; 2002) and Law (for example, 2011), as well as others (Bingham and Lavau, 2012), around ontological multiplicity. Such an approach sits in contrast to the orthodox approach to ontology, which operates within what Law (2011, p. 156) calls ‘Euro-American common-sense realism’. As Law goes on to explain, such ‘realism’ assumes that there is a single reality ‘out there’; it assumes that this reality largely precedes, and is independent of, human actions; and it assumes that such reality has a definite form. Ontological multiplicity fundamentally disrupts this mode of thinking and, as Law (2011) acknowledges, engaging with it requires a pivotal leap in thinking. In particular, ontological multiplicity challenges the underlying assumptions of the above ‘realism’ by allowing for more than one version of objects (more than one version of reality), where these objects are done, performed and enacted by practices at a specific time and place, rather than pre-existing, and being independent of, the practices (Law, 2011).

Engaging with ontological multiplicity also leads to questions about what happens when there are multiple versions of an object: Can, and do, they co-exist and interact? What if they do not fit together? Mol (2002, p. 55) has identified a number of different mechanisms that may help versions to ‘hang together’, such as ordering (where one version may be considered in advance of another) and inclusion (where one version may overlap with another). At the same time, it may be that one version also results in the discarding of another (Mol, 2002). Law (2011, p. 171) has also considered this and suggests that the dominance, or stabilisation, of a particular version is something to consider, noting that the importance of thinking about how a particular reality becomes one that ‘manages to hold steady’ and ‘ask[s] how this process works to delete the way in which this sense of a definite exterior world is being done, to wash away the practices’. To illustrate, Fraser and Seear (2011) have drawn on the above works to examine tensions in the enactment of hepatitis C in health promotion, policy literature and service provision. They found that, despite the multiple versions of hepatitis C that were being enacted, stabilisation occurs in a number of ways, including through the act of giving a single name to the disease, and through the development of a single overarching narrative about the disease. Such processes serve to enact a singular stable version of hepatitis C, where all traces of
multiplicity have been ‘swept away’ (Fraser and Seear, 2011, p. 53). While it is this particular aspect of ontological multiplicity theory that underpins the analysis presented in this paper, it is acknowledged that there are other important elements to how an object is performed and enacted, notably the agency of more than human practices and the role of non-human actors (Law and Mol, 2008), for which there is insufficient space within this paper to explore.

This paper also draws upon regulatory conversation theory. Regulatory conversations refer to what Black (2002, p. 170) has defined as ‘communications that occur between regulators, regulated and others involved in the regulatory process concerning the operation of that regulatory system’. Black (2002) suggests that such conversations can be seen as interactions, which are central to the constitution of regulatory processes, can form the basis for coordinated regulatory action, and are important sites of conflict and contestation. Accordingly, they provide potentially useful windows into how specific regulation and ‘rules’ are developed, understood and interpreted. They also, in the context of a theoretical approach premised on ontological multiplicity, should be conceptualised as practices that have the effect of enacting and stabilising the regulatory object in question (see Linn, 2018a, for more detail). In this way, the FSANZ regulatory review process can be seen as being one such ‘conversation’; it is a communicative process occurring between the regulator (FSANZ), dairy producers and others, including consumers seeking greater access to raw milk. The consultation documents represent a key element of FSANZ’s communication and, in turn, provide a window into how raw drinking milk is enacted as the object of regulation by FSANZ through this process.

The findings discussed in this paper are drawn from a qualitative analysis of six documents, listed in Table 1.

Table 1 – FSANZ Documents Analysed

| Proposal P1007 Primary Production and Processing Requirements for Raw Milk Products (Australia Only) – Discussion Paper | 2008 | Main Consultation Paper |
| Proposal P1007 Primary Production and Processing Requirements for Raw Milk Products (Australia Only) – 1st Assessment Report | 2009 | Main Consultation Paper |
These documents were publicly released by FSANZ as part of a major review of the regulation of raw milk products in Australia, which occurred over the period 2008–2012. The analysis of all documents was undertaken using NVivo. Themes were identified using a combination of methods: some arose from the literature that had previously examined debates over raw milk regulation, and some arose directly from the documents themselves. The work presented here is part of a wider project that uses ontological multiplicity to explore contested regulation of raw cow drinking milk in Australia.

While a number of additional documents were also released (such as those relating to raw milk cheese and goats’ milk), analysis was limited to those listed in the above table, given that the focus of the project was on raw cow drinking milk.

**Analysis**

**Stabilising raw milk**

At the end of the regulatory review process, the final FSANZ Approval Report found that Category 3 products, which included raw drinking milk, presented too high a risk to consider any permitted product. There were two main reasons for this decision. The first was that, as the definition of Category 3 summarises, these products had:

> intrinsic properties and/or processing factors [that] are likely to allow the survival of pathogens that may have been present in the raw milk and may support the growth of these pathogens (FSANZ, 2012a, p. 2).
Here, it becomes clear that a key part of the identified risk was that Category 3 products let pathogens survive and grow. The second reason related to the impact of such pathogens on people:

the level of risk cannot be reduced sufficiently and such products present a high level of public health and safety risk. (FSANZ, 2012a, p. 2)

These statements, which were set out in the Executive Summary of the Approval Report, established two important things: 1) Category 3 products, in their entirety, were high risk as they allow pathogens to survive and grow; and 2) such products posed a high level of risk to public health and safety. In other words, all raw drinking milk (as one of a number of Category 3 products) posed a high level of risk to everyone (the public).

There was no uncertainty, caveats or flexibility here; the risk was categorical (both literally and figuratively) and, while it may have been the end of the review process, it is an important starting point for this paper. It represented the version of raw milk that was being regulated; that is, the consultation papers enacted a raw milk that was singular and stable, and which was always risky.

However, the certainty, stability and singularity of this conclusion belies the more complex, and arguably multiple, enactments of raw milk that occurred at other points in the review documentation (and indeed elsewhere by others, a matter not discussed here but which is the subject of a separate paper [see Linn, 2018b]). That there are other versions of raw milk, versions that may not always be dangerous, is apparent not only within this particular regulatory conversation, but across other points in time and in other contexts. For example, an unpublished analysis of consumer submissions to the same FSANZ review highlights a version of raw milk that is enacted as healthy, safe and made by known producers. The existence of other versions, not always dangerous, is also implicit in the permissibility of raw drinking milk as a food in other countries, such as England, New Zealand and parts of the United States. Equally, historical anthropological work, such as Otomo (2014), shows how different versions of raw milk have existed at other points in time, such as the use of animals for wet nurses.

While these other versions are not the focus of this paper, their existence suggests that the version of raw milk being enacted may be specifically linked to
a particular time and place. To use the language of Law (2011), raw milk is done in different ways at different points but, as will be discussed below, in this particular regulatory conversation, other versions were either swept away or brought together and stabilised. The following sections look at three processes within the FSANZ documents that helped achieve this outcome.

Making a ‘representative’ raw milk

The first process that this paper will highlight is the enactment of a representative version of raw milk. That is, the constitution of a milk that was made by a ‘probabilistic model’ to represent raw milk generally and which became, in turn, the milk that was the object of regulatory consideration and concern. The process of making this version of raw milk occurred in a number of stages, intimately linked to how the review process, as well as the hierarchy of review documentation, was structured.

FSANZ (2012) explained in the final Approval Report that its decision-making process involved three main steps: 1) the preparation of risk assessments, 2) drawing on these assessments to prepare a Technical Assessment, and 3) making a final decision on the basis of these findings. This was not an unusual, or particularly contentious, format for a regulatory decision-making process; it follows a fairly standardised approach established by FSANZ (see FSANZ, 2016) and draws on international food safety risk management and assessment processes (FSANZ, 2013). However, what is of interest here is that, at each stage of the process, debates were being had, not only about matters such as risk and risk management, the nature and origins of risk, and so on, but also about the object to be regulated. Moreover, at each step along the way, practices were taking place with respect to the regulated object; practices that had effects on how the object in question, raw milk, was enacted and stabilised.

This is illustrated by looking at key FSANZ documents prepared as part of the first step in the decision-making process: the Microbiological Risk Assessment of Raw Cow Milk. The stated purpose of this Risk Assessment was to determine the public health and safety risks posed by the consumption of raw milk in Australia (FSANZ, 2009a). In doing this, a number of processes were undertaken, including the development of a ‘probabilistic model’ for the likelihood of illness following the consumption of raw milk.
FSANZ (2009a, p. 21) outlined the steps involved in the process, with one of the first being to identify and collate model inputs:

Scientific publications and unpublished sources reporting survey results for pathogen concentrations in bulk milk tank and with-in herd prevalence were evaluated against a number of exclusion criteria, including consideration of survey sample size, geographical location, animal age (weaners, heifers and cows) and microbiological methodology. A summary of the data sources for bulk milk tank and with-in herd prevalences that were accepted after review can be found in Annexes 5 and 6.

Here, it is possible to observe that there were a number of practices underway – sources were found, then ‘evaluated’ against ‘exclusion criteria’ and subsequently ‘accepted’, or not. Once these steps occurred, the ‘accepted’ data sources formed the inputs for the model. Such inclusion and exclusion of data illustrates how information and, in turn, raw milk, began to be unified, and, to use the words of Mol (2002, p. 55), represent a ‘form of coordination’. Stabilisation was also beginning to occur, with these data brought together such as into ‘a summary of bulk milk tank prevalence for each of the four pathogens’ (FSANZ, 2009a, p. 21), where any differences or inconsistencies were swept away through aggregation processes.

At the same time, assumptions were being made. For example:

For L. monocytogenes [...] data on faecal concentration in dairy cows or beef cattle (as a surrogate) could not be found (Rhoades et al., 2009). To overcome this limitation, farm bulk milk tank prevalence and concentration data was used (FSANZ, 2009a, p. 19)

Developing such assumptions is a typical part of scientific modelling. However, in doing so, the act also drove certain outcomes and, in turn, a particular enactment of raw milk. To illustrate, in the list of accepted literature, there were a number of reports that focused on contamination and pathogen prevalence in bulk raw milk that was not intended for drinking, or in cattle that were not intended for milking (Appendix 5 and 6 in FSANZ, 2009b). The apparent assumption here was that, in the absence of data about pathogens in raw milk intended for drinking, data from any raw milk, or even other cattle generally, were useful as a proxy. However,
what this meant was that all raw milks, and indeed different types of bovine animals, were collapsed together. The significance of this is that any possible differences between raw milks were lost, such as differences between milk that is going to be pasteurised (which is the case for much bulk tank milk) and milk where deliberate action was undertaken to prepare it for drinking in its raw state (see Linn, 2018b). That is, raw milks were assumed to be the same, and any possibility of multiplicity was ignored or lost.

This is not a critique of whether the exclusions or assumptions are ‘right’. Instead, this analysis seeks to illustrate how the practices of review, aggregation, assumption-making and modelling brought into existence a specific version of raw milk (as well as many other objects not discussed here, such as raw milk cheese, and consumers). The milk ‘made’ by the model became, in essence, representative of all raw milk; this a singular version of ‘raw milk’ brought with it tangible characteristics and features, for example: it was a significant source of pathogenic microorganisms; if sold in a retail shop, this raw milk was predicted to cause, among other things, 97 cases of EHEC and up to 170 cases of listeriosis in susceptible populations; and even if pathogen levels were low, there remained a risk of causing illness (FSANZ, 2009a). Put another way, these practices aggregated and simplified health risks so that they could be generalised by the model and, in turn, these health risks came to represent the health risks posed by all raw milk.

This is significant as it was the above characteristics that raised concerns for FSANZ and, in turn, drove its regulatory decisions. In particular, that risks posed by the raw milk ‘made’ by the risk assessment went on to underpin the findings of its Second Assessment Report (FSANZ, 2011), for the conclusions in its Technical Assessment (FSANZ, 2012b) and, in turn, for the decisions in its Approval Report (FSANZ, 2012a). In each report, the representative raw milk made in the risk assessment was re-enacted and re-established, becoming an increasingly stable and ‘given’ version through the hierarchy of documents, with little to no detail about how it was made emerging in the latter documents.

The act of labelling and categorisation

Law (1999, p. 11) has observed that ‘the act of naming’ can stabilise an object as singular. This observation is of relevance here as a key way in which the possibility of multiplicity was erased was through FSANZ’s identification and
labelling of uniform categories of raw milk products in its Category Framework Approach. In particular, the act of creating the framework served to stabilise raw milk as singular in two ways: it erased any diversity in the source milk used to make the final raw milk products and it stabilised entire categories of raw milk products, such as drinking milk, as uniform.

The Category Framework Approach was developed and used by FSANZ as the central tool for structuring its decisions in the review process. Under the framework:

three categories of raw milk products were defined in terms of the effect processing factors and product properties of the final product have on pathogen survival and growth (FSANZ, 2012a, p. 4).

The framework and categories are set out in Table 2 below; they were designed such that the food safety risk increased from Category 1 to Category 3.

Table 2 – FSANZ Category Framework Approach

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category 1 products</td>
<td>Those products for which the properties and/or processing factors eliminate pathogens that may have been present in the raw milk.</td>
</tr>
<tr>
<td>Category 2 products</td>
<td>Those products for which the properties and/or processing factors may allow the survival of pathogens that may have been present in the raw milk but do not support the growth of these pathogens.</td>
</tr>
<tr>
<td>Category 3 products</td>
<td>Those products for which the intrinsic characteristics and/or processing factors are likely to allow the survival of pathogens that may have been present in the raw milk and may support the growth of these pathogens.</td>
</tr>
</tbody>
</table>

This practice of labelling and structuring allowed FSANZ to place different types of raw milk products into each of the categories, and then consider the food safety risks associated with the sale and consumption of foods in each category as a whole. In other words, the act of creating a single category, such as Category 3, served to erase any possible difference between versions of a
particular product (as well as different types of products within a single category). Instead, they became singular and generic groupings that could be considered together with a seemingly uniform risk profile.

The structure of the assessment framework served to stabilise individual raw milk products, such as drinking milk, as singular in their ontology by foregrounding a linkage between risk and entire categories of raw milk products. That is, through this categorisation approach, raw milk products were able to be classified as risky, irrespective of whether or not they actually contain pathogens that might make you sick. For example, the framework was able to erase any diversity in relation to the underpinning source milk (called here the ‘input milk’) that was used to make the products. Referred to in the framework as ‘the raw milk’, the practice of naming here, within the framework parameters, allowed the input milk to exist fairly anonymously in the background, relative to the final products. The nature of the input raw milk (such as its quality, provenance or other characteristics) became merely secondary (if important at all) to the final product categories. While there was some limited discussion of the need for certain qualities of input milk in supporting documents (FSANZ, 2012b) and the differences this could have on the final product, this was not elaborated on in the main consultation papers.

In this way, FSANZ transformed and reduced products such as raw drinking milk, which would, in practice, come from multiple farms and multiple production systems and contain a rich variety of microorganisms, into a single, homogenous category that was grouped on the basis of whether pathogens (again generic) could survive and/or breed in it. In short, the limited nature of discussion about the input milk allowed it to become a homogenous input for raw milk products. This approach thus precluded asking other questions that would engage with multiplicity, such as whether there could be differences between products or, perhaps more relevantly in the context of the framework, whether a particular version of a product contained harmful bacteria at all.

In summary, through the framework, FSANZ stabilised raw milk as something that is always the same. The framework provided no room for multiple raw milks and washed away any scope for raw milk, as either an input or a final product, to be made differently and come with different risks. Instead, through the use of homogenous categories, the framework enacted them as ontologically singular: a single input and, in the case of drinking milk, a single category that was further
conflated with other raw milk products, all of which were then made uniformly risky.

**Translating and excluding – the strategic use of uncertainty**

FSANZ’s use of evidence and uncertainty offer another example of how ontological singularity was achieved. Here, the processes of translation and exclusion can be seen in relation to two key issues central to concerns about raw milk: contamination and sickness.

Raw milk as a contaminated substance was one of a number of ways that raw milk is enacted across the FSANZ documents. In its First Assessment Report, FSANZ noted that:

Pathogens typically associated with raw milk include *Coxiella burnetii*, *Brucella* spp. (*B. abortus* in cattle and *B. melitensis* for goat and sheep milk), *Salmonella* spp., *Yersinia enterocolitica*, *Campylobacter jejuni*, *L. monocytogenes*, *enterotoxigenic Staphylococcus aureus* and *pathogenic E. coli*. (FSANZ, 2009a, p6)

Here, in one of the main consultation papers, the use of language such as ‘typically’ implied a regularity of contamination, as well as a degree of predictability. FSANZ also observed that there are many different points at which such bacteria could enter the milk:

A range of microorganisms may be associated with dairy animals, the environment in which they are kept and the milking equipment used that may result in the contamination of milk. Additionally, the milking procedure, storage of milk and processing milk into various dairy products carry risks of further contamination or growth of pathogens (FSANZ, 2009b, p6)

In conjunction with the first comment, what emerged here was a raw milk with a range of pathogens that were ‘typically’ associated with it, and this was due to the seemingly endless potential for contamination at almost any point. At first glance, it may seem like there is a tension between ‘typically’ in the first account and the language of ‘may’ in the second, in that the latter paragraph could be interpreted to imply that contamination is not a foregone exclusion. However, such tensions were smoothed over by FSANZ, which instead chose to amplify the possibility of
contamination risk. This occurred through its observation that contamination may not even be detectable:

There are recognised limitations in microbiological testing. When there are low levels of pathogens present the probability of detecting these pathogens depends on the methodology and limit of detection. Therefore, a result of no detectable pathogens does not mean absence in the entire batch of milk (FSANZ, 2009b, p15).

What is particularly notable about this account is the way it uses the idea of certainty. On one hand, in highlighting the ‘limitations’ of testing, and suggesting that negative test results may not mean an absence of pathogens, FSANZ emphasised that testing was inconclusive, or uncertain. On the other hand, in introducing such uncertainty around the ability of testing to detect contamination, FSANZ simultaneously implied that the risk of contamination should be considered greater, or more certain, despite what test results may suggest. Such a conclusion was further established a page later, where the notion of contamination as an unseen danger was repeated:

the Microbiological Risk Assessment of Raw Cow Milk indicates that even where there is very low contamination of the bulk milk (below the level of detection) pathogens will grow and cases of illness from *Campylobacter spp.*, *EHEC*, *Salmonella spp.* and *L. monocytogenes* can be expected (FSANZ, 2009b, p16).

Here, FSANZ suggested that, even if contamination was below the level of detection, that is even if no contamination were found or the milk appears clean, dangerous bacteria ‘will’ still grow and cases of illness can be ‘expected’. The practice to highlight here is how both the language, such as ‘will’ and ‘expected’, as well as the smooth narrative, shifted contamination from being a possibility (which ‘may’ occur) to being the outcome that ‘will’ occur. In other words, FSANZ’s account suggested that even raw milk that may appear to have no contamination could still be a risk and, in turn, FSANZ was able to produce and stabilise a substance that is always dangerous; that is, if all raw milk was potentially contaminated, then all raw milk was risky. To put this another way, through this practice, FSANZ was able to remove uncertainty about whether or not raw milk poses a risk and make it a much more consistent and stable object.
This enactment also highlights the way in which internal tensions around uncertainty were handled between the main consultation papers and the supporting documents. For example, in the Microbiological Risk Assessment of Raw Milk, limitations and uncertainty around the prevalence of raw milk contamination was acknowledged, with the document noting that there is ‘limited published data on the prevalence and levels of pathogens in raw cow milk in Australia’ and ‘Due to the limited number of samples and the restricted spatial and temporal conditions, insufficient data is available to draw conclusions on contamination levels within the entire Australian raw milk supply’ (FSANZ, 2009a, p. 11). Yet, at the same time, such limitations and, by extension uncertainty, were ‘lost’ in the process of ‘translating’ the supporting documents into the more digestible main consultation papers, where the risk of contamination is articulated, as discussed above, with considerable certainty.

A similar approach was observable in relation to the representation of illness risk across the documents. Here, similar to the use of ‘typically’ in the contamination example above, FSANZ used language such as ‘frequently’ to imply regularity, alongside a long (and scary) range of possible illnesses, which served to emphasise the seriousness of issue (FSANZ, 2009, p6). FSANZ went on to support its concern, and concretised the risks of getting sick, with examples of outbreaks and statistics on hospitalisations, such as ‘101 cases of illness (and 4 hospitalisations) associated with the consumption of raw cow milk’ (FSANZ, 2009, p6). As occurred for contamination above, uncertainty was also then used to amplify the risk further, with FSANZ observing that the issue of sickness may be greater than the cited evidence would suggest:

It should be recognised that outbreak data only represents a small proportion of actual cases of food-borne illness, as many outbreaks go unrecognised and/or unreported to health authorities. (FSANZ, 2009b, p6)

In this way, FSANZ again created uncertainty by suggesting that the chance of getting sick is greater than the ‘evidence’ might imply. However, at the same time, FSANZ arguably obscured the uncertainty around getting sick through the limited translation of the caveats presented in the supporting documents around both the evidence for, and the probability of, getting sick as result of raw milk consumption (FSANZ, 2009b).
Both the above examples suggest a strategic use of uncertainty by FSANZ to stabilise raw milk as a uniform object of concern. Uncertainty was, on one hand, used to emphasise risk; that is, things may be riskier than they appear, as it was not always possible to see pathogens/trust reporting of illness levels. However, on the other hand, other uncertainty was ‘washed away’ through the practices of exclusion and translation of information from the supporting documents through to the main consultation papers, such as around the wider likelihood of the raw milk being contaminated or someone getting sick.

**Conclusions**

The analysis presented in the previous sections explores three processes through which raw milk is stabilised as a singularly risky substance and which, as a result, needs to be prohibited. In discussing these processes, what emerges is that stabilisation occurred both through what was written in the documents, as well as through the interactions between the documents, reflecting the macro practice of how the consultation documentation was prepared, structured and presented.

That a single version of raw milk was established has implications for how the regulatory conversation could occur. In particular, FSANZ was the owner of the review process and, for want of a better term, the first participant to communicate. This meant that it was able to set the parameters of the ‘regulatory conversation’. A particular advantage of this position was that it allowed FSANZ to enact and stabilise its ‘authoritative’ version of raw milk and its putative health risks from the outset, with other participants in the conversation then having to respond within such parameters.

While, on one level, this could be seen as an illustration of how FSANZ ‘framed’ the debate in terms of risk assessment and, specifically, the need for pasteurisation, the findings in this paper suggest there could be more to this. In particular, in using an ontological multiplicity approach, this paper shows how it is possible to go beyond questions that focus on a contest of framings to asking about how regulatory processes might enact a specific version of the food being regulated, to the exclusion of others.
Yates et al. (2017) examined what multiple ontologies of water could mean for governance and the risks of silencing diverse ontologies. In a similar way, this paper brings to the fore a question around what is the food that is the object of regulation. If the words ‘raw milk’ are used, the picture that most likely comes to mind is a bottle of white liquid, something that is pourable, drinkable and very much a physical thing. However, what this paper suggests is that there are other possibilities; in particular, the raw milk that was the focus, or ‘object’, of regulation in this particular conversation was something made through regulatory practices that occurred on paper: practices such as aggregation, assumptions and modelling. The raw milk as enacted through these practices came with very specific health risks and, in turn, became the driver for regulatory activity. The possibility that there is other raw milk, which is not the same as this ‘representative’ milk, such as its levels of contamination, is never countenanced, despite the apparent uncertainty that was acknowledged in the supporting documentation but was swept away in its translation into the main consultation papers.

This outcome offers a tangible illustration of the tensions between multiplicity and stabilisation in regulation. Just as Yates-Doerr and Mol (2012) note the complex interactions between different versions of meat and health in regulation, this paper shows that, while the practice of regulation seeks to regulate the production and use of an object that is made by many producers in many different ways, at the same time, the possible differences are washed away through the enactment of a representative version that becomes the single object around which regulation operates. On one hand, it is understandable that such stabilisation occurs; it is arguably simpler for FSANZ to communicate and, in turn, make regulatory decisions more straightforward. However, on the other hand, such an approach removes possibilities for other versions to be considered, and means that regulation does not need to work out how to respond to, or account for, more difficult or complex versions of a food and the potentially diverse, as well as uncertain, risks it may pose when consumed.

This analysis also suggests that there is tangible value in using ontological multiplicity to examine and critique regulation, and its normative assumptions, particularly as they relate to food and health. Such an approach allows questions to be asked openly about what is and is not being considered in regulatory processes, and about whether complexity and multiplicity are being washed away
to facilitate the stabilisation of an object of regulation: a stabilisation that may have significant implications for how foods are produced, made available and consumed.


FSANZ. (2012b). *P1007 Technical Assessment.*

FSANZ. (2013). *Risk Analysis in Food Regulation.*


Making milk with conscious care: Raw milk ontologies and the practices of ‘bath milk’ producers in Victoria, Australia

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Abstract

The sale of raw cow milk for human consumption is banned in Australia due to regulatory requirements that all milk must be pasteurised for safety reasons. However, some dairy farmers produce raw milk for sale as ‘bath milk’, a product labelled ‘for cosmetic purposes only’ but which is often bought for drinking. This situation is mirrored in other countries where raw milk is banned, and it is highly contentious, yet while there is significant literature examining why people drink raw milk, there has been little analysis exploring the views and practices of these farmers. Drawing notably on the theoretical work of Annemarie Mol and John Law around ontological multiplicity, this paper explores the accounts of a number of such farmers in Victoria, Australia. It finds that these farmers explicitly rejected the normative definition of raw milk as inherently dangerous, along with the associated regulatory framework. Instead, they developed their own structured practices that were designed to produce a version of raw milk that could be drunk, but which existed outside of the food regulation system. This situation highlights how practices can enact different versions of a food and, at the same time, the challenge for food safety regulation in being able to engage with, and account for, alternative and more complex versions of food and risk.

Key words: Bath milk, ontological multiplicity, raw milk, risk.
1. Introduction

In late 2014, a small child in rural Victoria, Australia, fell ill and tragically died. While the factors contributing to this death were contested, one of those considered to be potentially involved was that the child had, on occasion, drunk raw ‘bath milk’. Raw ‘bath milk’ is an unpasteurised milk product (most commonly from cows) that is labelled and sold ‘for cosmetic purposes only’ and ‘not for human consumption’. Despite such labelling, purchasers are known to buy and consume bath milk. It forms one of the few ways of obtaining raw cow’s milk in Australia, where the production and sale of raw milk as a food is prohibited.

While the specifics of these events are not the focus of this paper, they brought raw bath milk from the margins to the centre of the public eye. In doing so, these events facilitate examining broader questions around the ontologies of food or, to put it another way, asking questions about what is a food, where ontologies highlights the possibility that there can be multiple versions of a food in existence (Law, 2011; Mol, 2002; van de Port & Mol, 2015; Yates-Doerr & Mol, 2012). In particular, the events of late 2014, as well as the almost immediate shutting down of the raw bath milk market in Victoria, can be seen as a ‘flashpoint’ (Kurtz, Trauger, & Passidomo, 2013, p. 136) in the regulatory practices, which offers a window into the tensions around the regulation of raw drinking milk.

The production and regulation of raw milk is closely tied to the practices and structures of rural communities. Raw milk is the direct product of a variety of

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1 The coronial report released two years later concluded that ‘on the balance of probabilities’, the child’s death was ‘most likely linked to the consumption of unpasteurised milk’ (Jamieson, 2016, p. 26). However, it also noted that the actual milk consumed was unable to be tested and observed that a number of alternative possibilities were put forward.

2 This is widely acknowledged in places such as online raw milk forums, opinion articles and food-focused websites, see for example Whittaker (2015) and Sustainable Table, ‘Why are some people drinking bath milk?’ [https://sustainetable.org.au/people-drinking-bath-milk](https://sustainetable.org.au/people-drinking-bath-milk), 23 July 2014.

farming practices and processes. Its consumption influences broader questions around health and rural social relations (Enticott, 2003a), while its regulation, although often developed far away, directly shapes what it is that farmers can and cannot do.

Such production and regulation have been both contentious and emotive since the start of the 20th century (P. Atkins, 2010; P. J. Atkins, 1992; Draper & Green, 2002; DuPuis, 2002). There is an extensive body of literature looking at why people do or do not drink raw milk (see Buzby et al., 2013; Enticott, 2003b; Knezevic, 2016; West, 2008); exploring the debates over its regulation and risks (see Draper & Green, 2002; Dunn, 2011; DuPuis, 2002; Knutson, Currier, Ribera, & Goeringer, 2010; Kurtz et al., 2013; Paxson & Helmreich, 2014; Rahn, Gollust, & Tang, 2017); and critiquing the different rationalisations and enactments of raw milk as an object, including as a product of both humans and nonhumans (Nimmo, 2008, 2010; Otomo, 2014). Others have also questioned the dominance of pasteurisation as the ‘necessary’ step ‘to make milk safe’ (Paxson, 2008; Speake, 2011, p. 531) and noted that such dominance has served to hide significant uncertainties around both contamination and the health impacts from consumption.

However, among this rich and theoretically diverse work, there has been little to no attention paid to the accounts of those who choose to make raw milk outside of the formal food system in jurisdictions where it is prohibited, such as Australia. This paper seeks to fill this gap by presenting the accounts of those farmers who chose to produce a raw milk product in Victoria during the period when bath milk was largely ignored by regulators. In looking backwards to a time before 2014, it seeks to shine a light on their practices and the possibility that there are different versions of raw milk by contributing to the small, but growing, body of work exploring the role of attention and ‘care’ practices in enacting specific versions of
a food (Joks & Law, 2017; Lavau & Bingham, 2017). At the same time, it highlights how these versions of raw milk were largely unaccounted for in the Victorian regulatory system, as well as in the subsequent reforms. This paper is divided into four parts. The first part sets out the context for the discussion in this paper, outlining the internationally diverse and contested nature of raw milk regulation and providing detail of the regulatory reforms implemented in Victoria, Australia. The second part summarises the methods used and theoretical approach informing this paper: a theoretical approach that seeks to draw on thinking around ontological multiplicity in order to offer new insights about contested regulation. The third section discusses the findings from interviews with Victorian producers of bath milk. This includes analysis of their accounts of raw milk and risk, as well as the conscious and specific practices they developed to produce it outside of the food regulatory system. The final section concludes by observing how the decision to produce bath milk represents an explicit rejection of the proposition that raw milk is always already dangerous. I suggest that there is scope for further exploration around how the food regulatory system could better engage with and consider multiple versions of food and risk.

2. **Context**

2.1 *Contested raw milk risks and regulation*

Across the world, concerns about raw milk consumption and the approach to its regulation are highly divergent, with the key point of contention centred on the potential health risks posed by consumption.

There are a number of countries where the sale of raw, or unpasteurised, drinking milk is entirely, or partly, banned, including Australia, Canada, Scotland and parts of the United States. This decision is primarily based on the relevant food regulators holding a high-level of concern about the health risks posed by drinking raw milk. For example, in the United States, the consumption of raw milk
has been likened to ‘playing Russian roulette with your health’ by the US Food and Drug Administration (FDA) (Bren, 2004, p. 29). Similarly, in Australia, Food Standards Australia New Zealand (FSANZ) have suggested that raw milk presents an ‘unacceptable level of health risk to the general population’ (FSANZ, 2008, p. 2). In short, raw milk, as a category of food, is defined as a hazard for which the risks cannot be managed.

Such conclusions particularly centre on a concern that pathogens, such as *Listeria monocytogenes*, could be present in raw milk and cause adverse health impacts for some people (FSANZ, 2009), ranging from mild illness to death. However, such concern and a subsequent ban on raw milk is not a universal conclusion. In the United Kingdom, the Food Standards Agency (FSA) has found the consumption of raw milk to be an acceptable and manageable risk for all consumers, except those who are vulnerable due to age or underlying health conditions (Wearne, 2015). Similarly, raw drinking milk is legally available in much of Europe, New Zealand and even in certain states of the United States, such as California, despite the FDA’s concerns.

The use of illness data is also interesting in this context. For example, in arguing why raw milk is dangerous, the FDA in the United States has emphasised the outcomes of studies by the Government’s Centre for Disease Control. Such studies have found that people are 840 times more likely to get sick from consuming raw milk than pasteurised milk (Costard, Espejo, Groenendaal, & Zagmutt, 2017). However, such statements, while reflecting the data, fail to explain that more than 99 per cent of consumers do not seem to get sick at all.⁵ This latter point, although ignored by the regulator, suggests that there are alternative ways that this data could be explored and explained, such as

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⁴ See, for example, the FDA’s website pages warning about the dangers of consuming raw milk, [https://www.fda.gov/food/resourcesforyou/consumers/ucm079516.htm](https://www.fda.gov/food/resourcesforyou/consumers/ucm079516.htm), (accessed 6 July 2018)

⁵ Unpublished analysis of the CDC data by the author
emphasising the variable impacts of consumption. In particular, if 99 per cent of consumers are not getting sick, then it offers evidence of other possible versions of raw milk; versions which may *not* be a hazard, which may *not* be risky, and which may *not* make the person consuming it sick. This possibility tends to be overlooked, or even elided, in countries where raw milk is banned (Linn, 2018a).

Sitting alongside this divergent regulatory landscape is the fact that some people want to, and do, drink raw milk. Studies in various jurisdictions have attributed this ongoing preference for raw milk to a number of factors, ranging from ignorance (Knutson et al., 2010), through to societal structures (Enticott, 2003a), and to fundamentally different constitutions of health, body and wellbeing (Kurtz et al., 2013; Sage, 2011). Notwithstanding differences in the approach and theoretical basis for these works, what emerges is that many consumers choose to drink raw milk on the basis that it is something that they find to be safe and even good for them (Paxson, 2008).

In practical terms, an ongoing preference for raw milk in Australia has meant that producers, communities and individuals have developed their own ‘alternative’ market in raw milk products. This market is often inaccurately described as a ‘black’ or ‘underground’ market, but the associated implication of illegality is not necessarily the case. In particular, while the sale of unpasteurised milk products as a *food* is prohibited in most cases, many other aspects of this market, while perhaps not expressly permitted, are not prohibited. For example, it is not illegal:

- to possess or consume raw milk;
- to buy or sell raw milk as a *non-food product*;
- or to obtain raw milk from animals that are reared or owned by oneself or friends for free. This has meant that a number of mechanisms for accessing raw milk have

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developed, such as community milk sharing, private dairy animal ownership and collective ownership, as well as the sale of raw milk products for non-consumption purposes, such as bathing milk and beauty cream.

This paper focuses on the last of these mechanisms – raw ‘bath milk’. As noted at the start of this paper, bath milk is unpasteurised milk, most commonly from a cow, that is sold with the labelling ‘for cosmetic purposes only’ and ‘not for human consumption’. It is otherwise packaged and treated in a similar way to pasteurised milk, with consumers able to make their own decisions regarding its use.

2.2 Bath milk regulation in Victoria

Until 2015, bath milk was largely ignored by food regulators in Victoria, a situation that was noted by a number of the producers interviewed for this paper.7 Bath milk was overtly, and seemingly legally, available for purchase in Victoria for around 10 years; initially directly from individual dairy farms but, in the latter years, from speciality shops such as health-food shops and online retailers.8 However, following the events of late 2014, it moved from being a niche product, known to only certain parts of the community, to being the topic of public discussion and significant media coverage.9 Such attention was accompanied by new regulatory measures designed explicitly to stop its production and sale.

Central to this public discussion and the subsequent regulatory actions was an emphasis on the inherent dangers of raw bath milk. These dangers were reflected in government statements at both state and federal levels about raw

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7 Interviews with Producer 1 and Producer 4, Recorded in rural Victoria, July 2016.
8 Timeframes established from interviews with Producer 4 and Producer 5, recorded in Victoria, July 2016.
milk consumption. For example, the Australia and New Zealand Ministerial Forum on Food Regulation (ANZMFFR) stated that it was:

extremely concerned about consumption of unpasteurised (raw) cow’s milk that is sold as ‘bath milk’, a cosmetic product labelled ‘not for human consumption’. People who consume raw milk are at an increased risk of infection causing severe illness and potentially death (ANZMFFR, 2015).

Both the Victorian Chief Health Officer and the responsible Victorian Minister, the Minister for Consumer Affairs, were even more categorical:

Make no mistake, unpasteurised milk can kill, no matter how carefully it has been produced. (Minister for Consumer Affairs)\textsuperscript{10}

Unpasteurised milk should never be consumed. (Chief Health Officer)\textsuperscript{11}

Here, it is made explicit that raw milk can never be safe. Raw milk is conceptualised as dangerous absolutely; it is always risky, no matter what.

Alongside these statements that establish raw milk as something inherently dangerous, the outcome in regulatory terms was that Dairy Food Safety Victoria introduced new measures that would ‘protect Victorians’.\textsuperscript{12} More precisely, Dairy Food Safety Victoria introduced a specific licence condition for dairy producers that relates to the production of raw milk for non-consumption purposes. The licence condition requires milk producers who are selling or supplying raw milk for non-consumption (such as for beauty products) to ensure that the milk is treated in a manner approved by Dairy Food Safety Victoria so as to deter human consumption, such that the milk could not reasonably be mistaken as being for human consumption. This could occur through treatment such as the addition of


\textsuperscript{11} In Victoria Department of Health (2014).

\textsuperscript{12} Minister for Consumer Affairs (2014).
a bittering agent. The requirement meant that no raw milk could be sold legally, even as bath milk, without being treated to remove any risks. This had two very specific, but quite different impacts: first, it removed any previous regulatory greyness in the status of bath milk and its sale in Victoria; and second, it completely closed down what had been an overt and public pathway for individual consumers to obtain raw milk and use it in any way they chose, including to drink. It is in this context that the interviews discussed in the following sections took place.

3. Approach and Method

As noted at the outset of this paper, the debates over bath milk in Victoria offer a window through which to explore debates over what a food is, in this case raw milk. More importantly, it offers an opportunity to question the normative assumption that raw milk is just one thing. In asking such questions, this paper draws particularly on theoretical work by Annemarie Mol and John Law around ontological multiplicity (see, for example Greenhough, 2016; Law, 1999; Law & Mol, 2011; Law & Singleton, 2014; Mol, 1999, 2002).

Ontological multiplicity recognises the possibility that there can be more than one version of an object. To put it another way, ontological multiplicity sets us on a path where there is no longer one stable pre-existing reality. This proposition, with roots in Actor Network Theory, has been developed by Annemarie Mol and John Law over the last two decades and subsequently explored and developed by many others (see, for example Bingham & Lavau, 2012; Dugdale, 1999; Greenhough, 2016; Hinchliffe, 2015; Woolgar & Lezaun, 2013). Law and Mol have argued that, not only can there be more than one reality, but these realities (or versions of an object) are specific to a site and the specific practices underway there. That is, all the phenomena that make up the world are actively made and remade in practice. Moreover, these practices are not limited to the
actions and performances of humans, with agency afforded to other objects and processes that, in turn, shape how a material object is enacted or performed (Law & Mol, 2008; Law & Singleton, 2000).

Law (2011, p. 156) acknowledges that engaging with ontological multiplicity requires a pivotal leap in thinking, which moves away from what he calls ‘Euro-American common-sense realism’. As Law goes on to explain, such ‘realism’ assumes that there is a single reality ‘out there’; it assumes that this reality largely precedes, and is independent of, human actions; and it assumes that such reality has a definite form. Ontological multiplicity fundamentally disrupts this mode of thinking and its underlying assumptions by allowing for more than one version of objects (more than one version of reality), where these objects are done, performed and enacted by practices at a specific time and place, rather than pre-existing, and being independent of, the practices (Law, 2011).

This is relevant here, as regulation and regulatory debates are often premised on the idea that food has fixed properties and characteristics; that is, although there may be different perspectives about a food, it is typically conceptualised, in essence, as stable and singular (Linn, 2018b). The discussion about raw milk in Victoria in the previous section illustrates this point, with the regulatory decisions on bath milk seemingly based on an assumption that raw milk is singular in its ontology. More particularly, raw milk is conceived of as an ontologically singular substance that is always already risky. In using ontological multiplicity, such a conclusion can be questioned. Foods such as raw milk can, instead, be understood as something that may exist as multiple, and potentially quite different, versions. This is reflected in the small but growing body of literature that is exploring food, regulation and risk as objects and processes that are ontologically complex (Bingham & Lavau, 2012; Forney, 2016; Joks & Law, 2017; Lavau, 2017; Yates-Doerr & Mol, 2012). The findings in this paper come from a
series of semi-structured interviews undertaken with former ‘public’ producers of raw bath milk in Victoria, as part of a wider project examining raw milk regulation in Australia. The term ‘public’ is used here in two ways. The first is that the actions of the producers were occurring ‘in public’; that is, their bath milk, labelled as ‘not for human consumption’, was not hidden from regulators, occurred in public locations such as farmers markets and shops, and was easily discoverable by anyone such as through internet searches. The second way is that the product was available to ‘the public’; that is, producers sold their milk to customers in a range of ways, including direct farm sales, farmers markets and/or in retail shops, and these sales were not limited to select groups, such as personal contacts only. However, this production ended with the introduction of tighter regulations in Victoria (as outlined above). All of those interviewed were also either current or former pasteurised dairy producers and/or another form of primary producer.

While much of the empirical research exploring multiple ontologies is based on ethnographic fieldwork, the historical nature of this topic meant that it was not possible to either see or participate in bath milk production. None of the producers publicly make this product anymore, with some having moved into other aspects of dairy production, or into other industries. On this basis, semi-structured interviews offered a way of obtaining accounts of the practices that took place, despite these practices having ended. The transcripts thus became a way of understanding practices and processes that the interviewees previously undertook and, at the same time, were practices themselves, shaping particular versions of bath milk production and bath milk. Acknowledging that the transcripts enacted a specific version of bath milk and bath milk production, they were analysed as written texts. This reflects the approach taken in a number of other papers based in ontological multiplicity theory, such as analyses of drug education material (Farrugia, 2017), parliamentary debates (Law & Singleton,
Potential interviewees were identified through searches of public records, including Google searches for raw milk availability, online raw milk and health forums, and Facebook pages. Victoria appeared to have six ‘public’ producers, which was the largest number within a single Australian state or territory, with others having only one or two ‘public’ producers. Of those in Victoria, I interviewed five producers, with a sixth choosing not to participate. The interviews focused on the practices employed by the producers during the period when bathing milk had been produced, which was primarily during the window 2005–2014. The interviews were conducted between June and July 2016, and occurred in locations of the producers’ choosing, including on farms, in cafes and at other locations. The inclusion of almost all participants from Victoria meant that, while the actual number of interviews was small, it was proportionate to the market size and was able to facilitate a clear view of producer practices, given its coverage of almost all potential interviewees.

I conducted all of the interviews. The interviews were confidential and digitally recorded, and the participants have not been named in order to protect their identities. Interviews were transcribed verbatim and coded thematically in NVivo. Themes were identified using a combination of methods: some arose from the literature that had previously examined debates over raw milk regulation and some arose directly from the interviews themselves. The research was approved by the Monash University Human Research Ethics Committee (Project number CF15/1786 - 2015000908).

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13 Such as Cleopatra’s Milk in Queensland and Moo View dairy in South Australia.
4. Results and Discussion

4.1 Contesting raw milk and risk

A number of statements about bath milk from those involved in Victorian food regulation are set out in Section 2 of this paper and show how raw milk was established as a dangerous substance: one that should ‘never be consumed’ and ‘can kill, no matter how carefully it has been produced’. The categorical nature of such statements establishes raw milk as something that is always already risky and, in turn, underpinned the regulatory decisions that were made. However, in speaking with the producers, it became clear that there were other possibilities for what raw milk could be.

From early in the interviews, producers discussed raw milk as a substance that had a range of positive attributes. These attributes were notably absent from how raw milk was constituted by regulators. This can be seen in Producer 2’s description below:

> So I guess the definition of raw milk for me is unadulterated milk. So milk in its purest form that hasn’t been touched or tampered with. That’s the definition of raw for me. Obviously, raw milk has to be ideally from organic, grass-fed, happy cows.

Here, raw milk is constituted as a wholesome substance. This is apparent through its description as pure but is also reinforced by Producer 2 focusing on what it is not (adulterated or tampered with), thereby providing an implicit comparison with other milk that has been subject to such processes. It is also enacted by positive association to a rather idyllic environment, from which it is considered to come. Producer 2 was not alone in finding raw milk desirable and something that brings with it positive benefits. Producer 1 observed that benefits come from it being a ‘living’ substance:
Well raw milk is a living food [...] people want that product because, they talk about the health benefits, but the health benefits is [sic] the fact that it’s actually living, and it’s got lactobacillus and all those living micro [sic].

Here, the emphasis is not on purity but, instead, on the living biota that exists within raw milk. In enacting raw milk as ‘living’, Producer 1 is both linking this attribute to the identified health benefits and also, again, providing an implicit comparison with other types of milk; that is, if raw milk is a ‘living’ food, the suggestion would seem to be that other milk, which has been subjected to processing, such as pasteurisation, would be ‘dead’. What is visible from the accounts of both producers is that raw milk has distinctly positive features, such as ‘pure’, ‘intact’, ‘health benefits’. At the same time, raw milk is something that has not been subjected to seemingly negative processes; it is ‘unadulterated’, ‘not damaged’, ‘not tampered with’. What is also notable is an absence in these accounts of high risk, deadly pathogens and illness. The raw milk above bears little, if any, resemblance to the ‘dangerous’ food enacted by regulators.

The possibilities of multiple raw milks emerged further as the interviews progressed. This is explicitly acknowledged by Producer 5 who, in discussing his concerns about current regulation, observed that:

The assumption is that all milk is the same, it’s not. It’s like people assume that all eggs are the same. But my organic eggs from the chooks that are eating – 30% of their diet is fresh green grass – are totally different to what’s coming out of a bird that’s living in a cage. Not that that’s a problem, but because they’re confined, they’re fed on grain that was produced last summer, it’s got no green material in it whatsoever. So the egg white is runny and pale, my egg white’s got a greenish tinge to it and sits there on a knife and says, *Come on, have a go.*
Here, Producer 5 uses his experiences with eggs to highlight the possibilities of multiple raw milks: raw milks that could be ‘totally different’, just like his organic eggs are different from the caged ones. Factors that drove such multiplicity emerged as the discussion went on.

For example, when asked about whether raw milk was risky, Producer 5 emphasised an interplay between raw milk and its living microelements:

*Interviewer:* I’m interested in your view about what you consider, if any, the risks associated with raw milk production and consumption are?

*Producer 5:* Absolutely none [...] If the raw milk is kept at refrigerated temperature, which means the enzymes are intact and not damaged in any way, they will take care of it.

In this comment, raw milk is again a substance that is good because it has not been damaged; instead, it is ‘intact’. More importantly, this intactness is cited as an important reason that it is not risky – the living ‘enzymes’ are able to ‘take care’ of the milk and, by extension, any risk. To put it another way, the raw milk being enacted here, and in other interviews, is one that is good – this milk is *not* risky.

However, at the same time, there is a recognition that risk and raw milk are not clear cut. The above comment also starts to illustrate how the producers enact milk in different ways, depending on how it is handled, with Producer 5 introducing the caveat of refrigeration. In this way, raw milk is enacted as something that is not risky, *provided* it is handled in a particular way. In this way, practice starts to become mingled with what raw milk is and what risks it poses.

The above observation reflects a theme that emerged across the interviews, that of a distinct delineation of ‘risks’ that relate to how the raw milk is handled, and by whom. On one side of such a divide is the production process for raw milk:
Look, there’s risks in terms of, you know, if your dairy’s dirty, there’s bugs potentially and all that kind of stuff, but I think that comes back to having someone that’s an experienced dairy farmer that understands hygiene. And has procedures in place that can make sure that the lines are clean and, you know, that it’s a sterile environment when it’s packaged, et cetera. (Producer 2)

Here, while noting that there may be risks, such as ‘bugs’ and dirt, these seem to be considered manageable by being a dairy farmer with the right experience and knowledge. However, as Producer 2 goes on, the way in which raw milk risks are constituted and their level of seriousness shifts, once other people start being involved:

The risky part is when you get a distributor involved. You can know your process from when you get it into the bottle and that’s fine but it’s after it leaves your factory […] You know, whether it’s kept at a refrigerated temperature, how long it is left in the shop until someone puts it in the cool room or until someone buys it out of the fridge at the shop and then leaves it in their car and then puts it in their fridge. That’s where the risk, I think, comes into it.

Risk here becomes something that is made through the practices of other people, such as whether a person transporting the milk keeps it at the correct refrigerated temperature, or whether someone buying the milk keeps it in their car for too long. This reveals a calibration of risk and raw milk, where the risk lies partly in how the milk is produced (but is considered managed with experience) but, more significantly, is shaped by how the substance is handled postproduction. In other words, the risks of raw milk are to a large extent about control, or rather the lack of it, once the milk goes somewhere else:
Once it’s released from the factory, there are risks. It’s like setting your baby free. (Producer 2)

Producer 2 is not alone in explicitly locating key risks of raw milk elsewhere. Others also observed that losing control was a significant issue for raw milk production:

We started sending it to retailers. And that’s probably when things, well, things for us went really well, but that’s probably where the industry failed, it shouldn’t have done that […] because my milk over there in the fridge [interviewee points at retail fridge in cafe], it’s out of my control. With something so contentious, once it's out of my control I can’t, you know, I couldn’t necessarily guarantee that that fridge is at four degrees or below and therefore the quality. Pasteurised milk’s a lot riskier than raw milk in my view, so we probably shouldn’t have done that and if, I thought, regulation happened again, I think it’d have to be direct sales, direct from the farmer. No middle man, no freight. Me or one of my staff going to them and delivering it or distributing it. (Producer 4)

The above commentary indicates that, while raw milk can be risky, Producer 4 is confident that any risks raw milk may pose are manageable once no ‘middle man’ is involved. In this way, Producer 4 identifies a version of raw milk where the risks are entangled with and constituted via various factors, including how it is handled, where, and by whom.

In these excerpts, producers contest the common assumption of raw milk as inherently ‘risky’ and, in turn, the finding by regulators that it cannot be produced safely. Other versions of raw milk are identified, and are made in practice. In short, the producers make it clear that there are multiple versions of raw milk. The dominant version of raw milk to which they subscribe (as pure, wholesome, ‘natural’, and so on) does not resemble in any way the dangerous substance that
is the focus of food safety regulation. In contesting the mainstream regulatory position, what the interviews have shown here is that raw milk can be more than one thing, and that such versions of raw milk are intrinsically mingled with the practices involved – both the practices of the producers themselves, and the practices of other third parties that are much harder to control.

4.2 Making raw milk with conscious care

In making raw milk outside the food regulatory system, there were no specific requirements that the producers were required to adhere to or guidelines they were expected to follow. Yet, across the interviews, it emerged that the way their bath milk was made involved a number of specific and planned practices, reflecting an observation made by Producer 3:

I certainly don’t recommend drinking raw milk from any old farm, you know. It has to be from farms that are really making a conscious effort to do it properly.

Here, the production of raw milk for drinking purposes is identified as something that requires specific and ‘conscious effort’ from the producer; it needs the producer to both consciously take steps and do them ‘properly’. At the same time, this comment reflects an awareness, common to all interviews, that bath milk could be, and was, drunk by those who bought it. It is in this context that questions of ‘care’ and ‘attention’ emerge; topics that have been the subject of recent and relevant analytical consideration (Gill, Singleton, & Waterton, 2017; Martin, Myers, & Viseu, 2015). The producers discussed a number of what I am calling here ‘care’ practices, acknowledging that this word can be both ‘slippery’ and difficult to define (Martin et al., 2015, p. 625). These practices, while neither required nor checked, were introduced to ensure the milk was of a quality that they considered appropriate. I suggest that they do
more than that; what these accounts reveal are distinct ‘care’ performances that enact a specific version of milk.

The first type of ‘care’ practices that emerged from producer accounts were those directly involved in making the milk. In particular, all producers emphasised the deliberate and careful nature of their approach to cleaning cows and/or testing raw milk. This can be seen in the comments of Producer 1, who observed:

we had to write in a new safety plan, so the cows can, you know, [be] stripped and washed and dried and it was, it took a long time, it really just felt like, when milking time, when we, what we call, we used to call it our collection time. There was that first thing, oh, it’s going to take an extra hour but when you were doing it, it was so, you just felt so good.

Here, Producer 1 notes that there was a structured ‘safety plan’ put in place for making raw milk. Besides highlighting the explicit nature of the production practice, these comments also reflect how the significant time involved in doing this work was balanced by the personal satisfaction, the feeling ‘good’ that came from doing it this way. A similar observation was also made by Producer 3, where again, while there is an emphasis on the significant labour involved, such effort was not considered to be a negative, but rather an important part of taking the time to doing it consciously and properly:

I probably spend 10 times longer milking my cows, than what big dairies do, because I thoroughly clean the cows every milking […] I’ve got a walk-through dairy, so you have full access to the whole cow […] and it’s very easy to get them completely clean. First, they’re soaked down completely, and then they’re scrubbed down completely, and then they’re dried.

Cleaning was not the only practice discussed by the producers, with testing of both milk and cows also proactively implemented by some producers. While the
use of this practice varied, from testing twice per week to every 1–2 months, the common thread was that it was an important mechanism for providing personal certainty over raw milk quality:

So we did some in-house testing just for our own benefit but not with the same regularity as the pasteurised milk [...] We’re not required to do any testing so we were just, you know, it was more just for our own peace of mind to test it occasionally. (Producer 4)

This comment raises two key points. The first is that there was an explicit decision to take steps that were ‘not required’. The second is that a key driver for doing testing in the absence of any regulatory requirement was personal. The ‘own benefit’ and ‘peace of mind’ referred to by Producer 4 highlights how these processes were introduced by producers so that they could reassure themselves that they were ‘doing it properly’. In some instances, this was taken even further, as Producer 4 explained:

We always kept retained samples. We kept our own samples but we’d also send samples through the supply chain, our trucks and then count and send them back so that we could test if the product was off at 12 days or not.

Here, this practice of retaining samples implicitly reflects the need for ‘peace of mind’. By holding back milk to allow for later checking, what is visible is a structured approach to ‘conscious care’ that is both immediate and responding to possible future issues. In discussing the results of their testing, a second role for testing also emerged, in that it provided producers with an external, and seemingly objective, means to verify the success of their practices in the absence of formal regulation. For example, as Producer 1 observed:
We do it twice a week, and yes, we would just take a random bottle out to take to the lab. And then bacteria-wise, like even the lab was blown away with how low our bacteria levels were. And he used to say it was equivalent to what he saw in pasteurised milk.

Such observations can also be seen as statements that act to reaffirm the producers’ contestation of raw milk regulation, and also, more implicitly, serve to further illustrate how other versions of raw milk are tangible possibilities.

The interviews also showed that care practices were not limited to those directly related to raw milk production. For some, care also extended to the wider farming approach:

I think if people are wanting raw and unadulterated milk, the ideal […] is that it’s organic, so there’s no sprays and there is no compromising of the milk quality. (Producer 2)

Here, we see that care goes beyond the specific milk production steps to making sure the farm is organic, to ensure that no pesticides or other chemical inputs enter into the milk. Such an approach is pursued on the basis of its impact on milk quality but, for others, it is also due to other benefits of the raw milk:

Cows that are predominantly pasture-fed on high quality, preferably organic biodynamic pastures, they have higher levels of beneficial bacteria in their milk like lactoferrin, lactoperoxidase, those kinds of goodies that actually help. (Producer 3)

This comment shows how, in discussing their choice to farm organically, Producer 3 links this decision with the ability to produce the kind of raw milk that they want; the kind that contains ‘goodies’, or living microorganisms. In much the same way, care also extended to the scale of production or size of their herd,
with decisions to limit herd size also tied up with preferences in raw milk production:

There’s this old saying, you know, you’ve got to be connected to your land, you’ve got to be connected to your livestock. I think it’s easier to do that when you’ve got a small herd. And you can pay attention to each cow’s individual needs rather than being on a mass scale. So yes, I think the ideal model is it for to be sort of, you know, 80 to 100 cows sort of thing, it’s quite manageable. (Producer 2)

Here, herd size and conscious care are brought together, with Producer 3 suggesting that limiting scale permitted the required level of attentiveness; that is, it let the producer ‘pay attention’ to the ‘individual needs’ of cows. What this suggests is a series of care practices that were necessary in order to maintain control, as well as to feasibly undertake the hygiene and cleaning practices that they considered to be necessary. Producer 3 offered a similar account:

So you’re continually having a very close connection with each individual cow. And you can really do that well in a small herd like this, and know exactly what’s going on.

Again, this suggests a direct link between size and control, emphasising the multi-faceted nature of care practices that were undertaken by producers as part of their raw milk systems. These practices related to cows and to milk, but also, more broadly, to farming and even the farm.

In all the above practices, what is notable is not so much how a producer cleans and/or tests, nor whether their farm is organic or small, but the very act of doing it in the first place. That is, none of these practices are requirements placed on them. Instead, these producers, of their own volition, have taken time to work out what they need to do to make raw milk of a desirable quality, without anyone
telling them to do it, or how to do it; that is, they are making their own milk with conscious care. Moreover, in implementing these practices, the producers were enacting versions of raw milk which could be drunk, and which did not exist in the regulatory framework for food. In other words, what emerges is an illustration of how the raw milk being made is something that is ontologically separate from the hazardous and dangerous raw milk substance enacted by regulators. The product being made here was tangible and concrete; it was consumed by many people and existed as a food for them. This suggests a situation that is more than simply an alternative perspective on an object; it suggests a multiplicity of raw milks existing and being made through practice.

4.3 Operating on the edge of food safety regulation

While the above section illustrates the deliberate practices that producers undertook to make raw milk, the interviews also illustrated the tensions that existed around the regulatory situation the producers were in:

we were essentially totally unregulated for the previous years that we were operating, selling bath milk. And I think it’s a credit to all the farmers that were doing it that there weren’t issues. (Producer 3)

Here, Producer 3 identified the individual efforts of the producers as being a central reason that there were no major issues due to bath milk consumption. In noting the ‘unregulated’ nature of their production, what emerges is a sense that such outcomes, in the absence of regulation, would not have been possible without the conscious effort discussed in the previous section. That regulation might have made this easier is implied, and this is also reflected by other producers:

I would have preferred to have had a set of guidelines […] we were really going blind. (Producer 1)
Again, in noting the absence of guidelines, Producer 1 was highlighting the ad hoc nature of their approaches, rather than the implicit consistency that guidelines may have brought. Both the above comments also hint at an important regulatory element of their situation, namely that the producers did not consider what they were doing to be illegal or in breach of the food regulation system. Rather, they saw themselves as ‘unregulated’ and ‘without guidance’; that is, they were operating outside the food system, not against it.

In this context, it is possible to see how the care practices they introduced can be seen as a form of ‘regulation’ that was developed in the absence of a formal system. One way of thinking about these practices is in terms of what Heather Paxson has called ‘do-it-yourself regulation’ (Paxson, 2013, p. 179). Just as Paxson found that a number of raw milk cheese producers in the USA chose, in the absence of formal regulatory requirements, to implement their own regulatory standards and food safety requirements, so too have these raw milk producers. This can be seen in relation to proactive practices, such as cleaning, testing and maintaining control over production, as well as in the ways that producers choose to operate – such as their approach to farming and their farm’s size.

The basis for what they did was articulated in different ways, but all offered examples of how their own knowledge and expertise were key to how they chose to make raw milk. For some, their involvement in regulated pasteurised dairy was offered as a baseline against which they worked:

we had our organic audit and our dairy food safety audit because we were still operating as a dairy factory. So we were complying by, I guess, the regulations but not necessarily for the raw milk part. (Producer 2)

Here, the formal regulation of the factory for pasteurised milk was identified as a supporting argument for the practices undertaken in relation to raw milk. Producer
4 outlined a similar situation, where they actively chose to do things ‘very similar’ to what they did for pasteurised milk:

so we made sure that what we were doing with our raw milk was very similar to our pasteurised milk […] I had a registered factory to begin with and we were regulated. Even though we weren’t testing like they would do in the UK, or what might be required, we were doing it in a sanitary and regulated environment (Producer 4).

These comments highlight the ways in which a number of the producers were applying, at least in part, their experience and knowledge of regulatory requirements to their production of raw milk. Given that this production was occurring outside the formal food regulatory system, the practices were not what can be termed compliance but, at the same time, they at least partly reflected what compliance might have looked like, were the product they were making recognised and the market regulated. For example, similar prophylactic cleaning and testing are frequent requirements of regulatory regimes for raw milk in jurisdictions where it is permitted (see, for example, California Department of Food and Agriculture (2015) Food standards Agency (2016). Reflecting back on Paxson (2008), what they are doing could be described as ‘do-it-yourself’ compliance, where the practices are designed to comply with a regulatory system that could exist but, in their jurisdiction, does not.

In this way, the producer accounts here help to illustrate a key tension in the situation that the producers faced. While regulation was, to an extent, desired and valued, at the same, it was directly contested by their decision to make bath milk in the first place. More specifically, by choosing to produce bath milk in the knowledge that it could, and probably would, be drunk, these producers were contesting both the version of raw milk enacted by regulators, and the accompanying regulatory framework. However, at the same time, most of them
considered that regulation could be potentially beneficial. This can be seen in the comments from Producer 3:

Basically, I think the current laws are totally inappropriate for this kind of model. The laws have been pretty much designed for large-scale operations and there definitely needs to be reform to cater for other types of operations, smaller operations like this one (Producer 3).

Here, the inappropriateness of the existing system is highlighted but the value of a different version of regulation, one that is more flexible to the specific requirements for making raw milk, is recognised. In essence, regulation is wanted, but not in its current form; instead, what is wanted is an approach to regulation that can more readily accommodate and account for more than one raw milk.

5. Conclusions

In looking at the accounts of farmers making bath milk, this paper is the first time that their practices have been explored and it has provided an opportunity to explore and examine certain assumptions about food and how it is regulated. In developing their own ‘care’ practices, producers contest what raw milk is and its presumed ontological status; they also enact raw milk through these practices in a specific way.

Returning to the tragic events of late 2014, it is possible that the specific bath milk drunk may have contained bacteria, and this may have made a small child sick, but it is not possible to ever know with any certainty. However, what the findings in this paper suggest is that the conclusion reached after this death, that all bath milk must, by extension, be dangerous, is also by no means the only possibility. The producers’ accounts of their practices suggest that they see themselves (and others) as having the capacity to enact different versions of raw milk through
what they do. In this way, raw milk is not *always already risky* but, instead, is separately and distinctly enacted in different ways, depending on the practices involved. There may be a version of raw milk that is risky but that is not the only possibility. In short, rather than raw milk being ontologically singular, the accounts here show that raw milk is ontologically multiple, with the version at play at a given point in time depending on an assemblage of factors and practices, including how the farm is run, how the cows are treated and how production occurs.

The findings in this paper offer a further illustration of the potential for considering ontological complexity and multiplicity when thinking about regulation and risk as it relates to food and, within that, the role that ‘care’ may play. When considered alongside other writing in this space (Lavau, 2017; Lavau & Bingham, 2017; Yates-Doerr & Mol, 2012; Yates, Harris, & Wilson, 2017), it becomes clear that there is potential to explore how regulation could occur without a normative assumption that the object of regulation is singular and ‘independent of’ the processes and actions of those involved with it (Law, 2011, p. 156). This could, for example, involve further analysis of whether there are other regulatory models that are better able to account for multiplicity, such as raw drinking milk regulation in England and New Zealand, where raw milk is permitted, and different versions of raw milk appear to co-exist and be regulated. It could also involve considering what new tools could support this kind of thinking in regulatory processes, with methods, such as multi-criteria mapping (Hansen, 2010; Stirling, 2010), offering interesting starting points. In short, this paper is just the start, with the findings pointing in a direction that suggests there are significant opportunities for thinking about whether one of the reasons that food regulation is contested is that it has failed to respond to, and account for, the possibility of multiplicity.
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This thesis examined how raw milk is regulated in Australia and sought to develop a greater understanding as to why the consumption of this type of food, as well as the current approach to regulation, is both contentious and contested. To explore these issues, I drew on the Science and Technology Studies theory of ontological multiplicity. Chapter Two outlined the rationale for using this theoretical approach in detail, in particular that it facilitated a small but significant shift in analytic gaze from the presumed ‘nature’ of the risk – and thus the presumed ontological status of the object – to the various enactments of the material object of regulation – raw milk. Chapter Two argued that such a shift in analysis offered an opportunity to expand and deepen understandings of how and why food safety regulation is contested. It is in this context that this thesis sought to examine three core research questions:

1. How is raw milk enacted in multiple ways as an object of regulation?
2. Are these different versions acknowledged in regulation and, if so, how?
3. What would greater recognition of multiplicity mean for food safety regulation and food consumption debates?

This final chapter returns to these questions. It synthesises the findings to draw out what they might mean, both for understanding why food safety regulation is contested and for considering how future regulatory processes could be conducted in ways that are more sensitive to the possibility of ontological multiplicity. The first section of this chapter focuses on the first of the research questions and discusses how raw milk was enacted in multiple ways. The latter sections of this chapter focus on the second and third questions, exploring the possible benefits that could come from better accounting for multiplicity in regulation, and highlighting the potential for further research that builds on the analysis in this thesis.

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Multiple raw milks, multiple objects of regulation

The first central question in this thesis was how raw milk is enacted as an object of regulation. The importance of examining this question was highlighted in Chapter Two, which discussed the theoretical basis for questioning the ontology of objects. In particular, drawing on the work of Annemarie Mol\(^2\) and John Law,\(^3\) among others, this thesis has argued for the value of exploring how a regulatory object – in this case raw milk – might be multiple and changeable, rather than singular and stable.

Chapters Three and Four offered two separate explorations of ontological multiplicity as it relates to raw milk as an object of regulation and found that raw milk can be enacted in different, and highly divergent, ways. As discussed in Chapter Three, Food Standards Australia New Zealand (FSANZ) enacted raw milk as an inherently risky substance; an object that must be regulated, and indeed prohibited, due to the public health risks it poses, without exception. Chapter Three also demonstrated how this particular enactment of raw milk was achieved. I argued that FSANZ used both the structure of its consultation process, and the presentation of information within it, to wash away uncertainty and, more importantly, the possibility that other versions of raw milk could exist. Building upon the insights of Chapter Three (that raw milk is ontologically multiple), Chapter Four reiterated the ontological multiplicity of raw milk. Based on interviews with both milk producers, I argued that they enacted a different version of raw milk to the one enacted by FSANZ. This was a version of raw milk that was, first and foremost, pure and healthy, with riskiness not an inherent characteristic, but a by-product of the version being made and the practices involved.

A fundamental element of the discussion in both these chapters, and one which is particularly relevant to the first question of this thesis, is that such versions do not ‘exist’ prior to, and independent of, practices but rather, are made through practices. This too is illustrated by the empirical work underpinning this thesis. In Chapter Three, I showed that a particular version of raw milk (as risky) was made by FSANZ through practices such as labelling, tabulation and risk assessment. In

\(^2\) Mol, above n 1.
\(^4\) See Chapter 2 for full details.
Chapter Four, the accounts of bath milk producers also illustrated how raw milk can be ontologically multiple, with the version at play at any given point in time depending on an assemblage of factors and practices, including how the farm is run, how the cows are treated and how production occurs.

The outcome of this is that raw milk, as a food, does not have a single ontological status but is more fluid, unstable and changeable. There may be a version of raw milk that is risky but that is not the only possibility. Regulators, producers and others all enact versions of raw milk through what they do. In this way, raw milk is not always already risky but, instead, is separately and distinctly enacted in different ways, depending on the practices involved.

This thesis did not (and could not) attempt to explore all versions of raw milk. Instead, what it has sought to do is show some versions to illustrate the possibility of multiplicity, rather than to provide an exhaustive list of how raw milk is enacted. This echoes the fundamentally partial nature of research that has been recognised by Mol and Law⁵ as well as others, such as Fraser and Seear⁶ and Farrugia.⁷ A lack of comprehensive coverage of all versions in any particular piece of research is not a limitation in the traditional sense. Instead, as Farrugia noted: 'In a multiple world, all research is fundamentally partial, and is able to enact only particular realities and possibilities in practice'.⁸

**Accounting for multiplicity in regulation**

Alongside identifying how raw milk was enacted, the other central focus for this thesis, as summarised in questions two and three, involved what multiplicity might mean for regulation. Chapters Three and Four offered different, but complementary, analyses in response to these questions. Both the stabilisation practices undertaken by FSANZ (as discussed in Chapter Three) and the proactive 'do-it-yourself' regulation implemented by bath milk producers (as discussed in Chapter Four) highlighted how regulation can be unable to recognise, or account for, multiplicity, as well as what can happen as a result. Some of these implications included the exclusion of alternative versions; the disengagement of possible participants in the regulatory conversation; and the

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⁶ Suzanne Fraser, above n 5.
⁸ Ibid, 287.
development of alternative systems, practices and foods outside the mainstream regulatory processes. Such a situation points to the need to consider how this might be different if regulation occurred in a space where multiplicity was recognised. In this respect, the findings in Chapters Three and Four are again relevant in that, alongside highlighting what can happen due to a lack of engagement with multiplicity, they pointed towards possible benefits that could come from regulation being able to better account for multiplicity.

*Shifting the nature of regulatory conversations*

The first of these benefits was suggested in Chapter Two, that recognising the possibility of multiplicity could change the nature of regulatory conversations. In particular, such recognition could provide a means for exploring other reasons, beyond different knowledge levels and divergent risk perceptions, for why certain regulatory processes are contested.

However, before discussing possible changes, it is useful to look at the challenges for conversations that the analysis in Chapters Three and Four brings to the fore. The first of these challenges is that the singular ontological constitution of raw milk by regulators such as FSANZ (as discussed in Chapter Three) appears to play a role in limiting who is able to participate in the regulatory conversation. This is illustrated, for example, by the lack of specific inclusion of bath milk producers in the FSANZ process, despite them being, collectively, some of the main producers of a product known to be consumed as a food. For example, no raw bath milk producers were listed on the FSANZ Standard Development Committee (a committee set up to support the raw milk review and that includes representatives from Government, major industrial milk producers, major dairy industry bodies, a cheese expert and the Country Women’s Association). There was also no indication anywhere in the FSANZ papers that these producers were identified as stakeholders or that their views were sought specifically in any way, other than via the general public release of discussion papers for comment.

While such exclusion could happen for many reasons, including power imbalances⁹ and failures to recognise different knowledges,¹⁰ the findings in

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Chapter Four pointed to another possible reason. This latter reason was that the FSANZ framework, and subsequent Victorian implementation, did not recognise raw milk producers’ farming practices as food production processes, or that the substance they were producing might be anything other than a dangerous product. In other words, assumptions of ontological singularity may have been a factor in the particular kind of regulatory conversations that unfolded. If no other version of raw milk is recognised as possible, then speaking to bath milk producers could, quite feasibly, be seen as redundant, irrelevant, or even irresponsible. It could, for example, be likened to engaging with underground drug makers about regulatory reforms relating to illegal drugs. To clarify, such an analogy is not intended to equate raw milk with heroin or cocaine but, instead, seeks to illustrate how regulatory conversations can become exclusive to certain participants, if the object in question is assumed to be ontologically single and stable, and if other versions and possibilities are excluded or erased.

Such exclusion also leads to a second challenge for regulatory conversations. If Chapters Three and Four are again considered together, then what emerges in Chapter Four is a direct illustration of the tangible on-ground impacts of a regulatory conversation centred on an ontologically singular version of raw milk. As outlined in Chapter Four, the producers did not consider their actions to be in breach of existing food safety regulation, instead seeing themselves as operating responsibly outside it. In other words, they chose to disengage from the formal regulatory system and, indeed, the regulatory conversations about it, on the basis that it was failing to recognise their versions of raw milk. Instead, the producers chose to develop their own structured and systematic practices, resulting in both multiple versions of raw milk as well as multiple versions of regulation, meaning that each producer was essentially operating in compliance with their own ‘do-it-yourself’ regulatory framework. In short, this illustrates that, when mainstream regulatory conversations are unable to acknowledge alternative producers, processes and versions of a food, it does not necessarily stop production or consumption. It may instead just drive its operation outside its boundaries, to occur under conditions determined appropriate by individual producers. This, in many ways, echoes the conclusions of Konefal and Hatanaka in relation to third-party certification, where they found that, despite intentions of inclusion, a failure to recognise different knowledges and different practices resulted in a

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regulatory system where those left out felt like standards were just imposed on them and, as a result, could choose not to comply.

With this in mind, I now return to the question posed by Julia Black (noted in Chapter Two) regarding what makes regulatory conversations ‘work’. Chapter Two highlighted the important role of such conversations, particularly as they relate to contested regulation. The analysis in Chapters Three and Four suggests that the regulatory conversations around food, such as the FSANZ review process, may not really be ‘working’ if key participants are not part of the conversation and, more importantly, if they feel that a given conversation is failing to engage with their versions of a food. Such findings, while coming from a different theoretical standpoint, reflect similar conclusions of others in relation to the challenges around the dynamics of participation in regulatory conversations. Such findings also point to the need for regulators to go beyond allowing stakeholders to have a say, to actually being able to hear them and acknowledge their issues – a challenge that has been equally recognised in other parts of the food regulation landscape.

In this way, this thesis highlights a problem but it also suggests that there is scope for change. Yates et al. highlight the risks of silencing diverse ontologies through governance processes. In a similar way, the findings in this thesis suggest that improving genuine participation may, or may not, change the regulatory outcome, but it could change engagement with the process. In other words, recognising multiplicity provides an opportunity to explore whether there are other ways regulation and regulatory conversations could occur that would be more responsive to, or inclusive of, contested ‘objects’ of regulation. While this may mean a more complex regulatory process, it could also mean one that is more open and transparent, and more likely to be engaged with by all participants. In concluding that a move in this direction is likely to be of value, this thesis builds on similar findings elsewhere. For example, Parker et al. have

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16 Christine Parker et al, ‘Can the hidden hand of the market be an effective and legitimate regulator? The case of animal welfare under a labeling for consumer choice policy approach’ (2017) 11(4) Regulation & Governance 368-387.
observed, in examining the free-range eggs debate, the value that greater inclusiveness can bring to contested food regulation. Equally, Stirling\textsuperscript{17} has shown how being more open to complexity and diversity in regulation can bring improvements to the way regulatory decision-making occurs.

**Widening the regulatory options on the table**

A second possible benefit of the approach in this thesis is that acknowledging multiplicity in regulation would allow a wider and more nuanced range of options to be on the table for regulatory consideration. For example, as discussed in Chapter Four, a greater appreciation of ontological multiplicity could allow regulation to seriously consider the option of developing a pathway to make raw drinking milk legal in Australia.

Once regulation becomes more open to the possibility that there may be multiple, and different, versions of a food, it becomes easier to consider whether these different versions may pose different risks and, in turn, whether there are multiple options for regulation, rather than a single approach for a seemingly ‘singular’ food. In other words, the practices involved in making the food, and the differences in the final products, could take on more meaning. Such an idea reflects broader developments in regulation, where some risk-based regulation has recognised that regulated populations can pose different risks, for example, the regulation of different-sized businesses in a number of fields.\textsuperscript{18} However, what is being suggested here is that, for a given type of food (such as raw milk), it becomes possible that different versions could be regulated differently or, at least, this could be examined as an option rather than be excluded from the start.

It is important to emphasise that recognising and accounting for multiplicity is not the same as simply permitting everything. This thesis is not suggesting that raw milk must be permitted simply because other versions exist or, to extend to other contested objects, that drugs must be allowed, or that vaccines must not be mandatory. Instead, what the findings of this thesis do is lead back to the kinds of questions that Mol raised when thinking about what ontologies and ontological politics might mean:

- Where are the options?

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• What is at stake?
• Are there really options?
• How should we choose?¹⁹

In short, if multiplicity were recognised, then there could be more overt consideration of the above kinds of questions as part of the regulatory process. Such an approach would allow for a more complex version of an object to be considered in regulation and, by extension, for a wider range of regulatory options, perhaps more tailored to specific versions, to be on the table. That is, there could be benefits from looking more broadly at what is a food, and factoring this into the regulatory process. This offers an approach that grapples directly with the challenge, identified by Baldwin and Black,²⁰ of managing the ‘inescapably normative and political choices’ that shape how issues in regulation are identified, selected and prioritised.

If such an approach is to be followed, however, it highlights a challenge around how to conceptualise food once the more traditional stability of bounded physicality is removed. While this is largely beyond the scope of this thesis, Boucquey et al.,²¹ in applying a similar approach to marine planning, have suggested that one way of thinking about objects could be to move away from the more traditional static concept to something more akin to ‘processes in motion’. This definition seems equally apt here. If food and, in particular, food in regulation could be considered more flexibly as a ‘process’, rather than a single and static object, then it starts to offer an alternative framework within which regulation can occur, and within which the object of regulation can shift to being something that is multiple, with the difference being driven by the practices of those involved in its enactment. In relation to raw milk, it may be that regulation could shift away from considering raw milk as a single, always dangerous, substance, to thinking about raw milk as something that can take multiple forms – where the forms vary in relation to the practices (such as the producer methods and farm size discussed in Chapter Four) and the associated risks also vary. In practice, it may be that what could come from such an approach is a spectrum of raw milks and a spectrum of risks that need to be regulated, rather than a single

food in a single way; again, this is more complex than the current system but, at
the same time, this thesis would suggest that it is more representative of the
ontologies of food and the multiple versions being produced in practice.

A future role for ontological multiplicity in regulatory research

Alongside the above implications for regulation itself, this thesis highlights the
value of considering ontological multiplicity to explore regulatory debates. In
Chapter Two, a series of questions that could be used to undertake this kind of
analysis were identified. Having examined them through the examples in
Chapters Three and Four, it becomes apparent that they offer an approach
facilitating the uncovering of aspects of regulation that may otherwise go unseen
and allows a researcher to ask questions about what may otherwise be
considered a given. In this way, this thesis seeks to add to the growing body of
work that is grappling with the complex interplay of ontologies, food, risk and
regulation.22

The findings in this thesis support further consideration of ontological multiplicity
as a theoretical approach that can assist in unravelling regulatory contestation
around food. The analysis in Chapter Three suggests that there is tangible value
in using ontological multiplicity to examine and critique normative assumptions
about food as an object of regulation. More specifically, this approach also offers
the opportunity to explore: how versions of the material object of regulation are
enacted, how they diverge and/or hang together through regulatory systems, and
how ontological politics are at play within regulation, and ask whose and which
versions are dominant. Such a conclusion supports a growing body of literature
where others have also identified the value, and need, for further work that
considers (and critiques) the way in which reality, objects and normative
assumptions interact in relation to policy and regulation.23

This thesis also provides a basis for further detailed work exploring the changes
that could be made to regulatory practice. In particular, there are a range of

22 See, for example, Stephanie Lavau, 'Public Policy and Calculative Practices of Risk: Making
Matters of Concern and ‘Non-Communicable’ Threats, from Farm to Fork’ (2017) 57(1) Sociologia
Ruralsis 23; Stephanie Lavau and Nick Bingham, ‘Practices of attention, possibilities for care:
Making situations matter in food safety inspection’ (2017) 65(2_suppl) The Sociological Review
20-35; Yates, Harris and Wilson, above n 15; Emily Yates-Doerr and Annemarie Mol, ‘Cuts of
Meat: Disentangling Western Natures-Cultures’ (2012) 30(2) Cambridge Anthropology 48-64.
23 See Konafal and Hatanaka, above n 10; John Law and Vicky Singleton, ‘ANT, multiplicity and
343-360.
possible directions that could be explored more fully. These range from the starting assumptions underpinning regulation through to how regulation could engage more effectively with the complex, and indeed multiple, forms of food and the practices by which is it made. In short, while this thesis demonstrates the existence and implications of multiplicity in the context of food regulation, it is also only a small step. Its findings suggest that there are significant opportunities for further thinking about how the objects of regulation are enacted and contested, and how future regulation could better respond to, and account for, the possibility of multiplicity.


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