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The Seamless Customer Experience:

The Seams of Fast-Food in an Age of Automation

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On November 23, 2023, dozens of concession workers of Phoenix Sky Harbor International Airport marched to Terminal 3 to protest a variety of alleged labor law violations. Yet, as the protesters rallied against low wages and rat infestations, many of the workers objected to an unobvious factor: technology.

> "They want to introduce automation and that would just give them a big shoe in the door to eventually remove the necessity for servers," she said. "You can't take servers out of customer service. We call ourselves 'America's friendliest airport' and that's because of real human interaction" (Cruz 2023).

In this statement, a long-standing employee of Sky Harbor, Meschelle Hornstein, not only meditates on the future of her employment, but the idea of service itself. Sky Harbor's management had recently flooded its concessions with QR codes and self-service kiosks, but how could servers "be friendly" without human-to-human interaction? How could servers maintain positivity as they felt their work was slowly rendered useless? The Sky Harbor protest envisioned their future through a technologically deterministic lens: digital self-service would eventually replace their jobs altogether. The influx of AI and data-collection technologies seemed to be closing in on another section of everyday human interaction, and their outrage poured out of a dismal speculation. With the help of digital technology, the food-service industry would no longer need servers at all.

The technologies that Meschelle and other workers protested are all components of a recent fascination in the business world: the "seamless customer experience." Over the span of several years, creating this "experience" has become a central strategy for companies to mediate their relationships with customers. Its emphasis is both phenomenological and logistical, in the sense that it aims to create a smooth, frictionless customer experience as goods, services and

other values freely flow from producers to consumers. But with a closer read, this vision seems utopic: it aims to eliminate discrete action from consumption. A Harvard Business Review article titled “Designing a Seamless Digital Experience for Customers” describes this aim of design as it tries to help businesspeople create the experience itself: “Perhaps the biggest change firms have made is that, rather than having a few episodic interactions, they are trying to create a continuous relationship with their customers” (Terwiesch & Siggelkow 2021). Consumers eventually meet producers at occasional “predefined touch points,” but these moments are actively designed against. A seamless experience does not optimize for human interaction, and perhaps this is why Sky Harbor protested against technology in the first place. You may place your order at the self-service kiosk, but creating a “seamless customer experience” in the food industry requires an abundance of labor that is anything but smooth. The digital interface may feel seamless, but the process of production is laden with friction. The “seamless customer experience,” then, suffers from a major case of misrepresentation, in that it hides the human seams that hold production together.

I had stumbled upon self-service kiosks within multiple fast-food spots, but also through readings in automation studies. In her 2018 article “The Automation Charade,” Astra Taylor explores the ways in which corporations have weaponized automated technologies to replace workers’ jobs, but more often than not, deceptively used machines to hide labor from sight. She dubs this deceptive practice as “fauxtomation,” and of the many illusory technologies she lists, Taylor questions whether the modern self-service kiosk could truly unemploy fast-food workers, or simply remediate the ways they interacted with customers. Her discussion starts in 2012 when the “Fight For $15” minimum wage campaign ignited threats from McDonald’s CEO Ed Rensi to replace cashiers with digital kiosks:

> "It's not just going to be in the fast food business," Rensi said. "If you can't get people a reasonable wage, you're going to get machines to do the work… And the more you push this it'll just happen faster."

Rensi eventually rolled out digital kiosks world-wide in McDonald's locations. But Taylor is skeptical of whether digital kiosks could create a humanless food experience of the future, or merely revive the *automat* of the past. The mid-century automat was the ultimate vending machine. Kitchens produced hot-and-ready foods that would be displayed behind a wall of small glass doors. Each door had a designated nickel slot, and upon paying, customers could open panels to retrieve their desired foodstuff. Since no human interaction was needed, hundreds of New Yorkers could quickly flow in and out of the automat while fresh soups, sandwiches and pies were endlessly made to be snatched from the shelves. The "rather quaint dining experience" of the automat, however, was short lived; it would soon be replaced by early forms of fast-food. Where automats revolved around the constant production of meals, fast-food based itself on a constant attentiveness. The kitchen would ignite with the simple order of a customer, and as automats overflowed with idling customers and stale food, fast-food's business model prevailed and became an American institution.

Although Taylor thought modern fast-food was replicating its ancestors, if I can be critical of her conclusions, fast-food's current mode of production perhaps better resembles fauxtomation's original predecessor: the *dumbwaiter.* The dumbwaiter was one of the many ingenious gadgets of Thomas Jefferson's Monticello Estate. Nestled close to the mantle of his dining room was his own personal pulley system, which would automatically levy fresh appetizers, entrees and desserts from the estate's lower chambers. The dumbwaiter's magical convenience, however, was sustained by a grim, yet well-known secret: a kitchen of slave cooks

prepared dinner from beneath the floor. They quickly cleared plates, cooked foods at command, all while leaving no trace of their existence. It is here that the stakes of misrepresenting labor becomes clearer; this may also explain why Astra Taylor states that "automation has an ideological function as well as a technological dimension" (Taylor 2018). While the automat's mechanical wall served a technical, practical purpose, in the context of the Monticello Estate, hiding the human seams of its operation was not just a pragmatic choice, but also a political one. To Thomas Jefferson, the seams of his dining experience functioned as an uncomfortable reminder of the contradictory life he lived, and obscuring them behind a wall was his way of ameliorating an immoral institution: "Jefferson was doing nothing more than gilding the chains of slavery" (Taylor 2018). Can the same not be said of McDonald's or Sky Harbor, who used digital infrastructures to hide the poor conditions and underpaid work of its employees? Harvard Business review professes seamlessness as a feat of digital technology, but does the Monticello Estate not resemble seamlessness in itself? Seamless design attempts to simulate a life people do not live, by rendering certain social relations invisible and unheard. But without seams, without human encounters, the ethical and structural consequences of our actions are to remain hidden from sight, and in turn, hidden from thought. Although these examples of self-service kiosks and dumbwaiters are two centuries apart, they are both prime examples of fauxtomation, and more importantly, s*eamlessness* nonetheless.

To compare the designs of fast-food restaurants and a slave plantation seems dramatic. Yet I had drawn these connections during a time when seamless, or *contactless*, food service was not simply a business decision, but a matter of public health. As the COVID-19 pandemic ravaged through world economies, food workers were left in a precarious position. If they were not forced to interact with customers by their jobs, they were hidden behind a wall of digital

screens and receipts in order to keep operations running. Local restaurants and fast-food franchises alike had digitized their business models to maximize their profits in the most efficient and "safest" manner possible. Digital kiosks were installed and tracked consumer data; company apps and customer reward systems created incentives and personalized discounts; "ghost kitchens," which produced vast amounts of deliverable fried foods in mysterious brick buildings or out of other, unrelated food locations, emerged; QR codes replaced menus and used cookies to track customer activity; Uber Eats, DoorDash and other platforms mobilized recently unemployed workers to deliver food; the list goes on. Food service had made digital media their main form of communication, and it simultaneously hid workers from sight while putting them at risk: it "ameliorated" their conditions. In the pandemic's aftermath, fast-food's digital model only expanded, but my COVID-era critique had left a bad impression. Although it was originally toted as a public good, I found the digital model antisocial and othering. There was an irony to physically visiting a restaurant only to interact with a screen, while utterly ignoring the hard-working employees that worked there. It had not occurred to me, however, that perhaps the hidden, underpaid legion of workers were uninterested in seeing and talking to me, that digital mediation could be *relieving* in some capacity.

An anecdote from a friend brought the idea to my attention. He had known a McDonald's employee that loved the new digital interface: it allowed him to plug in headphones, listen to music, and robotically wrap burgers without interruption. For him, being digitally-hidden was incredibly relieving, an experience at odds with the panicked sentiment of Sky Harbor. I began to read forum discussions of fast-food workers and interview them myself. My friend's anecdote seemed less and less like an outlier, and more of a common narrative of how employees used kitchen technologies to their benefit. The seamless experience of fast-food, for both customers

and employees alike, was chock-full of conflicting perspectives, political interpretations, and affective experiences. It is easy to label the Monticello Estate as illusory and immoral; Jefferson had found a way to give slavery an entertaining interface. But when employees find comfort in seamless technologies, the ethics of seamless design is less cut and dry. Where Taylor sees "fauxtomation," Sky Harbor sees automation: where dumbwaiters enslave, self-service kiosks liberate. No true narrative of seamlessness exists, because they are all correct. This paradox perturbed me, and this thesis is a cumulative effort to untangle this puzzle and make sense of seams in social life.

This thesis has also been written amidst a period of economic precarity. As artificial intelligence (AI) and machine learning have rapidly advanced in the 21st century, many parts of the service industry question whether their place in the economy has become merely expendable. Specific technologies such as large-language models or algorithms are often targeted as causes, but design philosophies like seamlessness are often excluded from the conversation. This piece of scholarship hopes to breach this gap by explaining how seamless design transcended the world of computer science, and entered into the food-service industry. The "seamless customer experience" is certainly not an exclusive concept to fast-food: it appears in multiple industries and in similar designs predating the computer (like the automat or dumbwaiter). But engaging seamlessness within this context can hopefully address a generation that is intensely anxious about their future and self-worth in an automated age. I aim to answer practical questions: will digital self-service unemploy food-service workers, or is it simply fauxtomation? But I also hope to answer more theoretical questions about seamlessness itself and the ways it relates to media, labor and general society. What are seams, in a technical and social sense? How do seamless infrastructures remediate labor and consumption? What is everyday human interaction good for?

In addressing these questions, this thesis hopes to introduce the concept of seams and seamlessness to anthropological literature, and explore the ways in which the design of objects, places and systems are politically implicated in our everyday lives. The "seamless customer experience" is not just a business fad, but a remediation of how technology, consumers and labor traditionally interact with each other. For this reason, my exploration of seamlessness will be split into two distinct sections of *production* and *consumption*. The production section will locate the birth of seamlessness as a concept, and observe the production of the "seamless customer experience" from the perspective of fast-food workers. This will encompass a small history of how "self-service" led to the proliferation of digital interfaces throughout commercial space, enabled seamlessness to transcend the world of ubiquitous computing (ubicomp), and inspired the digitized world of fast-food seen today. I will ground our intervention in existing critical scholarship on "erotic" logistics, and with a variety of interviews and ethnographic evidence, explore how employees find relief or burden in seamless infrastructures. Within the consumption section, I will develop a social theory of seams as encounters, interrogate how "erotic" logistics tries to flatten human differences, and speculate what a seamless world would look like. Finally, I will conclude with a suggestion of where human interaction could be found in the near-future.

1a. Production: A History of Seamlessness

A history of seamlessness cannot start with the concept itself, but the technologies that preceded it. In his book, *Technologies of Consumer Labor: A History of Self-Service (2019)*, Michael Palm explores how the evolution of the telephone played an essential role in normalizing what he describes as the "digital everyday" (Palm 2017). Through decades of direct marketing, Palm outlines how telephone companies made self-service "second nature," and eventually enabled the installation of "consumer labor technologies" across the world. Palm

borrows the idea of consumer labor, or "consumptive labor" from Charles Koeber, a sociologist who used the concept to illustrate the work consumers perform on a daily basis to keep consumption and production possible. The original telephone depended on the gendered work of phone operators, or "hello girls," to connect callers abroad. Yet as the telephone gained a dial, keypad, and eventually touchscreens, less and less work was employed by telephone companies, and more consumer labor was taken on by the unassuming public. And with every technical evolution, consumers garnered new affective and embodied knowledge to help with the proliferation of self-service. Companies had to convince consumers that dialing their phone or grocery shopping with a cart could be considered a form of "leisure," seeing as it shortcutted conversations with operators and grocers. As the public became familiar with the 0-9 keypad of the 1960s, the interface leaped into the finance world of ATMs. Even in the present day, the iconic pattern still exists within every smartphone or credit card reader regardless of whether there are physical keys to press on the interface. Within a century of technological innovation and consumer-directed marketing, commercial business across the world garnered a set of bodily gestures and positive attitudes that not only enabled an enormous "work transfer" to consumers, but also perfected a hidden language for the transfer of wealth. Today's ordinary economic encounter, whether at the fast-food drive thru or local retail store, is a value extraction site. Credit-card companies charge merchants "swipe fees" whenever a customer pays with plastic, and are the "second highest operating expense for retail merchants, after labor costs" (Palm 157). If customers use payment apps on their phones, both merchants and credit companies alike "capitalize [on] the wealth of personal information" available in these mobile devices (Palm 157). Palm's conclusions reveal that today's self-service is not only the site of immense transfers of labor and wealth between producers and consumers, but also a site of value creation itself.

It is no wonder that Palm begins his history with the image of a digital self-service kiosk. With its digital keypad, touchscreen and ability to compile user data, it has become the poster-child of the rapidly growing self-service market, especially in the food-service industry. A Fast Company business article makes note of McDonald's kiosks as early as 2004, exclaiming how customer orders increased as much as 30% when ordered at the screen (Fishman 2004). Just 11 years later, amidst Ed Rensi's aforementioned kiosk craze, Gretchen Gravitt revisits this statistic with Harvard business professor Ryan Buell in an interview titled "How Self-Service Kiosks Are Changing Customer Behavior" (Gavett 2015). Buell presents some downsides to the proliferation of kiosks, including the obscuring of employees' labor with the increasing amount of consumer labor. Buell echoes Palm's own arguments about self-service, and a variety of business, managerial and consumer design literature has since sprung up to robustly understand their impact on business models (Wei 2017; Chan & Petrikat 2022; Lee 2025). But in a post-COVID context, fast-food companies have cast most of these worries to the side in pursuit of their many benefits. During the past two years, corporations like McDonalds or Yum! Brands (which owns Taco Bell, Pizza Hut, and KFC) have intensely invested in kiosk installations as digital sales have increased (Maze 2024; Meyerson 2025). QSR Magazine, a business magazine on the "quick-service restaurant" industry, routinely publishes strategic articles on how to best design kiosks to upsell customers, increase ordering times and analyze consumer data (Unlu 2023; Cook 2024). Self-service kiosks are truly capital machines, yet, they are a single star in a constellation of company apps, loyalty reward programs, pickup systems, AI drive thrus and customer-specific marketing. This digital infrastructure has become essential to creating what the business world describes as the "seamless customer experience."

In this paper's introduction, Terwiesch & Siggelkow defined a seamless customer experience as one that eliminated episodic interaction in favor of a continuous relationship: they optimize for a continuous connection instead of the discrete "encounter." But the article itself mirrors the style of most business literature on seamless experiences. Specifically, it lists four different customer experiences that can give your business an edge over your competitors:

> "A "*response-to-desire*" experience, where a customer knows precisely what she plans to buy and wants to press a "button" that makes the rest of her customer journey (ordering, paying, delivery) as easy as possible.
>
> A *curated offering* helps the customer understand all the available options and find the best option that would fulfill her particular, current need best.
>
> A *coach behavior* enables a customer to become aware of her needs at more efficient times.
>
> Lastly, in an *automatic execution*, a firm is able to detect and resolve a customer need before the customer has even noticed it" (Terwiesch & Siggelkow 2021).

Terwiesch & Siggelkow intensely map the phenomenology of the consumer, in that these four experiences try to optimize consumers' perceptual awareness of their desires. Through attentive curation and coaching, a consumer's sense of spacetime becomes heavily attuned towards obtaining whatever service or commodity they consider valuable. Yet, by optimally decreasing time between a "response-to-desire" and resolving a customer's need before they "have even noticed it," Terwiesch & Siggelkow assume that consumers already know what they want, and require it as *fast* as possible. Similar to the inner-workings of the Monticello Estate, a seamless customer experience contains an automated attentiveness to whatever the consumer needs. At its most anticipatory, it resolves unwanted potentials at the utmost periphery of your senses.

Many of seamlessness's tenants in the business world already share a compatibility with the goals of fast-food service. Customers are assumed to have some kind of articulable hunger, and the visual design of menus and mechanical production of food attempt to produce your order in the shortest time possible. In the business literature on fast-food, seamlessness is not only important for optimizing the customer's perceptual awareness, but also for creating an affective connection between producers and consumers. In a QSR Magazine article, "The Future of Guest Experience: Personalization, Predictive Menus, and Seamless Interactions," Clément Pévrier articulates how "seamless, intuitive user interfaces (UIs)" are the backbone of modern customer loyalty, and throughout the piece, Pévrier links a medley of technical concepts to affect. His section titles exemplify this: "Friction is the Enemy of Loyalty," "Good UI is Invisible," "Investing in Experience = Investing in Loyalty," or "Speed and Accuracy Create Trust" (Pévrier 2025). Perceptions of spacetime are not optimized for the sake of optimizing speed, but optimizing the affective experience of customers' altogether: "the faster and smoother the process, the happier the customer" (Pévrier 2025). The phenomenological experience of digitally navigating a restaurant is treated as equally important to the food itself, to the point where even tech managers or CEOs of fast-food corporations publicly talk about improving their logistical and technical infrastructures to attract customers to their business (McCarthy & Dunn 2024; McDonald's 2021). When Starbucks announces that it wants to get back to its roots as a "community coffee house," but also wants your digitally ordered coffee to be ready *exactly* at a designated time, the mantra of fast-food quite directly links seamless experience with an affective one. A McDonald's advertisement for its Accelerating the Arches, a growth strategy plan that was released in 2020, exemplifies this linkage best at its end: "More convenience. More value. More of what they love. Even faster" (McDonald's 2020). The slogan is layered over

footage of customers enjoying their food in their home, car and a restaurant lobby, all with fantastic smiles on their faces. In order for seamlessness to be powerful, its design must, in a sense, seduce our senses. As William Mazzarella puts it, it must be *affective* to be *effective* (Mazzarella 2017).

The seamless customer experience possesses an affective dimension, but what about its technical side? Pévrier uses concepts like friction and invisibility in his article, but where does he retrieve this language from? More importantly, where does the concept of seamlessness even spring from? The word is readily used in the food-service industry, but uncommon in everyday language. The origins of seamlessness, however, do not lie in the realm of business and managerial literature; it is situated in the history of ubiquitous computing.

Ubiquitous computing (ubicomp) emerged as a sect of computer science in the early 90s. In their essay "Beautiful Seams," Sarah Inman & David Ribes trace seamlessness to a historical debate between seamless and "seamful" designs between ubicomp engineers (Inman & Ribes 2019). At its heart, their article is an expansive literature review of over 150 papers that directly engage with this debate and the application of these design concepts. But through their tailoring of its historical narrative, Inman & Ribes generate a coherent definition of what it means to be seamless. The first mention of seams came with Mark Weiser's famous article "The Computer for the 21st Century," where Weiser dreamt of "integrating computers seamlessly into the world at large" (Weiser 1991). Weiser envisioned a world where physical reality and cyberspace could seamlessly merge together, and his concept of ubiquitous computing ran counter to the emerging computer culture that made PCs, or the interface, the center of attention. Weiser imagined a world where computers were so embedded in our physical environment that our interaction with them would not even be thought about: "a good tool is an invisible tool. By invisible, I mean that

the tool does not intrude on your consciousness; you focus on the task, not the tool" (Weiser 1991). Using "a unique mix of cognitive science and phenomenological philosophy," Weiser's idea of computing being simultaneously hidden from sight and cognition heavily affected early conceptions of seamless design. By freeing up the perceptual bandwidth of users, designers felt that seamlessness was an idyllic state for all technologies: as Inman & Ribes puts it, it appeared as an "implicit virtue" (Inman & Ribes 1). Advocates for seamfulness, including Weiser in later years, thought with concepts of revelation and interactionism. Whatever "seams" seamlessness aimed to hide, seamfulness aimed to reveal and convert into "explicit resources for interaction" (Chalmers 2). Chalmers famously created a color-graded map that showed levels of cellular reception for cellphone users in a populated setting. By exposing the seams, or *limits*, of the technology, Chalmers and other seamful advocates believed that moments of technological breakdown could be better understood and implemented into everyday social life. As this informal debate continued, seamless/ful design concepts evolved and refined many of its perceptual commitments. Yes, seamless designs rendered some processes invisible, but was seamlessness really about becoming invisible? With the help of Bell and Dourish, Inman & Ribes better perfect an idea of what obscuring seams actually does: "To be seamless does not mean to be invisible, but to be compatible, mundane, interoperable" (Inman & Ribes 9). Weiser thought computing could be embedded in everyday objects the same way that texts covered our urban environment, but the analogy ultimately forgets the way texts and interfaces visually invite interaction (Weiser 93). Seamless things, then, are never truly hidden, although they tend to obscure some of its processes. Instead, they are highly cooperative, present, but "still unremarkable" (Bell and Dourish 142).

While this definition exemplifies both the cognitive and technical qualities of seamlessness, it is unfortunately shorthanded in its understanding of how seamless technologies manipulate time. Inman & Ribes find a way to implicate seamfulness into the conversation, but another design concept can help fill this gap: friction. In a public workshop invitation titled "Designing with Friction: Inverting Notions of Seamless Technology" Jacob Sheahan and a group of coauthored designers promote friction as a generative concept to think with. They define friction as "elements of a user experience that impede or prevent the completion of tasks:" elements that within a "seamless digital landscape," have often been considered as hindrances to efficiency and ease of use (Sheahan 2024). Inspired by the notion of "slow technology," Sheahan and his colleagues counterpropose that these frictions could actually promote a mode of "reflective consumption," in which our devices can take on other values beyond their "perceived functionality and attributes" (Sheahan 2024). The authors credit the lack of friction in contemporary design to the overvaluation of seamlessness by designers, and in doing so, suggest that seamlessness possesses a temporal aspect. To be seamless, then, not only entails being compatible, mundane, interoperable, but also *frictionless*. While still visually unappealing, seamlessness reaches for a universalist state in which the flow between the digital world and our physical one is unhindered (Ishii, Ulmer 1997). It does not try to be fast, but instantaneous. Seamlessness wants to defy physics.

We have mapped out seamlessness on a cognitive and temporal level, but unfortunately, a majority of design literature does not spend much time defining what a *seam* is in itself. In her article about "Undoing Seamlessness" within visualization, Nicole Hengesbach offers a brief, yet abstract notion of seams and how they arise outside the context of design:

> “Seams can come into existence during the initial creation or during repairs, fixes, and maintenance. Seams can be used to fix cuts and tears, they can hold together different entities, layers, and where old and new meet; they can be places of fracture and they can be sealed, hidden, highlighted, or even decorative” (Hengesbach 3).

Whether it be the artificial seams of clothing or the natural coal seams that appear in rock, Hengesbach suggests that seams are a processual phenomena that arise in the midst of creation or intervention. They can be as accidental as they are intentional, and work towards holding a series of heterogeneous bodies together. Visually, they are markers that point towards where things are "stitched" together. But how are seams temporal, or more concretely, how are they felt? In referring to Chalmers’ map of cellular network connectivity, the red layers of poor connection are felt as moments of technological breakdown. The limits of a technology are felt in slow-motion as it buffers and attempts to hold itself together, but these moments of buffer can also be purposeful points of design. In Sheahan’s workshop, adding friction to payment interfaces or automated driving systems forces users to slow down and take a more careful approach to their actions. Both of design’s intentional and accidental edges, or *seams*, produce the same effect of delaying a desired task, and for that reason, my working definition of seams will not address it. For now, I will consider seams as *moments of friction*.

Admittedly, what this short history of seamlessness in fast-food and ubiquitous computing lacks is an account of their convergence. Exactly when the notion of seamlessness leaked into the commercial world and became a hot word for describing customer experiences awaits a historical narrative, but if my review of the literature suggests anything, it is that it occurred somewhere in the evolution of self-service. Just as designers dreamt of the seamless coupling of cyberspace and the physical world, today’s era of fast-food corporations dream of a

restaurant where seamless interactions between technology, people and food optimize for revenue, speed and affect. My intervention, then, cannot focus on ubicomp. Instead, it must interrogate how the idea of seamless flow has affected the movement of physical things and people. So far I have produced a history of seamlessness and its origins in ubiquitous computing, but at this time, I would like to stage my anthropological intervention into fast-food with yet another connection: logistics.

As I close in on the "seamless customer experience" as a concept, consider how commercial seamlessness not only fantasizes about the unrestricted flow of information, but also the flow of commodities, their packaging, and other mundane objects. "Logistics is the organization of the trajectories of things" and recent work in critical logistics research illustrates the ways in which these fantasies problematically obscure human labor and our physical environment. David W. Hill dives into this idealized side of business logic further in "The Eroticism of Logistics," where he utilizes media philosophy to critique the problematic representations and assumptions made in contemporary logistics (Hill 2024). These assumptions include claims that humanity has entered an age of "logistical modernity" where the world's surfaces have been smoothed and flattened for the transportation of goods. Hill argues that this "surface ideology" misrepresents the actual praxis of logistics, and also misunderstands the ways in which mediums transport information, goods and other things. As I developed earlier, seamless flow desires a frictionless movement through space that is not only physically impossible, but misrepresentative of what "logistics achieves in practice" (Hill 576). Hill arrives at this conclusion through the lens of Sybille Krämer, a media philosopher who posited two principles of communication: the erotic and the postal. Just as ubiquitous computing imagined the seamless integration of the physical world and cyberspace, erotic communication imagines

the collapse of distance between a message's sender and receiver, and ideally, their "erotic" merging into one. "Erotic logistics" carries a similar ambition, in that it hopes seamless flow can merge production and consumption into one. Yet, this concept does not represent all the humans bound up in logistical routes. Like Sky Harbor and the Monticello Estate have shown, collapsing this distance with dumbwaiters or digital infrastructures can obscure, if not denounce, the human labor that makes logistics possible. Because of this, Hill encourages us to embrace postal phenomenology. The postal principle rejects the erotic notion of synchronizing or standardizing the conditions of "formerly divergent conditions of individuals," and instead portrays communication as the "production of connections between spatially distant physical instances" (Krämer 22). In a logistical sense, this proposes that nothing truly moves seamlessly across flat land, and instead of collapsing distance, the many containers, cargo and other logistical objects carry a "trace" of their routes and where they have gone. The mysterious trip between production and consumption is rendered representable, and the "rolling heterogeneities" of this world's environment and people are kept intact (Hill 572).

A closer look at logistical flows will show that our world is not as seamless as it seems. Hill urges critical logistics research to defy erotic, reductive accounts of seamless flow, and in response, do justice by the "traces" and the stories they evoke (Hill 576). In the following part of this section, I will attempt to do justice to the context of cheeseburgers, 30-second coffees, and other fast foods by observing how fast-food employees have encountered seamlessness in their workplace and adapted to it. Although logistics and ubiquitous computing would like to convince its users of seamlessness, ultimately, looks are deceiving. Behind the "seamless customer experience" lies a diversity of rich connections, frictions and affective experiences that make the mass generation of capital and data possible, all while keeping up appearances for the public.

This richness of difference came through a series of digital and physical ethnographic accounts of employees encountering self-service technologies for the first time, reflecting on how these systems have burdened them, and then finally sharing the ways in which they manipulated these infrastructures to their own benefit. As these stories resolve, they will address the question of automation vs "fauxtomation," and distinguish whether the self-service kiosks and other seamless technologies unemploy fast-food workers.

1b. Production: An Ethnography of Fast-Food

Although fast-food's infrastructures were designed to be seamless, their transition into the everyday life of employees and customers alike is anything but smooth:

> "My store is putting in kiosks this week. I am wondering for others who have dealt with them, how have they effected your job, particularly as a service person? Had it made things easier or harder? I know after putting in the uber eats thing, that was a real pain, will this be similar, or really not a big deal? I'm just very nervous about how this will effect things" (abbyalice93, 2018).

As another wave of kiosks washed over McDonald's locations in 2018, abbyalice93, a McDonald's crew member, found the corporation's newest investment to be a major source of anxiety. Abby's concerns, however, were not uncommon, and was one of many questions asked in the McDonald's subreddit about the adoption of kiosks across the United States. Luckily, commenters like Tkdoom were to-the-point and optimistic in their response to Abby. Tk expected that Abby would become a Guest Experience Leader (GEL) who offered help to lobby customers about their orders and kiosk usage, and suggested that her regular working hours would likely remain the same. Employees like ExxxtraSprinkles on the other hand were not so optimistic: "They make things harder."

> “It’s a constant drama between upper management pressuring kiosk transactions and crew fighting tooth and nail not to be placed in the firing line. Customers get VERY mad about them. No one likes being stationed out there to get told off all day” (ExxtraSprinkles 2018).

Exxtra worked in a low-density, rural area where locals were directly averse to ordering through kiosks. Employees were often burdened with introducing angry customers to them anyway. As abbyalice93 laments, the “real pain” of new technologies comes in inheriting them: new infrastructures require mass amounts of labor to start generating capital. The growing pains of the digital transition, however, do not relate to purely physical work; it involves a massive amount of emotional labor as well. Emotional labor can come in the form of Abby’s anxious anticipation, but more often than not, it manifests as intense frustration.

> “Customers if you ever see this.. Please know that the code your using/telling us IS THE REWARD APP. If we ask if your using the reward app and you have a code then SAY YES. Dont say "no" and then proceed to says"i have a code" that causes us to take longer to do your order causing times to go up... yes you are being timed just like we are as our goal is to get you your good fast. So please... We all have a brain... Why cant customers USE THEIR BRAIN?!” (ReneHyujin, 2025).

Several years after abbyalice93’s anxious post, another McDonald’s crew member named ReneHyujin found yet another source of distress in the workplace: customers and employees simply do not use the same language. Employees try to prompt customers for the code of their online orders, only for customers to refuse their prompt and then provide them a code anyways. Although the passcode should allow customers to seamlessly enter the queue time of orders once they arrive, seamless interactions do not work in practice as they do in theory. Quite rarely can

customers and employees collaborate by spewing numerical codes to execute commands. When another person's words do not align with the way you prompt them, a brief encounter becomes a creative site of misunderstandings, assumptions and overall confusion. Usually, a case of miscommunication can be handled with just a little time and care, but as Rene expresses it, time is not a luxury for either the customer or employee. As soon as a drive-thru or digital order is received, the amount of time it takes for employees to complete the order is measured on an in-kitchen screen, and then averaged for upper-management and corporate to monitor labor efficiency. The future of convenience begets surveillance, and while this serves to benefit eager customers, it puts employees in a compromising position. Employees like Rene would like to educate customers on how to properly communicate their digital orders, but when time is ticking, they must instead enter a rat race of deciphering the customer's order in the least time possible. It is no wonder that fast-food employees like Rene regularly use public forums like Reddit to voice their frustrations. Since crew members lack the agency to repair digital systems and tune them to their benefit, they are forced to engage in routine encounters that are often redundant, if not detrimental to their employment and overall performance. Admittedly, Rene's criticisms of customers not being able to "use their brains" is over the top, but they are rooted in an unfortunate truth. The most difficult part of being a crew member is often the customers themselves.

"The worse part *has* to be the customers," said Diego, a 23 year old Starbucks barista who worked a part-time schedule in-between classes to help pay for his tuition. Starbucks' online ordering system, however, made the "customer service" part of his job more difficult. Starbucks incentivized online ordering with a rewards system, and as digital orders came in huge waves, it often upset those customers actually in the store:

> “It caused a lot of problems because people in the cafe would get impatient because we’d be calling names out of people that weren’t in front or behind them in line. It made it worse because if you saw a customer who you knew and knew their daily order, it was annoying watching them order and wait 20 minutes because mobile orders were getting pushed out first” (Diego 2024).

Like McDonald’s employees, Diego’s completion of orders were timed to assure his productivity was at an efficient rate. And while he could alter the list of orders to favor in-store customers, it ultimately deprioritized the fifty-to-sixty digital orders Diego could receive during the cafe’s peak hours. In this specific anecdote, Diego’s cafe lobby was in a complete disarray. Because COVID-19 protocols had removed indoor seating, a combination of physical and digital order customers had begun to line the Starbuck’s walls, waiting for their coffee in a state of confusion and even vocal anger. Even when the ordering process went as planned, Starbuck’s digital infrastructure opened a floodgate of orders that Diego’s crew could not produce on schedule. Despite the visible overload, it did not stop customers from making comments on their wait times or directly complaining to baristas about their orders. Whether seamless infrastructures malfunction or work as intended, customer-facing employees are expected to absorb customers’ emotional outbursts when too much time passes. Very rarely does upper management and corporate encounter this type of backlash in person; the design of fast-food restaurants makes employees the first line of defense. As a consequence, employees receive all the blame when things go awry; customers interpret the flaws of management and infrastructure as the personal faults of employees. Even when Diego enjoyed talking to “regulars,” the actual structure of his workplace made customer encounters the worst site of stress.

It seems that workers could be better off if management shut these digital systems off and funneled them through traditional orders at the cash register, but of course, even this solution bears its own problems. In response to a 2023 Reddit post humorously titled “Be honest; do you guys get pissed when I order at the register rather then the kiosk?” a user named Gabser31 writes the following:

> “Personally it annoys me cause half the time people don't know what they want, start asking me about the menu, then have to discuss with their family, then have to call the one person that stayed home if they want anything, then they're ready to order, but oh wait they want every burger customised to the heavens. Bonus points if they don't know English very well. If it's quick and short then it's whatever” (Gabser31 2023).

Physical orders are not any easier by comparison, and welcome a plethora of their own inconvenient uncertainties, negotiations and language barriers. Gabser’s brashness reflects the absurdity of his fast-food employees’ position. In turning on the digital infrastructure, workloads pile up during busy times as inputs multiply and the flow of orders is left unrestrained. But when it is ignored, the pressure to optimally process customers builds, and the bodily stresses compound. Yet, when these infrastructures are manipulated by fast-food employees to their own benefit, they serve as an excellent tool to make the expectations of their job feel more balanced.

Employees like Diego felt that digital orders heightened their physical and emotional workload, but for Nacho, the effects of his McDonald’s digital infrastructure was only an afterthought in describing his overall experience as a crew member/assistant manager. Although digital orders were oppressive for some, a combination of factors in Nacho’s location not only made in-person ordering necessary, but it allowed his crew to evade in-store surveillance policies

and regain agency over their work life. When asked to reflect on his favorite part of working at McDonald's, Nacho explained why he liked working the cashier/drive-thru position best:

> "Well I just like talking to people, so, it was just kinda nice being able to take orders and be able to just like have a conversation with someone instead of having, being like in the middle of the store, like, not really socializing with anyone, just making sandwiches back to back to back" (Nacho 2025).

Nacho's story emphasizes social interaction over the isolating, often monotonous work of preparing sandwiches in the McDonald's kitchen, and likely because of the distinct context of his location and workplace. In Nacho's suburban area, customers would often ignore self-service kiosks to talk directly to employees, and even as a young crew member, managers would entrust him with leading shifts and depositing money at the bank for the franchise. The power dynamics of his workplace were admittedly a little loose. Nacho would often have to direct himself and others if incompetent managers were on shift. But when it came to dodging the corporate surveillance of order times, Nacho and his coworkers were almost always on the same page: "it was more like faking faster times, than actually getting faster times" (Nacho 2025). Managers would take a picture of order lists, clear the queues, and then prepare food as usual to elude the watchful eye of corporate. At times, employees with cars would enter the drive-thru to trigger the timing sensor, and then "prepare their meals" to decrease their average order time. Even when the fast-food's seamless infrastructures seem most suffocating, they simultaneously create a breathing space in which employees can strategically use them to their own ends and resist certain power relations at work.

The idea of "gaming" technological systems to their benefits does not even require employees to fabricate orders amongst a kitchen crew. In most instances, employees can simply

redirect customers away from themselves in order to create personal breaks throughout the workday. Strategies like these, including McDonald's notorious "the ice cream machine is broken" excuse, have become increasingly common within fast-food's seamless transition. For example, Eva Page was a college student who had picked up a summer job at South Block, a "fast-casual" restaurant in Washington D.C. that specialized in acai bowls. The following quote details a specific anecdote Eva shared with me during our first interaction:

> "Me: There are some cases where people come into restaurants, and instead of coming up to the register, employees will just shoo them to the kiosk. Have you ever seen that with- **Eva starts to nod** Oh yes, you have?
>
> Eva: My managers would do that. Um, I think they were pretty lazy sometimes **I start to chuckle** This one manager I had was very lazy. Well.. some people would walk in and seem very confused of where to order and he'd say, "There's kiosks there to the side!" (Eva 2025).

Certainly, managers could not get away with this tactic during peak hours, when three different inputs of tickets always kept the store "super busy." But since kiosks had been newly installed at her location, Eva's managers used the new system to avoid taking orders once customer traffic was slow. Personally, Eva had reservations about her managers' behavior. She liked taking customers's orders and got a good laugh out of older folks who refused to order from an "IPad." But with the self-service system in place, it allowed Eva and her crew the ability to actively redirect and mediate their interactions with customers according to their preference. This loose system afforded more agency to all employees involved. It gave managers an out from physically taking orders during break periods, and allowed more sociable workers like Eva an opportunity to talk to customers when she wanted.

All of these strategies skirt workplace rules in a variety of ways, and none are completely universal to all of fast-food's business models. Yet, these anecdotal experiences are evocative of how seamlessness as an effect is not all-powerful: the successful use and defiance of these technological infrastructures and surveillance systems are ultimately contingent upon the given context of a restaurant's location, personnel and cultural practices. From my observations of multiple forums and interviews with fast-food employees, labeling fast-food's logistical practices as "flat" would be a complete inaccuracy. Employees interpret and use digital infrastructures in a variety of ways, and actively defy these systems in order to keep production going. This fact became more apparent as my conversation with Nacho came to an end. When I asked about his favorite, most resonant memory of a customer, Nacho shared an anecdote of an old man who would routinely come to the front register on late Friday mornings to ask for a cheeseburger with an egg on top. These kinds of modifications could never be allowed in the self-service system, and the man timed his order so that he came right as McDonald's switched from their breakfast to dinner menu for the day. Even amidst the COVID-19 pandemic, Nacho obliged and took his order every time. While this deed certainly fit Nacho's character, I left the conversation unsure of whether other employees or fast-food chains in general could allow such a deviation from the standard menu, especially in franchises where no front facing register existed.

If anything can be learned from this collection of anecdotes, however, it is that seamless infrastructures within fast-food cannot be characterized as completely "bad" or "good." At times, it enabled employees and management to take breaks from social interaction, giving them the opportunity to focus on cleaning facilities or restocking supplies. Gaming the system allowed employees to avoid invasive forms of surveillance as well, while also improving job security and emotional well being. In other cases, these infrastructures created intense buildups of redundant

tasks, in-lobby customers, and general frustration for all people involved. Overall, the relationship between customers and employees both *gains* and *loses* different qualities as new technologies came to remediate their interaction. It is difficult to gauge these changes as negative or positive; at the very least, the dynamics are simply *different*.

From an ethnographic perspective, seamlessness is not a tale of total technological domination. Responsibilities shift and new issues emerge within the seamless infrastructure; its technologies do not simply "replace" workers' jobs, but rather remediate customer service interactions. Fast-food workers retain their jobs, and a variety of economic and ethnographic research helps underscore this fact. To start with a claim, self-service technologies (SSTs) do not result in "technological unemployment" in the restaurant industry (Keynes 3). Economist Chungeun Yoon produced a short study in 2023 arguing that restaurants with SSTs did not change staff numbers at all, but instead reduced the wages of part-time employees and raised relative wages of skilled work (Yoon 8). Yoon points out that his statistical work only covers short-term labor outcomes, and is limited by not assessing long term outcomes of "job satisfaction, job quality, employee turnover, and the overall financial performance of restaurants" (Yoon 8). While the digital age of fast-food definitely seems busier and more frustrating during peak hours, it would be inappropriate to assume that this lowered everyone's job quality and satisfaction in the aggregate. Yoon's conclusions about unchanging employee numbers, however, leads us to an important misperception of fast-food work: job tasks are often mistaken for jobs. In the many different fast-food stories I observed, employees were always trained to accomplish a variety of tasks. The idea that SSTs could replace an entire position overestimates what automation actually looks like on the ground, seeing as these machines often need equal, if not

more employees to keep up with incoming orders. Sky Harbor was right in protesting their work conditions, but it is best not to oversimplify SSTs as human-replacing automations.

Other researchers in automation studies have tackled this misrepresentation of automation as well. Mateescu and Elish's ethnography of AI in retail and agricultural settings revolves around the misuse of "replace," and eventually concludes that AI technologies "reconfigure work practices rather than replace workers" (Mateescu & Elish 9). Within their analysis of retail workers and self-checkout aisles, employees often had to acquire new responsibilities and skills to keep up with the rapid change of their store's business model. While managers and employees were usually only trained in bagging groceries and customer service, optimally running self-checkout aisles required workers to redirect customer traffic, interpret malfunctions of new machines, and become surveyors for petty theft. These reconfigurations are consistent with my own ethnographic findings, which required employees like Diego or Eva to curate ratios of digital-to-physical orders or read the body language of customers uncomfortable with using kiosks. However, as I have stressed throughout this thesis, reconfiguring work with technologies also entails a remediation of production and consumption altogether; through the digital interface, consumers and producers appear to each other in new ways. While this change seems minor, appearances make a difference: the medium through which goods, services and people travel *matters*. Within this next section on consumption, I will speculate on how seamless design attempts to homogenize human experiences and architectures, and in turn, remediates and changes the nature of consumption itself. Seamless technologies may not replace fast-food jobs in the present day, but a question still stands of what society stands to lose to the growth of seamless technologies. My discussion will be primarily theoretical, but in order to begin, I will start with a photo collage of real, physical places.

2. Consumption

Figure 1[1]


Figure 2[2]

Over the past few years, Figures 1 and 2 have circulated social media showing the progressive evolution of McDonald's throughout time. The images, however, are never used to evoke a feeling of "progress" at all, but regression. The contrast of the 90s cartoonish animals and talking trees with the dull, smooth surfaces of today's McDonald's is purposeful. They are not just an affront to the 'boring' facades and interiors of today's fast food; they evoke a question of "*what happened?*" Throughout this thesis, I have tried to answer this question by connecting the surge of seamless fast-food experiences to the intertwining histories of self-service technology and ubicomp, and then analyzing how these infrastructures have reconfigured and remediated labor instead of completely replacing it. Much of this analysis has focused on the ways seamless infrastructures attempt to elude cognition and space-time, but rarely have we discussed the actual look of seamlessness itself. Yet, this factor is important. Seamlessness not

[1] Figure 1. "This McDonald's Throughout the 1990s,2000s,and 2020s," USA. Photographer unknown, June 2025. https://www.reddit.com/r/interestingasfuck/comments/1ll5cdk/this_mcdonalds_throughout_the_1990s2000sand_2020s/.
[2] Figure 2. "McDonald's in the 1980's compared to today," USA. Photographer unknown, 2023. https://www.reddit.com/r/90s/comments/127xcw3/mcdonalds_30_years_ago_vs_now/

only stands to transform the process of production, but the aesthetics of public architecture and consumption as well.

In the heat of the COVID-19 pandemic, fast-food companies expanded the breadth of their self-service technologies, but also imagined seamless architectures that could support consumption amidst a health crisis and beyond. Figures 3, 4, 5 and 6 comprise a series of 3D simulations that corporations used to concretely plan and advertise their digital visions of fast-food. Designed to be spatially compact and optimal, these simulations were specifically showcased in a QSR Magazine article titled "14 Glimpses Into the Fast-Food Restaurant of the Future," and were presented as an answer to what customers had always wanted: "Convenience. Accessibility. Loyalty. Frictionless ordering. Integrated design" (Klein 2021). Aesthetics and architecture were explicitly used to complement consumption, and this dynamic has appeared in my previous examples as well. Fast-food's technology fetish eerily resembles the design of the Monticello Estate, which surrounded dinner guests with flashy gadgets as its slaves faded back into the estate's architecture. If Klein truly offers a glimpse into the future, a question remains of whether a world of seamless consumption and architecture is even desirable. I project this question not only to fast-food, but onto a general vision of what capitalist architectures may look like in the collective future. Instead of asking "what happened?" the following discussion will speculate *what could happen* as corporations continue to think with erotic logistics, and consequently, hide more and more of society's seams.

Figure 3[3]


Figure 4


Figure 5

Figure 6

The academic language of design roughly understands seams as *moments of friction*, where the extremities and limits of a single technology can be seen, felt or noticed. When technologies are orchestrated into complex assemblages, however, labor inevitably becomes the thread that stitches these devices together. In this context, seams not only refer to the experiential phenomena of an individual user, but also to the moments when the human realities of production and consumption meet. At these points, seams become events: they are *encounters*. The idea of the encounter is a classical theme in anthropology, and at its most basic level, refers to "meetings where difference is somehow noteworthy" (Wilson 2017). The definition's open-endedness speaks to the variety of outcomes difference inspires. Encounters can become clashes, dialogues, exchanges, translations, convergences, or connections; encounters can also become more uneventful moments of silence and other awkward gaps (Kiik 2024). They can

[3] Figures 3, 4, 5, and 6. "14 Glimpses Into the Fast-Food Restaurant of the Future," Digital models credited to Taco Bell, McDonald's, Chipotle and Shake Shack, 2021. https://www.qsrmagazine.com/operations/fast-food/14-glimpses-fast-food-restaurant-future/

create relations, break them, or most often than not, *do nothing*. The sheer potential to generate something or nothing makes the encounter a foundational piece of social life, and since infrastructures are socio-technical systems in themselves, it makes sense that they are held together by the same social stuff. Difference sustains our everyday life and also creates a space for it to change. Similarly, the difference between humans and machines is what makes infrastructures so generative in the first place. As labor weaves itself through the technological fabric, seams become those moments when the technology fetish stutters, and we as humans realize that our gadgets are useless without us.

Does seamlessness as a design philosophy threaten to eliminate the encounter from everyday life? I ask you to imagine a seamless world, in which its consumers never truly encounter the mechanical and human labor that produce its commodities: "goods simply appear at their destination" (Hill 576). Again, erotic logistics rears its smooth head as it attempts to merge production and consumption into one. The following quote by Hill helps imagine how a merger of this kind stands to affect our social environment:

> "But surface ideology imagines a logistical enterprise that accomplishes unity, such that production is effortlessly joined to retail and consumption; the smooth surface or logistical glacis that unites these functions creates an image of a homogeneous space; and the single voice here becomes a simple void, the empty sea or flattened space—and if erotic logistics speaks with a single voice, then it is the voice of those at the near end of the supply chain" (Hill 575).

Hill's poetics are chilling. He does not paint a picture of a futuristic, dystopian space of seamless infrastructures and technological domination. Instead, it is a space that is devoid of detail and particular belonging: it is a lonely place. It is *quiet*. The encounter offers a space for actors to

communicate and co-create a context. But in Hill's vision, there are no interlocutors with which human difference can proliferate. The empty sea can only be viewed from an omnipotent perspective, because actual humans and other beings are nowhere to be found. The only voice that really exists or *matters* in a seamless world is that of the consumer, and as their voice comes closer, it does not chant "*I am*" but rather *"I want*." This may explain why Kurt Vonnegut prefers to buy one envelope in person rather than a hundred of them online (Vonnegut 2004). When people are allowed to "fart around" the world, they sporadically encounter difference and cause it to further proliferate with their responses. When these worldly adventures are reduced to mere economic desires, however, heterogeneous identities simply become homogenous consumers. Whether the consumers of a seamless world can communicate their identities or even need to is uncertain. But Hill makes it known that the endgame of erotic logistics is a lonely one, where contact with those who are next to us is either impossible or unimportant.

In contrast, scholarship in sociology argues that interpersonal contact, even at its most passive levels, is incredibly important to the well-being of individuals and society. In his book, *The Great Good Place (1989)*, Ray Oldenburg develops the idea of the "third place" to bolster its importance to democratic society and senses of belonging, but in the process, critiques the danger of "nonplaces" to society's cohesion. Third places are "third" because of their relations to the "first place" (the home) and the "second place" (the workplace). Oldenburg theorized that these three places worked as a tripod in supporting the individual's sense of belonging in society, with third places referring to the "core settings of informal public life" (Oldenburg 15). These places could take on a variety of forms: cafes, coffee shops, bookstores, bars, hair salons, the list goes on. What Oldenburg thought united these heterogeneous places was their ability to level the social playing field; regardless of differences in race, class or gender, third places worked as a

neutral ground in which diverse groups of people could converse and mutually coexist together (Oldenburg 23). Throughout the book, Oldenburg uses a variety of ethnographic evidence to map out the qualities of third places and the ways they affect their inhabitants. Because of the usual old age and inexpensiveness of third places, their staff, regulars and general goods often indexed the cultural histories that ran through them, and with continuous engagement, could cultivate a sense of novelty and belonging in those that visited. Oldenburg thought this feeling of personal connection was what generated a citizenry that publicly engaged with their local communities. But Oldenburg's theories about the particularity of third places are not only descriptive; they are also a critique of the installation of "nonplaces" (Oldenburg 205). Oldenburg uses fast-food as a prime example of nonplaces, which he presents as the antithesis of third places:

> "In nonplaces, individuality disappears. In nonplaces, character is irrelevant and one is only the customer or shopper, client or patient, a body to be seated, an address to be billed, a car to be parked. In nonplaces one cannot be an individual or become one, for one's individuality is not only irrelevant, it also gets in the way. Toby's Diner was a place. The Wonder Whopper, which stands there now, is a nonplace" (Oldenburg 205).

Whereas third places actually belong to a particular community, nonplaces "offer a real place to nobody" (Oldenburg 205). Oldenburg worried that corporations would slowly but surely buy out the country's collection of third places, and as a result, cause a breakdown of American society. It is here that the stakes of a seamless world become imaginable. Without the encounters of everyday life, people begin to feel like strangers in their own communities, and consumption becomes the only mode of expression and becoming. A society of nonplaces not only poses a danger to a cohesive democracy; it threatens to sap life of all meaningful difference. As public

spaces are homogenized and made interchangeable, people are trapped and estranged in their own architecture, and the dynamics of everyday life become unreasonably dull and uneventful.

But do nonplaces really destroy difference? Only three years after The *Great Good Place*, French philosopher Marc Augé wrote *Non-Places: An Introduction to Supermodernity (1992)*, but unlike Oldenburg, he stays agnostic about their societal effect. To Auge, non-places have not harmed society nor eclipsed our former ways of socialization: they have merely generated a new type of *solitude.* Like Oldenburg, Augé imagines that non-places do not belong to anyone in particular, and contrasts them to his idea of the "anthropological place" (Augé 1992). The anthropological place encapsulates Oldenburg's first, second, third places and many more: it is a historical place that relates to its inhabitants and produces relations. Augé, however, does not worry about non-places usurping their anthropological counterparts; he refrains from making any value judgments about non-places at all. He reassures anthropologists that they will still observe a variety of cultural phenomena in the "supermodern" age he describes within the book:

> "But they [phenomena] will make sense again (they will remake meaning), along with all the rest, in a different world, whose reasons and unreasons the anthropologists of tomorrow, just like those of today, will have to try to understand" (Augé 40).

Augé does not foreshadow the end of democracy or anthropology, but a massive "remaking" of all our meanings entirely. This is likely why he takes an interest in the "solitary contractuality" of non-places (Augé 94). People must purchase and identify themselves in order to become customers, passengers or shoppers, yet they remain anonymous to each other. Identities are collected only to be disavowed. The logic is paradoxical, and to that Augé offers an explanation: "it seems that the social game is being played elsewhere" (Augé 111). Oldenburg and Augé tell radically different narratives about the arrival of non-places. Where Oldenburg foresees societal

breakdown, Augé tells a tale of resilience. Beneath the empty sea, Augé proposes that people are playing the game as usual. Augé's idea of a "new" solitude, then, does not signify the eradication of encounters or difference, but their displacement. To Augé, "supermodernity" has not killed difference. Difference has merely flocked to new places, albeit with a new set of meanings and architectures to mediate it.

While Oldenburg remains skeptical of nonplaces and their use to society, Auge maintains a small sense of hope: humanity does not stand to lose anything to non-places but rather *gain* new meanings and architectures. I contrast these interpretations of nonplaces in hopes of creating a better conclusion myself. As I first began this thought experiment, I considered that erotic logistics aims towards a utopic, seamless society by which consumption and production merges into one. Nonplaces, then, function as flatteners. By rendering all inhabitants as consumers, they fold difference into itself, and smooth out the variety of ways people can represent and express themselves otherwise. But what does it really mean to "flatten" difference? Augé suggests that our infrastructures cannot destroy difference, but rather move and displace it to different areas of society. But as our ethnographic evidence has shown, producers and consumers alike have found ways to regularly create difference within nonplaces. As long as human seams exist in fast-food, employees and customers alike can find moments to interfere with nonplaces' contractuality and create a contract of their own. Crew members actively game the system to their own benefit; customers break norms to order non-menu items or converse with employees. While nonplaces hope to produce a seamless customer experience, rarely is this ever the case in practice. Production and consumption must interrogate each other to make sure all needs are met, and this ultimately requires some kind of encounter: whether it be in-person or through the digital interface. In certain situations, non-places can house *places* within them. The tale of the empty

sea and the lonely consumer, then, is much farther than it seems, yet the fauxtomations of our present have convinced us otherwise. This is why I have emphasized the importance of appearances and mediation. The Monticello Estate simulated a life that Thomas Jefferson did not live: has fast-food not deceived the public as well? In hiding labor, corporations have convinced employees and customers alike that technological unemployment is around the corner, yet this is not the case. This may explain why I inevitably take Augé's side over Oldenburg's. Yes, the Sky Harbor protest was an objection to material conditions, but it can also be seen as a struggle with new meanings. Just as Augé talked about a new type of solitude, the laborers of today wrestle with a new kind of service.

How can people metabolize this new meaning of service? And how should they deal with seamless architectures that house it? Auge does not view our contemporary situation as a series of problems with answers. On the other hand, Oldenburg shows a clear preference for places where human interaction is encouraged and thrives. However, I am hesitant to give way to this preference and label any kind of digital mediation as destructive. For example: would it be better to abandon seamlessness altogether, and retreat back to traditional forms of "real" service? To start, this kind of intervention seems problematic: I hesitate to side with Eva's older customers who refused to order from kiosks out of disgust. The traditional cashier worked as a human interface that connected production and consumption together. Ordering at the register can be seen as a process of seamful design, where the human extremities of infrastructure are revealed and made productive. Yet, this ignores how seamless/ful designs are ultimately relational concepts; hyperfixating on the cashier merely ignores the ways in which back-of-the-house operations are traditionally hidden from sight. Seamfulness is not our hero and seamlessness is not our enemy. Secondly, cashiers cannot be a way to "undo" erotic logistics. While the

unification of production/consumption leads to a variety of social ailments, to suggest that a human cashier should then *always* take orders glorifies the underpaid, unrecognized work that the service industry upholds.

Likely, there exists no ethical way to frame exploitative systems of labor. This fact becomes more apparent if I were to hypothetically propose "better" designs of the Monticello Estate. Inquiries like these are nonsensical and inappropriate. For this reason, I will avoid reaching towards a better design of capitalist infrastructures altogether. The poor work conditions and wages of Sky Harbor triggered this entire thesis in the first place. So as a matter of principle, I will not try to bail out corporations with solutions.

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3. A Conclusion

What is the future of fast-food? Is it seamless? Is it "fauxtomation?" Is it even physically possible? At the beginning of our inquiry, Astra Taylor gave us a medley of historical food technologies to think with. But a piece of fictional technology may be useful in understanding fast-food's idyllic future. Shown below in Figures 7 and 8 is Star Trek's replicator, a fictional device that at its most basic level, can create and recycle things of the user's choosing. More often than not, pieces of human waste or space debris are used to fuel these machines, which can rearrange elements of inanimate matter into any molecular structure that is on file. While later pieces of Star Trek's filmography used the replicator to create larger objects and oxygen supplies, in its early days, it mainly synthesized food items for Captain Kirk's crew to eat. Replicators are the ultimate self-service technology, in that they are treated as if they were second nature. Crew members generate martinis and culturally specific dishes without having any relationship to their origins at all, and they never care to marvel at the sheer technological

feat. As long as it runs, the replicator can theoretically supply the crew with an endless amount of food just with a simple vocal command. The voice at the end of the supply chain may have just been Sonny ordering a martini; the replicator embodies the principle of erotic logistics to a tee. If fast-food corporations had its patent, I anticipate we would see no end of mess halls that would endlessly profit off the simple, cheap materials it would take to replicate perfect images of food. If fast-food corporations had it their way, the replicator would be an idyllic star in fast-food's future.

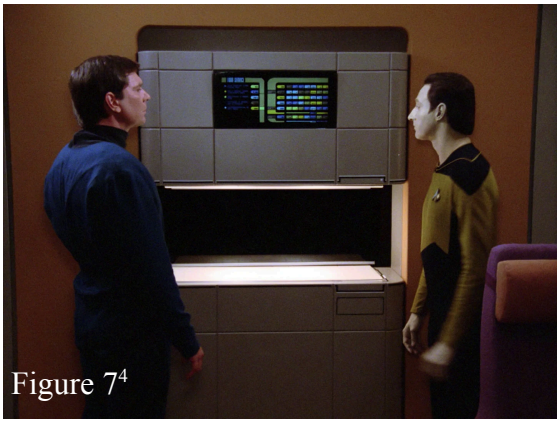

Figure 7[4]

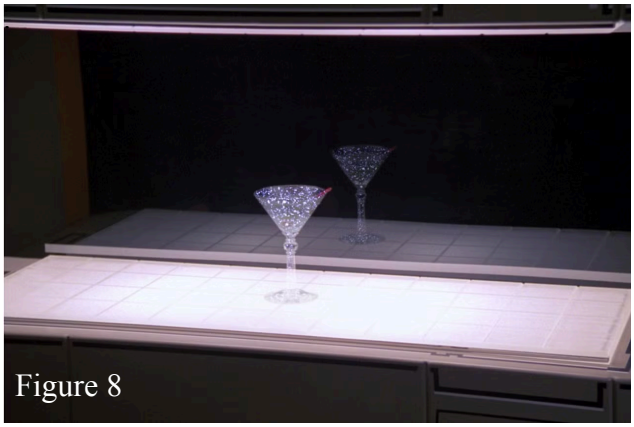

Figure 8

The replicator is a thing of corporate dreams. Yet the reality of fast-food's future does not tell a tale of technological innovation, but *fauxtomation*. Images of the "first fully automated McDonald's" circulated the Internet in 2024 as social media posts clamoured over the drive-thru conveyor belt, unergonomic tables, and a box-like interior (dansuckzatreddit 2024). Unlike the earlier simulations shown, this location lacked a register altogether: only a lonely digital kiosk waited in its lobby for those customers curious enough to peek inside. Much to the surprise of the public, this location was not fully automated at all. Workers were kept behind closed doors with only a small window to peer into the interior and quickly hand customers their meal. As it turns

[4] Figures 7 and 8. "Star Trek TNG -- Replicators," Originally sourced from Episode 26 "The Neutral Zone" of *Star Trek: The Next Generation (1988).* Retrieved from https://www.youtube.com/watch?v=8kw9_O10Fh8.

out, McDonald's had not even advertised this location as "fully-automated" at all; news media and the public had mistaken its flashy gadgets for pure automation. As Astra Taylor warned us, "new" automation technologies almost never replace work, but rather remediate its interface with the world of consumers. As my ethnographic evidence has shown, this remediation is not inconsequential. It animates new dynamics between employees and customers, replete with misunderstandings, frustration and occasional moments of comfort. This remediation of production and consumption has also remade meanings; in the presence of SSTs and nonplaces, the idea of service ultimately becomes something different. It is hard to believe that seamless technology and architecture have rendered the world flat. The bumpy, uneven reality of human difference still exists; "the social game" must continue. But as commercial infrastructures discourage this game between employees and customers, to where will difference flock? If the digital everyday becomes the norm, where will the human encounter routinely occur?

I conclude this thesis not with a concrete answer, but a suggestion. In a recent New York Times article, Jessica Grose suggests that the growing amount of AI technologies could eventually make human interaction a luxury good, and cites Florence Pugh's ethnography of care work to show this process in action (Grose 2024). Grose critiques artificial intelligence's entrance into care work, for when human-to-human care cannot be afforded, emotional chatbots become the default option of care. Palm's interest in the "digital everyday" revolved around the digital interface, but rarely did he discuss the role of AI in creating this routine experience. The future of service is likely paved with cases of automation and fauxtomation galore. But how many human faces and voices there will be, especially in front of the digital paywall, remains to be seen.

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