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Urban food environments and cultural adequacy: the (dis)assemblage of urban halal food environments in Muslim minority contexts

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ABSTRACT

Cultural adequacy has been largely neglected in urban food environment research. In times of urban multiculturalism, this is an obvious shortcoming. To address questions of cultural adequacy, urban food environment research needs to broaden its theoretical scope. The conventional approach to food environments as constituted through the presence or absence of specific foods in particular neighborhoods is especially insufficient. This argument is illustrated by empirical case studies examining halal food environments in Brasília (Brazil) and Frankfurt am Main (Germany). Drawing on assemblage thinking, we show that urban halal food environments in Muslim minority contexts are not determined by the mere presence or absence of halal foods but depend on how halal is understood. Furthermore, these environments are outcomes of complex assembling and dis/reassembling practices, including the crucial role of the invisibilization of halal foods. Invisibilization, in turn, is driven by market logics, entrepreneurial fear of cultural prejudices, and food regulations that disregard Muslims' needs. Invisibilization is therefore likely to disassemble halal food environments in numerous other Muslim minority contexts. Findings imply that assemblage thinking helps unpack the complex societal relations that bring about culturally (in)adequate food environments, so food environment research would benefit from taking it on board.

Introduction

So eat of the lawful and good food which Allah hath provided for you, and thank the bounty of your Lord if it is Him ye serve.

Q16:114.[1]

What we eat affects us entirely, not only in physical terms, but also spiritually. It influences our proximity to Allah, our relation with other people, and this is why we wouldn't eat if food is not halal.

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Muslim student, Brasília, 2015.

Many practicing Muslims consider eating and drinking a matter of spirituality and worship of God. They strive to follow Islamic dietary laws by consuming only religiously adequate foods and beverages, meaning those considered "halal" (lawful, permitted; for a detailed definition see the section "Cultural adequacy and halal food"). In countries where Muslims represent a minority, this is not always easy; sometimes it is hardly possible at all (Mycek et al. 2020; Vallianatos and Raine 2008). Today, one may assume that halal food is available at least in internationalized cities and metropolitan areas with considerable Muslim populations, as is the case with "ethnic" food (Shaw, Bagwell, and Karmowska 2004). Most Muslim immigrants in Muslim minority contexts live in cities where halal butcheries, food shops, bakeries, and restaurants have been opened. Against this backdrop, this paper sheds light on urban halal food environments in such Muslim minority contexts and critically reflects on how access to halal food is configured there.

Urban studies have drawn considerable attention to food environments since the late 1990s. This is especially the case with so-called food deserts (Walker, Keane, and Burke 2010; Beaulac, Kristjansson, and Cummins 2009), i.e., urban neighborhoods where access to healthy, affordable foods is extremely limited. Meanwhile, questions of cultural adequacy have largely been neglected. In times of urban multiculturalism, (post-)cosmopolitanism and post-secularism (Humphrey and Skvirskaja 2015; Beaumont and Baker 2011), this is a distinct shortcoming. Our paper is intended to help fill this research gap. Based on an analysis of urban halal food environments, we argue that food environment research needs to broaden its theoretical scope to address questions of cultural adequacy. The conventional approach to food environments as constituted through the presence or absence of specific (mainly healthy and affordable) foods in particular neighborhoods is especially insufficient. This argument is substantiated by empirical case studies of halal food environments in metropolitan areas of Brasília (Brazil) and Frankfurt am Main (Germany). Drawing on assemblage thinking and fieldwork in these cities, we examine how urban halal food environments have been assembled there. Brasília and Frankfurt differ greatly in terms of the presence and history of Muslim populations, their societal integration, halal slaughter regulation, and consumer demands for halal food. These different profiles enable us to identify place-based assembling practices of urban halal food environments as well as those that would likely also be found in other cities in Muslim minority contexts.

Our findings show that the urban halal food environments we analyzed are not determined by the mere absence or presence of halal food. Besides depending on the understanding of halal, such food environments are results of complex assembling and dis/reassembling practices in which invisibilization of halal food plays a crucial role. Invisibilization, in turn, is driven by market logics, entrepreneurial fear of cultural prejudices among non-Muslim consumers, and national food laws and regulations that disregard Muslims' needs. Invisibilization practices are therefore likely to disassemble urban halal food environments in many other Muslim minority contexts. Our findings imply that assemblage thinking helps to unpack complex societal relations that cause culturally (in)adequate food environments to exist, so urban food environment research would benefit from taking it on board. Before

elaborating the results of our study, we present our theoretical framework, methods, and scope.

Theoretical framework: conceptualizing culturally (in)adequate food environments

Food researchers from various disciplines have applied a range of geographical metaphors conceptualizing urban food environments – deserts, oases, mirages, swamps, brownfields, and hinterlands (Osorio, Corradini, and Williams 2013; Short, Guthman, and Raskin 2007) – where the idea of "food deserts" prevails. It became a powerful metaphor establishing a convincing analogy between precarious human lives in deserts and in deprived urban areas. Analyses of problems addressed through the lens of this concept are inspired by imagined difficulties suffered by humans living in deserts: limited access to healthy, nutritious, affordable foods and the need to travel long distances to find them. More recently, urban food desert research has broadened its empirical context to include, for example, cities beyond Euro-America (Crush and Battersby 2016) or rural areas (Rodriguez and Grahame 2016), racial issues (e.g., Kurtz 2013), additional variables like mobility (e.g., Childs and Lewis 2012), and increasing use of related metaphors referring to different types of access to different kinds of food. Lived experiences, coping strategies, and the demands of residents of specific food environments have also received attention (e.g., Tach and Amorim 2015; Larchet 2014), though to a lesser degree. Critical voices, however, have argued that much of the work on urban food environments has neglected the sociocultural complexity that produces specific food environments (e.g., Slocum and Saldanha 2013). This includes the fact that the concept of healthy, nutritious food is not universal (though it is often treated as such) but defined differently in distinct cultural contexts (Mycek et al. 2020). For example, many Muslims do not consider non-halal foods healthy.

Given this critique, we suggest, in line with food security and food sovereignty scholars (see next subsection), that adequate urban food environments concern healthy, nutritious, affordable, and *culturally adequate* foods. This important issue has been overlooked so far, particularly in multicultural and/or cosmopolitan urban contexts. The usual take on urban food environments as constituted through the presence or absence of specific foods in specific neighborhoods, however, is too narrow to fully grasp aspects of cultural adequacy. In light of these oversights, we suggest that assemblage thinking offers the possibilities of addressing questions of cultural adequacy and, in response to the critique outlined above, unpacking the potentially complex social and cultural relations that create specific food environments. In the following two subsections, we clarify how the concepts of food environments, cultural adequacy, halal food, and assemblage work together to form the theoretical lens of our case studies.

Cultural adequacy and halal food

Academic and political discourses consider cultural adequacy (or acceptability) a key dimension of food security and food sovereignty (e.g., Cidro et al. 2015; Sneyd, Legwegoh, and Sneyd 2015; Coates 2013). However, research on cultural adequacy is scarce, not least because it is hard to quantify or measure (Coates 2013) and conceptually

fuzzy in many cultural contexts. In the case of urban Muslim communities, we suggest that "culturally adequate and acceptable food" largely translates into "halal food." Meanwhile, halal is a complex concept.

The Arabic word halal means lawful or permitted and refers to all things and actions that are permissible according to Islamic law. The basic guidance on halal is revealed in the Quran, the divine book, as well as in the Hadith, which are compilations of records of the life, actions, and teachings of the prophet Muhammad. At the same time, halal, like any religious concept, is subject to interpretation and highly contested. This applies also to halal foods. What is considered halal food varies greatly among Muslim consumers, religious authorities, organizations, governments, halal food producers, certifiers, and scientists. A general consensus among most Muslims is that halal foods are free of haram components, meaning any component Muslims are prohibited from consuming (Riaz and Chaudry 2019), for instance, blood, carrion, pork (Q2:173; Q5:3), or alcohol (Sahih al-Bukhari, Book 74, Hadith 7), and that halal meats come from animals that have been slaughtered according to Islamic laws (see Riaz and Chaudry 2019 for a detailed overview of the relevant Quranic verses and Hadiths). However, some aspects of meat production, such as industrialized meat production in general, automatic slaughter, and stunning and slaughter performed by Jews or Christians, are controversial. Disputes about halal practices have led to a wide range of different halal standards and regulations (Riaz and Chaudry 2019).

Recent approaches to halal link it to the concept of "tayyib," an Arabic word translated literally as good, pure, or wholesome. It appears in the Quran along with halal, for instance in the Quranic verse (Q16:114) quoted at the beginning of this paper: "So eat of the lawful [halal] and good [tayyib] food which Allah hath provided for you . . . " At the same time, "the practical description of Tayyib and the rational merging with Halal have not been well clarified yet" (Alzeer, Rieder, and Hadeed 2018, 265). Especially in industrial halal food production, tayyib has been used to refer to food safety, health and hygiene (e.g., Raheem and Demerci 2018), while in the context of Islamic environmental ethics it has also served to conceptualize eco-friendly, sustainable halal food production (e.g., Abdul-Matin 2010). As we show in the empirical part of the paper, our interlocutors ultimately did not mention the concept of tayyib, as it is relatively recent in the field of halal food production and marketing; nonetheless, this does not mean health, hygiene, and/or sustainability have no role in the interlocuters' understandings of halal food. Indeed, many interviewees saw these aspects as integral to halal.

A final related point is that consumers' concepts and notions of halal food also matter. They are equally diverse, complex and contested, not least because the Muslim population is diverse in terms of cultural backgrounds, ethnicity, nation, age, class, gender, and religious affiliations. Moreover, Muslims may practice their religion differently (or not at all). Some may strictly adhere to some Islamic dietary rules (e.g., avoiding pork) while also taking a lax attitude toward others (e.g., not consuming alcohol). They may respect different religious discourses and schools and/or defend holistic understandings, rejecting industrial mass production completely (Hamid and Rego 2018). All of these aspects co-constitute halal food environments and influence how Muslims perceive and experience them.

Cultural adequacy and halal food environments as assemblages

The assemblage approach can illuminate the spatio-temporal dynamics, complexity, contradictions, and nuances of phenomena like culturally (in)adequate food environments co-constituted through diverse understandings of what is culturally adequate, along with the resulting discourses and ensuing practices of food production, consumption, regulation, and marketing. We therefore use this approach to conceptualize halal food environments.

According to Deleuze and Guattari (2007), assemblages are provisional, open wholes formed by heterogeneous elements and logics functioning together. For example, these may be specific foods, halal labels, producers, consumers, religious logics and laws, national food laws, or market logics. These elements and logics are drawn together by desire, such as the preference or demand for halal food. Desire, elements, and their relationships may change, and assemblages do so too: they are dynamic and endure or fall apart. In other words, they are assembled but can be dis- and reassembled through, say, internal contradictions, resistance, or external elements and events. All elements of assemblages are considered agents, be they human (e.g., halal food producers, sellers, consumers) or non-human (e.g., halal labels, food laws). Agency and power are held by elements of the assemblage but also arise from and are transmitted via these elements' interactions. The magnitude of agency and power varies among the elements, so power is distributed and mediated unequally within and through the assemblage.

Agency and power are largely manifested, mediated, and resisted through assembling and (dis/re)assembling practices (Murray Li 2007). Halal food assembling practices can include, for instance, the introduction of halal slaughter practices or the importation of halal-labeled processed foods. As we demonstrate in the empirical part of this paper, the invisibilization of halal food is one of the possible disassembling practices, especially in Muslim minority contexts. Several studies have shown that many (if not all) societies practice invisibilization of cultural difference. Such practices may be of distinct kinds and orders, including practices of non-representation, silencing, or physical exclusion (e.g., Herzog 2018; Dietz 2007). The invisibilization practices observed in our case studies consist basically of non-identification of halal-produced and/or certified foods, applied halal concepts, and/or haram elements in food. As such, these invisibilization practices may be understood as discursive silencing in Foucauldian terms (Foucault 1981). Examination of the main assembling and dis/reassembling practices reveals how assemblages like urban halal food environments are enacted and (re)formed (see also McFarlane 2009).

The relation between (dis/re)assembling practices and food environments is reciprocal. A food environment is (dis/re)assembled, and as such is "always an emergent property of its interacting human and non-human inhabitants" (Marston, Jones, and Woodward 2005, 425). At the same time, they both enable and limit (dis/re)assembling practices. Food environments may be understood as localized or place-based assemblages. However, they are always contextualized through their connections to and interaction with a large range of other assemblages which may be smaller or bigger in terms of power and reach (DeLanda 2016), also enabling and limiting (dis/re)assembling practices. This means that specific environments are always (dis/re)assembled differently in different contexts. Simultaneously, they may evince parallels due to similar logics or structures of interacting assemblages with a translocal or transnational reach.

Methods and scope

The theoretical lens presented above serves to explore urban halal food environments in Muslim minority contexts. Halal adequacy is largely in the eye of the Muslim beholder, so the analysis first of all explores understandings of halal expressed by Muslims who live in particular contexts and (seek to) consume, produce, certify and/or sell halal foods. Our second step is to analyze halal food assembling practices that result from these understandings. Thirdly, we examine which and how other main agents contribute to halal food (dis/re)assemblage. Based upon these three steps, we suggest geographical metaphors to qualify the analyzed food environments and shed light on Muslims' coping strategies and reassembling practices.

We selected the halal food environments of the metropolitan area of Brasília (i.e., Brazil's Federal District) and Frankfurt am Main (Germany) as case studies. Both are international cities with substantial Muslim populations, and both are in countries whose food industries engage in large-scale halal production. These two cities were chosen also because they are distant and different in other respects, such as economic profile, historical relations with the Islamic world, size of the Muslim community and consumer market, societal integration of Muslims, and halal slaughter regulations. Analysis of distinct halal food environments gives us a sense of which halal food (dis/re)assembling practices are specific and place based, and which are more generic and likely to be found in other urban contexts where Muslims represent a minority.

The fieldwork in Brasília and Frankfurt was carried out between 2015 and 2018. In both cities, we first held semi-structured interviews with Muslim consumers and halal food producers and sellers, including grocery store owners and staff, butcheries, and bakeries. The interviewees' profiles were diverse in terms of gender, age, and nationality, and the interviews took place in various localities, mainly halal food selling establishments, mosques, and Islamic cultural centers. In Frankfurt, the analysis focused on Bahnhofsviertel and Gallus, two neighborhoods with large numbers of Muslim inhabitants and halal food selling establishments. Here, we conducted 74 semi-structured face-to-face interviews, 20 with Muslims involved in local halal food production and/or retail, and an additional 54 with Muslim consumers seeking to follow Islamic dietary laws. These semi-structured interviews were conducted by one of this paper's authors and a group of 22 students from the University of Mainz, Germany. The number of semi-structured interviews in Brasília was significantly lower than in Frankfurt, as Brasília has smaller Muslim population and fewer halal food sellers. Three interviews with halal food sellers (all we could identify) and 18 semi-structured face-to-face interviews were conducted at the Brasília mosque and other meeting points with Muslim consumers we contacted using snowball sampling. To obtain more results, we sent the same questionnaire in an online format to other Muslims from Brasília, also contacted via snowball sampling. These efforts garnered 13 responses. Secondly, we carried out 20 in-depth interviews (10 in Brazil, 10 in Germany) with Sheikhs and representatives of Islamic cultural centers in both cities as well as with representatives of halal certification firms in Brazil and Germany. Finally, this analysis also draws on information published in print media and on halal food websites.

This study faces two consequential methodical conundrums. First, it is impossible to shed light on all potential halal food (dis/re)assembling agents, practices and logics, so we

focus on those we identified as main agents (see the empirical sections). Second, as explained above, methods vary in both cities due to the different configurations of the local Muslim communities, so this study is not a comparative study in a rigorous sense. Nonetheless, considering the outcomes of the fieldwork in both cities at once leads to valuable insights that cannot be explained by a single-case analysis. These limitations may be addressed in further research. In this paper, all quotations from sources in Portuguese or German have been translated into English by the authors. All names of interviewees, companies, and organizations have been anonymized through coding.

Brasília and the Federal District (Brazil): Muslim life in a halal food steppe?

Most of Brazil's contemporary Muslim communities have taken shape through immigration processes over the past 130 years. Twentieth-century Muslim immigration was dominated by Middle Easterners, but it diversified over time, especially during Brazil's economic upswing from 2000 to 2015, which attracted immigrants from countries in Asia (e.g., Pakistan, Afghanistan, Bangladesh, India) and Africa (e.g., Senegal, Ghana, Sudan, Somalia). Furthermore, significant numbers of Brazilians have converted to Islam (Pinto 2010). As a consequence, Brazil's Muslim community boasts a great diversity of ethnic and national backgrounds, despite its still relatively small numbers. According to census data from 2010, Muslims living in Brazil numbered 35,167 (0.02% of the population), 972 of them in the Federal District (an area of 5,780 km^2 inhabited by 2,393,000 people). These numbers are contested, with Muslim organizations' estimates being significantly higher. The imam of the Brasília mosque thinks that at least 3,000 Muslims now live in the Federal District, including long-resident Arab Muslim families, Muslims working in embassies and other international organizations, and a relatively young generation of Muslim migrants from African and Asian countries who arrived in Brasília in the past decade seeking work and/or refuge (BMC8).

Large-scale production of halal food emerged in the context of neoliberalization in the late 1970s, when Brazil began to embrace its growing export-oriented agroindustry. Arab Muslim immigrants and their connections to the Middle East served as conduits enabling Brazilian firms to establish halal production for export. Over time, major Islamic organizations set up professional halal certification bodies. Today, Brazil is one of the world's largest halal meat and poultry producers and increasingly exports other halal foods as well (Husseini de Araújo 2019). In contrast, halal foods *in* Brazil are hard to find to this day, not least because of the relatively small Muslim consumer market. "It's so frustrating!" an Omani diplomat said in an interview. Halal labels are entirely absent from advertisements for shops and restaurants on the outer walls of the Federal District. Though online halal guides are several, only one restaurant in the whole area is advertised as serving halal meat, and hardly any products in supermarkets and grocery stores carry halal labels.

Main agents and (dis)assembling practices

The main agents assembling halal foods in the Federal District are above all Muslims who require halal foods. Their ideas of halal food are manifold, as are their perceptions of their food environment. Many interviewees understood their halal diet in terms of avoiding

haram foods and beverages, mainly alcohol and pork (BMC3). Some explicitly mentioned porcine derivatives (e.g., enzymes, gelatin) in processed foods as haram (BHC3, BS8), whereas others who did not mention these either considered them irrelevant (BS9) or simply were unaware of them (BHC3). However, most interviewees clearly rejected consumption of pork. Some acknowledged making exceptions with respect to alcohol (BHC3). Attitudes to halal slaughter also differed. Stunning, mechanical slaughter, and slaughter by non-Muslims, which are common practices in industrialized halal meat production, were partly considered halal (BS8) and partly rejected (BS4).

The older generations of the interviewed Muslims in particular saw no problem with consuming meat that had not been slaughtered according to Islamic rites: "Say 'bismillah' before eating and all is well" (BMC3, BQ1, BQ2).[2] Accordingly, they do not perceive their food environment as particularly problematic. Other interviewees (many of whom only recently arrived in Brasília) disagreed, saying that uttering the *basmala* before eating is insufficient because there is a spiritual dimension to the halal diet. Ignoring it, they argue, results in a growing distance between self, God, and the umma (BMC1), or else in punishment (BMC4, BMC5). This group of interviewees thus displays a clear demand for certified, labeled halal foods.

The agents determining the conditions for the assemblage of halal food environments are primarily laws, judicial institutions, and decisions. Brazil's constitution guarantees the free exercise of religious practices (art. 5, VI–VIII), including halal diets. Other laws and regulations, however, raise barriers to a strict halal diet. Porcine derivatives that are used as solvents or carriers do not have to be listed on food labels; consequently, customers cannot know whether products contain potentially haram elements. Animal rights play also a crucial role. The constitution prohibits cruelty to animals (art. 225), so they must be killed quickly (Animal Protection Law, 9605/1998). Religious slaughter of animals by slitting their throats – as practiced in Islam, Judaism, and Afro-Brazilian religions – is recognized as a method of humane slaughter (Ministry of Agriculture, regulation 62/2018). Warm-blooded animals have to be pre-stunned before slaughter, but animals destined for religious slaughter are generally exempted from this regulation (art. 42).

This juridical framework transmits agency and power, allowing food industries to invisibilize haram elements in processed foods. For Muslims who, for example, consider porcine derivatives to be haram and are aware of their potential presence in processed foods, this invisibilization disassembles halal food environments, making consumption of a large range of products something doubtful and/or insecure (BHC3). On the other hand, though, Brazilian law also enables halal slaughter without stunning and hence opens up perspectives for halal food assembling practices that Muslims in other countries, such as Germany, cannot partake in.

Obviously, halal food sellers are also main agents in the assembling of halal food environments. However, no shops or restaurants in the Federal District indicate that halal food is sold there (or at least did not when this fieldwork was being carried out) – not even establishments in urban areas like Taguatinga or Samambaia, where large numbers of Muslim immigrants live. We could find only one restaurant selling halal meat and poultry, and its owner was unwilling to inform all his clients of its availability because visibilizing halal could alienate his customers, who are mostly young Brazilians interested in Arab food and shisha (water pipe) (BHS2). His Muslim clients either are

members of his social network or found his restaurant through word-of-mouth recommendation (most of our interviewees had never heard of his eatery). Besides this establishment, one Muslim butcher sold halal meat in a marketplace known for (im)migrant merchants and activities. He too did not publicly announce that he slaughters halal: only his Muslim core clients were informed of this fact (BHS1). In other words, there are agents who assemble halal food, but through invisibilization – that is, non-identification – they also disassemble it, leaving out a large part of potentially interested Muslim customers.

The Brazilian halal industry is another powerful agent in the (dis)assemblage of halal food environments in the Federal District. Halal commodities (meat, poultry, processed foods) are mainly produced for export and thus adhere to importers' halal requirements and standards, but significant shares of these commodities end up in Brazilian food stores and supermarkets (BHC1, BHC3). A report on this issue published in 2015 confirmed these findings. Apart from halal meat and poultry, there are "about 200 halal [certified] products available on the Brazilian market. Most, however, without identification" (Santos 2015).[3] In other words, invisibilization practices are at work here too. The interviewed certifiers mentioned two reasons: first, that "there is no real market for halal products [in Brazil]" (BHC1, BHC2), and, second, that "companies do not want to label products [as halal] because of all the prejudices" (BHC1, BHC2). Like the halal food sellers, the industry fears skepticism and distrust among non-Muslim consumers who might not buy its products if they are labeled as halal (BHC2, BMC7). Such invisibilization can be encouraged by media that transmit globalized negative images of Islam and Muslims, associating them with terrorism, religious fanaticism, and cultural otherness (e.g., Gomes 2012). Our interviewees did not discuss Islamophobia in much detail, but many presumed that prejudices against Muslims exist in the society (see also BS2, BS3).

A vast halal food steppe? Muslims' survival strategies and reassembling practices

The (dis)assembled halal food environment can certainly not be understood as a desert. Fruits and vegetables are considered halal and are available in the metropolitan area of Brasília. However, a market that dispenses with all potentially haram and doubtful foods leaves shoppers with relatively few options. Thus, a more fitting metaphor might be that of the steppe – an environment with limited options for food. The Federal District is part of a quite extensive steppe upon which no establishment is seen selling foods identified as halal. But this steppe is only an *apparent* steppe. If halal food and haram elements were visible to all, Brasília's food environments would be less hostile to Muslims who seek to maintain a halal diet. Instead of being determined by the presence or absence of halal foods, the steppe is shaped by distinct practices of invisibilization.

Furthermore, the apparent halal food steppe is not a steppe for every Muslim, especially not for those who are comfortable with the "speak-bismillah-before-eating" solution. This pragmatic practice adopted by less religious Muslims extends also to practicing Muslims and Muslim authorities. Local imams confirmed that they buy meat and processed foods at supermarkets and speak the *basmala* before eating in order to be forgiven. Nevertheless, they do not recommend this practice to their community: "People have to decide how to deal with their halal diet themselves" (BMC8).

Those who disagree with the *basmala* solution become temporarily vegetarian or vegan – as is especially the case for recent Muslim immigrants (e.g., BMC4, BMC7) – or else develop other strategies to assemble halal meat and poultry. None of the interviewees said anything about processed foods, perhaps because of lack of knowledge about potentially harmful or haram ingredients. Other reasons might be that they consider porcine derivatives insignificant, or the fact that there simply is no reassembling strategy.

Anyway, Muslims who have lived for some time in Brasília explained that a common practice for obtaining halal meat is to buy living animals and have them slaughtered on farms according to the buyers' wishes. Muslim families and friends usually organize ways to share the meat amongst themselves (BMC8). Local knowledge about where to buy animals and where to have them slaughtered is acquired over time and depends in part on social connections. This practice is moreover a question of class. One Sheikh stated that only wealthier Muslims like entrepreneurs or diplomats obtain halal meat in that way, as it is very costly. Lower-income Muslims said they occasionally buy a chicken at a neighborhood market and have it slaughtered on-site according to their wishes. Still, they are concerned about contamination due to poor hygiene generally and with respect to special instruments used to process pork (BMC1, BMC8). These halal food reassembling practices thus are not an option for every Muslim. Another practice is to buy frozen chicken directly at the halal poultry processing plant in Samambaia – the only one in the Federal District.

Many Muslims approve of the way export industries carry out halal slaughter and production (e.g., BMC7). Still, it is seldom possible to buy chickens directly at the plant. Doing so requires good contacts (based on trust and solidarity) with workers willing to sell products under the table. A few Muslim interviewees mentioned an alternative way to find these halal commodities in supermarkets by looking for specific S.I.F. numbers on packaged meat and poultry products (BMC7). Every processing plant is registered at the Federal Inspection Service (S.I.F.), and each product registered there receives a specific number. Some plants' products are exclusively halal, and a portion of their products ends up on the national market. Muslims working at these plants inform others about the respective S.I.F. numbers and those others in turn distribute the numbers within their social networks (BMC7) so that Muslims can eventually find these products in local supermarkets. As production at specific plants may change from halal to conventional slaughter depending on demand, the list of the S.I.F. numbers that render halal products visible must be continuously updated and checked (BMC7). This and other halal food assembling strategies in Brasília require time, local knowledge, contacts and solidarity – as does assembling food on a steppe.

Frankfurt (Germany): Muslim life in insecure halal food oases?

The number of Muslim communities in Germany rose significantly once West Germany's government began recruiting foreign workers in the late 1950s. After its guest worker program ended in the 1970s, the number of Muslims in Germany continued to increase due to other forms of migration and a growing German Muslim population. According to official estimates, Germany is home to some 4.4–4.7 million Muslims (5.5–5.7% of the population; see BAMF 2016). The percentage of the Muslim population in Frankfurt is higher: the most recent estimates, which date from 2007, suggest that at

Muslims make up at least 12% of the population. However, increasing migration from Islamic countries in the past decade suggests the actual percentage is probably higher. The cultural and national backgrounds of the Muslim population in Germany are, as in Frankfurt and Brazil, highly diverse.

Assembly of urban halal food environments in Germany started with Muslim immigration. According to Lever et al. (2010), by the late 1970s Muslims had opened their own butcheries and slaughterhouses, some privately owned and some rented. At the time, halal slaughter could also take place on farms if the meat was for private consumption. Over the 1980s and 1990s, the emerging halal food environments were largely reassembled in the wake of meat scandals (in which meat declared halal was found to contain pork), changes in laws, stricter regulation of the slaughter of animals, greater demand for halal foods, a growing halal food industry, and the emergence of halal certifiers. Today, numerous establishments offer halal food in Frankfurt, especially in the railway station district and residential areas with large Muslim populations, such as Höchst, where a large part of the fieldwork was carried out.

Main agents and (dis)assembling practices

In Frankfurt, most of the interviewed Muslim consumers stated that they sought to consume halal food only; however, their understandings of it were quite diverse. This range of ideas is comparable to that among the Muslim interviewees in Brasília, in that Frankfurt Muslims assess their halal food environments variously. The conditions of halal food assemblages are shaped by German law, which on the one hand guarantees religious freedom (Basic Law, art. 4). Still, as is the case in Brazil, German food law does not require solvents and carriers derived from pork and alcohol to be listed on processed food labels and therefore contributes to the disassemblage of halal food environments. Another problem is slaughter without stunning. This practice is accepted in Brazil, but in Germany, no-stunning permits are granted under strict conditions on a case-by-case basis only. Additionally, applicants must prove that the rule against stunning is a compulsory aspect of their religious community (German Animal Welfare Act, §4a). The latter is the hard part, as there is no consensus on this issue among Muslim authorities. Thus, most interviewed halal food sellers saw slaughter without stunning as practically impossible in Germany (e.g., FHS5, FHS7). Many are unhappy about this disposition: "I think we, five million Muslims [in Germany], should have the right to produce and consume meat according to our religious obligations. I fought for this with lawyers for a long time . . . hopelessly" (FHS5).

As of the 1990s, when halal slaughter regulations became stricter and industrial halal production emerged, most Muslim entrepreneurs stopped slaughtering and started sourcing halal meat from elsewhere (e.g., FHS7). Those who considered ritual slaughter without stunning to be mandatory stated that (re)importing halal meat is a common practice. Animals raised in Germany are taken to neighboring countries that permit slaughter without stunning, whereupon Muslim entrepreneurs from Germany reimport the certified, labeled meat (e.g., FHS1, FHS7). Other Muslim grocers and restaurateurs also buy and sell the meat of pre-slaughter stunned animals, much of it from slaughterhouses in Germany (e.g., FHS4, FHS5). A few interviewees also reported that some Muslim slaughterers clandestinely practiced slaughter without stunning (e.g., FHS1).

As for processed foods, it is striking that in shops and restaurants, most halal-labeled products available are also imported, with few exceptions (mainly sweets). Halal bakeries also offer lard-free baked goods, but these products are unlabeled (see FHS4, FHS9).

Besides providing halal food, making these products visible is a crucial practice in the assemblage of halal food environments. Eateries identify their halal products on the menu, display large halal logos outside and inside of their establishments, often advertising their wares as "100% halal," and some even provide certificates (FHS1). But even as halal logos and labels visibilize halal foods, they disguise crucial details of halal production: logos are mostly self-made, and logos and labels that are not are extremely diverse and do not explain exactly how the halal production was carried out. "Many offer halal products here. But you do not know which products are really halal" (FHS1) or how they correspond to one's understanding of halal. Customers' questions often go unanswered. While visibilization through logos and labels contributes to the assemblage of rich halal food environments, the concomitant lack of transparency does the opposite, causing much confusion and skepticism among customers (FHS1, see the next section).

Skepticism has led to another practice: building trust. Owners of halal food selling establishments initially build trust by shifting responsibility to suppliers, producers, and certifiers who are mostly presented as trustworthy. As a bakery owner told us, "these baked products are not labeled. But I called them [the supplier] and the responsible person told me, 'look, I myself am Muslim, and I guarantee you that there is no pork in it and that everything is 100% halal'" (FHS14). It seems all the better if the persons to be trusted can be presented as practicing Muslims who care about halal rules because they care about their religion and not about making money (FHS16). Trust is also built through the religious performance of shopkeepers and restaurateurs themselves, as well as of their staff. Finally, factors such as family ties, friendships, mosque communities, and other social networks likewise enable the building of trust and word-of-mouth recommendations (FHS16).

Against the backdrop of halal uncertainty and the crucial role of trust, halal has also become a concept that entrepreneurs deploy to compete with and undermine their rivals. Their discourses often suggest that customers can be sure that the seller's own products are 100% halal, whereas products offered by others may be not (e.g., FHS17). In this context, selling alcohol is also an important issue, as one Turkish shopkeeper confirmed: "If you sell alcohol, they [other Muslims] make propaganda against you, stating that your meat is not halal, that you are no Muslim and that one should not buy in your shop" (FHS1). Some grocers who are willing to satisfy demands for alcohol sell it secretly to avoid attacks on their business and their trustworthiness (e.g., FHS2). Thus, while building trust, halal food sellers also build distrust with respect to other halal vendors.

The assemblage of halal food environments has met with fraud and problems attributed to differences in halal understandings and practices. At first, the regulating role in the halal assembly fell mainly to imams and mosques via recommendations of reliable butchers (Lever et al. 2010). Over time, various halal certifiers emerged in order to control and certify halal production. Today, there are about six renowned certifying bodies in Germany, and they take different approaches to halal. Thus, on the one hand, halal certifiers also contribute to the assemblage of halal environments in Frankfurt making halal visible and creating trust as they assure that a product is halal. On the

other hand, they also may have (dis/re)assembling effects that create confusion and mistrust among consumers due to the wide variety, the lack of transparency, and the resultant invisibilizing effect: certified products do not identify the applied halal concept to the consumer, and in many cases, there are no other platforms (e.g., websites of certifiers) that can provide detailed information about them. At the same time, German state and governmental consumer protection bodies are uninterested in regulating the halal certification market (FHC1).

As is the case in Brazil, Germany's halal food industries and supermarkets also play a role in the (dis)assemblage of halal food environments. Approximately half of Germany's poultry production is halal (Lever and Miele 2012; Lever et al. 2010), and other German food industries also produce and certify halal foods, mainly for export. But when sold in Germany, these commodities are usually not identified as such: "Particularly in German supermarkets are more halal products to be found than expected. However, the customer is not being informed about this" (Schlie 2011). Similar to the situation in Brazil, the main argument for this invisibilization is that supermarkets and firms follow market logics. Besides non-Muslim consumers' fears, skepticism, distrust, and prejudice (FHC1, FHS17), businesses must also contend with protests and boycotts mobilized by Islamophobic right-wing movements and animal protection groups. These fears may be reinforced by negative representations of Islam and Muslims in the media (FHC1; see also Schlie 2011). Consequently, potentially rich halal food environments in Germany are also largely disassembled through invisibilization practices.

Halal food oases without much safety and many options? Muslims' survival strategies and reassembling practices

With respect to availability, the 54 interviewed Muslim consumers (excluding owners of halal food selling establishments and certifiers) stated that halal food in Frankfurt is generally available, especially in the railway station district and neighborhoods with large Muslim populations, such as Höchst. Online halal food guides and finders present a range of grocery stores and restaurants offering halal food in Frankfurt. As for the distance between residences and halal food stores in Frankfurt, interviewees living in a quarter with a substantial Muslim population confirmed that it was a walk of five minutes or less (59%). Others (25%) living elsewhere in Frankfurt said they had to go a relatively long way (up to 5 km) to get halal foods, while some interviewees (16%) living outside of Frankfurt had to travel 15–50 km to buy halal foods. Most of this latter group described the number of establishments selling halal foods in their environments as clearly insufficient.

Considering this, urban quarters with large Muslim populations and the railway station district in Frankfurt might be understood as "halal food oases," in contrast to halal food deserts or steppes. These oases' existence is largely due to the halal food assembling practices of Muslim entrepreneurs running grocery stores, bakeries, butcheries, and restaurants. Other agents also contribute to them. However, many interviewed Muslim consumers perceived these halal food oases as insecure (32%) and/or monotonous (48%). Most of these consumers criticized the variety of halal labels, the lack of transparency with respect to halal logos and certificates, a lack of control, and

a potentially high incidence of fraud. They also said they considered the range of halal products that were both available and visible to be very limited and wished it were more diverse. Finally, interviewees who considered pre-slaughter stunning and/or machine slaughter as doubtful or haram wanted laws changed to make "traditional" halal slaughter easier and meat produced without pre-slaughter stunning (7% of the interviewed Muslim consumers) more readily available.

These problems and the apparent dualism between Frankfurt's halal food oases and the halal food steppes around them are largely outcomes of disassembling practices, especially invisibilization. In this case too, then, the main challenges to Muslims who strive to adhere to religious dietary laws are not about the mere presence or absence of halal foods but about identification thereof. Nevertheless, Muslims' "spiritual survival" seems to be easier in Frankfurt's oases than on Brasília's steppe. The "speak-bismillah-before-you-eat" strategy is rarely mentioned in Frankfurt, and Muslims need not make costly, time-consuming efforts to obtain certified, labeled halal foods. Trust is crucial to dealing with the challenges of halal food environments. Half of the interviewed Muslim consumers said they preferred to patronize specific halal food establishments because they trusted the owners' recommendations. Others said they would trust in and look for specific halal logos and also look for possible haram ingredients listed on food labels (10%). Nevertheless, almost all the interviewed Muslims concurred that much doubt remains. Finally, in the absence of (labeled) halal foods or great doubt, some, like the interviewees in Brazil, said they would opt for a vegetarian or vegan diet (15%).

Conclusion

We have argued that urban food environment research must broaden its theoretical scope to address questions of cultural adequacy that have so far been neglected. This field can benefit from assemblage thinking, which shows us how specific urban food environments perceived as culturally (in)adequate have been assembled, disassembled, and reassembled. As such, it helps us unpack complex social and cultural relations that create specific urban food environments. We illustrated this argument with case studies on urban halal food environments in the metropolitan areas of Brasília and Frankfurt am Main. Drawing on assemblage thinking, we have shown that the analyzed urban halal food environments are not merely a matter of presence or absence of specific foods. Instead, they are the outcome of complex halal food (dis/re)assembling practices, among which the invisibilization of halal food plays a key role. Furthermore, the ways halal food environments are experienced always depend on the consumer's understanding of halal. The two cities' different profiles, in terms of Muslim communities, halal slaughter regulations, and consumer demand for halal food, enabled us to identify distinct halal food environments on the one hand (a steppe in Brasília and insecure oases in Frankfurt), and on the other hand, practices that are crucial in both contexts. Thus, these practices are likely to play a major role in the (dis/re)assemblage of urban halal food environments in other Muslim minority contexts as well. Many of these practices are contradictory or interact with other practices, logics, and large-scale assemblages in such a way that assembled halal food environments can be disassembled at the same time.

First, the analyzed halal food environments are co-assembled by Muslims through their demand for (certified, labeled) halal foods, yet they understand and practice their halal diets

differently and have different demands for different halal foods. Second, although both national constitutions guarantee free practice of religion, other laws impede specific halal diets, especially by permitting the invisibilization of potential haram elements in processed foods. Third, the main assemblers of halal food – halal butcheries, shops, bakeries, restaurants and/or certifiers – contribute simultaneously to its invisibilization. Halal food sellers in Brazil's Federal District do not promote their foods as halal because they fear negative reactions from their non-Muslim clients, whereas vendors in Frankfurt advertise their halal foods with large halal logos and labels that are clearly visible in the urban landscape. But when logos, labels, and even certificates fail to explain the criteria of halal food production, they also create a disguising effect, even as governmental institutions for consumer protection are uninterested in controlling and/or regulating the halal certification market. Fourth, each context relies on a halal food producing industry that labels commodities for export as halal, yet they are not identified as such for the national market. This form of invisibilization is mainly driven by market logics: while the Muslim consumer market (especially in Brasília) is relatively small, entrepreneurs and industries fear non-Muslim consumers' rejection of labeled halal products due to potential prejudices and cultural tensions. Fifth, media also contribute to both assemblage (by visibilizing halal food selling establishments) and disassemblage of urban halal food environments (by reproducing negative images about Islam and thus confirming the success of entrepreneurs' invisibilization strategies).

Against the backdrop of these heterogeneous, contradictory practices, solidarity and (building) trust among Muslims has been crucial to improving their food environments in Brasília and Frankfurt. Yet the problems that turn potentially rich urban halal food environments into steppes or insecure oases remain and are in most cases related to the invisibilization, that is, the non-identification of, first, haram elements in processed foods; second, halal production and certification in general; and, third, criteria for halal production and certification. These invisibilization practices are driven by market logics, entrepreneurial fear of cultural prejudices and food regulations that ignore Muslims' needs. It is therefore likely that invisibilization disassembles potentially rich urban halal food environments in many other contexts where these driving forces interact.

The (dis/re)assemblage of urban halal food environments does not simply reflect the post-secular urban paradigm, as the emergence of new religiously connoted spaces (e.g., halal shops and restaurants) has challenged secular sectors and cultural configurations (Beaumont and Baker 2011). It also shows how the dialectics of twenty-first-century urban (post)cosmopolitanism (Werbner 2015; Humphrey and Skvirskaja 2015) materializes in food. "Ethnic food" and "ethnic restaurants" in cities have been celebrated as evidence of cosmopolitanism (Werbner 2015), but this paper has demonstrated that matters of halal food are much more complicated. Halal food's invisibilization reflects tensions, rather than respect for cultural and religious difference. We therefore suggest that urban food environment research should take questions of cultural difference and adequacy into closer consideration.

Notes

1. The Holy Quran, Arabic text and English rendering by Pickthall (1999).
2. Uttering "bismillah" (meaning: "in the name of God") before eating meat from halal animals that have been slaughtered under unknown circumstances relates to Hadith, in particular to

a report by the Prophet´s wife Aisha: "Some people said, 'Oh Allah's Messenger! Meat is brought to us by some people and we are not sure whether the name of Allah has been mentioned on it or not (at the time of slaughtering the animals).' Allah's Messenger said (to them): 'Mention the name of Allah and eat it.'" (Sahih al-Bukhari, Book 34, Hadith 11).

3. After the fieldwork was carried out and much of this paper was written, one of the Brazilian certifiers started listing types of products and names of the firms it certifies on its website in order to inform and assist Muslim consumers in Brazil. However, the certifier does not mention the products' names, so it remains difficult to find them in supermarkets.

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