(IN)VISIBLE ARCHITECTURE: AN EXPLORATION OF FOOD IN THE DOMESTIC SPACE

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Abstract

This paper investigates the notion of visibility and invisibility in architecture as a framework for exploring the existence of food in the domestic area. The paper argues that there is a disconnection between food, people, and the process behind it in everyday life. Such disconnection demonstrates the alternating visible and invisible existence of food process. Exploring both existences becomes essential to reveal the overall spatial story of food. The paper explores these two aspects through the food journey in the domestic space, creating a micro investigation of how food is obtained, prepared, cooked, and served. This paper aims to examine the possibilities of outlining the complex programming in everyday systems driven by the visibility and invisibility of food in domestic settings. Based on the findings of this study, the paper develops a form of programming titled *(In)visible architecture*, which constructs the co-existence between visible and invisible. Using exploration of tracing, mapping, and design mechanisms, such programming aims to reveal the complex visibility of everyday systems and, by doing so, broaden the relevance of knowledge of food-based architectural design.

Keywords: visibility, invisibility, domestic food, domestic space

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Introduction

The discussions of food have received attention in architecture, highlighting the dialectical relationship between humans and living space that fosters social interaction (Franck, 2002, 2005a, 2005b). In urban discourse, food has been widely discussed, connecting the organisation of living space and social life (Parham, 2015). This paper further explores the idea of the relationship between architecture and living space from a food perspective, or what Steel (2013, 2020) called the *lens of food.* In this case, this paper proposes to use a food perspective as a basis for understanding everyday life.

This paper focuses on food practices that have an important role in shaping the spatial setting of everyday life. It reveals a disconnection between food, living space, and people, giving rise to invisible and visible aspects. Food is just 'there:' People only see food on the table when it is about to be served (visible) (Franck, 2002). But what about the events behind it? There has been a lack of consideration of where, by whom, and how these food items are produced. Understanding processes behind the food that visibly exists on the table might reveal certain things that are initially invisible and need to be explored further.

This paper argues that a focus on the context of the invisible and visible food system will offer an opportunity to conduct a detailed investigation of what is already there (Wigglesworth & Till, 1998) as well as the relationship between the everyday system of production and consumption compared to understanding other contexts. The focus on the visibility and invisibility of food is also driven by the limitations of food discussion in the current architectural discourse, which has not been discussed in such a particular aspect. The current discussion outlines how food brings vitality and conviviality to urban life, encouraging social exchange and interaction (Bohn & Viljoen, 2011; Franck, 2005a; Parham, 2005), the historical role of food in the society (Salvador, 2019); sensory experience of street vendors, restaurants, cafés and specialist shops that attracts people and encourages a vibrant street life (Fernando, 2005).

The discussion begins with an investigation into the theory of visibility and invisibility in architecture and food systems, followed by the mapping study of the visibility and invisibility frameworks for food in the domestic area based on interviews with 15 participants. The findings on spatial mapping in everyday domestic food suggest some possibilities to outline the complex programming of everyday systems, driven by the visibility and invisibility of domestic food.

The visible, invisible, and architecture

Social life and power relations in any community are closely linked to issues of visibility and invisibility: what and who is seen, how public and private spaces are constructed, and the forms of social optics and surveillance that people use to monitor (and fail to monitor) one another's behaviour (Paglen, 2019). In simple terms, the visible reflect what can be seen, while the invisible demonstrate what cannot be seen, infinite,

absolute, and unreachable in the everyday. Bouman and Toorn (1994) explain the simple relationship between the two. "What is visible? The sign is visible, not the content to which the sign refers; the object is visible, not the actions that take place in and around the object; the elegant, unique signature is visible, not the humdrumness of collective manners; the solution is visible, not the problem" (p. 12). Architecture becomes visible when our physical senses can see the environment, such as buildings, houses, cities, technology, and natural landscapes. The invisibility of architecture is demonstrated by the limitation of our physical senses to see or understand the set of rules or conventions in which we develop, such as morals, language, technology, social code, time, and food.

Creating visibility in space is vital because it "allows object to be seen at varying distances and from varying angles; views beyond the limit of the space currently occupied draw visitors into patterns of exploration; movement is always associated with viewing; viewing is directed not only to the objects on display but also to other visitors and to the building" (Zamani & Pepponis, 2010, p. 859); thus giving rise to a good spatial arrangement. In addition to space, visibility is often expressed as a result or as an end product. However, what happened behind the product? Is there a forgotten process? Such background processes are reflected in how each particular product can be associated with a large part of the workforce working on it. Intellectual design and manual crafts are eventually removed and are not visible in the final product (Ng, 2018).

What can be seen and not seen does not always apply to the visual aspect, vision. Coppes (2008) explains that through tactile experience, something that is touched will then transfer the process to become 'visible.' This needs to be understood not as a substitute for vision but as an essential dimension of visualisation/visibility itself, which also contributed by texture, depth, and thickness instead. It can also be translated in the form of a memory from a place that reminds us of another event, thus creating visibility.

In terms of design, the invisibility of architecture is usually associated with the impression of 'disappearance' towards the buildings. Some of the projects that demonstrate such invisibility are the Mirrorcube Hotel in Sweden, designed by Tham and Videgard Architects, and the Cairns Botanic Garden & Visitors Center in Australia, designed by Charles Wright. The building is combined with its surrounding environment using certain materials to create an optical illusion, screen, or camouflage with the surrounding environment, hence a sense of the disappearance.

A particular method of analysis towards the visible and invisible aspect of architecture is needed to reveal what is happening behind the story of the space itself. Some discussions highlight how the act of tracing is used to examine everyday stories and their spatial operations. An example is Warakanyaka (2021), who uses tracing in London to reveal intimate experiences in public and domestic spaces. Another example is tracing to

reveal the existing situation created by the individuals occupying their temporary rooms (Lumthaweepaisal, 2018). This finding is useful for interiors in building comfort. Other references reveal that the traces produced from such an act of tracing can be used as the basis for designing other objects. For example, the 'trace' of the cracker rope that occurred during the Indonesian Independence Day race can be translated into a curved thin metal pole which is then served as an object placed on a flat surface (Honggare & Evanindya, 2021).

The visible, invisible, and the food system spatiality

Based on the discourse on food and architecture, the emerging question is often about where food comes from and how food gets to the table to be eaten. This paper follows the argument that food is not always present—as something that exists or is already available. Instead, some processes behind the presence of the food, such as how the food is produced, consumed, and displayed, needs to be revealed as well (Parham, 2015). Food should not be seen simply as an independent thing but as a dense network of activities and a complex system related to many social, economic and societal aspects.

The discussion of the visibility and invisibility of food becomes vital as part of the design endeavour because it pays attention to the availability of food to be consumed and gives cues for people to eat (Parham, 2015). Steel (2020) discusses the invisibility of food in a broader context, whereas food sources are referred to as 'unseen ground,' and that there is a gap between rural and urban areas. The city supplies food from the village with ongoing labour investigations; with the rural people experience such labour hardship while the city only enjoys its fruit. Meanwhile, Tinker (1997) in Parham (2015) explains that in the context of home-cooked food sold directly to customers on a contract basis, it can be defined as "'invisible street food' because they are sold 'through the streets bu not on the streets [and are an] important part of urban feeding patterns'" (p. 104). In this case, the search for the visible and invisible in the domestic context becomes relevant because it turns out that the process transcends between different spatial scopes, from the city context to more micro ones such as the domestic area. In the broader context, there are processes of food production that are otherwise invisible; and the food itself emerges as an invisible object.

The discourse raises further questions about how the relationship between the visible and the invisible food system exist in a smaller context. Do visibility and invisibility persist, occurring in one process or occurring in the whole food process and systems? This understanding of visibility and invisibility is then used to map food systems in the domestic space using the diagrams that will be discussed in the next section.

Food flow in domestic space

This paper traces the practice of food and its spatiality in the domestic environment through online interviews with

15 households. The household to be explored is limited to a family-based household, consisting of at least a father, mother, and one child. The focus on family is done to collect data with sufficient diversity of the types of food they consume and to ensure that there is some process of social interaction as part of the food narrative between individuals in the domestic area. Through such interaction, food in the domestic space is read as a connected narrative. In this paper, food is positioned as a process indicated by the mapping of the food flow. The food mapping in the domestic space was based on information collected from the interviews, with photographs supplemented by participants informing the flow of their food arrangements (Figure 1). The interview contains information about how food is arranged, sorted, cleaned, how the food projects a relationship with the domestic spaces, and the spatial arrangements of food concerning the daily activities. The photographs are mapped at a macro level, showing clarification regarding the stages of food in the overall food process.

Figure 1. Photographs provided by participants informing the flow of their food arrangements (Image by authors)
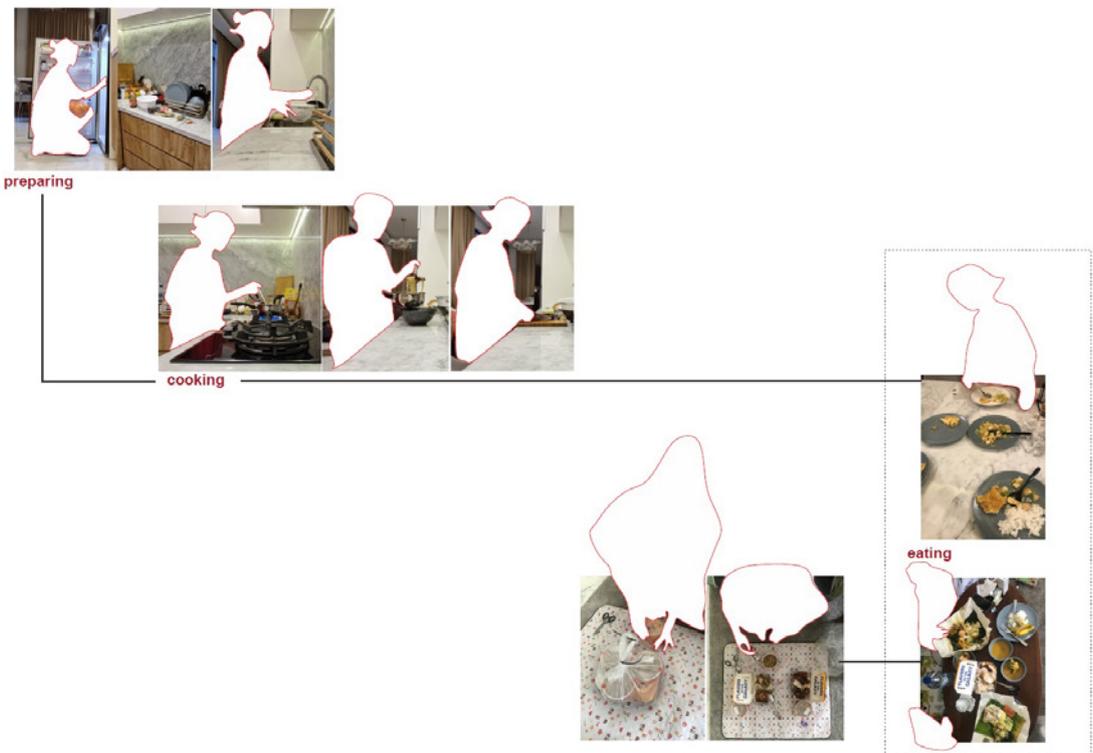
Based on the data obtained from interviews, the study explores the food flow process through the sequence of food movements, from the sorting process to being served in the household (Figure 2). Household food can be bought and obtained in various ways, depending on the needs and desires of the homeowner: buying raw food ingredients at minimarkets, grocery stores, traditional markets, or supermarkets; buying through a mobile greengrocer; or buying ready-to-eat meals or groceries via online delivery. The type of food itself is divided into three parts: fresh food such as vegetables, fruits, and

meat; dry foods such as condiments or snacks; and ready-to-eat food. The type of food collected is important, because this will be related to the spatial mechanism of how food is stored, washed, and cooked. The food flow and every food flow process are also important because they describe the organisation of a particular area in a more specific domestic setting, revealing the relationships between food flows, types of food, the relationship of food to humans, and space in the house.
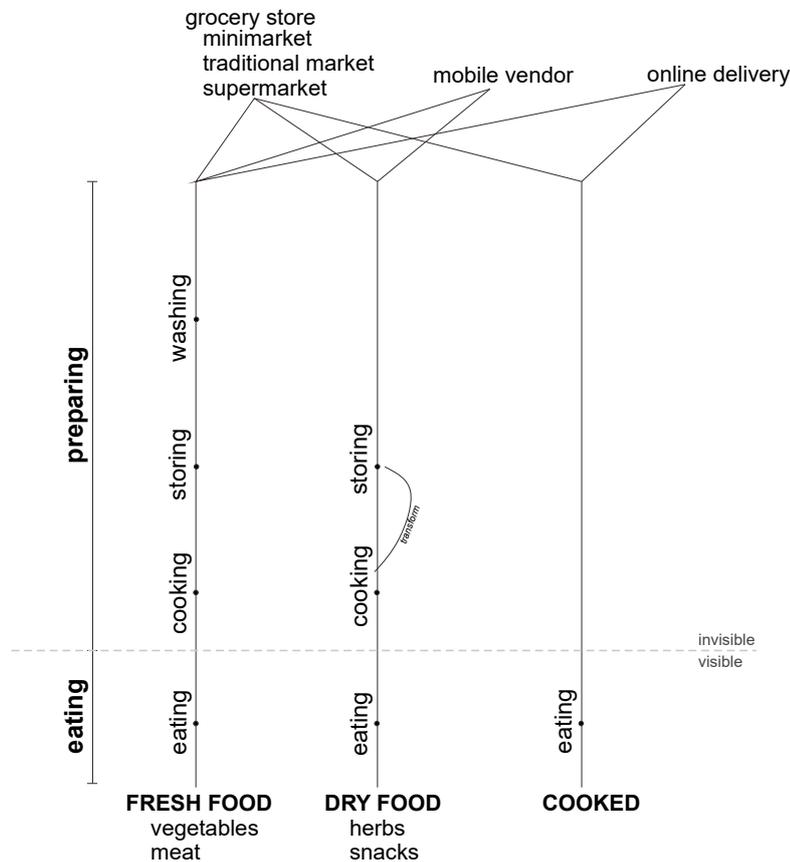
Figure 2. Food flow in domestic space (Image by authors)

Based on the food flow chart collected from the interviews, some sample of each food process is mapped through micro diagrams in detail. The mapping shows the journey of food or food ingredients obtained, prepared, cleaned, stored, cooked, and finally eaten. Further analysis is carried out to reveal how food exists in daily life within the domestic space, in accordance with the framework of visibility and invisibility. It is argued that conducting food mapping through the visibility and invisibility framework may reveal the complex spatial programming in everyday systems.

Positioning the visibility and invisibility framework in domestic space

The discussion of this sub-chapter seeks to disassemble the flow of food from the visible and invisible, which is preceded by a discussion of its tracing activities. The visible and invisible searches are based on the earlier macro food flow chart (Figure 1 and Figure 2).

It has been discussed that there is a disconnection between food, people, and living space. Food only 'appears' on the table when it is about to be eaten. But what about the system behind it? The unconscious occurs of where, by whom, and how food manifests. What lies beyond the existence of food on the dining table may reveal certain things which will then be used as a basis for further exploration. Therefore, further investigations into visibility and invisibility in the domestic environment were carried out.

In this paper, visible and invisible are the terms that will be used to describe the mapping of the food system. Being visible demonstrates the quality that enables something to be seen clearly by the eyes or can be felt through other senses; related to something that has a form and can be reached. In contrast, the definition of invisible reflects something that cannot be seen by the eye, for example, because it is transparent, hidden, or tiny and something related to a process or thing that is detailed or forgotten. These terms have a vital position in the implementation of the mapping process. The mapping is initiated by separating which food systems are visible and which ones are invisible. This initial mapping explores other theories that comprehend urban systems from a food perspective (Steel, 2013, 2020). Initially, what was meant by 'visible' was when the food was already on the table, only seeing the food when it was consumed. What is not visible would then be the events behind such existence of food: the process that food undergoes from stages of production, distribution, and retail systems in markets or supermarkets, to consumption, which will be investigated and traced further in the following sections.

Preparing

The food preparation stage takes place when the food has been purchased and carried out before the food is cooked and consumed. Based on the tracing of the diagram, it was revealed that the preparation process relies on the visible and invisible framework, which consists of the process-products relationship, the existence of food as tangible things, and the existence of things being hidden and revealed. The process-product relationship at the preparation stage demonstrates the different sources of homemade food. Homemade food sources can be purchased from outside or cooked within the domestic space.

Food can be purchased from outside the domestic space in the form of ready-made food or raw materials, which are then cooked and consumed. Prepared food from outside the domestic requires a short process before being consumed. It means that food can be eaten directly without going through a cooking process. Meanwhile, food from outside the domestic is obtained in raw materials, requiring a longer preparation where the food needs to be cooked first. This indicates that before the food is ready (as a product), there is a process behind it. The process turns out to be related to the process of sourcing the food, which varies based on the type of food it is made from: which further means that the source of the food has different time

requirements, as obtaining 'unfinished' food will take longer to reach consumption stage, in comparison to the ready-made food.

The subsequent visible-invisible framework puts food as a tangible thin. In this process, the type of food becomes important because there are differences in how to follow up on the food based on the type of food. Food form (or tangible food) consists of fresh and dry food. To promote sterilisation, some fresh food needs to be washed first to keep it away from dirt. After that, the food is cut into pieces, put in a container, and then stored in the refrigerator. Meanwhile, the dry food does not require a washing process and can be processed directly to the storing phase. These processes reveal that food is a tangible thing with different types, which defines its sterilisation needs. Fresh food requires a process before being consumed to maintain cleanliness, while dry food does not need it.
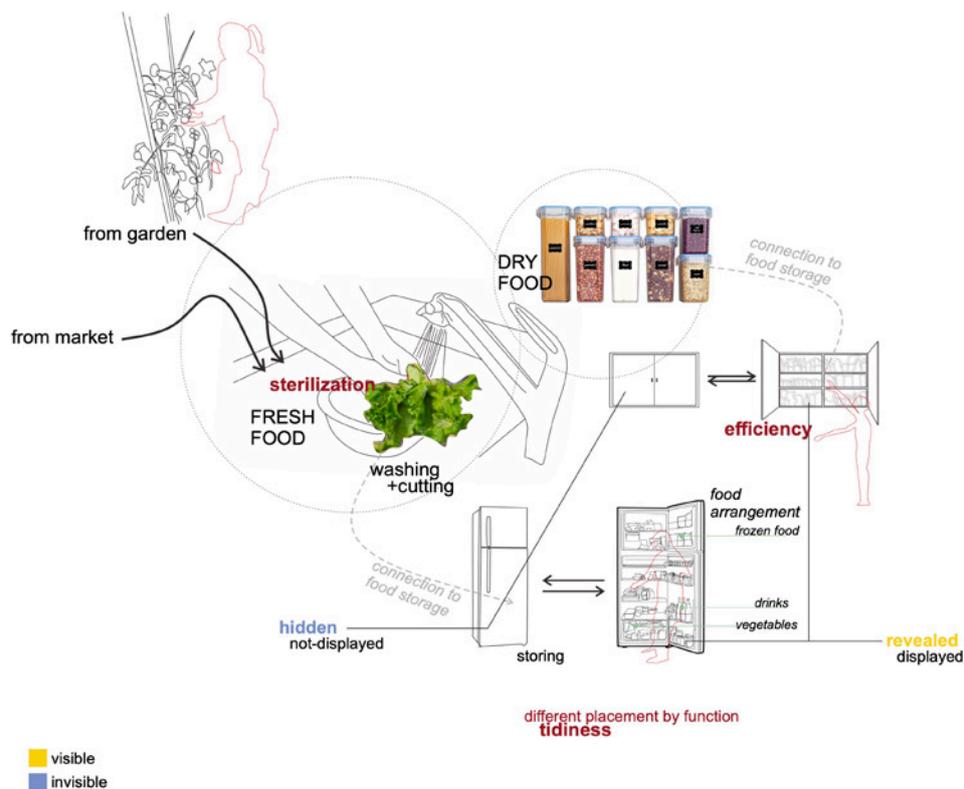
Figure 3. Diagram showing the process of food preparation, the existence food as tangible things, and the existence of things being hidden and revealed (Image by authors)

The third part of framework is food as something hidden and revealed. In terms of storage arrangements, wet and dry foods have their food arrangements and are stored according to certain zones as determined by the dweller based on their function. For example, vegetables and fruits are placed in the lower part of a refrigerator, meat in the upper part, and herbs and spices are placed in the cabinet. In this preparation process, the food spatiality changes from being invisible-visible-invisible-visible-invisible, and so on, depending on its use. The process of changing from visible to invisible space is found when the user makes an effort to change the space according to their needs. Each space is arranged to be visible or invisible, depending on how it is needed. In general, the discussion about being visible

and invisible at this stage of preparation occurred through the consistency of space users to maintain the cleanliness, tidiness, and efficient use of space.

Cooking

If we observe further, household food practices cannot be separated from the cooking process. Food mapping shows that the flow of food occurs regularly in everyday life. Freshly bought groceries in paper bags are often laid out on the floor before being sorted, washed and grouped according to their type. The kitchen is a space where users can quickly move from one place to another. The close location of spaces in the kitchen minimises unnecessary movement between the objects used for cooking: cupboards, refrigerators, sinks for cleaning, etc.
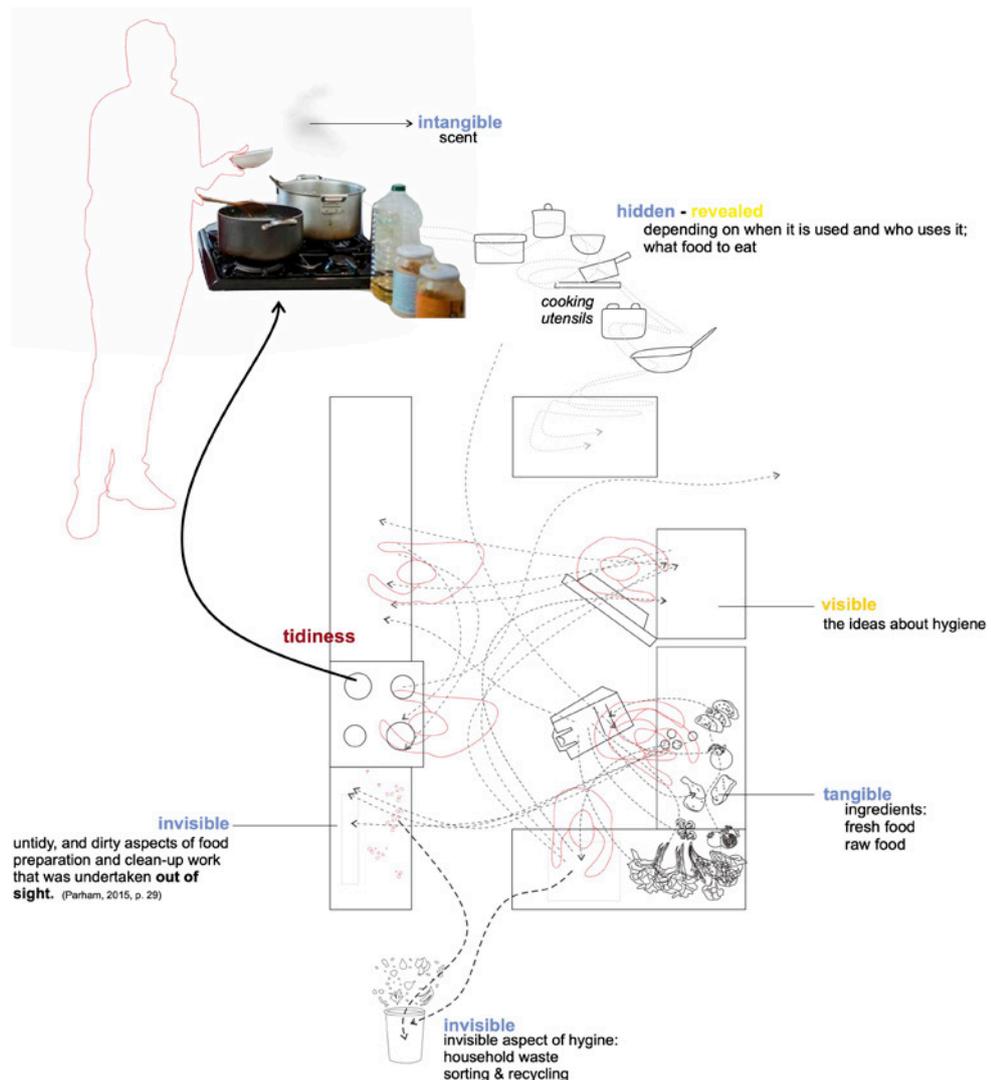
Figure 4. The process of cooking in the kitchen reveals tangible-intangible food and spatial organization of cooking and cooking utensils (Image by authors)

The visible-invisible framework in the cooking process relates to food as things that can be seen with the naked eye, which are tangible and intangible. The explorative mapping reveals which traces are tangible and intangible (Figure 4). The tangibles are certain objects that can be physically seen and touched, objects that can be seen visually in food, food ingredients, and

food waste. In comparison, the intangible ones are shown in the aroma and 'sound' of cooking which are not visible to the naked eye but can be felt through the senses. The aroma of food can invite people to eat—even those who are at first not hungry can become hungry. The tangibility of food generates *sensoryscapes* (Fernando, 2005), where the smell, sound, and taste within the eating activities create attraction from various people.
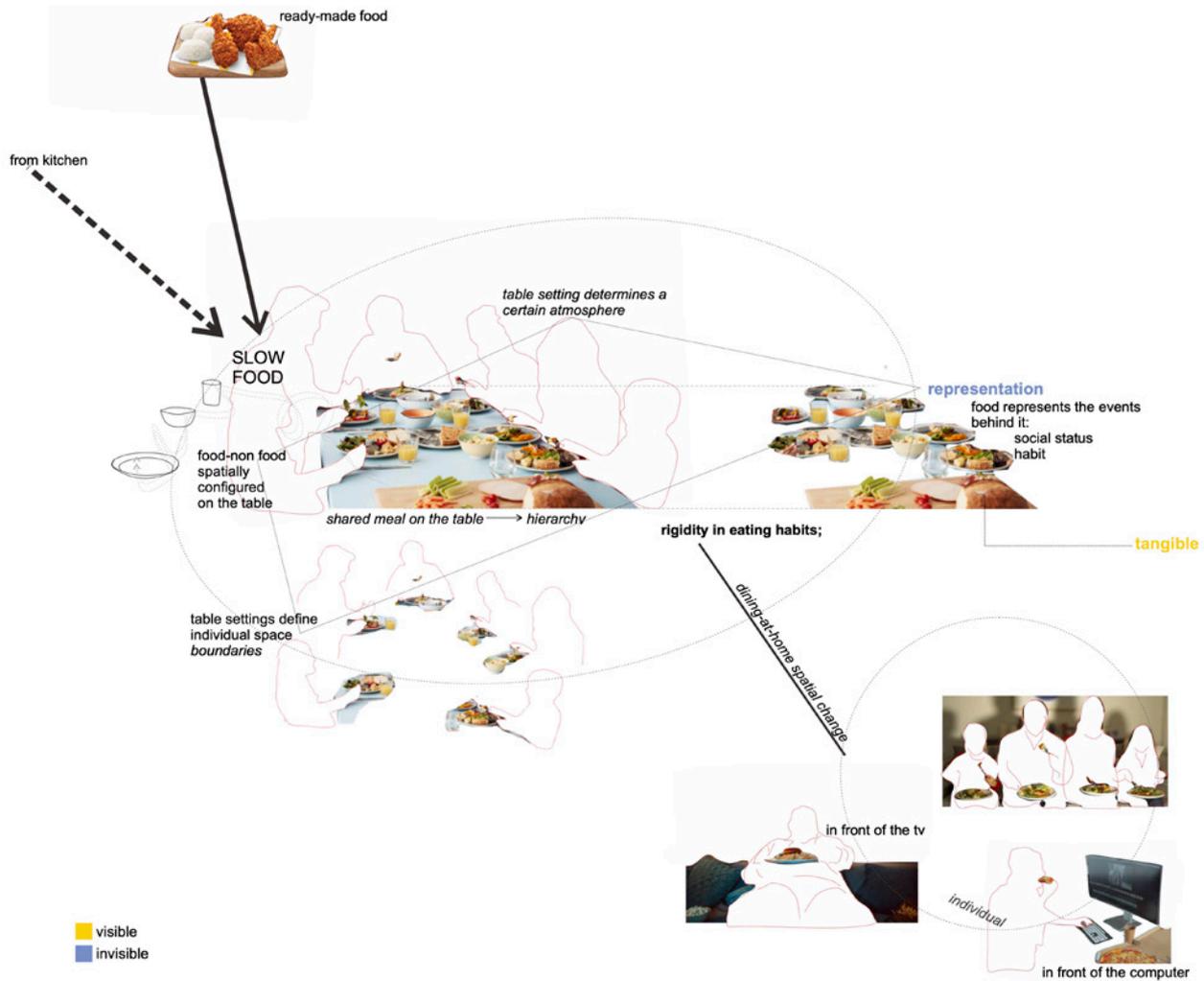
The cooking process closely related to the kitchen expresses the idea of the 'invisible kitchen.' Throughout the time, there is a change in the position of the kitchen. The kitchen and dining room were separately arranged because they were considered a place to put filthy things in the past. Meanwhile, in current times the dining room and kitchen are commonly united. People can eat while seeing other people cook. Neumeyer (2007) explains that eating while watching the cooking process is satisfying. It shows that changes in the kitchen alter what is previously invisible into visible.

The exploration also revealed that the cooking processes depend on cooking tools such as pots, pans, and knives. These cooking utensils are used to perform certain functions to ensure the food is adequately prepared. When not in use, these tools can be stored out of sight, such as inside a cupboard or can be kept close to view to make them easy to us. This way of storage is incorporated in the hidden-revealed aspect of the visible-invisible framework, creating a spatial organisation of the cook's space to speed up and simplify the cooking activities.

Eating

After the food is prepared, it arrives at the consumption stage. The mapping (Figure 5) shows that eating practices in domestic spaces can occur in two events based on the investigation results. The first event is when the dining table has a significant role household food practices. Within the framework of the invisible, eating together at the table can indicate rigid activities that tell a particular narrative. The narrative of the dining table shows traces of events that represent other activities, such as: the table setting patterns; the proximity between users at the table who created the contact; the arrangement of chairs showing a hierarchy that the user sitting in the middle is the head of the family and the chair with the opposite sitting position is for guests and other family members; what food that runs out and what is left, the food that runs out shows the most favourite food.

These traces also reveal the previously unseen things: (1) how the user's character can be seen from the leftovers and the arrangement of the cutlery on each plate—which family member looks neat and messy are judged by the rest of the food; and (2) changes in the arrangement of chairs after eating indicates that some actors have particular interactions with other actors. The table setting expresses a certain atmosphere that defines the boundaries of individual spaces: this is my food, this is my territory. The visible-invisible framework in the cooking process also broadly relates to food as things that express representation—a

Labels within figure:
ready-made food
from kitchen
SLOW FOOD
food-non food spatially configured on the table
table setting determines a certain atmosphere
representation
food represents the events behind it:
social status
habit
tangible
shared meal on the table ⟶ hierarchy
rigidity in eating habits;
dining-at-home spatial change
table settings define individual space boundaries
in front of the tv
individual
in front of the computer
visible
invisible

Figure 5. Eating practices in domestic spaces: On the table versus eating 'anywhere' (Image by authors)

representation of the person who cooks and where the cooking process is carried out. The food being served represents a particular culture and expresses what people like to eat, which can then be related to their cultural background (Marte, 2007). The visible framework is demonstrated by the position of the food on the table. The presence of food on the table indicates the 'availability' of food for consumption and provides a signal for occupants of the house to eat (Parham, 2015).

The second event of eating in the family room marked a spatial change. That eating process does not have to occur at the dinner table but can be carried out anywhere. For example, eating while being in front of the TV or working in front of a computer screen. When eating at the dinner table reveals something rigid, in contrast to this, eating 'anywhere' expresses the freedom of self: eating does not have to be done while sitting down and with conventional hierarchy. However, one similarity between the events is that the spatial conditions do not necessarily limit the family from eating together. Nevertheless, if it is associated with the visible-invisible framework, there is a difference between eating at the table and eating elsewhere at home. Eating at the table defines food as a form of representation of the events behind it. Eating anywhere does not indicate a representation of the events but alters the food as the object of celebration.

(In)visible Food System in Domestic Space

This paper examines food systems in everyday life as an interconnected and ongoing process. A series of analyses and mapping reveals the co-existence between visibility and invisibility in everyday systems in the domestic area. It turns out that the food system cannot be divided rigidly. Instead, each process contains both a visible and invisible existence of food. The investigation identifies the main components of domestic food's visible and invisible framework, highlighting three primary relations: the process-product, the tangible-intangible, the hidden-revealed, and the traces-representation. As explained in the analysis, food has an underlying event or process. The map reveals the traced process due to the requirement for the hygiene and cleanliness of food to exist in the domestic food area. The second relation signifies how food consists of a tangible and an intangible form. The tangibility of food is related to its form as an object, which consists of food ingredients, leftovers, and its setting on the dining table. The intangibility of food relates to how the form of food unfolds through its sensory experience. Meanwhile, the hidden-revealed aspect of food refers to the spatial settings for food processing utensils which organises which parts are hidden and the ones that are intentionally shown. The presence of traces and the resulting representation of domestic food show food as a representation that reveals the existence of events and expression behind it.

It can be concluded that the visible system of food is responsible for the food availability and the visuals of the food, which indicates what to eat concerning the taste. In contrast, the invisible system is responsible for the events behind the existence of food in the domestic space, how it is presented, and who is involved in its presence. Although it seems that the two types of frameworks are described separately, they both produce an integrated system. The co-existence of visibility and invisibility reveals (in)visible connections to the food processes: who, how, and why food is being sorted, prepared, cooked, and eaten.
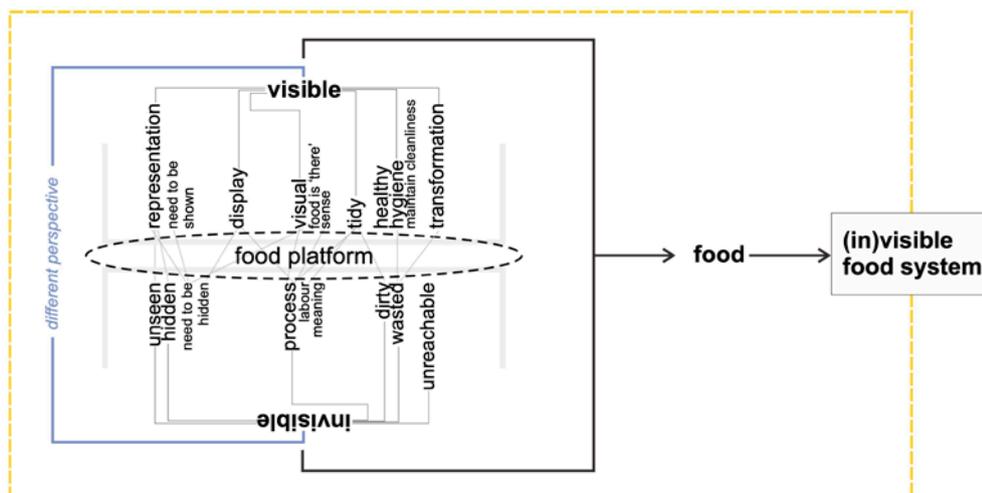
Figure 6. (In)visible food system (Image by authors)

This study expands the current understanding of architecture and food, particularly in domestic spaces, showing how household food practices can reflect the deeper programmatic processes and relations that influence the cleanliness, effectiveness, and expression of food in spaces. Understanding the co-existence between the visibility and invisibility of food may inform future design methods by understanding the formed strategies and tactics related to cleanliness and effectiveness of space users. Such strategies and tactics generate levels of architectural programs, where some programs are spatialised while other programs are not spatialised but exist under the layers of everyday lives.

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