Ontological Frameworks for Food Utopias

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Abstract. World food production is facing exorbitant challenges like climate change, use of resources, population growth, and dietary changes. These, in turn, raise major ethical and political questions, such as how to uphold the right to adequate nutrition, or the right to enact a gastronomic culture and to preserve the conditions to do so. Proposals for utopic solutions vary from vertical farming and lab meat to diets filled with the most fanciful insects and seaweeds. Common to all proposals is a polarized understanding of food and diets, famously captured by Warren Belasco in the contraposition between *technological fixes* and *anthropological fixes*. According to the first, technology will deliver clean, just, pleasurable, affordable food; future generations will not need to adjust much of their dietary cultures. According to the second, future generations should dramatically change their dietary habits (*what* they eat and *how* they eat it) to achieve a sustainable diet. The two fixes found remarkably distinct perspectives over dietary politics and the ethics of food production and consumption. In this paper we argue that such polarized thinking rests on a misrepresentation of the ontological status of food, which in turn affects the underlying ethical and political issues. Food is a socially constructed object that draws in specific ways on habits, norms, traditions, geographical, and climatic conditions. Although this thesis seems somewhat obvious, its consequences on the ethical and political perspectives on the future of food have not been derived properly. After introducing the issue at stake (§1), we point out the polarities that characterize food utopias (§2) and their ontological faults (§3). We hence suggest that a socio-ontological analysis of food can better deliver the principles for a foundation of food utopias (§4).

Keywords: future of food; food ontology; ethics of dieting

§0. Introduction

The past few decades saw a radical transformation of key ecological aspects of our planet and it is known that food production plays a major role in these changes. Climate change, scarcity and pollution of resources like water and soil, global changes in lifestyle and population growth pose ethical and political challenges to future diets. Nearly all the relevant actors invested in food production agree that, as we look forward, we must deeply rethink human diets.

Proposals for how to fix human diets and make them sustainable abound. Utopic food scenarios vary from vertical farming and lab-grown meat to diets filled with fanciful insects and seaweed. Managing resources in these circumstances does not only mean facing hunger

and malnutrition, different cultures and identities in terms of diet, but also our dependence on the specific conditions that certain habitats impose. A common denominator of the prevalent proposals starts with a polarized understanding of foods and diets. Belasco 2008: 105-123 distinguishes two kinds of approaches to the future of human diets: the technological fix and the anthropological fix. According to the first, technology will deliver clean, just, pleasurable, affordable foods; future generations will not need to adjust much of their dietary cultures. According to the second, future generations should dramatically change their eating habits (what they eat and how they eat it) to achieve a sustainable diet.

We believe that the polarized thinking characterizing current debates about the ethics and politics of food utopias rests on a misrepresentation of the ontological status of food. Technological fixes convey the idea that each food can be food for everyone, since a universal technology can feed humanity in spite of social differences. Anthropological fixes, instead, assume that a universal moral change can save humanity from food crises, regardless of social differences among communities. Both fixes disregard basic ontological aspects of food, which are best appraised when we consider its social status. Food, as we shall argue, is not the same for everyone everywhere and at any time, but it is instead a socially constructed object that draws on habits, norms, traditions, geographical, and climatic conditions. Although this thesis seems obvious, its ontological consequences have not been derived properly.

We maintain that to model effective solutions for sustainable food production and consumption a stronger ontological account of food is needed. After introducing the issue at stake (§1), we point out the polarities that characterize food utopias (§2) and their ontological misrepresentation (§3). We hence provide arguments that should undermine the idea that a food is either a natural or a technological item (§4), since a similar ontological revision could provide a better understanding of contemporary challenges related to the future of food, and therefore enhance their effectiveness.

§1. The Future of Food: Technological and Anthropological Fixes

Any proposal for feeding the planet is shaped on the basis of implicit assumptions about what food is or must be. Within the debate about the future of food, some enduring positions can be found, at least during the last two centuries. Following Belasco, we label such positions the technological fix and the anthropological fix, respectively. These fixes presuppose conceptions of food sometimes so polarized to appear as mutually exclusive. In particular,

some specific polarities seem to be recurrent and form the bedrock for diverging narratives about human diets to come. In this section we outline such polarities.

The technological fix is usually characterized by a Promethean tension and by cornucopian expectations: it is an expression of a faith in cutting-edge technology and in human ingenuity, that will always be able to guarantee a «bigger pie» for everybody (Belasco 2006: IX), disproving any warning about overpopulation and scarcity of resources.

With a focus on demand rather than on resources, letting «the markets work» (Belasco 2008: 115) is the way in which technological fixes make more food and develop substitutes for our diets, even in threatening environmental conditions. Technology is seen as the way out of a damaged environment and of a nature that shows its deficiency. The solution rests in the trust that humans can remake nature, in an ameliorated version[1]. The faith in smart tools is often combined with the belief that humans can control nature (so much so that they can claim intellectual property rights over parts of nature — e.g. as in the especially important case of patents).

When more technology is considered the only way to solve problems — from global hunger to food waste — we are facing the technological fixing scenario. The term was originally intended to indicate the reframing of a social problem as a technological by reducing them to «manageable levels» (Scott 2011: 209).

Two sorts of criticisms can be advanced with regard to technological fixes: a philosophical criticism and a practical criticism (Scott 2011: 210-215). The first maintains that the unforeseen bad outcomes sometimes produced by technological fixes derive from their pattern of problem solving, which goes no further than applying the same approach that created the issue. The solution is, thus, only apparent: a real fix would require a change of paradigm that technological fixes cannot provide. Technological fixes tacitly imply an idea of progressive and cumulative knowledge, according to which social progress is inherent in any scientific or technological advancement. The predictive power of science is idealized, as well as its capacity of control over nature. The philosophical criticism challenges the dominant uncritical commitments to techno-scientific progress as the only way to solve our problems. However, we should not confuse this criticism with a more generic anti-scientific attitude: the criticism specifically refuses to «dismissively label innovation as mere technological fixes», recognizing our «social bias in favor of technology» (Scott 2011: 208).

[1] And this, to some, would even increase biodiversity on Earth (see Borghini 2019).

The practical criticism, instead, rests on three convictions: (i) technological fixes tend not to solve problems; rather, (ii) they create new problems, while (iii) preserving and extending the life of systems «that should be abandoned in favor of better alternatives» (Scott 2011: 215). Even when data suggest the success of a technology, the criteria for defining success strongly influence the verdict. Usually, the narrower is the framing of the problem, the greater the technological success will be; the triumph, however, would fade away on a wider or long term perspective. Looking back at the Green Revolution of 1950s and 1960s can offer a good example of the three convictions of the practical criticism. The so called revolution was hailed as an epochal change in agriculture, involving also developing economies and confirming the leading role of scientific research in solving problems related to food production. Undoubtedly, the Green Revolution ended up increasing world food production; however, (i) it did not solve the problem of hunger, but simply relocated and delayed it, while (ii) generating new social and environmental negative outcomes. Moreover, (iii) the Green Revolution could not by itself solve the problem of hunger because it re-proposed the same structural system in which it arose, just with an improved technology.

Another notable example of technological fixes is vertical farming, i.e., high tech greenhouses stacked up into skyscrapers, where food — but also drugs and fuel — grow into a controlled environment artificially providing heat, water, and light. The example illustrates how major environmental issues caused by industrial agriculture are approached as «a matter of biology«» (Pollan 2008: 8) rather than culture or politics. In the vertical farming utopia, horizontal farming is depicted as an obsolete, dangerous practice that urges for a smart revolutionary turn: typical of technological fixes is a vision of nature as insufficient, dangerous, a variable to control, or even dominate (Belasco 2008: 115). In this vision, food (like everything man-made) is artificial. It can always be ameliorated, in order to embody seemingly mutually exclusive properties: it can be tasty, convenient, and healthy for the consumer and for the planet at once.

Techno-cornucopian utopias are criticized for being a manifestation of hybris by the advocates of the other sort of fixes, the anthropological ones. Anthropological fixes aim to change economic and social structures through the adoption of different values and ambitions by consumers and producers.

When it comes to dining, anthropological fixes carried forward certain beliefs regarding food economics, the nature of food, and food culture. For food economics, the fixes rest on the acceptance of the true cost of food, alongside the rejection of a global food system built on cheapness, in which the pursuit of discounted food to feed the world rests on certain

desirable outputs (e.g. more calories for everybody, regardless of how and where they are produced). With respect to the nature of food, the fixes rest on the rejection of the ideal of a perfect produce, which only a standardization of biological features can guarantee. Finally, when it comes to food culture, fixes demand the willingness to devote time and energy to being a conscious consumer, alongside the willingness to live with fewer choices, such as seasonal and local food only. Thus, anthropological fixes aspire to solve our conflictual dietary demands at the level of consciousness.

One powerful example of how the technological and the anthropological fixes differ in their framing of food challenges is the dietary shift currently taking place at the global level. In recent years, urbanization has qualitatively altered food consumption patterns: higher urban incomes of newly industrialized countries fuelled a dietary transition from starchy staples to vegetable oils, fruits and vegetables, stimulants, and — most importantly — animal proteins (FAO 2017). How to address the environmental costs of meat consumption and the feed-to-food conversion efficiency? On the one hand, anthropological fixes promote a mostly plant based diet and more awareness in consumers' purchasing; on the other, technological fixes promote scientific research on laboratory produced meat, with the technique of cell cultures, or hybrid rice grown with diluted seawater, even in desertic soil.

Technological and anthropological fixes showcase a more general characteristic of the ways in which the future of food is typically conceived, namely a sort of polarized thinking. In the next section, we go deeper in the analysis of polarized thinking and its underlying ontological assumptions.

§2. Ontological Shortcomings

The previous section introduced the polarities through which we conceptualize food. What separates food from the rest of edible things — is it just a matter of nutritional values or does it depend on culture? Is food the primal way to experience nature or an example of human's artifact?

A polarized understanding of food is prima facie a fitting explanatory lens of the challenges to future human diets. Yet, we maintain, at a closer analysis it is a distorting lens, which caused and still causes much trouble. To start illustrating the problem, consider the suggestion to make insects a major staple for all humans. Focusing on insects to meet the protein needs of a growing population is considered a sustainable foodways, to be contrasted with the ecological wastefulness of meat production. If considered as a change of dietary habits, like the replacement of the Western aversion towards entomophagy (Looy et al. 2013)

with the adoption and creation of recipes involving insects, it is an anthropological fix. However, many see in insects only a nutritional value, and have thus proposed to change their shape and aesthetics — e.g. turning them into flour — as well as the technology used to grow them. In these cases, we have an approach akin to a technological fix, which tries to solve a problem — sustainable proteins production — without focusing on its origin. Consuming insects would not really entail *change* in our diet and in our ethics of dieting because the real change would be hidden from the eyes of the consumers, confined to the label as a novel ingredient but not challenging their menus and more broadly, their food ontologies. Parallel considerations apply to imitation foods such as impossible meats, namely meat made of vegetables that imitate the flavor, taste, and consistency of meat. So, is eating insects an anthropological or a technological fix? Is it both? But, if so, what is the difference between the two poles?

The peculiar role that food plays in our everyday life makes it a distinctive entity, whose understanding confronts conundrums and contrasts. The mostly stressed oppositions see food as either nutrition or culture, or as either a natural or an artificial entity. But, actually, siding with any of these opposing categories — although seemingly justifiable — yields a misleading picture of the subject matter.

On one hand, food is nutrition when conceived as a basic needs, a substance with objective quantifiable properties necessary to sustain life. In an even narrower sense, food is the fuel for our bodies. On the other hand, food is culture when it is considered a symbol, an expression of collective and individual identity, which is value-laden. In this sense, food is also something normative, because we divide up the world into food categories that follow social norms. Thus, for instance, the predicate "being food" applies to certain entities, but not to others. For instance, we tell apart good food from bad food and we can associate certain foods to specific groups of people more generally, specific foods historically comprise culinary cultures, which we can organize into gastro-nomies, namely systems of dining norms (Fischler 1979).

Imagining the future of food, the advocates of the technological fix tend to think about food in the nutritional dimension only. They focus on yields, production per acre, minimal caloric requirement, framing the problem of feeding the world in terms of input and output. The fixes to hunger and malnutrition are delegated to the quest for innovations, such as growing rice with salty water or salad without sunlight, producing meat in laboratory, or thickening food with cricket's powder. Technological fixes value food for its basic function

neglecting the fact that it always «overflows with symbolic significance» (Mintz 2002: 28). Given that food is its nutrient components, it can be broken down and re-made.

Conversely, anthropological fixes by and large privilege the cultural dimension of food. The major criticism that can be moved towards them is the charge of naturalistic fallacy, namely the assumption that what is natural is good. Anthropological fixes start with the accusation that techno-fixes generate food that is dangerous because in some sense it is artificial, like so called *frankenfoods* (genetically engineered foods). Anthropological fixes aim to change people's behaviour by insisting on the importance of choosing foods that are unspoiled, simple, and — ultimately — natural. It is not clear, however, what naturalness really means and it can be cunningly twisted in multiple ways (Siipi 2008, Sagoff 2001, Miller 2017).

The most frequent usage of the concept of natural applied to food comprehends two contrary positions, both treating naturalness as an «all-or-nothing affair» (Siipi 2008). (i) Nature is the totality of things — since everything depends on the laws and principles that govern this totality, everything is natural. Artificial food is therefore super-natural: since it follows nature's own method, it can be considered a regular development of what is natural (Sagoff 2001). (ii) Nature is what is independent from human influence: today there is nothing truly natural or pristine. Everything is connected to humans' activity and, therefore, is artificial. Other interpretations consider (un)naturalness as a continuous gradient (Siipi 2008), valuing something as more natural as it is more independent from cultural action and human influence — or more spontaneous than something else. Food can be also considered natural when it shares properties with something that is considered natural by itself, because of its history or its normality (statistical or functional). A tomato engineered in a biotech laboratory could appear natural or unnatural depending on the conception of naturalness taken into consideration: whether what counts is its origin — the lab or the organic farm? — or its properties — are its genes identical to those of the organic tomato? — we will end with different judgements.

Given the different conceptions of naturalness, the same food can be regarded as natural or not depending on the context. The upshot is that the natural/artificial polarity cannot be easily trusted upon to characterize food, because in the absence of lengthy and subtle specifications it is vague to the point of being meaningless. Therefore, the anthropological fix fails when it polarizes (and moralizes) the understanding of food between the poles artificial/natural.

Thinking of our future dietary options in terms of oppositions delivers, thus, scenarios that misunderstand constitutive aspects of food ontologies . Models regarding food as, e.g., a nutrient (technological fix) or as an element of nature (anthropological fix) are bound to propagate dietary sufferance and food injustice. In the next section we illustrate some of those negative consequences, while offering some principles that would deliver a non-polarized model of food ontologies.

§3. Towards an Ontological Foundation of Future Diets: The Social View of Food

To amend the errors embedded in a polarized conception of food we are in need of a clearer ontological model of a dietary scenario. In this section, we outline important ideas and principles that, according to us, shall comprise such a model. We call our view the Social View of Food. To present it, we shall first introduce a different yet related perspective, which we label the Sustenance View of Food.

According to the Sustenance View, food is independent of any sort of social reality, e.g. a group, a norm, or an institution. Whatever theory of social entities we buy into, and however we look at social entities, food's features — e.g. its nutritional value, its flavour and taste — are set up neither by a social act, such as an agreement, nor by people that have a social bearing with it, e.g., communities that can confer a special status to a given object. On the Sustenance View rest a great deal of our ontological models of food, e.g. all those models that see food only as a bearer of nutrients.

Key to our intended model of food is that the Social View is not built in opposition to the Sustenance View; rather, the former complements the latter. As we already remarked, boundaries between natural and non-natural features are context-sensitive and conceptually blurry. Building upon this, the Social View consider food as a mixture of natural *as well as* social features. With social feature we intend a feature that stems from a social relation (Lewis 1969; Searle 1995, 2010; Gilbert 2013; Epstein 2018), that is a relation among (typically human) agents that depends upon their individual and collective intentionality.[2] Typical cases of social relations include norms (e.g. behavioural, linguistic, legal) and practices, such as making a dish and registering its recipe.

To bring water to and further illustrate the Social View of Food we shall proceed *by absurdum*, supposing that, contrary to what the Social View claims, food is generated independently of collective intentionality. If that would indeed be the case, then either food

[2] What is collective intentionality is disputed, for an introductory survey see Epstein 2018.

would have a private foundation (call this the Private View of Food) or it would have a natural origin (call this the Natural Origin View of Food). These two views are not equivalent. The Natural Origin, but not the Private view, requires that the entity in question satisfies an independent natural standard. According to the Private View, instead, an entity is food even in case it cannot be eaten by anyone but the actual diner. Thus, according to the Private View, something is a food if it has at least one human or non-human diner. According to the Natural Origin View, something is food *by its own nature*, e.g., if a plant discovered by a spacecraft on a different planet would satisfy a standard of edibility with respect to nutrients, texture, temperature, size, etc. it would count as food, even though no one actually ever ate it. Under both scenarios, collective intentionality would play no causal or metaphysical role in characterizing some entity as food and, thus, food would not count as a social entity[3].

Both the Natural Origin View and the Private View face substantial challenges. Let us consider those regarding the Private View first. In the case in which an entity is food if it has a private foundation, every possible entity could count as food. The only required condition would be that *someone* is eating or could/did/will eat such entity. So, even a stone could be a food for a human diner, e.g., consider the documented cases of litophagia. Or, perhaps more strikingly, confusing, when a human being would unwillingly eat an unusually poisonous entity, that would count as food. If so, either we concede that everything could be food as long as it has or had/will/could have at least a diner, or we drop out this interpretation.

The Private View, thus, takes into account individual agency, but fails to consider individual biological needs in terms of nutrition and safety. Can the Social View do any better? Could the same counterexamples used against the Private View be used against the Social View? Clearly, we could imagine an entire community conferring the status of food to a poisonous entity.

In answer to these worries, one may hold the prescriptive principle that a community shall never allow that, for once it has been established that an entity is poisonous, the community shall rule out such entity as a food since it would jeopardise the survival of the community itself. Such a principle has been observed also as a matter of fact. Typically, communities try to remove poisonous entities from future diets (Korthals 2002; Winne 2005), also in keeping with the constitutive rule that diets shall not foreclose the possibility of the

[3] This does not entail that foods are not among the constituents of social entities, e.g., dinners, parties, and so on, but that they are at most non-social constituents of such entities.

community to perdure across time, as Redfield (1960: 4) argued[4]. Thus, unlike the Private View, the Social View could argue against taking nutritionally useless, harmful or poisonous entities as food, since it admits the crucial role of food for the survival of the community[5].

Let us now move to consider the Natural Origin View. At first sight, this view is free from the counterexample we just examined: it rules out the possibility of poisonous food since it relies on the existence of a natural standard that dictates what counts as a food. Accordingly, a food is not generated by a collective or a private intention toward a specific entity. Rather, there would exist a set of features that an entity should hold in order to be a food. Clearly, a poisonous entity would be left out, for it cannot meet even the minimal requirements. Yet, what are such minimal requirements? As J. M. Burdick 2014: 2097 puts it a food is «any substance consumed which provides nutritional support for the body» and produced by means of certain procedures. Also the FAO, in defining "food security", stresses the nutritional function of food in terms of energy for an active and healthy life, recognizing also the food preferences of the diners. Accordingly, food is an object whose properties align human needs of energy and preferences.

Although on the surface it appears to be a good candidate to set the natural standard of food, FAO's definition is inadequate in many ways — as others pointed out[6]. Accordingly, we contend that such definition falls short to deliver a right characterization of food for there is not a universal standard of nutrition independent of social relations. Indeed, a universal standard of nutrition is supposed to meet the needs of each person only on the basis of their own physiological conditions, independently of their (1) social activities, (2) gender, (3) socio-economic conditions. Instead, nutritional needs are strongly affected by each of those social aspects. We are not disputing that there are nutritional standards, nor that physiological conditions do not contribute to establishing them. We are rather arguing that even though a food can be defined as an entity that meets a nutritional standard, such standard is settled by

[4] For more about the definition of community and its relatedness with persistence over time see, *inter alia*, Rapport (2002: 173-177).

[5] The Social View may seem not to take into account individual preferences and less healthful preferences. On the contrary, it is a perfect match to them. An enough diversified community would encourage diversified preferences among people and inner social groups. Preferences are at least partially socially constructed (Fischler 1988; Kosmeyer 1999: 89-94), namely individual preferences and the preferences of the group one belongs to usually align well. With regard to less healthful preference, even those can be explained in terms of social practices, such as the social identification with a group, the reaction to social exclusion, price, and so on (Chen 2016). The Social View does not devalue the physiological import of choosing food, it supplements it with a social framework.

[6] See, among them, Pogge (2016) who argues that FAO definition fails to meet environmental and social condition in which food is eaten and, overall, it devalues the biological needs other than energy.

physiological properties as well as by social relations. Let us motivate our view by illustrating how the three social aspects aforementioned affect such standard.

(1) Social activities. The nutritional needs of an individual rely on her activities and lifestyle. As Pogge (2016: 11) points out, a sedentary lifestyle demands nearly 1800 daily kcal, whereas a homeworker daily need is far greater. Pogge shows that by an easy experiment: his calories consumption when he goes to the gym is 600 kcal in a 60-minute workout, and hence he concludes that «workers working merely half as hard as I do in the gym, and this for merely 6 hours per day, thus burn an extra 1800 kcal per day over and above the sedentary minimum». Hence, social activities affect the natural standard. So, it cannot be considered a pure natural standard.

(2) Gender. A universal standard of nutrition fails to grant how and how much the standard itself is affected by bias regarding one's gender. When each gender is supposed to have a constant natural standard of nutrition due exclusively to the physiological properties of its members, the risk to naturalize cultural factors is high. Studying gender differences in food choices highlights that the kind and quantity of nutrients humans introduce is far from being just a matter of sustenance, but is rather expression of a «complex human behaviour […] influenced by many interrelating factors ranging from biological mechanism and genetic profiles to social and cultural factors» (Argarini et al. 2012: 84). For instance, within the post-industrialized countries, the female standard of nutrition is affected by what Isaacs calls «thinspiration», i.e., the inspiration to be thin and to lose constantly weight, spread by popular media. Such standard, Isaacs (2018: 576) contends, «divert(s) women's energy away from participating equally in their private, social, and public lives». Hence, the natural standard of nutrition is affected by discriminatory account of gender. Once again, it cannot be considered a pure natural standard.

(3) Socio-economic conditions. Such conditions deeply sways a number of aspects of food. For instance, convenience is taken to be one of the prominent features of deciding on which food to produce, buy, and consume (Thompson 2010: 31-36). Nevertheless, there should be a basic natural nutritional need which is the same for all human beings. Those who endorse the universality of nutritional needs may allow that the nutritional needs partly depend on what a person wants to do with her life — the so called wants-needs dynamic (Hamilton 2003: 67-68). An athlete has different nutritional needs than a person who leads a sedentary life. Nevertheless, both the athlete and the sedentary person have the same basic nutritional needs to sustain life. Prima facie, there is a common vital basic nutritional need that does not draw on socio-economic conditions, but that is determined only by

physiological conditions. Despite appearances, socio-economic conditions affect the nutritional needs in unexpected ways. They indeed contribute to define specific locations of consumption and specific personal nutritional needs.

Regarding the location, as Pogge (2016: 10-11) points out, people with scarce food resources in less economically industrious countries suffer often of iodine-deficiency, which prevents intellectual development and physical growth. Iodine turns out to be redundant or useless in order to sustain life in an empty space, since there are no particular behaviours to be performed there. In a complex space, instead, iodine is fundamental to sustain life[7]. Hence, at least partially, the nutritional needs are derived from the location in which a life is lived.

Nutritional needs are affected by socio-economic status too and cannot be standardized according to an abstract set of nutrients that each person should introject. For instance, a person who follows a plant-based diet needs less calcium than omnivorous people, since the need of calcium increases with protein intake (Rossi and Garner 2016). Hence, nutritional needs are partly necessitated by the choice of a diet. They also vary according to the absorption capacity of each person: a person who absorbs better and more nutrients has different nutritional needs than a person who absorbs worse and less nutrients from the same food. Factors that can undertake nutrient absorption could be also social ones: some people absorb less nutrients from food for they are infected by parasites that can consume up to 33% of the nutrients a person can ingest (Pogge 2016:11).

Thus, it is impossible to define a natural standard of nutrition, for nutritional needs are always influenced by social aspects[8].

§3.1 A Food's Identity Depends on Its Diners

We shall now proceed by considering some apparent advantages of the Sustenance View over the Social View, and rebutting each of them we are offering a positive picture of the Social View.

The first apparent advantage is that the Sustenance View is more in keeping with our ordinary creed that foods are mind-independent entities (Thomasson 2003; Elder 2014). That is, social entities always need human beings who believe in their existence (Searle 1995, 2007; Thomasson 2007), whereas food does not. Consider a world inhabited by unconscious human beings permanently asleep in a vat and fed by a drip. Such a world would be devoid of

[7] It can be generalized to each nutrient.

[8] A different route of argument for the same conclusion would start not from the food, but rather from the diner's desire to introject food (cfr. Borghini 2016). Such a line of argument is, however, less explored and we shall leave it for another occasion.

social entities, such as institutions, contracts, parties, societies. And yet, there would be food in this world, that is the substance contained in the drips[9]. So we have a counterexample to the thesis that food is a social entity, as maintained by the Social View.

We will contend that the alleged counterexample relies on a misconception of what a food is. This misconception draws on the very widespread creed that containing nutrients is a necessary and a sufficient condition to be a food. Hence, we have two claims to discuss: every nutritious entity is a food and every food is a nutritious entity.

Not every nutritious entity is a food. In order to be food, an entity must meet several other constraints: size (it cannot be too big, e.g., a planet); temperature (it cannot be too cold or too hot, above or below the human range of tolerance); consistency (it cannot be too hard, e.g., a stone); absence of poisonous elements (it cannot give sudden death, e.g., a poisonous apple). Consider a roast dog. It holds all the nutrients a human being can need as well as it complies with all the other constraints. Nonetheless, a roast dog is not a food for most people, but it is or has been for others. Thus, what is food depends on a human being's mindset, which is shaped by its social interactions.

Not every food is nutritious. The host usually eaten at Catholic mass cannot be any longer considered a food both for its quantity — it weighs 0,5 g — and for its nutrients — it holds only 0,2 kcal. Nevertheless, it is a paradigmatic food for Catholic believers. Thus, to be a food for a host is to be recognized as a food by the believers. Other entities that we consider edible while lacking nutritional value include vitamin supplements (and other drugs), spices, and chewing gums. Spices and chewing gums typically do not add nutritional value, although they can largely influence consumption. They are, nonetheless, typically found in food stores and serve to characterize culinary cultures and eating habits. Vitamin supplements, on the other hand, exemplify the blurry line between foods and drugs. They count as breakfast items in several countries (and they provide nutrients); but, they do not provide the characteristic sensory stimulation associated with food, especially with respect to smell and taste.

Hence, some tasty yet non-nutritious items are regarded as foods, while some nutritious items are regarded as non-foods Such conclusion entails as corollary that food is something over and above its nutrients, and although we are not arguing that nutritional value

[9] The mental experiment of human beings artificially fed by a drip could be ruled out by who does not see it as a possible option. In this case, there would be even more reasons to endorse the view that nutrients are neither sufficient, nor necessary in order for something to be a food.

does not matter we maintain that such over and above is constituted by its social status[10] and that is not possible to eliminate it while considering what food is. Food is somehow always dependent on human agency.

§3.3 A Food's Identity Depends on Its Function

The second apparent advantage of the Sustenance View over the Social View is that social entities do not have any function whatsoever independently of an assignment of function by a human being (Millikan 1999: 205; Thomasson 2007; Searle 2007), whereas foods do have a function independently of any assignment. For instance, an agreement's termination clauses have the function of putting an end to the agreement under certain circumstances. Food has the function to feed a diner whether she wants it or not, and whether she knows it or not.

As Searle (1995: 124, 2010: 8) points out, any function depends on a human beings' assignment. According to him, the function of an entity is to reach a predetermined aim settled by human beings. We can understand the function of an entity only once an assignment is settled and we know what assignment has been given. In the food case, the consumption of food causes the production of energy that sustains life. Food, thus, is functional to sustain life. The fact that life is valuable fits very well with our intuitions. However, at a closer scrutiny the fact that life is valuable arises within a normative background, which is not the same for everyone at every time. At face value, food can be considered as having a useful function only once we endorse the thesis that life is valuable. Otherwise, food turns out to be dysfunctional: in the case in which we thought that death is the best option for us toxic items would be the functional ones. Hence, the function of an entity cannot be evaluated unless its aim is settled and without knowing which aim has to be achieved.

Furthermore, a functional assignment is necessary for building a food ranking that ranges from the worst to the best food. There is a ranking for each possible functional assignment, besides nutrition: gustatory pleasure (Korsmeyer 1999: 130); religious observance; celebration; assertion of values and principles; fostering of unity within a group; communication of care and love; exercise in civilization, style, elegance or luxury; artistic expression (Telfer 1996: 37-38).

[10] Another possible answer would be 'taste', namely for an object counts as a food is to be tasty. The philosophical analysis of taste and it role in defining what food is, is beyond the aim of the paper. See Korsmeyer (1999: 90) who strongly argued that even taste is socially constructed from physical and physiological facts.

Hence, in spite of the apparent natural function of food, even this aspect is socially constructed and depends on human beings.

§3.4 A Food's Identity Depends on Its Location

The third apparent advantage of the Sustenance View over the Social View is that social entities are necessarily partly mentalistically generated (Locke 1690; Pettit 1993; List and Pettit 2002), whereas foods can be materially generated in their entirety. Hence, social entities' locations are partly in human minds[11] and partly in the external world. Clearly, foods as well may be artifactual objects, i.e. objects intentionally made by human beings in order to reach an aim (Hilpinen 2011), but this is not a matter of necessity. Some foods are spontaneously generated in their entirety, without any human effort, like wild edible plants grow on the land and edible animals are born from other edible animals. Unlike social entities, which are always brought into existence by human minds out of physical reality, foods are wholly located in the external world regardless of any human act.

Despite its seeming palatable, this position turns out to be false. There are at least two reasons for resisting it.

First, as we argue in §3.3, in order to be a food something has to be given a function by human beings: a wild fruit has to be harvested and an animal has to be hunted in order to be eaten; thus, there must be a preliminary function assignment by human beings. Yet, of course, one can rebut that sometimes such acts are not carried out intentionally; so, there is no agency, simply physical action. Hence, these acts are ultimately located in the external world.

However — and this is the second reason — not every social entity explicitly arises within a human mind. That is, some facts seem to be wholly located in the external world, when instead they are partly located in the human mind. Consider an economic crisis: typically, it is not intentionally generated by human beings; moreover, it does not retain two allegedly essential features of social entities: epistemic privileged access (the full knowledge of the entity) and ontological control (the power of creating and destroying the entity). Human beings cannot usually predict an economic crisis and, even less, they can bring it to an end by, say, a mental act. Despite this, economic crises are arguably partly located in human minds. As Tuomela (2003: 129) and Thomasson (2009: 549) put it, there are some kinds of social entities that are not directly generated by human beings, but nevertheless presuppose for their existence some social entities. In the case of an economic crisis, many

[11] We are not taking a stance on the existence of an object such a 'mind'. We are employing here this term just to label the internal world of human beings made of beliefs, thoughts, intentions, desires.

social entities are presupposed, such as banks, currencies, transactions, employers, clients, and so on.

When we consider a food that is allegedly spontaneous, the existence of many social entities is constitutive of its being a food. Just to mention a few: background knowledge, capabilities, values, desires, preferences, tools, and manners. Let us just address here what Korthals calls *food capabilities*. According to him, «food capabilities consist of critically understanding food information, assessing normatively the way food is produced and exploring taste components of food. Youngsters have to learn them, and later on as adults to maintain them and update them» (2017: 420). That is, an overture towards the ontological foundation of food: knowledge of what is a food and what is not, which is appraised from elder community members; knowledge of the production process (direct, as in the case of a picked fruit, or indirect, as in the case of the fruits one can buy). Hence, even in most exotic and weird cases of feeding, there is a social, yet hidden, component to food. Therefore, each food is partly mentalistically generated.

§3.5 A Food's Identity Depends on Its Community

The fourth apparent advantage of the Sustenance View over the Social View is that social entities can vary from one community to another, whereas foods are by and large invariant across communities. Social practices overwhelmingly are made by and made for a specific community, and every other community would accept or would not accept (and employ) — think for example at polygamy. However, even those willing to grant that culture sways or shapes foods' consumption and production and the other way around, should agree in saying that unless there are physiological illnesses or diseases, each food can be consumed and produced by anyone regardless of her community.

We shall argue that this view is misguided for two reasons: food is relative to a community like any other social entity is; food influences so much human beings that the members of a community cannot eat whatever food they want for physiological reasons. Let us see them in order.

§3.5.1 Hungry Communities

A straightforward survey will show us that that each community has its own food and its own idiosyncrasies[12]. We shall not address here for what reasons such differences arose and still

[12] Just consider the Ḥarām food for muslims and likewise the Kasherùt for Jews.

persist nowadays[13]. We just take them for granted, as well as each community has its own institutions, conventions, moral and aesthetic values, and so on.

As it turns out, political concerns on food are mainly about abolishing hunger regardless preserving food diversity, e.g, FAO 2030 Agenda for Sustainable Development. Even the philosophical mainstream concerns on food focus on hunger. For instance, Thompson (2015: 106-129) famously maintains that hunger is the main ethical problem about food. Thus, solving the problem of food is solving the problem of hunger, in any way we can, regardless of culture, religions, institutions, and so on. Accordingly, feeding people is not tied to the culture of the people that demand food. Indeed, to impose a diet[14] in order to wipe out hunger seems less morally questionable than imposing a religion. Since a diet can be imposed on people regardless of their culture which is a social entity, then food is not a social entity. At least, the social value of food is less important than the social value of, say, religion. The underlying assumption is that everyone can eat whatever food is given to her, since the social import of food, if any, is not constitutive of its being a food.

In order to undermine this claim, let us begin with a story.

You get caught by a tribe whose members practice cannibalism. They keep you imprisoned for a week without feeding you. After a week you are left with a choice: you can either eat as much as you want of a roasted human being or you can eat an apple while also disowning the most meaningful faith you have (be it political, religious, metaphysical, or other). What is your decision?

Perhaps you decide to eat the apple and disown a fundamental faith of yours since eating a human being would make you a cannibal. But, no one can be sure about human behaviour when it is challenged by extreme hunger. History has proven that during peculiar and harsh circumstances, what could not be counted as food has become that. The fact that even human beings can be food strengthens the thesis that what is food is a social construction. Normally we do not look at everything edible as if it were food — other humans, but also dogs and insects, depending on our culture — because to be edible is not

[13] The specific dietary guidelines of each community can be explained in many ways: public health explanations, divinely inspiration, ecological and economic reasons, and so on. See Harris 2013: 59-72.

[14] A reviewer notes that diet are not usually imposed. However, a brief survey of the literature on the politics of diet and gender (Isaacs 2018; Portman 2018), the treatment of indigenous population (Claeys 2018), the public representation of alternative dietary guidelines (Korthals 2012), shows us that the diets have been imposed by the social dominant group for a number of reasons, including keeping women under control, enslaving and exploiting non-Western communities, and settling the demand on the market.

enough. The social import of food matters to us, as much as any other social entity, or perhaps even more. Not everything could be a food for everyone and this is due to social reasons. Extreme conditions, in which social norms are weakened or lost, can temporarily alter how we look at the edible environment, broadening our choices. Moreover, in those conditions the very social import of food becomes clearer. As Szymanski points out, when food is absent it can be more present than ever, like for the women in the Terezin concentration camp, who used to «cook with the mouth», verbalizing and writing recipes that perhaps they would never cook again during their night-time gatherings. Food allowed them to «develop a sense of the self» (Szymanski 2017: 13) even if it was not physically present.

§3.5.2 The Social Metabolism

The last reason for endorsing that food is a social entity is a biological one. We shall argue that our metabolism is influenced by our social habits much more than we are willing to admit. We take here just one case among many, lactose intolerance and cheese consumption.

Many cuisines in Asia, Africa, and the Americas do not employ cheese and they emerged out of communities that did not develop dairying. Notoriously, populations who adopted such cuisines were also lactose intolerant. According to a survey by Silanikove et al. 2015 among groups of adults, 95% of Chinese, 89% of Africans Bantu, 100% of Native Americans suffer lactose intolerance, whereas the percentage is significantly smaller among Europeans, e.g., 1% of Dutch, 19% of central Italians, 4% Europeans in Australia. According to the authors, the reason of the tolerance among Europeans is to be found also in the environmental conditions and the cultural choices of early farmers. The authors hold that «the spread of dairying in certain populations were genetic niche constructions, derived from a mutation in the lactase gene enabling the digestion of lactose by adult human» (Silanikove et al. 2015: 7315). Such genetic niche construction — they maintain — is linked to the animal husbandry-cultural traits and it should be understood as gene-culture co-evolution in the human-animal relationship, through the advent of agriculture. They point out that the need of lactose-forced human organisms to mutate their genetic structure by means of a cultural and social adaptation.

The example of lactose intolerance shows the co-variance of genes and social entities. Of course, we are not arguing that all genetic variation may be explained in those terms. Our point is that what human populations can metabolize depends at least in part also on characteristics related to their societies; thus, foods cannot be defined independently of social entities, rather social entities are constitutive of the identity of foods.

§4. Conclusions

The future of eating has become a global interest due to the growing awareness about the peculiar position of food production in relation to natural systems' stability. Feeding more than 9 billion people is a problem which urges answers, and the most different have been given, calling into question antithetical views of humankind, nature, and progress.

Despite a startling number of suggestions for how to feed humans in the near future, neither a convincing solution nor a sound method to diagnose the challenges have been secured. Our research goal is to frame the debate on the future of food by developing a systematic model representing the very entities we consume; this paper covers the initial steps of such a research. If the analysis we offer is correct, proposed solutions for future human diets are lacking in terms of their ontological understanding of what food is. We outline an ontological framework sustaining the intuition that food is not a mere natural entity or a commonplace cultural product, but a sui generis social entity. Especially for food utopias that rest on automation and new technologies of production, distribution and consumption, it is crucial to provide an ontology that enriches our comprehension of food, rather than one that aims to reduce it. But also the view that a global moral change can solve our food challenges is typically ill-founded, because it fails to appreciate the complex dependence of foods from the biological and cultural environments in which they are developed and consumed. It is our conviction that the specific ontological nuances that make food what it is must be taken into consideration by everyone interested in the development of a sustainable global food system.

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