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Listening to Noise: Breadline—Food Rescue as System of Interruption

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The positive representation of food rescue in dominant discourses obscures the question of why and how food becomes loss and waste in our industrial food system. Built-in obsolescence is an integral part of commercial production and not the residual effect of unoptimized processes. Through a reading of Michel Serres's *The Parasite*, I explore his logic of a system that is based on difference, noise, and disorder. In this cacophonous paradigm, excesses are not treated as externalities, only intercepting relations of different orders. Listening to noise is tuning into information in alternative registers, opening up possibilities that enable new ecologies of practice. Presenting Breadline, a Web application developed by the author for food rescue in Hong Kong, the article demonstrates how the platform tackles obsolescence through generative interruptions. By tapping into externalities of the practice, Breadline successfully overcomes the logistical challenges of food rescue, offering an applied case study for the discussion.

Keywords: food rescue, noise, interruption, waste, cacophonous system

Food rescue—understood as the practice of repurposing or redistributing surplus food for those in need—has become increasingly popular in rich metropolitan cities where inequality means that excess and hunger exist alongside each other. Exemplifying this paradox, Hong Kong disposes 3,600 tons of food waste into landfills every day, while 20% or 1.3 million people who live in poverty suffer from varying degrees of food insecurity (Hong Kong Special Administrative Region Census & Statistics Department [HKSAR], 2018; HKSAR Environment Bureau, 2014).

Food rescue operators, often run by nongovernmental, not-for-profit organizations, collect donations of food from commercial outlets such as supermarkets, as well as food and beverage retailers like hotels, restaurants and canteens, which are then delivered to community organizations to service those in need. Food rescue can be understood as the logistical arm of food assistance programs—often functioning alongside more established models of food banks or soup kitchens. While food rescue focuses on recovering leftovers that are edible but not sellable (e.g., end-of-the-day surpluses, mislabeled or damaged products), food banks and soup kitchens would in addition accept donations of shop-bought commercial produce.

Food rescue is represented in dominant policy discourse as a rare all-around solution targeting both poverty alleviation and environmental protection. Given that service users are "the most-disadvantaged

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community members, including migrants, people experiencing homelessness and the working poor" (Lindberg, Whelan, Lawrence, Gold, & Friel, 2015, p. 359), food rescue is often aligned with welfare support initiatives. But food rescue also addresses another pressing issue—that of sustainability. Within this context, not wasting food is seen to prevent the squandering of resources that have been used in its production, while diverting excess away from the waste stream reduces stress on landfills and avoids unnecessary decomposition, which produces leachates that pollute the environment. It is therefore seen as both an ethical and sustainable way of using resources.

Food rescue's overwhelmingly positive representation in dominant discourse obscures the question of how and why food becomes waste in our commercial food system. In such a framing, waste is seen as the residual effect of unoptimized processes, a system where parts are not in sync with each other; the solution, therefore, is to improve coordination through better control techniques. However, as scholars have pointed out, waste is not just "matter out of place" (Douglas, 2003, p. 36); its built-in obsolescence is a necessary byproduct of value creation (Liboiron, 2019), and profligacy is an inherent part of industrial food production (Amelinckx, 2018; Cubitt, 2015; Gille, 2012). Despite increasingly sophisticated info-industrial technologies, leakages are a constant reminder that control is always just beyond reach (Hoyng, 2019). Containment is not the only response to excesses; fissures that linger in the interstices can be generative and productive as the introduction to this special issue suggests.

To offer an alternative logic, I draw from Michel Serres's (2007) notion of a system that is based on difference, noise and disorder:

> a system is often described as harmony . . . yet we know of no system that functions perfectly, that is to say, without losses, flights, wear and tear, errors, accidents, opacity—a system whose return is one for one, where the yield is maximal and so forth. (pp. 12–13)

If harmony is the perfect synchronization of different parts, then noise is the sound of their disjuncture. A cacophonous system is where fissures and leakages are not treated as faults and errors, or liminal matter that needs to be managed, controlled or exterminated, but rather attended to as an integral, constitutive part of a system that is necessarily untidy. Food rescue diverts the leakages of the commercial supply chain to reconfigure surplus as food, not waste, and tackles the built-in obsolescence that is otherwise treated as externalities of normal food production.

By adopting an approach in which externalities include those not accounted for in economic terms, tapping into leakages allows resources to be used beyond their value as cost and profit. This can be reflected in food rescue, where the temporally contingent and localized logistical practices of "moving food along" diverts commercially nonviable food away from the waste stream and into the surplus food distribution network where alternative circulations are enabled. Distilling further from Serres's work, a cacophonous system would be a system without externalities, only orders of different intercepting relations. In this nonlinear model, noise and waste, previously considered as unwanted excess matter, are reconfigured as agents of change; productive and generative, they open up new possibilities for new order of relations. Applying this understanding to the practice of food rescue itself opens up other noneconomic possibilities to be considered. Food rescue has been described as a "random" process which varies according to the

quantity, time and space (Nair, Rashidi, & Dixit, 2017); collecting "leftovers" is the art of being at the right place at the right time, but because of the unpredictable nature of leftovers, volunteers are often sent to cover all possible locations with a significant number of empty runs for every night of rescue.

Accounting for and attending to the externalities of food rescue's logistical practice, this article presents Breadline—a Web application developed as part of my action research. Breadline is a platform designed to facilitate the rescue of leftover bread from commercial bakeries in Hong Kong. Unlike other digital platforms that optimize the matching of donors and beneficiaries, Breadline approaches food rescue as a logistical challenge. Inspired by Serres, the design of the platform focuses on circulation, facilitating intercepting relations that interrupt the flow of both information and food. In doing so, the platform demonstrates that interrupters are agents of change, opening up possibilities for new orders of relations. Breadline taps into externalities of food rescue to circumvent obsolescence that will otherwise turn to waste, contributing to a better ecology of practice.

Food Waste—Not A Question of Optimization

In our global, commercial and industrialized food system, the story of "farm to fork," or how our food comes to the table, is a lengthy and complicated one. Even a simple lunch of soup noodles or sandwich is likely to use ingredients from all over the world, delivered by an infrastructure of supply chains that span across the globe. The logistics of making food available is a complex network that involves bringing raw ingredients from farms to processing and manufacturing plants, often multiple times across different locations before they can be procured and brought to the shelves (Steel, 2013). Our food system is, on the one hand, an amalgamation of heterogeneous networks of farmers and producers that operate independently across regulatory borders (such as food safety or labelling regulations); and on the other, an infrastructure of interoperating systems that functions on explicit standards (e.g., shipping containers across borders or gateways connected by transportation networks; Metcalfe, 2019).

In this complex system, loss and waste occur in all steps of the supply chain—from production to storage, processing, and distribution to consumption. In policy frameworks, food loss and waste are defined in the following ways: Food loss occurs when "food that spills, spoils, incurs an abnormal reduction in quality such as bruising or wilting, or otherwise gets lost before it reaches the consumer"; food waste, on the other hand, refers to "food that is of good quality and fit for human consumption but that does not get consumed because it is discarded—either before or after it spoils" (World Resources Institute, 2013, p. 1). In these dominant narratives, food loss is understood as a failure to optimize—a result of an inefficient and ineffective system. Poor harvesting equipment, disease and pests, as well as faulty factory processes, are all causes for food loss during production, handling, storage, processing and packaging. Policy makers, therefore, develop waste reduction strategies by focusing on building infrastructure and technological advancement (e.g., buying better equipment, building storage such as cooling facilities, improving transport infrastructure). Food waste, on the other hand, is understood as a lack of optimization in the supply and demand circuit, in which wasted stocks are a result of poor order forecasting. The solution is therefore to improve coordination between suppliers and buyers, while consumers can also do their part by better planning and improving awareness (Food & Agricultural Organization, The International Fund for Agricultural

Development, the United Nations Children's Fund, the World Food Programme, & the World Health Organization, 2020; World Resources Institute, 2013).

In this particular iteration, waste is an indicator of a suboptimal supply chain. In management parlance, a leaner operation is required in which waste, considered as nonvalue-added activities, needs to be eliminated to achieve higher levels of efficiency and profitability (Carvalho, Azevedo, & Cruz-Machado, 2014). Digitization, together with the rise of supply chain management, brought techniques of control to another level, with ever-better descriptive, predictive, and prescriptive technologies (Hoyng, 2019) quantifying processes to optimize systems for the most effective use of resources. In the food system, this can be observed throughout the supply chain. Food producers and manufacturers automate production lines and adopt standardized processes to reduce labor costs and time. Within distribution, where the most radical changes can be observed, logistical supply chains harness the power of info-industrial technologies to tag and track commodities and algorithmically organize flows between inventory and logistics, such that the acceleration of supply and distribution of goods is "as much a choreographic strategy as it is a geospatial one" (Lyster, 2016, p. 13).

Purposeful Waste/Profligate System

Yet even with the highly controlled food supply chain, leakages to the tonnage of 1.3 billion still gets discarded every year (Food & Agricultural Organization, 2011). As waste scholars have argued, studying waste is not about understanding its inherent quality or of its excess and management, but rather of comprehending the ontologies of the discarded, to better understand where, when, how, and why things become obsolete.

Waste is often represented as matter out of place—leakages or spillages that have escaped the order of the main production line. This formulation recalls Mary Douglas's (2003) conception of dirt, which she defines as a residual category, "the by-product of a systematic ordering and classification of matter" (p. 44). What is included and valued involves a process of rejecting inappropriate elements that highlights the structuring capacities of our classification systems. Discard studies scholarship has warned against an apolitical reading of Douglas's work, stating that the valuation of social relations is inherently bound by power. The ordering of the world reveals how the line is drawn to separate the wanted from the unwanted and exert judgment of worth and value. Max Liboiron (2019) points out that classification is not just about sorting, as in the sorting of misplaced litter or recycled materials, but that acts of exclusion are about eliminating threats to the power structure: "Social ordering means ordering the world, and dangers to that order—threats to power—are to be eradicated, not merely sorted" (Liboiron, 2019, p. 9). Encompassing the two perspectives, Zsuzsa Gille (2012) uses the term "waste regime," pointing out that social institutions and conventions "determine what wastes are considered valuable but also regulate their production and distribution" (p. 29), and these regimes differ depending on its representation and politics.

In agricultural production, for example, overproduction of crops is a common source of "walk-bys," or excess crops left unharvested by farmers (Bloom, 2011, p. 109). Facing uncertain weather cycles, meeting market demands and aesthetic standards, overproduction is a way for farmers to hedge against price fluctuations and therefore a tactic to manage economic risks (Gille, 2012). Harvesting the excess when production contracts have been fulfilled meant diminishing returns, which leaves discarding the most cost-

effective way of handling leftovers. In the United States, an estimated 20.2 billion pounds of produce never reaches the supply chain for this reason (Amelinckx, 2018).

In process and packaging, industry standards state that commercial food products have to conform to the quantity and weight indicated on the packaging; however, machines require calibration time to reach the speed of optimized flows to achieve what it says on the tin. When part of the process is faulty or when recipes or product line changes, machines continue to operate as it is more resource intensive to reset (Blake, 2019). The interim outputs that do not meet label and packaging standards are redirected to waste. In this example, the excess that occurs in these processes is not a result of not having reached "peak optimization" (Metcalfe, 2019, p. 22), but rather, food loss is necessarily generated by a system that is geared toward efficiency and viability.

In distribution and retail, aesthetic standards and labelling practices are also a source of waste generation, where produce is systematically rejected because it does not conform to market standards. Food is defined by sets of commercial protocols and considered nonviable even though it is still edible. "Best-before" dates, for example, are used to indicate the shelf life of a product, a manufacturer's guarantee to ensure the appearance and texture of the food. The practice of using best-before dates has its roots in the 1970s, when Marks and Spencer introduced the sell-by date as a stock control aid to retailers to ensure a certain turnover of goods (Blythman, 2015). Nevertheless, the rigidity and risk-adverse standards are also a significant source of loss (Li & Leung, 2017; Sawa, 2019).

In other words, food waste is not a homogenous category; within the discarded, there are a multitude of nuances—between edible and inedible, commercial and noncommercial—and the possibilities of what could be done to reduce waste depends on the ontologies and the politics that surround them. In the commercial food chain, edible products go through cycles of becoming and unbecoming food. In other words, the conditions under which things become food (Bennett, 2004 Blake, 2019; Nyman, 2019) and the ways edibility is maintained (Morrow, 2019; Weymes & Davies, 2018) comprise a relational process shaped by rules and regulations as much as degradation caused by human and nonhuman actors (Davies & Evans, 2019; Midgley, 2014). Edibility and viability can be mutually exclusive in the commercial ontological status of food.

In the industrial food supply chain, examples of food waste reveal much of the excess is generated purposefully. Instead of appearing as accidental residual matter, as presented in dominant narratives, waste is very much anticipated and calculated as part of a calibrated production cycle. What these examples of discarded food point to is that profligacy is an inherent part of industrial production, a necessary byproduct when operating under economic logic. Waste and excess are interlocked in a way in which "without disuse there is no use, and without waste there is no value" (Gille, 2012, p. 28).

Noisy Interruption/Interrupting the Interrupted

Here, I would like to interrupt the discussion with a reading of Michel Serres's (2007) *The Parasite.* In his multiregister writing, he moves between fable, biology, information science, and literature to explore the theme of noise. Counter to the established ways of approaching noise as interference, he suggests that

noise and interruptions are productive interceptors, introducing the idea of a system that is not based on harmony, but on difference and disorder.

In many ways, noise and waste share similar parameters—both are commonly presented as excess in a system, messy and undesirable; they are experienced as a nuisance due to qualities of unwanted and untimely presence. Represented as disruptive agents, they are seen to pollute and corrupt the environment with their existence. Both noise and waste are subject to moralizing dichotomized treatments, split between good/bad, worthy/ valueless, wanted/rejected. In information systems, noise is presented as

> unwanted additions . . . distortions of sound (in telephony, for example) or static (in radio), or distortions in shape or shading of picture (television), or errors in transmission (telegraphy or facsimile), etc. All of these changes in the transmitted signal are called noise. (Weaver, 1953/2017, p. 140)

In other words, noise interrupts; its presence seen to distort and disrupt the signal. Serres explores this theme in his recounting of the fable of the country mouse and the city mouse, where the city mouse invites his cousin to feast at the tax farmers' table when a noise interrupts their meal. Serres tells this as a story of interception, as the tax farmer lives off the levy from the labor of others, while the city mouse picks from the leftovers of the feast and its country guest dines at the expense of its host—"strictly speaking, they all interrupt" (Serres, 2007, p. 1). The final interruption is the noise at the door, when the tax farmer returns to investigate the scuttling he hears in the kitchen:

> The two companions scurry off when they hear a noise at the door. It was only a noise, but it was also a message, a bit of information producing panic: an interruption, a corruption, a rupture of information. Was the noise really a message? Wasn't it, rather, static, a parasite? (Serres, 2007, p. 3)

In this retelling of the story, Serres is playing with the informational meaning of the parasite—which in French refers to interference, static, noise. Noise, on the one hand, is presented as a process of interruption—an interference in the flow of goods and information. In communication theory, noise prevents the clear communication of a message; however, following Claude Shannon's (1948) "Mathematical Theory of Communication," I would argue that noise is both the material from which information is constructed, and the matter which it resists—without noise there can be no communication. Noise is part of the material infrastructure that serves to transmit and transform the message, carrying informational feedback which gives context to the signal. "Information is not only complicit with noise; it is totally dependent on it for understanding. Without noise . . . information cannot get through" (Ballard, 2007, p. 11). In other words, contrary to the belief that noise stands in contrast to information, noise is complicit with information, noise is always already part of the signal.

Second, noise is information, but it belongs to a different order of relations. A phone rings in the middle of the feast; it interrupts the conversation, but as soon as the phone is picked up, communication takes place with the caller, and the dinner conversation becomes noise. "In the system, noise and message exchange roles according to the position of the observer and the action of the actor" (Serres, 2007, p. 66).

What Serres tries to demonstrate is that noise (and signal) is subjective, that the position of the interrupter and the interrupted is reversible—noise is merely undifferentiated information until it is tuned into.

Which leads to the final point: "Noise nourishes a new order" (Serres, 2007, p. 127). Interruption opens up possibilities; it induces a change, a modification in the system that it acts on. Serres's parasitic interference functions to alter a set of relations. It is productive, decoupled from its negative connotations, and it can also be interpreted as affect (Thompson, 2012), or "forces of becoming" (Deleuze & Guattari, 1994, p. 168), which concern movement, process and change: "A parasite who has the last word, who produces disorder and who generates a different order" (Serres, 2007, p. 3).

A Cacophonous System

Distilling from Serres's account of the parasitic paradigm, a cacophonous system would be a system without externalities, only orders of different intercepting relations. It offers a productive alternative to approaching waste beyond a proprietary closed system, and expands our scenography to include more than just what is thrown away at the end of the production cycles. Resource extraction, waste disposal, water management, logistics of circulation, and labor are also matters that *matter* (Latour, 2008). Environmental and human exertions are vulnerable to "overexploitation and destruction," for they are accounted for as externalities that are "at once zero and infinite: of no cost but infinitely available" (Cubitt, 2015, p. 142). To include that which has been rejected, discarded, or abated would be to turn to "a polity without externalities" (Cubitt, 2015, p. 143).

To a certain extent, the way that food rescue reconfigures waste demonstrates much of Serres's logic—a system works because it does not work, faults and depreciations are not threats but rather new possibilities, which is why he suggests leaving behind "old-school rationalism" and pursuing instead a system where rejects—of disorder, opacity and noise—are embraced, a system that is not based on the resumption of harmony, but of "difference, noise and disorder" (Serres, 2007, p. 3). Waste reduction strategies focused only on optimization do not account for the externalities involved in commercial production. And despite the ever-increasing ability to control—tracking, forecasting, and modelling afforded by technology and datafication—leakages continue to occur in what Hoyng (2019) terms moments of blindness, when authorities turn a "blind eye," encountering "blind spots" in the system, or the "blind sight" response to uncertain situations. Her example of the reverse logistics of e-waste demonstrates how optimization techniques constitute sites of invisibility that allows for leakages rather than more control (p. 1).

Yet leakages of both sound and matter are agents of change. Just as noise and waste interrupts, they are also affective forces of becoming which are productive and creative; they are catalysts opening up possibilities to be acted on (Deleuze & Guattari, 1994; Thompson, 2012). These fissures and leakages represent new openings that modify a system. The interruption is therefore generative, and engineers a new kind of difference by intercepting relations. Food rescue's practice of moving food along channels surpluses into alternative food distribution networks, changing the ontological status of commodities into matter with new affordances, opening possibilities and new ecologies of practice (Blake, 2019; Mol, 1999).

A system of intercepting relations also offers an alternative to the power relations observed in moral narratives of gifting. Scholars who studied forms of food assistance have long criticized the model of honoring the human right to food through charitable models. On the outset, it confounds waste and poverty-reduction strategies and ignores the underlying issues of poverty and unequal access (Schor, 1999). Charity also assumes a benevolent form of gifting, which establishes a power relation over benefactors. Dignity, taste, and choice are often foregone as the right to food has been subsumed under the more urgent task of feeling "grateful" for this gift, and that demand to culturally appropriate or nutritionally high-quality food are not considered part of the equation (Heldke, 2009; Poppendieck, 1998).

Here, Serres's model offers another perspective. The negative judgement of sponging or eating at the expense of others is not lost in the contemporary social context, where metaphorical associations of the word "parasite" is used to refer to someone who takes without giving back, and is often negatively mobilized in the discussions of welfare recipients, asylum seekers, or migrant workers. However, Serres is careful to point out that, at any given moment, we are all involved in multiple socioeconomic relations that might position us either as the host or the guest, the interrupter or the interrupted, and that the relation can be reversed depending on what is framed as the context or the environment. Therefore, an ethical position can be distilled, whereby if taking is understood as destructive or subtractive, it is only so when viewed in isolation (Burton & Tam, 2016).

Breadline

In this final section, I would like to focus more specifically on the practice of food rescue by delving into the bread donation program of a local charity in Hong Kong. I will present Breadline, developed as part of my action research on urban food systems. While it offers only a limited view of food rescue on the urban retail consumer level, it nevertheless demonstrates a solution that harnesses the generative interruptions of a cacophonous system by tapping into leakages, intercepting flows, and facilitating circulation to generate new possibilities for waste.

Breadline is to date Hong Kong's first and only public digital platform for food rescue. Collaborating with a local charity partner and major bakery chains, the Web application takes on the bread donation program in which volunteers are recruited to collect surpluses from bakeries for community partners that service the homeless, low-income families, and the elderly poor. In its broadest sense, food rescue functions by tapping into the excesses of commercial supply chains. In the case of bread, sale fluctuations in retail outlets supplied by central industrial kitchens make end-of-the-day surpluses inevitable. To prevent leftovers from ending up in landfill, these edible, but no longer commercially viable, products have to leave the commercial stream. Donation shifts commercial food into the surplus distribution networks and enables repurposing by changing its ontological status, "it ceases to become waste . . . and becomes a new thing with new affordances for enacting new effects" (Blake, 2019, p. 1). By channeling the excess to community organizations, food rescue enables networks to be formed and create new possibilities of nourishment.

Donation is not a given in a city where waste charges or legal principles such as the Good Samaritan Act are absent from the policy landscape. For food retailers in Hong Kong, disposing of food is the most cost-effective and legally secure way of dealing with excess. This is largely due to liability, as the absence

of the Good Samaritan Act or its equivalent means that acts of kindness are not protected from legal prosecution in the event of unintended injuries, such as food poisoning. The Good Samaritan Act is defined broadly as "any person who intervenes voluntarily to assist a person, who he or she reasonably believes to be ill, injured or at risk of illness, injury or death" (The Law Reform Commission, 2017, p. 3). Hence, across the board, commercial retailers are reluctant to deploy their logistical resources to deliver donations to beneficiary organizations, even when some do pick up the excesses the next day on the backhaul of delivery of fresh goods. This is not only a question of cost benefit from an economic perspective but a question of power in food waste regimes. Gille (2012) states that the interrelated relationship between value and waste is mediated by risk-avoidance strategies, "the ability to shield oneself from risks and to increase another's exposure to them is a key source and result of power" (p. 31). Without the protection of the law, food manufacturers limit their risks by asking the third sector to bear the responsibility of collection and redistribution. More than a question of transport costs, civil society and charities are asked to shoulder the risks of food redistribution.

Without the option to leverage on existing formal logistical networks of food distribution, food rescue organizations are left with limited options. The operational challenges of food rescue are many. First, there are hundreds of bakeries located across the city, all closing within a two-hour window. Second, volume of leftovers fluctuates, and it is often difficult to predict where food becomes available. Third, donations can only be collected at closing, but before staff members leave; "rescue" is indeed the temporal and geographical challenge of being in the right place at the right time. Fourth, volunteer recruitment is labor intensive; the charity with which Breadline partners report a return rate of less than 1%. Finally, for every evening of collection, 20%–50% of the shops sell out, meaning that volunteers are quite likely to end up with empty runs.

Breadline approaches food rescue as the temporally contingent and localized practice of "moving things along"; hence the platform design focuses on enabling flows. It does so by facilitating and creating possibilities of interruptions and tapping into externalities of current practices. I have argued elsewhere that closed systems produce waste—enclosures in the form of hoarding through storage or proprietorship facilitate obsolescence that lead to degradation and decomposition. This is the case for food, but also for data. "Closed source" systems lead to data and code degradation, and eventual digital rot; while the "open source" approach keeps code "fresh" by allowing active tinkering, open collaboration, and enabling exchange (Tam, Cate-Christ, & Holderness, 2016, p. 118).

To create a more open system, Breadline first needed to enable volunteers to participate by choosing their own runs. Replacing the centralized route assignment system used by the charity, Breadline's map interface is designed to enable volunteers to see all available shops and claim runs independently. This is done by a three-step sign-on in Breadline; after login, volunteers will see the available shops on their selected date appearing as geolocated pins on the map interface. Clicking on the pins would allow them to claim the runs and simultaneously take it off the map for other runners, thus avoiding overlaps. Decentralizing route allocation means that volunteers are able to fill in the gaps, adapting and orienting themselves to the information on the map. This flexibility has the added benefit of allowing volunteers to tap into their movements around the city, choosing routes that can be leveraged on their mobility (e.g., picking up from a branch "on their way"). Tapping into volunteer mobility and enabling volunteers to self-

organize reduces waste in volunteers' time and commute, and the return rate has increased significantly, with volunteers claiming "ease of use" and "flexibility" as key advantages of Breadline.

Breadline is also designed to release the locked information that is enclosed within the proprietary point-of-sale system at the bakeries. The key intel here is stock availability —how can the platform intercept and pass on this crucial information to volunteers ahead of closing? In this challenge, Breadline needs to attend to both the proprietary nature of the information and the temporality of the data. Breadline taps into the tacit knowledge of attending staff and bypassing the need to integrate with the proprietary system. It does so by asking shop staff to estimate the number of leftovers an hour before closing, which is then shared to volunteers in real time. By making grounded information legible and shareable, Breadline thus functions as an interceptor, providing timely intel for volunteers to adapt their movements, avoiding empty runs and adjusting their routes to where they are needed.

The map interface of Breadline has the dual function of both providing information and enabling action. This combination of features on a single interface is key to using real-time information as a catalyst for action and to harness the affective power of grounded intel. Notifications appear as different colored pins on the map, indicating the location and approximate volume of leftovers. Tapping on the pin triggers a pop-up with location details, and volunteers can claim the shop at any given time before the shop closes. Over the course of running Breadline in the past 11 months, volunteers have been observed to respond to the updates and make last-minute changes, depending on reported volumes. The more experienced runners have evolved to a just-in-time operation, responding on an as-needed basis, depending on the information of unclaimed routes and bread availability. Notifications interrupt, but they also carry information, a potential agent for change. Tuning into noise enables volunteers to intercept on last-minute opportunities, responding effectively to the fluctuating spatial distribution of surplus bread. The decentralized design of the platform has enabled a more agile response, critical in the face of uncertainties and allows better use of the volunteers' time and resources.

The data collected have proved that Breadline has reduced twofold the need for number of volunteers and improved pick-up rates 109.9%, as compared with the previous model. Among the regular users, the average volume collected is six times higher, and the return rate of volunteers is very high among Breadline users.

Cities like Hong Kong are hyperconnected, which is both a challenge and an opportunity. The congested environment means that larger scaled logistical responses, such as using a van fleet to circulate the city for the purpose of food rescue, is not ideal. In the case of bread collection, where the items are low-risk, relatively small and lightweight, volunteers are much more mobile using the city's public transport network. In dense urban environments where there is a high concentration of foot traffic, especially in commercial areas like shopping malls, this offers an opportunity for crowdsourcing. In a manner of speaking, Breadline is a platform that crowdsources logistics. The crowd is noise, undifferentiated and distracting, it has no unity and is unlocalizable (Brown, 2002; Serres, 2007), Breadline taps the crowd for logistical support, leveraging on the mobility of urbanites to collect and deliver surpluses for food rescue. The power of the crowd has been demonstrated successfully in the realms of knowledge gathering and map creation; however, to extend beyond the online environment into the movement of physical goods is a new challenge.

Conclusion

It is clear that to deal with the 1.3 billion tons of food waste (Food & Agricultural Organization, 2011) produced globally requires more than just local food rescue initiatives. To tackle the profligate industrial food system, we need to reconfigure our understanding of how and why things become obsolete, and attend to the social, political and economic power structures that enable different ecologies of practice. Reading Serres's *The Parasite,* this article investigates the parallel tropes of noise and waste, and proposes an alternative to a linear system bound by binary limitations—internal/external; included/eradicated; signal/noise. I suggest that a cacophonous paradigm is a system without externalities, only orders of different intercepting relations. Leakages and fissures are not treated as faults or errors, but attended to as an integral, constitutive part of a system that is necessarily untidy. Noise is always already part of the message, containing information of a different order, and a catalyst for new possibilities. It is in such a way that Serres proposes a system of disjuncture, a system of difference, noise, and disorder.

Presenting Breadline, the digital platform developed as part of an ongoing investigation on urban food systems, I demonstrate how a design of interruption works in the practice of food rescue. By attending to the externalities of the practice, the platform design focused on harnessing the generative interruptions by tapping into leakages, intercepting flows and facilitating the circulation of both food and information, improving the overall logistical practice of the bread donation program and creating new possibilities for waste.

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