From Philosophy to Ontology: Rethinking Food Concepts

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Abstract

In this paper we present philosophical methods and perspectives that we designed to improve extant food ontologies or to develop future ones. The scope of our inquiry covers the space where folk food ontologies inspired by common sense interact with scientific ones in shaping individual and collective representation of the food domain and in which the defectiveness of food concepts—i.e., their failure in providing proper representations—reveals a plural, sometimes conflicting, ontological layout. To solve such conflicts and clarify those representations, we build conceptual frameworks that extend (and sometimes also revise) everyday usage and practices. Food ontology, in this sense, should be understood as the study of everyday, legal, and scientific taxonomies and more or less formal classificatory practices, in order to facilitate the negotiation among different positions. In this paper we show our approach to conceptual clarification of the food domain by offering three examples of philosophical analysis, placed at different levels of generality: "what is food?"; the four dimensions of food concepts; the analysis of "eating local."

Keywords

philosophy, food ontology, conceptual maps, Culinary Mind

1. Introduction

Recent years saw a growing interest in the philosophy of food as witnessed by an increasing up-to-date literature [1, 2, 3, 4, 5]. In this paper we present philosophical methods and perspectives that we designed to improve extant food ontologies or to develop future ones. Our work grew in collaboration with colleagues from the research center Culinary Mind, based at the University of Milan, which promotes original philosophical thinking on food.

To begin with, we should place our approach methodologically. The scope of our inquiry covers the space where folk food ontologies inspired by common sense interact with scientific ones in shaping individual and collective representation of the food domain. We start with everyday situations (including those related to legal and normative aspects) in which the defectiveness of food concepts—i.e., their failure in providing proper representations—reveals a plural, sometimes conflicting, ontological layout. For instance, what is wild food depends on how we classify foods and, often, different perspectives, say a western approach to wilderness

IFOW 2021: 2nd Integrated Food Ontology Workshop, held at JOWO 2021: Episode VII The Bolzano Summer of Knowledge, September 11-18, 2021, Bolzano, Italy
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as opposed to an indigenous one, end up in a dispute or, when awkwardly combined, in misrepresentations [6]. To solve such conflicts and clarify those representations, we build conceptual frameworks that extend (and sometimes also revise) everyday usage and practices. Food ontology, in this sense, should be understood as the study of everyday, legal, and scientific taxonomies and more or less formal classificatory practices, in order to facilitate the negotiation among different positions. We contend that aside from natural groupings, following chemical properties or biological taxa, there are other kinds of classifications able to affect the social and cultural status of food and eating that need to be investigated. This interplay between culinary, cultural, commercial, biological, nutritional, and ontogenetic taxonomies when it comes to food is of paramount importance for better understanding our food and eating practices as well as for providing more inclusive models.

Our approach crucially relies on the conceptual tools proper of social ontology [7], analytic metaphysics [8], and conceptual engineering [9]. By 'ontology' here we refer to that branch of philosophy that studies the interaction between language, practice, and reality e.g. [10], sometimes referred to also as 'philosophical ontology' [11]. It deals with the more general and foundational philosophical issues, asking for what exists and how exists what exists [12], i.e., what are particular entities, properties, and relations within a specific domain, how things persist across time, and possible scenarios. These ontological investigations have covered disparate topics, from reality in itself, also as conceived by special sciences, such as physics [13] and biology [14]; to the social world and its categories, e.g., money, institutions, genders, norms [15].

Why is it important to understand, reveal, and build food ontologies? Given a domain, profiling possible scenarios and their interconnected features in a systematic fashion, bringing to light the tangled web of relations between material objects, concepts, and agents involved in our everyday life provides empowering knowledge; can reveal hidden injustices (e.g., gendered foods); a better foundation for institutional acts (e.g., geographical indications [16]); a stronger grasp to contemporary hot topics, such as biodiversity [17]. The importance of building an accurate map of the food domain becomes particularly evident in the light of the environmental crisis occurring within the Earth System and its effect on the global food system. The integration of different sources of food-related knowledge, and their organization within frameworks that make their comparison and negotiation possible, is a crucial step in the development of fair solutions for the food system [18].

Drawing on this research field, our philosophical work is about building conceptual tools for rethinking, ameliorating and negotiating food concepts. In this paper we show our approach to the task of conceptual clarification of the food domain by offering three examples of philosophical analysis, placed at different levels of generality. It is worth noting that the paper does not assume a specific minimal definition of what is food nor it focuses on a specific food concept or term (e.g., 24-hour dietary recall). Instead, the paper aims at providing a brief guide to the core philosophical tools for addressing food definitory issues in the widest variety of contexts.

The first level of analysis is about the "what is food?" question and the ontological mapping we are able to build assessing the different answers to it. The second concerns the four dimensions of food concepts involved in building or negotiating those concepts, especially when they fail to suitably represent a food-related domain or offer representations that run counter to the interests of their users, taken individually or collectively. The third is an example of how to

create a conceptual framework for a specific food concept: we are presenting our analysis for "eating local."

2. What Is Food? Mapping Food Ontologies

Answering the question "what is food?" is a complex issue which requires a specific methodology interlocked with biology, medicine, anthropology, history, cultural and food studies, and other disciplines. Different answers to such a question can correspond to different cultures (e.g., horse meat is food only for some cultures), domains of inquiry (e.g., from a microbiological standpoint each nutritious item may be a food, while a cultural approach could be narrower), or existential conditions (e.g., a lactose intolerant may regard milk as non-food). All these definitions of food may entertain a variety of links: sharing similar "ingredients" across different contexts while differing in some other respects. For instance, they may overlap (e.g., a medical definition of food shares a number of conceptual parts with a biological one as long as both rely on a biochemical analysis of food); they may have a dependence relation (e.g., according to [19] economic and ecological definitions of food bring about religious and cultural ones); different definitions may be at odds even if they extensionally coincide (e.g., the definition of food given from the hedonistic and purist perspectives, see [20]).

Each of these definitions, cultures, and domains of inquiry has its own food ontology, populated by a variety of categories: physical objects (e.g., dishes, meals), artifacts (e.g., recipes, restaurants), events (e.g., cooking, farming), conditions (e.g., hunger, appetite), processes (e.g., metabolism, foraging), perceptual states (e.g., bitter food, excellent food). These material, conceptual, and social aspects of ontologies are inextricably entrenched in everyday life.

With this in mind, the research that we have carried out so far focuses on the development of a systematic model representing the very entities we consume. In [21, 22, 23] we covered the initial step of such a research.

In [21] we laid down four different answers to the question "what is food?" based on four different forms of authority: an individual one, which relies on subjective preferences; a physical one, according to which food is a natural entity; an authoritative one, which claims that what is food is established by a recognized authority; and a social one, which considers food as a product of social interaction, shared practices and cultural milieu.

Siding with any of these opposing categories—although seemingly justifiable—yields a misleading picture of it. We argued in [23] that food is a *sui generis* social entity and we try to properly derive the ontological consequences of such a thesis and their relevance for the research and implementation of effective solutions for a sustainable food future. In [22] we develop this finding by claiming that even if food is a socially constructed entity, which ultimately relies on an interpretation, it is the outcome of a negotiation between social practices and the autonomous nature of reality. Therefore, what is food depends on both what society considers appropriate to be a food and what is autonomously equipped with the relevant biological features for being a food. Arguably, thus, it is perfectly fine to have different and sometimes incompatible ontologies, each of which rests on different social practices and differently confer the status of food (or food property) to different features of reality.

This interpretative stance on the ontological status of food paves the way for a mapping

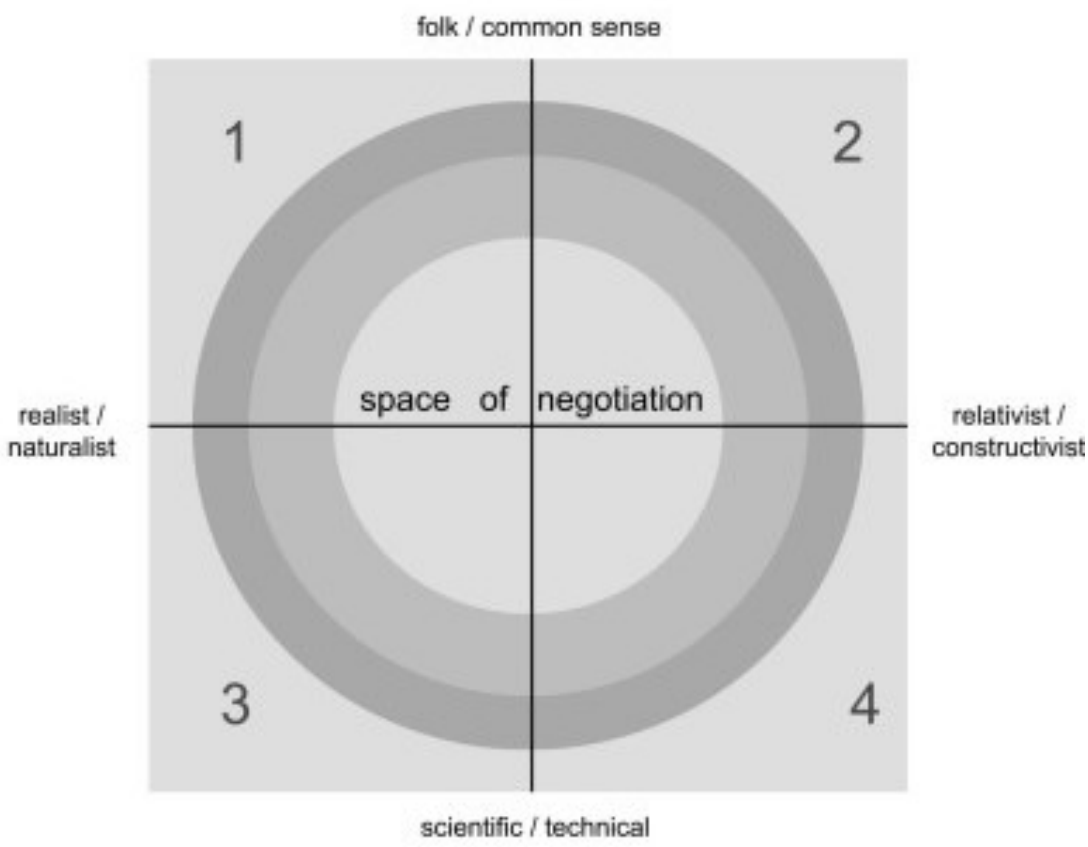

Figure 1: Space of negotiation between different ontologies.

work of the main food ontologies, setting them according to their answers. We think that the creation of an inventory of the ontological inventories—following the renowned Quinean metaphor [24]—may be a useful tool for philosophers who want to spell out what are the main conceptualizations of food.

In [18] we developed this mapping tool (Figure 1) based on a two-dimensional framework, visually consisting of two axes, each representing one dichotomy, and four quadrants where the different ontologies can be placed. The first axe represents the domains of discourse where an ontology originates: at one pole, the domain of common sense and at the other pole the domain of science. Accordingly, within the former domain we can find all the ontologies whose entities are picked out by folk knowledge and common sense (which are not the result of experimental methods but are the outcomes of more or less shared beliefs, based on first-person or collective experience); within the latter stand ontologies populated by entities liable to experimental treatment or entities that are the outcomes, or the assumptions, of experiments, i.e., the so-called theoretical entities. The second axe stands for the approaches taken by the users who are

meant to buy into those ontologies, i.e., whether they believe that the existence of the entities is grounded on how the world is or they are constructed by social and linguistic practices. At one pole there are the naturalist and realist approaches to ontology, which endorse the existence of the posited entities regardless of conventions, beliefs, languages, and conceptual schema. On the other pole, we group constructivist and relativist approaches, which claim that the existence of those ontologies depends on conventions, beliefs, languages, and conceptual schema.

For instance, a diet based on nutritional intake typically rests on nutritional science. The entities posited (i.e., nutrients) crucially depend on the experimental method, which is also used to link food components with human metabolism. This ontology is artlessly undertaken with a realistic or naturalistic stance and finds its place at quadrant 3. By contrast, consider a classic approach of structuralist anthropologists, that sees food as a socially constructed entity to the extent that anything can turn into food, if a community believes that it is such. This ontology would be placed in quadrant 2, since its domain is delivered by common sense and it is taken as constructed or relative to some situated beliefs. There are, of course, many different ways to fill each of the quadrants and many nuanced positions which sit in different positions between the four quadrants.

3. The Dimensions of Food Concepts

Different ontological commitments about food can be more or less explicitly expressed. One way to detect them is by looking at the food concepts in use in a certain context. However, our food concepts are complex representational devices whose ontology accounts for only one of their multifarious dimensions, which are suggested by a conceptual analysis of the different sorts of propositions that govern our systems for representation (e.g., desires, beliefs, labels): (1) propositions on data and empirical observations (e.g., biochemical composition, nutritional intake, biological function); (2) propositions that depend upon ontological categories imposed by cognitive and semantic constraints (e.g., being meat, vegetable or a fruit); (3) speech acts that "make things with words" [25] in a way that is peculiar to food domain (e.g., laws, consortia, health requirements); (4) and propositions that express value judgments (e.g., the identification of local or healthy food with valuable entities).

These four kinds of propositions underlie four different dimensions of our food concepts which, jointly taken, compose their meanings and guide their uses [18].

1. *Data and methodologies*, that establish the empirical validity of a food concept. Thus, in a given context of agency, we may primarily rely on empirical data—from microbiological to evolutionary, from nutritional to metabolic, gathered following science-specific methodologies.
2. *Ontological categories*, through which we impose certain structures onto our experiences, as when we regard a certain food (e.g., a croissant with a cappuccino) as a breakfast item. Such categories are not arbitrarily introduced nor are they full fledged parts of the structure of reality: they rather emerge from the interplay between reality, culture, cognition, and semantics.

3. *Fiat acts*, that ground the existence of the concept in specific actors and their agencies, such as the decision of a committee of experts to regard a certain food as a threat for a certain people.
4. *Aims and Values*, as food is connected to identity, emotions, life plans, heritage, and many other value-laden domains of life.

If a food concept provides a satisfactory account for all the four dimensions, it can successfully represent a region of the food domain (at least under a certain perspective). As stressed in §2 with respect to the concept "food", each specific portion of the food domain is best represented when concepts are properly structured along the four dimensions. One important exercise, when assessing the ability of a food concept to grasp the reality that it is trying to describe, is to make the boundaries of the target domain clear: food concepts span from describing overarching, folk, commonsensical domains to technical, sector- or culture-specific ones, and each domain requires different representations. However, given the fluid and complex nature of the subject-matter—spanning from practice to theory, across disciplines, cultures and ecosystems—overlappings, similarities and linkages between food concepts are the norm. Identifying the content of the four dimension of two or more connected concepts represent the first step of a comparative conceptual work.

A food concept, however, may fail to provide a fair representation by filling with wrong or incomplete contents one or more dimensions, e.g., if it fosters undesirable consequences for the agents involved in their usage, then it has provided undesired content for 4. Hence, a food concept may be defective.

We pinpoint four types of defects that may affect a food concept that—we contend—cover the most common sources of conceptual failures when it comes to food, though of course they do not pretend to exhaust all the possible conceptual failures that have and will emerge in food cultures. They typically arise when different stakeholders buy into different and conflated versions of the same concept, without negotiating a common content and structure for the four dimensions:

1. *Fragility*, that occurs when a concept does not deliver definite or informative contents with respect to the four dimensions. A fragile concept may fail to include sufficient information for representing what it is supposed to refer to, or feasible indications for the aims it strives for.
2. *Polarization*, that occurs when the concept can stand a plurality of mutually inconsistent interpretations leading up to some clashes (e.g. over ethical, political, or cultural values).
3. *Incoherence*, that occurs when there is a mismatch between the first three dimensions of the concept and its aims.
4. *Schizophrenia*, that occurs when there is a combined endorsement of dimensions pertaining to different instantiations of a concept. A schizophrenic concept represents disparate non-mutually related states of affairs, resulting in being practically useless since it is unclear what are its contents and aims.

An illustration of the four defects can be offered by the case of the concept of healthy food and its different instantiations. As we showed in [18], healthy food can be framed in several

ways. We identified four different takes on the concept: the nutritionism take, which claims that healthy food has a specific configuration of nutrients (see [26]); the natural take, which invokes the idea that food is healthy when it is natural; the ecological take, which states that the healthiness of a food depends upon the entire socio-ecological life of the item; the nutritional epigenetic take, which endorses the idea that what is healthy is defined by our genetic response to dietary inputs.

For the sake of brevity we are exposing here just a few examples of how conceptual failure can take place, proceeding from the highest level of the conceptual structure to the lowest. More than one type of defectiveness can be found at each level, and each of the four instantiations of the concept of healthy food we analyzed is affected by more than one defect.

At the highest level, the conceptual failure occurs between different instantiations of the given concept. Take for instance the nutritionism take and the nutritional epigenetic take: both instantiations of healthy food focus on molecular interaction, however they endorse two polarized concepts of metabolism and the human body. Clinical research targeting nutrition-related disease, for instance, would likely encounter some obstacles if both concepts are at play simultaneously within the research teams (*polarization*). *Schizophrenia* occurs usually at this level, when contents of dimensions pertaining to different instantiations of healthy food are brought up together, ending up mixing them in a concept that is not well-integrated. A good example is offered by many industrial products available in supermarkets, the packaging of which is often covered by several tags endorsing different take on what is healthy, mixing values, ontologies, data from different (and sometimes not compatible) versions of the concept.

At an intermediate level, different dimensions of a single version of a concept may conflict among each other. The "healthy food as naturalness" instantiation is affected by *fragility* through all the dimensions, given to the diversity of meanings that could be attributed to "naturalness". The equation between healthy food and natural food never comes with an explicit reference to the kind of un/naturalness involved— there are multiple meanings of naturalness connected to the healthiness of food, e.g., "natural" as "familiar," "natural" as "authentic," "natural" as "what satisfies needs," "natural" as "lacking human influence" [27]—making this conception of healthy food particularly problematic at its internal level. Both data and ontology are indeed dependent on the kind of naturalness taken into consideration: for "natural" as "customary," for instance, cultural norms would be the data, and the food ontology will be ethnocentric (e.g., insects would not count as healthy food for individuals of a certain culture, because they are considered unnatural/not familiar). The nutritionism take offers instead a good example of *incoherence*: although its aim is health the reductionist account of food implied in the concept helps frame human physiology in manageable terms, facilitating its alignment with the dominant agrifood industry. For this reason, the effectiveness of nutritionism for health has been largely disputed. In this case, the declared aim—health— is in conflict with the other dimensions of the concepts.

At the lowest level, the conceptual work concerns one specific dimension. The data and methodologies dimension of the ecological take on healthy food, for instance, is at risk of *fragility*: many different disciplines converge in the nutritional ecology approach, with their own methods, taxa, and concepts. Such interdisciplinarity is a resource only when a methodological integration is at play, granting a coherent and shared framework.

4. Building a Conceptual Map: The Case of Eating Local

Our approach can be illustrated by showing how to provide a conceptual map of a specific food concept. Conceptual maps seem indeed a promising tool for, first, addressing the challenge of integrating the vast and varied knowledge about food that scholars and practitioners have impressively recorded in recent years and, second, negotiating different political, ideological, and philosophical perspectives over the same concept. The map can be also used to track down the similarities and the inconsistencies of highly detailed and yet similar definitions in order to check whether they share the same ontology or not (e.g., the definitions of food endorsed by two different healthy diets—e.g., one based on the presence of certain nutrients and one based on the functional role of the items—may be different and yet their ontologies may be extensionally equal).

In [28] we analysed the concept of "eating local," an expression that, used to convey the concepts of local food and locavore diet, has by now become mainstream. Despite their popularity, these concepts are still far from clear in public discourses as well as in the works of scholars. Even trivial questions can raise doubts over their meaning and cast uncertainty on what is required of a well-intentioned producer or consumer.

Our primary goal is therefore to suggest theoretical amendments to the defectiveness of the concept of eating local and turn it into a robust concept. That is, a concept apt to be comprehensive, coherent, and inclusive, affording a firm grip over structural aspects of the food chain and grounded in way able to accommodate for heterogeneous and complex actors. The first problems of the concept of "local food" can be tracked down in the wide range of entities that can be local. In fact, "local" can be said of lots of entities (e.g. whole or multi-ingredient foods, recipes, menus, diets) and that its meaning varies depending on which entities are under consideration. This variety of entities when referred to just one concept, if not well mapped and framed, can elicit at least three problems. First, the problem of proliferation, i.e. the same food entity in different contexts can be linked to (too) many places (e.g., a salad may be associated with all the places corresponding to its ingredients). Second, the problem of selectivity, i.e. depending on the context, only some of the foods we consume are relevant to assess the localness of our dining experience (e.g., is the origin of the salt relevant in assessing whether, say, a prosciutto is local?). Third, the problem of independence, i.e. within the same context, the local character of different kinds of (possibly related) food entities can be assessed independently from each other (e.g., Swiss chocolate seems to be a local food in Switzerland even if cocoa beans originate from South America).

The first step to provide a robust concept of local food is then to take these problems at face value, clearly indicating how the concept of local food should be used in different contexts, which may include different local food items.

In fact, different contexts may need a different concept of local food and at least three different conceptual dimensions may be nailed down: (1) the Relative Spatial Dimension (i.e., being local depends on the distance from between the place of production and the place of consumption); (2) the Absolute Spatial Dimension (i.e., being local depends on the geographical origins); (3) the Social Dimension (i.e., being local depends on the social links between consumers and producers). All the three dimensions suffer from what we regard as decisive criticisms [28].

In order to tackle these problems, we propose a positive ontological account of the concept

"eating local," which should fulfill four desiderata: gradability (that allows to say that some local foods are more local than others avoiding all-or-nothing categories), width (encompassing as many types of food entities as possible), negotiability (i.e., what counts as local should emerge in each instance from a negotiation of values, in the light of the ontological mapping of the entities to which they applies), and fallibility (the principles on which a conception of local food is based should be assessable in a public and nonpartisan way, on empirical and theoretical grounds).

It should be clear that how the concept of eating local should abide by the four requirements depends on the specific context of use as well as the goals it aims to reach and the value (ethical, political, aesthetical) it is meant to promote.

5. Integrating Food Knowledge: The Role of Philosophy

The conceptual work on eating local is part of a more general philosophical endeavour oriented towards the clarification as well as the revision of *what is* what makes up the food domain, what kind of relations occurs within it, and what kind of conceptual tools might be useful to make it more comprehensive, transparent and manageable.

While we took here eating local as representative of our work, as Culinary Mind we investigated many other concepts related to the food domain and the conundrums they come up with, e.g., a viable ontology of wild food which took into consideration indigenous knowledge alongside scientific inquiry [6]; the different conceptualizations of natural food [29]; the role and the nature of hunger and appetite [30]. We investigate broader topics as well, like recipes [31, 21, 5] culinary value, traditional food [32].

Given the endless number of contemporary challenges and complexities related to food production, consumption and representation, we aim at extending our research to other issues. Here below we briefly go through some topics that we regard as crucial part of the food domain, in need for some conceptual work: (1) the concept of "food system" and the concept of "food waste"; (2) the integration of the research on microbiome with other existing food ontologies, e.g. ontology of recipes or of healthy food; (3) the study of food spaces, from paradigmatic establishment like restaurant to broader classes like "third spaces."

Acknowledgments

This research was funded by the Department of Philosophy "Piero Martinetti" of the University of Milan under the Project "Department of Excellence 2018-2022" awarded by the Ministry of Education, University and Research (MIUR).

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