The Only Game in Town: Simulators and the Circuits of Capitalism

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ABSTRACT

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This thesis theorizes the simulator as the paradigmatic video game text reifying the systemic logic and structuring principles of rationalization, abstraction, and productivity at the core of contemporary capitalism. Deploying the systems-analysis methods of games studies alongside theoretical frameworks of Autonomist Marxism, this intervention proposes a means of working through the entanglements of labor and leisure reified in games that simulate work. This thesis therefore asks, in what ways must we revise the notions of 'productive' games when confronted with unremunerated forms of play that nonetheless reproduce, sustain, or calcify the logics of capital? In short, why do we play hard work? Tracing the circuits of capitalism through simulation, this thesis first examine 'Games of Production' such as *Stardew Valley* and *Factorio* – simulators that crystallize the logic of scientific management and Fordist organizational regimes of totalizing managerial control in the perennially privileged sites of production, the farm and factory. This thesis then follows the flows of capital by interrogating truck simulators as 'Games of Circulation,' which simulate a ground-up view of the networks of logistics that sustain the movements and flows of global capitalism. Ultimately, this project aims to show that through the simulation of capitalism's vast matrix of systems and logics, simulators not only reify the structuring principles of capital, but also serve as optics to chart insurgencies that resist them.

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Introduction

Capitalism is the only game in town.

– Mark Fisher, *Capitalist Realism*

Since the formation of games studies in the last twenty or so years, French Sociologist Roger Caillois' *Man, Play and Games* has become one of the foundational texts in the still-developing field, alongside Johan Huizinga's earlier work, *Homo Ludens*. Despite predating the development of digital games, both theorists have "been proclaimed to be the true fathers of the field."[1] In his taxonomy of games, Caillois develops conceptual frameworks to define the boundaries of play. Chief among these categorizations, he finds that games are "*Separate:* circumscribed within limits of space and time, defined in advance," and "*Unproductive:* creating neither goods, nor wealth, nor new elements of any kind; and, except for the exchange of property among the players, ending in a situation identical to that prevailing at the beginning of the game."[2] These claims have undoubtedly been put to the test: the digital games industry now epitomizes paradigms of economic precarity, uneven geopolitical development, and shifts in the composition of the social order under global capitalism. The professionalization of gaming under the regimes of athleticism in Esports, gray markets of virtual economies and real money trading (RMT), geopolitical unevenness particular to the underclass of informational workers called 'virtual farmers,' the emerging careerism of 'live streaming' games, and the overall gamification of the workplace, which has been a thriving area in business development and a growing concern among games scholars[3] – these are but a few examples of the way in which games and its culture have been reconceived, reconceptualized, or instrumentalized as inherently *productive* activities that continuously upset and often wholly capsize the surmised boundaries between work and play.

Yet these are all activities that entail, in some shape or form, the accumulation or circulation of capital across myriad vectors, geopolitical formations, or corporate interests. This thesis, moreover, takes as its object an emerging game form that troubles such categorization as 'unproductive': the simulator. How can we reconfigure our understanding of games and play *in*

[1] Thorhauge, "The Rules of the Game – The Rules of the Player," 388.
[2] Caillois, *Man, Play and Games*, 9-10.
[3] For the myriad ways in which the culture and industry of games has turned productive, see, respectively: Taylor, *Raising the Stakes*; Castronova, *Synthetic Worlds*; Nakamura, "Don't Hate the Player, Hate the Game"; Postigo, "The socio-technical architecture of digital labor"; Deterding and Walz, eds. *The Gameful World*.

itself as an activity that upsets its surmised unproductive nature? In what ways must the notions of 'productive' games be revised and updated when put in conversation with unremunerated forms of play that nonetheless reproduce, sustain, or calcify the logics of capital? What are the structuring principles of such games, and what is at stake in their formation of productive subjectivities at play? Simply put, *why do we play hard work?*

Simulators have emerged in recent years as a landmark genre and categorization within the gaming zeitgeist; the unlikely sensation of 2012, *Euro Truck Simulator 2*, marks a veritable watershed moment for the genre and moreover, the growing pervasiveness of 'simulation' in the increasingly granular taxonomy of games altogether. Simulators have expanded from the perennial purism and committed realism of flight simulators (first developed by and for military flight training, as we will see) to the comically esoteric farming, bus driving, and infrastructure games (e.g. *Farming Simulator 2017* (2016), *Construction Simulator 2015* (2014), etc.), as well as the parodies concomitant with the term's popularity (e.g., *Shower With Your Dad Simulator 2015* (2015), *Cow Milking Simulator* (2017), *Goat Simulator* (2014), and countless others). Moreover, the term's close association to the concept of 'realism' has broadened its generic scope into a 'super-category'; in effect, any and all games are often categorized or described as simulations *by definition*, precisely because of the term's pervasiveness and how it is used to conceptualize, at a very basic level, *what games do* – i.e., a driving game *simulates* driving by definition.

Crucially, the *simulator* operates by reproducing the banalities of every day – including the labors, infrastructure, or mundane activities that are often neglected in most games. In his book, *How to Play a Video Game*, Pippin Barr evokes the banality of such games in the genre, providing a working definition of the simulator, which I quote at length:

> While most games are simulations in some sense, a specific genre focuses on more down-to-earth activities. There is no end to the oddly prosaic adventures you can undertake from the comfort of your own home. There are train simulators, city simulators, flight simulators, roller-coaster simulators, even bus simulators. The ultimate simulation, both philosophically and in terms of popularity, is *The Sims*. Now in its third iteration, *The Sims* is about daily life. You buy a house, get a job, settle down, have kids, and anything else you can think of. Make lunch, watch TV, do aerobics – it's all possible. You can even get old and die. It may sound inane, or

> even depressing, but *The Sims* is the best-selling PC game of all time for a good reason: what could possibly be more fascinating than human behaviour?[4]

Barr's claim regarding *The Sims* being the preeminent simulation is appropriate, considering the game series simulates the epitome of everydayness, after all. Although your avatar can get a job in *The Sims*, as Barr notes, the labor they participate in remains off screen; a Sim may *get* a job, but the player will never *do* the work it involves. In this project, I turn to games that dwell on this otherwise absent time for work: simulators that conceive a world where game time is entirely consumed by labor, by work, and by the compulsive need to be continuously and unendingly productive. *Euro Truck Simulator 2*, for example, is a game wherein the world does not exist beyond the motorways that commodities travel on; even though virtual entrepreneurs in the game's simulated trucking industry may frequently swap rental trucks or become drivers for hire, there is virtually no world outside the circuits of capitalism – no way off the road, or out of the truck. Situating video games within the context of Empire in their book *Games of Empire,* Nick Dyer-Witheford and Greig de Peuter claim, "Games are machines of 'subjectivation.' When we play an in-game avatar, we temporarily simulate, adopt, or try out certain identities…Game virtualities remove us from, but also prepare us for, these actual subject positions."[5] In this intervention, I accordingly argue that simulation is a site that epitomizes the confluence between the virtual possibilities of subject formations and their actuality.

More generally, the simulations of labor I dedicate chapters to in this thesis concretize the paradigm of the social factory coined by Autonomist Marxists. Similar to the virtual world of the player who becomes subjectivized as worker or manager in a simulator, "The world of the socialized worker," Dyer-Witheford notes in *Cyber-Marx*, "is thus one where capital suffuses the entire form of life. To be socialized is to be made productive."[6] Where *The Sims* gestures towards work as an off-screen occurrence, simulators situate labor as a singularly totalizing dimension of life. In such games, we find the prescience of Mark Fisher's commentary on the potential horizons beyond contemporary capitalism eclipsed by its own totality ring truer than he could have ever imagined: "capitalism is," in effect, "*the only game in town*."[7]

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[4] Barr, *How to Play a Video Game*, 38.
[5] Dyer-Witheford and de Peuter, *Games of Empire*, 192.
[6] Dyer-Witheford, *Cyber-Marx*, 82.
[7] Fisher, *Capitalist Realism*, 15 (emphasis added).

Objects and Terms of Use

Pairing farming and factory games alongside truck simulators – *Stardew Valley* (2016) with *Factorio* (2014), and *Euro Truck Simulator 2* with *American Truck Simulator* (2016), respectively – this thesis interrogates how simulation operates as an apparatus of abstraction, effectively reifying the logic and structuring principles of labor within contemporary capitalism *through* systems of play. If, as Alexander Galloway notes in *Gaming*, "simulations let the gamer play the logic of a plane (*Flight Simulator*, or Meier's own flying games from the 1980s), the logic of a car (*Gran Turismo*)," this intervention takes simulators of work as games that afford a way to play the logic of capitalism.[8] Much of this thesis is an attempt to describe the relation between the seemingly unproductive act of playing and the logics of labor, including the ideological mechanisms they shore up, that manifest in the simulator by design. The term deployed in this project to describe this relation is *reification*, which is situated within the rich genealogy of Marxist theory. What reification shares with simulation is the very core process of abstraction. Simulator video games (and the genealogy of simulation altogether shows, as we will see) are evidently not *the real thing*, but rather abstractions of the labor experience distilled into its structuring principles and systems. Accordingly, "reification refers to the moment that a process or relation is generalized into an abstraction, and thereby turned into a 'thing.'"[9] Reification describes "a social form in which an essentially material, economic relation between two people appears in an abstract form as a thing…In each case, reification is opposed in principle to the failure to think the totality."[10] That is to say, reification abstracts the immutably complex matrix of social relations as a thing that can be viewed totally. Despite the fact that "very little work in the humanities or the social sciences making explicit use of the concept of reification has been published in the last thirty years," as Bewes notices at the time of his writing, I maintain that the term bears a specific significance in the world of digital games today. In this project, I argue that simulation reifies the complexities and myriad social orders under global capitalism into sets of interactive systems and logics.

The choice of tending to popular games that are widely played and praised – the unlikely popularity of *Euro Truck Simulator 2* is perhaps only matched by the enthusiasm of indie darling *Stardew Valley*'s critical reception – instead of experimental games critiquing the systems of

[8] Galloway, *Gaming*, 101-2.
[9] Bewes, *Reification*, 3.
[10] Bewes, *Reification*, 11-2.

capitalism and imposition of labor is equally important to address. Why not, for example, write about Littleloud's child labor business simulator, *Sweatshop* (2012), or the many games developed by game developer Paolo Pedercini (as Molleindustria) such as *McDonald's Videogame* (2006), *Every Day the Same Dream* (2009), or *To Build a Better Mousetrap* (2014)? These experimental games are critical of capitalism by design, and invite players to simultaneously participate in and critique the cycles of labor or management.[11] Or Pippin Barr's recent game, *It is as if you were doing work* (2012). This game subjectivizes players as the "apathetic and unproductive" citizens of a post-work future of total automation, simulating computer-oriented informational labor precisely because they miss working.[12] Curiously, *It is as if you are doing work* imagines a futurity of simulated work, whereas the simulators I address in this thesis capture the desire for a feeling of productivity beyond working hours that endures in the present moment – that we want, for some reason, to continue working at play is not a futurist fiction, but a reality of today. In games that are critical of capitalism *by design*, the work of teasing out the critique is already done in the game itself. Simulators are generally not designed or conceived as critical objects. Yet this is precisely why I locate value in them. One may play *McDonalds' Videogame* once and appreciate its scathing critique of fast food labor, but nonetheless *keep* playing a truck simulator *because they enjoy it* – this is what I aim to question. An underlying argument of this thesis, moreover, is that we can find greater commentary on the culture of work and its subsumption into forms of play in the most unassuming places – the virtual cab of a big rig or the simulated kitchen of a Kentucky Fried Chicken restaurant, to name but a few.[13]

Opting to deal with popular game texts and reification is also in keeping with Fredric Jameson's theorization of the term, wherein he understands its use as an "extension and application of Marxist theories of commodity reification to the works of mass culture."[14] In his intervention, Jameson chiefly urges readers "to grasp mass culture not as empty distraction or 'mere' false consciousness, but rather as a transformational work on social and political anxieties and fantasies

[11] I have previously written about Molleindustria's *Every Day the Same Dream* in conversation with Brechtian alienation and Autonomist perspectives on refusal; see Leblanc, "Working at Play."
[12] Barr, "It is as if you are doing work."
[13] In a paper presented at the 2018 Society for Cinema and Media Studies entitled "Learning the Hard Way," I betrayed a similar dedication to the 'bad object' by theorizing fried chicken and KFC's virtual reality game, which I return to in the conclusion to this thesis. Indeed, this project is part of a longer effort of placing high priority on the objects deemed to be of 'low' culture.
[14] Jameson, "Reification and Utopia in Mass Culture," 130.

which must then have some effective presence in the mass cultural text in order subsequently to be 'managed' or repressed."[15] Galloway has already ventured to associate reification with simulation games, namely the *Civilization* series, which "transposes the many-layered quality of social life to an inflexible, reductive algorithm for 'civilization' – a process not dissimilar to what Marxists call reification, only updated for the digital age."[16] This project follows through with this claim and updated conceptualization of reification, maintaining that through the simulation of capitalism's vast matrix of systems and logics, simulators are the paradigmatic reifying texts of the contemporary moment.

Beyond its frequent appearance in Marxist theory, we also find the term reification in the technical language of computer science. As a study of computational texts of algorithmic nature, this project is equally an attempt to make dual-use of the term reification in keeping with these two genealogies; its uses in computer science alongside labor can provide a way of conceptualizing the simulator's many entanglements between work and play. According to the World Wide Web Consortium, reification is a term used in the conceptual modelling of information systems, or Resource Description Frameworks (RDF), which constitute "a language for representing information about resources in the World Wide Web."[17] In the computational context, reification describes the process in which conceptual and abstract data sets are reconfigured into concrete data maps.[18] In this project, I accordingly interrogate the computation process (i.e. reification) through which the labor process (i.e. "the on-the-job relationships between workers, managers, and machines"[19]) is reconceptualized as the object and structuring principle of a simulator. Simply put, reification defines both the thingification of social relations in capitalism, but is equally useful in its technical terms for mapping the entanglements and intersections between work and play that the simulator sustains, complicates, and unravels.

Taking simulators as reified (and reifying) games that are operated by players, we may be lead to think of them as objects that virtually annihilate the perceived boundaries between leisure and labor. Reification has been theorized many times over as a fundamental *misrecognition*

[15] Jameson, "Reification and Utopia in Mass Culture," 141.
[16] Galloway, *Gaming*, 98.
[17] World Wide Web Consortium (W3C), "Abstract."
[18] W3C, "RDF Reification." In the Haskell programming language, reification provides "the ability to turn recursive structures into explicit graphs," effectively mapping conceptual data sets into more coherent and intelligible graphic representations. Gill, "data-reify."
[19] Goodman, "Book Review: *Labor and Monopoly Capital*," 98.

between persons or social relations: "as a 'social pathology,'" for example, "predicated upon the failure of recognition."[20] In arguing that simulators are reifying objects, it follows that we may accordingly find the argument that its players equally misrecognize the difference between what constitutes work *contra* play. To suggest that players are *fooled* into working in simulators is not the point nor the intention of this thesis. As Lisa Nakamura writes, "gamers' intense attachment to games reflects the opposite of guilty pleasure, much less time wasting. In a viciously neoliberal economy, gaming feels like a virtuous pleasure, for games reward player labor, while, in contrast, labor in the real world is often undervalued, treated as surplus, or even as worthless."[21] The relation between games and those who play them Nakamura describes is one of cruel optimism, taken from Laurent Berlant's book of the same name. "A relation of cruel optimism," Berlant writes,

> exists when something you desire is actually an obstacle to your flourishing. It might involve food, or a kind of love; it might involve a fantasy of the good life, or a political project…These kinds of optimistic relation are not inherently cruel. They become cruel only when the object that draws your attachment actively impedes the aim that brought you to it initially.[22]

Such a relation persists at the very core of simulators. Gaming, in one sense, is a time and activity organized beyond working hours; simulators pronounce a cruelly optimistic desire for play that nonetheless manifests in the reification of the logics and systems of the labor process under capitalism. Instead of reiterating what theorists of the Frankfurt School have diagnosed as the total subsumption and commodification of leisure under the regime of work, I argue that simulators are a site in which we willingly enter into this condition.[23] The argument central to this project therefore urges that those who play simulators or are committed to the genre, myself included, are not ideological dupes; rather, I contend that as players of simulations, we are cruel optimists.

Literature Review

This thesis operates, both methodologically and in theoretical framework, at the intersection of multiple intellectual genealogies. I take simulators as objects that invoke the

[20] Bewes and Hall, "Introduction," 7.
[21] Nakamura, "Afterword: Racism, Sexism, and Gaming's Cruel Optimism." 248.
[22] Berlant, *Cruel Optimism*, 1.
[23] In *Dialectic of Enlightenment*, for example, Theodor Adorno and Max Horkeimer have chiefly argued that every act of consumption is turned productive under capitalism.

seemingly opposite regimes of *play* and *work,* where *simulation* constitutes the relation between the two. Each of these terms (simulation, work, play) are shored up by their respective bodies of knowledge – both burgeoning, with the emerging field of games scholarship, and enduring, in the case of Marxist theory. The question this thesis ponders as a whole, 'Why do we play hard work?', insinuates a subset of concerns: What is simulation, and what historical developments have culminated in the 'simulator' as a pervasive game form/genre? What, exactly, constitutes hard work? How do we critically approach the confluence of labor and leisure *as games*, and how has this convergence been theorized thus far?

Simulation

The term simulation most saliently recalls the work of French philosopher Jean Baudrillard, namely his 1981 and 1983 texts *Simulacra and Simulation* and *Simulations*, respectively. In his framework, simulation is a periodizing term and pronounces on the cultural logic in the moment the real is effaced: "Today abstraction is no longer that of the map, the double, the mirror, or the concept. Simulation is no longer that of a territory, a referential being, or a substance. It is the generation by models of a real without origin or reality: a hyperreal."[24] Simulation, as a subsuming form of mediation, ruptures the ontological seams of representation; it "envelopes the whole edifice of representation as itself a simulacrum."[25] Where Baudrillard suggests that simulation continuously "threatens the difference between 'true' and 'false'…between 'real' and 'imaginary,'" it nonetheless "implies social rapports and social power."[26]

Yet deploying a term like simulation also calls upon the history of computational technology and its development within the North American Military Complex, which considerably predates Baudrillard's work on the cultural logic of simulacra. Yet I acknowledge that this is arguably but a single historicization of simulation in the context of computing within an even more limited history of the computer itself.[27] In *The Closed World,* Paul N. Edwards associates simulation to the genesis of computation altogether, which he historically situates amidst American

[24] Baudrillard, *Simulations*, 1.
[25] Baudrillard, *Simulations*, 11.
[26] Baudrillard, *Simulations*, 5, 88.
[27] The computer has been variously historicized beyond its development in the Military Industrial Complex of North-America, invoking myriad geopolitical vectors in the genesis of computational technology, and longer traditions of analog computing.

efforts of technological development during the Cold War. "The 'computer revolution' of the 1950s," Edwards writes, "linked calculation to communication, control, and simulation through new theories of information and symbolic programming," and in this context, "information is a commodity rather than a concept."[28] Computers develop during this time as machines for calculation, automated control, and instantaneous communication. Anticipating the commodified world-building ethos inherent to the virtual worlds of online games and digital culture at large, Edwards aptly invokes the stakes of technoculture and the way we interact with digital worlds today: "The computer can become a simulated world, an electronic landscape within which new experiences and relationships are possible. For heavy users, the computer can become a kind of virtual reality – a domain of experience and a way of life."[29] In all cases, simulation remains an apparatus that sustains the confluent relationship between the virtual and actual. In effect, as Edwards reminds of the 'closed world' paradigm shored up by Cold War technocracies, "simulations become more real than reality…Simulations – computer models, war games, statistical analyses, discourses of nuclear strategy – had, in an important sense, more political significance and more cultural impact than the weapons that could not be used."[30] One of the implications of this thesis, therefore, is that what Baudrillard has theorized as the collapse between virtuality and actuality should instead be thought as a mutually constitutive relationship in continual tension, as Edwards and the history of computation demonstrate.

Another case where simulation becomes an apparatus that conceives a particularly productive relation between the virtual and actual is the flight simulator. Edwards notes how the first flight training machines were "servo-operated, electro-mechanical devices that mimicked an airplane's altitudinal changes in response to movements of its controls."[31] Simulators – whether algorithmic protocols of the Military Industrial Complex during the age of computerization, pilot training programs, or the popular farming and trucking games of today – constitute a productive relation between virtual and actual that exceeds the boundaries of mere code, hardware, or games. Edwards' description of simulation invokes Baudrillard's formulation of the term: in computation,

[28] Edwards, *The Closed World*, xi-xii. The commodification of information or data, which Nick Srnicek has termed the present condition of 'platform capitalism,' actually predates the genesis of contemporary platforms known as multi-sided markets, taking root during an earlier era of computerization. For this recent take, see Srnicek, *Platform Capitalism*.
[29] Edwards, *The Closed World*, 28.
[30] Edwards, *The Closed World*, 14.
[31] Edwards, *The Closed World*, 77.

simulation remains "a social process" that "produces both power and knowledge."[32] Despite sometimes troubling Baudrillard's theorization of the concept, simulation is nonetheless a shared framework in the technocratic pragmatism of the Military Industrial Complex's development of computation. The cultural logic of simulation survives its own theorization when put in conversation with the history of computational technology and the objects of culture; both strains of the concept allow us to further argue for the continued relevance and importance of the relation between the real and the imaginary, between the virtual and the actual, or between work and play.

Work

I situate this effort both theoretically and methodologically, as I delve into deeper detail in the subsequent section, in the tradition of critical media analysis indebted to Marxism as a body of knowledge, and Autonomist Marxism in particular.[33] This project understands simulators as an integral part of the logic of capitalism at large; it follows that I turn to intellectual genealogies concerned with capitalism and labor. As Rosalind Gill and Andy Pratt write, "Work or labor has been a pre-eminent focus of autonomist writing and activism, and is understood as the central mechanism of capitalism," wherein capitalism is defined as "a system in which life is arranged around, and subordinated to, work and becomes the grounds of its mode of domination."[34] Simulators therefore constitute an undertheorized culture of leisure and social life where players are systematically folded into the logic of labor.

The lineage of Autonomism is found in the militant movements of Italian workers in the 1960s. Mario Tronti's landmark 1965 *operaismo* [workerism] manifesto, *Operai e Capitale* [*Workers and Capital*], has been hugely important to the formation of Autonomism despite being largely inaccessible in the Anglophone context due to its limited translations from the original Italian and subsequent French translation. Working from the available translations of Tronti's work, Dyer-Witheford notes that "the inversion of struggles" remains the structuring principle of *operaismo*, which upsets the development of history previously theorized by orthodox Marxists.[35]

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[32] Edwards, *The Closed World*, 40.
[33] One may find upsetting the general absence of Marx himself from this project; as Dyer-Witheford claims, the frameworks and initiatives of Autonomists do not constitute "an 'ex-Marxism' or 'post-Marxism' but a 'Marx beyond Marx.'" *Cyber-Marx*, 64.
[34] Gill and Pratt, "In the Social Factory?" 5.
[35] Dyer-Witheford, "Autonomist Marxism and the Information Society," 89.

Dyer-Witheford succinctly describes Tronti's thesis in "that it is actually workers' struggles which provide the dynamic of capitalist development."[36] The bottom-up theory of labor developed through *operaismo* situates the worker as central agent in the movement of capital and furthermore, the cycles of struggle. In short, *operaismo* is a theoretical toolset that has emerged not *for* workers and their insurgencies against the oppression of capital, but *from* their radical disposition.[37]

Perhaps the most enduring contribution of *operaismo* to the formation of Autonomist Marxism has been the concept of the social factory. In the years following the 1960s mobilization of workers in Italy, the "social factory" has been widely theorized as the subsumption of every form of life under the productive regime of capitalism. The social factory also includes the myriad activities and spaces that constitute capital's *reproduction*, which has been notably theorized by Silvia Federici in the feminist manifesto for the remuneration of domestic reproductive labor, *Wages Against Housework*, along with Mariarosa Dalla Costa and Selma James' co-authored, *The Power of Women and the Subversion of the Community*, which demonstrates the acts of *repair* that sustain workers, to name but a few. In their article on the precarity of contemporary media workers, Gill and Pratt provide a sharp rundown of what has shaped theorization of the social factory, citing Mario Tronti and Antonio Negri, which I quote at length:

> The era of Fordist, industrial production was all but destroyed and the mass worker was replaced by the 'socialized worker', bringing into being a new epoch in which the factory is increasingly disseminated out into *society as a whole*. Tronti writes of the 'social factory' and Negri of 'firms without factories' or the 'factory without walls'. From this perspective labor is deterritorialized, dispersed and decentralized so that 'the whole society is placed at the disposal of profit.'[38]

Exceeding the 1960s-forward development of the social factory, the liquidation of virtually every human activity within the circuits of capitalism has become a paradigm of the contemporary moment. This reconceptualization of human activity as always potentially reproductive of capital has afforded the theorization of varying forms of unremunerated labor within the increasingly

[36] Dyer-Witheford, "Autonomist Marxism and the Information Society," 89.
[37] If the intellectual corpus of Italian Autonomists may seem light in comparison to other developments of Marxist theory, it is precisely because of the 'boots-on-the-ground' of putting theory into practice that workerists exercised. Tronti himself notes, "The *Classe operaia* comrades are less cited and more often denounced; I remember them with infinite nostalgia. These young men and women did not theorize 'a new way of doing politics'. They practised it." Tronti, "Our Operaismo," 126.
[38] Gill and Pratt, "In the Social Factory?," 6-7.

technocratic and networked ethos of contemporary capital – counting the seminal essays by Tiziana Terranova and Maurizio Lazzarato concerning free or immaterial labor and the various permutations of communicative work in tertiary industries, respectively, along with Dyer-Witheford's works on the technocratic regimes of global capitalism.[39] Although games have been amply theorized as part of systems of global labor – in either cycles of production (as the industry slowly begins to gesture towards unionization) or the sharp inequalities determined by the geopolitical formation of players[40] – few have tended to the simulation of labor *in* games. The latter concern is the project of this thesis. By putting the politics of simulators and how they subjectivize players as operators in the systemic logic of capitalism in conversation with enduring theoretical frameworks of labor, I endeavor to develop ways of thinking through games that put greater tension between work and play.

Play

Political economists, critical media theorists, and Autonomists alike have troubled the gaming taxonomy proposed by Roger Caillois, situating games within and across myriad vectors of economic models, political dissent, or manifestations of global capitalism and Empire.[41] On the surface, moreover, the project of examining the many entanglements between work and play crystallized in simulators is susceptible to being swept up in the recent dominant discourse in games studies: gamification. Yet gamification describes the phenomenon of imposing mechanisms and logics of games in specific sites and moments of labor – from systems of reward, user engagement and loyalty, to game-like training applications for various work placements. Efforts by games scholars to analyze gamification such as Mathias Fuchs et al.'s edited collection,

[39] Terranova, "Free Labor"; Lazzarato, "Immaterial Labor"; Dyer-Witheford, *Cyber-Marx* and more recently, *Cyber-Proletariat*.

[40] Although Dyer-Witheford and de Peuter have contributed a significant theorization of games industry and global labor in the context of Empire, the work of mobilizing games industry workers has largely been carried out by journalists, games workers, and union activists. Elsewhere, Lisa Nakamura's essay, "Don't Hate the Player, Hate the Game" remains a steadfast example of scholarship tending to the racial and geopolitical structures that games cultivate by design, among many others.

[41] Respectively, economist Edward Castronova has provided important analyses of the economic models in virtual worlds with his book, *Synthetic Worlds*; scholars such as Galloway have understood games as algorithmic moments of *action*, locating dissent in what he calls "countergaming" (*Gaming,* 107); Autonomist works such as *Games of Empire* co-authored by Nick Dyer-Witheford and Greig de Peuter have placed games and the labor that shores its industry up within the Autonomist framework of Empire previously theorized by Michael Hardt and Antonio Negri.

Rethinking Gamification, and Sebastian Deterding and Steffen P. Walz's recent collection, *The Gameful World* have appeared alongside numerous industry-oriented textbooks on the same phenomenon.[42] Yet neither have sought to problematize the ways in which we work *at play*. This project offers a departure from marketing-jargon of the gamification discourse and speculative endorsements of turning the workplace into a space of play; in effect, I conceptualize this intervention in the politics of labor that games frequently simulate in stark opposition to the institutional and corporate genealogies from which gamification has recently emerged.

Indeed, 'gamification' as both a term and theoretical framework is largely absent here, as are the recently formed discourses in the field of games studies altogether. Much in the same way Galloway claims *Gaming* "is not a book about video games, just as Jameson's *Signatures of the Visible* is not a book about film in any narrow sense," and in keeping with Bart Simon's assessment of *Games of Empire* as having been "written with scant attention to game studies as a field and with even less concern for a direct engagement with game studies scholars," this thesis is not *about* simulators as discrete video game texts, nor have I sourced much of the literature used in this project from games studies.[43] Rather, in keeping with the dialectical tradition of Marxist theory, I make an effort to put the simulator (and how it *works*, or puts players to work, so to speak) in conversation with theoretical and methodological genealogies specific to labor. Moreover, I consciously deploy the term reification as a way of theorizing the political manifestations that play takes in the form of labor in the simulator, having endeavored to map the intersecting vectors between work and play that simulators shore up. Simply put, this project takes a middle-road between the frameworks of games studies and the longer tradition of Marxist theory by understanding the specificity of games within the media ecology (their unique orientation of players as operators of algorithmic systems and logics), while also situating them within the circuits of capitalism they simulate.

Methodology

As stated previously, this project is not *about* games in any narrow sense; we will see, for example, lines frequently drawn from simulators to the industries they simulate and the sets of

[42] I think, specifically, of works assessing the potentials of gamification in education and other 'serious' applications of game mechanics. Namely, Stieglitz et. al., eds. *Gamification*; Kim et al., eds. *Gamification in Learning and Education*; Savignac, ed. *The Gamification of Work*; Hugos, ed. *Enterprise Games.*
[43] Galloway, *Gaming,* xii; Bart Simon, "Critical Theory, Political Economy and Game Studies."

systems, rules, affordances, and logics of labor that accompany them. Methodologically speaking, the approach I employ in this thesis is nonetheless informed by the genealogy of games studies committed to the medium specific treatment of video game texts and moreover, the simulator as a unique ludic form – this is, in a word, a ludology. The theory of *affordance* has been coined by James Gibson, but more recently redeveloped into a methodological framework in games studies by Adrienne Shaw as an optic "to better account for power, resistance, and interactivity in digital media environments."[44] Affordances are an underlying method in which I pay attention to what games allow or do not allow players to do, what actions or possibilities they afford players. Furthermore, the methodological process of this ludology may be termed heuristic. That is to say, I do not analyze the games' code to uncover the logic of labor simulators have buried in their programming, nor have I conducted interviews with players of simulation games – which would have, admittedly, been a more direct approach to asking why we play hard work. Yet like Galloway's effort in *Gaming*, this project does not intend to "dissect games as mere data for sociological or anthropological research."[45] Rather, this project uses a bottom-up, text-based approach, constituting a critical ludology where I have endeavored to use my experience of the gameplay in simulators, paying particular attention to the systems and, importantly, maintaining an effort to reconceptualize the structures of play as part of a logic of labor. Readers from fields outside games studies risk categorizing the methods used herein as 'textual analysis,' and in doing so effectively generalize games to other forms of visual media. Yet games require a methodological toolset appropriate the way in which they are conceived as "intrinsically systemic."[46] The games I address in this thesis are constituted of sets of interrelated systems and therefore necessitate a method specific to the forms and logics of simulation games. Simulators effectively epitomize the systematization of play.

In "Simulation versus Narrative," Frasca broadly defines ludology as the emerging discipline of games studies, but also specifies its "focus on the understanding of its structure and elements – particularly its rules – as well as creating typologies and models for explaining the

[44] James J. Gibson has theorized affordances in *The Ecological Approach to Visual Perception*. Adrienne Shaw has recently taken up the framework in the context of games studies with her article, "Encoding and Decoding Affordances," 43.
[45] Galloway, *Gaming*, xi.
[46] Salen and Zimmerman, "Chapter 5: Systems," 1. Dyer-Witheford and de Peuter have also pronounced on this debate, specifying that ludologists oppose 'narratologists,' "who view games as stories or as texts to be analyzed in the same way as books, films, and televisions" (*Games of Empire*, xxvi).

mechanics of games."[47] The methodological impetus for this project is precisely to pay attention to the *structuring* principles of simulators as well as endeavoring to understand them as constituting playable logics of labor. In "The Semiotics of SimCity," Ted Friedman further pronounces on simulation and its respective methodological and theoretical frameworks:

> Playing a simulation means becoming engrossed in a systemic logic which connects a myriad array of causes and effects. The simulation acts as a kind of map-in-time, visually and viscerally (as the player internalizes the game's logic) demonstrating the repercussions and interrelatedness of many different social decisions.[48]

The gameplay to be found and, to be sure, *enjoyed* in simulators is therefore constituted of a systemic logic *contra* the narratological story-telling mechanics in other forms of games. Many games have *stories* – simulators have *systems*.

The methodology employed in this project is in keeping with the tradition of Autonomist Marxism, which seeks to foreground and centrally resituate the self-activity of the working class as the bottom-up determinant of struggles within capitalism. That is to say, this systems-based analysis presumes that we can better understand and work *through* the simulator's myriad entanglements between work and play by assuming the role of player, to see the machinations of simulated capitalism *from the ground* as worker, manager, or operator – the myriad identity formations players occupy in simulators. The top-down verticality invoked by capital's 'systems' and the managerial perspective often employed in simulators might initially seem incompatible with a bottom-up approach to simulation. Yet Galloway has already pronounced on these organizational models vis-à-vis simulation, stating,

> Simulation and particularly the notion of a simulated system, or an agent-based system...[constitute] an evolution away from a master technology that determines the actions of individual things, towards a more horizontal architecture within which individual agents are endowed with a certain amount of autonomy...there are new forms of organization that take place, or that necessarily exist in these forms of computer models...and a new level of organization and management that also has its own characteristics.[49]

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[47] Frasca, "Simulation versus Narrative," 222.
[48] Friedman, "The Semiotics of SimCity."
[49] Galloway, "Alexander Galloway and the Digital."

Simulation is therefore a computational model developed in games that is uniquely positioned to reconcile the seemingly incompatible orders of systemic organization and bottom-up agency or autonomy. Moreover, the systemic logic specific to simulation games is described as precisely "an approach…that directly emphasizes the player's experience…Because designing a simulation means radically reducing the simulation's subject matter, a game designer must carefully select which aspects of a phenomenon to depict and how to embody them within the system of the game."[50] In this project, I maintain the positionality of player *as* researcher, methodologically speaking. The systems of simulation are *experienced* through play, and therefore fit the similarly bottom-up framework of Autonomism.

Moreover, the influence of methods in Autonomist Marxism (and Marxism in general) on this project manifests in the continued *dialectical* organization of structures and systems of labor and play. Much of the work of this thesis has been to put simulators into meaningful conversation with the industries they presume to simulate and the systemic logic they invariably form. According to Bertell Ollman, the dialectical method "starts from the 'real concrete' (the world as it presents itself to us) and proceeds through 'abstraction' (the intellectual activity of breaking this whole down into the mental units with which we think about it) to the 'thought concrete' (the reconstituted and now understood whole present in the mind)."[51] The term I deploy to describe those entanglements between work and play, the *abstractions* or confluence between labor and leisure, also constitutes a dialectical framework: *reification*.

Despite the Marxist genealogy of the term reification, its appearance in the terminology of computer science also provides a way of conceptualizing simulations of labor in games. Although the International Organization for Standardization (ISO) is sure to warn reification "is not to be confused with its use in philosophy," its definition is nonetheless useful for our purposes: "The act of *reification* is the act of making a topic represent the subject of another topic map construct in the same topic map. For example, creating a topic that represents the relationship represented by an association is reification."[52] More concretely, I take this definition as a way of understanding the mutually constitutive relationship between work and play crystallized in the simulator. Reification, as it is used in computer science, allows us to interrogate how games that simulate

[50] Salen and Zimmerman, "Chapter 27: Games as the Play of Simulation," 38.
[51] Ollman, *Dance of the Dialectic*, 60.
[52] Garshol and Moore, "Topic Maps – Data Model."

labor and its systemic logic nonetheless maintain the structuring principle of play. The many uses and reconceptualizations of reification in this project is therefore an effort to update the term, effectively dirtying "the purest of all theories" by putting it in relation to the high-technology capitalism of simulators, and its simulated forms therein.[53]

Simulators ultimately necessitate a methodological approach that conceives its reconfiguration of labor as a form of gameplay not *only* as an abstraction, but as a reifying relation between the confluence of structures, systems, and logics of labor. In sum, the methodological approach employed in this project ties together various streams: treating games as uniquely systemic texts in keeping with the principles of ludology, situating the player as primary actor in the cycles and circuits of capitalism following the tradition of Autonomist Marxism, and finding ways to describe the calcification of labor as a form of play through an updated articulation of a key term in the genealogy of Marxist theory altogether, reification.

Chapter Structure

By interrogating various games in the rich world of simulation – from top-down factory or farm management, to 'on the ground' trucking games, and virtual reality fried chicken cook training programs – this thesis aims to tease out the many entanglements that characterize the simulator's paradigmatic relation between regimes of labor and play. In order to gain an understanding of simulators and their complex refractions of the sprawling and seemingly unintelligible networks of contemporary capitalism, this project is structured according to a central concept in the genealogy of Marxist theory: the *circuits* of capital. Dyer-Witheford comments on Marx's formulation of these circuits, which describes the key operations of capital in two moments: "In production, labor power and means of production (machinery and raw materials) are combined to create commodities. In circulation, commodities are bought and sold."[54] Autonomists take up this framework, and evidently find that these 'moments' are not isolated, but part of the vast matrix of capitalism, which extends beyond the workplace to include "the continuous integration of a whole series of social sites and activities"[55] – what has been termed the social factory.

[53] Bewes, *Reification,* xvii.
[54] Dyer-Witheford, *Cyber-Marx*, 91.
[55] Dyer-Witheford, *Cyber-Marx*, 91.

This project undertakes the Autonomist tradition of mapping capital's circuits alongside simulator video games. Yet I acknowledge that the map I draw in this project, charting the movement of games from simulated sites of production to sites of circulation, is a gross oversimplification: within the conceptual framework I establish, sites of production include simulated farms and factories, whereas the site of circulation is taken literally as the public infrastructure of asphalt and concrete upon which trucks navigate. This thesis is nonetheless an exercise in mapping simulators according to the systems and infrastructures that shore up the circuits of capitalism. In the first chapter, "Games of Production," I primarily deal with *Stardew Valley* and *Factorio* as simulations that calcify the long history of scientific management and Fordist organizational regimes of managerial control in the perennially privileged sites of production: the farm and factory, respectively. These games of production are equally games of productivity that resonate with the formation of continuously productive subjects at large. Production simulators are concomitant with a logic of rationalization, where optimization becomes a structuring principle of play. Yet we ultimately find that simulation, in this case, affords players the opportunity to reclaim time and control away from the logic of efficiency imposed by what has been termed 'algorithmic management' in the current stage of capitalism.

From these sites of production, we follow the flows of capital, gravitating towards sectors of transportation and distribution in the second chapter, "Games of Circulation." Turning our attention to trucking games developed by SCS Software, *Euro Truck Simulator 2* and *American Truck Simulator*, we move from regimes of optimization and rationalization simulated in games of production to their "methodological child," logistics.[56] Truck simulators are games that conceive of transportation networks and infrastructures for the circulation of goods at a global scale, but equally involve players in trucking mythologies entangled in its culture of leisure, as well as on-the-ground temporalities reinforced by the trucking industry's regime of perpetual mobility. Situating these games alongside the concepts and discourses that spin out of logistics, we find that truck simulators both reify the totalizing temporal order of logistics and afford the possibility for players to radically reorient the calcified vectors of circulation against global capitalism.

[56] Klose, *The Container Principle*, 165.

Retracing the circuits of capitalism through simulated sites of production and circulation, this thesis concludes with a virtual reality game simulating fast food labor – an industry that crystallizes the inequalities and precarious mechanisms of capitalisms perhaps more acutely than any other today. In their continuing marketing efforts, including myriad entanglements with the World Wrestling Entertainment Inc. (WWE) and novelty food items, Kentucky Fried Chicken published *The Hard Way: A KFC Virtual Training Escape Room* (2017), a mock-chicken preparation training exercise supposedly meant to supplement the company's "robust, multi-step employee training program."[57] This thesis therefore ends with the third in the 'moments' of capitalism – having gone from production, to circulation, and finally consumption, where the cycles reset – and with an attempt to broaden the scope of the project to account for games as communicative efforts within media industries. To return to the inquiry this project begins with, we play hard work not *only* because it is fun, but because the cultures and regimes of labor are so deeply familiar, reassuring, and embedded in the fabric of everyday life. We will find that we play hard work not only because we like to play, but rather because we like to work.

[57] KFC Corporation, "KFC Creates Virtual World To Train Its Real-World Cooks 'The Hard Way.'"

Chapter I

The World is a Factory: Games of Production

The twenty-first century throes of late stage capitalism have culminated in what Jonathan Crary calls a "generalized inscription of human life into duration without breaks, defined by a principle of continuous functioning. It is a time that no longer passes, beyond clock time."[1] In a 24/7, always-on capitalism, every moment of waking life and slumber is turned productive. "In the face of a sluggish production sector," contemporary digital platforms of the 'gig-economy' are but one mechanism in which ownership (of a car, bicycle, office space, spare room, a computing device, etc.) and routine activities are converted into productive revenue streams concomitant with what Nick Srnicek has termed "platform capitalism."[2] Simulators – and games of production, more specifically – acutely pronounce on the condition of continuous productivity through the video game medium. In this chapter, we turn to simulations of the perennially privileged sites of production – the farm and factory – and interrogate how enduring regimes of rationalization and optimization are concretized in the systemic logic and structuring principles of such games.

Stardew Valley is a farming simulation independently developed by American game designer Eric "ConcernedApe" Barone and published by London-based indie publisher Chucklefish. The charming farming game was inspired by the similarly unassuming *Harvest Moon* franchise, but made its own impression upon release. Only two months after launch, *Stardew Valley* was in the hands of over one million gamers, a figure that has tripled since then.[3] Yet the indie darling of 2016 hides a profound reflection on the contemporary culture of work and the politics of post-Fordist capital alongside the meek and idyllic pastoral life it imagines. In the game, players tend to their farm and socialize with townsfolk; the brief prologue effectively complicates the farm's surmised inalienable labor and the automation pipeline *Stardew Valley* nonetheless invites players into. To summarize briefly, *Stardew Valley* is a simulation game in which a disgruntled and depressed corporate office worker leaves their city life behind in order to rebuild the abandoned family farm within the eponymous small town community. Far from rejecting the for-profit accumulative logic of capital and technocracies of informational labor, the game enters

[1] Crary, *24/7*, 8.
[2] Srnicek, *Platform Capitalism*, 6. The dominant platforms have made contractual work a part of daily life, in a lot of cases; these 'disruptive' startups, as Srnicek shows, are becoming the norm.
[3] Frank, "Stardew Valley tops a million copies sold, two months after launch"; According to data-collections service Steam Spy, *Stardew Valley* has sold over three million as of late 2017.

players in an ever-increasing sprint towards the total automation and rationalization of the farm – planting higher yield crops, ensuring the fastest growth period, and optimizing activities by season. In effect, *Stardew Valley* simulates the logic of capital it initially portends to defy.

I open this chapter with a bit of exposition from *Stardew Valley*'s incompatible politics and unlikely success because the simulator, by virtue of its entanglement between the seemingly opposite regimes of work and play, demands that we wrestle with such contradictions. Simulators, moreover, are the paradigmatic video game form under contemporary regimes of continuous productivity that has been termed by Autonomist Marxists as the 'social factory.' In this project, I propose we understand simulators as concretizations of the often unintelligibly complex and unfathomably large networks of capital, calcified in the unending circuits of capitalism. Therefore, this first chapter begins our investigation into the cycles of and struggles against high-technology capitalism at a familiar site with *games of production*. Games of production, as I have termed them, epitomize the formation of productive subjectivities in gaming under the social system in which life is organized around (and subordinate to) work. As we will see, simulators of production are ultimately also *games of productivity*.

Where *Stardew Valley* trades in agricultural labor, *Factorio* simulates the construction and management of industrial infrastructure – from railway logistic networks connecting various mining or smelting operations, mazes of conveyor belts feeding black box machines, to sprawling power grids supplying electricity to it all. Both games reify the structuring principles of rationalization and optimization by virtue of their systemic logic. As the debate between narratologists and ludologists has shown, simulators such as *Stardew Valley* and *Factorio* are not played for their story or any narratological framework, for they have neither. Instead, games of production invite players to engage with sets of interrelated systems that crystallize the operating principles of capitalist enterprise by design.

Independently developed by Prague-based Wube Software, which began as a single-person studio manned by Michal 'Kovarex' Kovarik, *Factorio* is a factory construction and management simulator. Extracting natural resources from an alien planet to continually develop new technologies, *Factorio* has players create clockwork systems of automated factory infrastructure in order to leave the planet on the spacecraft they finally manufacture. It would be facile to level a value judgment on the process of simulation as purely symptomatic – *Factorio*, in particular, with its exuberant exaltation of the managerial mind taken as a *sine qua non* for

scientific and economic progress, begs for such a reductive assessment. Yet as I hope to show in the tradition of the 'bottom-up' approach in Autonomist Marxism, points of insurgency can be traced from within the institutions of labor that are virtualized, or rendered playable, in the simulator. Taken together, *Stardew Valley* and *Factorio* simulate agricultural infrastructure and factory production as a form of gameplay; at the same time, they calcify intersecting conceptions of the politics of automation and the contemporary regime of continuous productivity. Simulation develops out of an immutably interwoven relationship between the virtual and the actual as the Military Industrial Complex's development of computing technology I have previously mentioned shows; the simulator, as a key site in the gaming zeitgeist, is a paradigmatic reification of that intersection.

A great deal of Marxist critique teases out the ways in which capital and its industries resolve the problems they create. The underlying question of this chapter, therefore, poses itself as such: how do simulators reify the structuring principles of industrial capitalism, including the problems it has systematically resolved, in order to appease the crises of productivity in contemporary post-industrial capital? Returning to the question posed at the beginning of this project: why do we play hard work, and more specifically, forms of work that do not exist anymore, when a working life in the precarious crises of capital is already hard enough? One answer to this last question may be found in Harry Braverman's *Labor and Monopoly Capital*, which was first published in 1974 as "a study of occupational shifts in the United States…the structure of the working class, and the manner in which it had changed."[4] This project accordingly builds on Braverman's work by surveying the ways in which the currently shifting paradigms of labor are systematically reconfigured as a form of play in the simulator. If military simulation games developed by what has been termed the Military Entertainment Complex can inculcate militaristic ideology, as Galloway points out in *Gaming*, what forms of work after automation do simulators of production allow players to conceive?[5] The worlds of work imagined by *Stardew Valley* and *Factorio*, as we will see, amounts to an old solution to a new problem: better (or simply more) management.[6] With the increased obsolescence of human intervention in the labor process

[4] Braverman, *Labor and Monopoly Capital*, 3.
[5] Galloway, *Gaming*, 71.
[6] In his autobiography, Henry Ford notably celebrates "managerial genius discovering better ways of doing things," suggesting that all issues in sectors of production (whether relating to the crises of labor, efficiency, or finance) can be resolved by "better management." Ford, *My Life and Work*, 155, 136.

concomitant with its progressively total automation, simulations of production subjectivize players as the managers of automated agricultural and industrial infrastructure, crystallizing hope for an enduring necessity for human activity situated in the managerial strata. Simply put, simulators suggest that automation does not culminate in a post-work condition, but rather results in the displacement of labor to other areas – namely, management.

Stardew Valley and Abstraction

After a brief presentation of this thesis topic, a colleague in games studies commented that simulators do not *simulate* as much as they *abstract* labor. Incidentally, this has also been true of the historical trajectory of labor. From farming, through industrialized machine work, to offices in the information economy, the process of abstraction has been twofold: 'craft' labor is reduced to "finite motions of hands, feet, eyes, etc." in the factories implementing Taylorist scientific management, and from a more recent and markedly luddite perspective, the computerization of the workplace (as is the case in *Stardew Valley*'s prologue) is equally coded as a dematerialized.[7] The brief cutscene introducing the game provides a way of tracing the politics of these occupational shifts. As a child, our player-character tends to their grandfather who provides a parting gift from his deathbed – an envelope, only to be open when we feel "crushed by the burden of modern life." Twenty years later, we find our character manning a desk at the Joja Corporation offices. Beneath the corporate motto displayed on the company walls ("Join us. Thrive.") cubicle occupants work under the scrutiny of management (two managerial figures survey from panoptic vantage points); at the same time, surveillance cameras positioned at each cubicle extend the optics of management beyond physicality. Meanwhile, the flicker of a green light signals the diligent cubicle population to work, and a red signal to rest at predetermined intervals, crystallizing the managerial imposition of uninterrupted work and control upon its pace. Dreary keyboard clatter drones as we find our disgruntled protagonist under another corporate aphorism, "Smile. You're with Joja." Such aphorisms may conjure the seamless interpenetration of sociality and work life characteristic to the casualization and cultures of work of late. Yet the organizational structure of Joja Corporation captures the bleak dullness and antagonism with 'management' specific to an earlier white collar corporate culture, invoking films such as *Office Space* (1999). The avatar finally opens the

[7] Braverman, *Labor and Monopoly Capital*, 220.

envelope containing an invitation to restore the long abandoned family farm, and thus trades the office desk for a farm, enjoying the idyllic slow pace and agrarian charms in Stardew Valley. The seeds of disalienation previously sown by Grandpa have germinated, and may now be reaped.

In terms of narrative framing, *Stardew Valley*'s simulation of farming hinges on a fundamental shift in the relations of capital and its forms of labor: a desire to *return* to the old ways of doing things, to replace technoscientific office work in a global economy to an unalienated life on the farm. The oppositional forms of work in this schema can be variously termed. Dyer-Witheford terms the recomposition of labor from primary production to the secondary and tertiary sectors of service and informational work a shift from *direct* to *indirect* production. In *Empire,* Autonomists Michael Hardt and Antonio Negri discern the sublimation of *concrete* labor into *abstraction*. In this way, *Stardew Valley* promises a reversal of this trajectory and a turn back from "the diminishment of 'direct labor' in production," which "has been complemented by a expansion in 'indirect' labor – both in the field of technoscientific work and in the myriad tasks…that constitute the social matrix of a highly automated economy."[8] Direct labor constitutes "the 'hands-on' transformation of raw materials into finished products;" conversely, *indirect* work is often fulfilled by a managerial stratum "invigilating and trouble-shooting."[9] "With the computerization of production today," Hardt and Negri add to these distinctions, "the heterogeneity of concrete labor has tended to be reduced, and the worker is increasingly further removed from the object of his or her labor."[10] In short, the historical trajectory of labor, shored up by the more recent implementation of computerized systems, tends towards abstraction. *Stardew Valley* promises but, as we will see, ultimately undermines the reverse movement: from the abstract to the concrete, from indirect labor to direct, from labor imposed and surveilled by managerial forces to hands-on, autonomous, and inalienable labor.

Farming Simulator

Stardew Valley simulates farming, which is not incidentally the consummate site of pre-capitalist craft labor. As Ernest Mandel writes in his introduction to Marx's *Capital*, "When Volume I of *Capital* was first published, capitalist industry, though predominant in a few Western

[8] Dyer-Witheford, *Cyber-Marx*, 195.
[9] Dyer-Witheford, *Cyber-Marx*, 95.
[10] Hardt and Negri, *Empire*, 292.

European countries, still appeared as an isolated island encircled by a sea of independent farmers and handicraftsmen which covered the whole world, including the great part even of Europe."[11] In Marxist geography, the farm remains a privileged location for mapping the vectors and historical trajectories of capitalism. In *Labor and Monopoly Capital*, Braverman methodically explicates the farm's labors and informal networks of learned craft and specialization. In the following passage on the scientific-technical revolution, which I quote at length, he considers the inalienable labor enacted before and alongside the formation of capitalist systems of production:

> In each craft, the worker was presumed to be the master of a body of traditional knowledge, and methods and procedures were left to his or her discretion…The most important and widespread of all crafts was, and throughout the world remains to this day, that of farmer. The farming family combines its craft with the rude practice of a number of others, including those of the smith, mason, carpenter, butcher, miller, and baker, etc. The apprenticeships required in traditional crafts ranged from three to seven years, and for the farmer of course extends beyond this to include most of childhood, adolescence, and young adulthood.[12]

With the assemblage of many craft labors, farming crystallizes the multiplicity of skilled workers, "even after the beginnings of urbanization and the transfer of employment from the farm to the factory or other city job."[13] Although *Stardew Valley* promises a reconcretization of labor through farming, it nonetheless reifies the paradigm of flexible specialization and degradation of skills specific to the labor process under capitalism.

Stardew Valley is a two dimensional game employing an isometric view – meaning the avatar's gestures and environment are seen from a totalizing top-down perspective (see figure 1.1). Upon starting a new game, players can use their seed money (both literal and in the business vernacular) to purchase seeds, jumpstarting their agricultural enterprise. The abstractive dimension of simulation grossly oversimplifies the labor process of farming by design. The affordances of *Stardew Valley* – what the game does or does not allow the player to do – are prescribed by the

[11] Farming, as this shows, occupies an important position within Marxist dialectics; operating contemporaneously with the very genesis of Marxism and standing as the oppositional bearing against the "ruthless and irresistible impulse to growth which characterizes production for private profit and the predominant use of profit for capital accumulation," farming remains ingrained within Marxist imaginaries as an inalienable form of craft labor. Mandel, "Introduction," 11.
[12] Braverman, *Labor and Monopoly Capital*, 109.
[13] Braverman, *Labor and Monopoly Capital*, 189.

apparatus at the player's disposal. Briefly, players can use 1) a hoe, to dig up and till soil; 2) a pickaxe, to break stones or un-till soil; 3) an axe, to chop wood; 4) a watering can, to water crops; 5) a fishing pole, to catch fish; and 6) a scythe, to cut grass. On every player's simulated farm, we find a standardized box wherein items/goods can be sold simply by being deposited inside. Built into the earth itself, a pipeline from farm to market affords the frictionless flow from salable good to unit of capital. Bypassing the intermediary tasks and logistics of distribution and delivery, *Stardew Valley*'s economy operates in a closed world with a single loop: the generative cycle from seed to crop to capital to seed again, so on and so forth.

Fig. 1.1: *Stardew Valley*'s perspective. The top-down isometric view in *Stardew Valley* invites the totalizing dimension of top-down management, where the player's avatar (center) does not preclude the player's total view of the farm (Steam Screenshot).

Furthermore, one of the cornerstones of *Stardew Valley*'s gameplay is the crafting of machines that support the farm, optimize its systems, and automate its process. Chief among these devices are automated sprinklers, which according to the community-driven Wiki, "are essential for automating part of the farming process."[14] If one's crops are appropriately organized around such automated sprinklers, farming becomes as simple as planting and cultivating when ready – cutting out, virtually entirely, the middle-state labor in the long process of maintaining crops. The

[14] Stardew Valley Wiki, "Crafting: Sprinklers."

game then becomes a simulation of management as players tend to machines, increasing their yield and efficiency, rather than the object of their labor. The game's isometric view, as I mention before, equally affords this kind of totalizing optic: the top-down perspective effectively reifies the total-view of managerial control.

Tools effectively determine the player's affordances. Yet the instruments contain the entire body of knowledge of their respective craft *in themselves*; in the traditional sense of 'thingification,' the game reifies the degradation of skill by abstracting crafts and the labor process into end-oriented objects and seamlessly interchangeable activities. As Hardt and Negri note, "Tools, of course, have always abstracted labor power from the object of labor to a certain degree;" *Stardew Valley*'s myriad tools with distinct purposes even correspond to a historical paradigm wherein tools "were related in a relatively inflexible way to certain tasks."[15] But what further throws this abstraction into sharp relief is the subsumption of the farm's object-determined skills into the paradigm of technoscientific labor, or the gaming apparatus itself. That is to say, the abstraction of farming labor through tools is preceded by a higher level of abstraction; the simulator is, in effect, a computerization of the labor process. "The computer proposes itself, in contrast," Hardt and Negri claim, "as the universal tool, or rather as the central tool, through which all activities might pass."[16] Galloway further pronounces on the stakes of computerization and control specific to the gaming context, suggesting, "video games are, at their structural core, in direct synchronization with the political realities of the informatics age."[17] The subject of *Stardew Valley* is not the historical protagonist within a Marxist imaginary – more specifically, "the glorified beefy workers straining muscles in steel mills and factories," usually associated with the "crude technology of the smokestack era"[18] – but rather the flexible operator characteristic of the informatics age, the managerial subject demonstrating entrepreneurial ingenuity by engineering the labor process through mechanical proxies and automated systems.

The systems and structuring principles of play in *Stardew Valley* undermine the prologue's premised abolition of corporatized workplace organization. Instead, the game's end-oriented actions determined by objects reify the degradation of skill – turning skills into actual 'things,' tools – and the paradigmatic process of abstraction under capitalism. The multiplicity of labors in

[15] Hardt and Negri, *Empire*, 292.
[16] Hardt and Negri, *Empire*, 292.
[17] Galloway, *Gaming*, 91.
[18] Dyer-Witheford, *Cyber-Marx*, 28.

simulation, moreover, are not embodied within the constituent power of workers – the simulated farm contains, after all, but one farmer – but rather crystallized in the tools and systems deployed by the managerial figure whose generalized control of the labor process forms a subject position that can innately tap into the knowledge of its craft by virtue of its abstraction. Simulation is therefore conceived as an abstractive apparatus, which does not necessarily skew away from the 'realism' it purports to epitomize by definition, as the trend towards the further abstraction of labor and its process is precisely the *reality* of capitalism – this may be termed, following Fisher, a manifestation of capitalist realism. Simulators, by that token, can be termed realistic not in spite, but by virtue of their inherent abstraction.

Factorio, or, Who Works the Workerless Factory?

Stardew Valley gestures towards the automation farm and abstraction the labors it entails, sublimating the player's surmised position of worker into that of central controller, machine operator, or flexible worker. It simulates a contradictory politics of labor: eschewing the managerial figure from the modern office at one moment and imposing that same subject position upon the player at another. In simulating an agrarian labor nonetheless embedded within a frictionless world market, *Stardew Valley* betrays a desire for *direct* and *concrete* forms of labor (in the words of Dyer-Witheford or Hardt and Negri, respectively), while the gameplay affordances in the preference for flexible control ultimately beget further abstraction with the end-oriented object determinism of tools of the simulated farm. Meanwhile, *Factorio*'s simulation of the factory and industrial infrastructure epitomizes the machinations of Taylorized systems of production, crystallizing the player as managerial spectre in control of the workerless factory. *Factorio*, conversely to *Stardew Valley*, celebrates the mechanization and automation of production *avant la lettre*, realizing these trends in an unprecedented way.

Despite narrative not being a structuring framework of *Factorio,* a simulator independently developed and published by Prague-based studio Wube Software, a narrative premise is nonetheless presented in a text prompt. Having crash landed your spaceship on an alien planet, the in-game text announces, "Your task is to launch a rocket into space. Do this by constructing a Rocket Silo and launching a rocket with a satellite. You will need to research advanced technologies in order to unlock the Rocket Silo. Start small, work your way up with automation and don't forget to protect yourself from the natives." *Factorio* markets itself as "a game in which

you build and maintain factories…Use your imagination to design your factory, combine simple elements into ingenious structures, apply management skills to keep it working."[19] As the generic avatar lands on an edgeless procedurally generated terrain, players control the movement of their character with keystrokes viewed from a top-down isometric perspective, but execute actions dictated by the position of their mouse cursor – the character's disembodied hand, so to speak (see figure 1.2). They begin by mining various resources – copper, iron, stone, coal, and wood are readily available resources, while rare minerals and fossil fuels require late-game mining technology to extract. These resources, in turn, are used to craft machinery or combined to create increasingly complex machine components, and speed up the production process from extraction to output.

Fig. 1.2: *Factorio*'s 'visible hand.' In *Factorio*, the player can freely interact with highlighted objects in proximity by way of their cursor, or what I later reconceptualize as the 'visible hand' of management, and not the actual hand of the virtual worker (screen capture mine).

[19] factorio.com

In the process, players conceive vast systems of factory infrastructure: from coal mining sites constituting fuel lines to arrays of smelters via conveyor belts, which are also connected to ore mining devices on feedback loops, each funneling extracted resources to 'fabrication machines.' These fabrication machines are black box production systems that output components from combinations of elements and materials: metal bars can be made into plates, which can be rerouted to the machine to make wire, which can be combined with plastics made from crude oil to create circuits, which can be combined to construct more advanced circuitry, so on and so forth. While undoubtedly convoluted, this is but an example of a simple and linear production pipeline; the complexity of a simulated factory combining a multitude of interdependent assembly lines supplied by equally complex networks of extraction, refinement, and electrical support cannot be accurately represented in writing. As the factory's footprint grows larger and more convoluted by virtue of the need for higher output and productivity, so does the player's knowledge of these systems of automation and optimization.

Factorio's gameplay is, in effect, that of resource and systems management. The labor process entailed by the extraction of materials or construction of infrastructure is not afforded to the player; that is to say, they generally cannot intervene in the machine processes of extraction or production beyond its implementation, which operates autonomously from the moment players conceive of the factory. Resources, in this sense, are divorced from their material state; players can only afford to interact with them as systems, as components already conceived as part of the supply chain. The game does not simulate the construction process of the industrial infrastructure conjured by the player, but rather allows them to occupy the managerial strata involved in systems management: rerouting supply lines for optimal throughput, organizing mining-to-smelter pipelines for maximum efficiency, continuously updating built infrastructure to optimize yield – these are but a few examples of *Factorio*'s gameplay affordances enacted by the player's hovering cursor.

These player actions do not culminate in the accumulation of capital, nor is *Factorio*'s industrial infrastructure and managerial imposition of control shored up by what Braverman calls capital's "*differentia specifica*…the purchase and sale of labor power."[20] Instead, players produce units of science by contributing to research agendas, which can provide more efficient machines,

[20] Braverman, *Labor and Monopoly Capital*, 52.

new technologies, etc. It is precisely because the myriad social relations and material contingencies that constitute capitalism are largely absent in *Factorio* that the game effectively reifies "a mode of production into which science and exhaustive engineering investigations have been integrated as part of ordinary functioning," resulting in "the transformation of science itself into capital."[21]

The World Is One Big Factory

Historically speaking, the imposition of control over the labor process and mechanisms of production increases concomitant to the very degradation of labor and skill associated with mass workers. Braverman writes of the paradigmatic Ford Motor Company automobile factories that develop conveyor belts feeding workpiece-actuated machinery, claiming, as "the need for direct labor diminishes still further, the production line has become 'automatic.' But when a production line has reached this continuous and automatic state, it is close to the point when it becomes a single machine instead of a system of connected machinery."[22] *Factorio*'s simulated factories take the shape of a sprawling web of pneumatics and steam pipes, of coils and mechanisms of gears and levers. On the surface, it is not constituted of intelligible segments of infrastructure, but as a singular roaring contraption of production – the very image of the factory as single machine conjured by Braverman.

Furthermore, *Factorio* allocates an entire planet, procedurally generated with abundant resources and various biomes and terrain, to the player's efforts of production. The total industrialization of the virtual planet reifies the current planetary order of global capitalism – indeed, a world made to work. The simulated factory is the totalizing, end-to-end machine of production: earth itself becomes the vast shop floor, which includes mining operations for resource extraction, automated assembly lines of production, its own systems of oil extraction and refinement – all under a single roof. As Hardt and Negri have theorized the planetary order termed Empire, "The first geographical consequence of the passage from an industrial to an informational economy is a dramatic decentralization of production," in such a way that communicative *networks* in the diffusion of production become the new organizing regime, replacing the linearity of assembly *lines* or centrality of factories.[23]

[21] Braverman, *Labor and Monopoly Capital*, 166.
[22] Braverman, *Labor and Monopoly Capital*, 192.
[23] Hardt and Negri, *Empire*, 294.

Although the decentralization of production and the singular planetary factory that *Factorio* imagines may seem to be of opposite organizational regimes, they are actually developed from the same logic of expansionism. Sandro Mezzadra and Brett Neilson further pronounce on this totalizing conceptualization of production under the regime of extractive capitalism by emphasizing the 'frontiers of capital,' a term that "registers capital's drive to continuously open up new territories (in both the literal and the figurative sense) to re-establish the conditions for accumulation."[24] *Factorio* simulates an endless frontier of capitalist expansion, not limited by the "legal regimes, technical standards, 'best practices' and sectorally limited normative arrangements."[25] Simulations of production are, in this sense, equally games of extraction: *Factorio* simulates the operations of "mining and drilling for minerals, oil, and gas," *Stardew Valley* involves "industrial methods of farming," in keeping with the fact that "agriculture has taken a more extractive turn."[26] Yet the expanded sense of extraction developed by Mezzadra and Neilson demonstrates how *Factorio*'s industrial planet in fact reifies the unchecked expansionism of extractive capitalism. The sprawling operations of extraction constitute "the fabrication of the world, to the production of the connections, chains and networks that materially envelop the planet enabling and framing the labor and actions of subjects well beyond those directly involved in the execution of the operation itself."[27] *Factorio* internalizes the degradation of labor and imposition of managerial control through its systems of automated machinery and player subject position, but it equally reifies an organizational model of totality and suffusion characteristic to contemporary capitalism and extraction, specifically.

Play Management

Much in the same way *Stardew Valley* reifies the farm's labor process through end-oriented objects operated by the player alone, *Factorio*'s sprawling machine infrastructure is entirely designed, built, operated, and maintained by a singular managerial subject. Yet whereas the former loosely follows the historical trajectory of capital's technological developments towards the contemporary moment, *Factorio* situates itself beyond "this latest phase" of capital, fully realizing, as Dyer-Witheford would say, the "increasing level of automation, and, in particular, the

[24] Mezzadra and Neilson, "Extraction, logistics, finance," 9.
[25] Mezzadra and Neilson, "Extraction, logistics, finance," 9.
[26] Mezzadra and Neilson, "On the multiple frontiers of extraction," 189.
[27] Mezzadra and Neilson, "Extraction, logistics, finance," 15.

replacement of industrial workers by cybernetic systems and continuous flow processes based on automatic control."[28] In this simulation of industrialized factories, machines are automated systems of production from the jump; the only intervention players make in their functioning is that of planning and managing. *Factorio* does not virtualize the worker *as part* of the machine process; it in fact evacuates the working subject position from the game altogether. As I mention previously, *Factorio* players control the movement and actions of a 'boots on the ground' protagonist, and are continuously dwarfed by top-down isometric camera view creating a visual field of omnipresence, of transcendental managerial control (see figure 1.3).

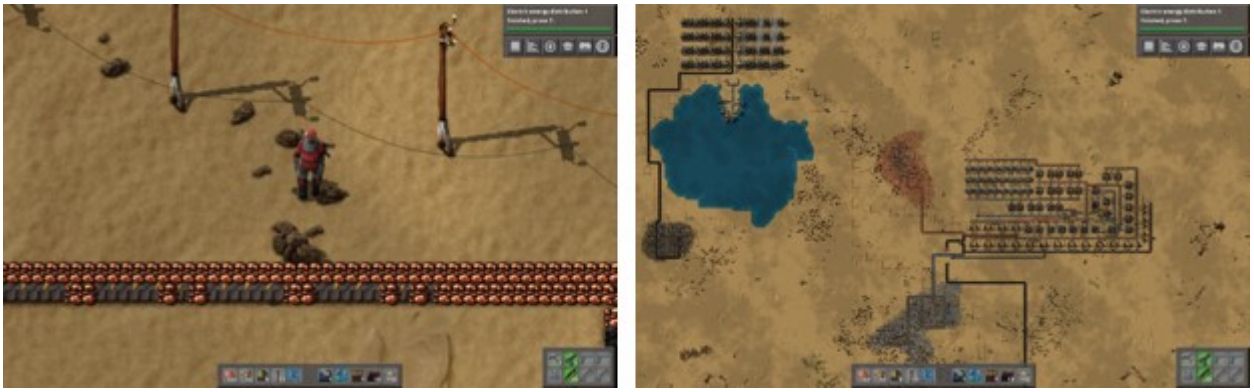

Fig. 1.3: Side by side of *Factorio*'s perspectives. *Factorio* allows players to simultaneously occupy a grounded position as avatar (left) and transcendental perspective of managerial control viewed from above (left) at the same time. These comparative screenshots are taken from the exact same position of the avatar, but are radically differentiated by the optics of management. (screen capture mine).

The game therefore distanciates the player from that avatar; although they control the avatar's movement and can only interact with objects/structures within proximity, the player steadfastly occupies an optics of top-down management. Galloway articulates the visual regime of top-down strategy and simulation games: "instead of penetrating into the logic of the machine, the operator hovers above the game, one step removed from its diegesis, tweaking knobs and adjusting menus. Instead of being submissive, one speaks of these as 'God games.'"[29] *Factorio* does not invite the player to embody a character, but rather that of an operator – a process of abstraction akin to the *Stardew Valley* player employing the 'universal tool' of computer technology as opposed to farm instrument. The player's subject position is within the stratum of management (*contra* the conclusions we may draw from its bottom-up avatar). In positioning the player as

[28] Dyer-Witheford, *Cyber-Marx*, 43.
[29] Galloway, *Gaming*, 19.

manager, the game thus reifies the paradigmatic systems of managerial control under capitalism in the contemporary moment: the mouse cursor exacts the player's actions while disembodied from the character, concretizing "greater reach for the 'visible hand' of managerial control, now exercised through an arsenal of devices for broadcasting monitoring."[30] The very means by which players operate simulations such as *Stardew Valley* and *Factorio* is precisely through the disembodied hand of managerial control, subsuming the grounded avatar within the totalizing optics of top-down management.

As controlling agent and orchestrator of machine infrastructure, the player's subject position epitomizes the manager's systematic control over the organization of labor (or, in *Factorio* specifically, the planning and mapping of factories), which remains a central feature in the relations of capital and its systems of management. The simulated factory, by virtue of its autonomous operation from the moment it is implemented, is not a series of machines operated by individual workers, or even the player *as* machine worker. Rather, the game's industrial infrastructure is a systemic machine operated by a singular managerial subject; the bottom-up perspective of the machine worker cannot conceive of the totality of the simulated factory, yet the disembodied optics of the player as manager *can*. The subject position *Factorio* affords players effectively reifies the imposition of managerial control over the labor process; it turns the complex social relations between workers, machines, and managers into a dimensional perspective.

The player's *job* in *Factorio* is, in effect, to design and troubleshoot factory assemblages. The process of factory design and organization is rooted within the capitalist tradition of divesting the worker's control over labor, entrusting it instead in the hands of management as centralized decision maker. Simulating clockwork factory systems of production, the game's top-down organization of production reifies the structuring principles of capitalism, wherein the further abstraction of labor redirects control towards the transcendent managerial body of knowledge. In sum, *Factorio*'s totalizing managerial frame coincides with the shop floor 'planner' within theories of factory management. In his exploration of the concept, Braverman quotes a definition from management literature, which claims, "The planner…simulates the machining done in the shop…He goes through every step in very much detail, leaving no decision to be made later at the machine."[31] *Factorio*'s singular managerial subject epitomizes the planning and managerial

[30] Dyer-Witheford, *Cyber-Marx*, 52.
[31] Braverman, *Labor and Monopoly Capital*, 201.

functions by controlling the factory layout and operation from end-to-end, and effectively crystallizes the systemic logic of managerial control through its subjectivation of players as factory system managers.

Optimization and Automation

Management's purpose within any form of enterprise or industry remains singular. It may carry different names – *efficiency*, *productivity*, *cost-cutting*, or in the jargon of human relations, *humanization* – but ultimately, its purpose is the *optimization of flows within the circuits of capital.* Nested within management's task of "humanization" – dissolving the perennial antagonisms between workers and management to raise morale – is a more profound concern with intensifying productivity, "one of the fundamentals of capitalist society."[32] I have already provided examples of optimization in *Stardew Valley* (constructing networks of irrigation on the farm, for one) but the possibilities of improving productivity in *Factorio* are many. To name but a few: the speed of conveyor belts can be increased, while their throughput can be maximized by implementing appropriate resource densities, fabrication machines can be arrayed to saturate conveyor belts based on the time needed to process any given mateiral, railway networks can be deployed to connect long distance resource operations, and importantly, each operation of production (mining, smelting, power generation, etc.) can be further optimized with the implementation of incrementally more productive machines. The optimization of systems of production is not isolated from the circuit of capitalism at large, as we will see in the subsequent chapter on truck simulators and logistics. In fact, the intensification of efficiency imposed on the site of production is sustained throughout the cycles of production and circulation, wherein logistical efforts organize "capital in technical ways that aim to make every step of its 'turnover' productive."[33]

But the logic of optimization and rationalization is *Factorio*'s primary structuring principle. Simulations of production work through the progressive abstraction of the labor process – from 'direct' and 'concrete' labor to end-oriented objects, to top-down managerial control. Dyer-Witheford as well as Hardt and Negri respectively posit the intensified abstraction of labor as a paradigm of technoscientific work and increasingly automated production systems in the age of computerization. Autonomists accordingly foreground the changing composition of the proletariat

[32] Braverman, *Labor and Monopoly Capital*, 38.
[33] Mezzadra and Neilson, "Extraction, logistics, finance," 12.

vis-à-vis technological transformations of the labor process associated with computerization. Yet transformations in the controlling class of capitalism – the managerial stratum – are equally crucial to understanding how simulation operates alongside the realities of contemporary capitalism.

Simulations of production such as *Stardew Valley* and *Factorio* subjectivize players as managers and effectively reify the structuring principles of capitalist industry precisely *because* of the surmised necessity for human intervention at the level of management after the total automation of the labor process. In his historiography of the Military Industrial Complex's development of computational technology, Edwards writes, "Computers can automate and accelerate important military tasks. The speed and complexity of high-technology warfare have generated control, communications, and information analysis demands that seem to defy the capacities of unassisted human beings."[34] Moreover, computing technology has developed alongside growing skepticism troubling the sovereignty imposed through managerial control: "computers were used first to automate calculation, then to control weapons and guide aircraft, and later to analyze problems of command through simulation. The final step in this logic would be the eventual automation of command itself."[35] *Stardew Valley* and *Factorio* each simulate the progressive abstraction and ultimate obsolescence of 'direct' or 'concrete' labor eclipsed by the unrivaled productivity and optimization potentials of automated machine infrastructure; at the same time, they concretize a growing anxiety regarding the obsolescence of human intervention at every level of work, including management. These simulators implicate a 'boots-on-the-ground' avatar, but nonetheless reify the up-in-the-air optics of management's subject position that players so evidently control in the expanding horizons of a faster, more intense, and endlessly optimizable systems of production.

To put it succinctly, the very reason why we play hard work or, more acutely, managerial simulations of production in the circuits of capitalism, manifests in two moments. First, simulators are symptomatic of a historical continuum: they gratify the player who is allowed to inhabit a managerial subject position, following in the tradition of abstraction of the labor process and the acute concerns of obsolescence in the age of continuous productivity and automation. Second, simulators of production respond to a present condition wherein the very processes of managerial control and command are subsumed within the rationalization of algorithmic logic and command

[34] Edwards, *The Closed World*, 65.
[35] Edwards, *The Closed World*, 71.

in the cycles of production, and capitalism at large. In this way, we can understand such games not as purely symptomatic of a historical condition that further abstracts labor and leads to its continued degradation. Rather, they are redemptive attempts to reinsert human intervention in the cycles of management to trouble the historical narrative that has been termed *progress without people* and moreover, upset the algorithmic logic of management imposed upon workers characteristic to capitalism today.

Simulating Progress Without People

"Progress without people" is a social model coined by David Noble, which describes the ideological mechanisms shore up by technologies of automation. The development and optimization of automated factory systems is not only motivated by the increase in efficiency, it is also "marked by the managerial imperative to gain total control over the shop floor," concretizing "managerial desire to eliminate the human element."[36] Automation remains a structuring principle in the organization of industries today; as a report on the future of work by the McKinsey Global Institute notes, "Automation technologies will be increasingly adopted in every industry, every sector, and every country in the world."[37] Although simulators such as *Stardew Valley* and *Factorio* reify the imposition of managerial control through the player's subjectivation as singular manager, in reality, the 'human element' is never quite eliminated from the cycles of production. Instead of being *eliminated* from the labor process, the working class is merely redistributed, displaced, and recomposed according to the paradigms of global capitalism. In *Platform Capitalism*, for example, Srnicek writes of the precarization of myriad industries as contractual work becomes the norm, and cloud computing technologies such as Amazon's Mechanical Turk that does not eliminate so much as conceal the exploitation of cheap labor in developing countries.[38]

The managerial strata formerly considered exempt from the threat of automation see their imposition of control equally subject to subsumption under algortithmic organizational regimes. As Dyer-Witheford notes in his more recent book, *Cyber-Proletariat*,

[36] Noble, *Progress Without People*, quoted in Dyer-Witheford, *Cyber-Marx*, 50.
[37] McKinsey Global Institute, *A Future that Works*, 85.
[38] Srnicek, *Platform Capitalism*, 75, 87.

> even jobs apparently not easily automated may be algorithmically transformed as data-processing technology breaks them down into smaller and smaller cognitive chunks that can either be outsourced to networked micro-laborers or fully automated. All this persuades many observers that, while the robots may be carving into assembly lines and logistics centres across the globe, the bots are also about to decimate the intermediate strata in their offices.[39]

Although Hardt and Negri lament that "Today we increasingly think like computers," it remains abundantly clear that organizational structures in the informatics age have divested control from managers to quantitative data science and algorithmic systems.[40] In fact, the 'visible hand' of management does not necessarily manifest in surveillance optics or an 'on-the-ground' presence; managerial control is instead reified in screens, applications, and algorithmic control shored up by data-driven management. The yet undertheorized condition of algorithmic control in managerial functions has been termed "*algorithmic management*," and sustains flexible forms of labor characteristic of contemporary digital platforms (including ride-sharing, crowd-source task assignments, but also the material infrastructure of distribution centers that support such platforms, etc.) wherein "software algorithms allocate, optimize, and evaluate work."[41] In this technocratic imposition of control by algorithmic management, we find ways to further nuance our understanding of simulators such as *Stardew Valley* and *Factorio*.

I have mentioned before that simulators follow in the capitalist tradition of abstracting labor and gratifying the sovereignty of top-down management; at the same time, simulations that subjectivize players as managers can be understood as reactions to the contemporary conditions of human obsolescence in both manufacture and managerial strata – redeeming, in a sense, the necessity for human intervention in circuits of management. Putting simulators of production in conversation with the currently developing modes of algorithmic management and contractual precarization of workers therefore allows us to reconceive games of production not as symptomatic, but redepemtive operations. Simulators such as *Stardew Valley* or *Factorio* do not

[39] Dyer-Witheford, *Cyber Proletariat*, 179.
[40] Hardt and Negri, *Empire*, 291.
[41] Lee et al., "Working with Machines," 1. The reporting that has recently come out regarding Amazon's fulfilment centers also supports this model of algorithmic management. In such distribution centers, the worker's productivity is continuously measured and presented to them as 'units per hour,' "whatever the hour thousands of workers are racing to hit goals set by computers monitoring their every move" (Selby, "Undercover at Amazon").

merely extol the virtuous ingenuity of managers, they also aim to subvert the structuring principles of machine logic and algorithmic management. Farm and factory games reify systems of capitalist enterprise and organizational regimes specific to Taylorism. But as texts rooted in the present moment, simulators capture the concerns and anxieties shored up by the conditions of labor under the regime of automation and algorithmic management. If the prevailing order of labor subjugates workers to automated mechanisms of control and management, we also play hard work to impose command back upon the machine.

Productive Obsession

Whether or not players that engage with games such as *Stardew Valley* or *Factorio* do so because of the underlying concerns and anxieties regarding systems of productivity and algorithmic management I outline above is a question best answered through other methods and operating principles. The work of interrogating the entangled paradigms within simulators and the structuring principles of labor they simulate developed thus far has instead afforded a theory for the relevance of such games within the contemporary moment. Yet what remains abundantly clear is that players can develop immutable obsessions with the order of continuous productivity reified by simulators. *Factorio*, in particular, is structured such that each technology the player researches can be usurped by more advanced technologies, for which the resources needed continually inflates. The simulated factory systems of production are interrelated, depend on mutual resources, and always operate contemporaneously. In this way, players may have to rejig and optimize a multitude of production systems in order to produce more of only *one* resource needed for a specific research agenda. Beyond this, by mending bottlenecks in the supply chain to optimizing the ebbs and flows of saturated conveyor belts, players tend to their factory with the ever-present possibility of further progress – another meter to fill, conveyor belt to saturate, railways to connect resources and production sites, etc.

Factorio reviews penned by users are testament to such a cycle of obsession, pronouncing on the thrill of productivity through the language of addiction: “Bought this game to escape the stress of school…Going to school to escape the stress of this game,” one user writes, while another

notes, "I used to have a family, now I have a factory."[42] Yet facetious commentary is accompanied by more candid accounts of obsession with productivity:

> Be warned: it is very possible you will become hooked to this game…when I walked away after a couple hours of play, I had a feeling I have never felt before in my life. It was a feeling of physical withdrawal, and my brain was legitimately craving the opportunity to get back to my keyboard so I could troubleshoot the problem I had left unsolved. I actually got out of bed so that I could take another crack at it, and finally working out the logic in my head was nothing short of therapeutic.[43]

Despite being termed 'therapeutic,' *Factorio*'s roaring sprawl of machine infrastructure appears as anything but. The principles of rationalization prove to be addictive – inciting more of a rush for optimization than tranquil respite from the stress of work, but satisfying all the same.[44] In effect, *Factorio* may very well be pure cocaine.

Another user describes *Factorio* as "A constant struggle for optimization, and solving problems, while providing a constant small increase of challenge."[45] Even *Stardew Valley*'s romanticized pastoral is not spared from the same discourse of addiction; one user claims the game is "about being closer to nature and your neighbors, but is highly addictive and is keeping me indoors and alone. the irony is not lost on me."[46] Another suggests *Stardew Valley* constitutes the consummate "Millenial dream simulator," as it affords players the opportunity to "Have a home and not be in crippling debt."[47] There remains an aspect of wish-fulfilment in simulation, as the redemptive dimension of managerial control equally allows for fantasies of property. Through its abstraction of the complex mechanisms of land ownership, simulation affords these possibilities. Even the game developers from Wube Software acknowledge how obsession becomes a structuring principle for the *Factorio:* "Optimization is a way of life," lead developer 'Kovarex' writes in a development blog, "I need to make a confession. I'm addicted. Addicted to

[42] "Where da fook is maywedda" user review of *Factorio*, Steam; "Kyzzer" user review of *Factorio*, Steam.
[43] "Zezima" user review of *Factorio*, Steam.
[44] Incidentally, a recently announced game adapting *Factorio*'s gameplay to a three dimensional first person perspective echoes the satisfying dimension of productivity in factory management in its very name, *Satisfactory* (TBA).
[45] "Nican" user review of *Factorio*, Steam.
[46] "GrIMP" user review of *Stardew Valley*, Steam.
[47] "Dendrilops," user review of *Stardew Valley*, Steam.

optimization."[48] To put things into perspective, the average player will spend around 50 hours toiling in *Stardew Valley*'s idyllic countryside, and over 87 hours managing the industrial machine in *Factorio*.[49] These numbers demonstrate the dimension of endured engagement that is specific to video games, but are equally dwarfed by the obsession betrayed by a smaller contingent of players that invest *thousands* of hours in these games.[50]

Much like I have argued there are dual ways of understanding the significance of simulations subjectivizing players as managers – to either celebrate historical models of managerial control, or redeem workers' subjugation to algorithmic management – there are conflicting approaches to this question of obsession. Similarly, one is symptomatic of the present condition, while the other may be a radical proposition. On the one hand, simulators of production are symptoms of the condition of continuous productivity imposed by the regime of contemporary capitalism. Games of productivity fulfil a desire concomitant with "The pleasures of being productive – to work on the most visible, valued and rewarded labor in a company or culture" by virtue of their reification of a singular managerial subject position subsuming the total control of production.[51] From its genesis as a form of training to its formation of an increasingly pervasive genre within the gaming ecology, simulation remains bound to the logic of high technology capitalism and its regime of continuous productivity. Simulators, in this sense, are pathological. Put otherwise, we cannot but be productive at play, as we are productive at work.

On the other hand, simulations of production reify the paradigms and structuring principles of capitalism precisely as a means of reclaiming *free time*. The fertile land of *Stardew Valley* and planetary factory of *Factorio* are test-beds for the ingenuity and creative potentials of the industrious player. Because its industrial infrastructure is divorced from the machinations of finance capital, *Factorio* players develop a creative freedom afforded by the game's totalizing managerial position *through* industrialization. The concepts of efficiency and optimization are still structuring principles of such assemblies, yet they are not means to an end – imperialism, accumulation of capital, etc. – but ends in themselves. Much like the hardware side of cloud

[48] Kovarex, "Friday Facts #209 - Optimisation is a way of life."
[49] Steam Spy, "Stardew Valley," "Factorio."
[50] A small but not insignificant portion of *Factorio* and *Stardew Valley* players have spent upwards of 3000 hours playing these games (representing 0.11% and 0.15 % of the multi-million player population for each game, respectively, according to Steam Spy).
[51] Gregg, "From Careers to Atmospheres," 3.

computation technology has been aestheticized in myriad ways – as visual manifestations of technopolitics, or environmental ecology[52] – Factorio's industrial structures equally shore up the formation of an aesthetic of efficiency. In their enduring efforts of industrious creativity, players play with various organizational paradigms, conceiving of the factory in a line, a grid, a coil, or in no organization logic at all, to name but a few (see figure 1.4). Such experiments have been demonstrably sustained by online player communities, such as the "FactorioBlueprints" Reddit message board, the personal websites of prolific *Factorio* players such as 'Xterminator,' and the *Factorioprints* open blueprint database. In these communities, users share specialized factory blueprints, show off the magnitude of their creations, and boast their managerial genius.

Fig. 1.4: *Factorio*'s organizational paradigms. *Factorio* players form communities of experimentation, wherein they use the simulated space as a planetary test-bed for various organizational paradigms: the line, the grid, the coil, and blends of or no organzational logic whatsoever. (Steam screenshots).

Although simulators in their current form are a relatively recent phenomenon, the managerial encroachment upon the very organization of time outside work is nothing new. As Melissa Gregg notes, "Over the course of a century, time management in the workplace enacted a

[52] The aesthetics of computational infrastructure has been explored in the documentary films, soundscapes, and installations under the name *The People's Cloud*, an multi-media effort directed by Matt Parker. The 'reveal' of cloud computing infrastructure has also been the subject of Jennifer Holt and Patrick Vondereau's essay, "Where the Internet Lives."

progressively personalized relationship to efficiency…To submit oneself to the discipline of time management – and to do so willingly, as an elective effort – became an expected cultural norm."[53] Furthermore, as Crary notes, the self-imposition of continuous productivity encroaches not only upon every available moment of waking life, but sleep and reparative functions as well: "Time for human rest and regeneration is now simply too expensive to be structurally possible within contemporary capitalism."[54] Within the forms of human rest and regeneration Crary mentions, we may include play; although he may not have intended to include it within the gamut of the body's reparative functions, gaming nonetheless merits consideration in this respect. Simulations of productivity *afford* the radical reorganization of time beyond the strict hours of work precisely because they simulate work under regimes of continuous productivity. Put otherwise, simulators are the affordances we allow ourselves to play despite having or wanting to work. It is precisely because simulators reify the abstraction of the labor process and managerial control that they subvert labor as a structuring principle of daily life. If submitting oneself to the regimes of time management has become the norm, as Gregg suggests, then simulators of production are radical means of opting out of that contract. Simulation affords the recomposition of work time and an indulgence, if only for a moment, in the fantasy of reclaiming control over our time. Simulators propose that the way out of a self-imposed obligation to be productive is not found in being simply put to work, but rather through the totalizing and transcendental subject position of management that oversees and controls its automation.

Conclusion: Farming Metaphors

Farms are a perennial site within the Marxist critical tradition, and are often returned to in questions of labor. The agricultural industry has fundamentally changed since then, growing increasingly automated just as *Stardew Valley* simulates. Yet farming can be reconceptualized as an apt frame of analysis in the circuitive networks of capital today. In effect, the farm has already taken an entirely different meaning in gaming culture and the digital economy. For the sake of clarity in my treatment of *Stardew Valley* and *Factorio*, I have opted to use the differentiating terms of farm versus factory to describe what the games simulate. Yet there is no question that the vast footprints of simulated factory infrastructure and the gratuitously accumulative mechanisms

[53] Gregg, "From Careers to Atmospheres," 2.
[54] Crary, *24/7*, 15.

of production can be termed *factory-farms*. Accordingly, the automated mechanisms of farming in *Stardew* Valley's simulation are concomitant with the industrialization of the agricultural complex, which can be described by the same term, *factory-farm*.

Elsewhere, the farming metaphor comes into the jargon of digital infrastructure as an organizational regime with the emergence of server farms, or data centers, for example. Yet more specifically for the purposes of this project, in the vernacular of games and player practices, to *farm* is to accumulate; whether it be virtual goods, in-game currency, or points. *Farming* has become way of playing that hinges upon a capitalist inclination towards accumulation. That is to say, 'farming' describes the internalization of respective gestures in game that result in the accumulation of points, currency, loot, etc. – for example, accumulating in-game points by capitalizing on the endless flow of enemies that can be killed with ease. Simulators, to put it bluntly, demonstrate the virtualization of capital; meanwhile, the networks of high-technology capital grow further into the decentralized networks of virtual currency. The virtual is never exclusively such, as the recent blockchain mining phenomenon shows: resource-intensive "cryptocurrency farms" threaten to accelerate climate change, or at least disrupt current efforts against it, betraying the material effects of virtual economy, constituting an altogether different variation on the farming metaphor.[55]

As Dyer-Witheford and de Peuter notice in *Games of Empire*, the farming metaphor in gaming culture ripples through the digital economy, becoming a veritable industry in itself. "Virtual trading – or RMT (real money trading) – seems to have begun with individual, ad hoc transactions on eBay and other online auctions. Soon, however, gamers playing for profit, known as 'farmers,' were systematically harvesting games for real cash resale."[56] Carrying with it the controversies of industry malpractice, for-profit virtual farming reifies the lopsided hegemony of sovereignty characteristic of the relationships of Empire in the global economy. As Dyer-Witheford and de Peuter write,

> it was widely reported that a U.S. company, Black Snow Interactive, had hired and trained shifts of Mexican day laborers in Tijuana to farm *Ultima Online* and *Dark Age of Camelot*…other transnationally organized, commercial game-farming enterprises soon followed. Operating out of Mexico, Hong Kong, and eastern

[55] Shane, "Bitcoin boom may be a disaster for the environment."
[56] Dyer-Witheford and de Peuter, *Games of Empire*,138.

> Europe, though sometimes owned in the United States or western Europe, these companies used 'low pay in poor countries to provide services for wealthy western players.'[57]

The virtual farming industry employs low wage workers in poor working conditions in the repetitive labor of accumulation. We speak of *digital* farming for virtual goods, yet the conditions of such work resonate alongside the material conditions of exploitation at large. In her recent article, Joyce Goggin pronounces more acutely on the material realities of exploitation that are frequently effaced by the virtual order of farming, wherein Chinese prisoners are forced to play online games such as *World of Warcraft*. In the context of these play factories, what I have called the *entanglements* between work and play betrays a markedly privileged positionality. In the Jixi labor camp,

> prisoners are beaten 'with plastic pipes' for not completing unpaid work quotas and kept grinding until vision blurs, hence none of these prisoners mistake their drudgery for play. Here again, whether or not one experiences 'grinding' in a videogame as a form of 'play', mild entertainment, pleasant boredom, drudgery or heinous enforced labor seems to be a question of context (the home, a sweatshop, a prison).[58]

The instrumentalization of play for profit through the regimes of accumulation in virtual, in short, concretizes the exploitative relations characteristic of the geopolitical unevenness of global capitalism.

The farming metaphor embeds itself increasingly deeper into the vernacular of capital. The initial stipend players are given at the start of *Stardew Valley* becomes capital for purchasing seeds, just as ambitious entrepreneurs may begin projects, similarly, with *seed money*. Markets grow. The corporate strategies of customer retention (or, alternatively, the *user* retention incentives in digital platforms) are as much about *planting* as they are about maintaining the fragile balance of users in technological *ecosystems*. In games, nonetheless, farming complicates the politics of an already problematic social constituent, the cognitariat. With the information revolution, we see "the emergence of the new strata of highly skilled technical workers – engineers, software designers

[57] Dyer-Witheford and de Peuter, *Games of empire*, 138.
[58] Goggin, "Playbour, farming and labour," 366.

and programmers – central to the making of digital technology."[59] The cognitariat's abstract labor is coded as *skilled, specialized,* and more importantly, *innovative*. Elsewhere, in the virtual worlds where farming becomes a form of waged work, "unskilled labor has been hired to do nothing but mindlessly farm the world for gold pieces, say, by killing monsters and looting their treasures of coins over and over and over."[60] Alongside the cognitariat, virtual farmers – underpaid workers at the service of players in the Global North – emerge as the underclass to the former's elite status.

Firmly embedded within the vernacular of a *past* mode of work, virtual farmers contrast the cognitariat exacting "scientific labor – the scientists, programmers, engineers and designers celebrated in information society theorists portrayals of the 'knowledge workers' of the *future*."[61] The deadening quality of such farming labor executed by these informational (yet coded as non-cognitive) workers is crystallized by how easily it becomes an automatic chain of operations executed by 'farmbots' – automated protocols that "scour game worlds, gathering gold or salable items without human monitoring, turning virtual communities into resource extraction sites for acquisitive roving game golems."[62] The automation of their labor, if anything, intensifies their subjugation as an expendable, surplus population. Computer workers by any other name, game 'farmhands' trouble conceptualizations of the cognitariat: the technologically mediated labor of the former is steadfastly understood as unskilled use of otherwise 'technical' apparati, and eventually cheapen the economy they contribute to rather than bolstering it.[63] Put otherwise, the cognitariat is part of a highly technologized strata of informational worker, whereas virtual farmers are conceived as the brute force workers of extractive capitalism. Farming remains a perennial site for Marxist critiques of the development of early capital, yet it has undergone a terminological mutation and revaluation within the networks of global capital. Deployed as a metaphor in the digital age, farming is rooted, at once, in capital's vernacular of corporate strategy (seed money), the hypervisible infrastructure of the internet (server farms), and ultimately, the darkest edges of gaming culture (gold farming).

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[59] Dyer-Witheford, *Cyber-Marx*, 96.
[60] Castronova, *Synthetic Worlds*, 150.
[61] Dyer-Witheford, *Cyber-Marx*, 95 (emphasis added).
[62] Dyer-Witheford and de Peuter, *Games of Empire*, 139.
[63] Castronova, being an economist, is keen to note that as virtual farming develops, "the value of gold pieces against the dollar rapidly drops and, therefore, the value of assets obtained by everyone in the game drops as well. This is exactly what the market logic predicts: when new unskilled laborers from the third world begin farming loot and selling it, they drive down the wages of those who had been in the world before." *Synthetic Worlds*, 150.

Production simulators, as I have endeavored to present them, are ultimately mechanisms of managerial control. Elsewhere in the culture of gaming, 'farming' remains a controversial practice that, in the worst of cases, becomes a deadening labor characterized by automatism, exploitation, and subjugation. Simulations such as *Stardew Valley* and *Factorio* are virtual spaces where players reclaim control over the rationalization of algorithmic logic. Simulators of production may conceive of the entire world as a single factory, effectively reifying the diffusion of industrialization across every dimension of society. Yet in their total separation from the machinations of finance capital and transposition to a virtual space of creative potential where work is figured as play and an end in itself, these virtual factories are at least nominally built to work for us.

Chapter II

A World of Trucks: Games of Circulation

By building and maintaining projects of industrial infrastructure, *Factorio* players occupy the managerial subject position reclaiming control over automated mechanisms that are characteristic to clockwork systems of production and algorithmic management at large. As an open-ended sandbox game, there is virtually no end to the vast networks of production players can build. According to *Factorio*'s loose narrative premise, however, there *is* an objective, an endgame to be reached: the industrialization race culminating in the production of a spacecraft, allowing the industrious character to leave the alien planet and return to their home. Yet *Factorio* does not promote an exodus from the capitalist logic and means of production by jetting to some utopian alternative, as we have seen; the game revels in the realization of the workerless factory and totalizing managerial control. As multiple business magnates currently funnel capital from industries of automotive production and platform commerce to ventures in space travel such as Space X and Blue Origin, *Factorio* is, perhaps incidentally, paradigmatic of the contemporary moment.[1] By having its players develop the means of interplanetary travel, the game's simulation of a steadfastly industrial planetary ecology reifies the genesis of a properly global capital supported by equally vast networks of transportation and economies of scale.[2]

Whereas I previously tended to the increasingly pervasive regime of automation and structuring principle of efficiency in cycles of production, this chapter turns our attention to the subsequent site in the circuits of capitalism: circulation, where trucks meet the asphalt, concrete, and dirt that constitute the public infrastructure sustaining the movement of things in global capitalism. This next stage in the circuits of capital is where we find the products of industry and raw material put in motion. In gaming culture, the most salient texts simulating the networks of transportation and distribution in global capital are the immensely popular *Truck Simulator* games developed by SCS Software. In short, we move from the regimes of optimization and

[1] Referring, specifically, to the aerospace companies spun out of Elon Musk and Jeff Bezos' respective businesses, where electric car manufacturer Tesla and multi-sided online marketplace Amazon fund the space race of capitalism today.

[2] *Factorio* effectively culminates with the genesis of a "new planetary order, the consolidation of its administrative machine, and the production of new hierarchies of command over *global* space." Hardt and Negri, *Empire*, 19 (emphasis added).

rationalization of the farm and factory to their "methodological child," logistics[3] – a term that merits unpacking.

Historically, Jesse Lecavalier notes in *The Rule of Logistics*, logistics "has been understood as the branch of military science that concerns the planning and coordination of operations, including provisions for movement, material, and maintenance."[4] To give but one example of the military's early efforts in the development of logistical systems, "the first problem to receive the name Operations Research was concerned with how to set the time fuse of a bomb to be dropped from an aircraft on to a submarine."[5] More recently, we frequently see 'logistics' on the side of trucks in everyday encounters on roads; yet as Deborah Cowen notes in *The Deadly Life of Logistics,* the logistical system that shore up global capitalism actually constitutes "The Entire network of infrastructures, technologies, spaces, workers, and violence that makes the circulation of stuff possible."[6] Put otherwise, this chapter takes logistics as the vast matrix of transportation systems that sustain the movement of things in the networks of global capitalism; 'logistics' as we know it today is born out of the standardization of inter-modal transportation, of which trucking plays an integral part in connecting various sites of production, distribution centers, and ports on land. Trucking, by virtue of its flexible mobility, crucially sustains the movement of things and persons on roads – public infrastructure that concretize the seemingly imperceptible encounters with capitalism's logistical systems. Simply put, truckers are the on-the-road agents of logistical systems. Much in the same way I positioned the farms and factories of *Stardew Valley* and *Factorio* as paradigmatic sites reifying the structuring principles of rationalization and optimization in circuits of production, trucking and its simulators concretize the spatiotemporal paradigms of logistics. Lecavalier appropriately traces the shifting paradigms that follow the circuits of capital: where "Industrialization concerned the systematization of production through the development of machines," logistics endeavor "to flatten, connect, smooth, and lubricate as it organizes material in both space and time."[7] Moreover, if production simulators conceive of the world as a singular vast factory, *Euro Truck Simulator 2* and *American Truck Simulator* accordingly simulate the world as compressed, fluid, and networked by public infrastructure – in short, a world of trucks.

[3] Klose, *Container Principle*, 165.
[4] LeCavalier, *Rule of Logistics*, 4.
[5] Rath, *Container Systems*, 402.
[6] Cowen, *Deadly Life of Logistics*, 1.
[7] LeCavalier, *Rule of Logistics*, 6.

Truck simulators are niche by virtue of the confounding banality of their gameplay, but wildly popular nonetheless. The most important games in the genre, *Euro Truck Simulator 2* and *American Truck Simulator* developed by SCS Software, allow users to play trucker: embody the big rig driving experience from the interior of a simulated truck, freight virtual goods across variously scaled roads and highways, found their very own trucking enterprise, and simply take in the coded landscape along the way. Although a plenitude 'sims' exist in gaming culture today, truck simulators have captured the zeitgeist of contemporary simulation games. To put it into perspective, the Steam Spy data tracking service lists the number of *Euro Truck Simulator 2* owners at over 5 million – well over five times the second most-owned of the 'simulators,' SCS Software's own *American Truck Simulator.* Now six years since its release, the game still counts around one million active players and as many as 45,000 concurrent virtual truckers, placing it in the top 20 most popular Steam games at the time of writing.[8]

If *Stardew Valley* and *Factorio* simulate managerial control over systems of production and elicit the pleasures of top-down organizational regimes, truck simulators conversely evoke the entrepreneurial highway trucking fantasy from the bottom up, concretizing the player's subsumption within self-organizing systems of global logistics. Combining the uneventfulness of placid motorways and hulking scale of trucks vis-à-vis commuting motorists, truck simulators are markedly slow games that imagine a compressed world by design. Despite the surmised seamlessness and fluidity of circulation in global capitalism, the characteristic slowness of trucking games produces continual frictions with the temporal order of logistics by putting it into slow gear.

In this chapter, I begin by taking a closer look at truck simulators, how they play and what affordances are generated by the game's systemic logic. I then recategorize trucking games as 'container games,' placing them in conversation with theories of containerization as a means of exploring how the concepts of seamlessness and scale shored up by global logistics are reified or ruptured by the simulator. This chapter then briefly surveys trucking recruitment literature in order to interrogate how simulators work through (or undercut) the industry's ideological mechanisms of casualization and moreover, put the temporal order of logistics into slower perspective. Finally, we turn to fan-developed multiplayer modifications (mods) for *Euro Truck Simulator 2* and

[8] Steam Spy, "Euro Truck Simulator 2." On Steam Charts, another data collection service, *Euro Truck Simulator 2* earns the nineteenth spot in the "Top Games by Concurrent Players;" Steam Charts situates the highest number of concurrent players at 47,951 in December 2017, and 45,975 so far in 2018. Steam Charts, "Euro Truck Simulator 2."

American Truck Simulator; these modes of networked trucking ultimately generate a radical reorientation of logistical labor, wherein we locate counter-logistical insurgencies that throw the markedly lonely labor of logistics into sharp relief. In short, we will find truck simulators entangled within the conflicting paradigms of casualization and productive mobility shored up by systems of logistics sustaining the circulation of global capitalism.

Logistics: A Review of the Literature

In the multitude of texts on logistics, much has been written about the networks of transportation and distribution, yet little depth has been devoted to the politics of temporality and mobility inherent to trucking alone. Important works such as LeCavalier's *Rules of Logistics* or Cowen's *The Deadly Life of Logistics* provide a total view of logistical systems and are important interventions in the field, but frequently situate trucking as merely another link in the supply chain. Theorizations of the "containerization" concept, which I explore in relation to the figuration of a compressed world later in this chapter, include Marc Levinson's *The Box* and Alexander Klose's *The Container Principle*. These efforts deal with logistics as a structuring principle through the organizational regime of containers, but nonetheless absorb trucking into the complex matrix of logistical systems; part of this chapter, therefore, endeavors to understand how truck simulators reify a conceptualization of containerization that is specific to the trucking context. Glossing over the long stretches of road that truckers navigate comes at the cost of reinforcing determining narratives of frictionless commerce calcified as the fantasy of a "nearly seamless system for shipping freight across the world."[9]

Moreover, historiographies of logistical systems often only tend to trucking as a minor component in the genesis of inter-modal transportation, and frequently fail to offer more than a North-American-centric mono-history on the life's work of a single entrepreneurial trailblazer – Malcolm McLean, the founder of Sea-Land, to be specific. *The Box* and *The Container Principle* dedicate chapters to the trucking industry ("The Trucker" and "Sea-Land," respectively), yet little insight regarding the labor of or logistical principles specific to trucking are to be found in these sections – in effect, "The Trucker" denotes McLean alone, and not the many workers that continually sustain the transportation of stuff today. While Klose often attempts to upset the North-

[9] Levinson, *The Box*, 7.

American-centrism in histories of logistics, these sections on trucking and the genesis of global systems of intermodal transportation are markedly more focused on tracing the business ventures of McLean, the entrepreneur who founded Sea-Land in 1956, a pioneering enterprise in such systems.[10] The lack of attention paid to trucking within the existing literature on logistics makes an account of the often neglected (yet indispensable) labor of transportation and its logistical systems within global capitalism all the more necessary. Trucking games afford us a unique perspective that does not conceive of trucking as an incidental site in the biography of Malcolm McLean, but rather as the crucial link sustaining the movement of things on land. Truck simulators effectively bring to light what accounts of logistics generally neglect: the intersecting discourses of mobility, casualization, and contested temporal order of logistical labor.

To pose the framing question I have often returned to in this project – why do we play hard work? – in the case of truck simulators, requires that we also ask why truckers do their work. Unlike the historical standardization of the mass worker, which I previously connected to the simulation of industrial mechanisms in *Stardew Valley* and *Factorio*, logistical work operates at the very margins of society despite the hypervisibility of its material effects. As Cowen notes, we *see* logistics on the side of trucks daily, but these chance encounters fail to account for the systemic structure and temporal order of the labor that sustains the circulation of stuff on land. Where the aforementioned literature neglects the tendencies that pull people towards logistical work, truck simulators provide a way of interrogating the ideological mechanisms that shore it up. By putting the existing work on logistics in conversation with the trucking industry's recruitment literature, which sustains trucking fantasies of its own, we ultimately find that truck simulators reify the structuring principles of scale in the context of global capitalism, but also provide a necessary counterpoint to the surmised temporal order of speed and seamlessness in logistics. And unlike the totalizing managerial positionality imposed by games of production, truck simulators throw the logistical labor of trucking into much needed perspective, allowing players to conceive of the flows of stuff and persons in the circuits of global capitalism from the ground up.

[10] Incidentally, by establishing a trucking history emanating from a singular managerial and logistical mind, these texts concretize the phantasmic singular managerial subject of simulations like *Stardew Valley* or *Factorio*. In the closing remarks to his chapter, Klose even acknowledges the shortcomings of historical singularity, wherein the conception of McLean as "the legendary heart of the container fable…is actually a myth of historiography, a primal scene planted after the fact in order to make the story sound better." *Container Principle*, 117.

Virtual Trucking, Real Fun

Playing *Euro Truck Simulator 2* and *American Truck Simulator* requires equal amounts concentration to cruise through open road or congested boulevard, and entrepreneurial resourcefulness to navigate the free market. Both games begin and play according to the same systems; for the purposes exploring the gameplay and systems of truck simulators, this section traces my trucking upstart in *Euro Truck Simulator 2*. Upon starting a new trucking career, I create a trucker persona – name, gender, photo, company name and logo from a selection of equally generic looking corporate identities – and select the city I want to start in. The many simulated cities are networked by highways and rural roads across the United Kingdom, Germany, Luxembourg, the Netherlands, Belgium, Switzerland, Austria, and regions expanded by content updates, including France, Italy, Czech Republic, Poland, and Slovakia.[11] *American Truck Simulator* deploys a similar model of modular nation-building: California, Nevada, and Arizona are available from the jump, while New Mexico and Oregon are released as additional content. Upon launching my trucking company in Amsterdam with a virtual stipend of only 364 euros, the game announces itself and doubles down on my virtual trucking career aspirations:

> Welcome to *Euro Truck Simulator 2*! At last you have the chance to experience your dream job – driving a truck! Your own transportation company is now open for business, but sadly you lack the money to buy a truck. For now you'll have to work for other companies as a driver for hire. Your task is to safely deliver a load of sandwich panels to LkwLog GmbH [sic] dock in Amsterdam. Your employer has provided you with a vehicle and will cover all expenses. Don't let anyone down and arrive on time.

The short drive to freight a container of sandwich panels within the city-boundaries of Amsterdam only takes a few minutes – vast swaths of the Dutch capital reduced to walking distance in the 1:20 virtual world scale, another glaring inconsistency being the little to no road congestion. Although some sharp turns in the narrow streets slow my pace – must be careful not to damage the goods,

[11] In their respective paid content updates, regions of the map are expanded upon with more cities, thousands of kilometers of open road, and entirely new countries. *Going East!* (2013) includes fully realized simulations of Poland, Slovakia, Czech Republic, and Hungary. *Scandinavia* (2015) includes Denmark, Norway, and Sweden. *Vive la France!* (2016) and *Italia* (2017) expand upon their respective regions. Newly announced regions include "the three Baltic states Lativa, Lithuania and Estonia, but also Southern Finland and bits of Russia" in the expansion entitled, *Beyond the Baltic Sea* (2018). SCS Software Blog, "Beyond the Baltic Sea."

or let anyone down – I manage to coast through green lights all the way to the dock at the edge of town. Cornering through the gates of the shipyard, I successfully complete the sandwich panel job netting 2000 euros and some experience points rewarding a timely delivery without incident. From here, I return to the 'Quick Jobs' selection menu, and am able to choose any open contract within the purview of cities I have already visited – and no sooner am I back on the road.

In my first *American Truck Simulator* job, however, I found a rude awakening to the costs and consequences of poor job performance in the transportation industry. Tasked with hauling sugar from Sacramento to Oakland in a short amount of time, I attempted to race through red traffic lights, and speed while overtaking slow moving cars on the freeway. For all these indiscretions and the many collisions with other cars and the environment, fines were applied to my meager bank balance. In the spirit of simulation and proper driving conduct, trucking games impose monetary and experiential penalties for various infractions, including driving on the wrong side of the road (a likely mistake for the uninitiated virtually migrating to Britain). Furthermore, contrary to the 'all expenses paid' promise, virtual employers only cover fuel. Yet the game does not simulate judicial penalties of legal consequence for reckless driving; truck simulators operate according to a steadfast bottom line of profitability. Upon delivery, I had dealt critical damage to the rental truck, trailer, and more importantly, the goods. My poor performance left me with less cash than I started with and zero experience points – simulated truckers apparently do not learn from mistakes. Returning to the game menu, the loading screen declares that I am "Free as the wind," but with no truck of my own to travel, I pick another job and return to work on the highways.

As we have previously seen, *Stardew Valley* and *Factorio* are simulators that subjectivize players as managers imposing singular control upon clockwork systems of automated machinery. Trucking games, conversely, upset the characteristically top-down view and totalizing scale of simulators. *Euro Truck Simulator 2* and *American Truck Simulator* subjectivize players as truck operators: small moving parts in a larger self-organizing logistical system of global capitalism. Whereas games of production afford players total control *over* algorithmic systems of production, trucking games position players *within* the logistical systems of circulation. Virtual truckers experience logistics from the ground up; they do not dictate the flows of stuff in the circuits of global capitalism, because the vectors of the supply chain have already been determined by design. Although truck simulators afford players a variety of job choices – whether they freight sugar to Reno or unstable chemical waste to Las Vegas is up to them – the contracts are essentially content-

agnostic. By this I mean that whatever commodity associated to the contract players undertake has, in effect, no bearing on the systemic logic of circulation; virtual truckers have no stake in the totality of capital's circulation, no managerial control over the flows of things in its circuit. Simulated trucking is not a means to an end in the logistical network of global capitalism, but rather an end in itself. *Euro Truck Simulator 2* and *American Truck Simulator* equally interpolate the temporal order of logistics: just as every moving part in the vast matrix of transportation systems operates in synchrony with global commerce, so do objects move according to schedules dictated by virtual contracts that expire, are charted according to deliberately calculated itineraries, and held to precise delivery windows. In this sense, virtual trucking does not only implicate the player as a component within the logistical networks of circulation, these are also games about being *in time* with the circuits of capital. There remains the possibility that players may disregard deadlines, or simply not follow the prescribed delivery routes. Despite this, from a systems-view, truck simulators nonetheless situate players within a multitude of logistical contingencies.

Elsewhere, in the "Quick Job Offers" menu, players find a plenitude of open freight contracts (see figure 2.1). The interface includes a top-down map charting the trajectory of each available job, which further emphasizes the process-oriented ends of logistical work in simulation. Moreover, the job selection menu effectively reifies the complex social matrix and communicative networks that sustain the interoperability of logistical systems. *Euro Truck Simulator 2* and *American Trucker Simulator* condense the multitude of communicative efforts involved in logistics – between sites of production, supply chain managers, transportation services and brokers, regulatory institutions, dispatchers, and recipients – into a single user-friendly menu. In effect, the games' reification of logistical networks of communication crystallizes not only the interface but also the operating principles of contemporary platform capitalism. Invoking the phantasmic condition of post-scarcity in the current moment, Srnicek notes, "As consumers, we are presented with a cornucopia of on-demand services and with the promise of a network of connected devices that cater to our every whim."[12] Accordingly, through its streamlined systems of job-acquisition, truck simulators subjectivize players not as *workers*, but as *consumers* – where the veritable *menu* of jobs is in fact sure to satisfy even the most voracious appetites for work.

[12] Srnicek, *Platform Capitalism*, 1.

Fig. 2.1: "Quick Jobs" in truck simulators. The job menu in *Euro Truck Simulalor 2* and *American Truck Simulator* reify the post-scarcity paradigm of abundance shored up by contemporary platforms (Steam screenshot).

Incidentally, virtual truckers are never at a loss for work, either. As the job 'menus' continually cycles through available contracts, *Euro Truck Simulator 2* and *American Truck Simulator* further concretize the decidedly consumer-sided fantasy of post-scarcity shored up by the abundance and instantaneity of on-demand services. Meanwhile, the trends of contractualization and casualization have tended towards the precarization of employment. This is a condition wherein Srnicek facetiously claims, "As workers, we are to be liberated from the constraints of a permanent career."[13] Yet, as Cowen describes in a more sobering manner, this is equally a condition in logistical work, specifically, of "increased contingency, deriving from the rise of temporary, contract, and generally precarious forms of labor" in the wake of the logistics 'revolution,' where "aggressive privatization and deregulation are compromising conditions of work in this sector."[14] Truck simulators reify the surmised plenitude of opportunity and smoothness of operation characteristic to the consumerization of transportation services – effacing,

[13] Srnicek, *Platform Capitalism*, 1.
[14] Cowen, *Deadly Life of Logistics*, 98.

in the process, the contingencies of contractualization Cowen points to. In fact, the 'Quick Job' interface of trucking games is concomitant with recent trends of casualization and further contractualization in the transportation industry, namely the emergence of numerous 'Uber-for-freight' services that aim to optimize truck loads when they are under maximum capacity. While embroiled in an on-going legal battle vis-à-vis proprietary autonomous vehicle technology developed for trucks, Uber is also among the competing on-demand freight services.[15] Much like the seamless transition from interface to interstate in truck simulators, the *Uber Freight* app promises truckers that they can simply "Tap a button, book a load."[16] Truck simulators operate according to this same logic, and reify this current trend in the continued casualization of transportation services.

In simulation, we do not find the paradigmatic precarity and contingency of logistical labor, where the standardization of contractual work has meant that truck drivers work piecemeal, and "do not receive overtime, benefits, or any of the other advantages of being an employee, they provide a low-cost alternative for trucking companies."[17] On the one hand, as I have previously suggested, we may consider the truck simulator's overabundance of available work *contra* the precarious realities of the transportation industry as symptomatic of the on-demand paradigm, reifying the consumerization of services Srnicek describes. On the other hand, however, the perpetual availability of work in truck simulators speaks to a desired redistribution of surplus – from that of population, or reserve workforce, to that of available work. That is to say, simulation is a site wherein play affords the possibility of reimagining the structuring principles of capitalism, and ultimately conceive of a system that has not resulted in a surplus population of redundant workers nor the austerity measures reinforced by intensifying corporate competition. In keeping with the dialectical paradigm of reification and utopia theorized by Jameson, simulation pronounces on the fundamental social anxieties of the contemporary moment by concealing the conditions of precarious employment, and the uncertainties of logistical labor specifically. Simply put, truck simulators continually reconfigure precarity and lack of work as surplus and overabundance of work.

[15] Uber has been in a legal battle with Waymo – a subsidiary of Alphabet, the Google parent company – for allegedly stealing trade secrets in the development of its own self-driving car company, Otto.
[16] https://freight.uber.com/
[17] Bonacich and Wilson, *Getting the Goods*, 104.

Mobile Management

Truck simulators are games of transportation, situating players within the subject position of a continuously mobile worker; at the same time, they are management games. Virtual truckers must manage their budget (considering fuel expenses or traffic citations) and more importantly, time as a resource (according to deadlines and route efficiency). Contrary to the transcendentalism reinforced by *Factorio*'s managerial subject, truck simulators gesture towards the systemic management of biological resources. Just as fuel is a resource consideration for the player's truck, so must they manage their avatar's metabolism vis-à-vis the requirements of logistical labor: the virtual driver's energy steadily depletes while on the road, and must be replenished by the restorative act of *sleep* in roadside rest stops. Yet this is not necessarily a 'humanistic' version of management in total opposition to the transcendentalism of other management simulators. In fact, the 'sleep' or 'energy' gauge is curiously situated next to the fuel gauge in the trucking game's player interface – as though the biological were mechanical – and betrays instead the systematization of sleep.[18] The more pronounced management system in trucking simulators, ultimately, comes with the expansion of the player's virtual enterprise.

Once they have accumulated enough capital from odd jobs and open contracts as a driver for hire, players can finally purchase a truck of their own. No longer relegated to driving prescribed rental truck models employers provide, the player can purchase and ride in the rig of their choosing – as long as their budget allows. As owner-operators of their own vehicles, virtual truckers can then undertake more profitable freight contracts. By further accumulating capital, they can purchase more trucks, buy more land for garage facilities, and expand these spaces to house even more vehicles. The shift from driver for hire to owner-operator therefore affords the formation of a subject position that contrasts the bottom-up truck driver. In effect, *Euro Truck Simulator 2* and *American Truck Simulator* compound both the view from the ground of trucking – which carries its own managerial responsibilities – and the top-down optics of managerial control (see figure 2.2). Equipped with fleet of trucks, players can hire virtual drivers as contract employees, placing them in variously situated garages and leaving them to fulfill ad hoc freight jobs on a continual basis.

[18] I return to the questions of time management in the subsequent sections called "Trucker Time" and "Slow Drive," and tend more closely to the issues and potentialities afforded by sleep in the conclusion.

Fig. 2.2: Side by side of virtual trucking and management. Truck simulators constitute a blend of managerial perspectives akin to *Factorio*'s (fig. 1.3). Trucking games afford a bottom-up trucking experience (left) and top-down managerial view (right). (*Euro Truck Simulator 2*, Steam screenshots).

Surveying their trucking empire on the management maps and menus, users occupy a managerial position that is mediated through screens and remote monitoring. The games' "Company Manager" menu includes three areas of activity: "Garage Manager," "Truck Manager," and "Driver Manager." The first simply allows players a panoptic view of their facilities, as the game pinpoints every piece of land they have purchased and developed into garages. The other two, as the game indicates, are where players can "Admire the size of your truck fleet, thinking how you could make it even mightier," and "Check on your drivers. Hire, shuffle or fire them at your will," respectively. Much like the real world Walmart distribution center managers "can 'move' people to areas that need more attention in the same way that they move merchandise from one truck to another," virtual truck company managers can swiftly swap employees from one garage to another (accordingly taking away or leasing out trucks) in the frictionless mobility afforded by top-down management.[19] Yet the bottom line of profitability remains the truck simulator's structuring principle, and its paradox. That is to say, if we take the end-game of truck simulations as profit, players can effectively build up their fleet until the game plays itself – or at least, allows players to simply watch their numbers get higher. Automation, in this case, does not invite the managerial disposition of problem-solving or optimizing ingenuity, but rather a passive role of accounting. *Euro Truck Simulator 2* and *American Truck Simulator* nonetheless activate two measures of management. The first is 'on the ground,' so to speak, wherein the player manages *their* time, resources, and energies – concretizing the fantasy of controlling one's own time, which

[19] LeCavalier, *Rule of Logistics*, 101.

is characteristic of the trucking ethos of 'freedom' and captured in what I explored later in this chapter as 'trucker time.' Second, truck simulators invite players to occupy a markedly different managerial subject position, but a familiar one nonetheless: to be in control of other truckers in their fleet.

Container Games

In truck simulators, the stuff players move from city to city, port to port, is most often enclosed in containers. The freight contracts, as I have mentioned, are content-agnostic: whether sand or sugar, the *contents* of the truck trailer have no bearing on the virtual trucking experience. In keeping with the process of abstraction characteristic of the gameplay apparatus of simulation, containers epitomize the abstract commodity form in the cycles of capitalism: "Container transport itself effected major abstraction and created signs," Klose writes, "Since the boxes remain constitutively closed, nowhere in the entirety of the global transport process can you see what is inside."[20] Containers capture – or more appropriately, *enclose* – the concepts of standardization, modularity, visibility, and scale that are central to logistical operations in global capitalism. Truck simulators, moreover, can be termed *container games* precisely because they reify the structuring principles of containerization, which is an organizational regime that has sustained the project of logistics at large. In fact, trucking has invariably sustained the project of containerization on roads. The truck simulator's miniaturization of the world reifies the paradigm of proximity and speed shored up by global capitalism and the organizational regime of containerization. Trucking games are equally container games and, as I will show, operate according to a systemic logic of modularization, flexibility that affords hypervisibility, and scale.

The container – generic in shape and form, pragmatic in function, yet multitudinous in applications – is a fundamental component in the genesis of global capitalism. Containerization describes the standardization of intermodality in the transportation industry; in a textbook on containerization, Eric Rath calls it "a systems approach to transport service. It represents the dawn of an era, in which all modes of transportation will be subjected to integration into a single, worldwide system."[21] In his exploration of the container's many conceptualizations as organizing

[20] Klose, *Container Principle*, 103.
[21] Rath, *Container Systems,* 4. Rath's text is in fact a technical textbook in containerization, stemming from his experience in logistics which predate Malcolm McLean's. In effect, the foreword to *Container Systems*

principle (or art practice, media, livable space, etc.), Klose also gestures towards the box's catalysis of global trade: "Containers have supported significantly the emergence of a system of production and consumption that circles the globe, leaving almost no place on Earth untouched."[22] Truck simulators, conversely, package regions into modularized content updates, which concretize the modular organization of the container despite the surmised openness and seamlessness of the world market. As Klose notes, "The boxes are at the core and the crowning element of a logic of modularization and optimized distribution called *logistics*, which…has successfully moved from the factories and the battlefields into all sectors of society."[23] The games' cartographic segmentations follow the modular logic made standard by the container; the simulated world is itself packaged according to the same principles of modularization. Trucking is also central to the container's organizational regime of modularity. In 1956, "the *Ideal X*, a ship of the Pan Atlantic Steamship Company, was loaded by using an unusual process;" the boxes being lifted onto the containership "were actually truck trailers, separated from the chassis."[24] To use the terminology characteristic of our time: in the same way truck simulators are content-agnostic games of transportation, so do virtual and actual trucks mediate various enclosed *contents* across great distances and between multi-sided markets, each trailer being its own *platform* in the dissemination of goods and services in the networks of global capitalism.[25]

By the end of the 1960s, the containerization project had come to a head and thousands of containers moved through ports on the American Eastern Seaboard weekly. Yet the scale of such movements afforded by the standardization of containers "offered no advantage to truckers,

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notes, "If Malcolm McLean, the trucker who founded Sea-Land Service in 1956, can be called the Father of the Container Revolution, Eric Rath is truly the 'Grandfather' of this phenomenon" (v).

[22] Klose, *Container Principle*, 4. Such ruminations on the role of the container in the genesis of global capitalism are not uncommon; Levinson, for example, writes that "The container made shipping cheap, and by doing so changed the shape of the world economy" (*The Box,* 2). The discourse situates containers not only at the nexus of a global phenomenon, but as an agent in its formation.

[23] Klose, *Container Principle*, 5.

[24] Klose, *Container Principle*, 83.

[25] This allegory borrows from the many material conceptualizations of *platform* vis-à-vis contents and automobile manufacturing in the 1970s and 1980s as explored by Marc Steinberg in his forthcoming book, *What is a Platform?* Theorizations of what we now understand as a platform – an intermediary in multisided markets – in fact originate in the skeletal framework of automobile production. As Steinberg notes, "Despite the term's natural home in the computational, it is automobile production which is the first fledgling site of the generalization of the term platform from the realm of computation to a reconceptualization of products and production techniques more broadly. It also figures into the eventual description of capitalism itself as being platform in nature."

because, no matter how many boxes were being handled, one truck could only pull one 40-foot box."[26] Trains were a sure fit as the primary mover of stuff at the time, but the many rail regulatory obstructions from protecting the box-car standard changed that outcome. "In the spring of 1967, when Whirlpool Corporation asked the New York Central to move containers of refrigerators from an Indiana factory to the New Jersey docks," Levinson writes, "the railroad advised Whirlpool to ship its refrigerators in boxcars and put them into containers at the port; Whirlpool shipped by truck instead."[27] What the truck lacks in scale, it makes up for in flexibility. With the ability to reach isolated areas railways cannot, navigate the regulatory terrain with more ease, and most importantly travel on public infrastructure subsidized by governments, trucks remain fundamental links between myriad components of the supply chain. The truck's flexibility therefore affords *visibility*. Cowen, for example, notes that with the intensification of logistical efforts in the sustained project of global capitalism, "a new paradigm of security is assembled to protect goods and infrastructure."[28] In essence, the securitization of logistical infrastructure (railways, ports, distribution centers, etc.) has meant that logistics most often 'happens' out of sight; the public infrastructure of roads and highways are some of the few spaces where logistical efforts are manifestly visible, and encountered daily.

The truck's logistical visibility figures into the culture of simulation at large. Train simulators – most notably, *Train Simulator* (2009) and its multitude of additional content (including train cars and environments) – are continually overshadowed in terms of popularity and critical reception by trucking games in the simulation of logistics and commerce. *Train Simulator* emphasizes *collecting* trains, in keeping with the railway hobbyist's model of accumulation, whereas the various *Truck Simulators* take up the trailer's mobility and flexibility as central to the games' emphasis on driving as a bottom-up simulation of logistics. Despite their small stature relative to the global networks of distribution and in direct comparison to substantially larger seafaring links in the supply chain, individual trucks are a steadfast symbol of logistics on land. In the words of LeCavalier, trucks are "corporate mascots" and constitute, in the case of Walmart, a two-sided symbol "in that the trucks' exteriors are legible as they move through various forms of transportation infrastructure and their interiors are linked with the organization's vast distribution

[26] Levinson, *The Box*, 167.
[27] Levinson, *The Box*, 167. Levinson goes on to call the rail executives who resisted the adoption of containers as standard "Farsighted…reinforced by a century of regulation" (170).
[28] Cowen, *Deadly Life of Logistics*, 13.

network."[29] By virtue of their smallness, concomitant flexibility, and pervasiveness in every commutable landscape, trucks punctuate the banality of the road as daily encounters with the systems of global distribution. Trucking is, in effect, paradigmatic of the everydayness of logistics.

Most importantly, however, containerization changed the size of the world – figuratively, at least. Truck simulators, accordingly, reify its figurative miniaturization, or what has otherwise been termed as space-time compression. By virtue of its standardization, optimized modularity, and intermodality, the container has occasioned the project of containerization, an organizational regime that has created a figuratively smaller and faster world. "It seems safe to say," Edna Bonacich and Jake Wilson note, "that containerization was a prerequisite to global production and that, without it, globalization would have been immensely slowed down. Containerization allowed a vast increase in the speed with which cargo could be moved from one corner of the earth to another."[30]

Euro Truck Simulator 2 and *American Truck Simulator* epitomize the figuration of a smaller world concomitant with the process of containerization. SCS Software's simulated European mainland and American West Coast are miniaturized versions of geography, roughly 20 times smaller conforming to the games' 1:20 world scale. Far from a *realistic* 1:1 world scale, the games nonetheless capture the logic of a world condensed under the logistical regime of global transportation services. It is not *realistic* to freight cargo from Zurich to Prague in under 30 minutes, much less from Fresno to San Francisco in under 15. Yet simulators, as I have shown, operate according to the abstractive apparatus of capital independent (although not entirely separate from) paradigms of realism under capitalism. The compressed figuration of geography is precisely what Fisher has termed *capitalist realism*, which I have previously associated with games of production and the abstractive apparatus of simulation in general. The logic of global capitalism, in which technological advances in computerization and automated control have created virtually seamless systems of circulation, is the order of reality that trucking simulators conform to. In her work, Cowen injects nuance in the idealized and phantasmic 'small' world of capital: "the seamless global circulation of stuff is a project, not a reality, but it is nevertheless a project with definite effects."[31] As container games, ultimately, truck simulators effectively sustain that very project of

[29] LeCavalier, *Rule of Logistics*, 18.
[30] Bonacich and Wilson, *Getting the Goods*, 50-1.
[31] Cowen, *Deadly Life of Logistics*, 90.

seamlessness and compression by concretizing the fabrication of a smaller world propagated by global capitalism.

Trucker Time

The cultural zeitgeist of 'freedom' is virtually inseparable from trucking as an industry. As I will show, the surmised liberty of the trucker is not only spatial (e.g. the highway's endless horizon) but equally manifests temporally. In this section, I parse selections of trucking industry recruitment literature into three premises that shore up its ideological mechanisms; these premises betray the industry's tendency towards casualizing labor, and culminate in the formation of what Sarah Sharma has termed, *trucker time*.[32] Truckers – whether in reality or in conjured fictions – find freedom from the captivity of other forms of work: "Trucking appeals to a lot of people who have wanderlust...for someone who spent a life cooped up in an office, the open road has an intoxicating appeal."[33] Transportation services rely on the continual movement of the working subject *by definition*. Yet the trucking industry, which is one of the deadliest occupations in North America, has managed to salvage its image in self-representing as an ideological formulation of *freedom* concomitant with an escape from sedentary forms of work and moreover, the regimented temporal order of work altogether.[34] The ideological discourses and strategies resulting in this trucking ethos characterize the logistical labor of trucking as (1) *time off from your normal job*, (2) *getting paid to travel,* and (3) *freedom and autonomy.* Truck simulators, I will then argue, concretize these ideological discourses in myriad ways; at the same time, they nonetheless afford crucial optics that put the order of logistics into much needed perspective.

Trucking is 'time off' from your normal job. 'Quit your boring dayjob' is a refrain in truck industry recruitment literature. This tenet is concomitant with those that follow, as the trucker's autonomy is often positioned *contra* the figurative imprisonment of other careers. In their recruitment effort, a Canadian driving school describes the positionality of trucking *outside* familiar structures of labor, and begins by plainly asking,

[32] Sharma coins the term in her conference paper, "The Accoutrements of Time-Management," and later expands on the temporal order of trucking and other forms of labor in "Speed Traps and the Temporal."
[33] Joe Rajkovacz, director of governmental affairs and communications for the Western States Trucking Association in Upland, California, quoted in Rafter, "Becoming A Truck Driver For Your Second Career."
[34] Rafter, "Trucking Remains One of the Nation's Deadliest Jobs."

> Tired of working the nine-to-five rat race?...Being a trucker comes with a sense of adventure and freedom unlike no other profession out there…As a truck driver you get a sense of independence as you enjoy the freedom of not being trapped in an office cubicle, your office is out the windshield of your truck. You also don't have to worry about someone watching over your shoulder micro-managing every aspect of your job."[35]

Another driving school effectively compares the transportation industry to the sites of production akin to the simulators of the previous chapter, claiming "The freedom of the road is something that just cannot be experienced working in an office or on a factory floor."[36] Trucking is evidently not your regular sedentary day job; it is, therefore, time off.

Trucking is getting paid to travel. This tenet of trucking is variously termed among trucking schools, but often manifests in recruitment literature evoking the tonalities of travel brochures more so than career-oriented guidelines. One such institution promises aspiring truckers the opportunity "to see parts of the country that some could only dream of…from the Maritimes to the Rockies from the North to the South you will have the chance to see some of the amazing scenery that different parts of North America has to offer."[37] In the European context, the discourse is the same: trucking provides "Freedom to Travel…Long-distance driving is the ideal career for someone who wants to see Europe while working."[38] Another simply asks, "Dreams of Taking the Open Road?"[39] Trucking is recurrently articulated as the de facto *dream job* to realize yet-unfulfilled travel ambitions, which other career paths often cannot afford its workers:

> While making a living will always be a crucial part of adult life, we all have priorities that we need to make room for: time to travel, opportunities to pursue life-giving passions and hobbies, and so on...In the trucking industry, drivers are able to work and pursue dreams at the same time, like traveling across the country. Not many industries allow you to see the country *and* get paid to work at the same time!"[40]

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[35] Truckers Training Canada, "Why Become a Truck Driver in Canada."
[36] Specialized HVG, "HVG."
[37] Truckers Training Canada, "Why Become a Truck Driver in Canada."
[38] Specialized HVG, "HVG."
[39] http://www.americatruckdriving.com/.
[40] America Truck Driving School, "Are you Ready for a New Career?"

Trucker time necessarily affords the trucker *time* to do what their 'normal' job does not – namely, see the world – while nonetheless getting paid.

Truckers are free, autonomous. Autonomy is perhaps the most championed benefit of trucking. In an interview with the *New York Times*, trucker Daniel McMillan describes the best part of his job, "Freedom. Oh my God. I cannot tell you."[41] The mythos of the trucker's freedom characterizes not only the fabricated spirit of mobility, but the very fantasy of biopolitical control over oneself. On top of promising "You'll never be unemployed," despite the increased precarization of the transportation industry, a trucking school claims, "You want to take a break, you take a break. Want to listen to your favourite music at full volume? No problem. Hate wearing the same uniform day after day? Awesome. You get to wear real clothes on the road."[42] Evidently, the prospect of emancipation from alienating structures of labor under regimes of productivity in the current stage of capitalism has also given way to a fantasy of being one's own boss: "If you crave independence at work, you'll like truck driving. Out on the road, *you're the boss*," a Canadian driving school writes.[43] Despite the celebrated autonomy of trucking shored up by the industry literature, we are in fact plainly told that trucker time is time alone – beyond the ideological mechanisms at work in these networks of recruitment, this is a basic and severely neglected truth.

In the logistical circuits of global capitalism, trucking operates within the cycles of just-in-time production, and the vast network of interdependent operators who labor – in the best case scenario – in perfect synchrony. Like a well-oiled machine, the cycles of capital only run as smoothly as the capability of its operators to remain *on time*. Trucker time therefore not only articulates the fantasy of being an independent worker in control of one's own time, it also accurately describes a temporal labor that is entirely organized to sustain the timeliness of others. As Sharma has sharply attended to the unique temporal order of mobile workers, "All of these rituals to stay in time at the truck stop, the department office and the taxicab, are also technologies of the self by those whose labor is oriented to the maintenance of life/reproduction of time for others...The taxi driver, truck driver, and office assistant are the human infrastructure for more privileged tempos."[44]

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[41] Gabriel, "Alone on the Open Road."
[42] Tri-County Truck, "10 Strong Reasons To Consider Becoming A Truck Driver."
[43] Tri-County Truck, "10 Strong Reasons To Consider Becoming A Truck Driver."
[44] Sharma, "Speed Traps and the Temporal," 147-8.

Simulating Trucker Time

Now that we are caught up to speed with trucker time – a term which I am indebted to Sharma for coining and, more generally, her acute attention to the complex entanglements of temporality and labor in her book, *In the Meantime* – we can tend to truck simulators vis-à-vis the fantasies of autonomy and temporality shored up by the industry's recruitment literature. Virtual trucking, by way of the simulational apparatus deployed in rendering the transportation industry playable, affords players the opportunity of career-hopping, so to speak. Truck simulators, in this way, allow players to take figurative 'time off' from the paces of everyday life and relax in the snail-paced seat of a big rig, but only inasmuch as career tourism is a desire to begin with. In this section, I look more closely at how truck simulators constitute a temporal order paradigmatic of trucker time.

Trucking games capitalize on the surmised voyage entailed by logistical labor in the circulation of global capitalism. As *Euro Truck Simulator 2*'s official website declares, the games affords players "the chance to become a real truck driver from the comfort of your home!"[45] On this page, we accordingly find the slogan, "Truckers Wanted," and the promise that the game's detailed landscapes "will make anyone feel as they are traversing across the continent with its ever changing vistas."[46] The American iteration of SCS Software's truck simulators echoes the highwayman fantasy of traveling for work: "*American Truck Simulator* will take you on a journey throughout the vast landscapes full of breathtaking and iconic landmarks of North America."[47] Simulations of trucking therefore oscillate between the registers of career-hopping and virtual tourism in the same way the industry proper casualizes the labor of logistics as a means of vacationing, to put it bluntly.

Truck simulators effectively manufacture the sense of adventure and discovery associated with the trucker. Upon starting either game, every simulated city in the European and American geography remains uncharted. Only by taking jobs starting in one's chosen location can players visit and 'discover' neighboring cities. Yet in the context of global systems of logistics that has left virtually "no place on Earth untouched," the act of discovery associated with trucking remains a fiction imparted by the industry's own ideological discourse.[48] In *Euro Truck Simulator 2,* I must

[45] https://eurotrucksimulator2.com/
[46] https://eurotrucksimulator2.com/
[47] https://americantrucksimulator.com/.
[48] Klose, *Container Principle*, 4.

'discover' Rotterdam even though my starting garage may be situated at a stone's throw away in Amsterdam – the same logic arises in *American Truck Simulator*'s West-Coast frontier. The games' conspicuously empty maps fulfill the mythology associated with trucking as an adventure or act of conquest. Truck simulators fabricate the fantasy of a yet uncharted world; by travelling 100% of the simulated road, players can realize the project of discovery and adventure betrayed portrayed by the industry's recruitment efforts, culminating in the triumph of *knowing* every inch of road.[49]

The supposed benefit of working without the visible hand of managerial monitoring while trucking, as cited earlier, is effectively undercut by the *remote* imposition of control. The trucker's "spatial freedom of movement and flexibility," as Klose writes, "was paired directly with an intensification of the control of movement."[50] The computerization of logistical flows allows data to be processed virtually instantaneously and movements tracked remotely through Electronic Logging Devices (ELDs), to the chagrin of truckers at large. The device, which is required by the Code of Federal Regulations and Department of Transportation in the U.S., keeps track of date, time, geographic location, engine hours, vehicle mileage, etc. – accordingly, "Drivers say they don't want to be digitally tracked."[51] Similarly, SCS Software maintains its own trucking database, *World of Trucks,* which collects the data of virtual drivers according to similar metrics (time played, mileage, expenses, etc.).

The container standard issued the figurative concretization of seas into highways, and the liquefaction of roads into channels flooded with goods. As Levinson and Klose respectively note, "the major ocean routes had become the floating highways" that accompanied roads, which were conversely "made liquid, and territories are inundated with global currents: of goods, people, money, ideas, and belief systems."[52] Yet the clockwork systems of transportation systems upsets the surmised liquidity of roads; in actuality, fleets of trucks "operate on predictable and stable

[49] In his meeting with truck industry CEOs and drivers, Donald Trump betrays an imagination of trucking shored up by the same ideological frameworks of seamlessness and totalizing scope of global logistics: "no one knows America like truckers know America. You see it every day, and you see every hill, and you see every valley, and you see every pothole in our roads that have to be redone. Every town, every forest, from border to border, from ocean to ocean…it's true. And you love America, and you love the spirit, and we love your spirit." "Trump: 'America depends' on truck drivers."
[50] Klose, *Container Principle*, 166.
[51] Electronic Code of Federal Regulations, "Part 395: Hours of Service of Drivers"; Hawes, "Truck Drivers List Top 10 Peeves in the Industry."
[52] Levinson, *The Box*, 321; Klose, *Container Principle*, 100.

circuits."[53] These trucking circuits are in fact hardwired and heavily regulated channels of circulation, incidentally resembling the very 'rat-race' of logistics that trucking recruitment literature rebuffs, and the same inflexibility of the railway trucks supposedly compensate for. The expansion and optimization of transportation services discursively *liquefy* roads into free flowing canals of commerce (as the logic of containerization and global logistics surmise), while in reality these channels may best be described not as liquid seas, but in terms of calcification and control, *corridors*. As Cowen charts "a new cartography of the political," she finds that the systems of globalization and logistics catalyze "the creation of corridors, networks, or 'pipelines' for the circulation of stuff."[54] The circuits of capital, which we have traced thus far from farms and factories to roads flooded with trucks, concretize in the circuitry of transportation networks and systems of control.

Undercutting the trucking mythos of individual freedom, *Euro Truck Simulator 2* and *American Truck Simulator* simulate the regulation and imposition of control on mobility that pervades the actual industry, *contra* the surmised autonomy shored up by the recruitment literature. In these games, job contracts are the primary means by which players navigate the world with purpose; yet these routes are optimally prescribed and rarely offer deviation from the critical path – concretizing the organizational paradigm of trade *corridors* Cowen describes. If one chooses to deviate from the optimal route, the simulators' heavily redacted networks of highways and paved roads often provide a single alternative path, if any. In effect, simulation sees the vast matrix of interconnected roads and highways subsumed into select trade corridors, or 'pipelines,' nonetheless framed under the rhetorical guise of the 'open road.' The circuitry of global capitalism's systems of transportation evidently share less with the liquidity of the sea, and more with the steadfast predictability of the conveyor belt or rail system. While the figurative miniaturization of the world under the organizational regime of containerization holds true, in a sense, truck simulators effectively abstract the surmised freedom and fluidity of trucking by way concretizing the circuitry of transportation systems. Games of transportation, then, ultimately reify the systematic control exerted upon the labor of logistics.

[53] LeCavalier, *Rule of Logistics*, 100.
[54] Cowen, *Deadly Life of Logsitics*, 62.

Slow Drive

The contradictions of temporality and mobility, of autonomy and control, culminate in what I have theorized under the rubric of what Sharma has termed *trucker time*. The longstanding cultural legacy of the trucker effectively casualizes the labor that sustains the networks of transportation in global capitalism. Industry recruitment literature and similar jargon woven into simulated trucking constitute an alternative temporal order. Trucker time, as we have seen, is time off, time to travel while getting paid, and crucially, time alone. Despite the fact that truck simulators might crystallize or undermine the tendencies of either 'real' trucking or the phantasmic trucker shored up recruitment literature, the games nonetheless epitomize the formation of a temporal order *different* from the pace of everyday life and more importantly, one that also undercuts the surmised speed of logistics.

Cycles of production and transportation continuously accelerate according to the perpetual optimizations of the supply chain. Meanwhile, the temporality of simulated trucking testifies to a different order of logistics. The supposed speed of global logistics, which has been celebrated and sustained by the project of containerization, fails to reconcile the frictions and slowness that are characteristic to trucking; the formation of 'trucker time' is a result of these incompatibilities. Trucker time may be an ideological project of casualization on the part of recruitment literature, but at the same time, trucker time puts the temporal order of logistics into perspective. Trucker time, in short, is logistics seen in all its slow moving parts, from the ground up.

The temporal order of trucking, understood in this framework and through simulation, is the markedly slow counterpoint to the accelerating pace of every day life. Indeed, truck simulators operate on a temporal scale that upsets the speed and compression of logistics, betrayed by the desires of players for increased slowness. Although the games reify the time-space compression of contemporary capitalism with its miniaturized geography, SCS Software adjusts the scale of simulated landscapes to dilate the time of logistics, manifesting the slowness of trucker time. The developers notes in an announcement,

> We are, as a free future update, going to increase the scale of the game world of *American Truck Simulator*. This update will have many clear benefits for you, such as:
>
> - Upping the map scale from 1:35 to 1:20, meaning 75% longer roads outside the cities…

- Focusing on a better sense of scale and distance, more space for larger vistas.
- Adjusting the timescale – meaning a slower day/night cycle and longer intervals between when the driver needs to rest and refuel.[55]

The "rescale" betrays a demonstrable desire for the simulation of a slower, longer order of logistics. While the simulated drive from Fresno to San Francisco might still take a fraction of the time an actual trucker needs to complete the same journey – thus reifying figurative smallness of the world under organizing regimes of global trade – *Euro Truck Simulator 2* and *American Truck Simulator* are not necessarily games of swift rapidity. Instead, as I have mentioned previously, they are undoubtedly slow, contemplative. According to the dominant discourse of the games' general reception, they are also uniquely relaxing. One only needs to make the simulated nighttime cruise through the long stretches of empty European motorway while drifting to the calming pitter-patter of rain and the hypnotic swish of semi-truck windshield wipers to understand the captivating tranquility and placid uneventfulness of truck simulations – *now you're on trucker time.*

The slow quietude of truck simulators exceeds description, yet the immutable charm of trucker time is palpable. In their review, a user comments on the tacit peculiarity of simulated trucking:

> Most of my friends would look at me playing *Euro Truck Simulator* and say 'Why would you play that boring game??' The thing about this game is that it is so relaxing, but at the same time very enjoyable. Think about coming home from a tough day at work or school, just depressed or tired. Just hop in your truck, turn on the radio, and diseapear [sic] into the land of the calm.[56]

Another writes, "This game is meditation. The thought-cleansing effect of driving a thousand kilometers along the highway cannot be understated…An alternative title for this game could be 'Zen and the Art of Logistics.'"[57] Celebrating the game's "natural momentum" while also appreciating its "innate randomness," video game critic Tim Stone's commentary echoes the refrain of *Euro Truck Simulator 2*'s reception: "Dynamic job offers, ever-changing traffic flows, and thousands of miles of hand-crafted tarmac are the ever-present rumble strips that keep Zen-like relaxation from turning into bleary-eyed boredom."[58] In user reviews and commentaries at

[55] SCS Software Blog, "The Rescale."
[56] "TASTYWORKS" user review of *Euro Truck Simulator 2*, Steam.
[57] "Boy" user review of *Euro Truck Simulator 2*, Steam.
[58] Stone, "The Sim of the Year 2012."

large, "relaxing" remains a recurrent descriptor of trucking games, which effectively captures the culture of leisure embedded within the labor of logistics shored up by the industry recruitment literature and the formation of 'trucker time.' Simulated trucking fulfills the temporal order of trucker time by reifying the out-of-joint temporality of 'time-off' while nonetheless subjectivizing players as autonomous entrepreneurs, putting the temporality of logistics into slow gear, and in the process, throwing the surmised speed of circulation in global capitalism into much needed perspective. By conceiving of the world as smaller but the temporal order of trucking as slower, truck simulators reify the organizational paradigms of logistics in global capitalism and importantly put them into sharp relief at the same time.

Multiplayer Interrupt

Euro Truck Simulator 2 and *American Truck Simulator* simulate the placid motorways and relaxing solitude of trucking – the pervasive mythos of the "road warrior" persists, in the words of Sharma, "in the sense of being solitary, self-sufficient, and independent."[59] Yet that independence and freedom, which emerges from the industry's recruitment discourse and simulational apparatus, inspires freedom and autonomy in one sense, and loneliness in another. Regulations specific to North America set limits on hours driven per day, but none specify an upper limit of time 'out,' which is particularly germane to the experience of Over The Road (OTR) drivers who execute longer hauls.[60] The out-of-joint temporal order of trucking and regime of mobility necessarily result in growing chasms in the social order. These truckers – and just as, if not more importantly, 'trucker spouses' – frequently lament the attrition of loneliness on the road or at home.[61] Loneliness figures infrequently, if at all, in accounts of logistics and global capitalism, yet understanding the labor of logistics as lonely work is necessary to subvert the narratives of neoliberal subjectivation concomitant with self-redeeming axioms of entrepreneurial time management ('truckers control their time') and the regime of productivity conditional on mobility ('truckers are free').[62]

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[59] Sharma, *In the Meantime*, 74.
[60] Electronic Code of Federal Regulations, "Part 395: Hours of Service of Drivers."
[61] Life as a Trucker, "Trucker Wives." Some truckers take their children or spouses along for the longer hauls, effectively perverting the meaning of a family roadtrip (found, once again, in trucking recruitment websites): Tully, "Truck Driving with Children Passengers." Dating sites dedicated to matchmaking truckers have equally cornered a market.
[62] In "Speed Traps and the Temporal," Sharma argues that the fantasy of being in control of one's time is actually a collective effort; invoking the management-side of time control, she writes, "One's relationship

In order to recuperate sociality from the solitude of trucking, a multiplayer modification of *Euro Truck Simulator 2* and *American Truck Simulator* entitled *TruckersMP* allows users to truck together.[63] In this scrappy and often unstable networked opportunity for encounter developed by truck simulation enthusiasts on a shoestring budget, we find a site of chaotic confluence that effectively unravels the ideological functions of trucking and praxes of efficiency in global capitalism altogether. In SCS Software's trucking simulations, there is only one player among many AI truckers and motorists. Originally developed under the moniker *ETS2MP*, *TruckersMP* maintains and allows access to multiplayer servers populated entirely by players in their respective trucks, effectively concretizing the truck-topian vision of a 'world of trucks.' The modification equally betrays a desire for an infrastructure of togetherness and community built into the game itself. On these servers, players take contract jobs or simply cruise the simulated landscapes. In other words, business should continue as usual – except with other players. And yet the confluence of virtual truckers results in an inalienable sense of togetherness that upsets the otherwise alienating solitude of logistical labor – whether chance encounters on the road, spontaneous truck convoys, or in the pandemonium of a 100+ player traffic jam.

Multiplayer trucking subverts the insularity and social chasms characteristic to the nomadic labor – the paradigmatic contradiction of a system of global logistics that presumes the instantaneous proximity of persons and objects. I suggest we take this modification as an inevitable mutation of the game's code once entered in the hands of players; *TruckersMP* is an expression of desire for togetherness – to be alone, together. And by this, I do not mean to associate 'trucking together' with the contempt of how technologies shape sociality – thinking here of Sherry Turkle's *Alone Together* – but rather something less reactionary, and far more subversive. I understand the multiplayer as a means of trucking towards the formation of a radical proximity that effectively destabilizes the surmised seamlessness of logistics by virtue of reorienting players *towards each other* rather than the end-goals of transportation in the circuits of global capitalism. On the one hand, multiplayer trucking upsets the determinism of movement in logistical labor – players move not according to the imposed circuits of the supply chain, but are rather driven by a manifest desire for assembly. On the other hand, by virtue of assembling in great numbers in the simulated

to the temporal order of things, the value of their time, can be rendered visible by how time is strategically managed and controlled" (148).

[63] https://truckersmp.com/.

landscapes of Europe or West Coast America, virtual truckers upset the very seamlessness of public infrastructure that should sustain the seamless flows of capitalism. Moreover, the multiplayer networks hacked into the game simply cannot sustain the congregation of many players; the result are ruptures in the seamless order of connectivity that often manifests in desynchronization.

Driving across simulated Europe or American West-Coast alongside as many as four thousand other players simultaneously trucking destabilizes the order of *Euro Truck Simulator 2* and *American Truck Simulator*.[64] Whereas the games operate towards a bottom line of profitability and entrepreneurial mobility, the multiplayer modification situates the emergence and disruptive potentialities of confluence at the center of the trucking experience. That is to say, the delivery windows and routes prescribed by job contracts are continually undercut by the captivating unpredictability of other truckers – to exchange brief words over CB radio while overtaking another trucker or eavesdrop on radio chatter, deliberately follow others on *their* routes, or purposely enter into standstills on congested motorways. The cartographies players chart on their respective journeys, then, are not of delivery destinations, but rather of the unpredictable coordinates that emerge from other players. That inalienable sense of togetherness – or at least, a potentiality of encounter – is not one of collaboration or collective productivity synergizing the mobility of multiple truckers in the continuum of logistics. It is, instead, one of disruption, voluntary sabotage of one's trucking operation, and resolute counterproductivity (see figure 2.3).

When SCS Software's world of trucks opens up to the potentialities of the many, players subvert the paradigms of logistics that reinforce the phantasmic seamlessness and liquefaction of transportation; in many ways, multiplayer allows truckers to throw roadblocks in the way of global capitalism. Due to the high number of simultaneous players on simulated roads designed for a single human truck operator, virtually every city and most-travelled highway intersection is congested with human truckers. Moreover, the network instability of servers run by independent modders (financially supported and mainly through donations from fans) troubles the continuous flows of both simulated capital and smooth trucking: the more players gather in the same area by crowding narrow city streets or highways, the more strain is put on the server's network infrastructure to support synchronicity between truckers. By 'overloading' the game's multiplayer

[64] TruckersMP, "Stats."

servers, so to speak, players will experience desychronization between each other: high latency between players may cause unpredictable and abrupt movement or teleportation between trucks (a common phenomenon of elasticity in networked games appropriately termed, “rubberbanding”) or the game crashing altogether. By interfering with the steady flows of circulation, the multiplayer modded into truck simulators creates traffic jams where the movement of things in the circuits of capitalism should be seamless, it invites distraction where trade corridors are not to be veered from, and provides company where the labor of logistics is lonely.

Fig. 2.3: Multiplayer Trucking and Counter-Logistics. In *TruckersMP*, players often assemble in cities, ports, or intersections that result in manifest interruptions of the flows of capital. These moments constitute a dimension of play in themselves, but reflect the crises of labor in the transportation industry at large (Steam screenshot).

Pile ups, traffic jams, malfeasant drivers crashing into oncoming trucks – these common occurrences concretely interrupt the simulated flows of capital, and reflect crises of labor in the transportation industry at large. In this passage, Cowen illustrates how such disruptions are inherent to the supply chain reaching critical mass, and make the global systems of logistics come to a standstill:

> Disruption marks the interruption of normal life. The problem of disruption in a world built on fast flows takes on epic proportions; the reliance on speed combines with the interconnectivity of supply chains to propel disruption in one seemingly discrete locale to system-wide crisis. Typically, in the world of globalized logistics, disruption means that flows of stuff stop.[65]

Within the circuitive cycles of capitalism we equally find cycles of struggle, where such instances halt the flows of logistics. The terrain surmised as 'liquid' and 'seamless' that truckers traverse is necessarily a terrain of struggle, too. On this ground, we find the potential within labors of logistics for an emancipatory politics of interruption. As Cowen recalls a quote from Jo Ann Wypijewski, "The people who move the world can also stop it."[66] The waves of protests from Brazilian truckers opposing exorbitant fuel prices is but one recent example of this basic truth: in May of 2018, truckers formed blockades on highways, seizing the public infrastructure that sustains the flows of capital through an organized gridlock.[67] From a systems-based view, the multiplayer mode hacked into *Euro Truck Simulator 2* and *American Truck Simulator* expresses a perennial desire for togetherness that troubles the solitude imposed upon the labor of trucking. The resulting gridlocks that inevitably disrupt the simulated flows of capital reflect the crises and radical potentials of interruption that truckers in the real world have and continue to mobilize towards. The frequent acts of self-sabotage and distraction in *TruckersMP* express the potentialities of crisis in the cycles of transportation, concretizing the tacit struggle of labor in systems of logistics. By reorienting their bearings towards each other in the multiplayer of truck simulators, virtual truckers ultimately resist the flows of stuff in the cycles of global capitalism, and chart unpredictable vectors that upset the controlled and calcified circuitry of logistics.

Conclusion: On Rest and Restoration

Simulators of production and circulation operate at the intersection of work and play. As systemic texts, they reify the logic and structuring principles of capitalism in myriad ways. Throughout this intervention, I have endeavored to situate simulation video games alongside the regime of continuous productivity; the social factory, as it has been termed by Autonomists, is the

[65] Cowen, *Deadly Life of Logistics*, 96.
[66] Jo Ann Wypijewski, speaking at the 2010 Dockworkers conference in Charleston, quoted in Cowen, *Deadly Life of Logistics,* 126.
[67] Mano and Alerigi, "Brazil truckers pledge more fuel protests despite tax proposal."

condition wherein conditions of productivity extend beyond the factory walls and subsume the entirety of the social order. Simulators, accordingly, ensure the constitution of that same logic in the virtual worlds and culture of video game through the apparatus of simulation – the virtual factory, so to speak. *Euro Truck Simulator 2* and *American Truck Simulator* crystallize the continuity of productivity as a regime of perpetual mobility – simulating a trucker always on the road, and therefore, always working.

As we have seen, the transportation industry is built on the paradigms of speed and efficiency shored up by the project of containerization, otherwise termed the shipping revolution, which sought to standardize the modularity of transportation systems. The container has sustained this project, and has come to epitomize the seamlessness and compression of global capitalism. By recategorizing truck simulators as container games, we have equally seen how such games reify the figurative miniaturization of the world under the organizational regime of the ubiquitous corrugated steel box. Surveying the trucking industry recruitment literature equally allowed us to interrogate the ideological mechanisms that continuously casualize the labor of logistics. The resulting theorization of *trucker time* then afforded us a means of conceptualizing the imagined temporal order of trucking as an ideological device – trucker time is time off work, a paid vacation, etc. But trucker time, as we have seen, also provides a way of thinking against the speed of logistics. As evinced by the desire for a slower truck simulation, trucker time also manifests slowly, in fits and starts, in gas stations and traffic jams, *contra* the surmised speed and seamlessness of logistics.

Truck simulators, incidentally, trade in some of the myths propped up by the recruitment literature and the casual exploratory order of trucker time, but they also provide critical optics that throw the phantasmic autonomy of the trucker into sharp relief. This, finally, has been demonstrated through the multiplayer mode hacked into *Euro Truck Simulator 2* and *American Truck Simulator*. Trucking together upsets the paradigmatic solitude of trucking; multiplayer remains a site of counter-productivity that affords the radical reorientation of logistical labor by desynchronizing players from otherwise stable pipelines and directing them, instead, towards each other.

Yet the cycles of capitalism, and circuits of transportation within them, necessitate a space and time for workers to repair. Despite the fact that the logistical labor of trucking is continuously characterized as time off, a trucker's time is nonetheless heavily regulated and a contested

resource.[68] Although the nomadic fantasy of the highway wanderer may suggest otherwise, the temporality of trucking operates according to a systematically organized network of control monitored by electronic logging devices and policed by strict regulations that are markedly anti-human: truckers must constantly contort their sleep schedule in compliance with the clockwork of logistics, which unlike the human metabolism, operates at maximum capacity, uninterrupted, 24/7. In the sites of production and circulation, sleep is often instrumentalized as a restorative function of capital, and reified as a resource in the practices of time management. It remains a necessary act of restoration and repair that ensures capital's reproduction, following in theorizations of the 'social factory' termed by Autonomists. Meanwhile, the regimes of continuous productivity and further precarization of labor suggests that there is generally less time for such acts of repair, or otherwise, "an expectation that certain bodies recalibrate to the time of others as a significant condition of their labor"[69] – and, indeed, recalibrate to the temporal order of capital's circuits altogether. The regulations regarding the profitable distribution of sleep hours for truckers, for example, are routinely imposed according to the imperatives of logistical clockwork and flows of global capitalism, rather than the biological need for sleep itself. Truck simulators accordingly reify the systematization of sleep. As I have previously mentioned, truck simulators incorporate sleep as a resource, much like fuel. If virtual truckers fail to properly manage the systems of resource depletion, their avatar begins to get drowsy and intermittently faint – vision blurs, gets darker, then totally blacks out for a moment, during which players lose control of the truck. Much like the *TruckersMP* multiplayer modification allows for a counter-logistical reorientation of players, simulated sleep becomes the site of a radical politics of reclamation. As Crary comments, "the restorative inertness of sleep counters the deathliness of all the accumulation, financialization, and waste that have devastated anything once held in common."[70] To keep on trucking despite the signals of over-exhaustion, to refuse to stop playing in spite of the systematization of sleep, to engage in the most radical gesture that disrupts the flows of capitalism and upset the perpetual functioning of logistics is, ultimately, to simply do nothing, but fall asleep at the wheel.

[68] According to the Code of Federal Regulations, truck drivers may only drive a total of 11 hours during a 14 hour period, taking a 30 minute break in the first 8 hours of service, and subsequently rest for 10 consecutive hours. Electronic Code of Federal Regulations, "Part 395: Hours of Service of Drivers."
[69] Sharma, *In the Meantime*, 132.
[70] Crary, *24/7*, 128.

Conclusion

To say that digital games are deeply embedded in global capitalism is an understatement…
Like all such commodities, games come at a price.

- Dyer-Witheford and de Peuter, *Games of Empire*.[1]

In games such as *Stardew Valley* and *Factorio*, I have aligned the formation of a transcendental managerial subject position with regimes of optimization in the privileged sites of production. From the farm of factory, this project then followed the flows of capital to where those products are put in motion on the public infrastructure constituted of dirt, concrete, and asphalt that truckers navigate – seeing the movements and temporal order of logistics from the ground up in the truck simulation games developed by SCS Software, *Euro Truck Simulator 2* and *American Truck Simulator*. To complete the circuit of capitalism, it is equally necessary to tend to the site of capital's reproduction – where workers rest and repair. That is to say, we have moved through the first two moments in the circuits of capitalism – production as industry, circulation as industry – and end in the third, consumption as industry. The site of repair that acutely captures the paradigms of rationalization and seamlessness – shored up, elsewhere, in cycles of production and circulation – remains fast food. That is to say, the final stop in our effort to trace the circuit of capitalism are precisely the places truckers often frequent. As Sharma has noticed, trucking shares a symbiotic relationship to fast food establishments; in truck stops, truckers "are there to refuel the body and the tank while not wasting too much time. Oil changes and haircuts take about the same amount of time. The food options are fast."[2] More generally, Ben Agger claims in *Speeding Up Fast Capitalism*, "Fast food appeals not only to people on the run, and on route, but also to people who seek standardization, captured in theming, in a world that is jumbled and chaotic."[3] Closing the loop on the simulated circuits of capitalism, this project accordingly ends with what is perhaps the most peculiar game addressed thus far: the virtual reality kitchen of the iconic Kentucky Fried Chicken, rendered playable in *The Hard Way: A KFC Virtual Reality Escape Room*.

Yet this conclusion is not an opportunity to triple-down on the formula employed throughout this thesis. In effect, taking into consideration a virtual reality game developed by a massive fast food corporation (and ostensibly *for* itself, as we will see) troubles the very insularity

[1] Dyer-Witheford, *Games of Empire*, 222.
[2] Sharma, "Speed Traps and the Temporal," 144.
[3] Agger, *Speeding Up Fast Capitalism*, 114.

with which I have previously approached simulators as interactive texts. Placing such games in conversation with the paradigms and structuring principles of capitalism has offered ground to make claims about simulation through interpretive analysis of its systemic logic. In other words, this project has neglected that digital games are products of highly technologized and equally precarious work in the field of media concomitant with as many crises of labor as the industries they simulate. Placing simulators properly *within* the circuit of capitalism – as opposed to reifying its structuring principles – establishes a move from the interpretative work addressing labor *in* games to the structures of production that sustain the development and communicative efforts strategized *through* games.

The question that has guided this project – why do we play hard work? – also lends itself to alternative approaches. Instead of starting from the games in themselves, from how players interact with the systems and logics of capitalism reified in the simulator, a project concerned with the media industry that sustains the development of that simulated labor would instead pay "equal if not more attention to corporate structure and the economic organization of that productive labor," as Derek Johnson notes in *Media Franchising.*[4] Indeed, the paradigm of media franchising takes an even more profound meaning in relation to the networks of media production shored up by global fast food corporations. As a matter of fact, KFC's virtual reality game helps establish through-lines from the regimes of rationalization of the Fordist factory as simulated in games of production, to the regulated clockwork of logistics seen from the ground in truck simulators. As Johnson points out, "fast food chains offer a seemingly irresistible model of rationalized culture catered to local conditions based in efficiency, calculability, predictability, and control over consumers, workers, and managers alike."[5] That *The Hard Way* comes from the intersection of the digital games and fast food sectors therefore necessitates that we broaden the scope of this project to account for the logics of production and circulation at the level of corporate structure and power in the media industry. As Aphra Kerr writes in *Global Games*, "Identifying the core production logics in the digital game industry…also allows us to identify new axes of control and power within production networks – whether it is the developer/publisher nexus in the editorial logic or the rise of new intermediaries in the platform logic"[6] – or the entry of a fast food corporation into

[4] Johnson, *Media Franchising,* 33.
[5] Johnson, *Media Franchising*, 33.
[6] Kerr, *Global Games*, 17.

the sphere of digital games, as is the case here. Concluding with the curious case of *The Hard Way*'s simulation of fried chicken, I hope to not only close the loop on the simulated circuit of capitalism, but also gesture towards possible continuities between the analysis of labor simulations undertaken in this thesis and the concerns and methodological frameworks of work on media industries.

Closing the Circuit

In August of 2017, *The Hard Way* was released for free on the Oculus Rift virtual reality game marketplace. Wearing their rift headsets, users are guided through the various steps in preparing KFC's signature dish *the hard way*, meaning by hand – albeit through virtual appendages as simulated by the handheld controllers. Players are instructed on how to execute the motions of chicken preparation, which include inspecting the chicken, giving it a rinse, breading it *by hand*, placing the chicken on a rack and then in the trademark pressure fryer. The simulation ends with players receiving a certificate of completion in a virtual KFC employee resting area, where a television replays the training sequence. Herein are nested simulations, amplified by the apparatus of virtual reality: a first order of simulation being the virtualization of the employee break room, the second is to be found in the implied immersion of the televised training program.[7] The process of cooking KFC's original recipe chicken from start to finish, which allegedly takes about 25 minutes in actual kitchens, is learned through simulation in under ten.

A textual or interpretive analysis, as I have previously deployed, would further expand upon the systemic logic and gameplay mechanisms of the virtual reality chicken frying game, aligning them with the structuring principles of rationalization at the heart of the fast food industry. In this framework, we may also find an argument for or against the immersive properties of virtual reality games, or even the proposition that virtual reality constitutes a form of gaming even more proximate to *training* than other forms of simulation, which has been a topic of wide discussion and generator of equally reactionary positions lately.[8] Yet a media industries approach allows us to understand *The Hard Way* as part of a corporate project sustained by the digital games industry

[7] Curiously, this nesting conceit is also used in a Wendy's "Grill Skills" training video from 1989, but instead of using virtual reality as an instrument of immersion, the training video instrumentalizes the paradigmatic youth culture media of *its* time – MTV – with a music video/rap. "Wendy's Grill Skills 1989 training video 1 of 2," Youtube video.
[8] Bailenson, "If a possible mass shooter wants to hone his craft, don't hand him a virtual boot camp."

beyond the mere textual apparatus. In fact, the virtual reality game constitutes yet another effort in corporate branding in KFC's recent history of similar stunts – including myriad affiliations with professional wrestling (WWE), novelty food items, and most recently, a "Colonel-Shaped Pool Floatie."[9] As Kerr aptly notices, the digital games industry "is the foremost example of a frictionless post-Fordist informational and promotional capitalism."[10] *The Hard Way* is therefore uniquely positioned to capitalize on the efforts of promotion at the level of corporate capitalism.

The Hard Way is in fact part of KFC's project of *re-colonelization*. "Not to be confused with 'recolonization,'" Michal Addady of *Fortune* writes, "the term refers to KFC's efforts to refine its cooking process and ensure customers receive 'Colonel-quality' fried chicken"[11] – an effort to doing things, as the game implies, *the hard way*. Following Kerr's claim on the potency of digital games as promotional capital, KFC's game effectively tests the terrain of virtual reality for the purposes of reconceptualizing its corporate identity. *The Hard Way* is not only suggested to supplement the company's "multi-step employee training program," but also to "provide yet another platform by bringing the VR simulation technology to its regional manager training classes, quarterly franchise meetings, and employee onboarding at its headquarters."[12] As a promotional game released for free, moreover, KFC's experiment operates according to the paradigms of free-to-play games, wherein "the financial success of the game relies on player surveillance, actionable insights from data."[13] Despite the corporate messaging, the fact that only one KFC franchisee has installed virtual reality stations[14] – *for customers* – and its limited circulation beyond the consumer market, *The Hard Way* remains an object of curiosity embedded within a larger effort to reimagine the fast food corporation's identity.

KFC's *The Hard Way* and larger effort of 're-colonelization' is but another case in the long-standing tradition of industries instrumentalizing new media technologies in alignment with corporate projects. A media industries approach not only considers the industry of media, but also conceives of media within a larger set of industrial practices at the intersection of different sectors. In "The Work of Film in the Age of Fordist Mechanization," Lee Grieveson provides an early

[9] KFC Corporation, "KFC Makes A Splash."
[10] Kerr, "Placing International Media Production," 28.
[11] Addady, "KFC Is Going Through 'Re-Colonelization.'"
[12] KFC Corporation, "KFC Creates Virtual World To Train Its Real-World Cooks 'The Hard Way.'"
[13] Kerr, *Global Games*, 16.
[14] There is allegedly only one operating VR station in a Overland Park, Kansas. Castiglia, "The Re'Colonel'ization of KFC."

example of such practices by tracing the Ford Motor Company's development of film technology and formation of a visual pedagogy in the early twentieth century. In effect, what the fast food industry and early automobile manufacturing share exceeds their similar organizational regimes of scientific management. Much in the same way this virtual reality experiment is meant to demonstrate a workplace culture of authenticity and entrepreneurial fervor dedicated to doing things 'the hard way' as the iconic Colonel did, "The beginning of the use of moving pictures at Ford was directly connected to the elaboration of Fordist work practices."[15] *The Hard Way* remains a communicative effort in reconceptualizing fast food labor under a new regime of re-colonelization, similar to the how Grieveson claims Ford's development of cinematic technology was a means to "articulate new positions about work, industry, and citizenship inside and outside factories."[16]

The first chapter of this thesis has already explored aspects of the abstractive labor process in factories, wherein the managerial imposition of authority and control further alienates workers, resulting in high turnover rates, absenteeism, and mobilization of pro-union workers. Ford films were accordingly developed as "'educational' initiatives to 'Americanize' immigrant workers, 're-personalize' aspects of the workplace, and more generally shape worker attitudes and conduct with respect to the new Fordist logics of production and consumption."[17] Not incidentally, the project of re-colonelization is launched in the wake of the Fight for Fifteen movement in North-America, which mobilizes low and minimum wage workers, coming to a head in April of 2015 with the "largest protest by low-wage workers in US history."[18] *The Hard Way* cannot simulate the labor of fast food while insulated from the political movements that such workers have generated. It remains the product of an industry that intersects with myriad sectors (agricultural, industrial, cultural, etc.) strategically released to coincide with growing unrest among its low-wage workforce. KFC's virtual reality game can ultimately be understood as part of an effort to reconceptualize the working culture of fast food – to create fantasies about work, and reinvest a 'craft' and 'authenticity' into an otherwise heavily regulated and overly managed labor. Moreover, by tracing the game's circulation, which supposedly travels with restaurant managers but finds its

[15] Grieveson, "The Work of Film in the Age of Fordist Mechanization," 26.
[16] Grieveson, "The Work of Film in the Age of Fordist Mechanization," 27.
[17] Grieveson, "The Work of Film in the Age of Fordist Mechanization," 37.
[18] Greenhouse and Kasperkevic, "Fight for $15 swells into largest protest by low-wage workers in US history."

primary audience through the marketplaces of virtual reality platforms, *The Hard Way* comes into direct alignment with the consumer-facing project of re-colonelization. In short, a media industries approach can throw the logics of digital game production into sharp relief, resituating games within the axes of control of promotional capitalism – placing, for example, *The Hard Way* within an industry tradition of instrumentalizing new media as a communicative effort in the formation of new subjectivities of production and consumption. In the case of Ford, the development of film technology helped shape an industrial citizenship; in the case of KFC, the virtual reality fried chicken game is meant to familiarize potential eaters with chicken reinvented by re-colonelization, and provide a simulated look into the phantasmic fast food kitchen.

Final Remarks

The goal of this project has been to interrogate the structuring principles and logics of labor that are reified in contemporary simulation games, or labor simulators, by charting the movements of productive energies, persons, and stuff within games simulating the circuits of capitalism. The regime of continuous productivity found in farming and factory games such as *Stardew Valley* and *Factorio* capture the subjectivation of players as transcendental managerial subjects. In these games, *optimization* becomes a chief principle of play, following in the tradition of Taylorist scientific management and rationalization. Yet as the totalizing optic of managerial control suggests, simulations of production equally afford players the pleasure of regaining command over automated mechanisms that reify the paradigms of algorithmic management and contemporary conditions of casualization and precarization. We then followed the products extracted from the ground, or dropped from the edge of a conveyor belt, to where they are put in motion on land. In the intricately networked terrain of highways and public infrastructure made up of dirt, concrete and asphalt, we find truckers hauling whatever goods may be concealed within the corrugated steel walls of a container, while nonetheless subject to the clockwork systems of logistics and regimes of perpetual mobility. The trucking games developed by SCS Software, *Euro Truck Simulator 2* and *American Truck Simulator*, accordingly reify the contradictions in discourses of scale and seamlessness generated from the industries of global transportation and logistics, as well as the phantasmic culture of leisure embedded within the trucker ethos at large. In such games, however, we nonetheless find an emancipatory exit ramp that threatens to disrupt the stable circuits of circulation: networked virtual trucking in the multiplayer modification, *TruckersMP*, resituates

trucking within a social fabric of community, and effectively destabilizes the object-determinism of simulated logistical labor. Ending this project in the fast food kitchen of a virtual KFC, I have addressed the final moment in the production-circulation-consumption circuit of capitalism. With *The Hard Way*, a virtual reality game ostensibly developed for employee training purposes but digitally distributed and widely publicized to consumers, simulation has been conceived as part of a corporate project of 're-colonelization,' wherein the game articulates revised positions vis-à-vis the labor of fast food. KFC's mock training game has also provided an opportunity to gesture towards potential continuities adhering to methodologies and theoretical frameworks in the field of media industries. In this way, simulation can be understood not only as a textual apparatus resulting in a systemic logic of play, but also as part of a larger effort in promotional capitalism where the digital games industry intersects with myriad sectors – fast food and KFC's virtual reality game being only one example.

Despite having the potential to realize worlds altogether different from the paradigms and structuring principles of labor in the contemporary moment, simulators are games that situate players within the all too familiar circuits of capitalism and the mundane, sometimes boring, realities of work. The totalizing framework characteristic to the theory of reification – what Bewes calls "the most universal and the most concrete" theory, and "an inexorable and totalizing process"[19] – has also proven appropriate to describe the simulator. Indeed, the endlessly sprawling industrial infrastructure players develop in games of production such as *Factorio* reifies the Autonomist concept of social factory, concretizing a planetary order of total industrialization. As games of circulation, furthermore, truck simulators trace the flows of logistics from city to city through the circuitry of public infrastructure traversed almost exclusively by big rigs – simulating, in effect, a veritable world of trucks.

In asking why we play hard work, I have often attempted to give equal attention to the games themselves – what are their points of entry for players, how do we interact, on a very basic and experiential dimension informed by my own playthroughs, with their systems – and the yet unresolved concerns we can discern from the industries they simulate from the perspective of the worker. The Autonomist tradition, then, has afforded a means of working through the entanglements of labor and leisure concretized in the simulator, which I have positioned as the

[19] Bewes, *Reification*, xvii, 20.

paradigmatic video game form in capitalism's increasingly pervasive suffusion of every dimension of life. Yet this project has also been an effort to resist an all too simple alignment of simulation games with the total commodification of leisure previously theorized by the Frankfurt School. As Adorno and Horkeimer write in *Dialectic of Enlightenment*, "Entertainment is the prolongation of work under late capitalism…the off-duty worker can experience nothing but after images of the work process itself."[20] Simulators, as I have shown, are not purely symptomatic, nor are their players ideological dupes tricked into a simulated labor process. Instead, simulators pronounce an unlikely redemption from the structures and production of subjectivities under capitalism. Simulation games allow players to grasp and potentially undermine capital's systemic logic and structuring principles of rationalization, managerial control, casualization, and mobility by working *through* them. In one sense, the digital games industry is paradigmatic of a "planetary, militarized hypercapitalism," as Dyer-Witheford and de Peuter claim.[21] But despite this, in another sense, simulation crystallizes the possibility of exodus and emancipatory potential to challenge the paradigms of contemporary capitalism in the least likely of all places – hard work.

[20] Adorno and Horkeimer, *Dialectic of Enlightenment*, 109.
[21] Dyer-Witheford and de Peuter, *Games of Empire*, xv.

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