frontiers in Sustainable Food Systems

ORIGINAL RESEARCH
published: 28 August 2019
doi: 10.3389/fsufs.2019.00069

How Normal Meat Becomes Stranger as Cultured Meat Becomes More Normal; Ambivalence and Ambiguity Below the Surface of Behavior

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Although most people still behave like happy meat eaters, there are good reasons to think that many are in fact ambivalent about meat. Following up on earlier findings, in this paper we describe how, in focus groups, cultured meat triggered much discussion about meat, especially among older people. While young people wondered whether they would eat cultured meat products, older people thought about diet changes in a historical perspective and wondered if and how cultured meat might become a societal success. Beneath the surface of everyday behavior, in which they followed mainstream norms, many of our research participants harbored moral concerns and in various ways expressed an interest in collective change. Reflecting on the focus group discussions, we suggest, first, that appreciating the important role of ambivalence in processes of moral change requires rethinking relations between ambivalence and morality. Second, the entanglement of ambivalence with ambiguity increases the "fluidity" of such processes of change: when it is no longer clear what exactly meat is, the meanings and experiences of eating it also become unsettled. This has implications for thinking about morality in times of change. Studying consumer choices cannot do justice to processes of ambivalence and ambiguity below the surface of behavior. More generally, the idea that morality resides in making up our minds about clear moral choices gives way to the need to become skilled, collectively as well as individually, in dealing imaginatively with ambivalence and ambiguity.

Keywords: meat, cultured meat, ambivalence, ambiguity, moral change, consumer research

OPEN ACCESS

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Specialty section:
This article was submitted to Nutrition and Sustainable Diets, a section of the journal Frontiers in Sustainable Food Systems

Received: *26 October 2018*
Accepted: *15 August 2019*
Published: *28 August 2019*

Citation:
van der Weele C and Driessen C (2019) How Normal Meat Becomes Stranger as Cultured Meat Becomes More Normal; Ambivalence and Ambiguity Below the Surface of Behavior. Front. Sustain. Food Syst. 3:69. doi: 10.3389/fsufs.2019.00069

INTRODUCTION: (CULTURED) MEAT AND AMBIVALENCE

We have become accustomed to a growing stream of information highlighting the problems of meat. A plausible beginning of this stream is the publication of *Animal machines*, in which Harrison (1964) denounced the focus in "factory farming" on efficiency, growth, and profit, for which animals paid the price. At that time, the alternative for meat seemed clear and traditional; it consisted of pulses, as Frances Moore Lappé argued in *Diet for a small planet* (Lappé, 1971), offering many recipes to facilitate the transition. Both books became bestsellers and were translated in many languages, but they could neither stop the further global increase of meat consumption nor the ongoing decrease of pulse consumption.

The stream of publications on problems associated with intensive farming of animals continued, and became mainstream in policy circles with the FAO report *Livestock's long shadow* (Steinfeld et al., 2006), which called attention to its devastating global environmental impacts. A more recent FAO report shifted the focus "from sustainable production *per se* to enhancing the sector's contribution to achievement of the Sustainable Development Goals" (FAO, 2018, p. xvi), claiming that the livestock sector "can play a key role" in addressing many of the challenges the world faces (xxiii). The shift in focus and narrative testifies to the existence of deep ambivalence at the level of society and policy.

In this paper, we focus on citizens, who likewise encounter and experience considerable tension. Many people in Western countries are aware of the unsustainability of our lifestyles, and worry in various degrees about ecological destruction, global hunger, resource depletion and animal suffering, yet even in these countries the consumption of meat and other animal derived products has not decreased significantly so far. Judging from behavior alone, it looks as if we don't really care. But there are good reasons to think that many people are not indifferent about these issues, but ambivalent. They are attached to meat and at the same time are concerned about its negative aspects (Holm and Møhl, 2000; Onwezen and Van der Weele, 2016). Such ambivalence often does not lead to changes in consumption. A widespread suggestion is that for various reasons, meat is too attractive, or even that humans should be called "meat-hooked" (Zaraska, 2016). It has therefore been argued that in order to be successful, alternatives to meat need to resemble meat more closely (Hoek et al., 2011). Cultured meat could then appear as perhaps the most promising alternative: as tissue made of animal cells it does not only resemble meat, it simply ís meat, or so it is often suggested (Stephens et al., 2018). The very idea of cultured meat thus seems to strengthen the idea that we inevitably crave meat and that if we want to replace it, it should be by something that cannot be distinguished from it (Donaldson and Carter, 2016). In recent years, plant-based meat alternatives have increasingly come to mimic meat, which has blurred boundaries between plant- and animal-based alternatives. Even so, cultured meat remains special within this field because of its animal origin and the associated claim that it is actually meat.

In an earlier study, we reported on two workshops in which people discussed potential scenarios for cultured meat (Van der Weele and Driessen, 2013). At that time, the idea of cultured meat was new and surprising to most people. It generated much ambivalence; it was seen as very promising for animals and the environment on the one hand and as deeply unnatural and artificial on the other hand. But such objections also immediately led to discussions about meat, as people responded to the unnaturalness of cultured meat by equally doubting the naturalness of "ordinary" meat production. Furthermore, the search for attractive cultured meat scenarios led participants of one workshop to the idea of "the pig in the backyard," in which small scale animal-friendly farming was envisioned in combination with small local cultured meat production. The idea emerged from what we saw as an imaginative sociotechnical tinkering process, in which new technology was mingled with traditional cultural ideals, the hope of guilt-free meat-eating and intimate relations with genuinely happy animals and the values of local production. "The pig in the backyard" warmed participants considerably to cultured meat; hesitations regarding cultured meat as being perhaps too technological, unnatural, or alienating vanished with this scenario. The workshops confirmed that cultured meat is a prospect with "world disclosing" characteristics (Driessen and Korthals, 2012) that can open up new imaginative paths.

We followed up on these workshops by organizing a series of five focus groups on cultured meat, with a special interest in responses to different scenarios and in the intertwinement of discussions on meat and cultured meat. In this paper, we report on these focus groups, paying particular attention to an unexpected difference that emerged between young and older participants: in our focus groups, older people were more outspokenly ambivalent about meat, drawing explicitly on experiences that made them discuss how their diets had changed during the course of their lives. In our reflection on these outcomes we will argue that while ambivalence may not (immediately) lead to behavioral change, it is nevertheless a clear sign of moral activity. We will discuss the relative neglect of ambivalence in philosophy, psychology, and consumer studies and side with recent efforts of revaluation. One of the effects of (widespread) ambivalence is that it unsettles the self-evidence of the status quo, and the entanglement of ambivalence with ambiguity deepens this effect. Such unsettlement does not—or at least not only—signify a situation of moral failure, we will argue, but represents a pronounced example of a basic everyday condition, from which new options in our relations to the world, each other, and ourselves emerge.

METHODS: FIVE FOCUS GROUPS

We were interested to learn more about responses to cultured meat in general as well as to specific scenarios. In addition, we wondered how connections and interactions between meat and cultured meat would show up. Starting from the idea that people are primarily social beings, who develop their views in interaction with those around them in daily life, we organized a series of focus groups in the Netherlands, with participants who knew each other or felt at least familiar to each other, for example because they were in the same school, or linked to the same choir or football club.

This method fits in with a more complex and dynamic form of human subjectivity than a survey, which makes subjects appear as beings with clear attitudes and a gap between attitudes and actions, as critically described by Law (2009). A "focus group subject" differs from a "survey subject" in that he or she is more dynamic and socially embedded, grappling with what turns up during the group process. We do not claim that focus groups represent people the way they really are, or expose their true feelings, only that it makes people appear in a different light,

TABLE 1 | Comparisons between cultured meat and other things (most abundant in groups 1, 3, and 4).

Group 1 (ages 30–50)	- **Meatlike**: Valess (brand of dairy based meat replacer), meat replacers, vegetarian butcher products, Quorn, fake minced meat, vegetarian sausage, insects, Bob-de-Bouwer (fantasy-meat for children) - **Other**: a motor that does not need petrol, solar panels, electric cars, Danone-sweets, Coca-cola zero, McDonalds, diet food, tube feeding, cloned animals, cultured skin, cultured organs, food pills, genetically modified organisms
Group 2 (18–22)	- **Meatlike**: insects, vegetarian meat - **Other**: algae, fungi
Group 3 (65–85)	- **Meatlike**: vegetarian products, insects, horse meat, farmed fish, reindeer, ostrich, kangaroo, crocodile, dog, frog's leg - **Other**: tomatoes, food pills, sourdough bread, margarine, pasta, canned nasi goreng, tobacco
Group 4 (40–75)	- **Meatlike**: insects - **Other**: cultured skin, milk-with-algae, novel types of bread, cultured eggs, margarine, TV, molecular cooking, generic medicines, plant breeding, vegetables out of season, energy efficient cars, flavor enhancer for coffee, production animal "adoption" schemes, genetically modified organisms
Group 5 (15–17)	- **Meatlike**: organic products - **Other**: gelatin, mobile phones, microwave ovens

arguably one that better reflects the social character of moral positioning and change.

Focus groups discussions can go beyond a mere weighing of pros and cons and statements of preference. In groups of around 8 to 10 persons, the participants have the opportunity to not just offer opinions regarding the focus of discussion, but also to give arguments, elaborate on their background ideas, express their hesitations and concerns, respond to each other, etc. Focus groups enable the exploration of responses to a new theme that do not (yet) play a role in public and/or professional debates; such responses are not restricted to rational and accepted arguments (cf. Davies, 2006).

Starting from the expectation that young and urban people might be more open to a novel technology such as cultured meat than older and rural people, we -imperfectly- composed the groups with an eye on those variables. From the first focus groups it appeared that urbanity/rurality made little difference for the kinds of conversations and positions that emerged[1]. Age on the other hand seemed to make a difference, though in a different way than we had expected. We therefore organized a fifth group, consisting of high school students of age 15–17; for this group, we acquired both parental and school permission (see also ethics statement). Gender and ethnicity are other potentially interesting variables, but in the confines of this study we did not focus on these. The groups were ethnically Dutch. In terms of gender, the groups were more or less evenly mixed. In line with the aim that the participants should know each other or at least feel familiar in each other's presence, we recruited participants with shared backgrounds with the help of our research assistant. For each focus group she approached a different part of her social circle, or an acquaintance who in turn brought in a social circle. Joining a group depended on people's interest and availability, there were no inclusion or exclusion criteria. As a result, participants of each focus group were connected through the same college, school, choir or football club. The following list specifies the backgrounds for each group.

- Group 1: College teachers and adult students of food and diet, all from the same college; urban area, age 30–50
- Group 2: Young students following different studies at the same college, urban area, age 18–22
- Group 3: Participants all connected with the football club of the village, rural area, age 65–85
- Group 4: Participants connected through a choir, rural area, age 40–75
- Group 5: High school students who were classmates, semi-urban area, age 15–17

Thus, groups 2 and 5 consisted of young people, groups 3 and 4 consisted of older people, while the age of group 1 was somewhat in-between (In our analysis, groups 1, 3, and 4 will all count as "older people," as opposed to the "young" people of groups 2 and 5). Coincidentally, group 1 stood out in another relevant respect; it consisted of adults who were all professionally involved with (education on) food and diet. The groups had between 7 and 12 participants, who were all -as it turned out-self professed meat eaters, apart from two vegetarians in the second group. The focus group meetings lasted between 1.5 and 2 h, were audio recorded and transcribed verbatim. We analyzed them qualitatively through successive rounds of coding. In the first round, exploratory coding was done by both authors; we primarily focused on the scenarios (not the focus of the present paper) and on the intertwining of meat and cultured meat, comparing the different groups in accordance with the original set up and expectations. When unexpected age differences turned up, we started a second round of analysis, coding for comparisons between cultured meat and other things (**Table 1**), and for (implicit) role-taking by participants when they reflected on the future of cultured meat (**Table 2**). This final coding was done by the first author. The tables show illustrative quotes concerning the main themes, which are further interpreted in the text.

The focus groups were conducted in Dutch; quotes were translated by the authors.

In our introduction to each session, we presented cultured meat as (the idea of) meat on the basis of animal cells, grown outside an animal body, without saying anything about reasons to make it or about technicalities. We also briefly explained the aim of the focus groups: "The ministry of economic affairs subsidizes

[1]Arguably the densely populated Netherlands does not make for a strongly contrasting set of rural vs urban populations, although many people do identify themselves in these terms.

TABLE 2 | Role-taking statements—emerging mainly in groups 1, 3, and 4.

Role	Examples
Marketing perspective	"This is a good idea because this is what young folks like" (about the hamburgers) (group 3) "Talking of McDonalds again, if a company like that starts with it, well then you have almost half of the population" (group 4)
Trend watching	"I think there is a growing societal aversion against artificiality" (group 1) "In Spain, someone is already involved in molecular cooking" (group 4)
Cultural criticism	"Why do we have so many animals?" (group 4) "Meat should disappear from the supermarket. We need quality butchers again" (group 4)
Technology assessment	"That will affect the number of jobs" (group 5) "The question is: who will do it… big companies like Unilever or Monsanto? That would be scary, if they determine what we eat" (group 4)
Transition thinking	Historical comparisons: "When margarine was invented, that was quite something" (group 3); "we also did not have Chinese food back in the old days" (group 3) Rules: "That is not allowed anymore" (group 1) "How could it be controlled/ monitored?" (group 4) (about the pig in the backyard) Cultural differences: "Maybe some cultures don't have intensive husbandry, maybe they could start this?" (about the pig in the backyard) (group 1) Behavior change: "There will always be pioneers, people who start to do new things" (group 4); "People get used to everything. I really believe that" (group 4) Economic actors: "So much has been built around factory farming: machines, food supply, drugs" (group 1)

research into cultured meat. It also wants to know what people think of it." We emphasized that consensus was not the goal of the discussion. After that, the focus groups consisted of three parts of about half an hour each:

1. First responses, discussions and the possibility for participants to ask questions about cultured meat to us, which we answered to the best of our knowledge (this did not include technical details).
2. In the second part, we used visualizations in order to trigger the imagination through an exploration of concrete different options. We offered four scenarios, which we chose for being different on several dimensions (familiar or not, product or production, explicitly technological or not) and presented them visually with the help of PowerPoint slides:

- a hamburger
- "the pig in the backyard," a free range pig, symbolizing small-scale production in local factories on the basis of cells from animals on urban farms
- a 3D- printer, referring to the idea of making customized products, perhaps on the kitchen sink, or on a small scale by a specialist
- "magic meatballs," a design by a student at a "Next-Nature" cultured meat design course at Eindhoven University, consisting of "meatballs" in different colors, arranged on a dinner plate with potatoes and vegetables

While two of them (the hamburger and the 3D-printer) may speak for themselves, the other two are presented in **Figure 1**.

3. We then asked for responses to a number of specific questions, e.g., "Would it make a difference if cultured meat were made from embryonic stem cells or from adult stem cells?"

Toward the closing of the meetings we asked what, all in all, participants considered to be the largest disadvantage and the largest advantage of cultured meat.

The first four focus groups were held in the spring of 2013; the fifth (which was added because age differences had caught our attention) in September 2013. We reported the results of the study to the ministry of Economic Affairs that funded us (Van der Weele and Driessen, 2014). In the present paper, we focus on the outcomes of discussions during the first parts of the focus groups, paying special attention to age-related aspects. Thereafter we offer a more extensive discussion of the ambivalence and ambiguity that emerged in the focus groups. This analysis has benefited from further reflection on the significance of the outcomes, also in discussion with literature on ambivalence.

RESULTS: OLDER PEOPLE AS TRANSITION THINKERS

For most participants, the idea of cultured meat was strange and surprising and raised many questions. Nevertheless, the atmosphere in the groups tended to be sympathetic toward the idea. This seemed to have its main ground in negative views of animal suffering—and to a lesser extent environmental impacts—in intensive meat production. The answers to the closing questions nicely summarize the overall atmosphere. While people mentioned various disadvantages, such as development costs, uncertainties and artificiality (the last one only in the group of the food professionals), one answer was dominant in response to the question about the greatest benefit, namely advantages for animals.

Before dealing with general outcomes, let us briefly summarize responses to the visualized specific scenarios. First of all, they proved to be helpful for triggering imaginative reflections on future production and consumption practices. For example, the 3D-printing option, generally considered to be weird and far-fetched, sometimes led to fantasies about making hamburgers on demand through a machine on the kitchen sink, to how that could lead to personalized meat, and to the realization that we already take micro wave ovens for

TABLE 3 | General statements on meat and cultured meat.

Meat	
Positive	"Everybody wants more meat" (group 2) "I like it very much" (said in all groups)
Negative	"There is a lot of messing around with meat: growth hormones, water in your chicken, horse meat in your beef" (group 1; similar statements in all other groups) "What has the poor beast gone through before it is on my plate? And what did they put into it that I did not want, how fast did it grow, hormones I don't want, antibiotics. Yes I'm very suspicious about meat" (group 1; similar complaints about animal welfare, antibiotics and hormones were present in all groups) "It is well-known that meat gives you cancer" (group 3) "Being a calf is a drama" (group 3)
Ambivalent	"We eat too many animal products. I do it myself because I also like it very much" (group 4) "I wish I were a vegetarian, I like meat far too much" (group 4)
Cultured meat (in comparison to meat)	
Positive	Better for animals, better for nature, hopefully less antibiotics (all groups) "I find it chill. Impressive" (group 5) "You don't have to feel guilty when you eat meat" (group 1, 2) "I think the remaining animals, the ones that supply the stem cells, can have better lives, animal welfare is now extremely saddening" (group 1) "I think cultured meat will lead to less infections then we have now, for in those crowded cages, infections go quickly from one chicken to the next" (group 5) "The meat burger may be more healthy than a normal burger, for they put so many strange things in hamburgers" (group 5)
Negative	"I find it very artificial" (group 1) "It looks complicated and expensive and it will take much time" (group 2) "There will be opposition from the side of the meat industry" (group 3) "I think we should get rid of hamburgers, people should eat less meat, and better meat, and very often no meat at all. I'm afraid that cultured meat continues the old habits of meat eating" (group 1)
Ambivalence and rethinking meat	"It's a bit scary, but I would be curious, I would try it" (group 3) "Actually it is strange, we find it quite normal to kill animals that had a whole life, good or bad, and then if we take some cells from the very beginning that do not yet have the form and vitality of an animal, then we find it weird to eat" (group 1) "I find myself wondering what happens to cultured meat, what do they add to it? But then I think: I have no idea what they have done about the meat on my plate either" (group 1) "My question is simply whether it tastes just as good as real meat. For I have often tried to become a vegetarian, but each time I think oh no, meat is so tempting" (group 5)

granted, which shows that "our food is already very unnatural." Hamburgers were welcomed as the most realistic option. For young people, they were "naturally" attractive, as most of them liked hamburgers. Older people too thought that hamburgers are a good option because they appeal to the young. The magic balls were generally seen as suitably seductive only for small children ("my brother of 8 may like this"; "that's something for my grandchildren") and then as an alternative for vegetables rather than for meat. The pig in the backyard was regarded as very sympathetic on the one hand ("you cannot give love to animals that will die, but in this way you can experience the animal as a living being and love it") but utterly unrealistic on the other hand ("this is against the regulations"). Small-scale farms were seen as somewhat more realistic.

The findings we considered most remarkable were not connected to a specific scenario but with an unanticipated but conspicuous difference between the young and older groups. The trend among young people was to appreciate the technological novelty and to wonder "Would I eat it?" The answer tended to be "yes (but only), if it is really exactly like meat." While the young participants thus thought about their personal preferences and their appreciations as individual consumers, older people tended to relativize their own food preferences, focusing instead on processes of societal change. A typical remark was that "margarine was also very strange at first." Older people regularly sounded as if they were discussing the marketing prospects for cultured meat ("McDonalds should do this").

This difference of approach showed up in various ways: older people had more to say about meat, they made far more historical comparisons, and they did not start from their own consumptive preferences but from broader perspectives, or roles. Let us explain and illustrate each of these manifestations.

Meat

In all groups, cultured meat triggered talk of meat; **Table 3** lists key phrases that reflected positions regarding meat. Young people tend to like meat and also tend to suppose that this is the case for everyone: "Everybody wants more meat." For some, however, animal welfare or antibiotics was a concern. "I have often tried to become a vegetarian, but each time I think "Oh no, meat is so tempting." Overall, in the two groups of young participants the motives for or against cultured meat,

FIGURE 1 | Two of the four visual scenario's. **(A)** "The pig in the backyard", Courtesy to PeerGrouP and Rotterdamse Oogst. **(B)** Magic meat, designed by Mark Kanters as part of Koert van Mensvoort's Next Nature course (Photograph: Cor van der Weele).

and by implication to normal meat, mostly were articulated in hedonic terms: of taste or convenience—similar to the findings of Berger et al. (2018) on people's responses to insects as food.

The ambivalence of older people was greater, even overwhelming. They like meat, or like it "far too much," given their concerns about animal welfare, antibiotics use, "messing around" with animals, human health issues, environmental problems, global food shortage. Older people compared the present with the past and regularly mentioned that meat used to be something special, and that the quality has suffered now that the quantities have increased and we eat it all the time. They regretted the disappearance of "quality butchers." Their concerns so far had not turned them into vegetarians, but did make them feel uneasy. "I wish I were a vegetarian, I like meat far too much." "Why do we have so many animals?" "We eat too many animal products. I do it myself because I also like it very much." "Being a calf is a drama." Etcetera. Not surprisingly, cultured meat was evaluated predominantly in comparison with normal meat, and then caused people to see normal meat in a new (critical) light, for example when they wondered why we find killing animals for food more normal than growing simple cells, or when they thought about the uncertainties of what is put into cultured meat and then realized that normal meat is full of unknowns as well.

Comparisons

Cultured meat is being compared to more things than meat. Here again, we found a large difference between young and older people. Older people (groups 1, 3, and 4) made far more comparisons between cultured meat and other (mostly innovative) things, both food and non-food. While we counted four comparisons in each of the youth groups (groups 2 and 5), the count for the other groups was 21, 17, and 15, respectively. An explanation is not hard to think of: older people have lived longer and experienced more novelties and changes. Nevertheless, we had not anticipated this; we had implicitly assumed older people to be more fixed and unquestioning in their consumption patterns and convictions.

As **Table 1** illustrates, cultured meat was not only compared to meat or meat replacers, but also to other food and non-food innovations. The comparison with genetically modified food served in both cases to illustrate a potential dependence on big companies, not a safety worry; on the contrary, it was regularly stated that cultured meat might well be safer than our current meat. Comparisons with other food innovations often served to illustrate that we have got used to food products that were sometimes very strange at first (margarine, pasta, kiwi's, etc.). Comparisons with technological innovations in general served the same goal: "Printing food is very unnatural, but in a microwave oven food is irradiated and then you simply eat it. How unnatural our food has already become? So why not? (in Dutch: "Dit kan er ook nog wel bij").

Role-Taking

Young people primarily wondered whether or not they would want to eat cultured meat. Their preference for hamburgers made them appreciate and prefer the hamburger-scenario. They generally thought that if cultured meat burgers looked and tasted the same as ordinary hamburgers (some said that they must be "exactly" the same), and would not be more expensive, they would eat them, no problem, though some wondered "Why would I buy this, instead of Quorn?"

Older people looked at cultured meat from broader perspectives. They made comparisons with earlier innovations and with more modest meat consumption in former times. They did not commit themselves to individual choices for cultured meat, but more impersonally saw a need for behavioral and societal/cultural change, which came with normative judgments: "We eat too much meat," "McDonalds should do this," and they commented on the moral gain of cultured meat for consumers: "The advantage for consumers is that you don't have to feel guilty when you eat meat."

They started to consider and discuss the prospects for cultured meat, not speaking for themselves as consumers, but as if they were committed marketing people, trendwatchers, cultural critics, technology-assessors, or sustainability transition thinkers, in short, taking "roles." Transition thinking can perhaps be seen as the overarching perspective, which involved historical comparisons, reflection on laws and rules, reflection on cultural differences, on patterns of behavior change or the role of economic factors. **Table 2** gives examples of each.

Overall, the participants found the idea of cultured meat new and surprising. Young people tended to be impressed with the technology and at the same time more or less absolutist about their present preferences, which made for a conservative outlook. For older people, cultured meat was a trigger to reflect on the changing place of meat and to rethink some of its self-evidences, as if cultured meat, as a potential solution, was an invitation to think through the problem more thoroughly. What emerged was much uncertainty about cultured meat alongside profound ambivalence about meat. As far as can be judged from these exploratory findings and the accounts participants gave of their consumer behavior, this ambivalence had hardly been a reason for individual change. When people spoke about their behavior, they did not at all portray themselves as moral pioneers or as prone to individually change their consumption patterns on the moral grounds they had so elaborately put forward. Rather, in discussing cultured meat, older people started to consider how new products might lead to collective societal change, not unlike changes they had experienced before. Besides, cultured meat seemed to make explicit, or strengthen, a kind of existing and ongoing but ordinarily "hidden" process of moral change, in which people had not reached firm conclusions but rather were of more than one mind.

DISCUSSION

In our discussion of the results, we will first reflect on the importance of ambivalence for morality, discussing its character and how it could help to better understand potential societal transformations. After that we will focus on ambiguity in the focus groups and how it interacts with ambivalence to further complexify the process of change. We will end the paper with conclusions and implications for understanding moral change.

Taking Ambivalence Seriously

The discussions in the focus groups were not structured as a listing of pros and cons of meat vs. cultured meat or not-meat. Nor was it a discussion between those in favor and those against meat or cultured meat. All, or almost all, joined in the conversation by alternating between or even combining positive and negative attitudes or concerns. Yet it was striking that most participants, especially the older ones, after merely being prompted by the prospect of cultured meat, came up with a broad range of negative aspects of meat, which they offered through detailed and vivid accounts of the character of the associated impacts, even though these people in their everyday lives claimed to consume meat and other animal derived products.

Our starting point for further reflection on the moral significance of such ambivalence is that ambivalence traditionally does not have a good reputation. It is pervasively associated with indecisiveness and perhaps its best-known cultural image is that of the ass that starves between two equally attractive bales of hay. This reputation is not limited to societal common sense but is also present in psychology and philosophy. Although there are important signs of revaluation, let us first briefly sketch the obstacles in both disciplines.

From a philosophical perspective, to the extent that ambivalence prevents people from making a choice, it has been regarded as undermining our autonomy, our rationality and our capacity to determine who we are and what is important to us. In recent decades, this has most influentially been voiced in the work of Harry Frankfurt, who associates becoming a real person with becoming wholehearted about what we want, through selective identification with our desires. Ambivalence signifies the inability of thus making up one's mind and it therefore stands in the way of becoming a real person (Frankfurt, 1988, 1992).

From a psychological perspective, ambivalence is uncomfortable, sometimes even unbearably so. It is surely not accidental that the history of the concept began in psychiatry: Freud used the term to express his thought that we can both love and hate the same person. Because feeling both sides would lead to neurosis, we usually repress the hostility in an effort to be of one, socially acceptable, mind. Outside of psycho-analytical circles, too, ambivalence is considered as a state that is often hard to bear and even leads to "agony" (van Harreveld et al., 2009).

The philosophical admiration of wholeheartedness and the psychological observation that ambivalence is extremely uncomfortable may together provide a background for a lack of interest for ambivalence in empirical domains such as consumer studies. It has long been assumed that consumer behavior is associated (and ideally aligned) with clear attitudes. Linear measuring scales that typically range from "completely agree" to "completely disagree" serve to measure these attitudes and order them hierarchically. Such scales do not allow the expression of both agreement and disagreement. Ambivalent people may tick the middle of such a scale, but that is interpreted as neutrality or indifference, so ambivalence doesn't come to the surface.

Yet the assumption of the association between attitudes and behavior led to a problem, the notorious attitude-behavior gap, since some expressed attitudes hardly show up in many people's behavior. Conceptual help for explaining this gap has come from the distinction between consumers and citizens. In our role as citizens, this explanation says, we entertain altruistic values, while our values as consumers are more selfish. A more or less cynical interpretation of the distinction is that we like to pose as morally responsible in non-committal situations where we profess our moral identity, but when it comes to real choices (e.g., in the supermarket) we are selfish and indifferent. Whether we really reveal our true indifferent and egoistic selves in the supermarket, or rather are the hapless product of marketing efforts that seek to instill in us a form of mindless consumer capitalism that privileges private over public concerns (Barber, 2008), is then a matter for debate.

However, what people demonstrated in our focus groups—arguably a "citizen-context"—was not an intention to behave according to altruistic moral values, but rather ambivalence, which included acknowledgment of their role as consumers. Their citizen-profile, in other words, is not purely altruistic, but mixed. And their references to typical consumer values such as taste and quality also showed a mixture, including both comforting bodily sensations and troubling ideas regarding for example the quality of the meat. It looks as if

ambivalent people are neither purely altruistic citizens, nor purely indifferent consumers. Rather, they seem to deal with their ambivalent predicament differently in different contexts. Although ambivalence in many situations does not lead to behavioral change, it may be significant that especially older participants of the focus groups, while acknowledging that they are hardly changing their individual behavior, expect and even explicitly hope for collective changes concerning meat. If we take ambivalence seriously, we might see this as requests for moral help through collective forms of change rather than as signs of hypocrisy. Such an interpretation may fit in with the claim of Berglund and Matti (2006) that people find "self-transcending" values more important as guiding principles than values of "self-enhancement," as well as with Barber's claim about consumer capitalism being in tension with our desires to be moral persons. Unrestricted consumer sovereignty is a value that people in our focus groups explicitly or implicitly seemed to regard as an obstacle to moral progress.

That many meat consumers are ambivalent about meat is not a new phenomenon; already in 2000, in an interview study in Copenhagen, Holm and Møhl (2000) found that many of the meat eaters they interviewed had serious objections to meat, especially to its intensive production. This did not lead to abstinence from meat, but to "coping behavior," such as buying minced meat, which is less conspicuously meat and which less easily reminds us of its animal origin. Other forms of coping behavior have also been found, in studies that increasingly explore affinities between cognitive dissonance and ambivalence. Bastian et al. (2012) pointed to a tendency among meat eaters to attribute less intelligence or mindedness to animals they are used to eat, such as cows and pigs, than to dogs and cats. Onwezen and Van der Weele (2016) showed that at least part of the so-called indifference among meat eaters was in fact a form of "strategic ignorance": ignoring information that is suspected to lead to unwelcome decisions, in which cherished habits and/or one's moral or social identity are at stake. A typical example is a man who said: "If you want to eat meat, you should not know too much about it," adding that he would be in favor of meat being more expensive and animal friendly. Again, this addition might be interpreted as consumer/citizen- hypocrisy, but also as an implicit request for moral help on a higher, collective level. From this perspective, strategic ignorance and other conscious or subconscious coping mechanisms signify the psychological discomfort of ambivalence as well as the existence of moral struggles that do not (yet) lead to clear deliberation and decision-making.

Apathy, too, can be an outcome of ambivalence that is all too easily misinterpreted. In a psycho-analytically inspired study of environmental apathy, Lertzman (2015) challenges the view that apathy and denial typically result from a lack of concern; instead of a lack, she observes a surplus of concern or affect. In her interviews about a local industry that is both good for employment and disastrous for the environment, she encountered much ambivalence (both love and hate) toward this industry. Suppression of the hate-aspect led to unresolved mourning and apathy.

Given these various arguments that ambivalence needs more empirical recognition, it is fortunate that an old plea for new measuring instruments (Kaplan, 1972) is now being taken ever more seriously, which increasingly results in ambivalence surfacing in quantitative empirical studies. Early examples are that meat eaters were more ambivalent about their diet than other groups (Povey et al., 2001) and that over two thirds of meat eaters felt such ambivalence Berndsen and Van der Pligt (2004).

Our findings also fit in with a growing revaluation of ambivalence in philosophy. An increasing number of critics point out that living well can and perhaps should involve ample ambivalence, and that there are dangers in radically cutting it off, or cutting it off too early. Feldman and Hazlett (2012) give the example of an Inuit person whose cultural tradition has given him a love for whale hunting, while he has also come to have serious moral doubts about it. Both attitudes represent important parts of who he is, and living a good life may involve choices, while at the same time it may be good for him to be and remain ambivalent. Getting over ambivalence through radical choices results in a set of values that may be too unshakeable, these authors argue. In a similar vein, others note that such radical choices will make us less true to ourselves (Gunnarsson, 2014), that they will make us "miss the adventure" (Diamond, 1985), that they will lead to "moral blindness" (Lippitt, 2007) or to "amputation" of part of our concerns, which are better served by a diachronic, narrative approach that aims at gradual integration (Schramme, 2014). Rorty (2009, 2014) argues that although resigning to ambivalence can surely be a sign of intellectual or moral laziness, dealing with it responsibly is a constructive accomplishment which requires robust and imaginative practical reasoning rather than drastic choices. Perhaps the most ambitious effort for a revaluation of ambivalence so far is Razinsky's *Ambivalence*, in which she argues in analytic as well as narrative detail that ambivalence is always part of the game of life and constitutes "an invitation to rethink our notions of personhood and rationality" (Razinsky, 2017, p. 4).

A returning thought (see e.g., van Harreveld et al., 2009) is that a fast-changing society leads to high levels of ambivalence. As Rorty says it, in novel situations we often have "good reasons to retain entrenched patterns of salient responses; and yet at the same time we have good reasons to adopt radically innovative attitudes. We want—and do not want—to revise our habits of perception and interpretation. We do—and do not—preserve our evaluative attitudes. In maintaining our multiple attitudes, we make ourselves vulnerable to the kind of confusion that attends ambivalence. But honest confusion may be preferable to righteous but self-deceptive closure" Rorty (2009, p. 427). Her words are directed at theorists such as Frankfurt, whom she calls "purists." With a little modification they might also be directed at ambivalent meat eaters who avoid to actively engage their ambivalence.

While "honest confusion" may indicate moral progress, the suspicion is never far away that accepting ambivalence may come down to a comfortable moral laziness. Ambivalently waiting for a technological fix may be a sign of openness to change, yet it does not exactly indicate moral ardor. Our overall suggestion is that a deeper understanding of ambivalence in various social

contexts is needed for a better understanding of societal processes of moral change. It is plausible, for example, that connections exist between individual and societal tensions, such as the tensions in and between the FAO-reports we mentioned in the introduction. We will strengthen this suggestion not through a further exploration of the link between levels of ambivalence, but by turning to interactions between ambivalence and ambiguity, suggesting that their entanglement is associated with moral unsettlement at many levels at once.

Ambivalence and Ambiguity, Separate and Entangled

Ambivalence does not exhaust the unsettling effects of cultured meat: not only valuations of meat and cultured meat, but also their cultural meaning and interpretation are at stake, or even the very reality of what meat is. Meat has become ambiguous.

Ambiguity and ambivalence are often used interchangeably, or even considered as synonyms. Both terms point to what seems to be uncertain, indeterminate, or unclear. Yet their dictionary definitions are quite distinct. Ambivalence, experiencing or expressing contradictory feelings or beliefs, is an experience or an attitude held by, or (self-) ascribed to *persons*. In contrast, when something is ambiguous, it is open to more than one interpretation; ambiguity thus refers to a quality or meaning of an *object* or state of affairs, or the language in which these are represented. Sennet (2016) notes that the word ambiguity itself is ambiguous, as it can refer to uncertainty of meaning as well as the existence of multiple meanings. And we might further note that it is often not easy to establish whether it is the representation in language that is open to uncertainty or multiple interpretations, or the supposed underlying reality.

While ambiguity may be frustrating from the perspective of logic or analytical philosophy, it tends to appear a basic characteristic of our relationships with the world when we get caught up in the difficulties of describing the world in definite terms.[2]

The indeterminate character of the world may only rarely be noticed in many everyday life contexts. But in the context of meat and its alternatives, it has become conspicuously present. Even without alternatives, meat is already inherently ambiguous, for example in its concurrent existence as stemming from animals and as an often de-animalized product. Cultured meat is ambiguously both meat and not-meat (Bekker et al., 2017). While on the one hand promoters of cultured meat want to seduce meat-loving consumers by emphasizing that cultured meat is simply meat, they aim on the other hand at a revolutionary and morally beneficial change in its production. "Just meat," the name proposed by *Just*'s CEO Josh Tetrick, subtly contains this ambiguity. Sexton (2016), looking at meat replacers more generally, observes that plant-based meat replacers too are increasingly marketed as "real meat." They too do not challenge the demand for meat but try to satisfy it, by offering something that ambiguously is and is not different: while it is "real meat," it is also "better meat."

The introduction of meat-mimicking alternatives leads to "intertwined ambiguities," as Chiles (2013) puts it in an article that analyses how stakeholders try to disambiguate cultured meat through the application of clear cultural frameworks. Thus, for example, in the framework of "technotopians," cultured meat is a more efficient, ecological and animal friendly improvement over ordinary meat, while in the framework of "green luddites," cultured meat undermines natural ways of living with the environment.

Our focus groups expressed ample ambiguity. First of all, participants asked many questions about relations to meat, such as "Could they also do it with mice?"; "It grows very slowly, actually just like animals?"; "Will it be the same color?" We can see such questions as exploring if or to what extent cultured meat will or will not be meat as we know it. Ambiguities about its "meatiness" were also evident from the remarks about the different possible products we showed. About a hamburger: "This is simply a hamburger," "This is recognizable as meat." But cultured meat from 3D printers looked different: "this is a strange idea, with all those machines, to my mind that's not meat." The magic balls in different colors elicited remarks such as "You should not see this as meat" while others saw it as comparable to exotic types of meat: kangaroo or reindeer.

Ambivalences, ambiguities and uncertainties of cultured meat increased ambiguities of (previously) "normal" meat. Ambivalence about the unnaturalness of cultured meat invariably led to the question how natural normal meat actually is. When people wondered what will be added to cultured meat, this immediately led to the generally shared thought that we don't know that about meat either. Participants mentioned that meat possibly contains growth hormones or antibiotics, that chicken may be water-injected, and that beef may actually be horse meat. Some older people said that meat should not be sold in supermarkets but only by good butchers, who know what it is they are selling. More generally, the strangeness of cultured meat made what previously was thought of as ordinary meat look stranger as well: "Actually it is funny, we find it quite normal to kill animals, after a life that was good or bad, but when we talk about the first stages, when it does not yet have to form or the life force of an animal, then we think it is weird to eat it."

The recurring use of the notion "actually" [*eigenlijk* in Dutch] by our participants is interesting. It refers to underlying twists that can be interpreted as ambivalence, ambiguity, or both. In some cases, it seems clear which is which: "Actually I should eat less meat" points to a normatively ambivalent position toward meat, while "is this actually meat?" refers to ambiguity. But in other cases, uncertain meanings and mixed normativity reinforce each other and become entangled. For example, the question how natural normal meat actually is or uncertainties of what ordinary meat contains ("you don't actually know what is in it") refer to ambiguities connected to a mix of fondness and distrust.

Ambiguity and ambivalence can reinforce each other. When it is unclear what the character of reality is, it is hard to stay of one

[2]It received much emphasis in phenomenology; as Merleau-Ponty (1965) emphasized in *The phenomenology of perception*, we live in embodied relations to the world, and when we try to step back from them, we can notice our ties to the world but we cannot escape to disembodied and definite knowledge; our concepts and the world will remain partially implicit and open to change; we live in a permanent state of ambiguity.

mind toward it. When we are of two minds toward a situation, this may lead us to probe it and question its character. The many ambiguities around animals may serve as an illustration. Consider the man (interviewed by one of us) whose first response to cultured meat was disgust and who then added "but wait a minute; when I think of what it might mean for animals it already looks different." He explained his first response as resulting from an association of cultured meat with GM food and with the widespread "messing around with meat," yet the latter also implicated ordinary meat, after which the thought about what cultured meat might mean for animals added a positive side to cultured meat and a negative side to ordinary meat. This is also what happened in the focus groups: meat without animals is an ambiguous, strange and "as yet undefined ontological object" (Stephens, 2010, p. 400). But on second thought (which we found in many instances to emerge quite quickly) generates positive associations compared to meat from animals, which then, through a reverse process, triggers/increases existing ambivalences about "normal" meat and also makes that look stranger, less normal and less well-defined, physically as well as culturally. An indicator of such unsettlement through entangled ambivalence and ambiguity was also displayed by *The Times*' editorial in response to the presentation of the first cultured meat hamburger in August 2013: "How absurd is it to imagine all our meat 1 day being produced by a similar [tissue culturing] process? Not much more absurd than it is to imagine all our meat continuing to be produced as it is now" (The Times, 2013, p. 24).

After being exposed to the idea of cultured meat, it seems, traditional meat is no longer what it used to be.

Moral identities in relation to meat become unsettled, too; the self that features in the practice of meat eating is no longer obvious, it requires re-interpretation, through the emergence of new questions. Are we henceforth expressing a preference for killing animals when we prefer normal meat over cultured meat? Are we perhaps supporters of big tech companies and ever more artificial food if we prefer cultured meat over ordinary meat? Cultural frameworks may help in disambiguating such complexities, as Chiles suggests, but these frameworks themselves may start to shift. For example, various vegan organizations and activists, traditionally opposed to the use of any animal material, decided to embrace cultured meat because it might eventually help animals. The pig in the backyard-scenario involves a mixture of new technology and traditional ideals. In our focus groups, older people (temporarily) put their normal frameworks between brackets, took new roles as "transition thinkers" and started to contemplate radical changes, which then did not seem so unlikely in view of historical shifts to formerly strange substances, such as margarine, that now appear self-evident and normal, neither ambiguous nor very ambivalent.

We suggest that the entanglement of ambiguity and ambivalence increases the unsettlement of fixed cultural frameworks as well as social and moral identities, thus linking different levels of meaning and valuation that render both morality and reality up for reinterpretation; they become more "fluid." This fluidity, in which "meat" as a product, moral identities and cultural frameworks start drifting in response to each other, conceivably prepares the ground for a transformation of protein practices more broadly.

While consumer surveys tend to ask at some moment in time how willing consumers are to accept the new options and why, our analysis draws attention to the time aspects of the protein transition; it is a process in which people slowly familiarize themselves with new options and need time to sort out uncertain meanings and mixed feelings. One implication is that promising marketing approaches cannot easily be predicted at these early stages or across different groups and food cultures.

CONCLUSIONS AND IMPLICATIONS: MORAL CHANGE BELOW THE SURFACE

We chose a focus group set-up on the basis of the idea that people develop much of their understanding and appreciation of new situations in social settings, siding with John Law's view that focus groups will probably not tell us much about people's individual attitudes. According to Law, focus groups instead tell us about how people "negotiate and make positional arguments in contexts saturated by power relations" (Law et al., 2011, p. 6). Our focus groups primarily told us something else: moral identities were re-arranged in entangled constellations of ambivalence and ambiguity.

As we expected on the basis of previous research, focus groups on cultured meat exposed much ambivalence, not only about cultured meat but even more prominently about traditional meat. We found the ambivalence toward meat to be more pronounced in older people. Though we did not expect this, the focus group discussions contained ample clues for preliminary ways of understanding it. Through their longer life experience, older people in our focus groups expressed more awareness of changes during their lifetimes and—referring to this experience—had a stronger tendency to relativize their present consumption preferences. The strange idea of cultured meat reminded them of earlier products that were strange at first and triggered them to take discussion roles which implied a certain distance, as trend watchers, cultural critics, and transition thinkers. This phenomenon would be something to explore in further studies, as it is relevant for potential marketing strategies of cultured meat as well as for wider transitions associated with climate change that face the persistence of consumer habits.

Reflecting further on these findings, we argued for the recognize ambivalence as well as ambiguity as important elements of moral change. By first distinguishing them we attempted to reconstruct/disentangle their interaction to a certain extent, but their mutual reinforcement ends up creating a situation of "fluidity," or so we suggested. Linking this to the age differences in the focus groups, it looks like older people, on the basis of earlier experiences, are better able to recognize such fluidity both in their experiences and in new substances, and link it to cultural change.

We suggest that the entangled condition of ambivalent subjects grappling with ambiguous objects does not, or not only, point to a failure of persons to make up their minds. Instead, we see it as a basically inevitable condition of moral

reality, which becomes especially important in situations of fast change or radical moral challenge. We are not making up our minds separately from our environments, and when the world is changing around us, morality cannot be reduced to decision making about clearly defined issues, as ongoing changes concerning meat and cultured meat continue to illustrate. While "normal" meat is becoming more unambiguously associated with animal suffering and environmental destruction, the space for dwelling in ambivalence about meat diminishes. And while we may slowly become familiar with meat alternatives, we may start to feel new ambivalences, for example about Silicon Valley tech companies that now seem to be taking control of this field of innovation, with motivations that may well differ from those of the—often vegan—pioneers (Stephens et al., 2019).

Under such conditions, determining what is the object of concern and who we are and what we can or should do in relation to these concerns, requires us to deal with multiple and uncertain meanings as well as with thoroughly mixed appreciations. Acknowledging this process also makes us question the helpfulness of a very clear opposition between active and passive stances, individual and collective identity, the real and mere appearance, true underlying moral selves and superficial behavior. What cultured meat conversations do show is that people, together, can actively relate to these processes of societal change.

How hard it is to separate the individual from the collective was a conspicuous lesson from our focus groups. We saw a potential, or even a desire, for collective moral change of individuals who recognized that their concerns about meat had hardly led them to active individual choices. We are not arguing that this is a morally ideal situation, as it comes with much evasion. A more active acknowledgment of ambivalence would ideally help, as it might lead to more active individual forms of dealing with the tensions, by exploring the options imaginatively, as Rorty (2009, 2014) suggests. For example, when we perceive obstacles to individual change, we might turn our efforts in the direction of collective change—e.g., through supporting hopeful initiatives or voting for change-minded political parties as a more feasible way to take responsibility (cf. Scavenius, 2018). But imaginative forms of practical responsibility would not be the guaranteed effect of acknowledging ambivalence. We might instead get used to it, dwelling in our indecisiveness as an easy way to acknowledge-yet-ignore our moral predicament, or maybe embrace it as the ultimate expression of the complexity or irony of our relations with the world. It is plausible that such acquiescence also stems from the social nature of our identities, which ties us to the groups we belong to. Ellemers (2017), taking a social identity approach to morality, argues that we deeply desire to be moral and that, contrary to the individualistic tendencies in ethics and psychology, this desire is anchored in the groups we belong to. Though group aspects of moral identities and moral change have not been the focus of this paper, we think that the group dynamics of ambivalence and ambiguity are important themes for further study.

Ellemers' consistent finding that morality is a central concern of groups, added to findings that most people see "citizen" values as more important guides than "consumer" values (Berglund and Matti, 2006), strengthens the idea that the hope of our older participants for collective moral solutions is genuine and that their moral worries and hopes are in need of help from outside forces. Our findings therefore have implications that deviate from common views of understanding people's moral lives. Seeing people as consumers who show their real selves through their consumer choices fails to take seriously their concerns below the surface of behavior. Seeing people as moral subjects whose task is to make up their minds about clear alternatives fails to take seriously that societal moral change is a process in which old and new meanings, frameworks and products are drifting in uncertain directions. If we accept that moral identities are important for most people, we need to become more skilled, individually as well as collectively, in dealing imaginatively with entangled ambiguities and ambivalences.

ETHICS STATEMENT

The study was carried out in accordance with the recommendations of the Social Sciences Ethics Committee of Wageningen University, as confirmed by the chair of the Committee. National regulations and institutional guidelines did not require approval from an ethics committee for this research. All the focus group participants gave oral informed consent for anonymous use of the data for research purposes. For the underage students' group (which like the other groups consisted of volunteers), the parents were informed beforehand and given an opt-out option.

AUTHOR CONTRIBUTIONS

CvdW took the lead in the research as well as the writing, but the authors closely collaborated in all phases.

FUNDING

The empirical research informing this paper was funded by the part of the Dutch Ministry of Economic Affairs that is now the Ministry of Agriculture, Nature and Food Quality (LNV). Project number Wageningen University: AQ 2406.

ACKNOWLEDGMENTS

We are grateful to Elske van Dongen and Carleen Laloli for their dedicated and expeditious help with organizing and transcribing the focus groups. We like to thank the participants in our focus groups for their time and willingness to share their ambivalences with us. We thank our contact persons at the ministry of LNV as well as the colleagues in our wider cultured meat projects, for their contributions to a stimulating research context. Thanks also to Koert van Mensvoort and the students of the Next Nature Program at Eindhoven University, especially Mark Kanters, who designed the magic meatballs. And we thank three reviewers for their helpful comments.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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