

# Unjust Food Systems and Applied Mereology

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## *Abstract*

Conventional food systems are highly complex entities with numerous components that span the globe. Having an overabundance of parts creates ‘globalized opacity’, a condition wherein the sheer number of parts makes it incredibly challenging to see how these parts fit together. In turn, people cannot see how these systems help create and perpetuate social injustices in select instances. With this notion in mind, it should be no surprise that numerous issues require mitigation. Gaining a clear view of the nature of such problems could improve how food-justice researchers understand the complexity involved in the issues that plague food systems, which could alleviate harm. One way to assist in such efforts is to employ an applied-mereological approach to identify ways to reduce the number of parts and replace parts that are commonly associated with injustices. This paper moves in that direction, revealing how an applied-mereological approach can help us address these issues and support alternative parts that could help produce desired outcomes.

**Keywords:** Food systems, Globalized opacity, Alternative food systems, Food transparency.

## 1. Introduction

Although a worldwide network connects multiple parts of conventional food systems to facilitate international commerce, this process produces ‘globalized opacity’. This term means that there is an overabundance of components and that there are often long distances between many of them. Due to this situation, most people are unable to fully see and know about the composition of a conventional food system. Somewhat paradoxically, the parts that make it feasible for these components to be noticeably disconnected, namely transportation and logistics—are also pieces of the food-system puzzle.

Moreover, these parts are indispensable for today’s food systems. Yet, when it comes to traditional views of farming, these elements remain mostly unknown. This condition makes it exceedingly difficult to know about many of the issues connected to conventional food systems, which is paramount when considering that there are several injustices associated with them. Attending to such matters

could help us see such issues more clearly, which would bolster efforts to understand the part-to-part and part-to-whole relations within a food system.

Gaining a clear view of the nature of this issue could improve how food-justice researchers understand the intricacy involved in these affairs, which could assist struggles to alleviate harm. One way to support their efforts is to employ an ‘applied-mereological’ approach, a method that helps us examine the relations of a food system’s parts, locating the parts that we cannot readily know about. This kind of investigation provides a new measure that can help us understand how conventional food systems are problematic. In turn, the purpose of this paper is to move in that direction. The goal is to identify part-to-part relations that favor social and environmental justice, and a significant step to advance that goal is to show how the problem of globalized opacity plays a role in such affairs.

To make this case, I begin by reviewing how we can employ the basic structure or idea behind mereology to help us understand the composition of conventional food systems. Specifically, I argue that we can better understand that food systems adhere to ‘unrestricted mereological composition’, meaning that any kind of part, concrete or abstract, can qualify as a part of a food system.<sup>1</sup> After establishing this view, I examine the broad scope of such parts, zeroing in on the problem of globalized opacity that is associated with such arrangements. Through employing this term as a theoretical device, we gain a novel technique for conceptualizing a specific condition that we find with these systems. With an understanding of the magnitude of their effects, I explore some of the reasons why activists, philosophers, and food scholars challenge and want to change the status quo, advocating for alternatives that have fewer parts and less globalized opacity. In closing, I identify some vital areas that would benefit from additional study.

## 2. The Benefit of ‘Applied Mereology’ for Understanding Conventional Food Systems

In a basic sense of the theory and its study, mereology deals with the interplay of parts, along with how parts relate to wholes (Varzi 2015). Within the traditional literature, philosophers who engage in this research address highly abstract relations of parts (Hovda 2009). While the nature of these undertakings might not interest scholars outside of this field, this view is shortsighted. That is, one benefit of employing this approach is that it helps us understand how objects that are composed of smaller and frequently overlapping parts fit together, forming a cohesive unit (Paul 2002). Due to the composition of food systems that involve numerous parts, interdisciplinary researchers can benefit from mereology, and the study of the conventional food system supports this claim.<sup>2</sup>

From the outset, one could argue that the necessary and sufficient conditions for thinking about a food system’s parts in such a manner requires that for parts, they must be parts in and of themselves, and they must also be a part of the food system. One notion that complicates matters even further is that some parts are

<sup>1</sup> To gain an in-depth look at some of the issues pertaining to the thesis behind unrestricted mereological composition that are beyond the scope of this paper, see McCarthy 2015.

<sup>2</sup> Frederique de Vignemont *et al.* (2005) exhibit how we can use mereology to account for how we experience parts of our bodies, and they stack this account against how we experience the body itself. For more information, see de Vignemont, Tsakiris and Haggard 2005. Peter Simons examines mereology of engineering and AI. See Simons 2013.

parts of themselves, while also being parts of greater wholes, which are also parts of food systems. Consider this brief example. Land, farm equipment, and people are parts themselves. They help to compose a farm, and that farm is part of a food system. However, considering that I am denying any restrictions on composition, I will not offer the necessary and sufficient conditions for how parts come together to make a food system. Instead, I will discuss part-to-part and part-to-whole relations to help guide how we think about food systems, for instance as they are expressed in the illustration above.<sup>3</sup>

For example, highly detailed illustrated maps show how the numerous parts of a conventional food system fit together and interact with each other, revealing the dynamic character of how food supplies crisscross the globe.<sup>4</sup> Although these maps appear stable, Jo Goossens, the person who created one of the most intricate maps to date that lays out the vital exchanges within global food systems, points out that micro-level aspects of the food trade remain in constant flux (Cereals & Grains Association 2020). This notion suggests that literal parts of conventional food systems are continuously adapting to abstract parts such as market forces and labor, along with other literal parts such as new technologies, advances in logistics, and the nature of business (Regmi and Gehlhar 2005). These systems are historically situated, meaning that entities such as the multinational food conglomerates that control conventional food systems are entrenched deeply in the processes and exchanges that produce most of the world's food supply (Howard 2016). In turn, going from the farm to the table is not a simple matter, and accounting for and explaining the process is not much easier. Further, it should not come as a surprise that most consumers in countries such as the United States have only a vague idea of the direct origins of their food (Blatt 2011). While this notion might sound trivial, it should be significant, considering that people can shape food systems through supporting legislative efforts (Mars and Ball 2016). Consider, for instance, that the outline of a food system is quite encompassing, consisting of numerous concrete parts, often crossing national and cultural boundaries (Metcalf 2019). At present, ten companies control over half of the food supply in the United States, extending to about fifteen percent of the global market (Stuckler and Nestle 2012; Lyson and Raymer 2000).<sup>5</sup> Considering that the worldwide food exchange accounts for ten percent of the world's total economy, estimates show that the global food supply is worth at least 8 trillion dollars annually (Van Nieuwkoop 2019). Although, as indicated above, the parts change due to several considerations and the control of the parts remains competitive, extending into numerous areas such as economics and international political affairs. Due to such conditions, when considering food systems and the kind of parts that they can have, this reason shows why it is imperative

<sup>3</sup> While there are other issues with unrestricted mereological composition, I am only applying it to the context of food systems in this paper.

<sup>4</sup> For a highly detailed food map of the global food system, see "Jo Goossens and the shiftN Global Food Systems Map", available online: <https://www.cerealsgrains.org/publications/cfw/2019/jan-feb/Pages/CFW-64-1-0010.aspx>

<sup>5</sup> Due to the influence of multinational food companies that now have significant control in all aspects of food production, I am going to use the terms 'conventional food system' and 'global food system' interchangeably, even though one could argue that they are not entirely mutually exclusive. Yet, they share enough common ground that substituting one for the other does not obfuscate anything and preserves the meaning of the message that I am conveying.

to think about food systems as having an unrestricted mereological composition.<sup>6</sup> In turn, the way that a food system is presented here is one wherein some parts are strict, while others are metaphoric, yielding an idealization with different concrete instantiations.<sup>7</sup>

To illustrate the ramifications of conventional food systems with these notions in mind, we must consider the range of their inventory and the scope of their impact as elements that require highlighting due to the array of effects that they produce in concert. The point here worth underscoring is that any change in a food system's parts must bring financial realities into view. While it is evident that such alterations have epistemic values, one could hold that they also have a metaphysical correlate. That is, if such changes stem from financial realities, then finances, as abstract parts, can dictate a principle of composition for a food system.

Here is an example. If a nation were to accept a loan from an international bank, on the condition that it was to produce tea instead of soybeans, then the abstract part of financial pressure would alter the composition of the food system by forcing concrete parts such as seeds and the necessary agricultural equipment to change. In such instances, parts are stuck together due to economic considerations. In turn, differing economic reasons can generate different principles of composition. This notion suggests that the ontology of such systems requires that researchers who examine its parts should pay attention to their backstories (Howard 2016). The reason to emphasize this idea is that it is unreasonable to weigh the relationships between parts without bringing these vital dimensions into view, especially considering that numerous components require investigation.

This area is one that would benefit from thinking about food systems in terms of unrestricted mereological composition. For instance, we can break their inventory down into several categories of non-overlapping or disjoint parts, meaning the part is not counted more than once when accounting for them in the whole food system (Varzi 2000; Varzi 2014; Lando 2017). These parts include but are not limited to concrete parts such as land, water, natural resources for production, petroleum resources, and chemical fertilizers. Yet, they also include abstract parts such as labor forces, federal, state, and municipal regulations. There are also communication networks to facilitate the logistics and distribution, which include parts such as transportation systems and storage facilities, marketplaces, and restaurants (Ruben, Verhagen, and Plaisier 2019; Pitt and Jones 2016; Morley and Marsden 2014; Goodman, DuPuis, Goodman, 2012; Erikson 2008). Considered together, these parts (along with several other parts if that is the case) can compose a greater part, which then becomes part of the larger whole—a food system. For example, parts such as a farmer, her land, the water, and various agricultural products can compose a farm. This farm can be a part of a food system. Depending on the character of the 'farm', (e.g., small, organic family farm or massive conventional agricultural operation) can have significant real-world impacts. By

<sup>6</sup> It is worth mentioning that making such identity claims could be controversial if one holds that such an identity is impossible. However, engaging in this discussion is beyond the scope of this paper. For more information, see McCarthy 2015.

<sup>7</sup> Some philosophers, such as Giorgio Lando, maintain that it is incredibly challenging at times to differentiate literal and metaphorical parts. Due to this condition, the claims in this paper avoid engaging in such detailed discussion for the most part. This notion entails that, unless explicitly stated, I am talking about strict parts. For more information, see Lando 2017.

putting these aspects into real numbers, we see the requirements and impacts of conventional food systems. For instance, Gladek *et al.* hold:

Agriculture now occupies roughly half of the plant-habitable surface of the planet, uses 69% of extracted fresh water and, together with the rest of the food system, is responsible for 25-30% of greenhouse gas emissions. The expansion of industrial fishing fleets and a higher demand for seafood globally have led to the collapse or total exploitation of over 90% of the world's marine fisheries. A growing demand for land-based animal products is the primary driver of tropical deforestation. Through its direct and intermediate impacts, the food system is the largest contributor to the depletion of biodiversity (Gladek *et al.* 2017: 4).

While this passage exhibits the scope of the impacts that conventional food systems have on the planet, they also reveal the effects that some people might not consider, such as how food systems affect marine ecology. One could argue that the view of the oceans often remains secondary when stacked against land-based concerns, bearing in mind that most people do not have experiences with those environments. For instance, Paul Wolf (2003) argues that because most people do not typically engage with oceans, they do not have the necessary perspective to grasp their complex character. Yet, when examining the numbers above, the accumulating effects on aquatic systems remind us that considering humankind's involvement with food systems remains paramount.<sup>8</sup> Due to this condition, we cannot dismiss the reality that such environs are significant macro-parts of the food system, which include numerous smaller parts that compose the fishing industry.

This notion reveals that, in addition to how specific parts of the food system affect the non-human world, they also play a dominant role in the socioeconomic parts of food systems. For instance, continuing with the insights from Eva Gladek *et al.* (2017: 4) above, such considerations contribute to a panorama of conventional food systems, exhibiting the significance of such dimensions:

The agri-food sector is the world's largest economic sector and is therefore deeply entwined with poverty. Half the global workforce is employed in agriculture. A majority of the world's poorest people are subsistence farmers and fishermen. Small farmers and fishers around the world are caught in cycles of poverty, without access to education, employment, economic and social infrastructure, and political representation. Many do not receive adequate compensation, work in unacceptable conditions, or do not have access to sufficient, affordable, or proper-quality food. Poverty is the largest threat to producers of food globally and the largest driver of food insecurity.

The passage above shows that while we can separate concerns about food systems from considerations for other social systems, food systems require additional study due to numerous kinds of effects that they can help produce. Philosophers of food and interdisciplinary scholars have documented these outcomes, analyzing the many ways that conventional food systems affect farmers and indigenous people on almost every continent by focusing heavily on the concept of 'food sovereignty' (Jarosz 2014; Navin 2014; Menser 2014; Werkheiser and Noll 2014; Grey and Patel 2015; Epting 2018). Viewing the food sovereignty literature as a

<sup>8</sup> This claim does not imply the oceans are merely food systems. However, the intention is to draw attention to the idea that people could view them in such a manner.

compilation, the theme that emerges shows that numerous people in the agricultural industry seek to gain control over the parts that impact their lives, a notion that pushes against the multinational food conglomerates, as mentioned earlier. In turn, if they were able to control the parts, then they would gain more control over the sum, a notion that appears to be consistent with the stated aims of some of the people who champion food sovereignty.

A recent embodiment of this sentiment has emerged from the labor force that works in food production, *La Via Campesina*. This organization of farmers spans the globe, consisting of almost two hundred smaller organizations from over eighty countries in Asia, Africa, the Americas, and Europe (La Via Campesina 2007). Their concerted efforts promote smaller family farming practices, geared toward agricultural sustainability and justice. This group employs the term ‘food sovereignty’ as a central tenet to their approach to address how groups express autonomy over their involvement with all aspects of the food trade. They use it in a manner that brings numerous related concerns into view, including but not limited to social justice, safety, control, and human rights.

One can argue that within their conception of the term, ‘food sovereignty’, they illustrate that several concerns are indirectly connected to conventional food systems. Yet, many of these issues are not directly linked to the food industry, such as concern for future people (La Via Campesina 2007). The scope of this conception challenges the totality of the effects that conventional food systems help produce. In turn, *La Via Campesina* positions itself against the status quo, advocating for a means of agricultural production that can remedy the ill effects of globalized agriculture.

For example, during the world’s first conference on food sovereignty, they formulated the “Declaration of Nye’le’ni” (La Via Campesina 2007). It is a comprehensive statement that provides a panorama of the kinds of issues that we find in conventional food systems, along with several indirect concerns that also require attention:

Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. It defends the interests and inclusion of the next generation. It offers a strategy to resist and dismantle the current corporate trade and food regime, and directions for food, farming, pastoral and fisheries systems determined by local producers and users. Food sovereignty prioritises local and national economies and markets and empowers peasant and family farmer-driven agriculture, artisanal-fishing, pastoralist-led grazing, and food production, distribution and consumption based on environmental, social and economic sustainability.

The image that emerges from bringing the above dimensions into view is daunting in the best case, and overwhelming in the worst case. They mention several points of concern, bringing current issues such as production and distribution into view. They also extend into future-oriented matters that involve future generations within a sustainability matrix. If we keep in mind that such areas involve numerous parts that serve as ‘actors’, it is challenging to know the limits as to what counts as a part. One could argue that the description above reveals how

the condition of globalized opacity that comes from the composition of conventional food systems can manifest through the felt impacts on the people who have been treated as only 'parts', in the same manner as if they were another piece of farm equipment, a mere means to an end.<sup>9</sup> It could be the case that the declaration above exhibits that food workers do not feel respected in several ways. Bearing this point in mind, one could hold that they are responding accordingly, striving for measures that would rearrange or exchange parts so that they could control them, expressed as a call for food sovereignty. Considering that they would gain control over more parts, this power would show that they are not merely parts such as farming equipment, which, of course, cannot control other parts.<sup>10</sup>

Although the declaration above draws attention to injustices that arise due to 'Big Food' having power over the parts, such situations remain challenging to identify—due to the problem of globalized opacity. That is, people are unaware that the parts of conventional food systems are arranged and managed in a fashion that makes it exceedingly difficult to know. For instance, it is common for people in countries such as the United States to lack basic knowledge about food production (Flatt 2008). If they lack this essential knowledge, then it seems plausible to hold that they also do not know about injustices that emerge from it, a situation that feeds globalized opacity. One could easily object to the condition above. One could hold that there is an overabundance of parts and farmers and food workers on the frontlines experience problems, but there is no way to prove that such issues are a result of lacking this essential knowledge. While this concern is formidable, we should have at least two reservations about it. One, the primary claim in this paper holds that a mereologically-informed approach aims to improve the situation so that we can see all of the parts to analyze them adequately. If there is no connection, as the objection above maintains, then employing this approach would be unsound. If the opposite view emerges, then we gain a method for developing a solution to such problems.

When examining these choices, it does seem entirely plausible that the overabundance of parts, spread across the globe, makes it incredibly challenging to know about the parts and how they are part of a food system, which creates possibilities for harm and injustice. If we take this condition and consider it alongside the claims that people do not know about their food, and the reality that food workers want to change food systems, then the claim above makes sense. Yet, even though we cannot locate the 'smoking gun', there is a substantial reason why this condition does not matter significantly.

That is, the idea of 'disparate impacts' holds that, for dealing with issues that concern historically marginalized groups (e.g., members of La Vía Campesina), they are often victims of systemic discrimination. This notion entails that issues such as intentionality do not weigh heavily in such affairs.<sup>11</sup> This condition holds that we do not need to find a direct link. The outcome wherein they are subject to harmful treatment is sufficient. The task then becomes to identify precisely how

<sup>9</sup> This point raises numerous ethical issues that are beyond the aim of this paper. However, for more information, see Kant 2002.

<sup>10</sup> This point introduces the idea that changing or rearranging parts could produce a new food system or help the old food system become more just. Although this point is extremely relevant, giving it the attention that it deserves falls outside of this paper's limits.

<sup>11</sup> The United States Supreme Court introduced the term 'disparate impacts' in *Griggs v. Duke Power Co.*, 401 U.S. 424, 91 S.Ct. 849, 28 L.Ed.2d 158 (1971).

the system creates injustice. For the case of conventional food systems and applied mereology, that endeavor is the motivation that underpins this exploration, to deliver a way to identify how the relations between food parts and the whole food system yields bad fruits.

Without tending to the epistemological conditions for knowing about food injustices, one could argue that the projected reality for the future for food justice remains grim, offering little hope for creating a meaningful alternative that can remedy the situation described earlier. This notion implies that motivation for further identifying the interplay between parts will require advanced study. The goal of such an undertaking is to determine appropriate actions to rearrange them, hopefully leading to outcomes that are consistent with the people who are arguably treated as merely and only as ‘parts’ by the multinational food conglomerates that own and or control the majority of the parts that belong to conventional food systems.

Within various geopolitical regions, along with traditionally grown foods, the scope of such a call would require specific and or hyperspecialized concrete and abstract parts, including but not limited to safety regulations, farm equipment, and distribution schemes that could redistribute parts justly. In both the broad view and the site-specific instances mentioned above, the numerous parts have a role in the unjust outcomes that scholars criticize. The question here is not to ask about how to find the link between ‘parts A-Z’ and ‘outcome X’. The idea is that because numerous parts remain in play, determining how different parts relate *is* possible, but the daunting nature of such a task is a significant deterrent. In turn, the condition of having numerous parts facilitates globalized opacity. In the section below, I examine the roots and status of the situation, followed by an investigation into alternate models that inherently avoid globalized opacity. Although more work needs to be done on this front, mereologically as well as practically, addressing such dimensions can better position that problem so that we can better grasp several of its troubling intricacies.

### 3. The Problem of Globalized Opacity

Globalized opacity of conventional food systems is not a condition that simply comes from only having multifaceted operations. It arises from such processes due to an overabundance of parts that come from scattered locations, primarily connected through advanced logistics and transport. Framing this issue in such a manner reveals why using a mereologically informed approach is beneficial for gaining a clearer understanding of the relations that pertain to how the parts of a food system are part of the composite object, ‘food system’. It also shows why developing mitigatory steps to food issues remains challenging. It focuses on the relations between parts, along with how the parts of a food system impact the food system itself. That is to say, as food scholars such as Metcalfe (2019) exhibit, the conventional food industry is inherently global, suggesting that the very nature of food requires an encompassing lens to see its expansive character. In turn, the ways that we think about today’s food are complicated from the outset, yet we must develop conceptual devices that are highly efficient without producing superfluous information.

For instance, when talking about the globalized opacity of conventional food systems, each word is itself a smaller ‘part’ of a more extensive theoretical device—

the ‘globalized opacity of conventional food systems’.<sup>12</sup> Each word in this phrase, as a conceptual device, plays a role in how we understand the reality of the situation, the conditions that come from having an overabundance of concrete and abstract parts. The precise nature of the mechanics of the phrase, as a theoretical device, reveals the pattern that we are ultimately addressing. If we have too few words (or theoretical parts that make up the larger theoretical device), then we would not be properly emphasizing the exact area of study.

For instance, if we were to say that we are only dealing with ‘food system complexity’, then we would only be highlighting the notion that the food system has a relationship status that reads: ‘it is complicated’. Yet, such a scenario does not show that it is convoluted because there are simply too many parts involved in a multifaceted process. Being highly sophisticated is a separate issue from having an overabundance of parts. Although there are similarities between ‘food system complexity’ and ‘globalized opacity of conventional food systems’—as theoretical devices that help us understand the issues that they represent—the primary difference is that each tool does different tasks. The former focuses heavily on the processes as they affect the interrelations between parts. The former pays much more attention to parts in terms of how they affect others as components of the food system and the food system itself.

Consider, for instance, that Gonzalo Gamboa *et al.* (2016: 2-3) in their research on the complexity of food systems make this notion appear:

Owing to the many domains involved and the different scales on which different processes take place (from households to the global market), food systems are inherently highly complex systems: That is, their relevant aspects cannot be captured from a single perspective, and therefore different stakeholders may have different perceptions of what a food system is and how it performs.

When examining the passage above, we see that the operational relations that pertain to food systems are at the forefront of their approach, revealing the prominent position that processes have in food systems. Namely, within the short description above, two instances show action. The first exhibits that it is the *processes* of scale that help define a food system’s complexity. The second notion concerns how we cannot rely on a single perspective of a food system’s definition and *performance*. While the passage above does not represent all accounts that address food-system complexity, one could argue that it is typical of such approaches.

This point does not discount the notion that parts interact in specific and numerous ways, as such approaches can illustrate. Still, it exclusively highlights the inventory that pertains to the problems that we find with conventional food systems, highlighting the role of parts only in a limited capacity. While one can use different tools for the same task, say a crescent wrench or a socket wrench, specialized tools provide a way to handle specific tasks more efficiently and or effectively. For dealing with an overabundance of parts, a mereologically-inspired theoretical device helps us frame the issue in a way that reveals globalized opacity and its problems, a condition associated with having too many abstract and concrete parts.

<sup>12</sup> To avoid confusion, it is worth mentioning that in the use of the term ‘part’ in this sentence, I am not making a mereological claim per se, but I am dealing with the term in a more ordinary sense of it.

During the outset, I mentioned that appealing to mereology can benefit how we deal with such concerns. This manner of focusing on part-to-part and part-to-whole relations is a quality that is inherent to the mereological enterprise. It is one that thinking in terms of complexity cannot deliver due to lacking mereology's unique orientation. By examining the composition of food systems through employing a mereological approach, we can exhibit that conventional food systems require expansive infrastructures to exist in their current states. In turn, we can connect this view with other disciplines to advance our knowledge of food systems.<sup>13</sup>

Consider, for instance, that 'food narratives' exist to show the elaborate path for foods (and food-like products) to reach consumers. In her intense study of food system routes in, *Food Routes: Growing Bananas in Iceland and Other Tales from the Logistics of Eating*, Robyn Metcalfe (2019), explores the numerous parts and their geographical confluence that delivers foods to us. Using a slice of New York Pizza as an example, she exhibits the highly involved process that brings all of the ingredients together to that are required to produce a single slice (Metcalfe 2019).

While this dish is only one item, Metcalfe's (*ibid.*) research shows that today's foods are the results of a highly sophisticated distribution system, one that demands intense study to understand (which underscores the importance of her book and other works in the field of food studies). Along with her examination, Metcalfe (*ibid.*) acknowledges that ethical issues emerge that require a separate area of investigation. Yet, with so many parts from across the globe, we cannot see exactly where the problems arise. Due to these conditions, globalized opacity becomes an issue, making it challenging to see the connection between foods and injustice. To gain a better perspective on how this situation manifests, in the following section, I examine how alternative food systems inherently reduce the number of parts that food activists argue is necessary for alleviating food-related harms and injustice.

#### 4. Alternative Food Systems: Towards Reducing Globalized Opacity

In the last few decades, alternatives to conventional food systems have emerged and progressed, which are viewed as a means to transform food production, distribution, and consumption. Philosophers and scholars have examined several completing and complementary models, making strong cases for how such systems can mitigate the harms mentioned earlier (Werkheiser and Noll 2014; Epting 2016). Although advocating for particular approaches is beyond this paper's scope, the shared grounds often include smaller-scale operations that eliminate several of the actors between the food producers and food consumers.<sup>14</sup> While it would be overly ambitious to argue that these alternative systems could replace

<sup>13</sup> This notion gestures towards Carlo Cellucci's concept of a 'heuristic view', which seeks to establish criteria for what counts as a fruitful enterprise in philosophy. Namely, to fit such a description, philosophy must be continuous with the sciences, making use of the results that come from scientific discovery, and striving to obtain a perspective that is global. For more information, see Cellucci 2014.

<sup>14</sup> This point does not suggest that removing 'food miles' is a solution. It only indicates that reducing the number of actors within a food system could reduce globalized opacity. These issues are connected, but they are not mutually exclusive. Addressing such affairs is far beyond the scope of this paper. For more information, see McWilliams 2009.

conventional models entirely in the immediate future, supporting such measures count as steps in that direction in terms of dealing with the problem of globalized opacity.<sup>15</sup>

In a more realistic sense, utilizing alternative systems exhibits how possibilities exist to eliminate some of the global parts of conventional food systems, along with the extreme distances that help yield globalized opacity.<sup>16</sup> Although each replacement part will require advanced study and remain site-specific, examples include food outlets such as farmers' markets (Vignali *et al.* 2006). They also include community sustainable agriculture initiatives (Vasquez *et al.* 2017). Community and shared gardens also qualify as smaller cases (Barron 2017). For places that face seasonal and weather-related challenges, vertical agriculture holds promise (Epting 2016). In addition to these measures, researchers show how aquaponic operations can ease the demands of marine ecosystems (Goddek 2019). Culinary-challenged individuals can visit farm-to-table restaurants. Although none of these approaches can eliminate dependence on conventional food systems, if consumers were to access them in concert, they would be able to learn how their food systems fit together, one part at a time.

By bringing the parts of a food system closer together, we can eliminate components such as storage, refrigeration, and long-distance transport, which are inherent to conventional food systems. One could argue that alternative food systems reduce the need for several such parts, which are also the components that consumers lack knowledge of their existence and how they fit into food systems. The point here is that while consumers are probably aware that foods require transportation, they could be unaware of the expansive transport network needed to move food vast distances, one that is increasingly becoming more global (Ahumada and Villalobos 2009).

This condition suggests that replacing them with local actors such as community farmers means that the parts are knowable, a condition that increases food transparency. For instance, Harvey Blatt (2008: vii) argues:

Most urban shoppers know that food is produced on farms. But most of them do not know what farms, or what kind of farms, or where the farms are, what knowledge or skills are needed in farming, or how farming today bears little resemblance to farming as practiced a hundred years ago.

Through subtracting unknowable and inaccessible parts while adding parts wherein people can learn about the intimate details of food production and distribution, concerns about globalized opacity diminish. Bearing this point in mind, one can argue that improved transparency could yield more knowledge about the

<sup>15</sup> While the primary concern here rests with globalized opacity, this situation raises concerns about the identity and morality of a food system. That is, would it have a new whole food system or a food system with new parts? While either response requires significant dedication to provide a robust answer, neither of them does away with globalized opacity, meaning that this topic must be dealt with at another time. Secondly, one could argue that eliminating certain actors in the world of global food production might not be fair, considering that doing so could discount the importance of food exportation for developing nations. For more information on this topic, see Navin 2014.

<sup>16</sup> This point does dismiss the possibility that local actors could engage in harmful practices, but such affairs could be addressed at the local level when applicable.

social and environmental justice issues that turn people against conventional food systems.

Aside from this issue, one could argue that when consumers substitute distant parts with local parts, aiming to develop an alternative system, they are merely replacing parts that will not have a significant impact on conventional food systems. This notion implies that such changes are only ‘cosmetic’ and that meaningful improvements will require steps such as working with the system and advocating change through policy initiatives. Over time, such measures will improve consumer knowledge of food systems, inherently reducing the problem of globalized opacity.

This challenge is formidable. The problem with such an objection is that it does not consider the possibility that replacing parts, even by using a piece-meal approach over an extended duration, could have a cumulating impact on conventional food systems. This aspect suggests that changing a food system is possible, even though undertaking such a task could take several decades, and there are elements of power and control, as mentioned earlier.

Although the approaches above merely sketch a possible avenue for reducing globalized opacity, they do exhibit that eliminating parts or replacing opaque parts—with ones that we could know—could make food systems align with calls for food justice under the appropriate conditions. However, considering that alternative food systems remain embryonic, further research is required. Such efforts not only include the disciplines that could facilitate such realities such as engineering, design, architecture, and policy, philosophical undertakings, and ‘applied mereology’ in particular, also deserve additional study to determine the appropriate pathways forward for such systems. In the section below, I examine some of the immediate areas that would benefit from further research.

## 5. Areas for Future Research

While the exposition above reveals the problematic nature that results from the globalized opacity of conventional food systems, the next steps coming from applied mereology should be to narrow the focus. This idea includes paying attention to specific part-to-part relations, especially in terms of interactions that affect entire food systems. Developing particular research strands is one direction that such efforts could follow. For instance, specific relationships could benefit from further investigation, focusing on significant areas such as production, distribution, and consumption.

On the one hand, issues that pertain to how parts interact with other parts in these three areas deserve attention. Regarding production, we could examine how agricultural technologies, as parts within the sphere of food production, work with other parts that could lead to outcomes that do not raise concerns for social and environmental justice. For example, studying how energy usage plays a role in agriculture could lead to improvements that have outcomes that result in less anthropogenic environmental degradation, an issue that has a history of causing harm.

On the other hand, there is a need to investigate how parts within areas such as production impact distribution could benefit from additional exploration. The problem of ‘food miles’ is an exemplar. That is to say, proponents of local food frequently champion the consumption and production of food that share proximity, holding that long-range distribution is the primary area of concern (McWilliams 2009). However, researchers argue that growing food in certain regions requires

more energy, suggesting that local food preferences would exacerbate climate change (*ibid.*). Yet, by analyzing these macro-parts (production) to macro-parts (distribution) to macro-part (consumption) relationships, researchers can identify how they relate to whole food systems. In turn, they can determine which relationships will yield socially and environmentally just outputs.

This point suggests that considering the practical nature of this work, philosophers will have to engage in interdisciplinary research or work with researchers who are external to the discipline. For instance, philosophers could join researchers from outside their training to assess how food systems fit together ontologically. In this regard, we see the benefits of how philosophers working in areas such as analytic metaphysics could employ the skills of the trade to provide new avenues for exploring the realities behind foods, which is a branch of inquiry that remains neglected. However, as the articles in this special issue exhibit, that trend could end soon.

## 6. Conclusion

This paper shows how globalized opacity makes it difficult to comprehend the full scope and impacts of conventional food systems, considering that people cannot readily see the sheer number of parts that are involved. Due to this situation, people cannot understand how food systems play a role in several kinds of social and environmental injustices. Although this situation is problematic, by using an applied mereological approach, we can analyze conventional food systems to identify ways to reduce the number of parts that obscure our view of their composition. In turn, researchers searching for ways to eliminate or minimize globalized opacity can work towards developing alternative parts that provide ‘food transparency’.

Although this approach helps us see some of the problematic elements associated with how food systems fit together, numerous areas of research on the production, distribution, and consumption of food will require attention. Bearing in mind that the nature of this work is inherently interdisciplinary, philosophers should collaborate with other scholars and activists, revealing how the tools of the philosophic enterprise can provide insights into these affairs. Although such concerted efforts show that issues of food systems demand practical solutions, they also require a palate for the love of wisdom.<sup>17</sup>

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