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Intertwined ambiguities: Meat, *in vitro* meat, and the ideological construction of the marketplace

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ABSTRACT

Political stakeholders play a critical role in the cultural construction of the marketplace, and consumers often look to them for guidance in framing ambiguous cultural and scientific issues. Unfortunately, however, the existing consumer culture literature usually focuses on consumers' use of ideology while neglecting stakeholders' ideological orientations. In order to address this gap, I ask two questions: First, how do stakeholders draw upon ideology in order to make sense of ambiguous goods and of the extant and potential reactions of consumers to these goods? Second, what are the potential political consequences of stakeholders' ideological commitments vis-a-vis supporters and outside audiences? I explore these questions by interviewing agrifood system stakeholders on the subject of *in vitro* meat, a nascent technology whereby meat is produced through stem cell cultures. Although ideology serves as a useful tool with which stakeholders can navigate labyrinth-like cultural conundrums, stakeholders' ideological positions can also result in ambiguities, ironies, and incongruities. By investigating the beginnings of a potential consumer controversy, this study illuminates how ideology operates as an epistemic resource for political claims-makers and how stakeholders' ideological commitments can result in either rewards or repercussions from allies and consumers. Copyright © 2013 John Wiley & Sons, Ltd.

"The Cretan myth of the labyrinth is a myth of paradox, ambiguity, and doubleness… It leaves us with the knowledge that perhaps there is no escape from the labyrinth, and the Minotaur that it contains, from life's ambiguities, multiplicities, and sudden twistings, even with a guide or pair of wings" (Savitz, 1991:480).

INTRODUCTION

Consumer life in the postmodern, politicized marketplace is nothing if not labyrinthine. Similar to ordinary consumers, stakeholders draw on ideology as a guide in order to navigate this labyrinth and interpret the meanings of ambiguous goods. The story of *in vitro* meat, an emerging technology in which processed meat products are grown from stem cells (Benjaminson *et al*., 2002; Edelman *et al*., 2005), is an exemplary case of this phenomenon. Here, like the mythical Minotaur that confronted Theseus, a culturally atypical object like *in vitro* meat can appear to skeptics and critics as an abomination. For *in vitro* meat's proponents, however, this technology offers a viable alternative to what they regard as the everlasting monstrosity of industrial meat production.

Though the exploration of ambiguous goods as a distinctive heuristic device is novel and innovative, the broader question over how the meanings of consumer goods are commoditized, judged for their authenticity, and subjected to political critique has deep roots in the consumer culture theory literature (Kopytoff, 1986; Arnould and Thompson, 2005; Munoz *et al*., 2006; Autio *et al*., 2009). By the same token, science and technology studies scholarship notes how technological modifications of animal products and other goods often introduce vexing ambiguities, specifically as concerns existing cultural categories, relevant ethical questions, and aesthetic meaning (Haraway, 1997; Parry, 2009; Driessen and Korthals, 2012). Ideology has emerged as a powerful conceptual resource with which scholars across disciplines have examined these issues (Kleinman and Kloppenburg, 1991; Lynch, 1994; Holt, 2006; Thompson and Tian, 2008; Zhao and Belk, 2008; Luedicke *et al*., 2010), as it illuminates the processes by which certain systems of meaning achieve and maintain dominance over others (Hirschman, 1993).

Given that consumers often look to ideological cues from expert stakeholders when attempting to make sense of ambiguous ethical, cultural, political, and scientific puzzles (Yin, 1999; Simon and Xenos, 2000), understanding stakeholder ideologies presents itself as a logical starting point from which to investigate the political complexities of ambiguous consumer goods. Although there is no absolute distinction between stakeholders and ordinary consumers, for illustrative and comparative purposes, I conceptualize stakeholders as "ideal typical" social actors who, by virtue of their expertise, position, or professional interests, may be actively involved in the future success or failure of *in vitro* meat (either through research, campaigning, lobbying, advertising, financing, networking, or some other means).

Traditionally, however, much of the consumer culture literature has focused on the ideological dimensions of consumption from the standpoint of consumers (e.g., Belk and Costa, 1998; Muñiz and Schau, 2005; Rose and Wood, 2005) while neglecting stakeholders' standpoints. Moreover, even as scholars have called for consumer culture research to engage more fully with the broader sociological dynamics of the politicized marketplace (Thompson, 2011), these efforts have often neglected the use of ideology as a key interpretive and political-organizational device for stakeholders.

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This paper thus seeks to address the following questions: First, how do stakeholders draw upon ideology in order to make sense of ambiguous goods and of the extant and potential reactions of consumers to these goods? Second, what are the potential political consequences of stakeholders' ideological commitments vis-a-vis supporters and outside audiences? I investigate these issues by exploring the cultural politics of *in vitro* meat. Although *in vitro* meat scientists intend for their product to resolve the cultural and environmental ambiguities that surround conventional meat, *in vitro* meat is itself quintessentially ambiguous. It is difficult to classify as either meat or not meat, it is politically controversial, its future is highly uncertain, and the likelihood of consumer support remains a mystery. My analysis of this debate suggests that ideology is a useful and perhaps indispensable tool with which stakeholders can stabilize *in vitro* meat's manifold ambiguities. On the other hand, however, stakeholders' ideological commitments can also result in contradictory political postures that isolate supporters while sending mixed messages to outsiders.

In what follows, I begin by discussing the cultural ambiguities and historical contexts surrounding both conventional and *in vitro* meat. Next, I review the limitations of existing consumer culture literature as it treats stakeholders' interpretations of consumer motives and behavior. Upon discussing my methodology for data collection and analysis, I illustrate how stakeholders use ideology as an epistemic resource by drawing on Kozinets' (2008:868) "ideological field of technology" framework. I conclude with a discussion of the broader implications of this study for *in vitro* meat, ambiguous goods, and consumer culture research more generally.

MEAT AND *IN VITRO* MEAT AS AMBIGUOUS GOODS

Food is a deeply symbolic good, and as such, it continues to be an incredibly rich topic for investigating the intricacies of consumer culture (Knaizeva and Venkatesh, 2007). Among foods, however, meat deserves special attention. Throughout history and across cultures, it has long been imbued with unique ambiguities, symbolisms, and tensions—features that have come to shape the contours of the *in vitro* meat debate.

Although understandings about the taste and edibility of specific animals is subject to local variation, as observed by Rozin (2003:467), meat exists simultaneously as both the "most favored" and the "most tabooed" food in a countless number of cultures. On the one hand, arguably by virtue of its violent origins, meat has often been associated with human supremacy over the natural world (Fiddes, 1991), masculine strength (Bourdieu, 1984; Adams, 2000; Littlefield and Ozanne, 2011), and high social status (Rozin, 2003; Watts, 2006). On the other hand, Twigg observes "that which is highest in status approaches nearest the taboo (human flesh, carnivorous animals)… this is the familiar anthropological concept whereby that which is most highly prized, most sacred, can, by virtue of its power, be the most defiling" (Twigg, 1983:22). Ambiguous animals and other unclassifiable food sources are particularly problematic, as they have been shown to cause unease, discomfort, and rejection among pre-modern and modern consumers alike (Tambiah, 1969; Douglas, 2003).

Meat is also an ambiguous good to the extent that it exists concurrently as both animal flesh and de-animalized commodity. For Vialles (1994), a package of conventional meat is not to be implicitly understood as something that is animal-like. Rather, through slaughter, the living "being" is bled out from the flesh, extinguished, and transformed into a different object altogether. Accordingly, referring to animal flesh as "meat" disassociates each individual animal from the aggregated commodity. Cultural relics like Charlie the Tuna further allow consumers to know meat as fantasy rather than reality (Adams, 1998). Growing concerns with the industrial mass production of meat and the associated environmental and ethical implication have only heightened the anxiety and ambiguity about the meaning and use of meat. For supporters, modern meat is to be understood as a provider of nourishment, comfort, and abundance. For opponents, meat is a hedonistic, ruinous excess.[1]

Enter *in vitro* meat, an emerging technology wherein scientists seek to circumvent the aforementioned ambiguity-laden quandaries without demanding that consumers sacrifice their regular consumption patterns. Multiple approaches toward *in vitro* meat are being pursued, and related discoveries in biomedical engineering continue to advance the field (Mironov *et al*., 2009; Post, 2012). The most prominent techniques include inserting stem cells onto either a collagen meshwork or microbeads and growing them in a bioreactor (Edelman *et al*., 2005), growing stem cells in thin strips and then layering them together (Kelland, 2011), feeding and growing existing muscle tissue in a nutrient medium (Benjaminson *et al*., 2002), and using 3D inkjet printing technology to spray cell material into larger structures (Bhat and Bhat, 2011). Whether motivated by the goal of long-term space travel, agricultural sustainability, animal rights, or competitive advantage, *in vitro* meat's investors have included National Aeronautics and Space Administration (unknown sum), a partnership between Stegeman[2] and the Dutch government (combined €2.3 million), an anonymous philanthropist ($330,000), and PayPal billionaire Peter Thiel ($350,000) (Pincock, 2007; Boyle, 2012; Wagstaff, 2012). People for the Ethical Treatment of Animals has also offered a $1 million prize for cost-competitive *in vitro* chicken meat (Boyle, 2012). Despite these investments, the technical future of *in vitro* meat remains ambiguous and controversial (McClinton, 2007; Bartholet, 2011). Many in the scientific community argue that *in vitro* meat will never hit the grocery shelves, but the researchers devoted to these projects are convinced that they will ultimately be successful (Chiles, 2013).

Much of the ambiguity surrounding *in vitro* meat is also cultural. *In vitro* meat presents a classificatory paradox as

[1]The debate over meat demonstrates the post-structuralist maxim that meanings and categories are neither fixed nor inherent to any object (Firat and Venkatesh, 1995). Rather, they evolve over history and are negotiated through discourse.
[2]Stegeman, owned at the time by Sara Lee Foods Europe, has since been acquired by the global meat conglomerate Smithfield Foods. Thus far, there have been no indications that Smithfield has maintained Stegeman's initial investment.

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the question as to whether or not it constitutes meat does not present an easy answer. Stephens (2010:40) hence describes *in vitro* meat as an "as yet undefined ontological object." The cells that are used to produce *in vitro* meat never grow up to become normal animals; rather, they are destined only to be non-sentient organic material. Without sentience, these "semi-living entities" (Catts and Zurr, 2006) exist outside the realm of what is traditionally considered to be meat. Musings over the meaning of *in vitro* meat also come at a time of increased debate within science and technology studies, the humanities, and popular culture as to the classificatory status and bioethics of other techno-entities. These discussions include questions as to whether *in vitro* meat and genetically modified (GM) animals raise similar ethical dilemmas (McHugh, 2010), whether nanotechnologies blur the line between "living and non-living being (Brown, 2007:38)," and whether "chimera" animals who have been implanted with human stem cells have a unique moral standing (Streiffer, 2005). The answers to these questions are far from obvious.

Role of stakeholders

When existing signifiers are truncated, deleted, and replaced, as with *in vitro* meat and related technologies, questions abound as to how the revised narrative ought to be understood. Key stakeholders in the contemporary food system have rushed to disambiguate *in vitro* meat by defining the terms of this debate from outset. For *in vitro* meat scientists, animal advocacy groups, and many vegetarians, *in vitro* meat avoids animal suffering and death, is more environmentally benign, and potentially much safer for consumers (Hopkins and Dacey, 2008; Tuomisto and Teixeira de Mattos, 2011). For many mainstream environmental groups, epicurists, and locavores, however, *in vitro* meat's ambiguous classificatory status and technological origins are a source of apprehension and distrust. In March of 2009, "The Colbert Report"—a well-known news comedy show in the USA—highlighted these ambiguities by focusing on the pejorative term that some have used to label *in vitro* meat: shmeat (shit + meat) (The Colbert Report, 2012). The segment then proceeded to juxtapose unusual-looking photos of *in vitro* meat prototypes with "everyday citizens" munching on ribs and tongue-in-cheek images of the American flag.

The Colbert Report sketch cleverly demonstrates the ways in which cultural sensibilities toward food and the natural world can potentially be transgressed by scientific innovation, even as the longstanding tensions that come from killing animals for food remain unresolved. Stakeholders play a crucial role in deciphering, simplifying, and re-articulating these ambiguities for consumers, but thus far, the consumer culture literature says little regarding stakeholders' use of ideology toward these ends.

STAKEHOLDER IDEOLOGIES AND THE POLITICIZED MARKETPLACE

Traditionally, consumer culture scholars have not shown a sustained interest in political stakeholders' activities. In calling for more sustained attention to the critical role played by stakeholders in an increasingly politicized marketplace, Thompson (2011:140) has argued that the interplay between and among other stakeholders "has recursive effects, which can configure the marketplace and socio-cultural conditions that originally gave rise to particular politicized consumption practices (and underlying societal goals)." This is essentially an appeal to look beyond consumers to other stakeholders who may affect the construction of consumption markets and the products in them.

While expanding the scope of the traditional consumer culture literature, politicized marketplace studies have nonetheless often neglected the use of ideology as a key interpretive and political-organizational device for political stakeholders. By ideology, I am not referring to the pejorative definition, whereby an ideology is a simple-minded, distorted, and/or illogical outlook (Oliver and Johnston (2000:42). Rather, I am speaking of "the mental frameworks—the languages, the concepts, categories, imagery of thought, and the systems of representation—which different classes and social groups deploy in order to make sense of, define, figure out and render intelligible the way society works" (Hall, 1986:25). Given that ideologies are deeply rooted in historical circumstances, they transcend the individuals who draw upon them and hence serve as a defining political-organizational feature of cohesive social groups (Gramsci and Nowell-Smith, 1972; Hall, 2000). Here, social actors within an ideological group make joint sense of ambiguous goods and other objects by articulating them, that is, by linking their meaning to a shared worldview (Smith, 1998; Laclau and Mouffe, 2001; Kozinets, 2008). Through this process, "the political concepts that are open to redefinition are given new meaning since they are combined with other concepts in novel ways" (Smith, 1998:78). When the intellectual leaders of a group (i.e., stakeholders) do this in an ideologically inconsistent manner, they risk throwing their group into political disarray.

Traditionally, however, politicized marketplace studies have tended to either look at the ways in which stakeholders pander to consumers' ideological sensibilities (Thompson, 2004; Brewis and Jack, 2005; Humphreys, 2010; Karababa and Ger, 2011) or they address rival stakeholders' competing understandings without considering the role of ideology (Halkier *et al.*, 2007). Thompson (2004), for example, attends to multiple stakeholders' use of ideology as a cultural resource for making pitches to consumers while leaving the ideological mechanisms by which stakeholders understand consumers in the first instance relatively unattended. On the other hand, in addressing stakeholders' differing understandings as to consumers' obligations on food safety, Halkier *et al*. (2007) omit ideology from their analysis. Findings from these studies explain how stakeholders' political and economic interests are intertwined with their descriptions of consumer identities and preferences, yet the broader worldviews and belief systems (i.e., ideologies) that inform and organize these interests are left unexamined. I address this lacuna by exploring stakeholders' ideological interpretations of ambiguous goods.

In order to further bridge the gap between the consumer-centric literature and the recent attention to politicized

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marketplaces, I revisit an exemplary framework in the former tradition—Kozinets' (2008:868) "ideological fields of technology"—and extend it by applying a modified version to the ideological work of stakeholders. According to Kozinets, consumers draw upon four key ideological resources in making sense of information technology, three of which are particularly relevant to the *in vitro* meat debate. [3] These include the Techtopian ideology (where technology is seen as a catalyst for societal and humanitarian progress), the Green Luddite ideology (where technology is regarded as a tyrannical and destructive force), and the Work Machine ideology (where technology is treated simply as a means toward economic growth and expansion). Stakeholders' use of these ideologies is fairly straightforward with regard to *in vitro* meat, yet I also found that the application of these same ideologies to understandings about conventional meat and consumer behavior result in ambiguities and complications.

METHODOLOGY

Many consumer culture theorists rightfully assert that consumers actively construct their own meanings through daily practices (Belk, 1988; Belk *et al*., 1989; Firat and Venkatesh, 1995; Kniazeva and Belk, 2007), and as Holt (2002:88) notes, most consumers "will rely upon cultural specialists to do most of the heavy lifting in creating new cultural materials." Institutionally based stakeholders, by virtue of their structural locations and/or expertise, possess unique leverage through which to shape these popular understandings (Anderson, 2004; Krystallis *et al*., 2007; Powell *et al*., 2011)—particularly in the instance of an ambiguous good like *in vitro* meat.

In order to examine the ideological orientations of stakeholders in the *in vitro* meat debate, I conducted 22 semi-structured, 60–90 min telephone interviews with *in vitro* meat researchers, environmentalists, agribusiness representatives, food retailers, government experts, animal advocates, and consumer safety watchdogs. [4] Interviews were conducted by telephone for practical and financial reasons as participants were scattered throughout the USA.[5]

Questions surrounding technical viability (Vajta and Gjerris, 2006), normative values (Meghani and de Melo-Martin, 2009), ecological impact (Thompson, 1999), and potential consumer rejection (Macnaghten, 2004) have been raised about cloned animals, and *in vitro* meat is a similar yet distinctive controversy. Hence, I first selected participants according to their publicized positions on the use of cloned animals in the food supply (Center for Food Safety, 2008) with the initial objective of ascertaining whether or not these organizations would react similarly to *in vitro* meat.

In order to achieve a saturation of viewpoints and develop categories of stakeholder perspectives (Glaser and Strauss, 1967), I continued to build my sample through solicited participant referrals. Partly to deal with the problem of non-response, I also sampled groups and institutions that the sociology of agrifood systems and *in vitro* meat literature suggested would be relevant (Beardsworth and Keil, 1997; McMichael, 2000; Edelman *et al*., 2005; Morris and Kirwan, 2006; Hopkins and Dacey, 2008). These groups included highly influential *in vitro* meat researchers, professional associations that represented the meat industry, and New Harvest (a prominent *in vitro* meat public relations organization). Although not all of the participants in the study were directly familiar with *in vitro* meat, all had extensive experience and engagement with contemporary agrifood debates. I thus sought to investigate the extent to which participants' previous experiences, along with their institutional affiliations, would influence both their understandings of *in vitro* meat and likely consumer reactions toward it. My units of observation were the individual interviews, and my units of analysis were the major ideological orientations that emerged from these interviews.

Interview data was analyzed with a hermeneutic approach, wherein close, recursive readings of notes and transcripts are contextualized with respect to broader sociohistorical milieus, juxtaposed against the broader literature in the field, and critically scrutinized (Arnold and Fischer, 1994). Through this iterative, reflexive process of interpretation and reinterpretation, broader cultural viewpoints and ideological orientations emerged from individual participants' narratives (Thompson *et al*., 1994; Thompson, 1997; Kozinets, 2008). Here, stakeholders' ideological orientations emerged largely in parallel with Kozinets' (2008) analysis of information technology consumers.[6]

IDEOLOGICAL FIELDS OF TECHNOLOGY

Techtopian

The Techtopian (i.e., "technologically utopian") ideology asserts that technological progress is a potential path toward overall societal betterment Kozinets (2008:869). Also referred to as technological progressivism, this ideology traces back to the 17th century and has persisted as the hegemonic understanding of science through the present day (Kleinman and Kloppenburg, 1991; Kleinman and Kinchy, 2003). Adherents—*in vitro* meat scientists and

[3]Kozinets' (2008) fourth category, the Techspressive ideology, relates to the hedonistic and experiential aspects of technology use. In keeping with the truism that no conceptual model is a perfect fit for the messiness of real-world data, this ideology did not emerge in the interview data as a key orienting principle. The Techspressive ideology was hence omitted from the modified version of the framework.

[4]Given the lack of public awareness about *in vitro* meat and the fact that it does not yet exist as an actual consumer product, in depth interviews and ethnographic work with consumers may have yielded low quality data.

[5]Geographic distance between stakeholders also made focus groups and situated ethnographic work unfeasible.

[6]To be sure, Kozinets' work, like all scholarship, is also ideological in that it views the world from a particular epistemological standpoint that is rooted in culture and history. The consumer culture theory paradigm, within which both Kozinets and I are embedded, emphasizes the poststructural and phenomenological aspects of social life in contrast to the positivist approach found in most marketing and social psychological research (Arnould and Thompson, 2005). As noted by Hirschman (1993:551), "there is no getting beyond ideology, there is only the possibility of becoming aware of its presence and consciously choosing the values we wish to affirm."

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animal advocates—draw on this ideology in disambiguating and re-articulating *in vitro* meat as a more efficient, ecological, animal-friendly, and healthful alternative for ordinary consumers. As stated by one *in vitro* meat researcher,

There [are] orders of magnitude just within the animal kingdom in terms of efficiency in turning sunlight into meat. So, why should we have a sort of attitude that we couldn't somehow optimize on that, [that] we couldn't somehow find a way to sort of capture the best from each of those systems and put it together? I believe that we can, and I tend to be a kind of a guy who thinks Mother Nature's done a pretty good job. (Paul Kosnik, Tissue Genesis, Inc.)

Proponents of this view hence see the natural order as a malleable and evolving system that is co-constructed by humans, ideally for the purposes of solving human, animal, and global dilemmas.

Techtopian adherents tend to see consumers as being vaguely aware—but often times apathetic—regarding the social issues surrounding food consumption. They thus propose technology as a solution to sympathetic consumers' lapses in willpower. Supporters of the Techtopian ideology moreover emphasize that consumer demand for an ambiguous good like *in vitro* meat is not likely to appear overnight. Rather, they argue that the product will need to exist first so that people can be made aware of the actual concept. This top-down explanation of consumer behavior implies that demand for ambiguous goods can be created by producers and that the sphere of technology and production is the key political arena for social change.

When it comes to the ambiguities surrounding the production of conventional meat, however, animal advocates have traditionally been much more critical of modern technologies (Jamison and Lunch, 1992; Jasper and Poulsen, 1995). Concretely, People for the Ethical Treatment of Animals' (PETA) campaigns have criticized the use of technology in the realm of industrial meat production ("mechanized madness"), the testing of cosmetics on animals ("toxic and tragic"), and xenografts ("Frankenstein science"), to name a few (People for the Ethical Treatment of Animals, 2012a, 2012b, 2012c). Thus, when some of PETA's senior leadership came out in support of *in vitro* meat, there was, according to PETA President Ingrid Newkirk, "a near civil war" among the organization's employees (Schwartz, 2008). This is perhaps unsurprising, given that PETA activists have labored for decades to wean consumers away from meat products for primarily ethical but also spiritual and aesthetic reasons (as evidenced by their "Jesus was a vegetarian" and "meat stinks" campaign slogans). To many of these activists, although there may have been a logical distinction between *in vitro* meat and products derived from dead animals, the difference between these goods may have remained largely ambiguous at an ideological/symbolic level. Policy positions on ambiguous goods can thus become wedge issues. Without carefully articulating the relationship that an ambiguous good has to a broader cosmology, these types of abrupt ideological disjunctures can destabilize organizational unity while presenting mixed messages to outsiders.

Another dilemma in animal rights advocates' shift toward the Techtopian ideology concerns their new orientation toward consumers. For decades, animal advocates have spent millions of dollars on public education campaigns intended to remind consumers that ambiguously labeled "Happy Meals," along with other meat products, are mass produced at feedlots, large indoor sheds, and slaughterhouses (Morris and Kirwan, 2006). In the *in vitro* meat case, however, these same groups are basing much of their outlook on the implicit assumption that ordinary consumers are too passive to stop eating meat.

In sum, although animal advocates' use of the Techtopian ideology to disambiguate and re-articulate *in vitro* meat aligns them with a historically powerful discourse, embracing this ideology constitutes an awkward pivot from their traditional faith in the individual consumer, skepticism toward animal technologies, and revulsion toward meat as a ruinous symbol.

Green Luddite

The Green Luddite ideology suggests that industrial technology "debilitates traditional ways of life and despoils the natural environment" (Kozinets, 2008:869). For Green Luddite supporters—largely environmentalists—the natural order should be upheld and maintained according to its own internal logic, principles, and aesthetics. Environmentalists, moreover, maintain that a grassroots movement of local producers and consumers is increasingly challenging the ambiguous "edible food-like substances" (Pollan, 2008:1) of the conventional agrifood system in order to uphold these principles (Thompson and Coskuner-Balli, 2007a, 2007b; Sassatelli and Davolio, 2010; Press and Arnould, 2011). For Green Luddite adherents, previous failures of the food industry and the regulatory regime to protect the ecosystem and provide safe food have resulted in an increasingly wise and distrustful public, one that is likely to reject future ambiguous goods. This sentiment is reflected in the following passage:

As [Stein] said years ago about Oakland, California, 'The problem with Oakland is there's no there, there.' And I think the problem with in vitro meat is I don't see where the there is… at a time when people are more interested in eating more naturally, you know, even if it were to prove to be a good product, it's arrived on the market at the wrong time… The biggest, fastest growing part of the food system is real food, locally produced. People are willing to pay for that, for both ethical reasons and aesthetic reasons. (Jaydee Hanson, International Center for Technology Assessment[7])

Kozinets (2008) argues, however, that the Green Luddite ideology suffers from a kind of naïveté. In its purest form, it offers an ambiguous and ultimately unrealizable path toward sustainability. Like the American frontier myth, the modern environmental movement's embrace of "pristine" nature constructs an insolvable dualism between the nostalgic

[7]The International Center for Technology Assessment is a sister group to the Center for Food Safety.

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yearnings of the urban upper class and the practical necessities of living in a material world (Cronon, 1998).

As an ambiguous object that embodies both celebration and violence, meat itself is also at odds with an ideology that calls for living in harmony with nature. Arguably, environmentalists' praise of free range, organic, and humane meat only amplifies these ambiguities. Even for those animals raised outside of industrial facilities, obtaining meat requires the commodification and domination of animals (Stuart *et al*., 2013:17). The ecological viability of scaling up localized meat production is similarly ambiguous (Gwin, 2009), particularly as concerns methane and nitrous oxide emissions, the conversion of forest to pasture, overgrazing, and the use of fossil fuels for pasture fertility (Steinfeld and Wassenaar, 2007; Herrero *et al*., 2009; Buddle *et al*., 2011; McWilliams, 2012).

Environmentalists' understanding of green consumers as powerful actors also contains its own ambiguities. Despite applauding green consumers as emergent, active, and engaged, leading environmental groups often tend to place the onus of major reforms in meat production on changed business practices and governmental regulations while only advocating voluntary and moderate dietary changes for consumers (Freeman, 2010). Thus, "a contradiction exists between how environmental organizations characterize (1) the environmental impact of animal products/production as severe and (2) consumers' responsibility for solving the problem as modest" (Freeman, 2010:269).

In sum, although environmentalists reject *in vitro* meat as another cog in the industrial food system and applaud green consumers' purported embrace of local foods, their stance toward conventional meat remains ambiguous. Small-scale meat systems cannot altogether avoid the cultural and environmental ambiguities of meat, and environmentalists' efforts to mobilize consumers against meat consumption have been tepid.

Work Machine

According to Kozinets (2008:870), the Work Machine ideology sees technology as an exemplar of "efficiency, resource control, productivity, wealth, and success—objectives centered on economic growth." In drawing upon this ideology, representatives from the meat industry and other food industries disambiguated *in vitro* meat as a technology that could potentially serve toward the accomplishment of these purposes. The pro-technology paradigm of the Work Machine ideology clearly shares much in common with the Techtopian ideology, as both downplay the notion that the natural order is inherently sacred. However, whereas the Techtopian ideology emphasizes the humanistic, utopian, and emancipatory potential of technology, the Work Machine ideology instead regards technology as a way to improve and expand upon business as usual. Meat industry representatives in this study thus describe chickens as "protein machines," they praise large meat companies as being "dynamic" and focused on "solving problems," and they unromantically regard questions as to the structure of the food system as being "really all about what works."

Meat industry representatives generally feel that *in vitro* meat technology could have many practical benefits (efficiency, manageability, predictability, etc.), but they remain doubtful that consumers will ever accept its cultural ambiguities. They reach this conclusion, however, for very different reasons as compared with environmentalists. From the standpoint of the Work Machine ideology, the natural world exists as a resource to be used for the purpose of maximizing utility. As such, if consumers are primarily concerned about the culturally ambiguous aspects of these technologies, it is likely due either to a lack of education, sensationalized media coverage, or general irrationality. Speaking to consumers' potential concerns about *in vitro* meat, Thomas Powell of the American Meat Science Association argues that

The scientific community deals in facts… I mean, the scientific process is totally non–emotional in most cases. Most of the things that modern media picks up have some emotional engagement… you take food irradiation for instance – irradiation has so many bad connotations. It's radiation that's the main part of the nuclear bomb. Its radiation that's bad for you, and then all of a sudden you're talking about putting the radiation in food, and, wait – on the surface, that sounds really stupid… It's not that people are stupid, it's that – there's some information that needs to be processed by each individual, so that they understand what's really happening there. And I think that same kind of thing is going to happen with this kind of technology as well. (Thomas Powell, American Meat Science Association)

Kozinets (2008) notes that the growth and productivist orientation of the Work Machine ideology is hampered by the unintended yet inevitable consequences of its own rationality, as economic growth and industrialization have also brought greenhouse gas emissions, resource depletion, food safety crises, and other maladies of the modern era. The environmental ambiguities of industrial meat thus confound the meat industry's collective commitment to the Work Machine ideology. Many within the group are confident that continued technical progress will ensure the vitality of the existing productivist apparatus. On the other hand, Green Luddite sympathizers within this group are concerned that the status quo may be unsustainable. As with the other groups, this internal ideological ambiguity may threaten their future political unity and rhetorical coherence. This could already be happening, as the pressures of drought and climate change begin to take an increasing toll on the industry.

Beyond the internally unresolved issue of sustainability, Work Machine proponents' understanding of consumers as decisive and determined actors is also somewhat ambiguous. On the one hand, meat industry representatives argue that industry practices are driven by consumers' professed demand for corn-fattened meat and related products. On the other hand, however, fast food companies and other meat retailers have invested significant resources in marketing high-fat products to consumers, particularly children (Nestle, 2002; Elliott, 2011; Marshall and de la Ville, 2011)—messaging that would seem unnecessary if consumer demand was truly innate and self-generating.

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In sum, the Work Machine ideology gives meat industry representatives a degree of pragmatic flexibility regarding both the ambiguities of *in vitro* meat and consumers' likelihood of accepting it. When applied to conventional meat, however, the Work Machine ideology—while profitable—may ultimately confront these stakeholders as an iron cage. The externalities of meat production are omens of potential systemic collapse, and their understanding of consumers as overly emotional and uneducated is alienating.

DISCUSSION

By exploring stakeholders' use of ideology to interpret ambiguous goods, I find several important implications regarding the theoretical study of politicized marketplaces more broadly and the ambiguous features of meat and *in vitro* meat more specifically.

First, the present findings suggest that analytical understandings of competing stakeholder ideologies are an important and accessible yet oft underutilized resource for scholars of politicized marketplaces. As demonstrated in the current study, incorporating stakeholders' ideological dispositions can help to explain how stakeholders' competing understandings about ambiguous goods, technology, ethics, sustainability, and consumers are grounded according to fundamentally diametric worldviews (perspectives that have practical consequences).

Second, this study extends the conceptual breadth of Kozinets' (2008) "ideological fields of technology" framework by empirically demonstrating that stakeholders tend to rely more heavily than consumers upon single ideologies as grounding anchors. This observation is consistent with Kozinets (2008:879), who notes that individuals' emotional and intellectual relationships with consumer goods are far more fluid and transient than is the case in "the more ideologically stable institutional realms such as religion, family, and politics." Whereas consumers are at liberty to pick and later discard ideologies, symbols, and other cultural resources in their pursuit of postmodern liberatory emancipation (Firat and Venkatesh, 1995), stakeholders are far more invested in their ideological commitments.

Third, this paper shows how stakeholders' ideological bearings can put them in ambiguous and tenuous political postures—positions which are often difficult for them to escape without risking the coherence of their worldviews. As noted by corporate communications scholars, stakeholders must display consistent views if they are to maintain their political, economic, and professional reputations (Herbig and Milewicz, 1996; Torp, 2009). Here, Mahon and Wartick (2003:28) observe that "inconsistent signals… erode [an] organization's reputation over time." Accordingly, stakeholders who switch political positions face a litany of potential costs as based upon their "prior history, previous alliances, and past reputation" Mahon and Wartick (2003:25).

Fourth, this study suggests that stakeholders' ideological alignments can have important consequences regarding future interactions with consumers. By acting as ideological interpreters, intermediaries, and communicators, stakeholders provide signals that consumers and other actors can look to for clues that suggest alignment or misalignment with their own respective orientations (Carolan, 2006). As shown in this study, many of the scientific experts and other stakeholders essentially regard technophobic consumers as uneducated, lacking information, misinformed by the media, and/or superstitious. Literature on lay/expert relations, however, suggests that consumers' lack of faith in new, ambiguous technologies instead stems from a more deeply rooted distrust of stakeholders' underlying values, motives, and interests (Macnaghten, 2004; Jensen *et al*., 2005; Krystallis *et al*., 2007). Condescending orientations toward consumers can thus result in alienation. A classic example of this is the struggle over GM foods, where Monsanto "moved into Europe like a bull in a china shop" (Schurman and Munro, 2009:167). Even where consumers eventually adopt an ambiguous technology, lingering dissatisfaction with the process whereby food technologies are introduced may lead to passive resentment and buried feelings that shape future debates (Wynne, 2001; Macnaghten, 2004). Focus group data, for example, suggests that many consumers negatively link GM foods with mad cow disease, dioxin in animal feed, pesticides, and other scandals due to ongoing frustration with regulatory institutions (Marris, 2001).

On the other side of the political spectrum, in discussing which types of consumers might be worried about *in vitro* meat, one environmentalist described mainstream consumers in broadly pejorative terms:

Conscious consumers, people who are aware of what they're eating – that's a relatively small segment of the U.S. population anyway – the people who shop at Whole Foods, they would be concerned. I don't think your average, you know, Sam's Club shopper would be concerned, no… Unless something goes disastrously wrong… and then people will start going, "ohhhh…" – but hey, it hasn't stopped them from eating hamburgers.

Here, the working class shopper is depicted as something of a bumbling, reckless philistine. As noted by sociologists of agrifood systems, however, the neoliberal regime of privatized food standards has largely left individual consumers to their own devices in choosing safe, healthy, sustainable, and socially just foods (Guthman, 2007). The result is an often ambiguous array of choices, carefully arranged by public relations experts. Many consumers lack information about these choices, do not have the opportunity to ask questions about them, or simply lack the time to reflect upon them (Konefal *et al*., 2005; Isenhour, 2010; Busch, 2011). These knowledge gaps provide opportunities for non-profit organizations to step in and engage in these types of activities on behalf of consumers. Condescending statements like the one in the previous texts, however, largely squander this opportunity by reaffirming the caricature of liberal, urban, and anti-corporate activists as elitists who are ideologically out of step with ordinary people.

Lastly, this study offers insight into the cultural features of meat and *in vitro* meat as uniquely ambiguous goods. Arguably, to the extent that *in vitro* meat is disturbing, it is in large part because meat itself is disturbing. Beginning with the

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distancing of slaughterhouses from public view (Elias, 1982; Thomas, 1983; Pachirat, 2011), *in vitro* meat is only the most recent effort to dissociate meat from its origins. When the process of meat production is discussed openly, "Let's not talk about it, it will ruin my dinner" is frequently uttered as a response (Adams, 1998:65). As observed by Vialles,

It is very much as if the initial separation between killing and meat had triggered a process of repeated fissions forming a kind of spiral of avoidance of a reality and a meaning that are too raw, the center of the spiral and the force behind it being the very thing that it is trying to avoid – forever unsuccessfully, and for good reason. (Vialles, 1994:31–32)

Meat thus remains an enigma, and as such *in vitro* meat represents an ambiguous solution to an ambiguous problem.

CONCLUSION

"The Minotaur imprisoned in the labyrinth is the dark secret the psyche guards; it symbolizes the intolerable anxieties that have been split off and banished to an encapsulated, or hermetically sealed existence" (Savitz, 1991:470).

Depending on one's ideological orientation, either meat or *in vitro* meat could appear, Minotaur-like, as ambiguous goods. In disguising the end product from the means of production that create them, both goods are imbued with deep tensions and symbolisms that the popular culture has yet to fully reconcile. In the postmodern labyrinth of consumer life, professional advocates, industry representatives, experts, and other stakeholders—like consumers—rely upon ideology as a key resource for interpreting and understanding these types of goods. Here, although ideology cannot be counted on as an infallible guide, or "set of wings" with which to navigate the labyrinth of postmodern consumer culture, it nonetheless remains an indispensable interpretive resource. To be sure, marketers may find some measure of success by using positioning and segmentation tactics to make ideological pitches for or against *in vitro* meat, as anticipated by Campbell (2012). However, unless these efforts come from trusted voices, are well-integrated with existing cultural concerns, and are coordinated with like-minded partners, these tactics could easily be seen as inauthentic and hence would be unlikely to yield broad-based support (Holt, 2006). At their best, stakeholders act as ideological lighthouses, shining beacons that attract allies and shared interests. Provided that they have access to the necessary political, economic, and cultural resources (Klein and Kleinman, 2002), stakeholders who manage to articulate balanced, accessible, and coherent ideological visions can mollify the Minotaurs that face them.

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