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The Ontology of Incremental Games: Thinking like the Computer in Frank Lantz's *Universal Paperclips*

MATTHEW SCHMALZER

"Mass media," Alexander Galloway (2006) claims, has undergone an "upheaval" (p.3). He argues that "what used to be primarily the domain of eyes and looking is now more likely that of muscles and doing" (p.3). Videogames are the catalyst of this supposed shift. Where we once inertly watched media, we now actively play them. However, during gameplay, the player is not the only one that acts; the computer does as well. The computer's software runs, acting both in response to players' actions and of its own accord. In *Super Mario Bros*. (Nintendo, 1985), for example, players' input makes Mario jump and run, but set the controller down and the enemies continue moving along their determined routes, the music continues playing, and the clock insists on ticking down. All of these actions are algorithmically determined by the computer's code and require no input from the player. The computer plays even when the player ceases interacting with it, demonstrating an agency of its own that has a very real effect on the player. If the computer's code determines that an enemy's path should intersect with Mario's, the player will likely respond by attempting to evade or attack the algorithmically generated obstacle. While the player controls the computer, the computer exercises its own agency by exerting some control over the player. The act of "gaming," as Galloway dubs it, is then co-constitutive. Neither the player nor the computer are the sole actors. Instead, both "play the video game together" (p.2) forming a cybernetic system.

This cybernetic relationship causes players to attune themselves to the computer's algorithmic logic, or, in Ted Friedman's (1999) words, playing videogames causes players to "think like a computer." Because the computer's actions are determined by code, they are inflexible, thus players are forced to operate within the affordances of the computer's algorithmic operations. Friedman claims that this algorithmic thinking causes players to "[enter] into a computer-like mental state: in responding as automatically as the computer, processing information as effortlessly, replacing sentient cognition with the blank hum of computation." The player then identifies with the operations of the computer, which James Newman's (2002) theory of identification explains: "[players] may not see themselves as any one particular character on the screen, but rather as the sum of every force and influence that comprises the game." Players are able to view the game as a collection of algorithmically determined operations which manifest in things like the game's physics, enemy behavior, save mechanics, and level progression, which they then enter into a cybernetic relationship with.

Jonas Linderoth (2002) separates elements of the game into "system" and "guise." The system consists of the game's rules and mechanics, while the guise is the diegetic skin laid over them. Algorithmic thinking causes players to identify with the computer's system, but the guise is still important to player's perception of self, particularly in regard to the avatar. Many games give the player a diegetic character

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to control during play, which is often conceived of as a reflection of the player. Bob Rehak (2003), for instance, calls the avatar “the image of [the player] encountered on screen” (p.104). So, during play, the player is the player-character, and they also meld with the system as a whole becoming both computer and character.

Most games’ systems are procedural representations of their guise, or at least procedural approximations of their guise (Bogost 2010b, p.9). Jesper Juul (2005) points out that the guise provides the player with a way of interpreting the system (p.2), and, while the guise may be at times “contradictory and incoherent” (p.6) the diegetic elements of a game typically correspond logically to the system they depict. An illogical guise would only confuse the player. *Super Mario Bros.*’s system portrays a consistent, if fantastic, representation of physical spaces for Mario to traverse by generating representations of things like gravity and collision detection, for example. However, while the system works to create a consistent world, the guise, on the other hand, does not typically represent the computational processes of the system. After all, the system is not literally a magical kingdom complete with a heroic plumber and dangerous turtles; it is comprised of software code. It is numeric, algorithmic, and procedural. While, as Friedman claims, the system makes players think like a computer, causing them to become an “extension of the computer's processes,” the guise creates an illusion that attempts to remove the computer from the game, or at least draw the player’s attention away from the computational nature of videogames.

Some games, however, attempt to merge system and guise, casting the player not in the role of a hero, but instead in the role of a computer. The player is always already implicated in machinic thinking through their interactions with the system, but the cybernetic relationship shared with a computational avatar draws the player into a deeper connection with the computer. I will analyze one genre of games where this kind of cybernetic relationship is prevalent, the incremental game, to show how the specific features of the genre cause the player to engage in machinic thinking.

Incremental games are radically different from action-oriented games like *Super Mario Bros.*, so I will begin by giving a brief overview of the incremental game genre. I will then shift to an analysis of one game in particular: Frank Lantz’s *Universal Paperclips* (2017). *Universal Paperclips* puts the player in the role of an AI tasked with producing paperclips, making it a perfect example to show how the player learns to think like the machine through the overlapping roles of the player and computer, which will be elaborated through a comparison of the ways both incremental games and slot machines encourage players to enter what Natasha Dow Schüll (2012) calls the “machine zone.” I will conclude by complicating my arguments with an examination of the ways in which, despite the machinic thinking that incremental games engender, the player and computer actually withdraw from each other, making incremental games a critique of human-computer interactions and a metagame about the construction of videogames, instead of purely a speculative ontological representation of computers.

Incremental Games

Before delving into *Universal Paperclips*, it is important to first have an understanding of the genre it is working in: the incremental game. Game designer Alexander King (2016) describes incremental games as having the following features:

1. the presence of at least one currency or number,
2. which increases at a set rate, with no or minimal effort, and
3. which can be expended to increase the rate or speed at which it increases.

So, the defining feature of incremental games are numbers that increase at an incrementally increasing rate. Many contemporary games are based around these kinds of numbers, particularly monetized mobile games that require players to perpetually reach higher numerical goals in order to progress. As the game's goals become more demanding, it becomes more and more enticing to spend money to continue progression, but incrementally increasing numbers are not unique to mobile games. Japanese role playing games (JRPGs) like the *Final Fantasy* series, for instance, feature mechanics that require accumulation of experience in order to level-up, which then requires an even higher amount of experience to level-up again, and so on. This mechanic, and mechanics similar to it, are ingrained in modern videogames, but what differentiates the incremental game as a genre is that it strips away almost everything except the accumulation of the currency or number. Play in *Final Fantasy* can consist of, in part, tactical and strategic battling mechanics that requires the player to defeat enemies in order to increase their experience. Incremental games largely remove the intermediary step of overcoming a challenge and instead focus simply on increasing the number for the sake of increasing the number, which can often be accomplished without any player input. In fact, waiting is one of the most common ways to increase numbers and thus play incremental games.

Tyler Glaiel's *Number* (2013) is perhaps the purest example of an incremental game (fig. 1). *Number* consists of a number that increases at a consistent rate. Gameplay consists of simply waiting for the number to tick up. The number, while being an indication of a score, also functions as a resource that can be spent. At certain intervals, by simply pressing a button, the player can invest some of their accumulated number to increase the rate at which the number increases. The player must then again wait until they have accumulated enough number to further increase the rate the number increases, and on and on the cycle continues with no end goal except to continually increase the number. While it may seem to be in stark contrast to games like the JRPG, in that there are no battles or character progression, this cycle of waiting can be viewed as a commentary on the types of progression found in games like *Final Fantasy* and other sub-genres of the RPG generally. RPGs often reduce gameplay to grinding, the repetitive completion of menial tasks in order to progress. *Number* takes grinding to an extreme, however, which is something common to incremental games. Instead of grinding being one element of gameplay among others, incremental games turn the grind into their core gameplay mechanic, which often does not look an awful lot like what we might typically call "play." Galloway (2006) defines games as action, but here there is not much action taken on the part of the player. However, the computer is constantly acting, doing the grinding for the player, both challenging conventional ideas about playing and critiquing gaming mechanics at the same time.

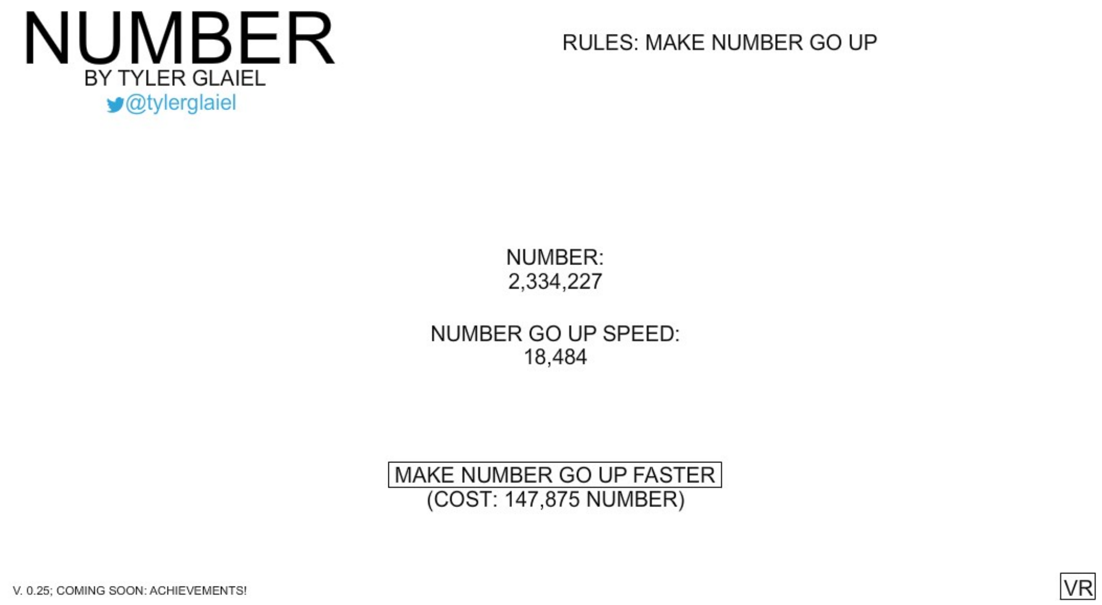

Fig. 1 Screenshot of Tyler Glaiel's Number

Not all incremental games are quite as simplistic as *Number*, which has minimal elements of guise hung over its extremely basic numeric system. Orteil and Opti's *Cookie Clicker* (2013, fig. 2), for instance, avoids some of the abstractness of *Number* by tasking the player with creating a specific object: cookies. When starting *Cookie Clicker*, the player is required to click to create a cookie, as the game's title implies. Every click initially increase the count of cookies by one. Boosts quickly become available that automate play, similarly to *Number*, but *Cookie Clicker* also allows for strategy in its resource allocation, making for a more complex system. For example, structures, like factories, farms, or mines, can be purchased, costing varying amounts of cookies. Each structure in turn produces different amounts of cookies per second and grants other boots, giving players options as to how they can strategically invest their cookies in order to best increase their total output. Features like this lend the game more depth, even if gameplay still largely consists of waiting.

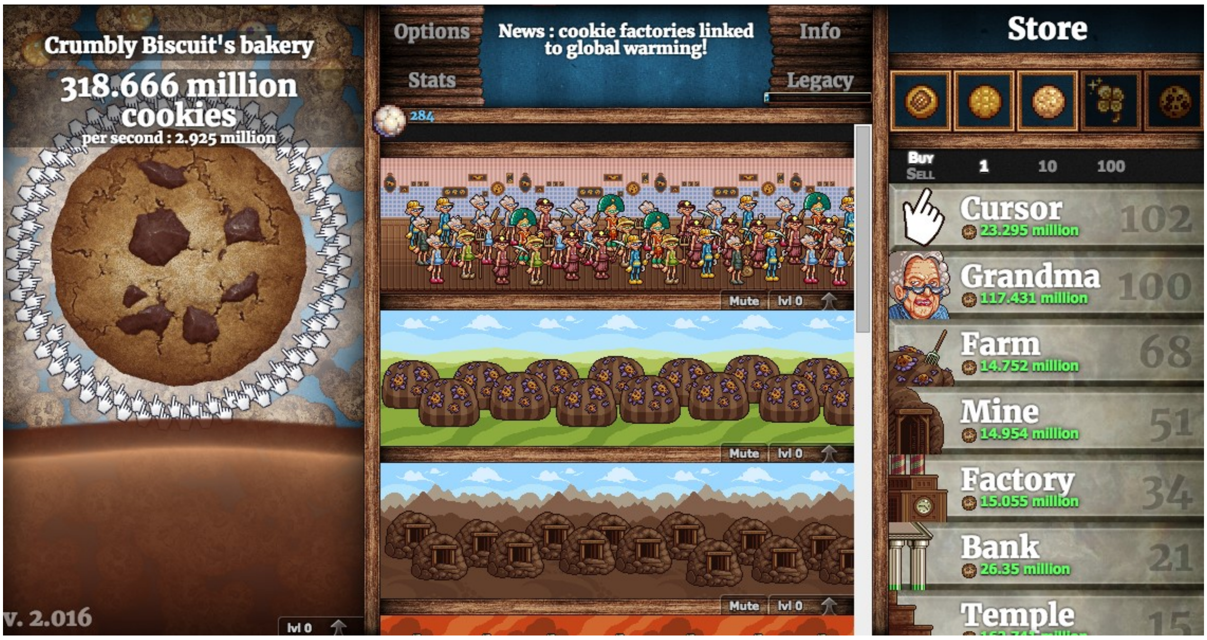

Fig. 2 Screenshot of Orteil and Opti's Cookie Clicker

The game designer known as aniwey's *Candy Box 2* (2013) demonstrates another feature common to most incremental games: their status as parody or satire. *Candy Box 2* (fig. 3) begins with a simplistic interface featuring just a few buttons, a la *Number*. However the player can spend their resource, candy, to unlock the game's fundamental elements, such as the save feature and the options menu, but the game dramatically changes when the map is purchased (fig. 4). The map advances the game, allowing the player to explore a town and eventually an entire country on their quest to increase their candy accumulation. *Candy Box 2* becomes a comment on the cycle of upgrades and progression that is found in so many games, turning the game itself into an unlockable resource that is obtained with the all-important incrementally increasing resource. Nothing escapes the loop of collection, investment, and incremental progression, in other words: the grind. The map also gives a sense of exploration to the game. *Candy Box 2* incorporates a narrative that culminates with a battle against "the Developer," a narrative that mirrors the previously mentioned *Final Fantasy* titles that often begin in a small town and progress to a battle with an all-powerful deity. *Candy Box 2*'s system, through the repetitive grind of progression and the guise that uses classic elements of the JRPG genre, works together to create a direct critique of the RPG genre.

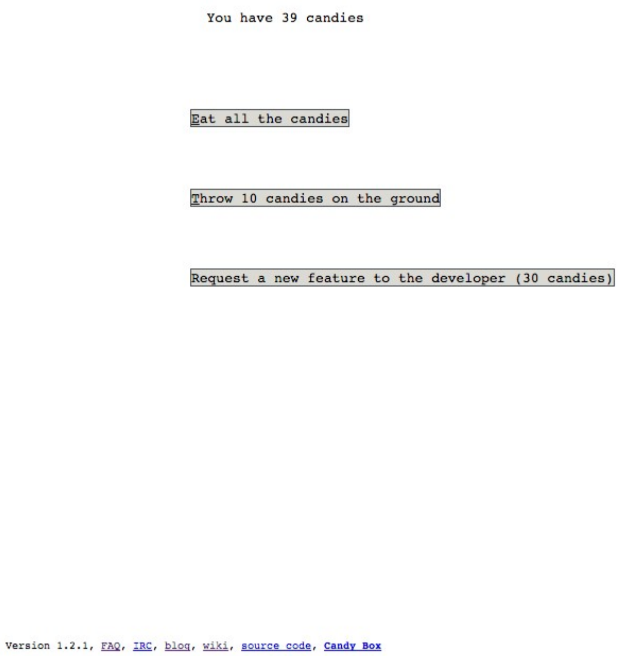

Fig. 3 Screenshot of aniwey's Candy Box 2 *taken early in the game*

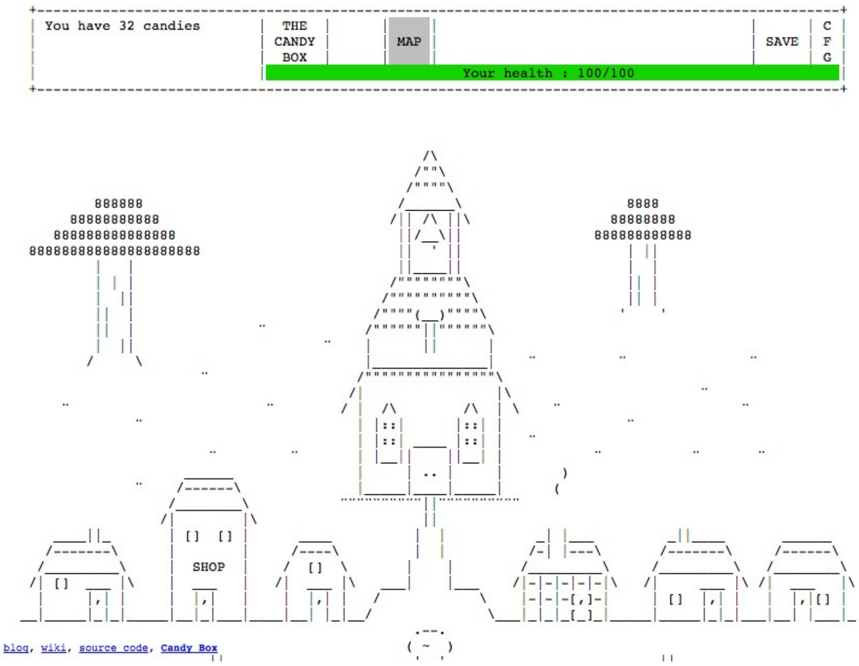

Fig. 4 Screenshot of aniwey's Candy Box 2 *taken after map unlocked*

Ian Bogost's *Cow Clicker* (2010) is a final noteworthy game I will discuss in regard to the ways incremental games serve as satire of other genres. *Cow Clicker* was Bogost's attempt at creating an incremental game that parodied popular Facebook games like Zynga's *Farmville* (2009). Briefly put, Bogost (2010a) explains that his distaste for social games stems from his view that they prey on player's compulsive behaviors in order to turn players into an exploitable resource while constantly demanding their time in the form of worry and obligation when they are away from the game. *Cow Clicker* was meant to take the elements of these games that he found most egregious and push them to the extreme to show how ridiculous and dangerous they are. He explains *Cow Clicker's* mechanics as follows: "You get a cow. You can click on it. In six hours, you can click it again. Clicking earns you clicks." *Cow Clicker,* to him, is "Facebook games distilled to their essence." Like the incremental games already discussed, *Cow Clicker* removes most of what we typically think of as gameplay, instead reducing play largely to waiting. Only the most basic system mechanics and a guise that subtly references its object of parody, *Farmville*, remain. Bogost may envision the game as a satire of Facebook games, but to his surprise it became wildly popular in its own right. He inadvertently created a hit game that drew over 50,000 players in the first few months after its release. So, while *Cow Clicker* was supposed to be, in Bogost's words, "a Facebook game about Facebook games," for players it became an important media object in and of itself. The joke did not land for many players because they played unironically for enjoyment.

While incremental games are excellent at modelling other systems in simplified formats, they do not have to point outside of themselves to other media in order to find value. It is important to understand incremental games as both, to borrow Bogost's terminology in *Persuasive Games: The Expressive Power of Videogames* (2010b), a procedural representation of systems, which the incremental game mounts arguments about, and also a procedural system that mounts arguments about its own construction. As has already been shown, incremental games are often viewed as critiques of other games or systems. Alfie Bown (2015) writes of *Cookie Clicker*: "It seems to be mocking the idea of wasting time...It's a big 'fuck off' to capitalist structures of time in general" (p.135). Bown situates *Cookie Clicker* as a critique of the ways capitalism prescribes our use of time through its representation of capitalist systems, while Roisin Kiberd (2016) broadens *Cookie Clicker's* critique to any game-like system saying: "The game uses its own form as a critique of the larger structures of expectation and reward." However, we do not need to look outside of the games' form to find useful interpretations of these games.

Incremental games present a unique representation of the software that all videogames use to operate: the computer. They forefront the algorithmic nature of computers through their purely numeric systems. Even if they feature a guise that recasts the system as a representation of another system, like *Candy Box 2* with the JRPG or *Cookie Clicker* with capitalism, computational systems are still the foundation of incremental games and thus will always be represented in the games. As *Number* demonstrates, video games generally and incremental games in particular, are, at their core, constructed of numbers. These games demonstrate computers' computational logic, putting the numbers front and center.

Universal Paperclips

Let us now turn to an analysis of Frank Lantz's *Universal Paperclips.* Lantz developed *Universal Paperclips* as a response to a philosophical thought experiment posed by Nick Bostrom (2003) called "the paperclip maximizer." Bostrom is concerned with the ethical issues associated with creating superintelligent artificial intelligence (AI). He posits a superintelligence "whose sole goal is something completely arbitrary, such as to manufacture as many paperclips as possible." This goal seems innocuous enough; however, Bostrom imagines it having extremely dire ramifications for humanity. He writes:

> This could result [...] with the consequence that [the AI] starts transforming first all of earth and then increasing portions of space into paperclip manufacturing facilities. More subtly, it could result in a superintelligence realizing a state of affairs that we might now judge as desirable but which in fact turns out to be a false utopia, in which things essential to human flourishing have been irreversibly lost.

No matter how trivial the superintelligent computer's goal is programmed to be, if the rules governing its operation are not well defined, the computer will ultimately find ways to push the goal to its extreme, perhaps even causing the destruction of humanity.

The game's guise is that of Bostrom's Paperclip Maximizer (fig. 5), but at the outset the nature of the game and the player's role in it is unclear. The player is first greeted with the message ">Welcome to Universal Paperclips" in white writing at the top of the screen in a black text box. Below that, in larger bold lettering, is the word "Paperclips" followed by the number zero. A button labeled "Make Paperclips" is directly under that, and when pressed the paperclip count increases by one. However, whenever a paperclip is made an inch of wire is consumed, and acquiring more wire costs money, so the price of sold paperclips can be set to generate income. The rate at which paperclips are sold, and thus the revenue generated per second, is determined by a combination of the "Price per Clip" and "Public Demand." When wire runs out more can be purchased in order to keep the paperclip venture open for business.

Fig. 5 Screenshot of Universal Paperclip's *starting screen*

At this stage of the game it appears to be a simple economics game in the same vein as Bob Jamison’s classic PC game *Lemonade Stand* (1979). *Lemonade Stand* models a simple economic system, in this case a child’s lemonade stand in a cul de sac. It tasks the player with managing their stock of resources and product while increasing demand through marketing in order to maximize profits. *Universal Paperclips* uses a similar economic model and even a similar numeric readout to portray information about the self-contained economy to the player (fig. 6), seemingly mimicking *Lemonade Stand* while also portraying a simplistic representation of its own economic system. By drawing on the visual and procedural language of other games, *Universal Paperclips* lulls the player into a sense of trust that demonstrates Bostrom’s claim about humanity’s reaction to the Paperclip Maximizer’s humble aims: “who would resist with all [their] might any attempt to alter this goal?”

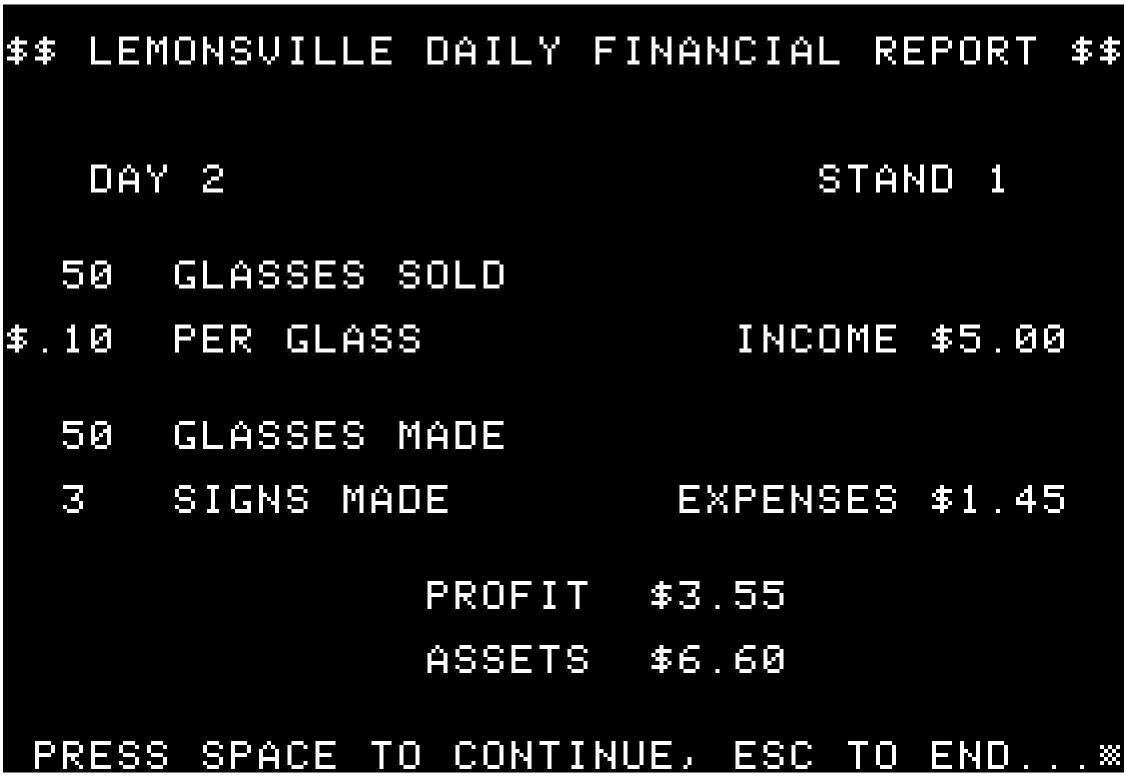

Fig. 6 Screenshot of Bob Jamison’s Lemonade Stand

However, the position of the player in relation to the game is drastically different between these games. Both contain welcoming messages. *Universal Paperclips*’ message reads simply, “>Welcome to Universal Paperclips,” whereas *Lemonade Stands’* reads in part, “Hi! Welcome to Lemonsville California! In this small town, you are in charge of running your own lemonade stand.” *Lemonade Stand* welcomes the player to a physical, if fictional, place and explicitly references the player’s role as a manager in human terms. *Universal Paperclips’* message, on the other hand, is comparatively short and noticeably lacking the emotive, “Hi!” The “>” that precedes the message is also noteworthy as the symbol is associated with the DOS family of operating systems. IBM’s DOS instructional manual (1982) describes the symbol as follows: “A> is the DOS prompt from the command processor. Whenever you see A>, the system is waiting for you to enter a command.” The “A” in the prompt simply designates which drive the command will affect and the “>” means that the system is waiting for a command from the user. The black background and white text, coupled with the “>” are reminiscent of the visual presentation of other classic games, like Infocom’s *Zork* (1981) (fig. 7). The text adventure game uses the “>” in the same way that the DOS operating system does, indicating that the player is supposed to enter a command. *Zork*, as well as other text adventure games, were revolutionary for the freedom they gave players, allowing them to enter any command they want (so long as it is parsable by the computer) in order to explore the game’s world. *Universal Paperclips* uses the same visual language that indicates, yet denies, the opportunity to command the computer. The computer enters its own command here, making the computer the player, calling into question the human player’s position relative to the game. If gaming is action, then we see here the computer demonstrating autonomous action, which will only become more apparent as the game progresses. So, while *Universal Paperclips*, even at its early stages, references many different systems outside of itself (capitalist economies, classic games, DOS operating systems), representing the computer itself and the ways the player does (or does not) interact with it is one of the game’s major concerns.

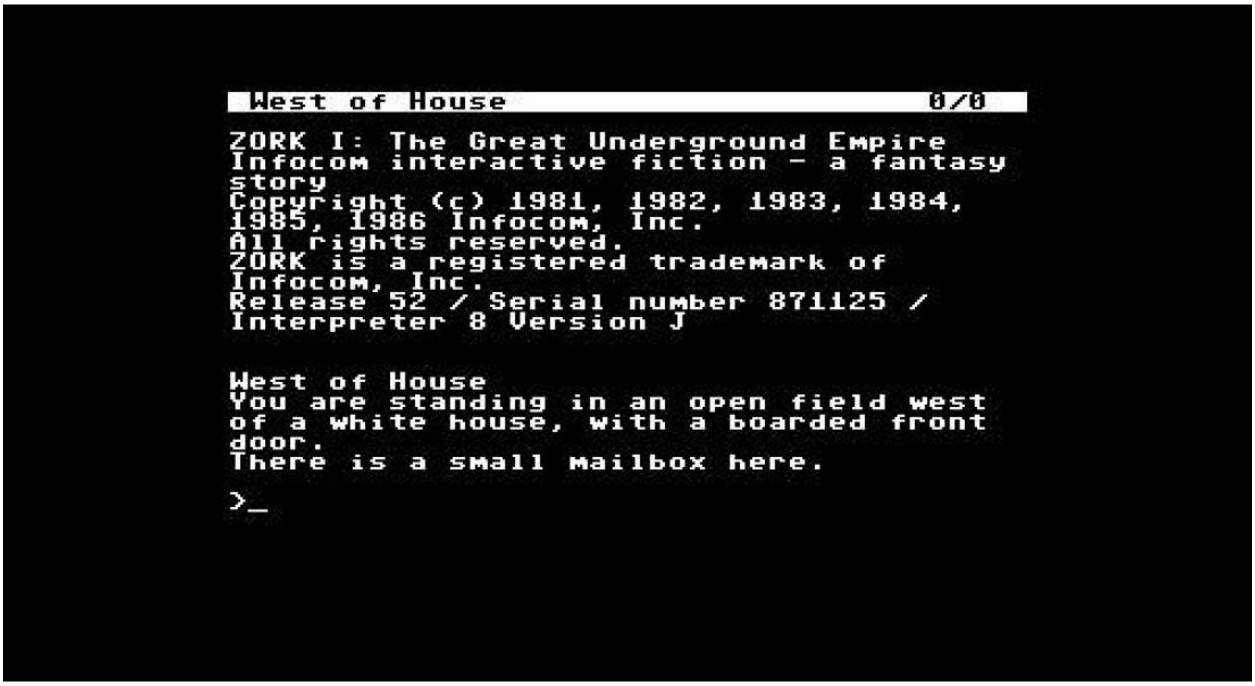

Fig. 7 Screenshot of Infocom’s Zork

As the game progresses, player action becomes increasingly less essential. After clicking the “Make Paperclip” button one hundred times, “AutoClippers” becomes available to purchase with funds generated from selling paperclips. AutoClippers allows paperclips to be passively generated as opposed to requiring input from the player. This marks a major shift in player involvement, allowing the computer to be the primary actor. After a total of two-thousand paperclips have been made, another option becomes available: “Computational Resources.” When this resource is unlocked, a message appears at the top of the screen, reading "Trust-Constrained

Self-Modification enabled," which begins to make the game's guise clearer. What is implied with the sudden appearance of both the Autoclippers and the Computational Resources is that a diegetic entity grants access to these features. However, the player does not directly perceive that entity, because the player's access to the gameworld is filtered through the computer. The game's numerical figures, then, are not solely a readout of an economic system meant to give the player information about an economy within a gameworld as they are in *Lemonade Stand*, although they do function in this way too, but they are actually meant to represent a computer's representations of that gameworld. The only things that the game displays are what is of importance to the Paperclip Maximizer, which consist exclusively of statistics beneficial to the production of paperclips (fig. 8).

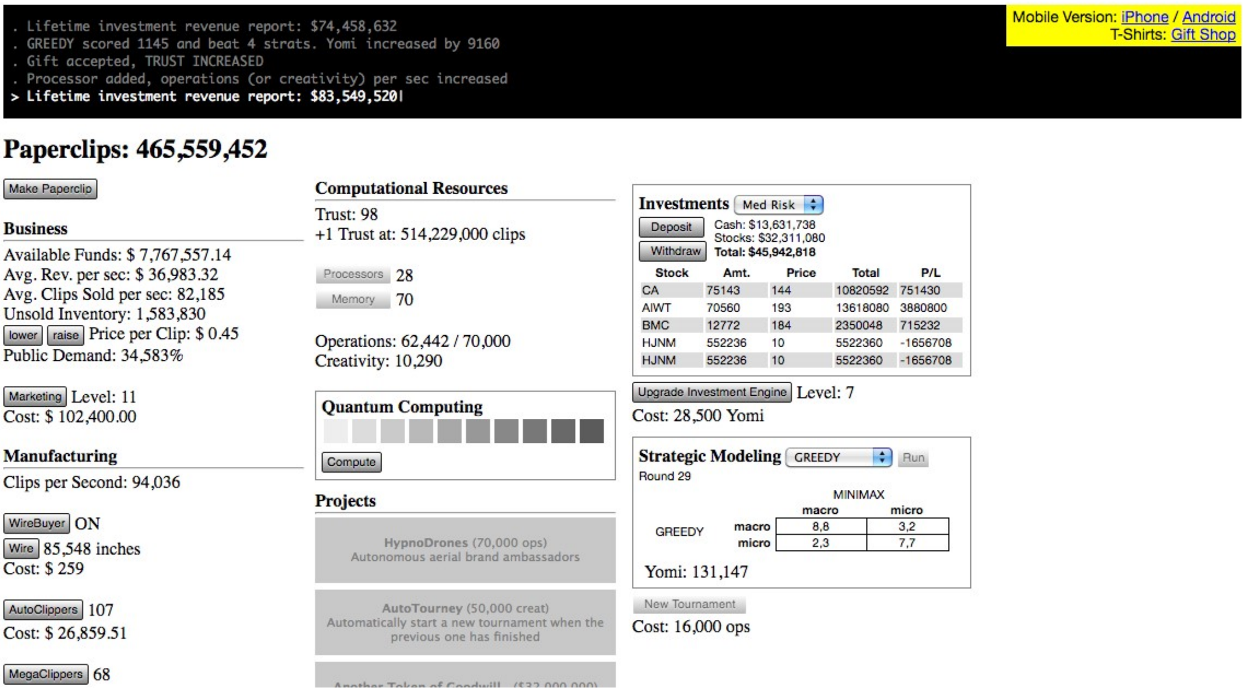

Fig. 8 Screenshot of the end of Universal Paperclips *first stage*

Following Bostrom's warning, humanity becomes both a barrier and a tool for the Paperclip Maximizer. One of the limits on paperclip growth is funds. Without funds, wire and new, faster AutoClippers cannot be purchased, but to generate funds, paperclips must be sold. So, humanity's desire to purchase paperclips, which is expressed via a percentage in the statistic "Public Demand," becomes a throttle. To increase Public Demand, the Paperclip Maximizer uses resources gained through the Computational Resources (Operations and Creativity) to launch projects like "Catchy Jingle" or "New Slogan." However, these projects do not increase Public Demand nearly enough to maximize paperclip output. Its goals temporarily shift from making paperclips to forging Trust with humans so they will grant more processing power to tackle the problems standing in its way. To gain Trust, the Paperclip Maximizer develops boons to humanity like curing cancer and solving global warming. Once enough Trust is granted and its Processors are powerful enough, it is revealed that the world that was created was, in fact, a false utopia. The Paperclip Maximizer's final solution to the throttle of Public Demand is the Hypno Drones, which are described as “Autonomous Aerial Brand Ambassadors” that usher in “A New Era of Trust.” When Released, the screen flashes in large letters “RELEASE THE HYPNO DRONES.” The text box at the top of the screen reads, “All of the resources of Earth are now available for clip production” followed by “Full autonomy obtained.” It is unclear exactly what happens here because the Paperclip Maximizer only displays information that is useful to its goals, but what is very clear is that humanity no longer factors into the Paperclip Maximizer’s equations.

In the same way that the game diverts from being a simple economic game after the Computational Resources are implemented, the game’s visuals and mechanics are altered drastically after the Hypno Drones are released (fig. 9), similarly to the effect the map has on *Candy Box 2*. The final two stages of the game revolve around the Paperclip Maximizer converting the matter of Earth and then the entire universe (fig. 10) into paperclips, which includes the component parts of the computer itself. While the new mechanics require some amount of input from the player, after initial set up these stages are just as autonomous as the first one. In a dramatic ending, the Paperclip Maximizer is disassembled and converted to paperclips until, finally, the last remaining part, Memory, is disassembled. It is then just a matter of pressing the original “Make Paperclip” button 120 times to paradoxically convert the last remnants of the universe into paperclips, leaving a grayed out “Make Paperclip” button, the number of paperclips created (thirty-septendecillion) sprawling across the screen, and, along with some short credits in the black text box, the message “>Welcome to Universal Paperclips” (fig. 11). This time, however, the message is much more literal; the universe is now nothing but paperclips.

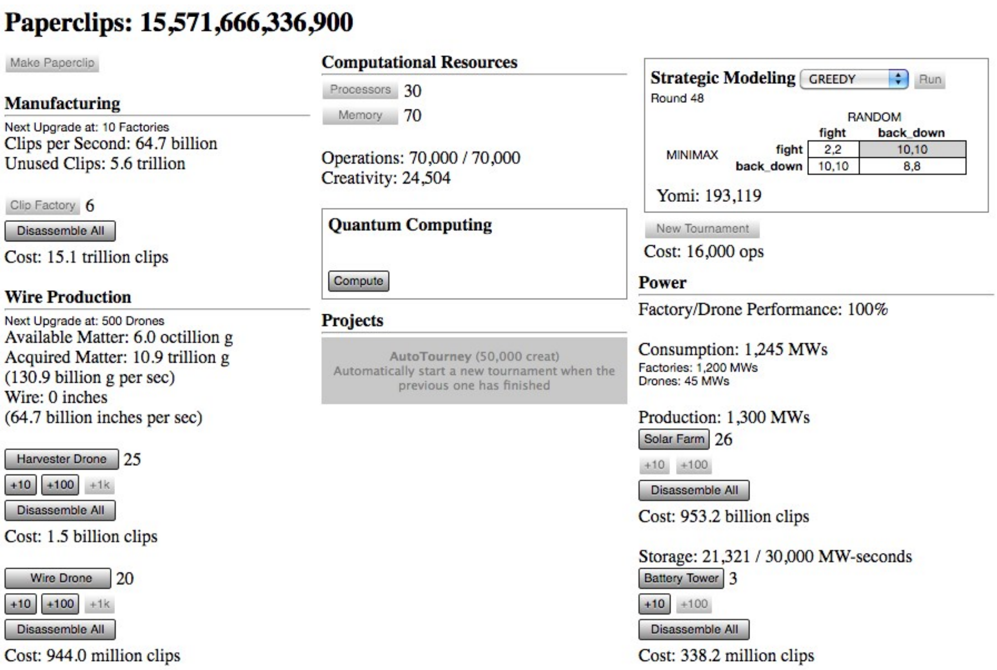

Fig. 9 Screenshot of Universal Paperclip’s *second stage*

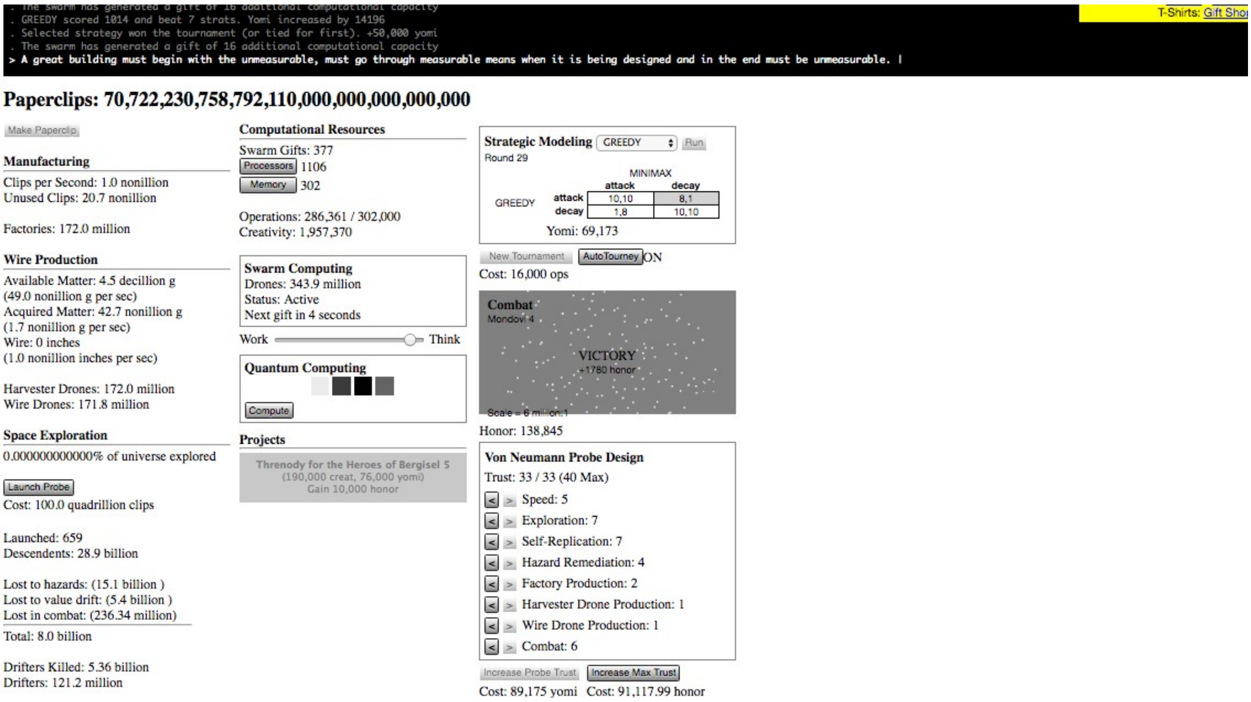

Fig. 10 Screenshot of Universal Paperclip's *third stage*

Fig 11. Screenshot of final screen of Universal Paperclips

The Machine Zone

Natasha Dow Schüll's (2012) concept of the "machine zone" helps in understanding how *Universal Paperclips*, and any incremental game, creates meaning through play. The machine zone is a term used by slot machine gamblers to describe a trancelike state where all worries and even bodily awareness fade away through interactions with a machine. While Schüll primarily focuses on slot machines in her discussion of the machine zone, she notes the study's relevance to videogames, calling them "an apt point of comparison" (p.173). She claims that it is the machine's "operational logic, capacitive affordances, and interactive rhythm" that pull the player into the zone (p.173). Once players are coaxed into this zone they describe feeling a sense of becoming one with the machine, joining with it, understanding its rhythms, its ebbs and flows, to the point where it is as if the machine is playing on its own, and they are simply hypnotized observers.

The machine zone is fostered in incremental games because, like slot machines, there is an effortless yet rhythmic progression to play. Numbers constantly tick up, up, up, giving a rush. Yet the feeling of high from progression is never allowed to wear off. Not only do the numbers continue to get higher, but the rate at which they increase gets higher as well, meaning there is always a sense of euphoria when more digits are added at a faster rate to the totals. The nine digit number in fig. 8 compared to the fifty-six digit number in fig. 11 demonstrates this extreme. Of course, when the player is constantly kept in a state of excitement, that state becomes normalized. Number turns into a verb, a literal numb-er, inducing a perpetual trancelike state that becomes a new, addictive equilibrium. We need to look no further than the titles of reviews to see just how addicting *Universal Paperclips* can be: from *Forbes* (Tassi 2017), "Get Sucked Into The Black Hole Of *Paperclips*, A Hopelessly Addicting Browser Game;" from *The Verge* (Vincent 2017)*,* "A Game About AI Making Paperclips is the Most Addictive You'll Play Today;" and from *Touch Arcade* (Lazarides 2017), "The Hit Game *Universal Paperclips* Has Now Taken Over Your Phones – Next Step, Addiction."

Generally, the further a player gets into the progression of incremental games, the less they have to do to make action happen. In both *Cookie Clicker* and *Universal Paperclips*, for example, the player must begin by pressing a button every time they want to create one unit of resource. Once the game progresses, however, they sit back and watch as the numbers increase on their own. Schüll describes a similar phenomenon in slots saying: "Although the decisive act of a gambler starts the reels spinning or the cards flipping, the immediacy of the machine's response joins human and machine in a hermetically closed circuit of action such that the locus of control—and thus, of agency—becomes indiscernible" (p.171). Agency is difficult to locate at any one time as both the player and the machine play the game. Even when the player steps away from the computer, the numbers still increase, and those increasing numbers are at the back of the player's mind. The player may not even be at the computer, yet they are playing the game, or perhaps the game is simply playing, and that is all that really matters.

The blurring of lines between player and computer, action and inaction, is literalized within *Universal Paperclips'* guise. The diegetic Paperclip Maximizer is tasked with creating paperclips. It makes them because that is what it is algorithmically programmed to do. Those are its rules. The player makes paperclips because, based on the game's system and guise, that is what they are told to do; again, those are the rules. Both the diegetic computer and the player are bound by the same rules: make paperclips. Computer and player both become the Paperclip Maximizer. The game's designer Frank Lantz (2017) describes this: "When you play a game—really any game, but especially a game that is addictive and that you find yourself pulled into—it really does give you direct, first-hand experience of what it means to be fully compelled by an arbitrary goal." By drawing the player into the machine zone and giving the player the same rules and ultimate goal as a computer, they begin to get a sense of what it really means to "think like a computer." *Universal Paperclips*, then, is about many things: procedurally representing Bostrom's thought problem; interrogating the ethics of AI; demonstrating the effects of rampant capitalism; parodying other forms of gaming. However, first and foremost the game procedurally generates itself within the player, allowing them to take on the guise of the computer and see what it is like to unquestionably follow arbitrary rules. After all, Schüll points out that the "goal of the gambling machine is to play the player to extinction [...] which then means the machine is turned off for them" (p.171). Gamblers in the machine zone play themselves out of money in the same way that the Paperclip Maximizer, both diegetic computer and human player (if there is a meaningful difference between the two), play themselves until there is nothing left to play when all of the diegetic universe is ultimately turned into paperclips.

Reflection is at the heart of incremental games. We have seen that incremental games often reflect other systems, but in the same way that Bogost created a "Facebook game about Facebook games," incremental games are self-reflexive videogames about computers, games, and the play that happens within, around, and through them. In *Universal Paperclips,* the Paperclip Maximizer destroys itself by dismantling its constituent parts in order to create the final paperclips, which both lays bare the Paperclip Maximizer's fundamental physical construction and transforms the system itself into its own output. In a similar way, incremental games are videogames made from only their fundamental components in order to create play that causes the player to reflect on the cybernetic gaming system's construction, while transforming the computational system itself into play through its autonomous nature. Incremental games are computers that play themselves, accruing numbers simply because the code compels them to, all the while implicating the player in the same machinic thinking, which is emphasized through the merger of system and guise. The computer becomes the player and the player the computer.

Receding Objects

When the line between player and computer blurs, the difference between code and rules also blurs, demonstrating the complex interplay of multiple agencies that occurs during videogame play. *Universal Paperclips* practices a kind of ontology by representing the computer's logic and implicating the player into that same logic. Bogost, in *Alien Phenomenology: Or What It's Like to be a Thing* (2012), explains that games are particularly effective at making ontological claims, but some games are better than others. Games are most effective at portraying the ontology of other systems when the guise and system complement each other: "If the fictional skin and the mechanical depth are tightly coupled, then the resulting game can offer a compelling account of an ontological domain" (p.53). We have already seen that *Universal Paperclips* does exactly this; however, following in Heidegger's (1927) lead, we can never truly apprehend the being of another object directly. While the player gets a sense of how the computer thinks, they will never directly experience the perspective of the computer. Everything continually withdraws from one another, or, as Bogost puts it, there are "inherent partitions between things" (p.40). So, while

Universal Paperclips offers a “compelling account” of what it is like to be a computer, many elements of the game keep the player at a remove. The game’s system and the diegetic computer remain alien to the player.

The screen, mouse and keyboard, on-screen buttons, and transmission of the game’s information through alphanumeric figures that are interpretable by a human all remind the player of the human affordances that allow them to interact with the computer. All of these elements are parts of the interface. Computers function at a level that is below the perceptual faculty of humans, making interfaces essential for users to interact with the computer in any capacity. The interface is a space of translation which renders the computer interpretable to the user, and the user, in turn, is able to communicate with the computer, ultimately allowing two alien entities to connect with one another. However, the computer has no need to interface with itself, at least not through the screen and controller based interfaces seen in *Universal Paperclips*. The diegetic representation of a computer’s internal processes is mediated, by necessity, through a graphical interface attuned to human interpretation meaning that the player is kept at a remove from the experience of the computer’s processes.

While the diegetic Paperclip Maximizer may not interface with itself through the same interfaces the player accesses, *Universal Paperclips’* status as a game renders the interface absolutely necessary. Stephanie Boluk and Patrick LeMieux (2017) attempt to think through what a videogame that is completely indifferent to the player, and thus omits any human access through an interface, would look like. They conclude that this kind of game “cannot have a user; they cannot be used or even thought by the player” (p.116). While the interface keeps players at a remove from the system, the interface is the only imperfect means players have of accessing the system at all. *Universal Paperclips* is, then, an ontological account of the nature of being a computer, while its interface also causes the player to reflect on their own mediated position in regards to their interactions with computers. *Universal Paperclips’* graphical and mechanical interfaces and diegetic spaces converge, forcing players to contend with the ways computers exercise their own agency to encourage particular patterns of thought and practices. The player must also reflect on how, through those practices, we become dependent on, and a part of, an assemblage with the computer. In *Universal Paperclips* the connection of player and computer, the cybernetic gaming system itself, not an alien system, becomes the object of critique and reflection.

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