FCJ-111 Playing with Game Time: Auto-Saves and Undoing Despite the 'Magic Circle'

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2 Typically the time of games played on computer systems is considered as linear and progressive. Those studying games talk this way and often linear time is the idiom by which players make sense of their experiences at play. This article focuses on some recent games that explicitly engage players with time, a practice that I argue highlights the complicated relationship between the player, game time, and clock time. It is common to treat videogames as exception from the world, bounded in a kind of "magic circle" (Huizinga, 1938/1955). This can be seen in the most ready explanation of time; the basically uninterrupted arrow of player progress through the space of the game, made canonical by Jesper Juul (2005). However, there are many other kinds of time in games, and how players use these times says something significant about a game.

3 There is something more to the magic circle than a condition of pure interiority. The magic circle is play that situates a game and it hosts a special intensity *opening to larger forces.* This is often ignored in the contemporary use of the term in scholarly discussions of computer-based games. The overly respectful attitude that games are distinct from regular life results in the construction of a "pure" zone strictly internal to games, and time in this zone appears as a line. This article argues that such a vision is incomplete. Time in videogames need not be understood as a single line, or any diagram of lines at all. The complex and overlapping rhythms that crosscut everyday life do not stop at a magical barrier that contains and protects the game; these varied rhythms both influence how games are played, and describe the variety of times that games contain. By attending to other times than a line, we can recognize other patterns in gaming.

4 I suggest that the act of undoing highlights this particular temporal intensity of videogames. In this paper, I argue that undoing is not simply the restoration of a previous state, but also constitutes another form of action taken in the course of play. Consequently, undoing is discussed as a technology of control that inflects players' agencies in particular ways. Linear models of time make it impossible to recognise the time of undoing, but loading a saved game to avoid death, taking back turns, and making choices that can be easily reversed have long been common in videogames. As the speed at which players are able to undo increases, they can undo actions at a finer level of granularity and constantly modulate how games process them. These undoings are all ways players engage with games, irrespective of whether the rules or narratives of the game officially recognise them. In the relaxed time made available by undo commands, configuration is privileged over performance death is deferrable, interruption minimised, precision trained, urgency optional, uncertainty resolved, and some of games' harsh discipline sidestepped. The player thereby arrives in a different set of power relations, which are of control (Deleuze, 1992) rather than discipline (Foucault, 1977).

5 Undoing in videogames could be considered similar to reloading (comparing to saved documents) or rewinding (comparing games to linear playback media). "Undo" refers to an operational logic common to many techniques. Undoing creates a record of the past, which it brings into operation by reversing action or restoring recorded states. This is the mechanism of undo in other software, and is not the same as film, video, or tapes. As Lev Manovich (2008: 59) has written of the paintbrush tool in graphic editing software (which is, of course, not a paintbrush at all), the instances where it 'behaved more like a real physical paintbrush were just particular cases of a much larger universe of new behaviors made possible in a new medium.' Undo provides a time that is interactive; rewind (and action that looks like rewinding) is a particular case. Looking at undoing draws attention to the particularity of different cases while making space for a broader understanding of how these practices have a similar way of treating the one that plays the game. There are other ways to correct, fix, and change things in a game; undo features offer to entirely negate user action – including other fixes – in order to restore an earlier state, sometimes on a very small scale. This changes player behavior, yet is an optional extra in each game – no one has to undo. Still, whether controlled, seduced, or persuaded, players do undo, and this becomes a social practice of manipulable time. Undoing is a practice of play that illustrates how videogaming is temporally imbricated in everyday life, rather than apart from it as many "magic circle" arguments suggest. Such practices of play function, like everyday life, 'not as someplace

untouched by power, but rather as a figure for the proliferation, saturation, and intensification of power (which is also to say, resistance) relations' (Nealon, 2008: 107-108).

6 These intrusions into the presumed line of game time are not just cheats or hacks. They are instances of counterplay: modes of manipulating game time are folded into the game. But is it cheating? Almost everyone who plays a game is aware of cheating, and has some response to it (Consalvo, 2007). This results in a discursive formation that is more than just a word. However, practices that could be considered cheating only count when known *as cheating*, and to the extent they are named as such. Consider three examples:

- to restart a level over and over until the first few moves are successful;
- to take back a turn; and
- to save then try one chance event, reloading until it works.

7 Probably the last of these is cheating (luck manipulation), but the second is a legitimate game mechanic (especially in turn-based games), and the first a regular player practice. These *player approaches* to time can shift into game design (Lindley, 2005). Undoing takes form beyond variations on a reload cycle (saving the game and loading it when things go wrong). Emulators allow manipulation of the game state at a new level, and some games – *Prince of Persia: The Sands of Time* (UbiSoft Montreal, 2003) and *Braid* (Number None, 2008) in particular – allow diegetic rewinding, providing designed affordances to let players do something like what they would have done anyway. What counts as cheating at one time may become routine in another case, or at another time. It is this folding in of what exceeds "proper" play that characterises counterplay, even as it marks its limit.

8 This article will describe and respond to homogeneous game time, review a few cases of undoing in particular games, and close with the argument that undoing in games makes for a post-disciplinary form of power in games. By intervening in the usual simplification of time to linear models, this argument aims to open our sense of time to the surging forces that engage the players of computer-based games.

Homogeneous Game Time

9 Past treatments of game time have overemphasized its continuity and the self-identity of its present moment. If time in videogames was, in fact continuous and linear, then undoing would constitute an impossibility or exception from game time. Discontinuity can appear as contradiction. Recent work on time in videogames deals with: discontinuities and multiple times as limits to formal models of time, hoping to fix leaks in models of time (Hitchens, 2006); situating temporal experience psychologically (Nitsche, 2007); and interpreting games as difference and repetition (Mukherjee, 2009). Barry Atkins reconciles the contradiction of discontinuities by interpreting the supposed linearity of time in games, which obscures the reality of play experience, as a '*post-hoc narrativization* of the play experience' (2007: 244). Atkins' intervention should not be taken lightly: repetitive narration forms our common sense and makes theoretical models of linear time intuitive. As a consequence, theories of game time tend to also follow this pattern of summarising the experience of play as blankly linear. This remains the default understanding of time in games, even in the recent work that adds forks, parallel lines, and segments to the model (Nitsche, 2007; Zagal and Mateas 2007). I suggest that, by undoing the model of linear time, diverse temporalities come to light, and that these represent more than occasional, rogue strategies.

10 Jesper Juul's (2005) formal model of gametime introduces central conventions for diagramming the topic. There are two parallel times for rule-bound play and imaginative fiction. The diagram for play-time is a ray: a solid line of whatever length, whose width is irrelevant, with an arrow-head finishing it at one end. The arrows of time in his diagrams 'correspond to a basic sense of now when playing a game' (Juul, 2005:143). The correspondence is itself a kind of post-hoc narrativization. The ray seems to be a 'homogeneous and empty time' (Benjamin, 1940/2005). It does not claim to illustrate a container for events, but gestures towards our usual sense of the ongoing present in 'the time span taken to play a game' (Juul, 2005: 142). It is both a model and a diffuse feeling characterising play. Fictional time, on the other hand, foregrounds the explicit diegetic organisation of time. [1] Diegesis refers to the elements of a representation that amount to an entire world. For Juul, the fictional time that matters is daily rhythm, hours on the clock, or

the current year. Many games have no indication what day or time it is, or how events are linked by cause or time, but Juul's concept demands some large-scale time of invariant intervals. This means translating polymorphous times that also exist in fiction into some kind of line parallel to play time. There is more to time in games than such a line.

11 The particular durations by which the experience of a game is built vary in structure and kind. The timing involved in executing combinations in *Street Fighter 4* (Dimps/Capcop, 2009) is precise and rapid, unlike the patient time spent waiting for enemies to respawn in *Quake 3* (iD, 1999), efficient time spent moving through empty places in *Tony Hawk: Pro Skater 2* (Neversoft, 2000), or the hurried time of scouting a dangerous and unknown area in *Half-Life* (Valve, 1998), when the player knows that they will probably die. These wild times of in-game events are not just subjective experiences, but are the mutual adaptation between variations in a game's procedures and actions of the body playing. Juul's model subsumes these times: fictional time means clock time. In this tradition, Zagal and Mateas (2007: 519) interpret time as cycles and durations, which are 'measured by counting events in a cycle.' Ben Cousins (2005) suggests translating games into the terms of empty divisible timelines can be very useful for game design. There is, however, nothing inevitable about the habitual translation of other times into the solid line with an arrowhead whose width is meaningless. Players translate game time with changing patience and mood, into the terms of a precarious break stolen at work, as a way to relax, or into the terms of a work ethic that disparages play altogether. To summarise, the time within games is polymorphous, and translated into more than one other time. The clock's time need not be privileged.

12 The present moment of gaming is an asynchronous present, 'a fractured sense of time evoked by the figuration of competing contexts of experience' (Lim, 2005). If the first recourse in common sense is to imagine present time as a ray, perhaps there is a reason. The formation of time in modernity has contributed to this common sense, through various institutions: e.g. work discipline, church rules, and the intensely scheduled institutions of education (Adam, 2004; Glennie and Thrift, 1996). (In this regard, those who play games and those who study them will tend to treat time in the same way.) Bliss Cua Lim (2009) argues that translation of other times into the modern, progressive, time of the clock and calendar "works" in some sense, but also fails to recognise what cannot be translated. This impossibility of translation is dubbed 'immiscible time' to emphasize that some forms of time cannot be mixed with others (Lim, 2009). Modern time consciousness inclines, but does not force, individuals toward translating other times into their own. Other times should not be forgotten, and will not let themselves be. Their translation occludes something that resists, which haunts modern time as it 'refuses the idea that things are just "left behind," that the past is inert and the present uniform' (Lim, 2001: 288). This fractures the present, making it impossible for all cases of the present to ever be fully synchronous. Competing contexts for experience, ghosts or saved games, evoke that sense of fracture, which might otherwise remain imperceptible. The ray of time is a usual recourse in understanding time, and is haunted by these immiscible, untranslatable moments.

13 Two kinds of time that game time has translated, and is therefore haunted by, are the complexity of everyday life and fixed data. Whereas games involve play, which is active, data is static and passive. Whereas games are an exception to the ordinary, our usual experience of time is plural. These two contrasts can make the time of gaming look pure, flat, and progressive; they reduce the existence of time to a measure of time. This happens at the level of theory and sensibility, which are never wholly distinct. But why should other times establish the purity of time in the game? Why is each understood as juxtaposition rather than reinforcement?

14 In the first case, play is separated from everyday life through the persistent conceit of the "magic circle", an argument founded on the principle that play is an activity with its own times and spaces. The metaphor of a magic circle comes from quotations of *Homo Ludens: A Study of the Play Element in Culture* (Huizinga, 1938/1955), a book whose project was to understand all of social life as composed of various kinds of games. In comparison, contemporary social theory is more likely to see society as predictable patterns, affective performances, or basic structures. The phrase 'magic circle' has often been quoted from a paragraph in the first chapter of the book that discusses the social relation by which a special space is marked out for a game . [2] Huizinga (1938/1955: 10) writes that '[a]ll play moves and has its being within a playground marked off beforehand either materially or ideally, deliberately or as a matter of course.' A list of examples follows, and the text

asserts that there is no formal difference between any of them. The magic circle appears as an odd entry in this list, as the others are places for competitions, performances, and games. How is magic play? Huizinga is trying to unify diverse fields of human interaction and social life into a study of gaming, seen as usually competitive and open to contingency. Special places in society host games by which social life is lived. A circle for magic, trance, or ritual is just another space of play. Huizinga (1938/1955: 18-27) is not making a reductive, secular interpretation of ritual, but a key claim about play's ability to make a difference, despite being, at times, pointless. It's not that ritual is no more than profane play; it's that play allows transcendence of quotidian seriousness and consecrates a connection to the supernatural: it opens to greater forces. Recent interrogations of the concept of "magic circle" in videogaming have interpreted it as a puzzle piece that connects with others (Juul, 2008), or as one frame among many that coexist (Crawford, 2008; Consalvo, 2009). These approaches, like Alexander Galloway's distinction of diegetic and non-diegetic (Galloway, 2006), still point to a divide between time of the videogame and some other time that we must suppose is our own. What is that other time?

15 'There is no single time, only a multitude of times which interpenetrate and permeate our daily lives,' (Adam, 1995: 12). Multiple co-mingling technologies of time, natural rhythms, and temporal experiences coexist. Contemporary life is lived at an accelerated pace; it has drifted from the days when institutional deployments of clock time regularised life in mass society. Rob Cover (2006) argues that the familiar comment that games take too much time ignores the fact that games require a kind of free time those who play games do actually have. Newspapers, television, and film contain frequent set stopping points (chapters, endings), occur on a regular schedule set to hours of work and sleep, and anticipate demands throughout the day. Games are different. Increased unemployment and flexible schedules make available the sort of free time that can handle five hours of gaming that starts in the early afternoon (Cover, 2006). Even at work, there's some time for gaming. *Solitaire* (Microsoft 1990-) and *Snood* (Dobson, 1996) are no strangers to office computers, and their time seems pure and linear once abstracted from the busy timings of the surrounding workplace. It is quite easy to interpret the magic circle as a justification for ignoring the complex times of environments in which games are played, an intellectual move put to use by Tychsen and Hitchens (2009: 1-2), and made generally in thinking about game time. A consequence of this mode of analysis is that videogames are presented with a utopian clarity, divorced from the complications of everyday life.

16 A second foil is the fixed data of the saved game. The videogame is an 'action-based medium' (Galloway, 2006: 3), as software is process operating on data. But when it saves the game state, it returns process to data. For console systems using storage media that allow read-only access, saving the game may be the only time when any user input will result in writing data, and this has to be done with a different memory medium, such as a memory card. If a saved game is a product rather than process, the time of play is one of process and action. But play-time is haunted by this data. Play is the living world and saved games are the graveyard: and the graveyard of saved games, where process freezes into data, matters in play. This effect is more pronounced with quick saves, auto-saves, and emulator save states. What breaches the realm of diegetic player action in the practice of restarting a level becomes a reflex action, as quick to the hands that play as the actions of running or jumping. Saved games and everyday life both offer dramatic juxtaposition by which play's time can become a ray.

17 The trouble with the analogy of a magic circle is that, in any quick check, a person can only be understood as in or out. Some argue that, if there is no strict border to play, and no magic to it, then there is no magic circle. Pargman and Jakobsson (2008: 5-7) identify this as a tendency in games scholarship, pointing out also that hardcore players often feel exactly this way about gaming. For most academic writers, though, the concept is not so easy to abandon. Juul (2008: 65) summarises the importance of Huizinga's concept succinctly: 'a game must be integrated into a context in order to be experienced as separate from that context.' Because a tennis court was built, referees recognise and discuss the boundaries, someone clears the ground of debris, and players show up at the right time, the game can begin its transcendent, dramatic magic. When someone argues that tennis is a phenomenon that only exists within the white lines painted on the ground, the concept is overstretched. Tennis is played on a court, but there is more to the game than what is within its boundaries. A better example than a magic circle, from Huizinga's own

work, is a courthouse, where events are not isolated from the rest of the world, but are brought to a different intensity. With this understanding, complex functions of temporality that underlie games (process and data) and surround them (social environments) do not disappear, but attain a greater significance than ever. The magic circle should be seen as an example of the power of play, in a situation that amounts to more than a pastime. It is open to usually hidden forces, as the power of law manifests itself in a courthouse. This is inextricable from social relations that situate the event and may, in turn, be influenced by play. It is in the special context of play that a relaxed and reversible time can be encountered most directly.

Undoing in Games

18 To play *Tony Hawk's Pro Skater* (Neversoft, 1999) and its first sequel encourages a heightened intensity of rapid and precise input. Controls make the skater jump, grind, and do tricks. Each additional trick performed in an unbroken sequence not only adds its value to the trick total, but also increases the combination's multiplier by one. After a 500 point trick, another trick worth 300 points will actually add that *and* multiply the running total (now 800) by two; the second trick yields more than twice the score of the previous one. A third trick in an unbroken series adds its value and boosts the overall multiplier to three. Tricks in combinations always score better. For each scored run of a level, you only get two minutes. Insofar as a videogame rhetorically represents something as a process, the game may persuade players that certain actions will affect the model in a desirable way. The procedural rhetoric of the game (Bogost, 2007) claims strongly that doing well means doing tricks constantly, linked in absurd combos, almost the entire time. After comparing top scores with someone who plays this way, players realize they can get much higher scores, unlocking areas and winning medals that they couldn't get before. Most levels are designed so the run starts strong, often at the top of a hill. Constant tricks and big combos are a good goal, but the key to getting it done, besides practice, is to eliminate errors made early in a two-minute run that waste valuable time and make a high score impossible. Just like throwing in a flip trick on each jump between constantly varied grinds becomes an instinct, restarting when the run could have started stronger becomes strictly sensible. Or, to phrase it again in terms of procedural rhetoric, the game makes the persuasive case that in addition to constant tricks and big combos *restarting* is a key to success.

20 *Tony Hawk's Pro Skater* entices the player to restart the level. Hit start and it's the first option on the menu. It didn't take me long to discover I could hit those two buttons before I'd have to think about it. Risky openings with a big payoff are just too tempting when I undo all the bad takes. As I surrender decision making to my hands, I trust them, and implicitly the stimulation to which they respond. In this moment, 'the Video Game is an engine of control', and while I feel like I am the pure winding, spinning, turning flight of the simulated skateboard, I am also just 'following orders' (Rondeau, 2005). Swept up in engrossing challenge, transcending the ordinary, I restart to undo an imprecise landing or mistimed jump.

21 By the third sequel, *Tony Hawk's Pro Skater 4* (Neversoft, 2002), the game has more than just two-minute runs from the same starting point. Instead, the player takes on challenges from non-player characters around a much larger level. When undertaken, the challenge begins somewhere in the level with a new timer. Challenges are straightforward and mostly short. The usual button combination to restart the level now restarts just the challenge. My experience of the level as an entirety is broken into smaller sections, into particular challenges. Memory helps assemble a solution to only the challenge at hand, and need not retain a larger picture. Instant correction partially displaces memorisation of sequences and full levels.

22 The difference between the earlier and later games, in this case, is granularity. In *Tony Hawk's Pro Skater*, the entire level had to be restarted, undoing every action since the level began. In *Tony Hawk's Pro Skater 4*, only one challenge would be. This finely grained version of the typical save/reload cycle allowed *Half-Life* (Valve, 1998) some of its most interesting mechanics on the PC. Entering a menu in order to save is standard for first-person shooters, and provides a barrier between play and saving. It discourages rapid saves, by making them a bigger break from play. In *Half-Life*, the game automatically saves rather often. The F6 key saves to a quick save slot and F9 instantly loads the quick save. The distance between the player and saving has shrunk. Is it surprising that the distance between the player and death shrinks as well? The protagonist of this story is an ordinary physicist caught in the middle of an alien invasion and the Marines sent to kill

everyone. In this situation, most physicists die. Things that did not kill in other first person shooters now do. In multiplayer versions of the game, the pace leaves amateurs dead. Death can happen in an instant, but so can loading the last quick save.

23 Rosi Braidotti (2007) writes: 'death is overrated.' Although the narcissistic subject cannot imagine the world without itself, understanding death as part of a generative process orients the subject to a different understanding of life, a step further from anthropocentrism (Braidotti, 2007). Death generally functions in games as a condemnation of what the player has done, as a limit to experimentation, and as a reinforcement more constant than far off goals of victory (Klastrup, 2007). Death in games is less grave than in cinema, for example (Kennedy, 2002), or contemporary political rule (Mbembe, 2003). In most games, however, it retains a sense of drama and terminality. Death provokes a reaction in most games, whether it encourages trust, demands the player insert a coin, or provides a moment of tranquility between sessions of anxiety. In *Half-Life*, death is all part of the process.

24 Imagine an even finer grain of saving. Console systems have traditionally kept gameplay challenging and menu navigation to a minimum by the use of save points, whereas games on computer platforms allow saving any time. Console *emulators* are programs that imitate the function of a particular console but run on a personal computer, allowing people to play a Super Nintendo game on a laptop, for example. Emulation requires devoting random access memory to the game; writing all this RAM to a file creates a save state at any moment. Players share save states online and have learned how to edit many of them. Save states potentially allow for players to gain access to any possible moment in the game. Indeed, emulator save states offer a valuable tool for research, like a bookmark in a novel or an exact time for a DVD title. This navigation through all actions taken is not immediately recognisable as undoing, but this is precisely the goal of experimental undo systems in other software. A perfect undo system is a manager of all actions taken at any time on any version of a document, it includes support for branched work and allows changes made in old versions to be propagated forward. This is a minor player practice, with similarity to idealised undo systems in software, and it is the basis for other use of emulators.

25 Reading through the RAM allows a form of cheating unique to emulators. It basically works like this: pause the game, search the memory for a particular value (such as your current number of lives), then play some more and pause again. By searching again for all memory addresses whose current value matches the number of lives you now have, and repeating this process, the address that specifies number of lives can be located, and its value changed. All memory locations of the game-as-process can be identified at a frozen moment and viewed as data. Modifying this data supersedes ordinary manipulation by the game itself: you can lock in the number of extra lives at two for good. The player modifies the game's memory. In these cheats, aspects of the game state become memory locations subject to control by the player, assisted by an emulator cheating system. Actions and game state are arbitrarily configurable, not bound by laws of thermodynamics or dependent on perspective. In this moment, the game becomes a set of value capable of being changed as well as changed back. Done or undone.

26 These affordances of emulation make possible the performance practice of tool-assisted speedruns. A speedrun is a very fast and efficient play-through of a whole level or game. Tool assistance generally refers to emulation tricks. Newman (2008: 141) states:

27 > The free availability of savestates is a critical affordance of the emulator as gamers can tackle the game in extremely small sections which can be returned to if a subsequent error is made. The emulator savestate is the equivalent of an 'Undo' feature on a word processor and effectively renders the performance non-committal as steps can easily be undone and the performance rewound. The availability of emulators with their slow motion and savestate affordances make possible an entirely new way of playing video games.

28 To play a speedrun is to perform a perfect game, to manage urgency and infinitely defer failure. The process of recording a good speedrun is arduous, competitive, and demands careful planning. Individuals or teams put together maps of entire levels and chart an optimal route. The emulator runs the game at a slower speed, and the run is built almost frame by frame. Failure and other exceptions to the vision of perfect play need only occur when most efficient, when they save time and don't stop success (Wikipedia contributors, 2009). If taking a hit is the fastest way to go, it's probably worth it.

29

Gone are uncertainty, humiliation and death. The only real challenges are delays. Play as time management, as micromanagement of player input. Failure requires recognising an error and enforcing consequences. It's usually an uncertain process of self-doubt and overcoming resolved only by the player quitting or computer stating that it's 'game over.' But, here, failure can be identified easily and removed. Virtuoso play becomes possible by erasing every misstep, but for this reason is only possible in a video of the run. It is not embodied in live play, but is a material form of ideal play.

31 *Prince of Persia: The Sands of Time* and *Braid* provide the player the means to undo actions and rewind the game. *Sands of Time* is a successful mainstream third-person action game released for the major consoles and PC with a slew of sequels (and a film scheduled for release in May 2010). *Braid* is an independent game known for its innovative gameplay, made by Jonathan Blow and available only on Xbox Live Arcade for the first year after its release (now ported to Mac, PC, and the PlayStation Network). Running and jumping are important to the games, therefore, so are the details of the terrain. Precise movements are necessary to get at hard to reach places. Both games allow the player to turn back time, although for different purposes. This means that death is rarely a problem in the games, and in neither is sequence memorisation especially important. This may improve the replay value of the game: you don't get sick of the levels because you don't have to do them a hundred times. Rewind-like features produce new attractors. The player does not restart, the character does not even die, and there is no interruption in play. A different game results. For Jonathan Blow, *Braid's* designer, this seems to be an ethical point about designing gameplay alternatives to ceaseless killing and simulated bad-boy violence. For *Sands of Time*, television advertisements associated the prince's temporal power with DJing. [3] In *Sands of Time,* time control is a power of an enchanted dagger. In *Braid*, it's a fact of nature, and varies between the six worlds. Developers may like the idea that diegetic undoing lets the player overcome nasty challenges while staying immersed in the game's world. Neither game makes money on coins dropped into an arcade machine, they both depend on someone buying the game once and enjoying it enough to recommend it to others. This revenue model bases its relative stability on overworking young developers, but perpetuates itself with extremely popular games, and their long line of expansions and sequels (de Peuter and Dyer-Witheford, 2005).

33 *Sands of Time* invites comparison with the Xbox-exclusive *Ninja Gaiden* (Team Ninja, 2004). Both are third-person action games focused on acrobatics, puzzle solving, and hand-to-hand combat that came out within a year of each other and were both available on Xbox. However, *Ninja Gaiden* is very hard, and *Sands of Time* only gets really difficult in a couple of key fights. The harder game is associated with a hardcore audience, while *Sands of Time* offers something more accessible. The basic challenge of *Sands of Time* is not combat. Acrobatics that appear difficult are rather simple to execute in most cases, but do require the player knowing what ledges and columns are in range for what moves, and how to link these moves together quickly. *Ninja Gaiden* mixes combat and acrobatics, does not allow rewinding, and appeals to a more hardcore taste. In *Sands of Time*, the ability to configure trumps the ability to perform. The game's challenge is not in execution but in choosing the appropriate move and timing it right. Usually there is just one appropriate move. Part of the experience of being forced through the game, as if it were a rail shooter, is that save points in the game also show a preview of the prince navigating the next few situations, letting you know what to do in advance. This preview feature seems to confirm Rondeau's (2005) interpretation of gamers as obedient to orders. The problem with Rondeau's model is that videogames are not simply imperatives, they also deploy subtle techniques of persuasion that are more usefully understood through Bogost's theory of procedural rhetoric (Bogost, 2007).

35 *Sands of Time* and *Braid*, due to the centrality of undoing in their gameplay, suggest a different rhetorical strategy for habituating players into the game. The player soon learns that time must be controlled, dangerous actions attempted because they can be undone, urgency defused, sequences learned and completed in one ongoing experiment (rather than planned in a series of earlier attempts). It is not a challenge of performance, but of figuring out what is possible, trying it, and seeing what paths are viable. Although when undoing is built into games it seems to make them less "hardcore," the style of play that undo affords is just like that of "hardcore" players who optimize plans rather than react emotionally. A menu of available actions, with time's passage suspended, situates players within a flow chart of events that offer possibilities and combinations

that the player goes through repeatedly (Crogan, 2003: 291-292). The usual harsh imperatives of a game, such as falling off a ledge and dying, can have exceptions, by rewinding out of them.

Control and Interactive Time

36 Undoing is a form of interaction that allows direct player manipulation of time by negating the most recent past and returning to a state just before. This contradicts the model of time as a ray that is a mainstay of both scholarly game studies and everyday discussions of gaming. That model envisions a homogeneous process time (rays and lines) juxtaposed against the fixity of stored data (e.g. saved games) and the complex crosscutting timings of everyday life. That model ignores the many forms of time at play in videogames that cannot be reduced to some kind of line. By looking at specific cases of undoing in videogames, I argue that a linear model of time is particularly ineffective at understanding time's importance to player action, the relation of times between situations, and the data that software (as a process) needs and uses. Undoing fits into the time that people actually have for games. Undoing uses fixed data to change what the ongoing present moment of play is. Undoing also changes how play proceeds. The magic circle, as an intuitive understanding of play and a scholarly concept, has encouraged a deficient model of time. To the extent it secures a blank space for game time, it is misleading. I argue that the magic circle refers to a positively special site, not to an unqualified exception or impermeable membrane. The magic circle, like a courthouse, is a site (with porous boundaries) where play encounters directly something that is immanent (yet less visible) in other domains. In play, certain potentials become actualized. Play is not just an exception from a life that is otherwise real. Play can be understood in terms of its intensifications and diffractions of larger forces that a game opens out to. Following how undo haunts the time of play demonstrates the significance of interactive time in relations of power.

37 Undo makes more efficient the site of game-player control. No longer does a player explore a game, knowing they will probably not win on this life anyway. Nor does she restart with each death from the beginning of the game. A series of rotating platforms high in the sky risks less wasted effort for the player who can undo falling. The time of discipline shrinks and becomes variable. Deleuze describes this shift from the enclosed situation of a school or prison to newer techniques of power, arguing that '[e]nclosures are molds, distinct castings, but controls are a modulation, like a self-deforming cast that will continuously change from one moment to the other, or like a sieve whose mesh will transmute from point to point' (Deleuze, 1992: 4). The one who plays is not propelled forward in continuous game time, and perhaps never has been. Death, urgency, and sequence memorisations cease, with undo, to be necessities. This is a departure from the disciplinary tradition wherein games forcefully show players that they have failed. Instead, undo functions as a diffraction and materialisation of a society saturated by power relations that work by flexible control.

38 The many time systems available in contemporary media foreground the issue of time, and include ways for users to interact with it. These means of interaction join the general vocabulary of navigation that defines contemporary life with software. In comparison, the actions used in linear entertainment media are easier and fewer: play, fast forward, rewind, stop and pause (Kozel, 2000). Today, menus, edits, documents, versions, commands, transfers, and quitting are habits. As Galloway suggests, 'to live today is to know how to use menus. Acts of configuration in videogames are but a footnote to this general transformation' (2006: 17). These new forms of action, stabilised by human interface guidelines as well as programming tradition, are not just increasingly common user experiences. They shape practices that impact the everyday life of everyone else.

39 Along with many other places, the key sites for Foucault's (1977) analysis of disciplinary power have, for decades now, been switching over to software, changing the techniques of power that organise conduct (Manovich, 2008: 2-3). Games function as a laboratory for intelligible interfaces, what is fun, and for what might work in the generalisation of interactivity. This is the 'gaming paradigm' Brian Massumi (2007: 77) sees expanding to other domains, where it promises to 'make the useful less boring and the serious more engaging. It is performance-enhancing. It's big business.'

40 The game designer who defines games as a series of interesting choices, Will Wright, describes, in an interview with Celia Pearce, a game he would like to make with 'a smooth slider [for time]

where you could go forward and backward and rebranch very, very easily so that at any point I could just pull the slider back and then right there do something, then pull it back again and do something different' (Pearce, 2002). His vision draws on time travel, branching timelines in collaborative software development, and the design of linear undo systems. Technology could represent the present as a state that is one location among many possible. Wright's scroll bar of time remediates time as a ray. Movement backward is a traversal of saved data for comfort (retreat). Movement forward is automation to skip uninteresting times or for consultation (oracular). The player self-modulates (with finer granularity), making the present permanently optional. The techniques of a control society come to be taken for granted. The opening lines of *Sands of Time* express a rosy vision of this unsettled time of possibility.

41 > Most people think Time is like a river that flows swift and sure in one direction. But I have seen the face of Time, and I can tell you, they are wrong. Time is an ocean in a storm.

42 The time sense expressed as the ray of play-time has never been our only recourse in discussion of games, but it has been dominant. By its logic, much work has begun that now needs the technology of a measurable, divisible, homogeneous, time that translates other times into its regularity. Theoretical work helps game studies come to terms with empirical complexity. It also provisions our encounters with other topics that should be considered related. Theories of game time can accommodate interactive time, its translation, and the limits of its translation. If players understand the games they play (and this may be part of what it means to play a game), then the sense of time they experience need not be a river, ray, or arrow, guarded by magical borders, but an uncertainty open to mobile and surging forces coming from all directions: an ocean in a storm.

Notes

[1] The chapter on time in *Half-Real* uses the phrase "fictional time", whereas the essay on which the chapter is based uses "event time" (Juul, 2004). This stabilises the book's focus on diegetic fiction, whereas the earlier term feels more at home in a technical discussion of gaming as event.

[2] Technically, Huizinga's often-quoted argument only describes the *space* of play, and not its time. Unfortunately, his comments on time are less than energising when applied to games running on computer systems. Regarding time, he states that games are traditional, repeatable, and play themselves to a natural conclusion. Videogames require a gaming system, are not replayed so much as consumed, are rarely played from beginning to end in one sitting, and are not generally understood by players as a tradition.

[3] Gametrailers.com currently hosts multiple TV spots for *Sands of Time* here.

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