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Impossible solutions: Competing values in marketing alternative proteins for sustainable food systems

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ABSTRACT

Creators of alternative proteins (APs) claim to provide solutions, so-called promissory narratives, to the messy and complex problems in our food system. Through these promissory narratives APs are said to offer responsible consumption. Our article uses convention theory to explore how justifications by AP companies change and expand from primarily using civic concerns (e.g. the environment, animal welfare) to focusing on a much wider range of justifications, including financial, status, and traditions or trust as these products move into the marketplace. This work makes an original contribution by extending convention theory and the broader theory of regimes of engagement to the marketization of APs. Marketization refers to the creation of new market relations around new goods. Our results also challenge the rapidly expanding AP literature that has claimed these companies seek to encourage people to care about civic concerns, like the environment and animal welfare. Despite these results, we argue APs can contribute to responsible consumption through distributed responsibility, but there is always the danger that non-market values may be subsumed under market values, thereby stunting the transformative potential of APs.

> "All agriculture harms animals and the environment at least to a degree … However, there are more and less harmful ways to transform nature, and determining which food systems are best, and which ways of bringing food systems about are best, is a necessarily messy, complex, and multifaceted matter" Schlottmann and Sebo (2018, 3).

1. Introduction—Separating meat from animals

In the modern agri-food environment, there are many conflicting or competing values at the intersection of food, animals, and the environment. As the opening quote by Schlottmann and Sebo (2018) explains, determining which food systems are best is a complex and multifaceted matter. Creators of alternative proteins (APs) claim to provide solutions, so-called promissory narratives, to the messy and complex problems in our food system. Through these promissory narratives APs are said to offer responsible consumption. Our paper uses convention theory to explore how justifications by AP companies change and expand from primarily using civic concerns (e.g. the environment, animal welfare) to focusing on a much wider range of justifications, including financial, status, and traditions or trust as these products move into the marketplace. Our research makes an original contribution by extending convention theory and the broader theory of regimes of engagement to the marketization of APs. Marketization is a "particular, but now dominant form of economization," whereby there is "the creation of new market relations around new goods or the reconfiguration of existing markets and goods according to new modalities of valuation and accumulation" (Ouma, 2015, 9). Marketization means goods must go through a process of objectification and singularization for the purposes of market exchange (Loconto and Van der Kamp, 2015). Objectification is a process through which goods become stable tradable things with objective traits that can have exclusive property rights and a price attached to them. Singularization is a process whereby the product is reattached to its buyers by being accepted as legitimate, useful, and/or signifying. This entire process are the constituent elements of marketization (Ouma 2015, 35–37, also see Çalışkan and Callon 2009; 2010). Our results also challenge the rapidly expanding AP research literature that has claimed these companies seek to encourage people to care about civic concerns, like the environment and animal welfare. Despite these results, we argue APs can contribute to responsible consumption, but there is always the danger that other non-market values may be subsumed under market values, thereby stunting the transformative potential of APs.

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APs refer to a recent trend in product development focused on developing alternative approaches to conventional livestock products. Products that fall within the broad category can include: plant-based proteins, edible insects, and cellular agriculture (Sexton et al., 2019). Initially located in university research settings in 2000s, there has been an infusion of venture capital and philanthropic investment beginning in the early 2010s (Chiles, 2013; Sexton et al., 2019; Stephens et al., 2019).

AP companies have emphasized the ways in which their products are disruptors to the existing animal agricultural system, offering a range of promissory narratives (Chiles, 2013; Guthman and Biltekoff, 2020; Jönsson, Linné and McCrow-Young, 2019; Sexton, 2018; Sexton et al., 2019). In particular, APs promise to reduce the environmental footprint of livestock agriculture, "which are articulated as knowable and fact-like, a confidence that has often drawn legitimacy from the small number of life-cycle analyses that have been conducted" (Stephens et al., 2019, 10). The companies also promise to improve animal welfare. Beyond being good for the environment and animals, other narratives have focused on offering healthier products without sacrificing any of the animal flavor, safer products free of disease and bacteria, and/or helping to feed the world (Sexton et al., 2019). The feed the world narrative is also indicative of the impact that venture capital has had on AP start-ups. According to Stephens et al. (2019, 6) start-ups often pitched that their AP innovation would solve global warming, because that appealed to "mission-driven investors at the time," but now global food security is the salient issue for investors. Hence, AP narratives are nested within the web of venture capital networks.

AP companies seek to make "systemic" diet changes through "drop-in alternatives [that people] have grown up with" using for-profit innovations, engaging with "the existing big food industry" according to a scientist at Good Food Institute, a non-profit dedicated to encouraging the growth of APs (Specht, 2020, n.p.). The founders of the three companies in this study have made it clear that they envision changing the way we consume meat, with benefits for the environment, animal welfare, and/or health, without needing to change consumers attitudes or behaviors. The founder of Beyond Meat is quoted as saying "You don't build a business telling people not to eat what they love. You build a business helping people to eat what they love, and more of it" (Park, 2019, n.p.). Similarly, Impossible Foods owner says "But we're not going to address the problem by telling people to change their diet — that's never going to work. Instead, we have to produce foods that consumers prefer over what they're getting today from animals" (Hincks, 2018). These companies intend to appeal to consumers by providing them with what they love and they will do this by "separating meat from animals" (Park, 2019).

Thus, despite promissory narratives emphasizing differences between APs and conventional animal proteins, AP companies also strategically deny or ignore other differences in an effort to appeal to consumers (Guthman and Biltekoff, 2020; Stephens et al., 2019). AP companies must convince consumers that their products are not an alternative or an analogue, but are in fact the same. As novel foods, AP companies must deploy strategies to convince consumers that their products are in fact food (Jönsson et al., 2019; Sexton, 2018). For example, Sexton (2018, 587) argues that companies "work *on* consumers" to "reconfigure their perceptions of what counts as food." Despite, the recognition that APs are actively working to redefine what is considered food, deploying the law when necessary to do so (Jönsson et al., 2019), less attention has been given to the role of the market in the constitution of APs and their work *on* consumers. One exception are Mouat and Prince (2018, 5) who argue that markets have played an important role both in the investment required to make APs and as an arena in which there is negotiation occurring "over the undefined ontological object" of APs. Our work extends on Mouat and Prince (2018), by focusing on how AP companies' justifications shift within the context of marketization. Using a content analysis of companies' websites and twitter feeds, we explore the types of justifications used in the marketization of APs.

2. Marketization of APs and convention theory —novel foods in mainstream markets

Developers of APs seek to capture market shares at the expense of other commodities. Other researchers focused on APs argue that through both discursive and material interventions developers and proponents of APs "strive to enact new food realities, and in the process present animal agriculture as something to be escaped by technological means" (Jönsson et al., 2019, 81). While APs may strive to present specific promissory narratives, less attention has focused on how APs actually attach "consumers to their products" as APs are marketed (Ouma, 2015, 36–37). Markets emerge and re-emerge on a daily basis from our interactions, and as such markets emerge as moral projects in their own right, saturated with 'normativity' (Sippel, 2018, 553). For marketization, goods must go through a process of objectification and singularization for the purposes of market exchange. Objectification is a process through which goods become stable tradable things with objective traits that can have exclusive property rights and a price attached to them. Singularization is a process whereby the product is reattached to its buyers by being accepted as legitimate, useful, and/or signifying. This entire process are the constituent elements of marketization (Ouma 2015, 35–37). Much of the recent AP literature has focused on the companies and their processes of objectification of the APs, but much less focus has been given to how APs attach to consumers. In other words, how AP companies enter the world of the buyer and become "accepted as legitimate, useful, and/or signifying" is shaped through the market (Ouma 2015, 36). Boltanski and Thévenot's conventions theory (CT), provides a framework for exploring how AP companies strive to be seen as legitimate, useful, and/or signifying to consumers. In other words, what forms of justification are used to encourage consumers to purchase APs.

In their work *On Justification*, Boltanski and Thévenot (2006) analyze the way individuals justify their actions to others, which is done through appealing to principles that they hope will command respect. Specifically, Boltanski and Thévenot (1999; 2006) identified six ideal typical orders of justification that are most commonly utilized to provide a justification for legitimate action. The six orders of worth are described in Table 1. Conventions are "both guides for action and collective systems to legitimize those actions" (Ponte, 2016, 13). CT fits well with the idea of marketization, as rules within CT are not decided prior to action, but rather emerge in the process of actions (Ponte, 2016).

Boltanski and Thévenot (1999, 374) note that persons can exist in a plurality of worlds of justification and it is actually situations that contain objects from several worlds that are "particularly amendable to criticism." In general, each justification is legitimate in certain contexts, but the largest conflicts and debates occur when the justifications collide (Busch, 2009). The treatment of plurality of worlds of worth is at the heart of politics (Thévenot 2009). While orders of worth as outlined by Boltanski and Thévenot have primarily been used to explain conflict, Stark (2009) argues entrepreneurial companies can use the friction or conflict created by different orders of worth to create something new. Entrepreneurs can exploit the ambiguity about which order of worth is

Table 1
Six orders of worth.[a].

Conventions	Definition
Market	Evaluations based on price or economic values
Industrial	Evaluations based on standardization and efficiency
Domestic	Evaluations based on personal relationships, trust, tradition
Civic	Evaluations based on collective interest and responsibility; generalized social and ecological welfare commitments
Renown/ Opinion	Evaluations based on public recognition through fame; celebrity status
Inspiration	Evaluations based on imagination, creativity and passion

[a] Adapted from Boltanski and Thévenot (1999); 2006; Raynolds (2014); Swaffield et al. (2018); Taruvinga et al. (2013).

operative in order to create assets "that can operate in more than one" order of worth (Stark 2009, 15). In the case of APs, we contend that as the products and their companies successfully embed themselves in mainstream markets, the more opportunities arise for justifications to collide, as diverse and sometimes conflicting values are represented.

Within agri-food studies, conventions theory has largely been used as a framework to understand and analyze alternative agriculture and food systems, (Barham, 2002; Evans and Mylan 2019; Murdoch et al., 2000; Ponte, 2016; Raynolds, 2014), as conventions theory illuminates tensions over values in our food system. Raynolds (2014, 501) notes that the research on alternative food systems highlights that these systems often rely on domestic (personal trust and place attachment) and civic (social and ecological welfare commitments) conventions. In the case of Fairtrade certification, Raynolds highlights that a strain emerges between civic and domestic conventions versus market and industrialized conventions.

According to Boltanski and Thévenot (1999) this dispute over meaning requires resolution either by compromise or by coming back to an agreement over one convention (what they phrase as one reality test), which means coming to an agreement over the dominant convention. In the case of compromise people maintain a proclivity toward the common good by "cooperating to keep present beings relevant in different worlds, without trying to clarify the principle upon which the agreement is grounded" (Boltanski and Thévenot, 1999, 374). Unfortunately, compromises are easily denounced, which means disputes easily reappear. Prior studies have largely focused on the development of alternative food systems that seek to be an alternative to the dominant market. This alterity contributes to increasing tensions between conventions as alternative food systems scale up or become conventionalized (Guthman, 2014; Raynolds, 2014; Shreck, 2005).

By contrast, in the case of AP companies, these companies are not seeking to create alternative foods in alternative markets, rather these companies are trying to change the mainstream food system with novel food products. AP company founders seek to move away from a focus on changing consumer behaviors, instead inserting products into mainstream markets that they claim are better for the environment and for animals. In this way, one could argue these companies are exploiting multiple orders of worth, rather than relying solely on the responsibilization of consumers to prioritize civic worth. If responsibility is understood as inherently relational, with responsible subjects "always nested within multiple dependencies, reciprocal ties and obligations" food companies, as well as consumers, have a role to play in responsible consumption (Rose and Lentzos, 2017, 33 citing Trnka and Trundle, 2014, 136). In this way APs might be participating in an emergent form of distributed responsibility, which Evans et al. (2017, 1404) describe as more "collective notions of political responsibility and greater acknowledgement that responsibilities are distributed across more complex and extensive networks of actors." By examining the different justifications that companies use for marketing APs we can evaluate the tensions and complexities that exists in their efforts to transform the food system.

3. Methods and data—companies promotion of APs through websites and tweets

Data for this paper is a content analysis of three U.S. based companies' websites and their twitter feeds. The three companies are Beyond Meat, Impossible™ Foods, and Memphis Meats. The three companies chosen were selected as exemplars of APs in the United States. Two of these companies, Impossible™ Foods and Beyond Meat, are leaders in plant-based meats that use biomimicry to create flavors and textures that imitate eating meat (Cameron and O'Neill, 2019a). The third, Memphis Meats, specializes in cultured meat, where meat is grown from cells in a lab (although eventually will be produced in a factory) and is the "highest-profile cultured meat company in the U.S." (Cameron & O'Neill, 2019b; Sexton et al., 2019, 51).

Moreover, all three AP companies, whether cultured meat or plant-based, can be considered distinctly different from earlier meat alternatives or analogues (Jönsson et al., 2019; Sexton et al., 2019). These APs, including plant-based meats, rely on newer technologies like genetic engineering. Impossible Burger™ engineers genetically modified yeast to produce heme, which gives the burger its color and taste (IF, 2020). Jönsson et al. (2019) also argue these APs are distinctly different from previous alternatives for two reasons. First, because of the considerable amount of venture capital these companies have attracted. Second, the developers and proponents of these products do not consider these products alternatives, but rather the same substances, albeit produced by new means.

Websites were searched by looking through posted web pages, articles and press releases. Using NVivo, a qualitative software analysis program, texts and images were coded based on explicit categories, as opposed to implicit meanings or emotion. For example, all three company websites explain their product(s) or the technology used to develop their product. This became a coding category (see code 6 in Table 2) to describe this portion of the companies' websites. While companies can use their product description to try and create a particular set of meanings to facilitate consumer acceptance (Broad, 2020; Bryant and Barnett, 2020), we did not code for implicit meanings. Analysis of website content was conducted from June 2019–July 2019. We also coded each companies' official twitter feed, which means each company controls the content, either tweeting or retweeting posts.[1] Tweets have been used to study how companies go about promoting products (Kim et al., 2015) and how people react to products (Specht et al., 2020). We coded the words and pictures into categories (e.g. coded "consumer" if a non-famous person was shown eating the product; if a person had over 10,000 followers they were coded as famous/social influencer).

Table 2 provides a list of nineteen codes that were used for the content analysis. All tweets appearing on each companies' feed were coded for several consecutive months. Beyond Meat was coded from April 17 to November 28, 2019 (approximately six months), Impossible™ Foods from July 29 to December 11, 2019 (approximately five months), and Memphis Meats from August 1 to October 31, 2019 and December 1, 2019 to February 18, 2020 (approximately six months). While we tried to code similar dates, we were limited by how far back each twitter feed allowed us to go, hence the reason they are not the exact same period. In addition, we tried to code tweets in months where significant events occurred, for example, Beyond Meat's newest meat mimicking products became available in grocery stores on June 12, 2019 and available at Dunkin Donuts on October 15, 2019. Impossible™ Foods launched their Impossible™ Burger in collaboration with Burger King on July 17, 2019.

Table 2
Codes used for content analysis.

1. Environment:
   a. Enviro. costs of beef/burger
   b. Agricultural land use
   c. Saving the environment
2. Animal Welfare
3. Health benefits
4. Expansion of the brand/new locations
5. Restaurant/Store name
6. Technology/explanation of product
7. Recipe
8. Holiday
9. Attention by other media
10. Appeals to taste
11. Collaboration with other companies
12. Conference/Event
13. Consumers
14. Famous/Social Influencers
15. Sports
16. Farmers/Farm
17. Advertising
18. Personnel affiliated with company/product
19. Other

[1] Tweets can include an image and the text must not be longer than 280 characters, although the overwhelming majority of tweets are less than 50 characters (Kastrenakes, 2018).

A total of 1267 tweets were coded. Despite aiming for a similar period of time, the variability in the quantity of tweets was sizeable, with Impossible™ Foods having the most (802 tweets), Beyond Meat almost half as many (398 tweets), and Memphis Meats the least (67 tweets). Of course, Memphis Meats does not yet have a commercially available product, therefore twitter activity for the company would be expected to be less, particularly in specific coding categories (e.g. the company retweeting consumers tweets).

When coding tweets, we coded content, allowing up to three categories, with our coding what we saw as primary content, and if appropriate secondary or tertiary content. As tweets includes words and images, we wanted to ensure we allowed enough coding categories to capture a tweet that included more than one category. For example, a retweet on the Impossible™ Foods twitter feed of a consumer who tweeted a photo of their own Impossible™ Burger while sitting in a Burger King. This retweet would have been coded as consumers (code 13 in Table 2) and restaurant/store name (code 5 in Table 2). Overall, the coding categories were constructed inductively and were descriptive. Once coding was complete, the categories were analyzed for where they fit within Boltanski and Thévenot (2006) six conventions, recognizing that the coding categories could fall within more than one convention. The overlap of conventions can occur if the conventions support the perceptions of the common good. For example, the inspired convention, which values creativity, spontaneity, and genius to inspire others can overlap with the opinion convention, which is tied to celebrity status that can contribute to influence, which in our coding includes sports stars. They are famous in part because they are admired for their genius, creativity, or spontaneity. Of course, you can be famous without being inspiring and vice versa, but in twitter feeds, someone like DeAndre Jordan (a U.S. professional basketball player and an "ambassador" for Beyond Meat) means tweets referencing this sports star can fit within more than one convention.

4. Results—Changing justifications in the context of marketization

4.1. Company websites—the dominance of civic, market, and industrial conventions

The content analysis of company websites overwhelmingly reveals that the environment and animal welfare (civic convention) are the main mission behind these AP companies. In the mission statement of Beyond Meat (Beyond Meat, 2019a, n.p.) they state "By shifting from animal, to plant-based meat, we are creating one savory solution that solves four growing issues attributed to livestock production: human health, climate change, constraints on natural resources and animal welfare." A similar theme is echoed in Impossible™ Foods mission statement online, but with slightly more emphasis on animal welfare, their statement:

> using animals to make meat is a prehistoric and destructive technology. Animal agriculture occupies almost half the land on earth, consumes a quarter of our freshwater and destroys our ecosystems. So we're doing something about it: we're making meat using plants, so that we never have to use animals again. That way, we can eat all the meat we want, for as long as we want. And save the best planet in the known universe. (Impossible Foods, 2019, n.p.)

Finally, Memphis Meats (2019, n.p.) also emphasizes the environment on their website, stating "The company's goal is to feed 10 billion people by 2050, and countless more beyond that, while preserving the environment and offering consumers additional choices in meat, poultry and seafood." In their mission statements, but also in the additional information available via their websites, these companies make claims about how their product could save the environment, reducing the environmental costs of eating meat, and reducing the use of agricultural lands.

The other primary focus on the websites is advertising where the products are available (market convention) or explaining the process behind production (industrial convention). In terms of advertising where the product is available, Beyond Meat notes they are available in over forty countries around the world (Beyond Meat, 2019b), while Impossible™ Foods provides a map locator that will direct you to a location that is selling their product.

4.2. Twitter feeds—expanded use of multiple conventions and a decline of civic conventions

The company website largely confirmed the environmental and animal welfare promissory narratives that other scholars have documented (Sexton et al., 2019). We turned to the three twitter feeds with an interest in understanding how justifications change in the context of marketization (see Table 3). The results reveal that the three categories that rank in the top five across all three companies for primary content include: (1) attention by other media (opinion convention), (2) famous person or social media influencer supporting the product (inspired and opinion conventions), (3) consumers (market and domestic conventions). An example, of a re-tweet that represents attention by other media is a video from *The Late Show with Stephen Colbert*. Colbert had comedian Ricky Gervais (a vegetarian) share in eating from the same Impossible™ Burger at the same time. The 7-min video was retweeted by Impossible™ Foods, and coincided with the same week that the Impossible™ Whopper debuted at Burger King.

It may be surprising to learn that Memphis Meats has tweets that fall in these three categories, since the company does not yet have a commercialized AP. In the case of consumers, Memphis Meats' twitter feed featured taste tests by people, some of whom were famous, but many of whom were not. The domestic convention is meant to focus on more personal connections and the establishment of trust. As a company without a commercialized product this can be difficult to achieve. One mechanism for doing this is the use of proxies (Cidell, 2012). Quotes from satisfied customers who taste tested a product or a retweeted picture by Richard Branson showing him having a casual, outdoor dinner with the Memphis Meats founder and several other people. Memphis Meat's twitter feed also had advertising in the form of attention by other media. For example, in February 2019, Memphis Meats retweeted "What do you think? My latest for @Forbes featuring @MemphisMeats @eatjust @AlephFarms @_SuperMeat_@BlueNaluInc and other cell-based meat companies" with a link to a *Forbes* article, "Will Cultured Meat Soon be a Common Sight in Supermarkets Across the Globe?"

Other categories that cut across two of the three companies in terms of primary content included restaurants/stores where the product is available (Beyond Meats and Impossible™ Foods) and personnel or persons affiliated with company posting tweets (Impossible™ Foods and Memphis Meats), both of which fall within the market convention. When all content, primary through tertiary, are combined, two categories that ranked in the top five across all three companies, was (1) attention by other media (opinion convention) and (2) consumers (market and domestic conventions). Restaurants/Store names remain in the top five for Beyond Meats and Impossible™ Foods when primary through tertiary content is combined.

Scoring much lower, but of relevance in our analysis were tweets with recipes, references to holidays (domestic convention), and somewhat unexpectantly, references to sport (opinion and inspired conventions). Beyond Meat, the brand that originally marketed direct to consumers in grocery stores, not surprisingly featured the most recipes at 7.5% (30) of all tweets, with Impossible™ Foods, which until September 2020 was primarily available via restaurants/fast food chains, having posted 4.9% (39) of all tweets as recipes. All three companies posted tweets referencing holidays, though the range of 1.5–3.5 percent was quite low. For example, Memphis Meats posted at the new year a picture of meatballs on a plate and the tweet "New Year,

Table 3
Twitter Content Analysis Codes Situated within the Six Conventions (all three companies combined percentage of primary content).

Inspired (19.7%)	Domestic (26.7%)	Opinion (30.2%)	Market (52.3%)	Industrial (16.3%)	Civic (4.2%)
Sports	Recipes	Sports	Restaurant/Store name	Restaurant/Store name	Environment
Attention by other media	Holidays	Attention by other media	Expansion of the brand	Technology/explanation of product	Animal Welfare
	Health	Famous/Social Influencers	Collaboration w/other companies	Collaboration w/other companies	
	Consumers		Advertising		
			Consumers		
			Personnel affiliated with company/ product		

new meatball. Celebrating the milestones we passed in 2019, and with lots of exciting things on the horizon, we're starting 2020 with momentum, creativity, and hope." Sporting related tweets was an unexpected coding category, with Beyond Meat posting 8.3% (33) of all tweets and Impossible™ Foods 2.1% (17). While Beyond Meat has created "brand ambassadors" who are professional athletes, they often would tweet out congratulations to athletes who are known vegetarians, but not affiliated with the brand. For example, in July 2019 they tweeted "It's a BIG day for plant-based athletes. Congrats to @LewisHamilton on his 6th #BritishGP win!" Other similar tweets were directed at professional tennis player Novak Djokovic and professional soccer player Alex Morgan.

The percentage of tweets dedicated to environmental and animal welfare topics (civic conventions) was small, with 4.2 percent of all tweets having this as primary content. When looking at each company individually, Impossible™ Foods has a slightly higher percentage of the primary content of tweets focused on the environment and animal welfare, at 4.9 percent (39 tweets), compared to 4.5 percent (3 tweets) for Memphis Meats, and 2.8 percent (11 tweets) for Beyond Meat. An example, of a tweet focused on the environment is Beyond Meat's tweet "Today is #WorldKindness Day so here is a simple reminder to be kind to the earth. Check out the full peer reviewed Life Cycle Analysis (LCA) we lead with the University of Michigan here" with a link to the LCA report. The image is presumably a Beyond Meat burger, with the following statistics "99% less water, 93% less land, 90% fewer GHGE, and 46% less energy."

If primary, secondary, and tertiary content are combined, then Memphis Meats has the highest number of tweets that focus on the environment and animal welfare (31%, 21 tweets), followed by Impossible™ Foods (11%, 95 tweets), and Beyond Meat (6%, 25 tweets). Of these tweets, the majority focused on the environment, and much less focused on animal welfare (only 7 for Memphis Meats, 10 mentions in Impossible™ Foods, 6 for Beyond Meat).

When looking across all content—primary, secondary and tertiary—a topic that received negligible coverage in tweets were human health benefits (7 tweets by Impossible™ Foods, 5 by Beyond Meat, and 1 for Memphis Meats) and only mentioned three times in re/tweets by Beyond Meats, are farmers. One of those was a retweet making fun of a farmer's inability to tell the difference in taste from beef. The retweet states "Cooked these for a family get together last weekend, but only said I was cooking #burgers. My uncle (a cattle rancher) said it was the "best burger he's had in years". Asked me where I bought the #beef. I told him it was @BeyondMeat. *crickets*"

5. Discussion—Advancing APs without changing consumers' routines

While the websites of the three AP companies examined continue to focus on market conventions and offer their promissory narratives that fit largely within civic conventions, the twitter feeds demonstrate a significant expansion across all six conventions. There is a clear emphasis on market and industrial conventions, but also opinion and domestic conventions are prominent. Market conventions emphasize money and monetary exchange as defining value with buyers and sellers competing over scarce resources, while industrial conventions place an emphasis on efficiency, standardization and uniformity. Beyond Meat and Impossible™ Foods saw a sizeable portion of their twitter feed dedicated to announcing product expansion (Impossible™ Burgers available at Burger King; Beyond Meat's Beyond Sausage® Sandwich at Dunkin Donuts) and restaurants or stores selling their products. This represents expansion of markets and the market convention, but also the industrial convention, as their products are now available via major fast food chains that peddle in offering consumers efficiency and standardization of food products at an affordable price. Consumers also fall within the market convention, because consumers often tweeted images of their foods purchased from fast food chains and restaurants. Of course, consumers could also fall within the domestic sphere, when they tweeted images of themselves cooking with Beyond Meat's products at home.

As mentioned in the results section, sport was an unexpected coding category. Beyond Meat in particular has what they call "brand ambassadors," who are professional athletes in U.S. basketball and football (National Basketball Association and the National Food League). Beyond Meat established this approach to try and expand into meat consumer markets (Vegconomist, 2019). However, Impossible™ Foods also tweeted sports references, which suggests that both companies are seeking to have their products seen as legitimate by sports fans through the association with opinion and inspiration and Podolny (2010) would argue to build status for the company in a competitive marketplace.

Finally, the domestic convention is represented by tweets that seek to reinforce a set of values focused on traditions, trust, and the sense of the familiar or habitual practices of food provisioning. While not a sizeable amount of the tweets, all three companies referenced holidays in their tweets, and Beyond Meats followed by Impossible™ Foods, tweeted recipes. These tweets are meant to instill the idea that these products can be a part of the day-to-day food provisioning, as well as the special celebrations (e.g. July 4 in the United States, well known for grilling of meats). Similarly, while health claims were minimized in tweets, the few that were tweeted by each company try to speak to the values of ensuring well-being for one's self, loved ones, and friends in food provisioning.

In summary, AP companies do not message in their twitter feeds that responsible consumers can help create a more "climate-secure, healthy and ethical era" in their consumption of AP productions (Sexton, 2018, 587). Neither is there evidence that they seek to encourage people to "care about the environment, health, and animal welfare" (Clay et al., 2020, 946). For the most part, the official twitter feeds appear to avoid this type of justification. Instead these three AP companies twitter feeds use sports, popular media, and the widespread availability of their products among grocery and restaurant chains to try and have their products appear as legitimate, useful, and/or signifying. Whereas previous literature has assessed how CT can help us better understand the values associated with alternative food products in alternative food markets, minimal analysis has occurred of how CT might help us

understand AP products whose founders explicitly seek to change the existing mainstream food market (Cidell, 2012). In other words, these companies' founders profess a desire to change what people eat, without necessarily changing people's routines. Does it matter if sport fans do not care or know that their burgers are made with plant-based or cellular APs? In what way might companies' justifications advance responsible consumption for civic concerns without consumers being aware of these justifications? To engage with these questions, it is beneficial to consider: first, the broader political economy within which these APs operate and second, Thévenot's theorizing about the plurality of ways people go about coordinating social action. The regime of justification, which is the primary focus of this work, fits within a broader theory of regimes of engagement (Thévenot 2007, 2019). Of relevance for our consideration of APs and responsible consumption are two other regimes that operate alongside the regime of justification, the regime of familiarity, and the regime of regular planning.[2]

5.1. Broader agri-food political economic context

Much of the modern food system works with a "food from nowhere" approach, which means consumers are rarely aware of where any of their food originates (McMichael, 2009). Such an approach makes it difficult for consumers to have a sense of how their consumption habits contribute to a better or worse food system, and AP companies do not disrupt this phenomenon (Guthman and Biltekoff, 2020). There are three dimensions that are worth considering in light of AP companies claims of advancing responsible consumption as it relates to civic concerns.

First, there is a lack of transparency surrounding supply chains for APs. The absence of farmers in the marketing of APs contributes to this lack of transparency. An absence of farmers might make sense in the context of cellular meat, although some animal herds will need to be maintained for the purposes of maintaining genetic material for cellular growth. However, plant-based APs still very much rely on crop farmers. While these companies' websites feature pictures of plants and vegetables these are disconnected from farms and farmers. In general, farmers are absent because the supply chains and the processes by which APs come to fruition are largely unexamined (Guthman and Biltekoff, 2020). In this way, APs are similar to other mainstream food products.

Second, despite AP founders' visions of creating a more sustainable food system their products often rely on commodity production systems that uphold the market logics that are not sustainable (Clay et al., 2020). APs offer a technological solution to some of the negative impacts of intensive animal production, but they do not fully address the energy intensive and finite resources that the mainstream food markets rely upon. Both oil and phosphorous are critical to our industrial agri-food systems and both are finite and an increasingly scarce resource. Oil provides "diesel for the operation of farm machinery, fertilizers for soil enhancement, and insecticides for pest control" and phosphorous is crucial to plant growth (Lawrence and McMichael, 2014, 672). In their current form, APs are fundamentally rooted in the continued use of oil and, in the case of plant-based APs, phosphorus. While APs may reduce oil usage associated with animal feeds, APs remain fully embedded in an industrial food system. In addition, AP companies completely side-step social sustainability. Farmers' fields, processing plants, restaurant and grocery store chains represent locations where some of the lowest paid and least protected workers operate in the United States labor market. If APs are successful, the novel food may contribute to the demise of a few of these jobs, such as meat processing plant workers, but this fails to address broader issues of social sustainability in the food system.

Third, APs operate in a space dominated by corporate concentration. APs seek to solve the problems of animal agriculture, but this ignores how we've reached a point where the vast majority of consumers eat animals from confined animal feeding operations (CAFOs) in the United States. In short, major meat packers and vertically integrated companies, with government supported agricultural policies, have reduced the price that farmers receive at the farmgate, forcing farmers either to get big or get out (Winders and Ransom, 2019). While APs may threaten the livelihood of farmers, as it puts further pressure on operational efficiency (with pressure to further cheapen how much meat costs in the marketplace), APs do very little to disrupt the companies that contributed to CAFO production (Mouat and Prince, 2018). Indeed, many major meat companies have been investors of these AP companies. Traditional meat companies are closely watching these new APs with an eye towards profit maximization, which includes the development of their own APs (Yaffe-Bellany, 2019). There is also the concern among some industry analyst that these major meat companies will simply subsume these new AP companies and put them out of business (Yaffe-Bellany 2019). Ultimately, corporate concentration in the food system from processing to retailers is at an all-time high (Howard, 2016). The AP companies in this study have received financial backing from some of these large companies, but these AP companies are currently independently owned. Nonetheless, if organic food, craft beer, or plant-based mylks are any indication, independent APs will eventually be subsumed by the large corporate entities (Clay et al., 2020; Howard, 2016). These broader political economic dynamics in our food system inform our understanding of the marketization of APs.

5.2. Three regimes of engagement

Thévenot's regimes of engagement start from the premise that coordination with others requires commonality, and this is also true even in moments where there is a dispute (Thévenot 2019). The assumption is regimes "are social devices which govern our way of engaging with our environment inasmuch as they articulate two notions: a) an orientation towards some kind of good; b) a mode of access to reality" (Thévenot, 2000, 75). In the case of CT, which is the regime of justification, the good is the common good that both guides action and serves as a mechanism to legitimize actions (Ponte, 2016).

By contrast, the regime of familiarity and regime of the plan are each guided by a different good. In the regime of familiarity the good is "feeling at ease" (Thévenot 2019, 416). Thévenot (2019, 416) explains that ease comes through familiarity and continued use, but far from being static, the familiar is a "dynamic relation with an immediate milieu that is experienced." Thus, the regime of familiarity is open to change, but not radical change, as the regime affects "whether that person is well- or ill-disposed" (Thévenot 2019). The regime of a plan provides individuals the ability to successfully accomplish action. As Thévenot (2019, 417) explains, "we speak here of 'normal action' … The good in this engagement also tends to get lost in the ordinary idea of an accomplished action." Thévenot (2019) asserts that satisfaction in one's accomplishment is the good, and it differs significantly from the feeling of ease procured by the regime of familiarity. However, a person's plan will only occur if the environmental components are also present, in other words, normal action is only possible through supporting environments (Thévenot 2019). Thus, for example an individual may propose a plan to eat a healthier diet, but such a plan rests on an assumption of a supporting environment, which means the person has regular access to foods perceived as healthy.

The regime of justification offers space for public debates, whereas the regime of the familiar and the regime of a plan are both often taken for granted spaces where individuals move about their daily lives. Yet, these regimes are permeable, and both can influence and are influenced by regimes of justification. For example, the history of feminism clearly reshaped the regime of the familiar (e.g., the personal is political) and the regime of a plan (e.g., an individual's ability to pursue a career, irrespective of one's gender identity) (Welch et al., 2020). Identifying the linkage between these three regimes can further our understanding

[2] Not discussed in this work is a fourth regime of exploration, which Thévenot developed later.

of the impact that APs can have on responsible consumption, while also making us aware of the challenges.

6. Conclusions—Distributed responsibility?

AP companies resort to multiple justifications—market, industrial, opinion, and domestic conventions—in the marketization of these novel foods to be accepted as legitimate, useful, and/or signifying. In this sense, our results are similar to recent studies that have focused on food waste reduction campaigns among food retailers in the U.K. (Swaffield et al., 2018). Far from relying on a moral imperative to protect the environment, U.K. food retailers required a combination of market, opinion, and civic conventions to justify their actions. One convention alone would not have been a sufficient justification for action (Swaffield et al., 2018). By appealing to multiple justifications AP companies are seeking to attach their product to a wider-range of consumers. Multiple orders of worth embedded within the marketization of APs suggest that these new foods can fit easily within the regime of familiarity and the regime of a plan for consumers. For example, someone who regularly eats a hamburger (regime of familiarity), but has decided to go on a diet that includes reduced meat consumption (regime of a plan) can choose to purchase APs.

By appealing to multiple conventions, APs may successfully be adopted by consumers who traditionally would not have identified with civic conventions. Several studies have shown that even when consumers are aware of and/or committed to sustainable lifestyles, there are many competing conventions that may provide worthy justifications for not pursuing ecologically sustainable consumption (Andersen, 2011; Evans, 2011). In other words, even in circumstances where consumers seek to make responsible choices, they are often constrained by a broader environment that does not support these intentions. Thus, mainstream APs can provide a supporting environment for consumers committed to civic conventions, but these products also fit into the regime of the familiar, irrespective of the intentions or justifications used by consumers. The founders of these three AP companies have clearly articulated their intention of trying to capture consumers without changing consumers routines.

Can APs be considered as contributing to a distributed responsibility in our food system? From an organizational perspective, Stark (2009) argues that entrepreneurial companies have benefited from multiple orders of worth being in play and innovating based on the dissonance created. AP companies have generated significant food innovations not only in grocery stores, where consumers can now find APs in the meat section, but also in the broader industry, with major meat companies investing in AP research and production. Thus, the marketization of APs has spurred participation by other disparate actors in the food system, perhaps suggesting the emergence of a distributed responsibility.

Yet, there is a risk that non-market values may be subsumed by market values thereby contributing to an impoverishment of political debate surrounding the common good (Stark 2009; Thévenot 2019). Moreover, it could be argued that the lack of transparency surrounding the production of APs inhibits distributed responsibility. As Guthman and Biltekoff (2020, 16) highlight, AP companies make it seem like the inputs are placeless and the lack of transparency makes it difficult, if not impossible, for the public to "meaningfully assess the promises and their potential consequences, much less hold their proponents accountable to anything but pecuniary concerns." Stark's (2009) response to concerns of market dominance is more, not less, competition over values in our food system. He advocates for more competition and innovation "to build policies and practices that create wealth in forms that sustain our communities and our environment. We need societal friction that generates a reflexive cognition capable of recognizing innovative solutions" (Stark 2009, 212). Thus, an optimistic conclusion would be to recognize the existence of and the need for multiple justifications to be in play to both encourage innovation and conversations that contribute to a distributed responsibility in the food system.

This study has only assessed the types of justifications that AP companies are utilizing in the marketization of their novel food products. How these justifications actually shape consumers' perceptions of APs is open for further exploration. In addition, our study is specific to the United States, and while we believe marketization of APs outside the United States may have some similarities, the justifications used in marketization will likely differ, at the very least because of differing levels of demand for APs (Searing et al., 2020).

Our agri-food system is clearly multidimensional and facing a host of challenges in the future. Population growth, finite resources, corporate concentration are a few of these challenges. To better engage with those challenges, we need experts and laypersons able to deliberate together to construct a future that recognizes that "no optimum solution is possible" but rather our world is "a commons to be improved" (Busch, 2009, 246). CT and the three regimes of engagement can provide insights for how we might work towards a more sustainable food system.

Credit author statement

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