

Encoding Through Procedure:
Unexpected Meaning in Serious Game Design

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Abstract

Encoding Through Procedure: Unexpected Meaning in Serious Game Design

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Encoding Through Procedure explores the creation and transmission of ideas through game design. I argue that rules have an agency that complicates current models of procedural rhetoric. In Chapter 1, drawing from Stuart Hall's *Encoding/Decoding* model, I prepare a methodological foundation to demonstrate the unique possibilities and difficulties that game rules offer as a communicative medium. Using Kim Sawchuck and Owen Chapman's work on research-creation, I deploy a game-design-based method of research. The last step explores Bruno Latour's Actor Network-Theory both as a method of design and critique. In Chapter 2, I present a literature review of serious games and gamification. Here the field produces avenues for exploration, given the inconsistent positions it holds on serious games. In addressing these, I argue for the benefits of distinguishing gamification from serious games. Chapter 3 explores an additional set of literature interested in emergence and algorithmic representation. The argument here focuses on a lacuna in the field's conception of procedural rhetoric. I agree with pre-existing literature, that emergent results can lead to convincing arguments. That said, there is no method to date for considering how designers might produce a work which reliably creates emergent results. Instead, I argue the field focuses on post-hoc readings of games successfully communicating authorial ideas. In Chapter 4, to address these concerns, I present my own design practices. I offer three examples of serious games I completed during my doctoral work. These demonstrate the various forces which alter the process of communicating across games. Each provides distinctly moments of my own practice conflicting with the agency of my games' rules.

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I dedicate this work to my partner, Sydney Warshaw.

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1 Introduction

In this dissertation, I focus primarily on the rules that make up games. In particular, I explore the process of creating these rules to intentionally bring about some set of events. If poets use words and painters use oils, then the gamewright deploys the basic building blocks of games. According to analytic philosopher Bernard Suits's definition of games in *The Grasshopper*, these building blocks are "goals" and "obstacles" in a context of players intrinsically valuing the pursuit of those goals (38). The game designer-qua-communicator can make utterances by presenting goals (or objectives or end-states) if, at the same time, they present obstacles (or barriers or handicaps) to reaching those. Players, when clued into the situation as one of communicative intent, may attempt to reach said goals with an eye to understanding how those obstacles create some argumentation. To concretize, here is an example from Molleindustria and Harry Josephine Giles's *Casual Games for Protesters*, called *Snap Zap*:

One of you is the Hacker and the other is the Warden. As the Hacker, whenever you see spot [sic] a CCTV camera you can point at it and say ZAP, which disables it for the rest of the game. As the Warden, whenever you spot an unhacked CCTV camera pointing at the Hacker, you can point at it and say SNAP, which takes a picture of the Hacker. The Warden's aim is to take three clear, identifiable pictures of the Hacker.

(www.protestgames.org)

In *Snap Zap*, the strategy is to find cameras regardless of your role. The resulting message is dependent on the environment in which it is played, the players involved, their skill, etc. It can be inferred that participants playing this game, in being incentivized to find cameras, will discover that there are more than previously thought. They will also learn that there is

asymmetrical power between the surveillers and the surveilled. The Hacker benefits from positioning themselves with the fewest sightlines possible, whereas the Warden is not at the same risk and is instead incentivized to move more freely in order to better spot cameras. From the simple paragraph of *Snap Zap*'s rules, multiple behaviours emerge as metaphoric commentary of the surveillance state and power. This is doubly true because it is meant to be played at protests, which already shape the political situation as revolutionary.

Game Studies agrees, almost by definition, that games offer novel expressive opportunities (Murray 1998; Frasca 2001; Aarseth 2004; Bogost 2008; Sicart 2009; Wardrip-Fruin 2009; Juul 2011). Otherwise, it would be called cinema or new media studies. In this dissertation, I push back against the field's assumptions of the expressive power of games. That said, I do not undermine Game Studies' project because the resulting conclusions point to games as especially distinct from other media. Instead, I argue that games do indeed communicate ideas, but that they are hard to produce intentionally. Currently, game scholars have over-theorized the capacity for game designers to leverage their medium's affordances. Proceduralists, such as Ian Bogost, find games expressive and even create games to make arguments. While there are certainly examples of successful games which meet their objectives, there is no method proposed by the proceduralists for going about creating argumentative games. These examples are also fraught with their own failures. For instance, they may argue more than they are meant to; they may only argue in specific contexts; they might only produce their claims if players approach them in narrow ways; or they might argue the opposite of their author's intended claims. The disconnect between intent and output is not exclusive to games; the polysemic nature of expressive-objects is commonly accepted. Here, specifically, I am after the ways in which a

game's rules do this work. My claim is that rules have their own agency that alters the work after the fact. This is a medium-specific problem belonging to games.

This dissertation addresses this issue through a research-creation project. Over five years, I designed a dozen games, all of which may be classified along the spectrum from successful failures to faulty successes. Even with the scope of a dissertation, I cover three works: *Gets It Better*, *Cabinet Shuffle* and *The Amalgamated*. The first is an art game which attempts to communicate in the context of a gallery space. The second is an educational tool for students to explore the identity politics of policy makers. The third is an historical argument designed for my local community and ultimately for exploring the possibility of peer-reviewed games. These are explored in detail in Chapter 4. When I began my doctoral work, I did not consider these games as part of my project. While I knew about research-creation as a method, I had not built a serious design practice prior to entering, nor during the program. The kinds of learning and research that came from art-making were outside my training. Instead, I made games hoping to demonstrate Game Studies' research findings, particularly regarding proceduralism. By the end of a productive four years, my amassed experiments made proposing a research-creation dissertation more tenable. At this point, having made so many small games, it seemed imperative that I make a more robust interrogation of proceduralism. The previous works all left something to be desired and *The Amalgamated* was going to fill a lack. It was designed to be a celebration of games as trenchant, medium-specific, academically rigorous game design. As time and budget ran out, it stood once more as another prototype for this imaginary future.

I began my academic career in Cultural Studies. McGill University's program, focused intensely on cinema, feminist critique, the Frankfurt School and the Birmingham School. Intimidated by my colleagues' dedication to film, I carved myself a niche exploring games. I was

more involved in gameplay than my peers and predicted that the field would grow over time. Games had long fascinated me, but my focus was on the relationship between their form and culture. Games, simply put, behave differently from film, because they circulate and impact people differently. At the same time, I began taking classes with Professor Trevor Ponech. I did not know it at the time, but his work belonged to a generally maligned field, analytic aesthetic philosophy. All I knew was that his methods made intuitive sense to me and that the problems and solutions it dealt with excited me to my bones. With a focus on the nature of art, including theories of narrators, intentionality, empathy, and medium specificity, I felt at home. I was also able to interact with narrative analyses of games, which were popular at the time. While Dr. Ponech did not specialize in games, he recommended what remains my favorite book in both the field of game studies and analytic philosophy, the aforementioned text by Suits. Refuting Wittgenstein, Suits creates a cogent and useful definition of games – a definition which implied avenues for the future paths I would go down. For the first time, I felt I had a toe-hold on the world. Suits's definition was so well constructed that I could safely build a pyramid of arguments on top of it. So I did. Every time the definition ran up against incongruities with some theory at hand, I force the two to battle. The definition survived every fight, unscathed.

While I took every class Dr. Ponech taught, in an attempt to balance out my education, I completed an honors thesis with Professor Alanna Thain, whose work was more representative of a cultural studies approach to media. While I wanted to focus on her specializations, I could not help but gravitate back to analytics. These tools were both generic and fundamental enough to help in thinking about procedural ideas. The thesis she supervised was a painful exercise as I attempted to merge two fields with antagonistic axioms. In my master's at Concordia University, I once again attempted to broaden my horizons, this time with Professor Bart Simon in

Sociology, Professor Lynn Hughes in Fine Arts and Professor Jason Camlot in English. Once again, the process was overly difficult. As much as I wanted to build internally consistent syllogisms on the nature of games, the messiness of reality would plague me. My defense ended with “Major Revisions,” a 5 page *mea culpa* explaining the differences between the projects of analytic aesthetic philosophy and my supervisors’ fields.

Once again, going into my doctoral program, it now became clear that I would have to give cultural studies and communications more space in my work. This dissertation continues to reference Suits, while still doing its best to avoid past pitfalls. I still think like an analytic aesthetic philosopher. I look to build and destroy definitions. With the literature review, I challenge definitions of serious games, gamification, and the games-as-exemplars. I wasn’t sure why I bothered, but my instincts told me to follow small inconsistencies. This impulse dragged me, largely against my will, to realize that the proceduralists’s project, which I adored, had flaws. With that metaphoric crack in the wall, standing on my metaphoric toe-hold, I was able to ram the metaphoric wedge that was my new mix of theoretical backing and creative practice. The major difference this time, with the help of my supervisor Professor Darren Wershler, was to bring in theorists who could help with messiness of reality. The analytic lens has a hard time handling too many moving parts, it is too slow to account for everything. I hope in this thesis to retain the rigour of analytics, which means reframing questions so that the chaos of the real world is accounted for without simply breaking the method. While there is great pleasure in working through tidy definitions that behave like mathematics, I admit that being capable of talking about the real world is equally fulfilling. So, in this next methodology chapter, I work through scholars like Stuart Hall and Bruno Latour, who force an exploration of networks of power. They explode the perfect syllogism into a context that cannot be explained so neatly.

2 Methodology – Encoding/Decoding & Research-Creation

Thomas Kuhn in “The Structure of Scientific Revolutions” writes that researchers mostly perform “normal science” (10). Essentially, scientists operate inside a paradigm with set kinds of practices and expectations, and for the most part they fill gaps. He calls this “puzzle solving” (36). When I set out to design a game featuring a procedural argument, I was essentially operating inside a popular paradigm in game studies. Games, it is agreed, can communicate arguments. My plan then was to demonstrate that I could make a medium-specific, peer-reviewable argument through game design. The payoff would be evidence that games could be capable of producing new meaning on certain topics. Somewhat frustratingly, my results continued to leave me unimpressed. Either my games were saying too much, not enough, or the opposite of my intentions. For this reason, this methods section is backwards.

Drawing from the French sociologist Bruno Latour and his actor-network theory, I felt that games would be ideally suited to represent the findings his method produces. Latour’s strategy is to chart a network’s various forces and treat them flatly – that is to say, without preference for human agency over others (such as objects, animals, microbes, etc.) I would use his research-gathering tools to plot and construct a game, rather than an essay. I chose to do this for *The Amalgamated*, a game project focused on the 1915 labour movement in Montreal. I did the requisite research to plot that moment and build it into a game. In theory, this should have been possible, as I outline in chapter 4. In the end, it was more interesting to plot myself. This should not have been a surprise; it happens to Latour in his own writings. The final section of this chapter explores Latour’s method in two valences. On the one hand, the method aids in the construction of the games that make up the research-creation in this dissertation. On the other, it allows me to reflect on that process. Like a clever programmer, I have the piece of code pull

double duty; while I've pushed Latour to the back of this section, he is actually sandwiching my methods. I started with ANT, worked through my additional methods (and theory,) and then came back. The return allowed me to realize that I should consider myself an actor caught in my own network.

The second methodological approach exists under a more nebulous set of terms, such as "research-creation," "practice-led-research," "critical-making," etc. Canadian communications scholars Owen Chapman and Kim Sawchuk's work on research-creation sketches the various modes this method takes. Additional scholars develop Chapman and Sawchuk's thoughts and serve to demonstrate the different ways one can think about academic production outside of essays. The research-creation method also serves to legitimize the practice of making games as part of one's doctoral work. Once I realized that *The Amalgamated* offered different utility to my thought than I had imagined, I began to revisit other games I had made during my doctorate; I discuss a subsection of these games at length in Chapter 5.

That discussion begins with Stuart Hall's work on Encoding/Decoding. Hall is fundamental in understanding how making media is a negotiation between politics, materials, power, etc. It acts, at times, as a specialized version of Latour's ANT for media. Fundamentally, Hall's theory is about the concept of articulation. He sees, like Latour, that human agency is limited and that media production is a function of much more than intent. It is also about ideology, and includes a set of concepts and theoretical tools for discussing the creation and reception of television, although it remains applicable to games and other media. Hall's model was central in the development of cultural studies, extending the method of close analysis in search for textual meaning. On the one hand, it highlights the multitude of factors outside of authorial intent which shape a given work; on the other, it demonstrates additional factors which

affect the ways in which readers interpret a given work. While both aspects are useful here, it is the encoding portion that forms the focus of the dissertation. Of course, one cannot inspect what is being encoded without subsequently decoding. What I mean is that I continually failed to encode even for myself, as the generous reader trying to do “normal science.” In Chapter 4, when I discuss some paradigmatic examples of procedurally argumentative games, Hall’s work becomes both useful and problematized. While scholars and designers seem ready to grant game authors significant amounts of authorial control, I do not. Not only do all of the forces Hall outlines affect the output of the designer, but the emergent structures of those games that create procedural arguments can themselves distort the intended meaning of the author.

2.1 Stuart Hall’s Encoding/ Decoding Model

Stuart Hall created the *Encoding/Decoding* model of communication particularly for television (see Figure 1). In her retrospective analysis of Hall’s work, “Wrestling with the Angels,” Linda Steiner suggests:

His crucial intervention was to see responses and interpretations as socially structured and culturally patterned. So, on one hand, meaning-making is not totally free and unconstrained; not every conceivable meaning is equally likely or equally valid. On the other hand, distortion, disjunction, or ‘lack of fit’ between the codes of those sending and those receiving through the circuit of mass communications is always possible, if not inevitable. (108)

While previous models brought attention to the processes audiences use in understanding media, Hall’s zeroed in on the ways ideologies shape and are shaped by those processes. In this case, Hall suggests that each person inhabits their own personal and social contexts and that these

afford and limit interpretation. Hall’s model complicates and rejects the idea of a “passive audience” by focusing on the ways in which spectators construct meaning. This process of extracting meaning is what Hall calls decoding. Throughout Hall’s work, there exists a tension between the capacity for the audience to read their own ideological position and the text’s encoded message. Hall argues that authors can create preferred readings, but that they cannot ultimately control what is taken away by the reader. Metaphorically speaking, the reader must find a path between the work’s guardrails and their own.

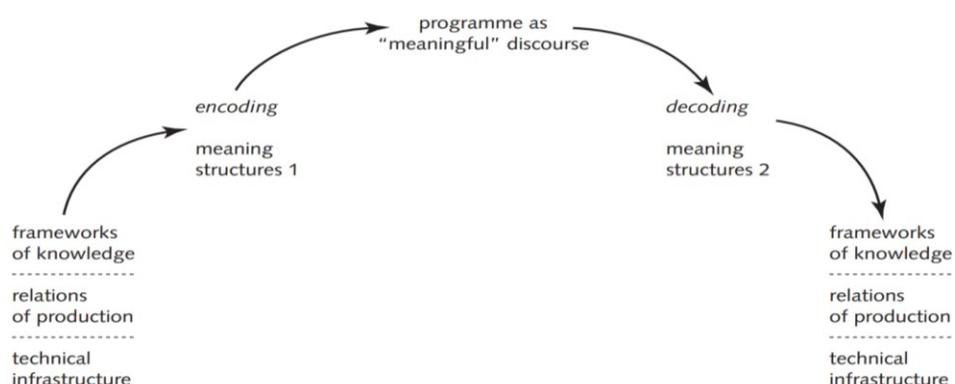


Figure 1 Hall 165

2.1.1 Encoding – Tools for De-naturalizing

While readers are engaging in decodings that reproduce their ideological positions, media makers are themselves encoding their own ideologies into media. Hall argues that this activity is similar in some respects to decoding:

[T]he production process is not without its “discursive” aspect: it, too, is framed throughout by meanings and ideas: knowledge-in-use concerning the routines of production, historically defined technical skills, professional ideologies, institutional

knowledge, definitions and assumptions, assumptions about the audience and so on frame the constitution of the programme through this production structure. (165)

Encoding, for Hall, is the ideologically and discursively inflected practice of embedding information to be communicated. Similarly, decoding is itself ideological work. While the model thus builds a symmetry in thinking about the message as ideologically structured on both ends, Hall insists that the two processes are not actually symmetrical. He writes:

The lack of fit between the codes has a great deal to do with the structural differences of relation and position between broadcasters and audiences, but it also has something to do with the asymmetry between the codes of “source” and “receiver” at the moment of transformation into and out of the discursive form. What are called “distortions” or “misunderstandings” arise precisely from the lack of equivalence between the two sides in the communicative exchange. (Hall 166)

This makes sense to anyone who has tried to make a communicative object. Making a videogame, for instance, is nothing like playing one. For encoding, “The process thus requires, at the production end, its material instruments – its “means” – as well as its own sets of social (production) relations – the organization and combination of practices within media apparatuses” (Hall 164). These features of encoding limit and afford what can be encoded. Hall gives a rather larger list of forces impacting articulation here. The first, material means, appear to structure the encoding almost naturally, with each different medium, given its specific properties, affording what is encoded. For an obvious example, narrators are common in literature, but are quite rare in painting. To communicate something with a narrator alters the content. Therefore, text and painting communicate differently. Now, the differences between text and painting extend much

further than narration, and on each point there is a communicative shift. There are also, necessarily, ideological ramifications of opting for one of these two modes over the other. However, because the features of these media appear natural, the ideological inflections they make often go unnoticed. For instance, paintings naturally do not have narrators and to suggest that an author is doing ideological work by forcing out a narrator would be rather odd. Instead, the manoeuvre Hall would have us make is to think about the medium itself as doing that work. We are getting closer now to the idea that encoding creates ideology.

While Hall argues that these material properties affect encoding, it is their “articulation” through the social relations of production that he ultimately focuses on. In a 1986 interview with Lawrence Grossberg, Hall explains, “the term has a double meaning because “articulate” means to utter, to speak forth, to be articulate. ... But we also speak of an “articulated” lorry (truck): a lorry where the front (cab) and back (trailer) can, but need not necessarily, be connected to one another. The two parts are connected to each other, but through a specific linkage, that can be broken” (53). Here I think of censorship laws, government agencies, business models, workforce hierarchy, architecture, disease, etc. Each of these connects with each other in historical and contingent ways. When they then connect to media production, they inflect and shape what is said by virtue of those linkages. In this very paragraph, my own work cites Hall for a variety of ideological, structural, and linguistic reasons that go beyond my intents to say things and in turn citing Hall does more than communicate his thoughts. As Hall puts it, “the theory of articulation asks how an ideology discovers its subject rather than how the subject thinks the necessary and inevitable thoughts which belong to it” (53). Hall is looking for tools to think through the ways media exert power that would otherwise seem too “natural” to notice. What encoders want to

say, how they say it, when they say it, the cost of saying it... all of these are inflected by agency outside themselves. Hall helpfully thinks of encoding as a

process in terms of a structure produced and sustained through the articulation of linked but distinctive moments – production, circulation, distribution/consumption, reproduction. This would be to think of the process as a “complex structure in dominance”, sustained through the articulation of connected practices, each of which, however, retains its distinctiveness and has its own specific modality, its own forms and conditions of existence. (Hall 164)

Critics can then inspect the different articulations to see how ideology comes to construct what is encoded. The implication for Hall is that *dominant* ideologies are constructed and perpetuated because media are subject to these forces. For Hall, the construction of media objects is generally a project of “dominant ideological definitions and representations” (“Introduction” 118). Here there is another asymmetry with decoding. The decoder does not have the same apparatuses structuring their reading, and thus holds additional freedom in extracting meaning, and of course additional constraints. This freedom as previously mentioned is not total; “Unless they are wildly aberrant, encoding will have the effect of constructing some of the limits and parameters within which decodings will operate” (Hall 170). In order to extract or enact additional readings we must turn to method. With methods such as Hall’s, it becomes possible for the critic to describe the naturalizing forces that articulate the dominant and resistant modes of discourse.

2.1.2 Decoding – Tools for Thinking About Resistance

To explain how decoding works, Hall makes use Antonio Gramsci’s concept of hegemony (1971). Hall writes, “The definition of a hegemonic viewpoint is (a) that it defines

within its terms the mental horizon, the universe, of possible meanings, of a whole sector of relations in a society or culture; and (b) that it carries with it the stamp of legitimacy – it appears coterminous with what is “natural”, “inevitable”, “taken for granted” about the social order” (172). Here readers have their own additional set of metaphoric guardrails preventing them from producing certain readings. When a dominant or hegemonic reading is produced it is because both the author and the reader generated a communicative exchange within a set of norms. Hall explains that while this process happens regularly and seemingly easily, “In speaking of dominant meanings, then, we are not talking about a one-sided process which governs how all events will be signified. It consists of the “work” required to enforce, win plausibility for and command as legitimate a decoding of the event within the limit of dominant definitions in which it has been connotatively signified” (Hall 170). These dominant meanings are more readily produced because they are encouraged or encounter less resistance by those in power. Here I can think of censorship laws, market pressures, media affordances, etc. While both of these phenomena are “natural,” insofar as they are ubiquitous and taken for granted, they are also subject to change over time, the result of uncountable forces acting with and against each other. This is the work that goes unnoticed, but that Hall signals here.

The act of reading or watching is inflected by ideology, which results in a variety of meanings being extracted. Hall considers four ways of decoding: dominant, oppositional, negotiated and professional. Hall argues that, “we must recognize that the discursive form of the message has a privileged position in the communicative exchange (from the viewpoint of circulation), and that the moments of “encoding” and “decoding”, though only “relatively autonomous” in relation to the communicative process as a whole, are determinate moments” (Hall 165). Dominant readings occur when the audience members approach the work with a

hegemonic viewpoint. This is reading “with the grain,” so to speak. Here the goal is often to understand the author’s position and consider it as valid. Steiner writes, “The *dominant* or hegemonic code applies when the viewer ‘takes the connoted meaning full and straight and decodes the message in terms of the reference-code in which it has been coded.’ Thus, ‘dominant’ means not simply ‘the majority,’ reflecting Hall’s concern, again following Gramsci, that media reinforce the interests of the dominant class, albeit never seamlessly” (160).

Oppositional or resistive readings refer to the reverse, where audiences resist interpreting the dominant meaning. The dominant reading here is generally the author’s. As Hall explains,

Finally, it is possible for a viewer perfectly to understand both the literal and the connotative inflection given by a discourse but to decode the message in a *globally* contrary way. He/she detotalizes the message in the preferred code in order to retotalize the message within some alternative framework of reference. This is the case of the viewer who listens to a debate on the need to limit wages but “reads” every mention of the “national interest” as “class interest”. He/she is operating with what we must call an *oppositional code*. (Hall 172)

The third reading Hall proposes highlights that these two previous readings are on a spectrum. Negotiated readings reproduce some of the dominant discourse, while holding any amount of resistance at the same time. All of this can also be inverted. For instance, an oppositional text can be read as confirming the dominant ideological position.

The final mode of encoding Hall charts is the professional code, which recreates “the dominant definitions precisely by bracketing the hegemonic quality, and operating with professional codings” (171). Because the professional code focuses on the technical aspects of transmission, while attempting to appear “unbiased,” it helps to reproduce what is already

dominant. This reproduction of hegemony is only partially intended. Even when the professional code seeks to report on what is literal, mitigating whatever connotative message it produces, it continues to produce ideological work. Hall writes, “So it is at the connotative level of the sign that situational ideologies alter and transform signification. ... This does not mean that the denotative or “literal” meaning is outside ideology. Indeed, we could say that its ideological value is strongly fixed – because it has become so fully universal and ‘natural’” (168). Hall’s professional code is of particular importance here. As a game designer, my work naturally gravitates towards pre-existing standards and norms for what constitutes a game. Even when I discuss my more avant-garde work, there is an obvious commitment to maintaining the ideals of the strategy game market. So while I position myself as artistic by downplaying “fun” and “balance,” two important signs of professional game design, I still never give up on strategy. I see now that I insist on letting players think about maximizing their use of resources. This, for instance, in turn solidifies the idea of utilitarianist problem solving as a dominant mode of rational thought.

2.1.3 Adapting Hall’s Method to Games

Hall writes, “what we can know and say has to be produced in and through discourse” (Hall 167). We cannot know what we are not allowed to say. We cannot learn through what we cannot read. Powerful agents can prevent us from accessing certain thoughts. The material structures with which we communicate can do the same. Artists have found ways to hack this problem – for instance, Oulipo’s writing produces texts through randomness. Tristan Tzara’s “To Make a Dadaist Poem” demonstrates a possibility for saying something from outside of discourse, while still offering a chance at meaningfulness inside of discourse. Here are his instructions:

Take a newspaper.
Take a pair of scissors.
From the newspaper, choose an article of the length you would like your poem to have.
Cut out the article.
Then cut out each of the words that compose the article and put them in a bag.
Shake it softly.
Then remove each cut-out, one after the other.
Carefully copy them out
In the order in which they left the bag.
The poem will resemble you.
And thus you will be an infinitely original writer of charming sensibility, although still
unknown to the common crowd. (382)

This process produces a semi-random poem. By choosing to cut out a newspaper article, Tzara can keep relevant names and verbs in play. On the other hand, by altering their order, he makes it possible to say the unexpected. If we take any of the poems produced, as a work of Tzara's, then we have a particular challenge Hall's model. However, Tzara's poems are not meant to be read as such. They are not likely, in themselves, to accidentally produce critique. Instead, Tzara is encoding through refusal to encode. He can only refuse to fight against dominant ideology by stating that poetry is incapable of escaping it at the moment he is writing. The Dadaist gets to say, "this situation is so bad I won't say anything at all, my very thought is compromised." The previously established articulations cease to control, even discreetly, what is said. For instance, the laws of grammar and language fail to exert their total force. The unspoken laws of propriety disappear as well. The encoding process is only troubled if the reader bothers to engage with the poem as meaningful in its words, which defeats the purpose of the method. With regards to Tzara's act, the decoding process remains the same as ever. Readers can ignore, resist or fail to produce alternative meanings because they are themselves articulated into a particular subject position. I like the cut-up method because it reminds me of games and their unexpected recombination of predetermined elements. The difference is that the recombination is meant to be decoded.

Hall's theoretical work, while employable for media other than television, produces exciting questions for games. Communications scholar Bryan Behrenshausen suggests that game studies researchers participate in a decades-old tradition in media and cultural studies, one that takes seriously the notion that audiences are not merely passive recipients of the media content they encounter, but active participants in co-constructing that content through various acts of creative interpretation, resistance, appropriation, negotiation, and co-optation. Video games' supposed 'interactive' nature makes the medium a particularly appealing object around which research regarding the 'active audience' might emerge. (873)

From the decoding angle, games present a problem. When a player interacts with a game, they reconfigure the display. In *A Philosophy of Computer Art*, Dominic McIver Lopes suggests that games, as computer art, have a stronger version of interactivity than television (36). Players are invited to change the work's audio-visual-haptic output, and as such contribute to the authorship of a given performance. In either case, the work of the artist or curator is fixed. Be it code or text or paint, the gesture of making is locked. Like with Tzara, the labour of making the method is what is being encoded. Even so, the weird poem and the emergent game can be interpreted. It is that possibility that gives power to the artist's act in the first place. However, in the case of games, the input of the player feeds back into the display. For Lopes, this makes them distinctly interactive. Behrenshausan points to a plethora of scholars who take this position:

For Jansz (2005: 222), the video gamer is 'the ultimate case of the so-called "active media user"'. And gamers are 'productive players' (Humphreys, 2005; Taylor, 2006b) in an additional sense: 'This is more than the active interpretation we engage in with

conventional media texts, more than identity construction through consumption; this is an engagement which serves to create the text each time it is engaged' (Humphreys, 2005: 38, emphasis in original). Through acts of 'playbor' (Kücklich, 2005), the active gamer is involved in the material production of media content itself. (875)

This player is akin to a pianist playing Beethoven. Should the pianist take a certain tack, interpreting the piece in a particular way, then the performance itself will be open to different interpretations. Unlike game players, the pianist must work hard to produce a cogent interpretation of Beethoven. The gamer can stumble into a playing of the game, not knowing what effect their decisions will have on the display. By the same token, virtuosic play is possible, offering opportunities for players to express themselves through the game-as-work (see Robinson 2012). Of course, virtuosity is itself a function of ideology. At stake for Behrenshausen is an acknowledgement that the production of meaning in games is solely dependent on neither the work of the designer nor the player, but that the two in concert with a variety of agents form an assemblage that articulates various meanings. Responding to those scholars who debate the primacy of the game-as-text or the play-as-performance, Behrenshausen suggests:

Recent player-centric research responds to what it perceives as a problematic preoccupation with structures at the expense of agents. 'Structures may be necessary to begin gameplay', writes Mia Consalvo (2009: 415) in an essay evaluating the scope and trajectory of research in video game studies, 'but we cannot stop at structures as a way of understanding the gameplay experience.' (874)

Behrenshausen believes that the dichotomous relationship between the author's rules and the player's interpretation fails to consider the other agents at work. He writes:

By insisting that gaming consists of contests between diametrically opposing forces, such projects urge researchers to identify one of these as ultimately dominant, and establish relations of negative difference between that dominant force and other forces acting in a gaming situation. Moreover, games studies that understand agency as the internal property of the active gaming subject often have difficulty accounting for the complex arrays of additional bodies and forces whose activities just as actively constitute the situation. (880)

Furthermore, Behrenshausen argues that this insistence on player creativity and input is itself a political move – one he does not support:

Explanations of interactions between reader and text – between agent and structure, or player and game – thus involve a notion of agency as the capacity to overcome determination by the objective stuff of structure, to reconfigure infinitely the material constraints imposed on some kernel of undetermined creativity. Such assumptions are therefore not without a certain political impulse. Recall Grossberg’s (1997) suggestion that invoking an audience is often a means of making guarantees, of simultaneously performing and obscuring articulatory work that constitutes relationships between people, technologies, texts, institutions, and power.” (880)

Instead, Behrenshausen is ready to include a variety of different additional agents. He thus doubles down on the game as uncertain object. The rules do not make the game, the player does not either, instead it is the articulation of nearly everything. Games are like television or anything encoded and decoded, insofar as ideology acts as both input and output. Of course, tracing any certainty in this multi-faceted theoretical approach is now impossible. Behrenshausen would

have us repeatedly return to the object looking for various meanings. It is important to note that Behrenshausen is not determining something specific to games; rather, he is importing the ways other media demonstrate their articulations and explaining that games work similarly. My thesis supports Behrenshausen's claim, but adds that games have an undertheorized articulation specific to them. My claim is that the rules themselves have agency that is not identical to the author's.

In writing about new media and games, Adrienne Shaw meshes Hall's work with William Gaver's theories on affordances. For Gaver, objects present perceptible (where things do what they look like they do), hidden (when things do unexpected things) and false (when things do not do what they appear to do) affordances (594). Shaw explores the further development of Gaver's work via Nagy and Neff's theoretical exploration of imagined affordances. For Shaw "Imagined affordances, and here they mean imagined by both users and designers, push back against the assumption that affordances are rational and immutable, while demonstrating that at their core they are about interpretation" (596). Shaw suggests deploying Hall's encoding/decoding model, inflected with affordance theory, in order to address the complexities added by new media. In particular, she explores how audiences participate in the encoding process through a variety of means. She writes, "All interactive media technologies can be looked at in terms of what they allow users/audiences to do. What types of uses do they lend themselves to? What types of interaction do they encourage? Technologies are not ideologically neutral in their design, in what types of interaction they allow or disallow" (597). With regards to games, then, Shaw traces a series of interactions that players engage in to reshape (or re-encode). She gives the example of cheating, which may appear oppositional at first, but is complicated by often being intentionally programmed in, or intentionally used to surpass a broken segment. While players can produce

resistant readings, as in the example of cheating, determining the context requires medium-specific expertise. Thinking through imagined affordances, Shaw argues that we are better able to detect expressions of power and resistance when addressing algorithms, which are largely hidden from view (597). This is because those algorithms require that the tacit be made explicit. Behrenshausen argues that player-centric research errs in suggesting that its value “lies in its ability to understand precisely how players can transcend the pre-given, objective limits of the structures they encounter – how they can (re)gain control over these structures, (re)assert their autonomy within them, and (re) negotiate their ownership of them” (879). In his view, the player cannot muster enough agency to forward their own interpretation. They are limited culturally, materially, technologically, etc., which then articulates them ideologically.

Shaw’s interest in reframing decoding and tying it to encoding is appropriate, but it does not address the other half of the process. The encoding portion of the model is similarly troubled. For Hall, the act of encoding requires a decision-making process regarding symbols (599). The encoder selects from a series of available symbols and juxtaposes these for some future reader to understand. In the case of the game designer, this is one step removed. In selecting an algorithm, one is selecting a symbol-producing system that might generate the unexpected. One’s own work then becomes capable of generating its own resistant readings. We might call this an affordance of the medium, which is more present in algorithmic work. For Pearce and Artemesia, games are the product of “a confluence of imagination: that of the designer and that of the players’, but ‘the paradox [is] that the game designer can never entirely anticipate the player’s imagination’. This ‘is the very essence of emergence’ (2009: 31)” (Behrenshausen 878). While this is certainly the case, there is a second difficulty to address, which is that the author cannot even accurately anticipate unimaginative players.

At the beginning of the chapter, I stated that the focus of this dissertation is the encoding portion. This is a somewhat paradoxical statement; one cannot explore encoding without also decoding what was encoded. Metaphorically speaking, one cannot perform a study on the safety of cardboard packaging without opening up the cardboard packages. That said, I intend to sidestep certain aspects of that unpacking because the problem I chart happens so early in the process. As soon as someone attempts to encode meaning into a game, it is already broken. I do not need to ship the metaphorical box to open it; closing the lid does enough damage.

Behrenshausen points out that leading game scholars would resist my approach:

The player seems to breathe life into an otherwise inert game-thing. Consalvo (2009: 415) echoes this perspective on the player-game relationship when she insists that ‘games are created through the act of gameplay, which is contingent on acts by players’. It is in the dynamic clash of agent and structure ‘where the game occurs and where we must find its meaning’ (Consalvo, 2009: 415). (878)

I do not disagree with Consalvo. In fact, her work demonstrates through a different method than mine some of the same problems I find. Behrenshausen continues, “In order to avoid the structural determinism ... inherent in formalist work on video gaming, player-centric studies stress that while video games may be constructions, they are, at the very least, social constructions that ‘emerge’ through the interplay of agent and structure” (878). I have no interest in forwarding a deterministic argument here, which is why side-stepping a player-based decoding analysis appears possible. Instead, in my own design-research practice, I can decode my own work. I do not need to send the package precisely because I am arguing that its contents are immediately broken. With the goal of producing a deterministic dominant reading as an internal test before releasing the game to the wild, I fail.

2.2 Chapman & Sawchuk on Research-Creation

Owen Chapman and Kim Sawchuk develop an overview of the various strategies used by researchers who incorporate making things into their practices. They use the term research-creation but note its many variants. In order to address the messiness of the concept, they deploy “Wittgenstein’s insights on the use of examples [that] are part of a theoretical understanding of the ontology of “research-creation” not as a thing, but as a concept with blurred boundaries. Research-creation is not a fixed methodological approach” (Chapman & Sawchuk 14). They rightly use Ludwig Wittgenstein’s idea of “family resemblances,” given that the strategies do not have much more in common than the supposition that they “typically integrate a creative process, experimental aesthetic component, or an artistic work as an integral part of the study” (Chapman & Sawchuk 6). In total, they trace “four different types of research-creation: “research-for-creation,” “research-from-creation,” “creative presentations of research,” and finally “creation-as-research” (Chapman & Sawchuk 7). In addition to tracking the literature, they also pay particular interest to the Canadian Social Sciences and Humanities Research Council’s position on research-creation. Chapman and Sawchuk explain that

the document goes on to state that to qualify for research-creation, the researcher must be able to demonstrate that they have held a “sustained creative practice,” that the works must be unpublished “productions,” and that they must contribute to the renewal of the discipline in question.” This renewal of one’s discipline occurs through positing some form of innovation that can be assessed through a process of peer-review that will acknowledge what is original about the project along with its potential to foster student training and enrich ‘national and international cultural heritage’ (SSHRC, 2011a). (9)

Chapman and Sawchuk see these various theoretical moves as a novel or alternate means to the creation of knowledge. In particular, they propose that otherwise impossible knowledge can be produced through what they call an “epistemological intervention into the “regime of truth” of the university (Foucault, 1980)” (Chapman & Sawchuk 6). This intervention meets resistance from the university for a number of reasons.

In discussing one manner of research-creation in Human Computer Interaction, Daniel Fallman writes that “[The fact t]hat design culture is based on intuition, taste, and personal experience creates tensions between the two cultures. This is because it is quite the opposite what would be expected from the research culture, where decisions cannot, at least ideally, come out of the researcher’s own judgment, intuition, and taste. If they did, they cannot (by definition) be regarded as scientific” (199). Fallman is not suggesting that this manner of research creation is worse; only that it resists the paradigm of scientific inquiry, and as such requires different critical lenses. Despite its potential as a legitimate methodology, Chapman and Sawchuk, like Fallman, note its unscholarly appearance. This is notable because both come from distinctly different disciplines. Ratto compares critical-making to HCI as well:

With its emphasis on critique and expression rather than technical sophistication and function, critical making has much in common with conceptual art and design practice, as well as recent work in the area of human-computer interaction (HCI). ... However, critical making differs from these practices in its focus on the constructive process as the site for analysis and its explicit connections to specific scholarly literature. (253)

Chapman and Sawchuk write, “In research-creation approaches, the theoretical, technical, and creative aspects of a research project are pursued in tandem, and quite often, scholarly form and decorum are broached and breeched in the name of experimentation” (6). This is certainly true in

my own knowledge development through game design. Given the nature of creating a game and the parallel scholarly work, the lure of continually stopping and/or changing projects to address new issues is great. In creation, it seems that plans are more easily waylaid or deemed too expensive in terms of opportunity cost, given the discovery of better courses. Chapman and Sawchuk propose that one important way of learning through creation is in tacit knowledge production. They explain, “Barrett (2010) also operationalizes concepts such as ‘tacit knowledges’ and the ‘alternative logic of practice,’ drawn from Pierre Bourdieu. These are used to bring research-creation into alignment with more conventional research methods, pointing out that ‘un-scientific,’ intuitive ways of knowing may underpin all discovery, yet, this is often systematically unacknowledged within traditional research paradigms” (Chapman & Sawchuk 12). Fallman similarly explores this idea of implicit knowledge:

In research-oriented design, the artifact is the primary outcome; it is regarded as the main ‘result’ of the efforts undertaken. It is quite obvious, however, that this conduct also generates various kinds of knowledge, in terms of experience, competence, implicit knowledge, as well as, sometimes, the more general kind of knowledge that can be rather similar to that typically coming out of a research project. (Fallman 198)

Tacit knowledge is obviously unmeasurable, which is why SSHRC uses the term “sustained practice.” The concept is essential to this dissertation insofar as my own legitimacy as a maker is called into question. Here I can only offer that I have played a diversity of games for a decade and have been making them consistently for seven years. Despite my experience, I selected ANT as a means to objectively create a game. My underwhelming experiments, however, do not receive the benefits of the method. They should have been able to represent the network effects and agency-flattening characteristic of Latour’s analyses. Instead, they got bogged down by

exponentially complicated representation. All I can say is that I tried and that I should theoretically be good at it, given the effort I've put into being good at game design.

Matthew Soar, in explaining his methodological approach to inquiries into different film leaders, cites Chapman and Sawchuk. He develops the following:

My overarching *method* is research creation, an emergent, flourishing approach in Canadian humanities and fine arts combining scholarship and media making. ... However, instead of thinking in terms of the melding of two related but distinct modes of knowledge production ("research" and "creation"), I prefer the idea of a "dual consciousness" located at the "pressure-points between theory and practice" – a kind of hybrid knowledge production "that often develops in the experimental and iterative practices deployed by artists." So, while this article strives for a formal, scholarly tone, it is also part of a larger body of work called Lost Leaders, involving, to date photomontage, microvideography, camera-less animation, interactive nonlinear "sketch" films, light painting, and stained glass. In short, I think critically by writing *and* making stuff, just not necessarily in that order. (Soar 24)

Throughout his work, which explores the standardization of film reel leaders, Soar never refers back to the ways in which his practice affects his theory. Instead, on the surface, he follows a methodology of close analysis and archival research. Soar embodies knowledge of film leaders through having used it, played with it, incorporated it into his art, etc. There is an un-scientific element to his knowledge production that resists description. Instead, he writes about the sober, well-understood, archaeological knowledge-making strategy of digging up old media objects and thinking through their material properties. Soar's arguments do not suffer from this omission, but

it is remarkably candid for him to state that there is an ineffable method at work behind the scenes.

2.2.1 Creation for Prototyping

Fallman identifies another version of research-creation, whereby the design is built from the scientific method. In this case, research-creation is nothing new; science has been building prototypes and experiments since its beginning. While Fallman creates a distinction between the versions, he clearly points to their enmeshed nature. He explains that, “design and research seem to fuel each other ad infinitum. Because of this, design-oriented research and research-oriented design are not dichotomies or even two separable conducts at all but rather two intertwined processes in support of each other” (Fallman 196).

Matt Ratto, following Fallman’s distinction, develops further details for his own method. It works in three parts where “[o]ne stage involves the review of relevant literature and compilation of useful concepts and theories. This is mined for specific ideas that can be metaphorically “mapped” to material prototypes, and explored through fabrication” (253). Here we have the development of the literature and hypothesis that is common to research. There are two notable assumptions however: the first is that metaphorically mapping things is likely to create valuable ideas; the second is that those ideas can be considered in the fabrication of the metaphor. I find both of these claims to be immediately compelling. In my own work with games, designing procedures is often a means of mapping metaphors together. These combine to produce strange results that demand attention. Ratto similarly uses procedures, albeit outside games. For instance, with his work *flwrs*, different flower-shaped, light-sensing, light-emitting sculptures interact with one another. Ratto has the *flwrs* follow certain metaphoric representations of social theory. While his work produces emergent results that speak to these social metaphors, he explains that he must

“emphasize the metaphoric nature of this operationalization, stating explicitly that the code behaviors were reductive insubstantiations of the complex human activities the theories were intended to generalize” (Ratto 257).

Ratto continues, “In another stage, groups of scholars, students, and/or stakeholders jointly design and build technical prototypes. Rather than being purposive or fully functional devices, prototype development is used to extend knowledge and skills in relevant technical areas as well as to provide the means for conceptual exploration” (253). Ratto insists that the nature of the creation is not for some end user. Making things easy to use or self-contained is costly. Not only that, but it is beside the point. Ratto suggests two alternative uses for these prototypes. On the one hand, the process of making them can be revealing. There are many assumptions that are made visible in the process of turning something hypothetical into something real. Additionally, prototypes can reveal behaviours and uses that were outside of the imagination. This, I argue, is similar to Tzara’s Dadaist poem. In having made something unexpected, new ideas can be jogged. If these ideas were random, this would hardly be useful, but because the object is constructed from a context and for a context, it can allow us to reflect these without merely reproducing them.

As it stands, nearly all methods of analysis are created for text. Be it ethnography, feminist critique, or close reading, the emphasis is such that text will be the medium that supports every part of the process, from note-taking, to submitting drafts, to publication. Text has benefits, particularly as it relates to cost of production and efficiency, but we could imagine using MIDI, or gouache, or even decoupage at each of these steps. Each of these would have to behave differently than text, and it might take a while to discover things about them that would offer things text couldn’t. That said, I am skeptical that investigative methods are medium-

agnostic. Some pairings might be more productive than others, although I offer no strategies for detecting these. Perhaps feminist critique goes well with opera and post-colonialist analysis does better with dance. Not only is an evaluation of a single pairing going to be difficult, but even attempting to canvas a wide set of these will run into problems. There are several likely concerns, such as cost of production in both time and money, accessibility in terms of medium literacy and distribution, peer validation, and even capacity for encoding information. Of course, there are already many instances of critique paired with non-textual media. One need only walk into a contemporary art museum and find it ripe with instances. This brings me to a new question, *How are artworks different from academic works?* I would like to say, in no way other than the “economies” they circulate in. The implications of those economies are such that the works in each discipline look dissimilar, but their fundamental goals align quite closely. I do not wish to develop a theory of art here so much as point to art as a cognate for my proposal. Academic work is not by definition bound to text; text offers different value to communication from other media, which means it might be fruitful to explore the capacities of other media. In this case, I offer an extended exploration of game design.

2.3 Bruno Latour’s Actor-Network Theory

History is the product of medium bias and authorial ideology. Regardless of form, be it writing, painting or dramatizing non-fiction, there are an uncountable number of lacunae in the representations that one crafts. On the one hand, it is impossible to accurately represent each person, their relationships, their mental states, their diets, their physiognomy, their buildings, machines, pets, etc. On the other, in providing too much information, or in valuing some pieces of information over others, we all but ensure that an unjustified equalization of importance occurs. Each author is forced to make decisions, often tacitly, in order to produce history. Each

medium affords certain ideas to be communicated, while obfuscating others. The skilled painter will offer the visual appearance of a figure and perhaps attempt non-figurative representation and offer context or critique. The biographer, incapable of the same visual representation, instead strings together the facts and accounts of their subject in text over time. In either case, the reality is distorted, with each piece of representation serving to highlight its different aspects. This is not to say that we must revert to hard skepticism, or that knowledge is impossible, but that in critically examining the past from a variety of media and authors, we can build more robust understandings of facts.

Two days after President Donald Trump's inauguration, his campaign manager, Kellyanne Conway, famously defended the president's press secretary, Sean Spicer. She suggested on *Meet the Press* that Spicer was not offering falsehoods, but "alternative facts." The host, Chuck Todd, responded "Look, alternative facts are not facts. They're falsehoods" (Blake). The left leaped onto this rebuttal with aplomb, but both facts and falsehoods do ideological work. The goal here is to revisit facts by representing them in new ways. In order to do this critical work, it serves us to investigate how authors and media shape these representations. My own interest here is to explore the affordances and constraints games offer in this process of representing. It should be obvious that games are constructed and represent non-fiction in their own particular ways. That said, much work has been done and continues to be done on just how games differ from other media. I argue in this dissertation that the game designer functions with a particular set of concerns and in addressing them must also engage in an exercise of self-reflection. Of course, crafting history is always an ideological activity, but it is not often that one is asked to codify it in constants, variables, and functions. For instance, one can say that space travel technologies were the result of the Cold War, but how do we then model such a process?

One might start asking things like: How many minds can be convinced America is superior to the U.S.S.R. by a space travel milestone? Does an advertising budget multiply the efficacy? Do milestones become increasingly expensive? Is the relationship between success and funding logarithmic? What are the opportunity costs of spending on NASA instead of CIA or NBC? We can start to answer some of these questions by looking at public records, poring over budgets and reading newspaper reports, but when it comes time to say that investing X amount of money in the Space Race grants Y amount of ideological shift given $f(x)$, there will always be assumptions, beliefs and bias. The inordinate number of variables to track will quickly exceed the human mind's ability to weigh them, and in turn force an abstracting process to occur. This means that making a game about late 20th century rockets will quickly reveal where one's preferences lie in the variables that are worth tracking, those that are worth combining and those that are altogether too complicated, too uncomfortable or too unknowable to include.

Herein lies a first argument for making games as research: Game design is an accidental method for knowledge creation and dissemination because it forces upon the researcher a set of questions and a set of tools capable of representing any answers to those questions. I use the term accidental here to highlight that game design is not designed as a method to answer research questions. It did not come about through debate and peer reviewed articles; it does not offer guidance for how to answer the questions it asks; it is no more a method than sandcastle building. My claim is that the formal properties of academic output, even if it is text, alter the process that generates that output. Of course, given that text is so thoroughly the dominant form of academic output, we pay little attention to it; there is no background from which to discern its outlines. For this reason, game design, when paired with text, offers a distinction in form and makes clearer its relation to content – so while I claim game design as an accidental method, the

same must be true of text. Neither of these methods is sufficiently complete, for neither offers tools to answer the questions they generate. Both require some means to do just that.

2.3.1 Designing Through Actor-Network-Theory

Actor-Network Theory has interfaced with game studies on numerous occasions, largely with regards to understanding players in relation to their games (Banks 2014; Jenson & de Castell 2008). Cypher and Richardson propose ANT as a method for approaching gameplay with a “non-humanist and anti-visualist understanding” (258). Lankoski and Björk have employed ANT to consider the fictional social networks of games, focusing in particular on NPCs. They write:

Proponents of ANT argue that actors themselves should primarily do the descriptions of the component of the networks, or by as faithfully as possible observing these and documenting how they refer to their social relationships. This provides an obstacle to applying the theory directly in design processes since the designers typically want [sic] create the actors and the network simultaneously. Creating the actors first and then letting them create a network and report a network is a potentially interesting way of automatically generating social networks, but outside the scope of this paper. (2)

While the authors point to some usable aspects, it is this final hint towards a fruitful future for ANT in games that interests me here. If we are to reimagine the sociology of fictional characters in videogames through ANT, we can find meaningful connections. Games offer an opportunity to represent actants making and remaking relations, generating the kinds of networks ANT studies.

As I have already noted, game design, or any form for that matter, while methodologically important, does not offer tools of investigation; at best it offers questions to be investigated. In order to investigate the questions that game design leads me to, I have to choose a method that offers those tools. Now, as I mentioned earlier, there are few if any strategies to find pairings between non-textual media and methods. That said, I propose here that Actor-Network Theory is an excellent candidate for game design. My contention is that ANT offers systemic questions and tools for unpacking them. The game design I am interested in is also interested in systemic questions, because of its capacity to represent things systemically. This is not to say that this is the only method with tools for systems exploration, but that the particular systems I am interested in are also the kinds of systems that ANT has been used to think about.

In *Reassembling the Social*, Latour further develops his ANT methodology. Here he asks: “How to *deploy* the many controversies about associations without restricting in advance the social to a specific domain?”; “How to render fully traceable the means allowing actors to *stabilize* those controversies?”; and “Through which *procedures* is it possible to reassemble the social not in a society but a collective?” (16). I approach game design in the same way that Latour generates lists of actors and then considers how each affects the others and their behaviour. In this way, he points to controversies at a moment in time. In my case, I sought to represent the multiple crises that arose in the 1910s regarding the labour movement, trace a multiplicity of actors, and create lines of influence from each to the others they affect. In this way, I created a dynamic system with unexpected properties where affecting one node risks affecting others, and so on. In addition to Latour’s works, I draw from various scholars who have critiqued and adapted that work (see Law 1992, 2004, 2009; Callon 2014). ANT is a method for crafting a networked representation of a given sociological problem that models the unexpected

properties of human and nonhuman agents acting on each other. In *The Politics of Nature*, Latour codifies the practice of building a shared understanding of the world, what he calls the “collective” (7). Here the sciences and politics come together to find and select entities for potential inclusion, argue about their value in the hierarchy of importance, and create a model of the world which either includes or excludes them. While Latour describes this as a communal practice, this approach mirrors his own style of academic work. For example, in *The Pasteurization of France*, Latour takes all of the academic publications in four journals over a period of time to explore Louis Pasteur’s rise. Here Latour takes bacilli, Pasteur, cows, syringes, doctors, journals, hygienists, politicians, waterways, labs, etc., and constructs a narrative for each, explaining how they play off, reinforce, or tear down each other for their own gains.

While modelling history in this way is by no means accurate, it remains useful in ways beyond self-reflection. For one, it produces new kinds of questions by prodding the unknowns and positing counterfactuals that might demand explanations for why they did not happen. This is akin to what Fallman and Ratto explain in the section above. Research-creation can act as a prototyping method, where assumptions are tested in the construction of the work. Second, it is no secret that games in the appropriate contexts can produce buy-in from would-be players. Games have a particularly powerful place in the media ecology of the 21st century and, as such, can be leveraged to spread ideas and interest in certain topics. This kind of argument is different from the previous, insofar as it does not pertain to the creation of thought, but its dissemination. That said, given that the games are played, as opposed to read or watched, we can add to this point that there are likely new kinds of knowledge-creation by virtue of the medium’s cultural position and form. This second ANT approach, unlike the player-studies or decoding lens, focuses on how a game object can be used without being played. By this, I mean that the very act

of creating a game and being able to point to it does work for the research-creator. This allows me to explain why so many games fail to communicate the intended thought of the author – and still the process of making them continues. In a cynical way, I argue in Chapter 5 that it ultimately does not seem to matter whether games do what they are supposed to, because there is no current academically constructed method for validating the success of games in the first place.

2.3.2 Latour and Woolgar's *Laboratory Life*

In their work, *Laboratory Life: The Social Construction of Scientific Facts*, Bruno Latour and Steve Woolgar provide an *in situ* account of how scientific facts come into being. They break the statements of scientists down into five categories, demonstrating how facts begin as “Type 1 statements comprise[d] of conjectures or speculations,” then move to suggestive statements, to modulated statements tied to people (such as Dr. X suggests that the data Y might indicate Z,) to unmodulated statements void of history (such as Y indicates Z,) to concepts which are not even mentioned because they are taken for granted (79). In their terms, “an important feature of fact construction is the process whereby “social” factors disappear” (23). As they describe it, “without the material environment of the laboratory none of the objects could be said to exist, and yet the material environment very rarely receives mention. It is this paradox, which is an essential feature of science...” (69). To investigate this claim, they set out as naïve observers recounting stories of the laboratory as though it were some foreign and culturally distinct tribe. This first step, while seemingly honest, is almost a metaphor preparing the reader for what comes next. While their arguments about daily laboratory life are compelling, their epistemic quandary about truth and nature is perhaps the most valuable part of their work and the focus of this review.

Because the tested objects, facts, are normally held to be the barometer for truth, Latour and Woolgar must make a difficult conceptual move. They explain, “We have attempted to avoid using terms which would change the nature of the issues under discussion. Thus, in emphasizing the process whereby substances are *constructed*, we have tried to avoid descriptions of the bioassays which take as unproblematic relationships between signs and things signified” (128). For Latour and Woolgar, the entire study would be tautological if it sought to measure science based on what science called reality (which is what is normally called reality). To avoid this, Latour and Woolgar deploy something akin to what philosopher Manuel DeLanda describes as Bernhard Riemann and Carl Friedrich Gauss’s contribution to math where they “allowed the study of the surface *without any reference to a global embedding space*” (12). When the background is exploded, all that is left to measure something against is itself; it is this last move that strikes me. By looking at the evolution of fact, Latour and Woolgar are able to plot its “facticity” against its history and future, and not against nature, which is itself a construction of other facts. Instead of framing scientific progress as a process which produces models of nature to greater and greater accuracy, Latour and Woolgar present it as a process by which doubt disappears, regardless of truth value. They write, “‘reality’ cannot be used to explain why a statement becomes a fact, since it is only after it has become a fact that reality is obtained” (180). This argument is fundamental to their contribution to methodology, as it provides a precaution against tautology.

Latour and Woolgar spend a fair amount of time theorizing “the ratio of signal to noise” in order to justify their use of “social construction” in relation to fact (239). They offer alternate histories and place scientific progress as a non-linear development where several equally probable events occur. Laboratories produce an immense amount of data which results in noise.

From this noise scientists must find patterns and curves which can be pulled from the background. These curves are so numerous that they themselves act as another kind of noise which must be parsed. Once the immense cost is paid in doing research and producing a paper, that curve is then subjected to the set of all papers published, creating another set of noise. This is a chaos upon which science imbues order, even if at each moment of noise there are numerous factors, such as career decisions, material affordances, institutional restrictions, etc., arbitrarily favoring some fact production over others. Hall would have us see this mathematical model of signal to noise as a lossy construction. Instead, we might push further and think that scientists construct that signal from their ideological positioning. I do not think this is incompatible with Latour; Hall just needs to insist that ideology (which is articulated from an actor-network) be included. This is done primarily out of a political need to address the world of human thought, alongside (and not on top of) the social.

Circumstances become another concept deployed to explain the social construction of facts. A particularly poignant example is of the scientist who, through chance, has specific machines at his disposal working with materials he arbitrarily has in abundance, only to end up putting the two together and making an impressive “contribution” to science. What is more, the initial conditions, which might have prompted investigation, are rewritten (174). Latour and Woolgar are able to make novel and interesting claims about the scientific field because they de-hierarchicalize causal forces. They flatten the different actors that make science happen, which removes much of the assumed power from scientists and returns it to objects, funding bodies, happenstance, etc. Their sketch of the scientific apparatus includes things we would otherwise ignore. As a result, they are capable of seeing facts as articulations of that process. The scientist in ANT is a lot like the encoder in Hall’s model. Both have humans as a piece of a larger puzzle

in meaning making. Latour and Woolgar theorize the possibility of considering the field of scientific noise as a space for chance that produces arbitrary thought that can be selected and reproduced. Scientists must make arbitrary decisions in what they cite and who they cite. Even if it were possible, a scientific paper could not cite each fact's origin and possibilities for doubt without becoming illegibly long. Each technological apparatus would point to more and more scientists with their own apparatuses, and so on. That interminably long paper would not be read for lack of time, and then not cited, and then forgotten, weeded out through some evolutionary process by the scientific selection biases. This is the kind of process that is so natural it resists being considered.

2.3.3 ANT Turns unto Itself

In encoding through games, I argue that one can produce an ANT work. Fundamentally, it is a question of defining actors and then tracing their forces on and around each other. For much of my academic career this was my goal. However, at the very last moment, Latour and Woolgar make the conceptual move anticipated by the entirety of the work. Once Sociology argues successfully that Science is socially constructed, Sociology must turn in on itself and see that it is the product of the very same fact-making mechanisms as science. It is equally the process of selecting pieces of noise to produce ordered facts. Latour and Woolgar illustrate this succinctly in their description. They explain:

Our account of fact construction in a biology laboratory is neither *superior nor inferior* to those produced by scientists themselves. It is not superior because we do not claim to have any better access to "reality," and we do not claim to be able to escape from our description of scientific activity: the construction of order out of disorder at a cost, and without preexisting order. In a fundamental sense, our own account is no more

than *fiction*. ... By building up an account, inventing characters..., staging concepts, invoking sources, linking to arguments in the field of sociology, and footnoting, we have attempted to decrease sources of disorder and to make some statements more likely than others, thereby creating a pocket of order. (283)

Finally, the argument goes to whomever can have their work cited. Interpretation, write Latour and Woolgar, does not inform so much as perform (285). In considering my own practice this way, I am able to think more clearly through the unique ways games themselves encode.

Immediately, I can point to arbitrary selection of agents, their abstracted forces, and any other number of design decisions I make as being a function of not only my intents but of the actants affecting me. Importantly, what Latour, Woolgar and Hall prepare me for is demonstration of the disconnect between all of those actants and the ultimate articulation of the game in motion.

1. Literature Review - Serious Games, Gamification and Games for Learning

Game Studies and Games for Learning literature offer a variety of definitions for “serious games” and “gamified learning.” Outside these fields, both in the academic and public press, the two terms are often used interchangeably. In this chapter, I propose that we review the use of these two terms and recommend that they instead refer to two different concepts. By disambiguating serious games and gamification in this way, I will build a foundation for further argumentation where I argue that serious games rely on emergence to communicate. To begin then, I will offer a brief literature review highlighting the usage of each term. Throughout, I will provide examples to ground further discussion in the chapter. During that groundwork, I will include critiques of the practices of gamification, as well as serious games. These two concepts

offer both formal and political distinctions. The crux of my claim lies in the ways we use these objects to improve learning. Gamified learning seeks to incentivize behaviours tied to learning (such as note-taking, reading, and peer-to-peer discussion). It is about exercising control on others, and often on the self. In contrast, serious games incorporate procedural rhetoric to communicate a given learning outcome; they are systems which enable dialogue between a player and a set of representational rules.

By distinguishing these concepts in this way, we solve three distinct problems that are each symptomatic of this confusion. The first problem arises from gamification scholar and psychologist Richard Landers (2014) merging research from serious games into the research around games for learning. The second is the preponderance of a relatively trivial error in serious game definitions: scholars (such as Dörner et al. 2016; Djaouti et al. 2011; De Freitas & Liarokapis 2011; Michael & Chen 2005; Zyda, 2005; Sawyer & Rejeski 2002) assume that serious games are digital objects. The third stems from Deterding et al. (2011) suggesting that games themselves cannot be gamified. While the chapter works to distinguish between these two ideas, it also argues that game objects regularly feature properties of both.

2.4 Gamification

In a piece in *The Atlantic* in 2011, media and game scholar Ian Bogost argues that “Gamification is Bullshit.” He relies on Harry Frankfurt’s philosophical treatise *On Bullshit* (2008), explaining that gamification is a term perpendicular to truth. Bogost argues that gamification is peddled by consultants “to conceal, to impress or to coerce.” He contends that consultants rely on the nebulous natures of the terms “game” and “-fication” to promote supposedly simple solutions to wide-ranging problems. A year later, Gartner analysts Pettey and van der Maulen write that gamification will succeed in under 20% of cases (2012). Bogost notes

that the process of gamifying largely involves features ancillary to games (2011). For his purposes and ours, these involve adding badges, experience points, leaderboards and other forms of metrics to pre-existing activities. In an attempt to disambiguate the term, game designer Margaret Robertson calls this practice “pointsification”—the adding of points, rather than games, to some pre-existing process¹. But this ambiguity surrounding gamification is exactly the point, writes Bogost (2011). The obfuscatory nature of the term serves its users to peddle older strategies as gamification with newer media.

Resisting this pragmatic reading, Deterding et al. (2011) define gamification as “an umbrella term for the use of video game elements (rather than full-fledged games) to improve user experience and user engagement in non-game services and applications” (2). While this definition is the de facto one used in the field, cited widely both in and out, it is rather opaque. Much like the term gamification itself, the definition serves many purposes, because it can mean many things, or—in my own critique—not enough. By referring to “game elements,” the authors point to the importance of ancillary aspects, such as scoring, rather than playing. However, I will argue that not all game elements lead to gamification. The authors additionally use the marketing terms of industry and accept that the ultimate goal of gamification is product “improvement.” Not only does this suggest that gamification that worsens products retroactively becomes not gamification, but it does not declare from which perspective this improvement is seen.

Much like Robertson, I find points and score to be particularly meaningful in this context. While games generally use these to store the game states, such as keeping track of goals scored or penalties in soccer, gamification similarly seeks to store a state: in this case, the real world, storing everything from star ratings to steps walked. When games do this, they can determine winners, and the score can similarly affect future play, but there is always a game being played

whose results determine that score. Gamification does not introduce an underlying game to determine score, however. Instead, it uses the techniques of scoring, which have often been developed by game designers, to store the status of any activity, regardless of how game-like it is. Gamification practices do this in the hopes of altering the quality and amount of activity being done. Generally, the goal of gamification is to foster increases in productivity, and often labour. This labour does not exclude immaterial labours such as emotional labour and even “playbour” (see Kücklich, 2005, de Peuter, 2010, Scholz, 2013).

A more accurate definition of gamification, then, might be: *the introduction of measurement to some process in order to foster desired behaviours*. Admittedly, this definition seems similar to Frederick Taylor’s “scientific management,” which sought to analyze process through numbers, allowing for clearer actions to be taken in light of empirical results. However, gamification works differently. Here, counting valorizes behaviors and incentivizes the gamified to behave in ways that are reflected in those numbers. The goal is not to better understand the process at hand and regulate top-down, but to confer meaning to certain actions over others. I will discuss Michel Foucault’s conception of self-governance below to bolster this understanding as the creation of a power relation. This definition functions differently than Deterding et al.’s previously quoted one. Here the “elements” of games are more narrowly defined. The idea of “improving user experience” is replaced with that of intentionally attempting to change user behaviour. The definition also accounts for Bogost’s suggestion that gamification is a reintroduction of “dashboards.” In a later (slightly differently titled) publication “Why Gamification is Bullshit” (2015), Bogost explains that in the 1990s, consultants attempted to sell the idea of a “dashboard” for the office. Dashboards, with all of their metrics, closely resembled

gamification, but Bogost argues that the nebulously utopian promise of “games” proved an easier sell.

2.4.1 Example of Gamification

Many corporations employ loyalty cards to encourage repeat business. For example, the international coffee shop chain Starbucks offers a robust example of this practice. In this case, Starbucks enrolls new members with a digital card. Users begin at the lower of two levels, “Green.” There, the customer receives the following rewards:

1. A free birthday beverage
2. Free refills in certain instances
3. Longer coupon-claiming duration
4. Directed marketing

To maintain Green Level status, one simply needs to earn one star every 12 months. Stars are earned “based on the value of your purchase at the rate of two (2) Stars for each One Dollar (\$1.00) you spend using your registered Starbucks Card” (Starbucks Rewards Program). To achieve the second and final tier, “Gold,” one needs to acquire 300 stars every 12 months.

Achieving this score grants Green Level rewards, in addition to:

1. A personalized, physical, gold coloured card
2. One free drink after every additional 125 stars
3. Days in which your purchases confer double the amount of stars

Essentially, the system implies that people who spend \$600 get a free drink every \$250 spent thereafter, or roughly a 2% discount. This is complicated by point 3, where there are opportunities to spend less to get more stars. In order to achieve the optimal number of stars for the amount of money spent, users will need to check in regularly. On double-star days, one is effectively getting a 4% discount. The additional stars will also make maintaining Gold Level

status easier. In order to maintain privileges, users will similarly need to continue spending money regularly or risk losing their status. Failing to buy Starbucks for one year will remove the Gold Level status and force a renewal from scratch. This penalty is particularly meaningful because one loses access to double-star days, which themselves make maintaining Gold status much easier.

Starbucks introduces measurement to increase a specific behaviour—consumer spending. This process involves keeping track of score, while obfuscating the amount of money spent. In converting dollars to stars, Starbucks hides the amount of money spent by its customers from its customers. The double-star days allow Starbucks to manage customer flow and entice purchasing, but they also further reduce any one-to-one correlation between money spent and stars earned. The physical Gold card valorizes those who have dedicated themselves to Starbucks and incites those who are close to achieving Gold status to spend a little more. Starbucks’ rewards program is an example of paradigmatic gamification, but it is only one of thousands. While I have only sketched Starbucks’ loyalty program strategies and their implications, I could say more, but not without moving outside the scope of this chapter and my interests here.

2.4.2 Critiques of Gamification

In her 2014 essay, “Foucault’s Fitbit: Governance and Gamification,” Jennifer Whitson critiques the widespread use of games outside of play. In particular, Whitson explores the “quantified self” movement (QS), which seeks to use metrics to manage self-improvement. Scholars such as Deborah Lupton (2013) and Melanie Swan (2013), in addition to journalists Kevin Kelly and Gary Wolf (2008) have been key figures in developing this concept. In particular, Whitson highlights how gamification techniques allow users of fitness technology

devices such as the Fitbit to track their steps, calories, leaderboard status, etc. Whitson holds two perspectives on this process. On the one hand, she draws from Foucault's ideas of surveillance and governmentality to consider the Fitbit an extension of societal control. On the other, QS represents an extension of Foucault's later work on self-care (344). In self-care, humans constitute themselves as moral subjects engaged in forms of critical self-reflection. Whitson writes, "The ways that games render space visible, from points systems to pathfinding, are what is leveraged in gamification. Feedback methods borrowed from games are key to caring for the quantified self" (347). All of these metrics hinge on surveillance strategies, and like institutional disciplinary surveillance, Whitson argues that gamification relies on a "willing" self-interest in self-governance, self-care and self-development (347). While this preliminary analysis of QS seems relatively beneficial, Whitson develops a set of critiques undermining any utopian reading, despite leaving room for agency for governed subjects.

Before continuing, here is overview of Fitbit: Fitbit users keep a wireless tracking device on themselves. As of this writing, there are six wristbands, two clips and a Fitbit scale available for purchase (fitbit.com). These devices do a variety of things, but the iconic wristbands track the following:

1. Steps taken
2. Distance travelled
3. Calories burned
4. Sleep patterns
5. Heart rate
6. Fitness level ("app" fitbit.com)

In addition to tracking one's body, Fitbit attempts to motivate users with a variety of techniques:

1. Notifications encouraging physical activity

2. Providing a leaderboard, which compares friends and family
3. Distributing badges for hitting milestones or reaching goals
4. Social networking between Fitbit users who are Facebook friends (“app” fitbit.com)

Gamification is clearly present under my proposed definition. Fitbit introduces measurements with regards to a variety of health markers, which incentivize behaviours in a variety of ways. When the markers are relatively low, the system knows to remind the user. Peers may use these measurements to compare themselves to each other, valorizing certain behaviours over others. They also let the system know when to award badges, which are effectively measurements pre-loaded with valorization.

Whitson argues that QS creates data, which itself has value. Tools that provide measurements of the self to the self also provide that data to corporations. Advertisers, for instance, can better target consumers based on the metrics they obtain. Walz and Deterding write in their prelude to a *Gameful World* about Loyalty Partner’s Payback. LPP was a loyalty card that rewarded points for purchases. The card ostensibly gave discounts, but in order to tailor those, it kept track of where people were shopping. That program won the first Big Brother Award in 1999, a satirical prize offered by privacy rights organization named FoeBuD. It meant to discourage consumers from using the product (Walz and Deterding 2). Given that gamification tries to parse human behaviour in order to represent it numerically, it must be the case that said behaviour is watched, recorded and archived. This is true in the above Starbucks example, as patrons provide data for future marketing and development. In more concerning cases, life insurance companies might use such data to alter customer premiums, corporations may illegally rescind employment opportunities, etc. In the second instance, Whitson argues that “function creep,” where surveillance tools expand their ambit, is already damaging (351). As these measurement tools are sold, developers are further funded to build out additional

capacities. These always risk producing too much information, usually by publicizing the private. Whitson uses the example of RescueTime, intended to provide internet users with better control over their browsing habits. In order to remain profitable, RescueTime eventually created tools that allowed managers to examine employee browsing habits. Here, the QS has produced a new self that was once undesired.

Whitson's third critique is that, "Quantification practices tell us what is important to measure, how we should measure it, and indicate how we should change it" (352). For instance, when one opens a RescueTime account, an early step is to indicate which behaviours are considered "productive" and which are considered "distracting". Here, time takes on a grossly reductive framework. Once the user has inputted the information, RescueTime offers a starting suggestion: "spend less than 2 hours on All Distracting Time" (RescueTime Dashboard). Here the ideological stance is that "distraction" is essential to work, but at the same time, detrimental to it. In order to labour, the labourer must be rested, but not a minute more than necessary, or productivity will be undermined.

Whitson argues that gamification and QS interpellate subjects "interested in autonomy, freedom, and self-regulation," while at the same time promising play (353). They often do this by black-boxing their regulatory mechanisms, resisting critical scrutiny. With Starbucks' cards, the stars suggest that money spent at Starbucks is valuable, but by altering the obvious equation of one dollar for one star, makes the process of analyzing one's spending habits more difficult. For Whitson, this last point "opens the door for governance projects that masquerade under the rhetoric of being just a fun game" (354). Rather than abandon the project of gamification, Whitson suggests that we further embrace play, rather than producing what might be considered simple measuring tools in disguise. Playful experiences are natively about subversion, which

Whitson suggests undoes some of the harm in unplayful gamification. This alternative strategy has its own risks, however.

Game scholar Mark J. Nelson explores antecedents to gamification in his essay, “Soviet and American Precursors to the Gamification of Work” (2012). Here, Nelson brings to light the different strategies deployed under capitalism and communism to motivate workers. While American corporations preferred what Nelson calls “fun-at-work” (where the line between play and work is blurred in the office space), the Soviets would race factories against each other, at times awarding medals to the most successful (23). Whitson suggests that “The solution is not to abandon gamification, but rather to focus on making it more *gameful*. When we see the everyday as a game space, and not as some self-improvement project, we create new rules of play” (354 original emphasis). The distinction Whitson draws here is that some games are intrinsically valuable to play, and others are not. From her position, playing the former contributes to some humanizing aspect, while playing the other is alienating. While Whitson suggests that we interpellate “players” rather than “users,” one might remain unconvinced, given that strategy has its own seedy underbelly. Nelson cites Åkerstrøm Anderson’s Foucauldian critique from a 2009 essay titled “Power at Play: The Relationships between Play, Work and Governance.” The argument is that play-at-work produces new forms of control tantamount to “Do as I say. Be Autonomous.” (3). The tension here is between autonomously controlling oneself and allowing oneself to be uncontrolled. This conflict reminds me of Roger Caillois’s spectrum between *ludus* and *paidia* (1958). On the one hand, play is governed by rules, and on the other, play is a freeform exploration regularly found in young children. At first blush, *paidia* might seem idyllic, revolutionary even. I disagree, however. Freedom here permits players to reproduce their own ideological standpoints. Free play is anything but. I propose that with structured rules governing

behaviour, resistance and critique are more easily developed. New ideas are more easily accepted or rejected. Thinking back to Tzara's rules, we can imagine a Dadaist poem alternative which amounts to fridge magnet words. In one case, you speak with resistance to dominant ideology because you disrupt language. In the latter you get to reproduce your own, trapped in your own context of hegemony. You can say something by saying nothing, versus saying nothing by saying something.

Despite Nelson's critiques of fun-at-work, he does not find gamification optimal either.

Tracing its historical roots, he writes:

The attraction of gamification to the Soviet Union is not hard to fathom: It promised a way to motivate workers without relying on capitalist-style monetary incentives. Lenin [1917/1964] proposed a theory of "socialist competition", in which workers, groups of workers, or factories would compete with each other to motivate greater production. (22)

Here, Nelson raises concerns similar to Whitson's. First, if companies can incentivize employees to work without increasing their pay, it may be beneficial to the company's bottom line at their expense. Second, there may be some behaviours that cannot be incentivized with money and that "instead require somehow producing intrinsically motivated, happy workers" (Nelson 23). It should not surprise us when some clever administrator deploys techniques of gamification, then, to increase productivity. It should also be somewhat obvious that this may verge on exploitation, as these techniques may prey on human quirks.

What Whitson is doubtless after is some form of playful-yet-critical mode of engagement, which does not preclude either fun-at-work or gamified work. However, this would require an educational component, where labourers are given the conceptual tools necessary to see how both of these structures control behaviour. Ultimately, gamification, the quantified self, merit badges, gold stars, food journals and their ilk all have long histories and have existed in

various forms. Gamification gets its own term because game developers made significant contributions to those techniques. Why they were able to is open to conjecture, but game designers are experts in making engaging experiences. They produce consumer user interfaces and also rapidly iterate design patterns. In either case, I argue that gamification is not different in any ontological sense, but gets its new name as a reference to those who have most recently been able to innovate in the space. Although I am sympathetic to this approach, what follows is an attempt to trace Bogost's alternative. Specifically, that games can and should argue through simulation. Ultimately, Bogost's plea is that we see more in games than the promise of productivity enhancement. Instead of proposing more playful work, however, he builds a case for more serious games.

2.5 Serious Games

In 1974, Richard Duke argued in his book, *Gaming: The Future's Language*, that games have a facility with communicating gestalts. Citing Webster's dictionary, he defines a gestalt as "A structure or configuration of physical, biological or psychological phenomena so integrated as to constitute a functional unit with properties not derivable from its parts in summation" (1). For Duke, one of the most difficult problems to address in contemporary life is social complexity. He argues that linear modes of communication cannot grant us access to an understanding of the world's structures. Instead, he proposes that we begin to consider the world in gestalts and use games as a medium capable of transmitting these (5). While one might attempt to list all the connections in some network, enumerate the various rules between each, and explain what happens to the system over time using text, Duke argues that this is limiting. Instead, using simulational games, we may instead benefit from creating these more "involved, abstract, and sophisticated" communications. That said, Duke notes that this path is more

“difficult and expensive to employ” (30). Duke is writing over 40 years ago, and even comically (in hindsight) produces a graph indicating the meteoric rise in games. At the time of his writing, he suggests that there were only a few thousand games made by humans to date (8). However, he extrapolates that there will be an uncountable number in his near future. He was basically correct.

In 2010, Bogost, Ferrari and Schweizer released their book, *Newsgames: Journalism at Play*. Having traced several instances of news media using games in their online publications, they suggest that in simulating contemporary real-world events, games might contribute to communicating news with “procedural rhetoric” (11). The term “procedural rhetoric” is attributed to Bogost, whose work in *Unit Operations* (2008), followed by *Persuasive Games* (2011), explores the epistemic and ontological nature of expressive processes. In *Newsgames* and *How to do Things with Videogames*, Bogost continues a ludological line of thought with his interest in exploring this medium-specific property of videogames through case studies. In very central ways, he takes up Gonzalo Frasca’s work on “Simulation vs. Narrative” (2003) and “Videogames of the Oppressed” (2004), theorizing additional ramifications of expressive simulations. As Bogost succinctly puts it, “A procedural rhetoric makes a claim about how something works by modeling its processes in the process-native environment of the computer rather than using description (writing) or depiction (images)” (*How to do* 14). While his definition is particularly useful here, a quick point to note is Bogost’s interest in computation, not games.

At no point, despite talking almost exclusively about videogames, does Bogost include the concept of game in his definition of procedural rhetoric. For Bogost, it is sufficient that a computer enacts some set of procedures and that those procedures be understood by someone

literate in procedure. If we are not necessarily talking about games, then what are those objects which exhibit procedural rhetoric? One possible answer might be simulations. These do not necessarily have goals pre-baked for their users. They also do not require a “lusory attitude” (Suits 38). Frasca argues that “video games are not just based on representation but on an alternative semiotic structure known as simulations. Even if simulations and narratives do share some common elements (characters, settings, and events) their mechanics are essentially different. More important, they offer distinct rhetorical possibilities” (*Simulation* 222). Frasca, at the time of his writing, is embroiled in game studies’ historical ludology versus narratology debate (Murray 2). The stakes of his statement involve carving out an alternative understanding of models (as core components of games) as semantic content holders. The simulation, for Frasca, cannot be approached in the same way linear narratives can, particularly when that approach is narratological (as opposed to any number of other theories of narrative) (*Simulation* 223). He, too, is making a claim for medium specificity here. Assuming that Frasca is correct, there remains something unclear in his work. Frasca uses simulation and game almost interchangeably, when they are clearly distinct forms. What, then, is the difference (if there even is one) between the procedural rhetoric of a simulation and a game?

2.5.1 Simulations and Games

Frasca explains that “to simulate is to model a (source) system through a different system which maintains (for somebody) some of the behaviors of the original system” (*Simulation* 223). The inclusion of “for somebody” speaks to the simulation as something contingently decodable. There is an admission here that simulations, like other media, are subject to the reader’s capacity and ideology. It is also interesting to note the term “behaviour,” which is equivalent in many ways to Bogost’s use of the term “process.” The two terms in question relate to change and how

that might occur. Frasca explains that his definition of simulation does not require computers, despite the fact that they are particularly suited for simulation (222). While I am in agreement with him on that point, he goes on to make a less convincing point. Without explanation (although we might assume the pressures of the ongoing debates prompt him), Frasca separates representation from simulation. He argues that traditional media are representational insofar as they use aural, visual and textual forms of information transfer, and that this is somehow radically different from what he calls “simulational” media (223). His argument is that output alone is sufficient when analyzing traditional media, but that a simulation’s output is only part of the story. Here, Frasca collapses the simulation with its audio, visual and textual output. That said, we might simply decide that a simulation is not its audio, visual and textual output, but the model that runs those outputs. Models—as analytic philosopher Berys Gaut counters—are representations, either to a person who will act out their procedures, or to a machine (229). Regardless, Frasca is attempting to argue that simulations can communicate, and that they are at the core of many games. What Frasca does not do for us is explain the relationship between simulations and games. For that, we will need to appeal to a definition of games and attempt to see how simulations relate.

Chris Crawford suggests that games are “conflicts in which the players directly interact in such a way as to foil each other’s goals” (8). Crawford’s definition exists to distinguish between different forms of play such as puzzles, competitions, toys, etc. He has a relatively narrow object of interest, and subsequently defines games for his own utility. Mary Flanagan points out in his argumentation that “[Crawford] identifies four elements common to all games: representation, interaction, conflict, and safety. Of the four, the ideas of conflict and safety are the most useful in distinguishing a game from a simulation or other interactive media forms” (244). In order to

explore what she understands from Crawford, Flanagan uses Frasca's "newsgame," *September 12th* (2003), as an exemplar. *September 12th* was released in October of 2003, and depicts a small town in the Middle East. The townspeople are walking about, but some members are dressed in dark clothes, carrying assault rifles. The player's cursor is replaced with a reticle, suggesting that the player is to kill those carrying weapons. As it turns out, attempting to do so leaves the town in ruins. At the same time, civilians, shocked at your violence, take up arms against you. Winning is impossible, as more terrorists always emerge from the act of purging them. All the player can do is stop clicking, and should they realize this, they will be pleasantly surprised as some terrorists revert back to being civilians and begin the reconstruction of their town. Frasca's simulation works because it appears in a context in which people will approach it as a game. Despite never suggesting that a win state exists, users will assume the role of players until they realize the categorical mistake they have made in classing the simulation as a game and not simply a simulation. For this reason, Crawford would class *September 12th* as a "plaything" or "toy," because it is an interactive object without a pre-lusory goal (7). It certainly has communicative objectives; it suggests that there is no end-state that the player should attempt to reach. Of course, players come into the simulation with a set of conceptual game-playing tools that make playing it almost certain. Only after failure does the player realize that it is not a game (again, because it has no pre-lusory goal). Bogost writes, "*September 12th* was not necessarily intended to be played over and over again. The game's mechanics reveal its commentary through revelation rather than mastery" (*How to do* 100). I agree with Bogost on this point; *September 12th* utilizes misdirection, a bait and switch, where the user expects one thing (a game with a goal) and then meaningfully realizes they were wrong.

Flanagan explains that “in *September 12th*, the message is not only that violence produces more violence but also that the work behind developing the software allows those who engage with the simple simulation to actively participate in creating meaning” (241). Her reading here maps onto Bogost’s ideas of the simulation gap and Fox Harrell’s work on “phantasms” (*Phantasmal Media* 2013). Users have an ideal model of U.S. foreign policy in mind, they act it out (completing the enthymeme), realize it is faulty, and hopefully change their ideal model. Here, Flanagan is reading Frasca’s work on a meta level, explicating his own point that simulations can express content. While I agree with Flanagan, how simulations relate to Crawford’s work is never fleshed out. How are simulations any more or less safe/conflicting than games? Despite her final synthesis of her reading, “In *September 12th*, conflict is in the play choice itself” (Flanagan 244), we are not left with much in the way of distinguishing games and simulations.

With *September 12th*, the question is whether a playful simulation must be a game. Here, again, we have a “no.” When, then, is a simulation a game? Seeing as simulations already meet some of the criteria of games, it would seem that we need simply see to it that they meet some additional criteria. Here, Crawford’s concept of conflict is potentially helpful. Simulations are similar to Crawford’s understanding of toys, insofar as they do not inherently require conflict. Frasca, after all, calls his simulation, *September 12th*, a toy in its subtitle: “A Toy World.” While conflict is very precise for Crawford, and occurs between two players, he does allow for the broader term “challenge,” which is itself the result of goals and obstacles (7). Simulations become games when players are challenged by them—that is, when players perceive a goal and a set of obstacles preventing them from reaching it. This implies certain design decisions, but it also requires a particular player who finds a particular game challenging. Thinking through an

Encoding/Decoding model, it is not enough that the gamewright encode challenge, she requires a player to read that challenge and bring a player's lens to bear. Both simulations and games remain dependent on how they are decoded.

For a different take on distinguishing between simulations and games, I turn to the analytic philosopher Bernard Suits's definition of games. Suits's work is widely cited in the field of game studies and is particularly well suited at addressing the finer distinctions in formal game structures. Suits argues throughout *The Grasshopper: Games, Life and Utopia* (1978), that game playing must meet three criteria. There must be pre-lusory goals, obstacles and a lusory attitude. While these are all subject to extreme scrutiny in his work, we need not reiterate that work here. Instead, the "portable" definition will do just fine: "Playing a game is the voluntary attempt to overcome unnecessary obstacles" (43). Simulations do not innately feature goals with obstacles worth overcoming. That said, we may base a game off a simulation, giving agency to a player in order to reach some state of affairs. If that player decides that doing so is intrinsically valuable, then they would, under Suits's definition, be playing a game. A user could similarly bring a player's lens to a simulation by projecting his or her own pre-lusory goals and obstacles. It is possible, for instance, to resist the dominant reading in *September 12th* by playing harder to eliminate all the terrorists. To do so, one must be extremely patient, wait for a terrorist to move to the side of the map, wait for all the civilians to leave, and then bomb him. Here, the game does not revert to being a simulation because the player never gives up on their lusory reading. The simple heuristic for determining whether that is the case is to ask, "Would the player rather have someone else do the activity?" Answering negatively would be sufficient in most cases in determining that, yes, they hold a lusory attitude. In the case of our resistant *September 12th* player, they might at first say no, as they execute their slow victory. Over time, they might

decide that the task at hand is too boring to continue and only bother because no one else will offer to play for them. In that instance, the game ceases to exist and it would be once more a simulation. In this specific case—where simulations have pre-lusory goals, but no lusory attitude—I find the distinction between game and simulation less relevant. While there is doubtless an effect on interpretation when the player is holding a lusory attitude, it remains outside my interests here. Simulational games (with or without lusory attitude) display a different set of opportunities for procedural rhetoric when compared to simulations, but both are capable of making arguments based on processes. In the former, we additionally ask of players to reach some specific state of affairs. That in itself affords aesthetics and didactic possibilities that I explore throughout chapters 4 and 5.

2.5.2 Procedurality and Communication

Bogost suggests that procedural rhetoric often behaves as an enthymeme, an argument that begs someone to complete it, as the author of the question intended. He continues this thought by explaining that, “A procedural model like a videogame could be seen as a system of nested enthymemes, individual procedural claims that the player literally completes through interaction” (*Persuasive* 43). He calls this occurrence of holes in representation the “simulation gap,” where “The player performs a great deal of mental synthesis, filling the gap between subjectivity and game processes” (*Persuasive* 43). In this way, the model or simulation of the world implicates the player in its functioning, by having her internalize the logics of the simulation and enable it to continue by completing it. Bogost develops a second idea, that of “simulation fever” drawing from Derrida’s *Mal d’archive* (1995), Bogost describes this phenomenon as a desire for a less abstract, more faithful simulation, while at the same time a disavowal of the simulation’s capacity to represent. Bogost uses this term to talk about how

people respond to simulations, in particular when they reject them on the grounds that they are biased (*Persuasive* 108). Of course, for Bogost, all simulations are biased. They always require that the user work through the fever and hopefully produce a productive reading regardless. While these ideas of simulation gap and simulation fever offer interesting insight into the process of procedural rhetoric, they do not actually explain why it might work—how a simulation would convince someone of something.

Fox Harrell, in *Phantasmal Media*, presents a model for computational expression. While he makes passing mention of procedural rhetoric and Bogost's work (80), he firmly plants himself in cognitive philosophy rather than game studies. For Harrell, the goal is to explain how the human imagination works in creating cognitive models of the world, and how computers can alter those models by interfacing with them in particularly salient ways. In sum, Harrell is breaking down the assumptions of procedural theorists and re-building them in painstaking analytic detail. His core concept is the phantasm:

A combination of imagery (mental or immediate sensory) and ideas. More specifically, a phantasm is blend [sic] of epistemic spaces and images [sic] spaces through backstage cognition processes; these processes operate at the levels of both sensory imagining and conceptual thought and occur in understanding aspects of the world ranging from basic events to complicated forms, such as work in the arts. (Harrell 352)

For Harrell, by describing our phantasms in this way, we retain entry points to the mind's processes and start to explain why computational models are particularly useful. When a computer is used to present imaginative worlds through data structures, it is capable of producing what Harrell calls and expressive epistemology (341). These epistemologies can be biased and

distorted in order to represent intended values. Computations in this way can become subjective and even poetic. While Harrell draws from Lakoff's work on metaphors, he moves even deeper into theories of mathematics put forth by Joseph Goguen in order to proffer a second concept, "polymorphic poetics" (341) With this he is able to theorize a "*computationally oriented way to describe structures of signs, phantasms, the systems they come in, and how they convey meanings*" (116).

Essentially, humans have complicated models of the world which they are not entirely aware of. These models are dependent on experience, ideology, reasoning, etc. When someone encounters a computational representation of the concept they already model in their head, there comes an opportunity to explore their unwitting assumptions and knowledge of the world. When the computer's model differs from the user's, the user either accepts this difference and integrates it into her new model, or they reject it through cognitive dissonance, critique, misunderstanding or by simply ignoring it. This function is similar to Hall's concept of decoding. In those instances of acceptance, the model conveys meaning in a convincing way. This vision of how computational expression might work fits nicely with Bogost's own thoughts when he writes, "Video games require critical interpretation to mediate our experience of the simulation, to ground it in a set of coherent and expressive values, responses, or understandings that constitute effects of the work. In the process, the unit operations of a simulation embody themselves in a player's understanding..." (*Unit 99*). While Harrell's work is deeply detailed and potentially useful to analytic and cognitive philosophers, for our purposes here, it is sufficient to note that Harrell's polymorphic poetics are available, should they be required, but for all intents and purposes the basic concepts from which Harrell draws are sufficient: metaphor and imagination.

Put simply, simulations are proposed metaphors, akin to “men are wolves,” whereby users are asked to imagine that one thing is similar to another (in this case processually as opposed to aurally or visually) and determine if there are valuable similarities worth retaining. Procedural rhetoric often constructs metaphor through computation as a rhetorical trope. This leaner model aligns with both Bogost and Harrell’s terms. This will also help frame the difference between simulations and games, as each can be expressed as an alternate kind of metaphor. To do this, we need to understand what the differences and relationships between simulations and games are.

2.5.3 Critiques of Serious Games

Published in *Educational Theory* in 2015, David Waddington’s essay, “Dewey and Video Games: From Education Through Occupations to Education Through Simulations” addresses pedagogical critiques of serious games. By virtue of his focus on simulations, Waddington does not confuse gamification and games for learning. Waddington’s central claim is that simulations can lead to the kind of utopian learning ideals of John Dewey (1). Dewey proposed that students recreate and perform everyday experiences such as farming and smelting in order to learn. The premise was that these kinds of experiences are rich and messy, which in turn leads to students who approach the world in a more nuanced way. While Dewey’s work was successful, it was remarkably labour-intensive, requiring extremely high levels of teaching expertise. Waddington suggests that much of what Dewey was after can be produced in the simulational learning environment games offer (2).

Waddington is not the first to entertain the idea. In a 2002 paper, Leonard Waks wrote that while games appeared to offer some Deweyan learning tools, they were ultimately undermining the ideals of “occupational” learning (4). Waks demonstrates this claim in addition

to a series of other critiques with an analysis of *SimCity* (1989) and *The Sims* (2000). He suggests that these overly simplistic models will represent the world as solvable and lead learners to hasty and crass solutions (4). Waddington does not refute Waks's claims with regards to *SimCity*, but suggests that there are alternative games that undermine Waks's argument. These are the games which tend to offer steeper learning curves and greater complexity. He lists *Railroad Tycoon I* (1990), *Railroad Tycoon II* (1998) and *Capitalism Plus* (1996) as alternatives Waks might have played instead (16). The more recent simulational games Waddington proposes are *Defcon* (2006), *Prison Architect* (2015) and most notably, *Fate of the World* (2011) (17). These games do not offer immediate pleasures or simplistic solutions; rather they challenge players in ways commensurate with Dewey's teaching goals. Specifically, he offers three counters. The first is that "More sophisticated simulations like *Fate of the World* present players with problems that, while diagnosable, are productively messy in terms of how they are presented and that admit of several different kinds of solutions" (18). While games still offer cleaner solutions than life, by offering multiple different ones they encode in themselves a pluralistic approach to problem-solving. What is more, much of the time the solutions that games make available are themselves combinable, resulting in a larger variety of solutions.

In Waddington's second critique of Waks, he argues that simplification is "pedagogically necessary" (18). This is in line with Duke's argument for gestalt learning. One cannot hold the entire problem in one's head. If one never accepts abstraction, one would need to focus only on the trees and lose sight of the proverbial forest. This is similar to the problem Latour demonstrates in his analysis of the scientific method and in his own ANT, explored in chapter 2. There is always a limit to the level of fidelity any representation can offer. As Waddington writes, "In order for the simulation to capture a complex phenomenon that would otherwise be

unworkable from an instructional standpoint, certain background assumptions need to be built into the system....” (18). Here, abstraction is not a bug, but a feature. It is the premise Duke offers, that games provide access to gestalts and allow us to get past the hang-ups of accounting for so many pieces of information. The practice of abstraction leads to new kinds of inquiries and knowledge that are hard to represent otherwise. Of course, in this abstraction, there is ideological work at hand. Not only does the abstractor get to choose what is forwarded and what is deleted, but how these are positioned against one another. This is akin to Bogost’s suggestion that simulations are always biased.

Waddington additionally suggests that games cannot teach without help from educators. This should come as no surprise. We do not expect literature to reveal its inner workings readily. Instead, we train faculty to teach students how to think critically about the materials they handle. Waddington suggests that “... teachers need to have discussions with students about how simulations correspond to reality and how they radically depart from it. Given that gaming (simulation/strategy gaming as well as other genres) serves as an everyday reality for an increasingly large number of children, this is a critical task for schools to undertake” (18). Because videogames generally include in-game tutorials, we might expect them to be able to forgo the requirement of teachers. However, the kinds of critical analysis and debriefing required of procedural rhetoric might themselves not be communicable with procedural rhetoric. In these instances, it remains important to have educators on hand.

Finally, Waddington rightly points out that simulational games tend to promote “efficiency mindsets and technocratic thinking” (18). Here he brings his argument extremely close to mine. He is explaining (if we use Hall’s words) that games, due to their contextualization and dominant design principles, articulate certain ideological positions. By

their very nature, games ask that players do more with less. Victory is often dependent on the clever use of available resources. Of course, this is not the only way to think about or solve problems, but games tend to present a narrow range of solutions. They are usually focused on the player learning better management. I agree with Waddington, and suggest that this is one of the ways in which the medium affects the encoding of meaning. The designer is only part of the assemblage of actors working to encode. With current design techniques and player expectations, games tend to articulate the message Waddington points to. I do not think this is an essential property of all games, but it is clearly present in my own game designs. Importantly, Waddington points to the political agency of rules here. By signaling that agency, he gives us an entry to critique. However, the agency rules hold over the kinds of messages offered are wider than Waddington can express.

2.6 On Differentiating Serious Games and Gamification

With both a working understanding of gamification and serious games, we can now address certain issues that arise in the literature regarding their relationship. Richard Landers, in his essay “Developing a Theory of Gamified Learning” (2014), argues for a parsimonious understanding of serious games and gamified learning, suggesting that research findings regarding one will apply to the other. While Landers is not alone in conflating the two terms, I attack his arguments specifically.ⁱⁱ Ultimately, Landers never defends his claim for parsimony. He relies on the deployment of Michael and Chen’s generally used—though poorly conceived—2006 definition of serious games. Landers appears to make a quantitative distinction between the two concepts, explaining that one can gamify a process to the point of it becoming a serious game (758). Landers would place serious games and gamified learning on a spectrum of “gaminess,” whereas I propose these operate in fundamentally different ways that regularly

overlap. As a result, he is led to make the claim for parsimony, rather than reconsider his understanding of serious games. In refuting Landers, I argue that games can be both gamified *and* serious. I further argue that the underlying structures of these different concepts are ideologically distinct.

Landers adopts Deterding et al.'s definition of gamification, as "the use of video game elements in non-gaming systems to improve user experience and user engagement" (753). He then explains that this process involves a set of techniques that stimulate the workplace, retain consumers in the market, engage students in the classroom, etc. At issue for Landers is the limited amount of research on success rates of these strategies. From here, Landers argues that we can consider serious games as a field similar to gamification in order to generalize results from one to the other (758). His underlying hypothesis is that scholars are using the terms almost interchangeably, despite admitting some contradictions (755). Should Landers successfully demonstrate as much, then both fields would stand to benefit immensely. In order to compare the term "serious game" to Deterding et al.'s definition of gamification, he uses Michael and Chen's definition from *Serious Games: Games That Educate, Train, and Inform*, "a game in which education (in its various forms) is the primary goal, rather than entertainment" (753). Michael and Chen develop this definition rather quickly, relying on the work of Bernard Suits and Johan Huizinga to demonstrate how fun is not intrinsically tied to games (21).

Drawing from *Homo Ludens* and *The Grasshopper*, they first offer a "working definition" of games as a:

voluntary activity, obviously separate from real life, creating an imaginary world that may or may not have any relation to real life and that absorbs the player's full attention. Games are played out within a specific time and place, are played according to established rules, and create social groups out of their players. (19)

This definition is fundamentally weak. It incorporates anything from watching cinema to going to band practice to even partaking in the Eucharist. It is neither clear what “real life” is, nor what constitutes “full attention,” nor even what an “established” rule might be. Despite these concerns, the authors are correct when they assert that games do not necessitate fun in either of the cited scholars’ definitions. From here, Michael and Chen offer that “the simplest definition of serious games, then, is games that do not have entertainment, enjoyment, or fun as their primary purpose” (21). This definition (and variants of it) are widely used across the field of serious games. That said, when Landers attempts to deploy it in a rigorous way, he produces logical inconsistency. This should be expected, given that Michael and Chen base this definition off an admittedly “working definition.”

Landers moves to say that Michael and Chen’s definition overlaps with Deterding et al.’s definition of gamification because they each relate to games as non-entertainment. That said, Landers suggests that “they differ in that games incorporate a mixture of all game elements, whereas gamification involves the identification, extraction, and application of individual game elements or limited, meaningful combinations of those elements” (753). So while Landers is not blind to this important difference, he does not find sufficient distinction to keep the concepts separate. This is likely due to Landers using Michael and Chen’s definition in two ways. On the one hand, he deploys it as though it were an umbrella term encompassing all playful digital activities used in learning, which seems in line with the original definition. On the other hand, Landers uses serious games more like a subcategory of that umbrella term, specifically involving some concept of a fully-fledged game. It is here that Landers begins to stumble on the lack of definitional clarity found in the Michael and Chen definition.

The issue I take with his position is that the elements that serious games hold distinct from gamified processes is what is at their definitional core. Landers' argument is akin to saying that an arrow is equivalent to a bird because they both have sharp tips, feathers, and fly, when, of course, in reality these are very different objects with little meaningful overlap. Landers further admits that gamified learning and serious games go about producing learning differently! He explains that serious games "cause" learning, insofar as they communicate content directly to learners. He continues, explaining, gamification alters the context of learning by increasing motivation. Things like leaderboards and badges become extrinsic, often offering social benefits that make the learning process more palatable. Landers theorizes that there are specific measurable behaviours that lead to increased learning. These include taking notes, spending time on assignments, and doing course readings, among others. Landers calls these "mediators" (762) and suggests that if a particular attempt at gamification increases any of these, then that gamification increases learning in that context. To make his argument, Landers relies on Bedwell et al.'s 19 "attributes relevant to game learning" (Landers 755). Bedwell et al. propose that, in order to better study how game learning occurs, it would be useful consider different 'facets'. Each of these facets offers a means in which a game can teach (217). Given that it is a combination of the elements of games and not games holistically that allow for gamification, dividing game properties in this way allows Landers a more precise way to talk about gamification. A taxonomy such as this one permits Landers to ask questions such as "Which element contributed most to learning?" or "What part of the gamified process was most expensive?" It also allows him to explain that, "In serious games, all of these attributes are present, but vary in degree. In gamified learning, specific game attributes are targeted, extracted, and adapted to non-game contexts" (757). All that said, Landers never returns to a defense for

parsimony. It remains unclear what the consequences are in extending results from serious games to gamification if the first provides “instructional content to learners, whereas gamification is designed to augment or support pre-existing instructional content” (764). Instead, he begins to use an unwieldy definition of games that incorporates 19 criteria.

Let us consider gamifying notetaking in order to increase note-taking, given that note-taking leads to increased learning (Boch and Piolat 2005). For clarity purposes, let us say that these notes are for a course on financial crises. If I was interested in gamifying this course and enhancing this “mediator” (again, what Landers calls a measurable behaviour that leads to increased learning (762)), I might focus on motivating some audience member(s) to take notes on the topic of financial crises. We might see badges awarded to students who fill a certain number of pages, for instance. In contrast, if we are instead interested in creating a serious game about financial crises, the design focus will be radically different. Instead of leading players to take notes, the game in question would demonstrate some principle(s) related to financial crises. For instance, players might come to understand the interdependencies of different financial forces by interacting with these. The game would “perform” financial crises via its procedural rhetoric. Emergent properties that stem from the modelled rules would allow players to explore and discover the concepts in non-linear/non-textual ways. In the first instance of gamified learning, the learner is motivated to produce more or less of some behaviour that is causal to learning. In the second instance, the learner is playing a game that leads them to consider the course’s concepts in an alternate way.

Gamification seeks to produce a measurable difference in behaviour, which in turn leads to qualitative changes. By contrast, serious game design produces a qualitative difference in representation, which leads to a qualitative change in reception. Landers admits as much, despite

insisting that they are similar (757). I suspect that he proposes this equation due to a lack of conceptual tools that include procedural rhetoric. In many instances, he misconstrues objects as serious games, when they are in actuality an accumulation of gamification techniques. Instead of using the medium-specific properties of games to communicate for non-entertainment purposes, they use a large enough portion of Bedwell et al.'s gamification techniques that it becomes difficult to distinguish between the two concepts. Here we see the nineteen-criterion definition fall flat. In order to demonstrate how prevalent this confusion is, in the next section I explore a second mistake game scholars regularly make: the assumption that serious games are digital.

2.6.1 Serious Games as Platform Agnostic

I offer a second argument refuting a generalized definition of serious games *as digital* objects. Game scholars including Landers, Tarja et al. (2007), Dörner et al. (2016), Djaouti et al. (2011), Ben Sawyer (2002), David Michael & Sande Chen (2005), and Michael Zyda (2005) propose definitions that assume serious games are digital. I demonstrate that this cannot be true and explore potential underpinnings for this assumption. Both of these refutations stem from the same core misconception of serious games. In line with Deterding et al. (2011), I argue for a separation between concepts and insist on platform agnosticism. That said, I arrive at the same conclusions as they do—but for different reasons. At stake is a division between gamification and game design more generally. While Deterding et al. seek to collapse these in the case of gamifying games, I argue for further distinction given the premises laid out in the previous two refutations. From here, I explore two exemplars of games for learning to demonstrate both the usefulness of the distinction and to create touchstones for discussion in the following chapters. These are *Do I Have a Right?* (iCivics 2011) and *Sweatshop* (LittleLoud 2011). Neither of these act as paradigmatic example of either serious games or gamified learning. Rather, they

demonstrate how these concepts overlap and interrelate. By disambiguating serious games and gamification in this way, I build a foundation for further argumentation where I argue that serious games rely on emergence to communicate.

Despite several references to analog games designed to educate, Djaouti et al. in writing on the “Origins of Serious Games,” emphasize that definitions of serious games tend to focus on them as computational objects (10). They cite Sawyer & Rejeski (2002), Michael & Chen (2005), and Zyda (2005), each of whom makes similar claims regarding the use of *digital games* to achieve something other than entertainment (3-4). Even in the same collection of essays, De Freitas and Liarokapis offer “a broad definition” of serious games referring to “*computer games* that have an educational and learning aspect and are not used just for entertainment purposes” (emphasis mine, 10). Immediately, this definition strikes me as erroneous, given that classrooms regularly use boardgames and folk games to teach (see Williams 2014; Randel et al. 1992). There is also research to show that boardgames can have educational value in the classroom as well (Laski and Siegler 2014; Ramani and Siegler 2012; Bochennek et al. 2007). For instance, the card game *Science Ninjas: Valence* (Schreiber 2015) is designed to teach high school children about molecule formation.

Even one of the most popular boardgames of all time, *Monopoly*, exhibits educational value. *The Landlord’s Game*, designed by Elizabeth Magie in 1903, served to demonstrate the value of land tax (Flanagan 87). The Parker Brothers bought the patented game from Magie, renaming and repackaging it as something of a capitalist celebration, but it has a remarkably socialist origin. Even though it has changed in tone and layout, *Monopoly* continues to demonstrate how unregulated capitalism leads to income disparity. It is clear in the goal of the game that this is true: “A bankrupt player must immediately retire from the game. The last player

left in the game wins” (*Monopoly* 8). The goal here implies that the structure of *Monopoly* leads to widespread poverty, save for one player who owns everything. Through the structure of her game, Magie suggests that if land profits were heavily taxed, this outcome would not occur. In this way, the game has a teachable outcome that emerges through an economic simulation. Given that it is an analog game that focuses on teaching, it seems patently unreasonable then to reject the analog from a conception of serious games. What, then, motivates so many scholars to do so?

Here are some speculations:

1. There is more capital invested in digital games
2. Digital games are newer and offer clear avenues for further development
3. Digital games circulate in novel and valuable ways
4. Digital games can limit player behaviours and better shape learning by offloading cognitive steps required by analog games
5. Digital games make use of a series of techniques to retain and engage players in ways analog games cannot

All of these points help legitimize the study of games, so it should not surprise us to find these elements foregrounded by researchers. However, it is this last point that sticks out in relation to the previous issues I highlighted with Landers’ work. If we erroneously hold Landers’ position that serious games are exceptionally robust gamified learning processes and not as something qualitatively different, then it becomes *almost* reasonable to think of serious games as digital objects. Of course, leaderboards, rewards, social features, etc. can all be analog, so that even if one did not agree that serious games are not an accumulation of gamified techniques, one would have to reject the claim that they were digital. And while each of the five other reasons above legitimizes interest in digital games, none of them relates to games proper, but to a particular mode of industrial game development and design. These scholars do not seem to take interest in the formal properties of games, but in digital substrates that grant those games useful properties. They care about the bells and whistles that game designers have been developing to entice users, and not the actual games. My argument here is that thinking about serious games in a strictly

digital way limits our understanding of games and leads to examinations more closely linked to user experience than games. This, in turn, leads to processes of gamification and the confusions I highlighted in the above sections.

Deterding et al. suggest that gamification is “an umbrella term for the use of video game elements (rather than fully-fledged games) to improve user experience and user engagement in non-game services and applications” (1). They report that there are several instances of serious games research in which this distinction is not clear. Their claim is that, “Whereas *serious games* describes the use of complete games for non-entertainment purposes, gamified applications use elements of games that do not give rise to entire games” (2). Deterding et al. argue that serious game design often fails to leverage the medium-specific qualities of games. Rather, investments in game design (particularly videogame design) have led to the development of ancillary functions and features. These include leaderboards, pinch points, check-ins, tiers of currency, reward schema, etc. Rather than contribute to the simulational properties of the game, the elements validate and contextualize that gameplay in such a way as to increase retention of users. Deterding et al. suggest that the distinction to be made between gamification and serious games is one based on “game” in opposition to “play” (11). While I am sympathetic to Deterding et al.’s maintenance of a distinction between serious games and gamification, their reasoning for distinguishing these is underdetermined. In positing that serious games are fully-fledged games that produce play—whereas gamified learning only uses certain game elements—we run into the same issue regarding quantity vs. quality. Introducing more measurements to user behaviour does not lead to a greater simulational representation of some target concept. Deterding et al. admit that the boundary between these two concepts is blurry. They even ask: At which point does a game become “fully-fledged” and not just largely gamified? To solve this problem, they

rely on theories of playⁱⁱⁱ and contrast them to theories of games to suggest that those works that foster playful attitudes are serious games and not gamified learning (5). That said, they stop short of demonstrating how playful attitudes would help us distinguish between these as objects. Essentially, the difference would be determined by their reception, and not any of their structures—despite their work indicating a likely formal difference. The duality of playful vs. gamified is this same ideologically fraught concept that Whitson and Nelson try to use when addressing their critiques of motivated labour. There is a bias here towards the playful in all three. I would suggest that there is a desire to believe that free play is not ideologically constructed behaviour, and maybe even critical, but I see no reason for this to be the case. It is possible that by playful, the authors have some sense that there is a luscious attitude, but this attitude is not locked to either serious games or gamified practices.

2.6.2 Meta-Games as Gamified Games

Deterding et al. cite Hamari and Eranti's "Framework for Designing and Evaluating Game Achievements," which proposes that "Achievements are goals in an achievement/reward system (different system than the core game) whose fulfilment is defined through activities and events in other systems (commonly in the core game)" (4). Whereas Hamari and Eranti are ready to argue that there are two games running in tandem, with one gamifying the other, Deterding et al. argue both of these are part of the same game's design. It is important to note that their position is prescriptive, rather than descriptive. So while the gamification of games is possible, Deterding et al. would prefer that these elegantly feed back into each other, becoming inseparable. They base their argument on three different principles outlined in the next three sections.

Deterding et al. suggest that we commonly understand meta-games (as opposed to gamified processes) to be themselves fully-fledged games (4). While this criterion does not in itself suggest that gamified games and meta-games are distinct, their second claim is that the latter are fully-fledged games and that their creation is therefore game design, rather than gamification design. They write, "... from the designer's perspective, given that the context of design is already that of games, it seems counter-productive to perceive the design of meta-games (or game elements) as distinct from the design of those games" (4). While it might be the case that games benefit from a holistic approach, where game and meta-game are designed in consideration of each other, it remains entirely possible for Deterding et al. to consider these as distinct and that a failure to properly enmesh the two might produce what they would call gamification. In this model of design, I understand that contemporary games are capable of being composed of a variety of smaller games.

In order to make sense of this claim, I propose we consider Bernard Suits's definition of games once more to ensure internal consistency (41). In this definition, a game proposes a "preludory" goal, some desired state of affairs for players to produce (39). If the game is "summit the mountain," then the goal is simply having yourself at the peak of the mountain. A game also has obstacles which produce a "lusory attitude," wherein players value the process of overcoming those particular obstacles, because they make reaching the goal interesting (41). In the case of mountain climbing, we need only imagine the various reasons that one would turn down a helicopter ride to think about that attitude and the obstacles that make it possible.

In the case of a Deterding et al.'s conception of a meta-game, we might consider a chess tournament as a game played by playing iterative games of chess. The tournament itself is a game insofar as it has a goal (take home the trophy) and obstacles that are interesting to

overcome (win chess games against a variety of opponents). In this case, the designer of the tournament is a game designer. In contrast, the classroom's leaderboard, which works by rewarding students with gold stars for behaving in desired ways, might not on the surface appear to be a game. In this instance, we might argue that since the means of accumulating those stars involves a complicated set of social practices that exist without the presence of those stars, the leaderboard is not itself a full game. However, thinking through Suits's definition, the game has a goal (have the most gold stars) and obstacles worth overcoming (complete homework). To the degree that students value that obstacle and would not do things such as buying gold stars themselves and surreptitiously placing additional unnoticed stars, we might consider this a game. Cheating here destroys the game, according to Suits, although it might foster new private games for those individuals. Instead of declaring this a special case, because there is gamification overlaid on games, we can instead find that the classroom's leaderboard is itself a game as well. In lieu of granting meta-games special privilege, as Deterding et al. suggest, we may instead give that same privilege to regular gamification techniques of learning materials and consider these games as well. That is to say, unlike Deterding et al., I would argue that gamification is not special in the instance that it gamifies games.

Admittedly, doing so not only complicates Deterding et al.'s work, it similarly contradicts Landers' work. Whereas Landers suggests that gamification processes are partial games that can be accumulated to the point of producing fully-fledged games, working through Suits's definition, we can instead suggest that many gamification processes are themselves already games, and that their accumulation does not make them more game-like, but instead makes them appear more like socially appreciated games. In addition to maintaining logical consistency, rethinking gamified elements as games allows us to reconsider their distinction.

Certainly, we do not want to equate these in terms of how they produce learning. Instead, I propose two spectra of games. With the first, there is the degree to which the game produces learning by modelling some source system, asking us to consider the source in relation to the system. This process is akin to what Ian Bogost writes about in regards to the simulation gap (2009). In the other spectrum, which Landers' work points to, I would have us measure games by the degree to which they produce learning by incentivizing players to do tasks tied to knowledge acquisition, such as note-taking, memorizing, reading, etc.

Deterding et al.'s third and final claim for rejecting gamified elements as distinct games is that “in all cases where a meta-game system is not experienced as distinct from the 'primary' game, it appears unnecessary to create an artificial separation between the two” (4). Here I admit that the separation I propose is not one that is intuitively felt—or particularly useful to game designers in producing new intricate game systems. However, it remains a useful distinction to make in working through a close analysis of how games themselves communicate. Importantly, it will demonstrate how Landers' argument for parsimony is incorrect, despite games and gamification being even closer than he assumes in certain regards. While Deterding et al. suggest that meta-games are not instances of gamification, they “admit that this constitutes a complex case that warrants further empirical research” (5). Below, I offer a close analysis of two different games, where each promotes learning. Both will demonstrate the benefits of thinking about gamification as a means to increase learning behaviours—as distinct from learning through gleaning an understanding of a rule structure.

2.6.3 Examples of Gamified Learning

Do I Have a Right? (iCivics 2009) was developed under the guidance of former United States Supreme Court Justice Sandra Day O'Connor in order to provide information regarding

the rights guaranteed by 13 of the amendments to the constitution (<https://quest.icivics.org/our-story>). To play the game, players manage a firm specializing in constitutional law. The goal is to accumulate the maximum amount of prestige. Players do this by pairing clients with lawyers who are experts on the relevant laws. At its core, then, is a matching game. The player reads the prospective client's grievance and then matches that grievance to a lawyer's expertise. By structuring the game this way, iCivics promotes the learning behaviours of reading, as well as comprehension. To a lesser extent, *DIHaR* also models the process that lawyers themselves undergo when building a defense: a problem presents itself; they consider the list of relevant recourses; they determine if any of these can address the problem. In this way, we can say that *DIHaR* gamifies learning, while also acting as a serious game. In the first sense, *DIHaR* teaches content, and the second, it teaches the procedural thought process required to apply that content.

In addition to matching, the game also exhibits the trappings of time and resource-management mechanics and tropes. The player must spend prestige in order to hire additional lawyers with new expertise in order to defend more clients. This mechanism makes it possible for the game to ramp up in difficulty, starting the player with only one lawyer and slowly incorporating more content to sift through. In order to allow players to increase the difficulty of the game, they may also spend prestige to attract more clients with "ads." The player can also spend prestige upgrading office furniture to look nicer, which has the gameplay effect of stalling clients long enough to address them. These mechanisms prevent players from feeling discouraged, by allowing players to adjust the difficulty. However, they also do strange representational work.

While the game features narratively meaningful ways to manage difficulty, the by-product of this process is a procedural representation of law firm management. *DIHaR*, in

addition to its mandate, teaches students about cost-benefit analysis of ad placement and furniture purchase, and yet it does this to make the game more engaging. In this way, we can consider this a form of gamification where making the play entertaining leads to the player playing the game more, which in turn promotes learning behaviours. This gamification also operates as didactically communicating ideas about office administration. In this instance, however, this didactic communication blurs the boundaries of seriousness. On the one hand, the student is learning about law firm administration, but on the other, these administrative techniques are almost entirely abstracted. For instance, the player is tasked with upgrading the quality of desks in the office to enable previously hired lawyers to learn about additional amendments. This may be true, to the extent that law firms which offer cushier offices can attract better lawyers, but it is unclear to what degree this matters or aligns with the purposes of iCivics. One particularly comical moment in play occurs when the player upgrades the water cooler to a coffee machine. Now, they must decide to either waste time drinking coffee so they can walk faster, or if they should simply move at a normal pace and address clients as they were before. It turns out that optimal play involves drinking an exorbitant amount of caffeine, so that one can ping-pong between clients and pair them with lawyers more quickly. At the end of the game, those players that best spent their prestige, made the fewest pairing errors and drank the most coffee will find themselves at the top of the leaderboard. While *DIHaR* does teach players about legal information, its most involved procedural rhetoric is largely ancillary to the target learning. This is where encoding breaks down and the rules gain agency. While the context is intended to focus on directing the student to legal concepts, it ultimately tells jokes about coffee and interior design. To be a dominant decoder, the student needs to generously read into the game those lessons that are intended, without reading into the ancillary and extraneous articulations caused

by game design practices. In *The Ethics of Computer Games*, Miguel Sicart refers to this decoder as a “more experienced player” (89).

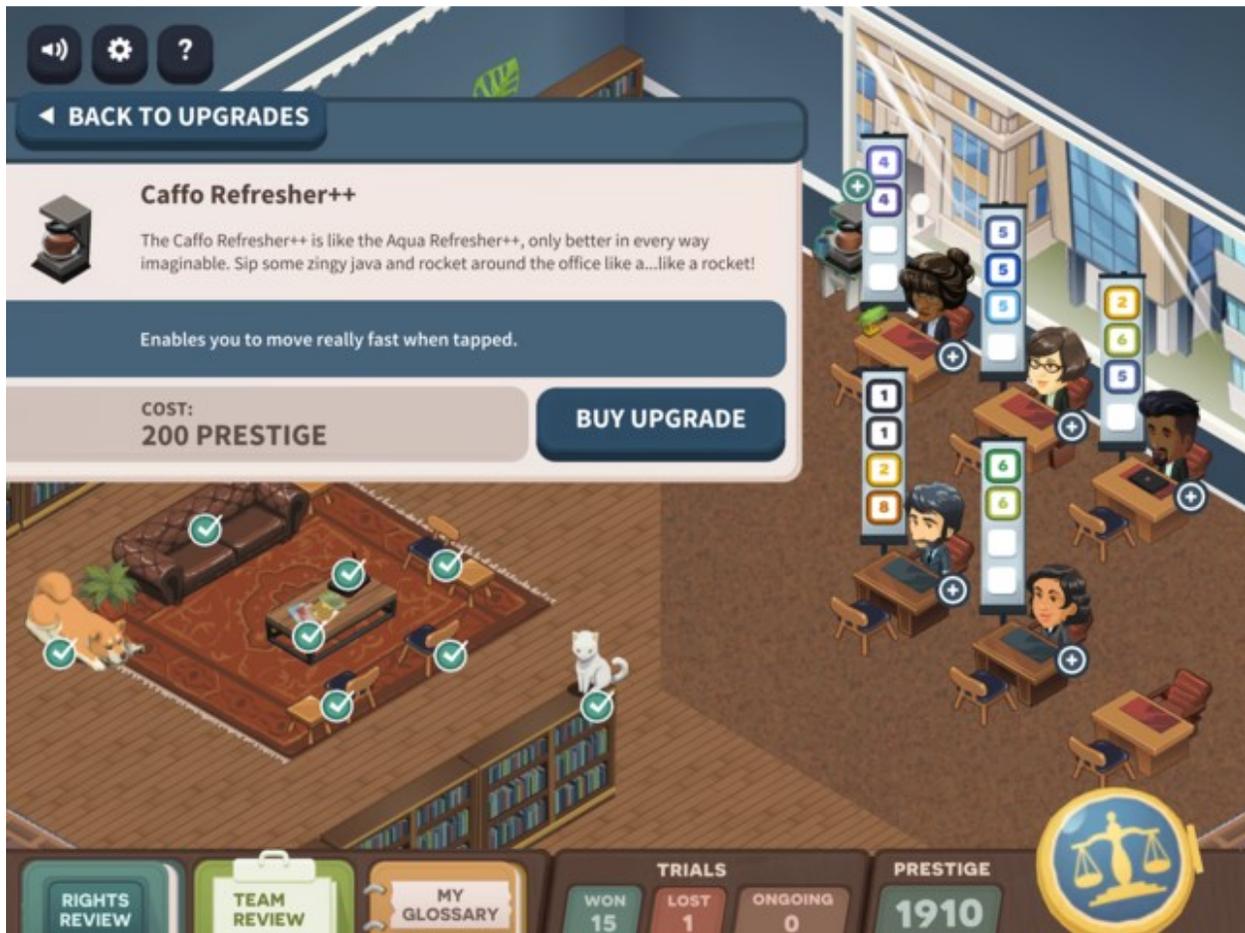


Figure 2: iCivic's Do I Have a Right?

All of these additional resources and mechanics reinforce the core educational content of the game without themselves providing more content. Even though these mechanisms form a simulation that models some source system, they primarily foster behaviours that are conducive to learning. In this way, we will consider them gamified learning facets. Without these gamified learning facets, the game would be akin to a multiple choice test. The student would complete the test by choosing corresponding amendments from a list. The game focuses then on matching text with text based on reading comprehension. We would be removing the gamified aspects, but

left with what is ostensibly a game. The game would not be teaching us about amendments, but about the process of extending a specific rule to a general context. The textual content overlaid on top of the game would still bear the responsibility of communicating the content of the amendments. Seeing as the majority of the game's rules and goals work to foster engagement with the content, we might call this serious game gamified learning instead. In this instance, the gamification processes are capable of masking what are ostensibly classic exam questions. This is why Landers sees no reason to differentiate serious games from gamified learning, for in this instance the serious game is the sum of a multitude of gamification processes. While I would continue to classify *Do I Have Right?* as a serious game, for it exhibits a lesson grounded in the game (i.e. the logics of applying law), it is important to also treat it as a work of gamification because it is along these lines that it hopes to communicate.

In contrast, consider *Sweatshop* (LittleLoud 2011), a game about managing a clothing factory in an impoverished country. The gameplay belongs to the Tower Defense genre.^{iv} In this case, instead of purchasing, placing and upgrading defensive military structures to fight off hordes of monsters, the towers are labourers and the hordes are bundles of pre-manufactured but unfinished clothing materials. The player takes on the role of a factory manager who must make decisions related to employee hiring and wellbeing in order to maximize profits. The game itself produces a moral disconnect by judging the player on three criteria: the amount of profit; the speed at which the factory manufactures clothing articles; and the number of articles the factory failed to adequately finish. From this starting point, the game reliably produces the following set of impetuses:

1. In order to score well, the player must run the conveyor belt at top speed
2. This in turn means the player must have a sizable workforce to cope with the amount of incoming goods

3. This in turn means that the player must spend a large sum on employee salaries, cutting into profits
4. This in turn means that the player must extract as much labour from those employees to keep costs down
5. This in turn means spending as little as possible on those employees, while ensuring that they remain productive

This dilemma is the core strategic concern of the game, with nearly all player activities balancing cost, well-being and productivity. These include building ventilation, offering drinkable water, making use of promotions, etc. Between levels, the game offers statistics or quotes such as the following: “I am exhausted to death now.... None of us have time to go to toilet or drink water. The supervisors are pressuring and nagging us all the time. We are tired and dirty. We work without stop and we are still reproached by the supervisors. – Worker making New Balance shoes, in China for the Beijing Olympics” (*Sweatshop* 2011). Employees will never quit in the game, but they can die. Ideally, the player will hire the exact number of employees required to get the job done at maximum speed so that at the end of the round, each employee is on the verge of death. Theoretically, it is up to the player to determine whether it is more profitable to hire more employees and treat them badly or hire fewer employees and spend the saved capital on their wellbeing so that they perform more. There is no incentive to keep employees as anything more than functional.

Sweatshop appears as an anti-capitalist game. Its written content and aesthetics—as well as its visual parodies of important fashion firms—signal its distaste for the industry’s exploitation. The dominant reading one expects is one against the status quo. At its core, it asks that we care about people in a system that cares about money. However, despite highlighting this disconnect, it does not suggest that we require government regulations or unions. Instead, *Sweatshop* balances the strategic management decisions to indicate that human well-being is the

result of optimal capitalist practices! Below is a list of interactions I have documented by playing the game to completion, getting top scores in each level.

1. If a player allows an employee to die, not only do they lose their investment in that employee, but also lose access to their workspace. It is virtually impossible for this to be a valid strategic decision. Had the game not arbitrarily suggested that dead employees spawn ghosts that block access to the conveyor belt, there might be moments when working employees to death would be helpful.
2. Given that fires regularly emerge from dangerous environments and that these fires destroy product and cause loss of employee life, it is worthwhile to have firefighters on staff. If fires were less regular, if they did not spread nearly as much, or if firefighters were more expensive, then increasing workplace safety might be inefficient. However, *Sweatshop* argues that safety is not only morally right; it is profitable. The problem just goes away upon careful consideration, rather than producing an actual conflict between morality and money.
3. Should a player attempt to use a large amount of child workers, they will find that it is nearly impossible to score well. Skilled adult employees cost slightly more, yet they produce much more, are more easily managed, given there are fewer to take care of, and they take up less space on the conveyor belt allowing a clever manager to place them more efficiently. In this instance, *Sweatshop* might have opted to make adults more expensive or children more effective. Instead, they demonstrate that managers who use child labourers are simply bad at managing money.

4. Finally, even offering employees niceties seems to be an ideal strategy for producing wealth. Toilets and fans lead employees to producing goods with a value bonus (for instance, an employee who packages shoes while near a toilet will make those shoes sell for \$4 more). In this way, toilets are essential because they recover their costs often six-fold. Once again, *Sweatshop* could have made toilets simply cost money without mysteriously improving the saleability of the product, and in this way demonstrate how capitalism is at odds with human well-being.

These high-level strategic decisions argue that although capitalism does not explicitly reward morally righteous management, it implicitly demands that managers care for their employees' well-being because the employees will become more profitable if they do so. These arguments, then, do not object to capitalism, but to managers who fail to see how minor conveniences and amenities in the workplace will actually help their bottom lines. Whether or not one agrees with *Sweatshop*'s arguments, we can see here that these emerge out of a relationship between the rules and goals of the game. Once again, rules begin to show their agency, as each pairs with the others and produces unexpected results. That agency is only decodable with a method of critical analysis of procedurality. If one ignores the game's rules and focuses on the visual and textual content, *Sweatshop* does what it signaled it would do.

Sweatshop is distinct from *Do I Have a Right?* in that its underlying system of rules expresses complex ideas that are relevant to the intended didactic. Whereas the latter similarly involves hiring employees (in this case, lawyers) and paying for infrastructure (in this case, office furniture), neither of these features, despite being central to gameplay, lead to didactic content related to protecting citizens' rights. The simulation of employee management in *Sweatshop* is a serious game, whereas in *Do I Have a Right?* that same process is gamification.

Instead of developing a theory of playful serious games, as Deterding et al. suggest, I propose we divide these two concepts by resorting to theories of emergence. I will argue that serious games use rules and goals to help content emerge, but that the process of emergence is not necessarily clear to the player. While this distinction is admittedly quite narrow in some respects, eliminating certain games that would previously be considered serious from the category, it will also add games that were previously considered non-serious. Importantly, I do not make this distinction for the sake of clarity or simplicity, but to highlight a rare yet powerful form of game design that remains under-theorized in the world of serious games. This kind of design is ostensibly at the core of newsgames, given their relationship to Ian Bogost's work on procedural rhetoric, but even that label has been expanded to the point where we find gamified news.

3 Theoretical Analysis – Emergence and the Agency of Rules

This chapter explores the concept of procedural rhetoric in the field of game studies. It highlights inconsistencies in its proponents' claims, while also building an argument for its value to research-creation. The fundamental argument of the proceduralist is that rules (in particular game rules) can lead to medium-specific communication (Bogost 2007). In other words, we can use games to say things that other media, notably text, cannot. I take a softer position, which holds that rules might have more facility or utility than other media in communicating something. I do not go so far as to say certain communication is exclusive to games; this kind of argument requires precision with vocabulary, particularly because all media communicate in different ways, and because games combine several media. No one will doubt that a game with hours of pre-rendered cinematic cut-scenes, swathes of text, and reams of music can build narrative content. Literary theory, film studies, and musicology address these facets. I specifically focus on work in game studies relating to rules to tease out the subtleties of the argument that games communicate differently. In so doing, the work in this dissertation can be exported outside of videogames to board games, folk games and even sports. This approach is built from a classic ludological methodology that brackets out very important elements of games. This is an unsustainable separation, but essential for the brief time required to explore an understanding of procedural encoding.

Stuart Hall's work *Encoding/Decoding* is helpful here. To date, the primary anti-proceduralist critiques have been centered on reception and interpretation (see Sicart 2011). Instead, I argue here that a major source of value in proceduralist works is their ability to allow unexpected content to emerge. If, when writing, there is a sense of finding the right words and knowing you have succeeded when they are down on the page, with games this is not the case.

To demonstrate this, I offer a prolonged exploration of Jason Rohrer’s *The Castle Doctrine*. Here Rohrer freely admits that he was uncertain about what he was thinking, let alone trying to communicate. Instead, his process involved constructing the game out of segments that were at the very least metaphorically useful and then seeing how they all interacted.

3.1 Emergence Explored

In “On Sourcery,” Wendy Chun argues that source code is fetishized to the detriment of our understandings of its execution. She cites the British computer scientist Alan Turing, whose 1950 essay “Computing Machinery and Intelligence,” defends the possibility of artificial intelligence. In one of his counter-arguments to would-be detractors, Turing writes,

The view that machines cannot give rise to surprises is due, I believe, to a fallacy to which philosophers and mathematicians are particularly subject. This is *the assumption that as soon as a fact is presented to a mind all consequences of that fact spring into the mind simultaneously with it*. It is a very useful assumption under many circumstances, but one too easily forgets that it *is false*. A natural consequence of doing so is that one then assumes that there is no virtue in the mere working out of consequences from data and general principles. (451, emphasis mine)

Here Turing lays the groundwork for theories of emergence, reminding us that unexpected behaviours can come out of understood procedures. This is at the core of Chun’s critique, which argues that we generally do not, for whatever reasons, think of code in action. The problem of course is that code is meaningless unless it is in action, and then it means something different from its static form. For example, in 1971, the economist Thomas Schelling proposed a model

that would explain how racial segregation emerges from apparently harmless preferences. His simplest example is only a line of randomly assorted crosses and zeros:

0+000++0+00++00+++0++0++00++00++00++0+0+00+++0++00000+++000+00++0+0+++0

(Fig. 1, 150)

Here Schelling proposes that the crosses and zeroes represent people spread out on a line. Each person is part of a neighborhood that includes up to the four nearest neighbors on either side.

Now suppose each person would like to be in a neighborhood that is at least 50% like themselves. If they are not satisfied, they will move to the nearest point that satisfies them.

Following these rules, the above system eventually settles into this one:

00000000+++++0000000000+++++0000000000000000+++++

(Fig. 2, 151)

While the majority of the initial people were satisfied, the process of satisfying everyone leads to a stable, but segregated, system. The premise of Schelling’s work here is to demonstrate that by following relatively simple procedures in a chaotic system, we may find unexpected developments. While Schelling proposes that this procedure is representative of the real world, it does not matter to my argument here. At stake is the simple premise that one cannot always predict what a repeated series of steps will do to a system.

It is in this space of surprises that I argue simulations and games offer an epistemologically interesting opportunity. Not only does the player gain insight into the unfolding system, but so does the designer. Chun uses Turing to support her claim that procedures are not sufficiently representative of themselves, that source code “like the fetish, is a conversion of event into location – time into space – that does affect things, but not necessarily in the manner prescribed” (315). In other words, code often presents itself in novel ways over the

time of execution and it is not sufficient to think of it as a readable static text. Code produces emergent content that its source state does not feature. Perhaps the most famous evidence of this comes from the British mathematician John Conway's *The Game of Life* (1970). Conway, developing the field of cellular automata, set out to simplify the complex rules that his forbears, such as Von Neumann, had developed to produce emergent patterns. In the end, he proposed a set of four rules for play on an infinite grid of square cells. Somewhat cheekily, Conway referred to this work as a game, and proposed that it metaphorically represents birth and death in relation to sparsity and overcrowding.

In Conway's *Life*, each cell can be shaded or empty, potentially altering its state at every time step depending on the status of its eight neighbours in the grid. Conway predicted that some starting positions would generate infinitely growing patterns, but he could not determine what they were. He offered a prize to whoever would prove him right (Gardner 121). A few months later, the American mathematician Bill Gosper designed the first such position, the "Glider Gun" (Henderson 101). Soon after, *Life* invigorated that mathematical field, while inspiring numerous other fields outside of math to take interest in the ideas of emergence and self-organization. While previous mathematicians, such as Von Neumann, posited cells with as many as 29 states, Conway's *Life* offered evidence that from simple rules and particular starting conditions, a system might yield both interesting and un-intuitable results (95).

In common usage, the phrase "emergent behaviour" indicates unpredicted behaviour. However, emergence can be predicted: for instance, if my script has only one function – output the number 1 – it is pretty likely that my prediction will accurately reflect the result. Emergence is also not dependent on its surprising nature. For instance, I might have very complex code produce complex and unintelligible behaviour, but that would hardly be a surprise. Emergence is

therefore not defined by its unexpected nature. It is also clear that emergence is not directly related to the complexity of code. The Gosper Glider is relatively simple, but its results remain surprising. In fact, emergence is not computationally dependent. For instance, Sol LeWitt's conceptual painting practice includes giving instructions to museum staff which, when followed, produce a Sol LeWitt work (Lovatt 376). Instead, let us say that emergent behaviour is simply the result of some object following instructions, and that the result is not the same as those instructions.

3.1.1 Auteurs and Emergence

Life not only highlights the distinction between source code and execution, but also the disconnect between a desired emergent behaviour and the capacity to produce it. In the same way we can know of rules and not their consequences, we can know of consequences but not their rules. Here lies one of the fundamental concerns in relating theories of procedural rhetoric to applied design. If games have the capacity to produce emergent behaviour, how do we begin to design for that behaviour, or what does it mean when we fail to? I tie the practice of generating emergent behaviour to the investigation of relationships between some observed phenomena and the structures that undergird them.

Before moving forward, I will concretize what I mean above with an example. Jason Rohrer's *The Castle Doctrine* is a top-down, turn based, puzzle-solving and puzzle-creating game. The premise is that the player has some money, which they use creatively to protect their family with in-home security apparatuses. These involve walls, switches, guns, attack dogs, pits, electric flooring, etc. In her interview with Rohrer, Leigh Alexander writes,

The issues *The Castle Doctrine* explores are complex enough that conversations about whether to see the game as either staunchly advocating a political stance or as strictly criticizing one frustrates him [Rohrer].

[Rohrer speaking] “I don't think it's black-and-white for anyone who's ever been in a situation where they're faced with protecting small children or a pregnant spouse... I don't even understand, necessarily, what this is about, I just needed to make this,” he says. “It's not really logical. It sticks you in this mess, and lets you grapple with it. Isn't that what we're supposed to be doing? Isn't that what meaningful expression does?”

(Alexander)

Rohrer's interview highlights the concerns he felt living in a crime-ridden part of California where burglars repeatedly robbed his neighbours and where he regularly had to fend off dangerous dogs. By ostensibly making *The Castle Doctrine* without knowing what it would express, and instead constructing it from starting principles, a set of unexpected results emerge. Alexander alludes to this when she suggests that critics find the game distasteful. For instance, Cameron Kunzleman has written a scathing essay titled “On Why I Will Never Play *The Castle Doctrine*” (2013). Here, he contends that the game represents Rohrer's ideological position that you are justified in killing home intruders. Kunzleman, of course, can only know this from accounts of the game and, more specifically, Rohrer's public interviews. For Kunzleman, Rohrer's baseline requirements for safety are disproportionately high and his position on the right to kill intruders is immoral. What Kunzleman does not contend with is the disconnect between Rohrer's ideological position and his capacity to represent that position with a game. Thinking through Hall's model, I argue that Kunzleman is assuming that he would need to produce a resistant reading, given Rohrer's proclivities. While Kunzleman may be correct in

refuting the moral legitimacy of murdering intruders, he makes an error in assuming Rohrer's work speaks for Rohrer.

I argue that *The Castle Doctrine* does not, upon inspection, support Rohrer's ideological position. This should not come as a surprise, given Rohrer's own explanation above. The game provides the player with a "mess" of interactions and a complex set of components. This is in part due to Rohrer's own attempts at legitimizing his practice. Media scholar Felan Parker has traced several of Rohrer's techniques used in emulating clichéd notions of high art (42). These include a strong form of auteurism, the exploration of taboo, and in this case an emphasis on indeterminacy. Parker explores this emergent and internal conflict at the heart of Rohrer's previous work, *Passage*. Parker writes, "the notion that *Passage*'s artistic value lies in its openness to interpretation grates against the discourse of authorship" (53). By authorship, Parker means the control of expression normally attributed to artistic genius. Rohrer addresses this in his artist statement for *Passage*: "There's no 'right' way to play *Passage*, just as there's no right way to interpret it. However, I had specific intentions for the various mechanics and features that I included" (cited in Parker 53). Although rhetorical, Rohrer's above question, "Isn't that what meaningful expression does?" is part of his continued attempts to position encodings and player decodings in an art world. By structuring his discourse in this way, he not only hedges his position, but mimics what he understands of the art world's discourse. That said, what neither Rohrer nor Parker address is the underlying difficulty in determining game meaning. It is one thing for Rohrer to suggest that the game can be read in multiple ways, but it is another to say that multiple versions of itself might emerge (each of which can, in turn, be read multiple ways, or read together, representing one work).

3.1.2 The Untested and Unrepresentative

French literary critic Roland Barthes has famously argued against interpreting text in order to access the author's intent. Essays such as "The Death of the Author" and "From Work to Text" have critiqued analyses of intentionality, suggesting they are limiting and largely impossible. Barthes' skepticism takes on both a weaker and stronger form in his writing. He contends that the "work" is the physical manifestation of the author's labour. Importantly, that labour entails the social linkages and the circulation of some product that the author is only partly responsible for. The work in this case is affiliated to a "text" that escapes the material and is "held in language" ("From Work" 74). Once conceptually separated from its worldly underpinnings, the text's available interpretations explode in number. We are not longer forced to legitimize our understanding of the text with the position of the author. Admittedly, this is a strange move given Barthes's initial skepticism. Instead of attempting to understand a work by bringing evidence to bear, Barthes demonstrates this position in his book, *Mythologies* – a series of analyses that exemplify the refusal to situate texts within the minds of their creators. It is not that Barthes is producing absurdist work when he interprets "The New Citroën" as a gothic cathedral, but that he is able to offer more complex critiques without the tyranny of facts that may not yet be established. This critical tool, while useful, is also dangerous. Return to Tzara's Dadaist poem, where the act of refusal is the valuable political gesture, not the text. Here, to read the work as Barthes might suggest would be to miss out on the value of the aesthetic act.

Paisley Livingston has argued against Barthes's position in a cheekily named essay, "From Text to Work" (1993). Livingston suggests that Barthes's skepticism is not specific to literature and that we cope with lacunae in knowledge all the time. He proposes that instead of asking questions about authorial ideas, we might consider their socio-economic limitations, the

contemporary aesthetic sensibilities of the relevant institutions, historical situations, etc. (95).

These map onto Hall's various elements that articulate an author's work during encoding. Here Livingston takes interest in recuperating interpretive strategies that consider the author, while also sidestepping the dead-end questions that Barthes critiqued.

When Cameron Kunzleman proposes that *The Castle Doctrine* embodies and transmits Rohrer's ideological position, he adheres to the idea that authors are socio-politically entrenched agents who work to promote their beliefs. He sidesteps Barthes' critique by implying that Rohrer may not even be conscious of certain ideological reproductions, but at the same time acknowledges that Rohrer is part of an assemblage of cultural production, and that he has a voice represented explicitly in paratextual media. While I am sympathetic to the kinds of critiques that all three of these authors make, the nature of Rohrer's design complicates their arguments substantially.

The Castle Doctrine is predisposed to producing emergent behaviour. For now, it is sufficient to say that the construction of the game includes several elements which can affect each other in cascading ways. Given the emergent nature of the game and its massively multiplayer structure, Rohrer was not able to determine the text in advance of its release. While literary authors produce work which instantiates a text in written language, game designers do not necessarily. At its peak, *The Castle Doctrine* was used by dozens of players competing simultaneously, resulting in a culture of practices and strategies that were ultimately surprising. Even extrapolating from other kinds of massively multiplayer online games would be difficult when we consider Rohrer's creative use of incentives. The weekend of January 25th, 2014, Rohrer created an event in which players would be able to play *The Castle Doctrine* for real money ("Steal Real Money"). Essentially, Rohrer set aside 3000 USD to distribute among

players. Each would receive a percentage in keeping with their percentage of in-game wealth on that Monday morning. For 48 hours, players would be “actually robbing” each other. In so doing, Rohrer managed to attract enough players to create an altogether untested playing field. Because so many players were so active at one time, the game produced unpredictable results, which will be discussed below.

User testing may more reliably tie a game to its the designer’s intentions. While the encoder does not unilaterally determine the encoded result, they can decode and re-encode. The opportunity for trial and error allows for some movement towards the desired communication. In the case of *The Castle Doctrine*, the nature of the game and the types of incentivization produced both unexpected subjects and unexpected playing patterns. In the section below, I explain in depth how *The Castle Doctrine* is constructed and how it played out that weekend. The rules are such that as a player, you have (among many other things):

1. ownership of an empty space with one entrance
2. a wife, who holds half of your money, and has a clear path to the entrance
3. a safe which holds the other half of your money
4. a menu from which you can buy defenses: walls, traps, switches, animals, guns, etc.
5. a menu from which you can buy tools: dynamite, wire-cutters, crowbars, guns, etc.

Additionally:

1. your house cannot be robbed while you are at home
2. you can leave your house to rob another house
3. houses are listed by the number of deaths caused by their traps and cash value inside

4. if you die in a house, you must restart from scratch; your assets are forfeit to the player whose house killed you
5. if your wife or safe are robbed, any damage caused by the robber is permanent; if the robber flees or dies, your house resets to how you left it
6. if you close the game, the world persists as though you were not home

The Castle Doctrine, named after the principle “a man’s home is his castle,” ostensibly offers support to stand-your-ground laws. Rohrer’s political views lead him to entertain the idea of, if not argue for, the killing of home intruders. In the world of *The Castle Doctrine*, booby-trapping is essential because you will otherwise have your wife killed and your safe robbed, bringing you to destitution with only one way out: robbing someone else to regain the capital necessary to rebuild defenses.

There are two ways to make money: robbing someone, and having a robber die in your home. In either case, you need to have a well-defended house. For the sake of brevity, let’s assume you try to win as much money as possible by having robbers die in your home. First, you will need to have money in your safe commensurate with the defenses you appear to have. If your defenses appear too strong for the possible payout of breaking into your home, doing so might cost robbers more money than they would be able to steal. Second, you cannot let people know what defenses you have, and then let them leave. Otherwise, players will walk in and leave if they find they are missing the appropriate tools, then come back and rob you with the appropriate ones. Often this means placing a deadly trap on the robber’s path that only activates once they pass over it, thus creating a very early point-of-no-return. Third, and this is somewhat unexpected, you should have your wife killed. Given that she holds half your money, her death means requiring fewer defenses. What is more, if she does die while you are out and the robber

flees, any damage done to your home will be permanent. While this is damaging to your resources in the immediate moment, it leads to a more stable future. Already, the strategies seem to be at odds with Rohrer's intended design, but this is not the worst of it.

There is a strange snowball effect in the game. The natural progress of a well-built home is that it will kill a robber, thus increasing in value. This in turn will increase the number of robbery attempts, thus increasing the number of dead robbers, thus increasing value, creating a positive feedback loop. At that point, you must reinvest some of what you have earned into your defenses; otherwise the ratio between risk and reward will be skewed to the point where robbers will bring very expensive tools that will outstrip your home's traps. Because *Castle Doctrine* is a persistent world, a serious problem emerges. You can never take a protracted break. In fact, during the 4-day competition, my house was destroyed each night because it became too enticing. By the final night, I finally realized that I was faced with a choice: sleep or survive. While it is possible that Rohrer designed *Castle Doctrine* to demonstrate that greed will motivate crime and, thus, the need for self-defence, it also establishes that these logics end in an arms race of solitude and paranoia.

Given these results, it is possible that Rohrer's own mind might be changed witnessing the results of his creation. Kunzleman, who critiques the work ahead of time, might laud the game for its ability to demonstrate the distasteful world that emerges when stand-your-ground laws are taken to extremes. Either way, we have complicated the nature of authoring games: Rohrer put a mess together and accidentally created a powerful and disturbing work. Now, this is all further complicated when players decide not to accrue additional capital. You can remain relatively safe by spending all of your assets on defenses. In this instance, robbing your home has no payout, but costs any tools brought. There is no legitimate reason to rob you, so you may

remain safe, albeit destitute. This escape route from the madness brought on by the game's initial thrust (where players assume more money means success) is similar to *September 12th*. In this case, the only way to win is not to play.

In Jason Rohrer's *The Castle Doctrine*, the process was ostensibly to encode some message about stand-your-ground laws. However, rather than use symbols to communicate this message, Rohrer instead crafts procedures which will themselves produce symbols. And as we have seen above with Chun, Turing, and Conway, this itself is non-trivial. It is the nature of emergent systems that they do not always produce the expected. Because Rohrer cannot encode with predetermined symbols and must instead rely on the logics of his algorithms to produce them, his work's meaning is indeterminate (even to himself) until played. Admittedly, even an author of a novel might be surprised by their work after reading it afresh, but the range of symbols is differently expressive when compared to simulational games like Rohrer's. Of course, someone needs to decode their play to find meaning, but the breakage in communications is not caused by wilful players but by rules with their own agency. Importantly, even without players, Rohrer's work might have produced resistant readings. It is not hard to imagine automating play of the game with rudimentary AIs capable of bringing the work to fruition.

3.2 Simulation as Metaphor? Tetris

In the literature review, I explored two different kinds of objects related to procedural rhetoric and games. Firstly, there are non-game simulations, such as *September 12th*. These do not have goals and, hence, no obstacles impeding players from reaching those goals, while still having rules which attempt to impart some kind of understanding of a source system. *September 12th* is, of course, a problematic example of this category of object, despite being called a toy and framed as a simulation by its designer, because the simulation invites the user to act as a player

would and then later subverts that position. I also proposed that there are games whose rules map onto their imbedded simulations. These have goals, obstacles, and a set of rules that attempt to impart some kind of understanding of a source system. There is also a third kind of game, like *Tetris*, which does not contain simulations. Games like these have goals and obstacles, but their rules do not attempt to impart some kind of understanding of a source system. That said, they can be used as metaphors to help address some system.

Jesper Juul's oft-cited "classical definition of games" suggests that a game "is a rule-based system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the outcome are negotiable" (36). Despite my objections to many of the latter criteria, Juul's first point about a rule-based system with an outcome serves us well, as it maps onto our concept of simulation almost perfectly. If we recall Frasca's definition, a simulation has "behaviors," which are represented as rules (or processes) that dynamically affect the state of the simulation. Games, by virtue of their rules, which are enacted by computation in some form, are very much like simulations. That said, simulations also have an additional criterion which games do not have. Simulations must model a "source" system, which is of course not necessary in the case of games. Simulations are necessarily representative, whereas games can be entirely abstract. To illustrate this point, Pajitnov's *Tetris* has been famously used in game studies since Janet Murray's reading of it in *Hamlet on the Holodeck*.

Murray's argument is that "A game is a kind of abstract storytelling that resembles the world of common experience but compresses it in order to heighten interest" (Murray 142). In her view, all games are simulational, insofar as they have, in addition to rules, a source system to

model. Several scholars, most notably Markku Eskilinen, have contended that Murray is making a categorical error here (see Bogost *Unit 100*). Murray suggests that much like novels, “Games can also be read as texts that offer interpretations of experience” (143). To demonstrate this, Murray takes the abstract game *Tetris* and reads its rules as emblematic of American society. She writes, “Instead of keeping what you build, as you would in a conventional jigsaw puzzle, in Tetris everything you bring to a shapely completion is swept away from you” (Murray 144). This unexpected variation on the jigsaw reminds Murray of how tasks are managed in our hyper-productive lives, where the faster one does things, the more things one must do, while what has been done is “swept” or otherwise made irrelevant. Although he does not disagree with Murray, Bogost suggests that she fails to clearly relate the rules of *Tetris* to her reading, explaining that, “Janet Murray’s interpretation of the game as a representation of the unfettered demands of global capitalism would become much more comprehensible to the uninitiated player if she explicitly correlated the game’s unit operations with the real-world characteristics she has in mind” (*Unit 101*). Of course, Eskilinen (among others) contends that her reading is arbitrary, and that *Tetris* does not in and of itself express what Murray reads (“The Gaming Situation”). Rather, it is Murray who is using *Tetris* as a metaphor for her own beliefs. Eskilinen suggests that it is not Pajitnov who encoded that communication, but Murray.

While this debate (which once again is part and parcel of narratology versus ludology) may seem pedantic, there is a politics at work here. Eskilinen and the other self-proclaimed ludologists are attempting to stake a piece of intellectual territory. Should they demonstrate that games have a peculiar mode of communication that cannot be reduced to a new form of storytelling, they might be able to develop their careers and field accordingly. For Murray, expanding the theoretical tools at her disposal into games makes sense because it allows her to

make novel and valuable claims. In response to the perceived narratologists, the ludologists argued that a form of intellectual colonialism was at work. Looking past the ugliness of the metaphor, such claims for academic silo-ing make little sense. However, this debate rests on a particular confusion that remains at the core of our concerns here with regards to the nature of simulation. It seems as though Murray has created a delightful metaphor for us by comparing *Tetris* to life, but that *Tetris* is not in and of itself a metaphor. Juul describes the situation quite well:

When we consider that *Tetris* is a Russian game, Murray's reading does not say that *Tetris* was *intended* as a comment on American lives or that *Tetris* is a comment on American lives, but only that it is possible to make this allegorical reading. Any game can potentially be *read* as an allegory of something else, but some readings will be more convincing than others. (Juul 133)

Hypothetically, Murray could have easily made another metaphor, perhaps relating accidentally spilled paint to work-life. Despite the fact that spilled paint behaves in a certain way, it is most certainly not a simulation because it is not inherently created to impart some understanding of some source system to a given onlooker. In the same way, *Tetris*, I might argue, is not a simulation because there is little evidence to show that Pajitnov intended to impart some understanding of some source system onto anyone. Pajitnov could have easily added an image of a desk worker in the corner of the game screen, and then we could more confidently say that *Tetris* is a simulation of overtasked life. And if Jackson Pollock had paper-clipped that same image to his abstract expressionist works, we would also likely judge those to be representative of overtasked life. Instead, *Tetris* should be read as an abstract game, available for anyone to use as half of a metaphor.

That said, Bogost delightfully problematizes the above readings of *Tetris* when he discusses one of its many incarnations. It turns out that many copies of *Tetris* so happened to have a “boss key” which, when pressed, would bring up an image of a spreadsheet. This was done to allow workers to play the game in their cubicles and quickly hide the fact that they were playing, should their boss appear. Bogost writes:

I am not sure if introducing the boss key into Murray’s interpretation helps or hinders it. On the one hand, the fact that the game is structured as a break from the hectic workday Murray characterizes might suggest that its rules explicitly do *not* participate in the enactment of an overtaxed life. On the other hand, the “bridge” between play and work that the boss key creates might further support Murray’s alignment of the game with the burdens of life. (*Unit 101*)

Here Bogost is spot on. The boss key acts like the hypothetical photo of the cubicle worker, allowing the interpretation to move from the abstraction of the tetrominoes to labour. However, the very fact that *Tetris* assumes it will be played at work suggests a kind of subversion! If *Tetris* is about the overtasked life, it is also about refusing that life and playing. With *Tetris*, the question is whether or not a game must be a simulation – and we have hopefully answered with a cautious “no.” That said, it may still serve the purposes of a simulation if it is treated as an allegory. In this case, it would still be capable of communicating procedural ideas. The fact that we can decode metaphors in games does not entail that they were intended; it does not entail that they are illegitimate readings, either. Instead, I argue that game rules produce a new emergent work, and that this work can be productively read.

3.2.1 Metaphors in Game Studies Literature

Sebastien Möring has written extensively on metaphor in games. In particular, he has traced its use in art games. Möring's essay, "What is a Metaphoric Art Game?" argues against a particular claim made by Bogost. In *How to Do Things with Videogames*, Bogost argues that "At a time when videogames focus on realistically simulating experiences, proceduralism offers metaphoric treatments of ideas" (17). In particular, Bogost explores Rod Humble's *The Marriage* and Jason Rohrer's *Passage* as metaphoric art games. Möring suggests that these games are not granted their status as art by virtue of their metaphors. In his previous work on the "metaphor-simulation paradox," Möring argues that "whenever game scholars or game designers (e.g., Crawford 2003, 29–30; Juul 2005, 170–173, 196; Salen and Zimmerman 2004, 423–427) speak of metaphoric games, they actually speak of very reduced, condensed, and therefore unrealistic simulations (Möring 2013a, 59)" (272). At issue for Möring is the false spectrum created by scholars who see simulation on one end and metaphor on the other. Möring argues that art games, such as *Passage* or *The Marriage*, do not produce metaphors, but rather simulate pre-existing metaphors. For instance, *The Marriage* simulates "love is closeness" by requiring that the two parties in the relationship periodically touch each other; otherwise they will disappear. Möring furthers this idea when he writes:

What the game does, though, is simulate the spatial precondition of our metaphorically structured understanding of love, because it simulates bodies (squares) in a spatial world (the game space) even though this world is very abstract and limited. He calls these demetaphorized, insofar as one literally enacts the metaphor being described. The target domain of *The Marriage*, love, is only addressed by the game's title, "The Marriage." (277)

Möring then demonstrates that *The Sims 3*'s own mechanism for representing romance requires the regular bringing together of two different characters. The same metaphor of LOVE IS CLOSENESS appears here, but in a “decidedly non-metaphoric and not considered artgame” (277). His legitimate critique then is that artgames are not special because of their metaphoric qualities. Möring finds similar use of metaphor across non-artgames, which leads him to conclude that metaphors are not central to the artgame.

While Möring stops his argument here, I disagree with his assessment. While it is true that all games generally offer metaphors of some variety, it is the received quality and interrelation between the metaphors in artgames that make them valuable. On the first point, games like *The Marriage* present old metaphors in novel ways. This is not significantly different from poets who write of the same emotional phenomena but access them through different words. Artgames often present metaphors interesting and aesthetically valuable ways. In the example of *Passage*, Rohrer uses an algorithm which generates the map in a distorted way. At the beginning of the game, just halfway past the center of the screen we see one of the future spouse's columns of pixels quite clearly, and a second somewhat blurred. Rohrer uses visualization techniques here to blur the future. This involves skipping and blending columns of pixels. Here the metaphor THE FUTURE IS BLURRY is presented in a novel way. In and of itself, this contributes to *Passage*'s status as an artgame. However, this metaphor is reliant on other metaphors already present, which leads us to the second method by which metaphors operate in *Passage* and other artgames.

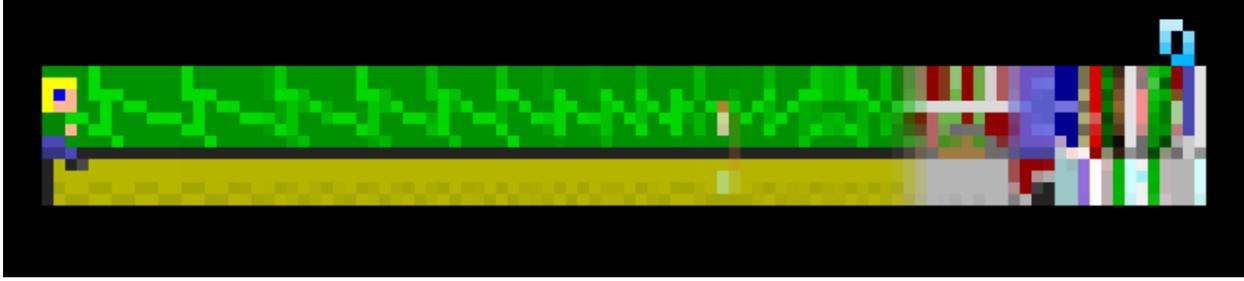


Figure 2 *Passage* (Rohrer 2007)

For *Passage* to create the FUTURE IS BLURRY metaphor, it must first make the LIFE IS A JOURNEY and then establish the FUTURE IS IN FRONT metaphors. *Passage* establishes those metaphors through the use of several visualization rules. First, every few seconds, the position of the avatar moves forward one pixel on the x-axis. This is distinct from general player movement. For instance, one can walk ten pixels forward on the map, but still be only one pixel forward on the screen. Time is unrelenting and dictates position on the screen, not movement in the map. With time tied to the x-axis in this way, the FUTURE IS IN FRONT is established. Now, when Rohrer blurs the space ahead of the avatar, we start to see the emergence of a chain of metaphors. Because Rohrer has established the FUTURE IS BLURRY, he is able to further a greater metaphor relating to the emergent strategy in play. However, to list the dozens of metaphors found in *Passage* is extraneous to my needs here.

My idea here is that artgames can use metaphors in a unique way because they represent them algorithmically. Computers manage these algorithms in the above example, but analog processes are also capable. Given that these algorithms operate on variables, they can share the same ones. In this way, games can mix their metaphors in productive ways. For them to be able to do this, however, they must – as Möring points out – de-metaphorize their metaphors. By simulating metaphors literally, artgames can stack their metaphors. It then behooves the player to

complete the metaphor by reaffirming the link between the literal representation and the target domain.

Similarly to *The Castle Doctrine*, *Passage* produces unexpected consequences in the mess of mixed algorithms. *Passage* offers a score counter in the top right corner of the screen. It counts 1 point per pixel on the x-axis travelled. It counts 2 points instead if you are with the companion. On the face of it, it would seem that *Passage* argues that companionship leads to a better life. However, there is another way to score points, which involves opening treasure chests. At the beginning of the game, an algorithm spawns chests across the map, with a higher likelihood of them spawning lower on the y-axis. Here is the first dilemma: do you travel along the x-axis for consistent points, or down the y-axis for large bursts of points? This is further complicated by the appearance of impassable terrain which spawns in greater frequency the lower you go on the y-axis. Impassable terrain makes it so that you can only go so deep before further movement is blocked. However, going too deep might make going across very difficult, and require doubling back to a higher y-axis position. Here the game re-phrases the dilemma: should I go across the map collecting regular rewards, or should I delve to a certain depth to find an optimal amount of treasure that exceeds the rewards available at the surface level? Finally, the game complicates the question, adding: should I do this with a companion or not? If travelling along the x-axis, there is no reason to avoid the companion; she only provides additional points. However, because the companion doubles the avatar's width, she makes previously navigable straits impossible to pass. At this point, three strategies worth testing emerge: go deeply, alone and in search of chests; move above the obstacles with a companion, getting points for lateral movement; or some hybrid version of the two prior strategies.

Testing the various strategies for a 2015 research project with Dylan Lederle-Ensign and Michael Mateas entitled “A Software Studies Approach to Interpreting Passage,” we determined that there were two strategies with roughly equivalent results. The first was to move with a companion at slight depth; the second was to play alone, going for chests at more extreme depths. These tests suggested that Rohrer was ambivalent about marriage generally (and, given that he positions this game as autobiographical, his own as well). If we hold that points indicate perceived life worth, both produce approximately 1200 points. However, we were curious to solve the chest puzzle included in the game. Each chest has six different coloured gems that can either be on or off. When we failed to uncover the meaning of the gems, we looked at the code. That was when we discovered they were called gems. We felt that because the code was open-source, it would be interesting to see if there were any clues left for us there. While it took some time to decipher the program, in part because Rohrer coded the entirety of the game in his own engine, we eventually found the puzzle’s code. We were surprised to find that Rohrer had coded that portion differently from the rest of the game. It used an archaic method involving bitmasks, which made deciphering the puzzle more complicated. What we did discover was that there were six different codes, which meant that we needed to separate our tests by game and not lump them together. After multiple playthroughs recording the chest contents, we found that there was a surprisingly simple underlying concept: Each chest has one gem that matters, and the others are red herrings. Because there are six gems, there are six possible game instantiations to worry about (the ones where red gems indicate treasure, blue, green, and so on). Only after about four chests can the player know which future chests will have treasure. However, playing with that knowledge allowed us to grow our high scores in the solo strategy to eclipse the companion strategy. The new reading is that Rohrer is not ambivalent on whether life is more valuable

alone, but certain that it is. This admission is reserved for dedicated players capable of solving the riddle, leaving Rohrer's memento mori with a dark, personal secret. Alternatively, the rules and their articulation got ahead of Rohrer's intent. In one case, where it is intended, perhaps *Passage* truly is a standout work worthy of its place in the MOMA. Perhaps Rohrer was lucky or brilliant or had enough time to iterate and repair. Or, perhaps he isn't as in-control as we'd expect, and his work doesn't operate as intended.

3.2.2 The Witness

In 2010, at IndieCade, Jonathan Blow presented a critique of the adventure genre, particularly in terms of how it handles puzzles. He suggested that puzzles in games could lead to important epiphanies. Not only can they produce "aha! moments," but deep shifts in thought. Epiphanies for Blow are rapid state-changes of the mind that escape logical description. They can range from small realizations to life-altering events. Blow cautions us that puzzles have always been able to increase their difficulty by increasing their complexity (Narcisse 2016). Solving these kinds of puzzles requires that the player parse out different components into black-boxes, solving each and then stringing the solutions together. Blow points to the common practice game designers use in presenting a new kind of puzzle, explaining how it is solved and then offering a more complex version of it (Narcisse 2016). Essentially, the player never discovers how to solve a puzzle, only how to parse out puzzles with already-known solutions from noise. Blow suggests that this practice of puzzlecraft is limiting insofar as it fails to produce epiphany. Instead he suggests that puzzles of great simplicity are better suited, because they are more capable of having us confront our erroneous assumptions. To demonstrate this claim, Blow crafted *The Witness* over a 6-year period.

In a presentation at the 2016 Digital Games Research Association Conference, Rainforest Scully-Blaker and I argued that *The Witness*'s puzzles create a particular kind of metaphor. They begin radically abstracted from the world. The game's lush, high-contrast 3D environment acts as a backdrop to the low-fi 2D line drawing games that populate the space. And yet, the first puzzle already signals a linkage between the 3D world and itself. The game tasks the player with walking down a linear tubular corridor. At the end is the simplest possible use of Blow's puzzle mechanic (see figure 4). As the player becomes comfortable with the flat puzzle spaces, however, Blow turns the environment into an obstacle to finding solutions. Branches cast shadows that interfere with the puzzle grid, glare from the sun gives necessary hints, and the artefacts nearby offer the astute observer access to needed information. The player slowly finds that a physical approach to the puzzle becomes relevant in discovering these hints, making both the environmental context and the vector of the arriving player important. Physically nudging the player perspective to view a puzzle from a different angle sometimes makes progress possible. Eventually, this apparent barrier between 2D and 3D erodes further as puzzles begin to reshape the environment beyond simply opening doors or boxes. Platforms and boats become tied to the fate of the selected solution, the puzzles acting as remote controls. Eventually, the player can come to understand that the world hides the same puzzles in its 3D architecture, and that the 2D line drawing mechanic is not excluded from this space. It is not that these opportunities to "play" the world didn't exist beforehand, but that such an approach would not likely dawn upon the player until primed to think in such an initially unintuitive way. This process of coming to know, and consequently being empowered, sits at the center of *The Witness*'s argument.



Figure 3 *The Witness*, first puzzle (Blow 2016)

What little ‘text’ there is in the game sits in small video clips the player earns for solving seemingly optional sets of puzzles. These videos are recordings of known intellectuals speaking about the potential of the self and the process of learning, further solidifying our claims that Blow is interested in how players learn to engage with a game’s rules, even when their initial game knowledge is minimal. For instance, the first uncovered is science historian James Burke’s monologue from *Yesterday, Tomorrow and You* – briefly, “maybe a good start would be to recognize within yourself the ability to understand anything. Because that ability is there, as long as it is explained clearly enough. And then go and ask for explanations. And if you're thinking, right now, what do I ask for? Ask yourself, if there is anything in your life that you want changed. That's where to start” (*The Witness*). Here, Burke’s words speak both to the puzzle and to a philosophy of good living. It is only a small step to then extend the metaphoric puzzles as critiques back onto life.

We make the case that by deciding to make a line-drawing puzzle game, which could ostensibly function as a mobile game, which in turn is set in a three-dimensional world, Blow also hearkens to the tradition of exploratory adventure games (Scully-Blaker & Robinson 2016). The key difference between *The Witness* and such titles, however, is that rather than measuring progress via number of items collected or the number of dungeons cleared, *The Witness* forces the player to “progress” by becoming familiar with how puzzle mechanics function and by becoming a better puzzle-solver and interpreter of the game space. This journey’s narrative relies on the mind of the participant being reshaped and honed in a way that escapes the purview of other representative media. Here the story of self-betterment becomes actualized in the player, and a lesson learned is not simply told but embodied. The videogame in this case does not find an alternate medium-specific way to represent, as discussed in debates around proceduralism, but instead *presents* a narrative in teaching the player to not only blur the 2D with the 3D, but the 3D with reality itself. Essentially, one can only leave *The Witness* unfinished or as having experienced a string of epiphanies increasing in scope. With *The Witness*, as with the other games I’ve highlighted, Scully-Blaker and I found numerous unlikely but still-present emergent behaviours. Blow has famously said of his previous critically acclaimed game that he admits almost no one understands it (Dahlen 2008). Still, in the case of *The Witness*, the idea of epiphany is cleverly explored, and when one brackets extraneous detail and reads generously, it becomes possible to create a valuable dominant reading.

3.2.3 Monarch

Game scholar and designer Mary Flanagan created *Monarch* (2015) as a boardgame imbued with feminist values. While the game does not explicitly state this intention, it showcases women in power, while at the same time presenting non-violent, but competitive reigns. It does this narratively by situating the story as a conflict between sisters looking to earn the right to rule

as the next monarch after their mother passes away. In a paper co-authored with Geoff Kaufman and Max Seidman, Flanagan argues for “embedded design” (“Creating Stealth” 2015). They position themselves within game studies literature referring to Bogost’s work on persuasive games. They write, “this subset of ‘serious games’ is united by their intention to transform mindsets and actions through the messages they model” (1). While the authors do not argue against modelling messages, they add additional techniques to make this process more persuasive. Here the authors explain that overtly didactic games cause players to produce resistant readings (2). Flanagan cites J.W. Brehm’s 1966 work “A Theory of Psychological Reactance,” explaining, “For one, being aware that some external agent is aiming to change one’s attitudes or behaviors triggers psychological reactance: an aversive state of arousal that arises whenever one perceives that his/her freedom to do or think freely is being threatened” (2). The authors suggest that games can more subtly communicate ideas, circumventing the psychological barriers that players put up. While they do not explicitly cite Hall, it is easy to consider these concerns under his decoding model. I am sympathetic to Seidman et al.’s position and goals, but in this section I explore ways in which their techniques further complicate the production of dominant procedural readings.

Given Flanagan’s attempts to have her games stealthily communicate messages, demonstrating that *Monarch*’s design interferes with its intended message is more difficult than in previous cases. Using Hall here, I think of Flanagan’s design strategy as a way of widening the players’ ideological guardrails. Deploying Kaufman et al.’s various techniques, she makes it difficult for players to determine what her intended message is, and as such may “trick” otherwise stubborn players into holding new views. A trojan horse of a message. Kaufman et al. suggest three strategies for improving the persuasiveness of games: “intermixing,”

“obfuscating,” and “distancing” (3). “Intermixing” has designers introduce off-topic messaging to distract the player. For instance, *Monarch* is set in a fictional pan-cultural feudal society that diverts the player’s attention from some of the emphasis regarding the player characters’ being women. “Obfuscating” has designers temporarily hide content, such as with “delayed revelation” (8). Here the designer might hold a piece of information secret until later in the game, when player’s guard are already down. While *Monarch* was released after Kaufman et al.’s publication, the authors cite a prototype of the game in their paper (8). In one experiment, they explain that a version of the game made use of “delayed revelation,” withholding the fact that players were sisters in the fiction. The authors found that this enabled a greater rejection of stereotypical gender norms (8). Finally, “distancing” makes use of techniques that temporarily separate the game’s content from reality. The authors list “*fictionalizing* of real-life issues” as one implementation of this strategy (9). Here again, the pan-cultural mythic-historical setting helps fulfill this function.

While *Monarch* is at the very least trying to normalize the idea of women in power, it does additional political work regarding capitalist ideology. In an interview with Cardboard Republic, Flanagan explains, “There is a type of theory about “the commons” that emerges in the game. The gameplay focuses on group dynamics and the balance between competitive interests and cooperative elements of play” (Cardboard Republic, “Designing Games”). In a 1966 paper, Garrett Hardin’s conceptualization of the “Tragedy of the Commons” where he uses Alfred North Whitehead’s understanding of “tragedy”: “The essence of dramatic tragedy is not unhappiness. It resides in the solemnity of the remorseless working of things” (1244). Here tragedy is a procedural problem, where the setup and rules of a given situation lead to an

unfortunate end. Hardin uses a “pasture open to all” as an example of a doomed commons. He writes,

The rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another.... But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit—in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all. (1244)

I argue that *Monarch* is trying to imagine a non-tragic commons by setting up different types of mechanisms. This is done using both Moon Cards and public tiles—Villages and Farms. In an interview with Richard Garriott and Starr Long, Flanagan explains that *Monarch* is looking to reduce the kinds of violent conflict in other neo-medieval media where, “you as a player have to prove your worth by building your court and managing the lands better than your siblings” (Monarch Press page). Given that all participants forced into playing as women, deterred from using violence and working in a system that demonstrates a non-tragic commons, I read here an additional argument about gender and political-economy. Specifically that masculine identity interferes with resource management. So while the game itself is not immediately forthcoming with an obvious message, given that Flanagan is working on procedurally persuasive games with purposefully obfuscated messages, in her writings and interviews, there is a sense that this is game has a progressive message regarding gendered politics. Like with the previous games I’ve discussed, players will likely produce a dominant reading agreeing with Flanagan’s politics. I

certainly did. However, upon careful scrutiny, the procedural elements of the game do not elicit these readings and, at times, actively counter them.

Monarch's procedural argument begins with the generation of a semi-random kingdom that each player may tax and harvest food from. The task at hand is to "Choose strategies that will bring prosperity to the land and glory to your court. Defend the realm from threats and famine. Only the player with the most majestic court will be named heir" (Flanagan 2015). The kingdom can be upgraded through investments, improving each player's wealth. The game positions itself to show that even when these women best each other, it is for the benefit of the common good. This is because points are sometimes scored by increasing the value of tiles available to everyone. These tiles represent the farms and villages of the kingdom. The logic is that when a sister improves a town's infrastructure, its taxable value goes up. Generally a sister will improve a town right before taxing it, but the following sister will also be able to get the same benefit for herself. Points are awarded at the end of the game for those developments in the kingdom which match the player's chosen "path." The paths themselves, "culture," "bounty," "wisdom," "might," "balance," are colour-coded and synergize through set collection. This process of set collection embodies a sense of intermixing and obfuscation in design, as it works primarily to create interesting gameplay, while offering little in the way of didactic messaging. Decisions here are about choosing between ermine and fruit bowls by thinking through their impact of victory point multipliers. *Monarch* also deploys procedural elements to depict some of Flanagan's subtle messaging. However, the following section demonstrates that because these are intermixed with a strategic set collection game, incongruities emerge. What is more, Flanagan positions the roles of women as non-stereotypical, while at the same time less warlike and more economically sound governors. This makes a critique of her procedural arguments

more difficult because at any moment she may be supporting either of her somewhat mutually exclusive goals. However, because Flanagan isn't overtly disclosing her intended message, rather than show any failure or success in communicating some message procedurally, the following section demonstrates the instability of the design. If the game is meant to say something specific, it is in fact saying mutually exclusive things through its dynamics themselves instantiated through its mechanics. So as before, with Hall explaining that encoding messages can be decoded in polysemic ways, here the process is doubly troubled by the nature of rules, themselves encoding additional meanings.

3.2.3.1 Unstable Math

In *Monarch*, players can pay unwanted guests to visit another sister. While these guests offer a form of attack, they are generally some of the least effective ways to spend money. Interestingly, this message is unstable. In every case, an unwanted guest causes one player to lose X points, where X is equal to the cost of the card minus one. In comparison, cards that are beneficial generally provide at least X points for X resources. For instance, a player may purchase the Boorish Uncle for 4 gold and reduce the opposing sister's score by 3. On the other hand, the player might spend 4 gold on Monkeys on Ostriches, which are worth 4 points. The non-violent card is 33% better. Admittedly, this analysis is complicated by each card's special text. The Boorish Uncle can be eliminated by either of the 5 cards in the game that remove unwanted guests. The Monkeys on Ostriches are worth 0 points if the player also purchases the Tart Cart. Effectively, this makes the Boorish Uncle even worse, as multiple cards can negate his effect, whereas the Tart Cart can simply be avoided by the Monkeys on Ostrich owner.

Unwanted Guests worse in four-player games because they have one player sacrifice resources to punish another player, making the two other players much better off without doing

anything. This changes in the late game, should a player decide to count every point on the board, determine that they are in second place and that, given a lack of available cards for purchase, they opt to send an Unwanted Guest to the leading player, should there be one available. This scenario depends on so many variables that it makes the tactical usefulness of unwanted guests incredibly situational.

That said, they are potentially effective in 2-player games. Minimally, players do not need to know who is leading to buy them, as one is never likely to waste them on an inconsequential third or fourth-place player. Already, this situation poses a problem for a procedural reading. The potency of a strategy is a clever way to determine a game's argument, but here, the argument changes depending on the number of players. There are at least two ways to read this procedural argument. On the one hand, it may be obvious to a player that unwanted guests are a money pit to avoid, and thus they never activate their mechanics, and, as a result, never demonstrate the possibility of a non-antagonistic ruler. For those players who do not do the math, Unwanted Guests become a punishment to aggressive players, signalling over time that non-antagonistic players make better queens because they win more often.

However, should a player take The Banner of Culture, the readings take on a new dimension. It provides the free purchase of one Unwanted Guest per turn. In this circumstance, the Unwanted Guest is ideal because it is free, but this represents an opportunity cost, as players may only hold two banners in a two-player game and one in a four-player game. In a two-player game, this strategy is quite reasonable; in a four-player game it is much less effective, as they must pass up other banners which have greater effect. For instance, The Banner of Bounty grants the player two food every time an opponent harvests (or four food in a two-player game). In a four-player game, a player can expect three additional food per turn, which should on average

translate into over 10 gold, which should translate into at least 10 points for oneself. On the other hand, sending free Unwanted Guests, assuming three turns worth, with no eliminations, means getting three points from the banner, which gets one point for each Unwanted Guest another sister has, and negative nine points spread evenly amongst the top two opponents. In this exceptionally ideal case, a player might effectively gain eight points against one player, plus three against each player. While the game does not balance in favour of sending Unwanted Guests, it is hardly a slam-dunk case against using them, in the instance when one chooses The Banner of Culture. So, in this scenario, we may say that *Monarch* argues that in rare instances where one sister is too effective, another sister should pester her aggressively, to the detriment of the kingdom. Here, I would argue that *Monarch*'s message is confused, if not lost. I suspect this is due to game design pressures. To create player interactivity, rather than four-player solitaire, *Monarch* introduces a way for players to attack each other. In the name of balance and fairness, it makes doing so effective. Admittedly, this might help with Flanagan's professed goal of stealthily embedding desired values, particularly in terms of how it creates distracting and interesting play (Kaufman et al. 8). In the name of keeping the game on task at demonstrating how women rulers build up their nation instead of tearing each other down, it compromises and makes the aggressive strategy viable in rare cases if at all. In either case, *Monarch*, with simple rules and a generally consistent overt message, produces resulting playthroughs that are at odds with one another. Importantly, the arguments change depending on the player count, making the procedural argument unreliable.

3.2.3.2 Role-playing vs. Gaming

Monarch continues to contradict itself, not only in competition, but in the dynamics of its proposed cooperation. Moon Cards appear randomly throughout the game. The rules explain,

“Some Moons give the sisters the option of together paying food or gold. When this happens, the sisters must freely negotiate about how much, if any, they are each willing to pay to address the events set in motion by the Moon” (6). For instance, the Diamond Moon card reads, “If the sisters together pay a total of 4 food, each sister receives 7 gold” (Monarch 2015). The premise is that getting 7 gold is good, and that sharing the responsibility for getting that gold is worth doing. In actuality, the dominant strategies are to either spend 0 food and freeload off the other sisters, assuming they still want to get the gold, or to trick the sisters into sharing the burden because it is to your benefit. Altruism cannot enter the equation procedurally. The reason is simple. While each sister will get the same amount, 7 gold will always mean more to one sister, either because it is their immediate turn and they are short on gold, or because 7 gold will accelerate the game’s end and someone needs more time to catch up. In this way, the only time sisters would ever want to cooperate is if at least one of them misunderstands the game state.

When I played *Monrch* for the first time, it seemed the designer simply hoped players would cast aside their desire to win in these moments and pause to behave irrationally and remain on theme and message. If this was the case, then the game was not making a procedural argument, so much as an emotional narrative appeal. Worse, this appeared in direct conflict with Flanagan’s design methodology which does not want to provide overly didactic moments. Given all of these contravening factors, it seems that Flanagan’s trojan horse is to present the generally agreed upon idea that women rulers will cooperate and prevent the atrocities of capitalism, but in actually their gender will not rescue them from the tragedy of the commons. The problem I face here as a critic is that there is nothing in the game to suggest that this is the dominant reading. So, either Flanagan has created an elegant anti-gender stereotypical anti-capitalist argument by

accident, or true to her design philosophy has created a stealthily persuasive procedural argument!

However, even if *Monarch* was hugely successful in this instance, its argument can only work if players activate the rules appropriately. Herein lies the problem of avant-garde rules interpretation in different player contexts. The rulebook presents a desire for a spirit of cooperation regarding the Moon cards. If this is a stealth tactic, a lie told for a later revelation, then it is up to the players to decide that the procedural argument overrides the written text and feel of the game. The problem they face is in treating different communicative channels preferentially. And, while I might prefer the procedural decoding in this instance, I do not know if this is a dominant, secretly dominant or resistant reading.

3.2.3.3 Engaging vs. On Message

In a third procedural argument, *Monarch* tries to demonstrate that the sisters will improve the fictional community is by purchasing village and farm upgrade cards. These allow each sister to benefit, regardless of who purchased the card. These upgrades can be a +1, +2 or +3 modifier to a communally available village or farm. The immediate sense is that a sister is improving the land because it improves her standing with her mother, and that this is a better world because infrastructure is grown through taxes because doing so is rewarded. That said, Flanagan explicitly allows for the overlaying of one upgrade on top of another, so long as the second upgrade is equal or higher in bonus. This creates a regular and contradictory interaction. While a player may choose to upgrade a Simple Farm with their Irrigated Field, they are actually most incentivized to upgrade the opponents' Windmill with it instead. Here, in the fiction, a perfectly good Windmill is destroyed by an antagonistic sister who'd rather see her Irrigated Field there. The reason a player would do this is because each upgrade belongs to a "path," tied to a banner

and a handful of other cards, which will give points based on the nature of the upgrades present at the end of the game. In this case, the Wisdom player covers the Bounty player in order to remove a few points from her opponent. Even if there were a spare Simple Farm to upgrade, the clever player would rather destroy the Windmill and become Queen. Once again, through the dynamics emerging from the mechanics, a contradictory behaviour emerges.

Here the solution seems simple: the rules might require that all upgrades be strictly better. The problem with doing so is that the game gets simpler and subsequently less interesting to play. The trickiness of playing an upgrade over a basic tile or an already upgraded one is quite fraught, as it usually means a financial hit to the player doing so. Plus, if there are multiple opponents, there is an additional urge to attack the leading player. These are interesting considerations, but they are situationally at odds with *Monarch's* various purposes. The trade-off is between making this work as a game and making it work as an argument. Flanagan, quite reasonably, keeps the interesting interaction in play, making the game better and probably leading it to more players as a result. But once again, we find a new limitation to procedural design.

In the end, while the game does explore the idea of the commons, and presents the problems in open and collaborative ways, the very nature of a single-winner strategy game undermines any sense that the women in the fiction would be particularly tied to protecting the commons. At the same time, feudalism does not have a commons, the monarch owns everything. Here the commons are perverted somewhat, for the people as taxable objects have become the commons. Improving their lot makes their exploitation more profitable. There is no sense that a commons is being preserved despite human nature. For Hardin, this was the fundamental problem to address. In certain situations, there exists no “technical solution” and that only a

change in human values would do (1243). The procedurally generated argument is that women under feudalism would not behave any differently and act as secretly ruthless rulers who will only appear to do good for their people with eye towards their own power growth. Admittedly, it is possible that this ultimate result is intended by the game. However, the introduction of moon cards, the insistence on upgrading publicly useable cards, the pairing of anti-violent themes with a generally violent genre, all suggest that this is not the case. Importantly, regardless of Flanagan's intentions, *Monarch* is unstable in both its encodings and decodings. Playing with different numbers of players, depending on different draws, and on differing levels of strategic skill, the game produces a different object for critique. So while *Monarch* does provide a more complicated example for analysis, it does continue to display the same unexpected variance in game design. And while it is hard to determine what message Flanagan is after, it is hard to hold true that she means all the various narratives that emerge because these are themselves contradictory. That said, insofar as Flanagan is trying to embed values, she is successful. It is just not clear that in each case, the values the rules express are the same values she embedded.

3.3 From Rules to Meaning: MDA

Games complicate code execution because they introduce a human element into their systems. Players regularly misunderstand, subvert, and discover parts of games that lead them to produce "playings." These are only partially structured by designers, who limit and afford certain playings. It is important, however, to distinguish between this kind of complication and the agency of procedures themselves. The Mechanics, Dynamics, and Aesthetics framework (MDA), proposed by Robin Hunicke, Marc LeBlanc and Robert Zubek, was developed during the Game Design and Tuning Workshops at the Game Developers Conference, San Jose, between 2001 and 2004. MDA is meant as a tool for developers and scholars to consider broad classes of game

design artifacts. Importantly, it works to solve the problem listed above in the Rohrer and Blow examples. They write: “Specifically, iterative, qualitative and quantitative analyses support the designer in two important ways. They help her analyze the end result to refine implementation, and analyze the implementation to refine the result. By approaching the task from both perspectives, she can consider a wide range of possibilities and interdependencies” (1). The authors explain that design in games is necessarily iterative. This is a natural requirement when the rules don’t do what is expected. With an aesthetic in mind, the designer can continue to tweak the mechanism until it produces the desired emergent result. Mechanics, or rules, are those components of the game “at the level of data representation and algorithms.” Dynamics, or system, “describe the run-time behaviour of the mechanics acting on player inputs and each others’ outputs over time.” Finally, aesthetics relates to the “emotional responses evoked in the player” (2). Hunicke et al. suggest that this method alleviates some of the problems encountered when we apply the methods for other media to games. Games exhibit “behaviour,” which makes them relatively unpredictable. While I find “emotional responses” to be limiting, we can easily expand this understanding of aesthetics while keeping the bulk of Hunicke et al.’s work. These authors only limited the scope due to their current interests and problems. In this case, they were not attempting to make or even theorize about serious games.

Entertainment is central to their claims. Drawing from LeBlanc’s previous work on “fun,” Hunicke et al. list his 8 non-exhausted types:

1. Sensation: Game as sense-pleasure
2. Fantasy: Game as make-believe
3. Narrative: Game as drama
4. Challenge: Game as obstacle course

5. Fellowship: Game as social framework
6. Discovery: Game as uncharted territory
7. Expression: Game as self-discovery
8. Submission: Game as pastime (LeBlance, Hunicke and Zubek 2)

These terms exist on the level of aesthetics, mixing and matching depending on the game. For example, they list *Charades* as exhibiting fellowship, expression and challenge (2). Important to note, LeBlanc is thinking through mass-media game objects of the 90s. Since the publication of the MDA framework, video-game designers have routinely created painful, awkward, and otherwise “un-fun” games, in addition to many serious games. Of course, Hunicke et al. never claim the list to be complete, and it still serves us to continue using it if only to clarify the claims made by the framework.

The various aesthetic properties of a game like *Charades* stem from its dynamics. For example, challenge can come from time pressures. Fellowship might arise from win conditions that require a teammate’s help. Using the lens of dynamics, Hunicke et al. offer a critique of *Monopoly*. They explain that it has a feedback loop in which the wealthy can penalize the poor, meaning poor players will become poorer. They write, “As the gap widens, only a few (and sometimes only one) of the players is really invested. Dramatic tension and agency are lost” (3). Instead of stopping to think of *Monopoly* in its historical context as Elizabeth Magie’s support of Henry George’s taxation policies, Hunicke et al. contemplate improving the game’s “fun” in a given context. So while MDA is useful here in breaking down components of the game, it is also overtly invested in entertainment, rather than critique. *Monopoly* is a fabulous game because it betrays its promise of capitalist fantasy play and instead leads to anger, despair, and ultimately a representation of wealth inequality. While considering the addition of rubber-band mechanics,

where the loser is granted additional agency by new means, Hunicke et al. write, “Of course – this might impact the game’s ability to recreate the reality of monopoly practices – but reality isn’t always ‘fun’” (3). MDA’s original attachment to “fun” is not only unwarranted, but inessential to the framework, allowing us to ignore any pretense for the kinds of aesthetics that are desirable for games. As we saw earlier, *Monopoly*, in its incarnation as *The Landlord’s Game*, was not intended to be fun. In fact, its political contribution depended on it not being fun. Fittingly, fun, in this context and most others, is a constraint placed on game design by capitalist business models in addition to design cultures and ideological structures of various types.

With regards to mechanics, Hunicke et al. offer quite broadly that they are “the various actions, behaviours and control mechanisms afforded to the player within a game context. Together with the game’s content (levels, assets and so on), the mechanics support overall gameplay dynamics” (3). In this explanation, it seems as though there is a fourth aspect to games that exists outside of the MDA framework: “content.” The nature of this content is not explicitly mapped out, but it seems as though we might think of it as the assets (i.e. the visual, aural and haptic displays) and level design (i.e. the arrangement and pacing of assets, mechanics, and delivery of the mechanisms). Given that Hunicke et al. claim that these two aspects of games affect the dynamics, and later refer to their use for structuring aesthetics, it seems that MDA would benefit from some additional letters in the acronym. For instance, a simple pit in *Mario Bros.* is created by two assets: the beginning of the pit and the end of the pit. The designer’s decision to place these closer or farther apart has ramifications on the difficulty of the jump, and thus the dynamics, and consequently the aesthetics. Meanwhile, the visual representations can serve to obfuscate or highlight the layout and available mechanics, thus altering dynamics and consequently aesthetics.

Once a game is playable, MDA gives us a framework to think through its communications. However, it does not offer us much insight in planning for new aesthetics. MDA is a useful conceptual tool insofar as it highlights the proceduralist mode of game design I am interested in. The proceduralist sees the mechanic/rule as holding meaning because it creates an emergent (or dynamic) system and in turn has the player come to understand that system to hold meaning (or aesthetics). These are two trajectories towards very similar objects, but for different reasons. Whereas MDA serves as a tool for design analysis, it does not offer any means to predetermine aesthetics.

4 Research Creation Projects

In the first chapter, on methods, I explored the concept of research-creation. There I pulled two key ideas: tacit knowledge, and prototyping-as-research. The first, by its nature, is difficult to describe here. I made dozens of games during my graduate work and each left me with opinions about what works and what might not. I try to unpack some of these tacit understandings and even critique them with some hindsight. To do so, I draw from the prototypes-as-research model. The three games I've selected each tried to do "normal science." They set out to say something and only ever made it partway. My assumption, like the normal scientist, was to doubt my tools and myself (6). In this chapter, I look back at these prototypes to offer other explanations. Hall comes in handy here as he lets me think through the encoding process as an articulation of my own context. He also helps when considering that a lot of my tacit knowledge comes from the professional code I inherit as a game designer and academic. Chapter 1 also brought Latour's ANT to my discussion. It helps with thinking non-hierarchically about the various non-human agents affecting the encoding process. However, as I explained, it was intended to supply a means for encoding and designing the final game-as-prototype in this chapter.

Chapter 2 introduced the literature around serious games and gamification. It gave context for the prototypes as serious games, as opposed to gamified learning tools. It worked to show that serious games model source systems, and that these don't necessarily need to be digital. It also began to show that teaching through modelling with games can be tricky. The games I explored created confused and inconsistent readings. Chapter 3 tackled how that complicating process emerges. Rules were shown to have a unique agency that alters the articulating apparatus. Even once I discard authorial intent and think of encoding as a product of

an ideological network, that network does not necessarily encode its ideology. This is because rules get to exercise their agency after the fact. Importantly, the game-makers can retract or iterate on their work until they are satisfied, but market forces such as cost and the need for deliverables limits that power.

So now, in chapter 4, I am going through the three games I feel highlight these aforementioned lessons. I designed these games as part of my doctoral work: *Gets It Better*, *Cabinet Shuffle* and *The Amalgamated*. By reviewing them here, I offer a critique of my thought process and methodology for developing games, particularly with regards to the ways those games were intended to produce procedural argumentation. While there were others, these offer sufficient space to cover the lessons I want to share. Each of these games has different objects of interest and distribution platforms. As such, they serve to illustrate a variety of problems that come both through the design process and in circulation. At the same time, they fit within the research-creation paradigm of prototyping that I've cobbled together from Fallman, Ratto, Chapman and Sawchuk. While Ratto is clear that prototypes are not meant to be completed works, the first two were, in addition to making a procedural argument, looking for what a finished academic game might be. In other words, I was prototyping completeness, the reason being that I thought communications failures were being caused by a lack of polish. Finished works command more legitimacy, and so the hope was that they might engender my desired dominant readings.

I use each game differently to get at the various elements that complicate encoding serious games. The first is *Gets It Better*, which demonstrates the asymmetry Hall speaks of between encoding and decoding. If there is a method for translating a situation into a model, it is a lossy one. It is often so abstracting that there cannot be a return to the source. I think of it this

way: You can describe the number 10 by using the number 2. This 2 represents the original number's digit length. This leaves the receiver 90 possible original numbers to consider, if they want to know what the source number was. So while the abstractor is providing the gestalt, in Duke's terms, there is much room for confusion. The only way to make sense of 2 is to also know 90. The same might be said of games, where they only make sense if their source context is already known. So when games try to explain a source system, they require that the decoder already know too much.

The second game, *Cabinet Shuffle*, points to the realities of circulation and their limits on encoding. Games take time to learn and play and often require multiple players simultaneously. Designing games so that they fit into the lives of players requires multiple sacrifices. This is not particular to games, as all media must do this. That said, games, like other media, face their own repercussions because of this. Games are also costly to produce, both in terms of time and funding, particularly when compared to writing. *Cabinet Shuffle* tries to reduce the financial costs of making and thus distributing the work. The resulting design decisions change its content and alter the communications. This is the kind of articulation of encoding context that most paradigmatically fits Hall's model. *Cabinet Shuffle* serves as an illustration of various logistical constraints on serious game design.

Thirdly, in addition to these problems, while it is possible to encode certain arguments, there are going to be auxiliary, unwanted and even incorrect additional arguments. *The Amalgamated* produces these as a result of the structures designed to generate what was intended. In other words, the game sometimes says too much. In these instances, I assumed players would need to be coached and read generously. If done correctly, they might guess at

which arguments were encoded on purpose and then decide if they wanted to produce a dominant reading. This is the flawed conceptual move I explore here.

4.1 Gets it Better: Poor, Ugly, Gay, Stupid, Sick

In 2012, a confluence of desires led me to create an artgame. While I had made a few artworks prior, none were games. My master's work, "Creativity and Art in Videogame Performance," drawn from my training in art history and analytic aesthetic philosophy, had me thinking about artistic play. As a by-product of that analysis, I did extensive research into artistic game design. Importantly, this was at the height of a heated debate in game studies and art criticism more generally. The film critic, Roger Ebert, had proclaimed that games would never be art (Parker 5, "Canonizing *Bioshock*"). None of his reasons were defensible from either side of my training, but his institutional clout threatened to make his words fact. If art critics didn't believe games were art, then by any theory of art worlds, they weren't. It was in this context that I felt I had something to prove. Ebert's claim was that games gave away too much control to the player and, as a result, the auteur could not appreciably communicate some genius idea. Given my interest in procedural rhetoric, the logical step was to meet Ebert's challenge and produce a work that was both interactive and authorially controlled. I did not think that this feature was essential to art; I did not even agree that it made art better. However, it seemed trivial to demonstrate that I could make a work that would meet Ebert's bar. If not, it would at least point to a strategy for doing so. From my own perspective then, I had something to prove. It was not that games could be art, but that I could be an artgame maker. Since then, Ebert and I have come closer in thought than I would have expected. The game designer does indeed give control away, but not just to the player. Going back to Hall and Behrenshausen, the assemblage of game creation processes produces the meaning. This is the same across all media; Ebert's auteur

filmmaker is always only a cog in an ideology machine. That said, games give one more thing away: the rules get their own agency through their own articulations.

Thanks to Brenda Romero (then Brathwaite) and her work, *Train*, I was inspired to rise to the occasion. At the time, Romero had recently produced the contemporary boardgame for the gallery-space. *Train* is not easily manufactured or set up, or fun to play. It may even only pretend at being a complete game. None of these things matter, because Romero attempts to use medium specific qualities to make aesthetic points. In this case, *Train*'s game rules highlight some of Hannah Arendt's thoughts on the banality of evil (Ferari 143). Players are essentially asked to take on the roles of railway operations managers bringing Jews to concentration camps. The idea of making a game about a serious topic, and treating that topic using procedural design tools, was enough to start – particularly because I was already interested in attempting to disprove a claim made by game scholar Marie-Laure Ryan. In Issue 1, Volume 1 of *Game Studies*, Ryan suggests that some fictional characters cannot be inserted into the protagonist role of a videogame. She writes,

Interactors would have to be out of their mind – literally and metaphorically – to want to submit themselves to the fate of a heroine who commits suicide as the result of a love affair turned bad, like Emma Bovary or Anna Karenina. Any attempt to turn empathy, which relies on mental simulation, into first-person, genuinely felt emotion would in the vast majority of cases trespass the fragile boundary that separates pleasure from pain.

This means that only selected types of emotional experiences, and consequently selected types of plot will lend themselves to first-person perspective. (Ryan 2001)

Later, prominent scholars in the field such as James Newman (91), Jon Dovey & Helen Kennedy (96), and Jesper Juul (*Half-Real* 161) would reiterate her claim. Ryan's writing appears at the very beginning of game studies as a field. She is staking a claim here for narratological analyses, suggesting that there is productive work to be done comparing games to literature. Here, her discovery validates the comparative media studies approach by finding a startling difference. However, the early 2000's limited imagination for future games left me wanting to design on the very serious topic of suicide.

My intention to create a serious procedural game on suicide percolated until Tavi Gevinson's *Rookie Magazine* made a call for games about teenage life. In thinking about my own experience as someone who survived intense bullying in high school, I approached the project with the intent of addressing teenage suicide. The final work was titled: *Gets it Better: Poor, Ugly, Gay, Stupid, Sick*. It is a three-to-five player, turn-based strategy boardgame in which players are trying to be happy relative to each other. Players are secretly and randomly dealt two "social handicaps." These operate as "variable player powers," although they hinder rather than aid players in reaching their end goal. Here the objective is to end the game with the most happiness points. Because the game generally allows for only one winner, in the end, competent players will deduce what each other's secret identities are, determine who is winning, and bully them to equalize the score. These players will need to be careful, however, as on any given turn a player might elect to "commit suicide." In doing so, they get to leave the game with all the happiness points they accumulated. By treating death in this way and not as an instant loss, players get the chance to win, despite leaving the game. Fundamentally, from a game theory perspective, a player could be rational by "committing suicide" in the fiction. At the same time, they give each of their bullies a guilt marker, which chronically forces them to discard their

happiness tokens. The only escapes from said guilt markers are the natural end of the game after 16 turns, or the aforementioned “commit suicide” play. To avoid suffering from guilt, players will need to ration the amount of bullying they commit to.

The game consists of a rulebook designed to look like a high school agenda. I worked with ALSO Collective to produce the book’s graphic design. With funding from the Centre for Technoculture, Art and Games, I was able to print 10 copies to distribute to interested players. In addition to presenting the rules and acting as a turn counter, it suggests a list of components required to play the game. These included student IDs, cigarettes, Band-Aids, friendship bracelets, chain locks, and gold star stickers, among other things. One of the goals was to make the game out of ready-mades, so that it could be created and recreated by anyone with the rules and everyday things around them. I felt that *Train* had a flaw: it was almost impossible to play. There is only one copy of *Train*, the rules are not published, and it is not always on display. By creating *Gets It Better*, I naively hoped to contribute to reflections on teenage suicide and wanted to limit barriers. Later, I will discuss how the work fails to do the former and as a result requires serious gatekeeping. Despite its flaws, *Gets It Better* has some valuable lessons to teach. In 2013 it was shown at Queer Arcade, an exhibition co-curated by VideoFag and Team Vector in Toronto. It was also shown in 2015 at Accelerate Game + Art, an exhibition at the Niagara Artist Center, curated by Julia Polyck-O’Neill.

4.1.1 An Exploration of Procedural Betrayal

This project was a means to test certain hypotheses about procedural narratives in games. At the time, I was constructing an argument around the idea that certain games (such as *Diplomacy*, but also *Shadows Over Camelot*, *Saboteur*, *Werewolf*, *Battlestar Galactica*, and *Game of Thrones*) produce acts of betrayal. I discussed this idea in a paper later published in

AnalogGameStudies.org, where I showed that *Diplomacy* is a procedural narrative about the nature of trust in early twentieth century Europe. In that instance, to gain ground over one's opponents, one has to engage in a dilemma at every turn: keep one's allies for secured borders or betray them for the upper-hand in battle. Given that all players start with roughly equal forces, and given that combats must be won by decisive superiority, it follows that to gain ground, one needs allies. On the flipside, given all alliances must eventually break to cede the way to a sole winner, and given that it is advantageous to be the breaker, it follows that players will want to betray sooner rather than later. In the space of this tension, I argued that *Diplomacy* successfully establishes the conditions not only for betrayal, but for trust in a game (Robinson 2016). Given their goals, rules, and starting positions, these games forced acts of betrayal in optimal play. I privilege optimal play as a way of performing a normative reading of a game. This is the technique I explored most fully, the premise being that I can balance a game so that a certain set of ways playing are more successful. In this way, I can signal the dominant reading by rewarding certain readings with victories. This only works if the receiver believes the pairing of success and dominant reading to be in sync.

However, it can only do this if players adopt a *dominant* reading position. For instance, let's imagine that a group of players decide to create a tentative peace agreement on turn one. They might keep peace forever, never attacking anyone. Of course, they would not be pursuing the stated goal of the game with any kind of success, but they would be playing at least in a mechanically sound way. Suits writes about this kind of player in *The Grasshopper*. Alongside the "cheat" who does not value the rules, or the "spoilsport" who does not value the experience, we have the "trifler". The trifler does not value the objective, but adheres to the rules. The trifler is producing a negotiated or resistant reading. Trifling, even among strategic players, is to be

expected. For instance, one might decide to try an unexpected and likely terrible strategy in order to see its results or even learn about the game system. This kind of playing is no more or less legitimate than attempting to win at all costs and might even be beneficial to future attempts at producing a normative reading.

However, there are other motivations for triflers, who might refuse to work towards a goal because it makes them uncomfortable. This is the case in *Train* and *Gets It Better*, where people might be happy to play the game, just not according to its stated objective. These people, according to Suits, are not actually playing those games, but playing at them. The importance of this distinction is paramount to Suits, who is trying to uphold an analytic definition of games. For my purposes, it does not matter much, as public discourse rarely cares to make this distinction. It is particularly problematized when we are talking about artgames, which are already subverting expectations of what constitutes play.

In *Gets It Better*, I used what amounts to game theory to produce a similar dilemma as in *Diplomacy* – only the actors aren't states at war, but characters from my own high-school experiences of bullying. While it is a complicated series of events, the essentials are the following. A student, who we'll anonymize under the name Alex, had been attempting to join the football team for a few years, but continually fails to make the cut. However, in his junior year, after semesters of training, he succeeds in entering the team's ranks as a third-string wide receiver. Sadly, he is hazed worse than any other player, but seems outwardly content to have achieved his goal. Few students care for Alex or his plight, in large part because he himself is a bully. However, after he has been sitting on the bench for nearly two years, a remarkable event occurs. The first- and second-string receivers are unable to play and Alex is finally going to get his chance. In that moment, the coach makes the split-second decision to move the first-string

quarterback to take what is rightfully Alex's spot. The second-string quarterback will then step in. Alex is overtly distraught, and news spread of this decision through the bleachers. In a show of solidarity, several students get up and leave with Alex to cheer him up. While many students display remarkable altruism, attending to someone clearly in need, others admit to me that this show of love is partly self-serving. At this time, fears of vengeful school shootings and suicide are back-of-the-mind concerns – to the point where some leave with Alex to ensure that he will not harm himself or the community in the wake of the cruelty beset upon him. There is no longer any telling what someone might do under the weight of distributed oppression. Protecting Alex is a kind act but holds a sense of self-preservation. It is this decision that I sought to capture, much in the way acts of betrayal were captured in *Diplomacy*. Here the rules push the player to win by bullying, but at the same time to act judiciously in who they bully. Unlike in *Diplomacy*, a losing player can take unsuspecting people down with them. What is more, losing must be thought of in two ways: losing resources actively and being in a losing position. In *Gets It Better*, you can have a lead, but be losing resources so quickly that it is in your interest to quit. Doing so damages the players bullying you. In thinking ahead, they may refrain from bullying you so much that you exit the game, taking them with you.

In the end, the design did succeed in emerging moments of what we might call “restrained bullying”. While these moments were frequent, they certainly came from a desire to produce a normative reading of a strategy boardgame. When these did occur, not only were they within the encoded parameters that I set out, but additional unexpected behaviours emerged. Some of these were unintended, but ultimately in line with my desired narrative, and so they were not removed during the playtest process. Here I was lucky; the rules produced content that worked with my desired encoding. The opposite could have occurred, forcing a redesign or an

acceptance of counterproductive communication. To begin this entire design process, I posited that the necessary components were as follows:

1. Attacking (or bullying in the fiction) may benefit the attacker
2. Attacking will damage another
3. Quitting (or committing suicide in the fiction) may benefit the quitter
4. Quitting will damage attackers

To create a set of mechanics that enabled attacking and scalable relative benefit, it was necessary to also craft at least one resource. Attacking would take this resource from another player, and quitting would allow the quitter to keep whatever resources they had accumulated. Mapping this resource to the fiction, it made sense at first to call it happiness. As per rules 1 and 2, Bullying would be equivalent to stealing happiness. With rule 4, quitting would create a happiness penalty for the bully in the form of a regular loss of happiness, representing emotional suffering caused by guilt. In addition, there needed to be a goal to motivate players to accumulate happiness. In this case, by the end of turn 15, whoever had accumulated the most happiness would win. While there is an entire set of additional rules governing when and how one goes about bullying in the game, this resource, this goal and these four rules are sufficient at emerging the moment I was after. This models the feelings of guilt we fear should Alex hurt himself. What this meant during play is that it was only worth bullying people who had large enough reasons to stay in the game that they could take the hit. This did happen; although players were at times able to freely steal their opponents happiness, the associated risks were seen as too high for them to do so. *Gets It Better* succeeded at saying what it set out to say, both in theory and in practice. What I ignored at the time was all the additional, unwanted things it also said. It was like trying to paint a wheel and having to paint and entire car to do so. As a result, the game also did things

it was not supposed to. It seemed trivial to have a player kill their own avatar out of a desire to win. The way *Gets it Better* achieves that result is by having, among others, these three rules:

1. The player with the most points at the end of the game wins
2. Some players can choose to permanently and continuously steal points from each other
3. Players can leave the game anytime and keep all the points they have accumulated

Given the above set of rules, it is possible to imagine that a player enters a situation where they cannot accumulate points faster than their opponents steal them. Given the permanent and continual nature of the net loss of points, their optimal move is to quit. Now, if we map this to a fiction, we can call points “happiness,” stealing becomes “bullying,” and quitting is “suicide.” While Ryan’s claim is at least troubled by this mechanism, it does not, in this case, clearly meet her stronger claim regarding empathy. We can have a player want to kill themselves in the fiction, but not out of mental anguish; rather, we have a much colder calculation. Whether or not a player decides to internalize this representation of suffering remains in their hands.

Of note, adding points to the design here does not constitute “pointsification” or gamification. The points are being used to designate the game state in the same way that points in soccer are not used to gamify but to create the game itself. Giving points to people in some meta-level game, such as gold stars for homework, might be closer to gamifying soccer with points.

4.1.2 The Problems of Irrational Players and Game Literacy

I set out to design a game which would communicate some idea using procedural rhetoric, taking into consideration that there would be resistance, in hopes of seeing what kinds of play would be interesting to players and what kinds would not. In my mind, it seemed like I

could deploy a workaround for stimulating players to fictionally commit suicide by having them care about a score which could, through certain circumstances, be chronically reduced, so long as they played the game. Despite my best efforts, I started to find a disconnect between my intended meanings and players. I drew up a list of the elements that seemed most pressing.

One cause of communications failure was due to a refusal to play rationally with the goal of winning. Already, as Stuart Woods points out, “the majority of players do not consider winning – the ostensible “better” outcome – a significant element in their enjoyment. It seems players are, for the most part, willing to abandon the prescribed goals of the game in order to maintain the social cohesion of the game encounter” (196). The assumption that players will attempt to win is especially fraught in the context of an artgame with difficult emotional content. For the dominant reading tied to dominant strategy to work as a technique, players need to learn the rules and attempt to follow them to the best of their abilities. The decoder’s guardrails for interpretation can be mutually exclusive with the game’s. This is akin to Kunzleman refusing to play *The Castle Doctrine* in chapter 4. There is a risk in playing a game that one will accidentally do something heinous in the fiction. The desire to discover the fiction is at odds with that fear. Players also had a hard time believing that you could be dead and also be a winner. There was where a dominant ideology of the player and a transgressive encoding clashed. Thinking back to Harrell’s “phantasms,” I would argue that player imaginations would not stretch to incorporate the game’s represented model of the world into their own. This source of communicative breakdown can be mitigated with coaching and additional upfront explanation but, as it stands, there is a lack of interpretive overlap between the art-game maker and the player. In addition to this refusal to play or to play with the intent of winning, there is a similar issue caused by social overlap; not all players distinguish between the fiction of the game and the reality of the social

circle they inhabit. My games assume that players will not preferentially treat one another because they are friends in real life and they assume that players will not hold anyone in contempt for their actions in a game, so long as they followed the rules. Here once more, the requirement for a hyper-rational reading is incompatible with the decoding practices of many players. That said, these do not feel like insurmountable problems. Games might be able to speak to some people, which may be good enough.

Because of my emphasis on normative readings, the majority of peer criticism I received was “anti-proceduralist”. In 2011, the ludology vs. narratology debate took on another form, with Bogost holding the proceduralist camp against Miguel Sicart and his essay *Against Procedurality*. Sicart argues here that proceduralism undermines the agency of the player and thus devalues a medium-specific property of games. In particular, Sicart, taking up a Frankfurt School critique, suggests that games have an anti-fascist nature, given their emphasis on playfulness. When the proceduralist instead recruits players to complete enthymemes, the possibility for fascist propaganda recurs. This debate came to a head at the Digital Games Research Association conference in 2013, when a panel including Bogost, Sicart, Mia Consalvo and Michael Mateas addressed this conflict. Bogost and Sicart seemed to agree that each held beneficial ideas that were not mutually exclusive.

I was underestimating the importance of dissenting players who will not play optimally due to their social obligations, their desire to play sub-optimally, and their tendency to reassess rules. Woods cites game designer Reiner Knizia: “When playing a game, the goal is to win, but it is the goal that is important, not the winning” (189). Woods, in response, writes, “Although this statement displays a certain idealism about the nature of competitive gameplay, it reinforces the notion that many players are actively conscious of the separate nature of game goals and the

ensuring valorization of outcomes. This emphasis upon process over outcome is explicitly mentioned by a number of survey respondents...” (189). Woods’s work demonstrates that playing to win is itself a social norm because it activates the game. The winning, as Knizia points out, is secondary to the act of trying to win. However, when artgames obfuscate what it means to win, or make winning heinous in the fiction, then there is a countervailing force to this sentiment. This was a frustrating situation, given that my desire was to present ways in which games could communicate effectively in medium-specific ways. I had anticipated that players would adopt what I thought would be a normative reading. In the end, players either did not know how to perform the normative reading I was after, or they did not want to perform that reading for moral reasons, or they did not know which of the readings was the normative one. Brenda Romero, in discussing her game, *Train*, has voiced similar results. Because the game is about bringing Jews to death camps during WWII, players adopt a variety of stances. There are those who refuse to play the game, others who play to undermine the process, those who try to win, etc. In the case of *Train*, however, there are notable differences. For one, *Train* requires players to negotiate what victory even means. The game rules at no point specify what causes the end or how to determine a winner. In the end, *Train* works like Tzara’s Dadaist poem; the act of making it is the encoded gesture that people will decode, not the game itself. This was not supposed to be the case in *Gets It Better*; however, there are still players that attempt to rebel against the rules because they disagree with what their actions would represent in the fiction. Because of these various approaches, we have a notable difference from Hall’s model of decoding. Players in these uncomfortable games often do not configure the game to the point where they could have any kind of reading on it. This is akin to a writer offering instructions to a

reader on how to bind the book for reading, and the reader refusing, or misinterpreting. This first step of decoding is itself noisy.

Of course, some players rarely played optimally, and took the opportunities to bully when there was little reason to. Others refused to bully anyone on principle. Both of these player types were more likely to lose. Not only that, but they often caused strange behaviours in the system. For instance, if you bully people who do not have much happiness, and few ways to accumulate more, they face two choices. The first strategy is to quit. In this instance, the bully will be penalized with guilt. The only way to remove that guilt in the game is to quit. This often means cascading suicides during play. The other strategy is to counter-bully to steal back happiness. However, the player might not have the required information to bully their aggressor, and so it falls on someone else to bear the bullying burden. This often results in a daisy-chain of bullies, creating an extremely volatile situation. Here, if any bully/bullied person quits, they risk triggering a chain reaction of quitting. Essentially, players who do not play to win, or who do not think carefully about how to win, usually end up losing and bringing someone else down with them.

The third concept I developed to think about player interpretation was generosity. It seemed to me that games would require that players would attempt to seek meaning in the work, while at the same time forgiving any obvious incongruities resulting from the abstraction of the world into the game. No representation is perfect, but a generous reader can spot and highlight successes. While a certain degree of generosity is expected from any decoder, at what point does the encoder ask for too much? In hopes of dealing with Sicart's objections, my next move was to imagine a hypothetical world where players would play in a specific way, which could be anticipated by the authors of games – in the same way that novelists assume the reader will know

where the first page is, begin there, and follow sequentially, reading left to right, without skipping pages. Certainly, many people do not read this way, and may find they are more productive when they do not, but it would be strange to think that there are not some bare-minimum requirements expected of readers who wish to gain access to the salient ideas of the authors whose works they are engaged with. In the same way, it seemed to me that games might have some subset of competencies which would enable players to appreciate the salient ideas of their game designers. My thinking was that there is a mode of communicating through games that requires a set of conceptual tools to decode them. Encoding meaning procedurally is like cryptographically encoding information; without the required cyphers there is no way to expect receivers to access the message, let alone understand it. In order to empower would-be interpreters, I set about creating a list of expectations from my players. I boiled these down to three aspects necessary for any reader who desires access to some normative reading of the procedural work.

At the time of production, Dan Savage's widely successful "It Gets Better" campaign was making the claim that gay high school students were killing themselves because they did not anticipate the happiness they would have in adult life. This sentiment implied several model-able properties that were integrated into the process. That said, I was largely unconvinced of its validity. *Gets it Better* represents the issue Savage argues in his "It Gets Better" campaign by limiting the accumulation of happiness to the end of the game, i.e. high school only. Here the player-as-student can only think of happiness accumulated before the end of the game, i.e. graduation. This, combined with the lack of penalty for quitting, and opportunity to still win after having quit, leaves little disincentive for players to kill themselves if things get bad. If they start getting intensely bullied, they will need to bully back to make up for their lost happiness points.

However, bullying is not a trivial task, and they might fail to find a target with enough points to steal. This in turn makes suicide appealing given that the only incentive to being alive in the game is to accumulate points before graduation. While this might make some sense, and while it does model Savage's claim that high school students would commit suicide less if they could consider the happiness they would experience after high school, it does not actually support Savage's claim. The absurdity of the simulation regularly presents itself. Notably, players find the idea that high school students fail to evaluate post-game (i.e. future) happiness unconvincing. Many pointed out that without modeling mental health disorders, such as depression, there is little to learn from the game with regards to suicide.

But while it may have had a small contribution to Ryan's thoughts on suicide in games, and perhaps less to Savage's work on suicide in high school, the game successfully generated a variety of conversations about the topic between players. And while it did offer a particular argument about withholding bullying out of self-preservation, it also offered a large series of idiotic arguments as well. For instance, each of the five types of happiness tokens were limited in supply. I chose to limit the tokens to stimulate conflict over them. It also made the game easier to build. At the same time, players needed to rationalize why there was no more academic happiness or friendship to pursue. The game argued that happiness was doled out on a first-come, first-served basis. While there are ways to work this facet into the narrative of the game, players are forced to decide whether to bother. They must ask, "Is this scarcity a topic worth discussing, or does it generate a situation that the author wants us to address?" This duality never goes away. The designer, in constructing the argument, necessarily confuses the situation with scaffolding.

4.2 Cabinet Shuffle

I chose *Cabinet Shuffle* as an exemplar for the way distribution and circulation impact design and articulate unexpectedly. Part of its design was looking to reduce *Gets It Better*'s multi-page rule book, hour-long playtime, and cumbersome, if not expensive, set-up. *Cabinet Shuffle* was a collaborative project designed in 2016 for promoting civic engagement. It was inspired by Justin Trudeau's landmark 2015 federal cabinet. It was the first cabinet in Canadian history to feature gender parity. When asked why Trudeau decided to make gender parity a priority, he famously responded "Because it's 2015" (Chartrand). The cabinet was also notable for including a diverse set of Canadians in terms of faith, ethnic background, aboriginal heritage and abilities. While watching the cabinet's formation on television, my wife turned to me and said that, because of this decision, she now felt there was a place for her in politics. I took a lot of pride in my country at that moment and sought out more details on the newly empowered ministers. Their accomplishments lead me to a particular desire: I wanted to create the baseball card equivalent of Canadian politics. In doing so, I hoped I could make a game to show more Canadians that there was room in politics for them too. In essence, I spotted a shift in discourse and wanted to give it more momentum across additional media. In order to produce some proof of concept, I began by creating five limitations to the design: it would need to be easily distributable; it would need to be teachable in under five minutes and playable in 20; to ensure buy-in from players, granting bodies, and the press, it would need to look and feel like a professionally manufactured boardgame; the game would also have to be bilingual, keeping in theme with the federal government's commitment to French, while also saving money on separate print runs; finally, to continue my research, the game would need to exhibit some

procedural lesson relevant to the theme. In the sections below, I explore the various impacts that these limitations had on the design.

One of the reasons I created these limitations was due to my continual unease with the difficulty I found in producing procedural arguments. My assumption was that this difficulty was tied to the decoding process – namely, that I was asking for too much time, knowledge, patience, etc. I also thought I was too ambitious given the time I usually had to make a game. *Cabinet Shuffle* was an extreme attempt at getting a clear message across by paring down superfluous aspects. While *Cabinet Shuffle* does communicate some of the difficulties of choosing representatives, it has to do a lot of political abstraction.

4.2.1 Easily Distributed, Quick to Play, and Professional in Appearance

Beyond legality, which I will discuss briefly, there are two important facets to distribution which affects the others: access and cost. Access can be divided into two as well, where on the one hand it can be expensive to play games, even when they are given to you for free. For instance, if I created a free-to-play game for the Apple Store or Google Play Store, users would need to own smartphones, tablets or personal computers. In a classroom of 25 high school students, it is currently impossible to expect that each student has that access. Analog games can generally supply the required materials to play them. However, we run into the second problem of access: legibility. My own preference for gameplay involves three-hour sessions with rulebooks that take approximately 35 minutes to understand. To be sure, they only take 35 minutes because I have also already sunk many hours into becoming an experienced rule-reader. These games have a lot of “weight,” which requires enormous amounts of buy-in and expertise from their players. That expertise is a function of privilege that I hold, but want to

avoid as a requirement for play. In other words, *Cabinet Shuffle* could not require this expertise and be widely circulated. It was designed to be simpler than *Gets It Better* because even though *Gets It Better* only took ten minutes to learn and 60 minutes to play, it was often too much of an ask. In addition, playing in the gallery space took a lot of organization. Although there were reports of spontaneous play without my game-mastering, those appeared few and far between. Getting games played by colleagues was similarly difficult. With *Cabinet Shuffle*, the goal was to get copies in high schools across Canada, which meant that teachers would have to be the ones explaining the rules. In hoping for the game's adoption, I restricted the design to under a half-hour playtime, although this was not a conservative estimate and it likely often took longer depending on the play group.

Even with time reduced and ease of use increased, the game still needed to be affordable. Board games are often sold for high prices because they have high distribution and storage costs, in addition to small marks with a lot of risk. They also sell replayable entertainment. Given that I am not promoting either of those aspects in my design, but instead targeting teachers with little to no budget for extra materials, cost is a severely limiting factor. While I was responsible for *Cabinet Shuffle*'s game design, manufacture, and distribution, there were several facets outside of my expertise. I brought the project to Professor David Waddington and the Centre for the Study of Learning and Performance for his financial support and field expertise. Waddington provided regular critiques of the game's mechanics, which will be discussed below. He also managed the legality of the game. In speaking with Concordia's legal team, it was unclear if or how we were allowed to make the game. In Canada, citizens have control over their likeness, meaning you cannot publish images of people you photograph on the street without their consent. However, public figures do not always need to give their consent, and as such

newspapers are given leeway to sell materials featuring public figures' likenesses. In our case, Concordia gave us permission to print and distribute, but not sell, *Cabinet Shuffle*. This made certain grants offered to us impossible, as they required that we recover costs in sales. All of that said, it was obviously going to be much easier to distribute *Cabinet Shuffle* if it was free. We decided to make five copies each available to 300 teachers at no cost, absorbing the price of shipping.

I recruited my sister, Michèle Robinson, to implement the graphic design. I felt it was not enough that the game be simple and free to play. For someone to buy in, the work would need to be visually appealing. This decision allowed the game to do more work. Its professional appearance promised its professional design, even though the two are not logically linked. Throughout the game design process, the visual style was being built. Finding ways to represent information bilingually was not particularly difficult. It forced us to use iconography throughout the cards, but that is already standard practice in boardgame design. We decided to represent genders using the Mars and Venus symbols, the provinces by their postal letters, and experience by a number. The only difficult decision was determining an icon for “diversity,” where the term includes aboriginal, disabled and visible minorities. Ultimately, we decided on using a pie chart, where if the smaller pie piece was highlighted it would indicate that the person was “diverse.”

4.2.2 Politics of Process and When Games Say Too Much

Given that the game was intended to be so quick to play, it was essential that the procedural lesson be simple and central to play. Perhaps somewhat backwardly, I already had the pieces before determining the rules. That is, I knew that I would have cards with MPs' faces on them and their relevant stats as well. Given that this lent itself to card drafting, and that the initial inspiration was the cabinet selection, I also minimally started with the premise that players

would be selecting MPs for their own cabinet. The relevant statistics were ultimately determined by the conversations being had in the press. The Prime Minister's selection sparked a debate regarding meritocracy in politics. The Conservative Party of Canada, as well as certain newspaper editorialists, suggested that Trudeau's cabinet was too inexperienced to run the country. Instead of selecting longest serving members, he was choosing from a diverse set of recently elected Canadians. Thus emerged a difficult political problem: how to balance diversity and experience? I thought I could model the process of selecting a cabinet in order to gain or lose popularity as a government.

The first step was data collection. It was already clear that I needed to incorporate real Members of Parliament in the game. I wanted to provide stats for them in the tradition of Baseball cards or *Magic: The Gathering* (Garfield 1993). I began by selecting 18 members from Trudeau's cabinet, particularly because the other parties had not created their cabinets yet in response. The initial idea was that I would have 18 from each party, creating a standard 54 card deck. Using this playing card model, I knew I would be better able to source materials for less. This initial task was quite difficult because Trudeau built a 30-person cabinet. That meant eliminating 12 of the members, while still keeping the "spirit" of his selection. The ideological ramifications and politics of these decisions were daunting. Choosing some objective metric, such as the first 18 alphabetically, seemed silly. Selecting members for the importance of their portfolios seemed possible as first, what with the prestige of Defense, Economics and Science, but these quickly blur in importance. In this instance, the benefits of a reduced budget were outweighed by the task of eliminating MPs. The result was a decision to keep all thirty from Trudeau's cabinet. When the CPC released its shadow cabinet's details, they similarly selected 30 MPs, each with a portfolio directly mirroring Trudeau's Liberals. This made the decision to

include 30 Liberals doubly sound, because now there would be balanced and symmetrical numbers on each side. Here, I let myself be guided by standard game design principles, rather than expend effort reinventing the wheel. However, the New Democratic Party announced that all 44 of its MPs would be given positions as critics. Immediately I knew that 14 would need to be eliminated from the game. In this instance, cost, balance and politics were on the same side. Including 47% more members from one party would not only make the cost go up, but create asymmetry with the other sides and overemphasize the NDP's role in federal politics, especially now that it was no longer the official opposition. Luckily, roughly 30 of the MPs had portfolios matching the other two parties, making the elimination process relatively painless. Of course, it is not clear that I should have kept any NDP cards. While they had a cabinet in the 2011 election as the official opposition, after 2015, they were in third place. Keeping them in the game may have entailed including the Green Party's single MP and the Bloc Québécois's 10. The reasons for eliminating these were twofold. First, neither of these parties were capable of forming a cabinet, given their size. Second, they added complexity to a game that was already going to suffer from a steep learning curve. Keeping the NDP kept the spirit of the three-way race that dominated political discourse.

Once it was decided that there would be 90 MPs, with 30 from each party, we needed to know what information would be included on each card. Gender and Experience were two obvious candidates. Treating gender as binary, matching the discourse of gender parity in the cabinet, was simple. There was also no way to treat gender on a spectrum, given that MPs do not make any nuanced data about their genders public. While this might seem silly on the face of it, at the end of the day, the game would only be able to represent information that was already public, but also readily available. Experience, on the other hand, needed careful consideration.

What was going to count as experience? Years in politics, seemed like a good candidate, but do municipal politics, provincial politics, and federal politics count the same? What about working in government as a civil servant? What about working for a bank or for the military? Clearly these would be valuable experience for an MP given the correct portfolio. Unfortunately, answers to these questions are not all readily available public information. In the end, we decided to use the information regarding years of parliamentary service. Although this did not capture some portions of political experience that some MPs had outside of parliament, and although it did not capture the industry expertise of some MPs, the abstraction seemed adequately representative. For instance, the total experience in the CPC's cabinet was 211 years, versus the Liberal's 157 and the NDP's 143. In hindsight, age might have been a good alternative indicator, particularly because public discourse repeatedly indicated how young certain members were. The results would have likely been similarly skewed.

One of the most fundamental aspects of cabinet formation is the selection of portfolios. Defense, Science, and Justice are standard examples. There is no set number and the titles are not fixed. They can even be combined or separated across MPs. During the process of planning the portfolios, candidates are picked for their particular expertise. For instance, Harjit Sajjan was a lieutenant-colonel before being appointed Minister of Defense. The quality of his military experience was as relevant as the quantity of his parliamentary experience. However, to address the complexities of various skills and positions is beyond the scope of the 30-minute game length with 90 MPs available. So, while the game uses real people with their real stats, those stats must be seen as metaphoric stand-ins for more nuanced decision making practices. Here is where the desire to communicate a gestalt conflicts with an attempt at communicating facts. There is no standard level of abstraction for all aspects of the game's meaning; players must decide based on

their intuition what is abstracted because it is not important, and what is abstracted by necessity. In this case, they need to realize that portfolios and specific skills are important but cannot be represented, given the scope of the work. Instead, they need to look to the gestalt of choosing between experience more generally, and the different ways of producing diverse representation.

Aside from gender, Trudeau's cabinet was lauded for its inclusion of religious minorities, ethnic minorities, disabled persons, and aboriginal Canadians. Each of these could have been its own category alongside gender and experience. However, gameplay difficulty would have increased, and the number of rules required to manage each of these facets would have grown too. It also seemed odd to create specific separate information tabs that would refer only to a couple of MPs statistics. Instead, we opted for an unofficial term called "diversity." This term allowed us to use all of the public information on these MPs. However, there are many ways to be diverse which were not included. For instance, while there are a significant number of homosexual politicians in parliament, only a tiny fraction make that information public. I was faced with potentially under-representing gay members of parliament, or even accidentally outing members who were not interested in publicly holding that identity. Because the sexual orientation of Canadian politicians was not overtly discussed in the cabinet selection process, Dr. Waddington and I felt it was a reasonable compromise to omit homosexuality from the category of diversity.

Because of budgetary concerns, the deck consists of only 30 MPs from each party. This in turn means that drafting a cabinet cannot be like in the real world. Trudeau got to pick from 170. Here I sacrifice an inordinate amount of accuracy to recreate the one basic procedural lesson: drafting MPs based on identity is a necessary trade-off. To make the experience possible, I allow players to draft members from any party. I also allow for any size cabinets. Given the

lack of cards and the mechanisms in the game, this leads to four to ten persons in a cabinet. The abstraction creates a lot of noise and forces a lot of explanation that this is not how federal politics works.

4.2.3 Replayability, A Design Error

Boardgame design is generally interested in replayability. It is one of the many criteria we rank games by^v. In the case of serious games, forgoing replayability can lower the barrier to entry by removing the rules that make a game interesting to repeat. Cabinet Shuffle, like most games, was designed to be replayed. In fact, the subtleties of its victory point cards and the distributions of MPs in each party make the ideal game possible only on the third or fourth try. By building the game in this way, it can be enjoyed for its strategic depth over the course of multiple sessions. Designing it in this way was an error on my part.

If the goal of a serious game is to communicate some new understanding of some source system, then replayability might not be an important criterion. In the case of Cabinet Shuffle, to ensure a variety of future plays, I introduced victory point cards. These form a deck of 18 (two copies of nine distinct cards). Each card either rewards or penalizes a player at the end of the game based on their cabinet's merits relative to their opponents. For instance, there is a card that awards a point to the player with the most experienced cabinet. This card might not be in play in a particular game, forcing players to reconsider how to evaluate drafting MPs. It might also be present in duplicate, doubling its importance. By designing the game in this way, I wanted to highlight how cabinets are not valued in a universal or stable way. Instead, they are contingent on the electorate's opinions on issues, which vary from year to year.

Currently, the game generates a set of victory point cards by dealing three to each player. Players must remove one from the game, reveal one and keep the third secret. I did it this way to produce hidden information for each player. The plan was to stimulate a desire to see what the other players were doing in the hopes of realizing what hidden information they had. While this mechanic works quite well at creating interesting asymmetrical information, it comes at a cost. Notably, players in this context stumble when making decisions that are not strategic in nature. Usually, when you are given a choice of three cards, there is some kind of indication as to which is best to choose. Instead, choosing here only acts as a sorting mechanism. I could have equally designed it so each player received one hidden card, looked at one card outside the game, and dealt one open-faced card to the public center equal to the number of players in the game. In the end, however, both of these setup processes distract from the main point of the game which is drafting MPs based on their attributes. Herein lies another trade-off.

The simplest version would be a static set of victory parameters – for instance, one point for each of the most diverse, gender balanced, experience-and-regionally representative cabinets. In this way, the game would be easier to learn, quicker to play, and we would sidestep the awkward moment of selecting victory conditions which, while simple, was unintuitive. In this instance, the first game would be easier to begin. However, we would lose long term replayability as future games would be similar to each other. We might consider the following relationship: adding rules to a game can increase its replayability at the cost of its learning curve. Here, the professional encoding lens got in the way of producing the desired object. Using Hall, I can now think critically about the ways game-design best practices hamstring serious game design. But, even if these aspects are solved, *Cabinet Shuffle* would still need its abstractions. To produce the “gestalts” Duke and Waddington suggest, one needs to remove detail. Doing so,

however, complicates the decoding process, which is made doubly hard by the emergent content of the rules.

In addition to penalizing the least diverse, experienced, regionally representative and gender-equal cabinets, *Cabinet Shuffle* included a penalty card for Tokenism with regards to gender and diversity. These cards effectively cost a player one point for having only one woman or one diverse person. This card came as a result of playtesting where players who were not looking for gender parity would select a single woman to avoid being the least gender equal, and thus avoid the penalty. The same went for diversity card drafting. Players insisted the game was producing a narrative in favor of tokenism. The game effectively made tokenistic gestures strategic. To address this issue and to dissuade players from producing that narrative, Dr. Waddington and I created the Tokenism penalty cards. Unfortunately, during play, there were instances where players actively avoided diverse or women MPs for fear of receiving the penalty. For instance, if it is late in the game and you do not have any diverse MPs, it becomes increasingly unlikely that you will be able to avoid the “least diverse” penalty card. It is also likely that if you try to avoid this, you may be additionally penalized by the “tokenism: diversity” card. In these instances, players are better off not drafting any diverse MPs. Of course, in reality, this conflicts with our position as well. MPs have real power and avoiding giving a diverse MP some power on the chance that you lose popularity for being called tokenistic seems backwards. Our fix for the previous problem seemed to have created a greater one. Importantly, no players read that second story as intentional. The procedural reading that emerges from trying to play strategically is seen as an error. However, in the previous version, where tokenism is favoured, players find the error egregious. This is where once again the ideology of the player interacts with the agency of the rules to create awkward and unexpected readings.

What interests me here, though, is that should we follow through with the procedural reading, the rules actively critique our position. They teach us that the tokenism argument is something of a red herring. At the same time, it is doubly important to recognize that the procedural reading is not likely, and the tokenism card ultimately serves its purpose. Players reading it see that we find tokenism to be as bad as lack of experience and gender inequality. So while the card did work, it was not a procedural communication that solved the problem.

4.2.4 Lessons from Cabinet Shuffle

Cabinet Shuffle was designed to fit in a short time frame and be easy to learn. At the same time, it was designed to showcase the idea of gestalt representation through games. Given limited resources, it could only use readily available information (such as gender and not sexuality). That information's availability is the result of its position in discourse as well as its own material properties and articulations. Then, because of these abstractions and current lack of consensus on how to decode procedurally, the game needed to patch a potential misunderstanding. That patch had to interact with rules that were already in place due to the current strategic game design practices from which they come. The MPs, their attributes, their interrelation, the absent elements, the game length, the complexity, etc. were the result of a distributed network of agency. My own control over what the game could say or do, was ultimately quite limited. This is most clearly seen when the resulting articulation produces an ideological message that is not necessarily in line with my design practice – that is, the moment I introduce the tokenization card to critique tokenization even though its inclusion creates a procedural argument against that very critique. While it could have been altered to better fit within acceptable limits, time and budget ran out. This is what I mean when I say game design is an accidental method: not only do we have little control over the financial, discursive, temporal, etc., but the resulting functions or

rules then further disrupt the process. And because it is hard to predict what rules will do before they are implemented, it is unlikely that there is enough capacity to repeatedly alter content until it fits with the encoders intention.

4.3 The Amalgamated

When I began working on *The Amalgamated*, the intent was to demonstrate how serious games could represent a historical archive. With Actor-Network-Theory as a method, and having completed a comprehensive exam on theories of the archive, I set out to collect documents pertaining to the 1910s labour movements – in particular, those that took place in the Peck Building which now holds Ubisoft’s Montreal headquarters. Unlike *Cabinet Shuffle*, *The Amalgamated* was never brought from prototype to finished product. I hired Thomas Gauthier-Caron, a programmer and game designer in his own right, to code the game in d3.js and to produce the visual assets as well. The overly-ambitious hope was to produce a peer-reviewable game which took scholarly sources and brought them into conversation. Given my continued interest in procedural game design as a mode of communication, it seemed reasonable to assume that a peer-reviewable game could be possible. In the way that experiments are circulated and peer-reviewed in the sciences, *The Amalgamated* would be something of a humanities experiment. The hope was that I could do a reasonable job describing the historical actors through rules, and that these would play out in surprising ways. Here I could make a clear claim that games might have medium-specific ways of contributing to the humanities. Given that the game did not need to offer entertainment value or replayability, but to show that a procedural historical argument was possible, I made design decisions that reduced certain aesthetic burdens. The game is ultimately both functional and playable, but it houses only a small subset of the actors and relationships I discovered in my research. As a result, it is an incomplete historical

work that serves different purposes than I set out to achieve. On the one hand, it demonstrates the inordinate time constraints that making a representative game entails; on the other, a series of valuable insights emerged from trying to adapt written research into game.

4.3.1 A Networked History

The Amalgamated was also intended to be a way for me to contribute to my community.

The Museum of Jewish Montreal had a call for projects, while the funding body, Gen J, was looking to fund arts in the Jewish community. In working with the Museum, we explored the possibility of making a game about the Jewish community's involvement in the labour movement in the 1910s. When I learned that one of the most important strikes took place in the Peck Building, where the videogame company Ubisoft is now housed, it felt fated. In order to frame this game as a piece of scholarly analysis, I decided to use Bruno Latour's Actor-Network Theory. As I mentioned in the methods chapter, ANT offers useful tools for thinking through and structuring information. In particular, it benefits from directed graphs. Each actor can be seen as a node, connected to others through edges. Nodes have properties and produce certain connections. Each connection can change either node. Latour insists that the nodes are not placed in a hierarchy, and that agency is not solely the domain of the human. I was sure that I could create a game played on a network graph such as this one. I even suspected that ANT might benefit from being represented in a simulated graph, where nodes continually act on each other. In addition to offering a way of structuring information, Latour also presents a method of enquiry. In the *Pasteurization of France*, for instance, he builds a story of the various actors who allowed for the dominance of Louis Pasteur's ideas. By focusing on three French medical journals, he explains that over 50 years there would be too much to cover exhaustively. Instead, he argues that "The analyst ... has only to begin at any point, by recording what each actor says of the others. He should not try to be reasonable and to impose some predetermined sociology on

the sometimes bizarre interdefinition offered by the writers studied. The only task of the analyst is to follow the transformations that the actors convened in the stories are undergoing” (10). While I gathered works detailing the history of the labour from the period (Heron 1998; Heron 2012; Gouter 2014). I took a cue from Latour and focused my efforts on a limited data set, trying simply to track which actors were acting in what ways. I gathered materials from the Jewish Public Library’s archive, the Canadian Jewish Congress’s archive, and the Archives de Montréal. In addition to these materials, I was ultimately able to collect a selected set of articles by a Montreal archivist named David Rome. His work was edited by Pierre Anctil in “Through the Eyes of the Eagle: The Early Montreal Yiddish Press,” which translated the Yiddish newspaper, *Der Keneder Odler* (The Canadian Eagle). There, I was able to gather enough accounts of the Jewish labour movement to produce a list of more actors that I could model.

4.3.2 The Difficulties in Designing Computationally Enabled Gestalts

Unlike the previous two (analogue) games I explored, *The Amalgamated* is a videogame. There are trade-offs in opting for one over the other. Most notably, videogames can cost much more to create. In the case of *The Amalgamated*, I was not going to be able to code the game myself, given my capacities and constraints. With community funding I hired a programmer in Concordia’s Computation Arts, Thomas Gauthier-Caron. He worked with me using d3.js code library as a means to craft the particularly graph-like game I had in mind. Developing with him was quite efficient, as I could design and test while he implemented and repaired. It did, however, end up taking the large majority of the project’s funding to keep him on. In exchange for this cost, videogames can do many things. For one, they can circulate easily. Not only can they even be built to play on tablets and smart phones, but they can circulate for free. Whereas *Cabinet Shuffle* had a cost for each pack shipped, software never creates that budgetary concern.

The Amalgamated was built for in-browser play, making it even independent of third-party distributors. Videogames are also capable of being more complicated than board games. For instance, not all rules need to be known to the videogame player. The software can execute instructions on its own. This dramatically reduces the burden on the player. It is important to note, though, that if the premise of the work is to do procedural argumentation, then the rules will need to be understood at some point in time. A third advantage is the enactment of tedious and difficult procedures. In *The Amalgamated*, there are a lot of moving resources as each of the dozens of nodes acts on and is acted on by other nodes. Managing the entire simulated network on paper can take hours for a human, but nanoseconds for a computer. The capacity to simulate so many actions at once allows for difficult gestalts to emerge. By taking advantage of this capacity, the hope was that the system would create emergent and unexpected but still intelligible results.

4.3.3 Modeling a History

The following section details the key elements of the history that I sought to adapt into the game. In the period between 1915 and 1925 in Montreal, Quebec, the factory labour conditions are especially poor. Working days are long, while wages are unregulated and low enough to force choices between food and warmth. Workers have no say with regards to operations and are alienated from their labour. Religious institutions provide help, but they can be counterproductive in solving underlying problems.

This is a list of actor types in *The Amalgamated*:

- Human
- Factory
- Capital

- Meaning
- Place of Worship
- Ownership
- Labour
- Club/Union
- Living Expense

Each actor works differently in the game because they are networked in various combinations.

These combinations articulate their different positions. For instance, a human that owns a factory has access to capital because the factory can turn labour into capital. But because there are humans who do not own factories, they must trade their recurring labour for capital at the factory. From the factory's perspective, it internally converts labour into capital (an abstraction of manufacturing sellable goods,) trading capital for labour in competition with other factories. Every factory wants as much labour as possible while giving out the least amount of capital. The places of worship work differently: they can convert capital and labour into meaning. They trade meaning for both those other resources. The status quo is created by virtue of all humans seeking as much meaning in the immediate as possible. This keeps humans either working for capital to pay for their living expenses, or using their extra capital and labour for meaning.

The player takes on the role of a new human in the network. Through clever allocation of their labour, they can survive and generate meaning. However, the most efficient way of procuring meaning, given their limited capital, is to start a union. The union acts like a place of worship insofar as it produces meaning from labour and capital. Unlike the place of worship, it can sell that labour to factories. If the player can save enough capital to survive contributing a threshold of labour to the club, the player will own the club. This is an abstraction of being

elected to lead the club. If the player is careful, the club can start offering human nodes a better return on their labour. This is how the game simulates the creation of unions. This is also as far as it goes. Ideally, the places of worship might try to act as their own unions, as they did at the time. Or, new actors like the police might be able to stop unions from operating. Eventually, I would have liked government parties and legislations to be brought in by unions, which fight with labour against capital.

In this design process, the ANT methodology butts heads with the MDA framework. Instead of designing for an aesthetic and producing dynamics out of mechanics, I was going backwards. This fits with Latour's idea that ANT doesn't set out to tell the story, but to trace the actors and see the situation from a new light. I am reminded of Rohrer's "mess." *The Castle Doctrine* did not have an aesthetic in mind; instead, it tries to map out the different stakes that Rohrer is trying to deal with. These various actors lead to dynamics and aesthetics that are not preplanned. This is why I think of game design as an accidental methodology.

4.3.4 When Games Get Too Complicated

In the creation of *The Amalgamated*, it was necessary to produce a minimum viable prototype. The number of agents and elements in my design documents were too unwieldy to think about all at once. Even for programming, it was essential to go one actor at a time and verify its behaviour before moving onto the next. The obvious starting place was factory, then human, labour, and capital. Here I could build the fundamental exchange that underly the strike. The premises needed to be that:

- factories could transform labour coming from humans into capital
- humans would have a recurring supply of labour

- the factories would be able to make more money than they gave back to the humans
- humans would need to spend capital in every turn to stay alive

Designing this was not particularly difficult. Factories were given the ability to turn 1 labour into 2 capital. They could then get away with giving humans only 1 capital for their 2 labour, thus making 3 net capital. With this in place, I had a stable economy where humans never got richer, but they were kept alive. From there, I wanted to introduce the places of worship, but the current set of resources didn't make sense. I also needed to add a new resource: meaning. Meaning is a very helpful actor in the model because it can come from doing unalienating work, or attending church, or maintaining social ties between humans. Places of worship would act like a new kind of meaning factory. Here, the model began to resemble the literature, where all humans got capital from factories and meaning from places of worship, while the latter two were in competition for capital.

From here, competition needed to develop further, this time between factories and between labourers. When there is not enough labour, its price goes up, giving labourers more free time. When there is too much available labour, prices drop, and everyone works harder to survive. Finally, having enough spare labour should result in the capacity to organize and form a union. These market forces were the new targets for emergent behavior. To produce that behavior, we needed to add the club, which the player can take over and turn into a union. While previous institutions had internal logic that allowed us to leave them to their own devices, unions were too difficult to program to operate alone. This worked out just fine for us, because it gave the player a goal. Meet people, find a job, save money, use your spare labour to turn the club into a union, manage demands, reap rewards in the form of increased meaning. In order to incentivize this behaviour, it was decided that the goal of the game was to be the human with the most

accrued meaning. It is this same rule which keeps all the other humans from doing anything with their spare time, as their internal logic has them continually getting meaning from their place of worship instead of through the union. The player gets to embody the arrival of anti-religious communist sentiment arriving in Montreal.

The problem now was that the game had too many moving parts. It was hard to balance at each step and whenever a new agent entered the mix, everything would need to be rebalanced. This problem felt exponentially difficult. With two agents, you need only worry about one relationship. With five it goes to 10. By the end of the game, we were at dozens of agents, and thus hundreds of connections to balance and worry about. For instance, if we didn't balance correctly, a factory might go bankrupt on turn 2 and then the only remaining factory would not be able to exchange all the labour in the market for capital, causing half the humans to outright die. With each new design decision, the emergent nature of the simulation forced re-working.

4.3.5 Gameplay Arc and the Golden Path

Once enough of the simulation was built it up, it was time to re-imagine what playing would be like inside it. The premise was that the player would be a human having just entered the network. This conceit allowed me to limit the initial complexity of the game for the incoming player. Despite the work being a prototype, I wanted it to be playable, which meant being understandable. By having the player inhabit a new arrival, I had the narrative frame it such that they only know one person, Ben. They start with 1 capital, which allows them to spend a turn not working. The initial action that they can take, then, is to connect their three labour to Ben. The game treats this act as a way of getting meaning. Like in *Gets It Better*, the player can get points through friendship. In order to introduce the factory in the following turn, the game has the following property designed into it: if you are connected to a node in the network, it will tell you

about a node it is connected to at the end of the turn. This way, the player will learn about the factory from Ben. It will be just in time, as the player has run out of capital and will need to learn how to undo connections (in this case stop being such a good friend to Ben and start working at the factory). From there, the player will meet more people, eventually discovering a place of worship and then the club.

In order to limit the complexities of the design, I felt it necessary to create a “golden path” for the player to follow. This means that while the game has many emergent properties, the player is still shoved into the most interesting decisions early on. These also teach the player about the simulation and how to work within it. Designing this limited path in this already limited representation of my object of inquiry creates a very constrained experience. Just as the game gets going, it seems to run out of steam. In order to release the player from the golden path into the wild of the simulation, that wild needs to do things. However, having worked tirelessly to stop it from doing game-breaking things, it is ultimately reduced in its expressive capacity. While I am certain additional agents and additional rules could be added, the time necessary to playtest, balance, and continue only grows with each new feature. The way to design with emergence is to work iteratively and to tinker because the whole premise is that the rules no longer lead to where we can expect them to go. However, designing in this way is incredibly time consuming. Programming and subsequent bug fixing quickly drains resources. So, by the time *The Amalgamated* finally got to a point where everything worked in a minimally viable way, my available resources to continue were exhausted. This would not have been the case if the design were not so focused on emergence. But then, the game would not be using the procedurally interesting elements that led me to make the work in the first place.

The game was originally plotted to have one worker coax another worker into helping them improve their conditions. Together they will be able to convince some of their stubborn co-workers. Soon they will have a union and begin making decisions about where to apply their collective power. Do they support a new governmental force? Perhaps they'll threaten to strike, hoping for better pay? Or maybe they will try to grow large enough to stage a revolution? At this point the player making these decisions will meet particular kinds of opposition that will attempt to weaken the ties that bind the labour force or altogether replace it. Strike breakers, police officers, new laws, the draft, the loss of a social safety net, infighting, and even a competing union all have a chance at being the player's undoing.

5 Conclusion

I planned this dissertation to demonstrate the power of procedural rhetoric. It seemed as though we had, as a culture, a new tool to get at particularly difficult ideas – or, as Duke argues, a new way of cutting out detail and focusing on the systems that undergird our lives (1974). I haven't disproven this possibility, but I do think I've shown that it is a lot harder to do than the literature would suggest. Not only is it time consuming and costly, but the methodology for going from subject to message is hard to imagine. Assessing this was only possible through repeated attempts at trying to produce procedural arguments in games. Not only are players unlikely to parse out the literal from the metaphoric, or the detail from the gestalt, but the designer too can fail to find their intentions in their own work. If we only think of affordances and constraints of the medium, we lose too much detail with what is going on.

I do think that games can and should be further used and explored. With sufficient effort, luck and expertise, special kinds of systemic expression are possible. I also think the case for quickly produceable procedural encoding is weaker. I admit that this conclusion comes from anecdotal data. My own games may be lacking because I did not have enough skill or luck or resources to put in. The other, similarly lacking examples of procedural expression in the previous chapters may also have been cherry-picked to demonstrate these claims. To be fair to myself, I did select them originally because I wanted to show the opposite. They seemed like the best examples to date.

5.1 Contributions

The core contribution is a conceptualization of rules as agents in the process of encoding. Theories of procedural rhetoric suggest that games and, by extension, game designers, can make arguments. Thinking through Alan Turing, Wendy Chun, and John Conway's work, I

demonstrated that emergent behaviors complicate this. While theorists such as Harrell, Bogost, Duke, and Waddington rightfully point to the medium-specific quality of games in representing gestalts, I show that those very gestalts aren't easily predetermined. In other words, games do make emergent arguments, but they are often not their authors'. Intuitively, this argument not only matches my design practice, but explains the lack of successful procedurally argumentative games. Obviously, I cannot prove that such a lack exists; doing so would be well outside the scope of any scholar. However, if it were the case that procedural arguments were hard to make, then I would expect the best ones to come from post-hoc readings. That is to say, designers would first make games; later, critics/players would assign the meaning they just so happened to produce. At the same time, I freely admit that there are designers who seem successful in making their works speak their ideas. *The Witness* matches the idea of communicating epiphanies, which Blow described years before he completed it. That said, it took nearly a decade to create. The major flaws in the proceduralist premise broke down into four categories across this dissertation.

5.1.1 Emergent systems are exponentially more difficult to plot as with each added variable.

While scholars such as Latour can plot dozens of agents acting on each other, actually imagining that behaviour working simultaneously is beyond the scope of one mind. Programming all of those agents with behaviors, no matter how simple, quickly results in chaos. Attempts to tame that chaos with minimum viable products or piecemeal production simply undermines the whole point. Once the subset of the variables are tuned, adding a new one reproduces the chaos, forcing a longer rebalancing, and so on.

5.1.2 There is no standard for a “dominant playing” of a game.

Filmgoers, book-readers, and painting-appreciators have built enough consensus around socially structured modes of reception that, while they may change over time, artists are capable

of crafting works with a mode of reception in mind. Even if users do not adhere in exactly the same way, we can imagine that some portion know how to perform a dominant reading. And even if we didn't, we could at least say that they know how to mechanically create a context for a dominant reading (such as starting from page 1 and continuing sequentially). In the case of games, given that each rule-set is novel, and that players must interpret the rule-set itself, there is breakage. The very instructions are up for interpretation. Solving this might require a meta-level set of rules explaining how to interpret rules.

5.1.3 It is difficult to signal which parts of the game are metaphor, literal, or to be ignored because they make other parts possible.

Certain parts of games are literal and help situate the player in the diegesis. Other elements then work on an abstract level, creating the gestalts that the player then transposes into the diegesis. Determining which is which is difficult. We train students from young ages to detect the parts of their fictional works that are acting literally vs. metaphorically, but these do not transpose in the same way to games. There are also confounding factors: as games abstract the world they represent, they use shorthand or blackboxes or oversimplified mechanisms to avoid representing additional complex components that the design is uninterested in. These kinds of abstraction are not dissimilar to the rest of the rules, which are abstracting at a slightly lesser level. Players need incredibly sophisticated means of distinguishing between these two levels.

5.1.4 There is no universal method to transcribe a dynamic system into a set of static rules.

There are two notable reasons for this. On the one hand, the premise is that rules create unexpected emergent results. Formalizing systems into programmable rules often requires their quantification. However, many topics resist being represented by numbers.

5.2 Hindsight and Changes

If I could go back, I would have started with research-creation already in mind. Early on, it was explained to me that research-creation was for scholars who had pre-established a creative practice. It was implied that they had an expertise that they had honed, and it deserved to be respected. It was only after I had maintained four years of regular design practice that I felt confident enough to change my project. I think this is a narrow view of the method. I knew in my heart that I wanted to make games and I was simply too timid to break with the existing view. Many dissertations stand to gain from a complementary creation project, on the premise that it is an experiment validating theory. The problem, as I see it, is that “research-creation” is too useful politically as a nebulous a term to remain useful theoretically. In the way that Suits rejects Wittgenstein’s use of family resemblances when describing games (McBride 59), the same might be said for Chapman and Sawchuk’s use of Wittgenstein for thinking of creation and research (7). Admittedly, there are political benefits to being under a both nebulous and funded umbrella, and admittedly, it is important to protect the value artists bring to the academy. For this reason, it would have been worthwhile for me to forward, at the start, the idea that research-creation doesn’t need to be a legitimized art practice.

5.3 Future Directions

While game designers may be able to intentionally communicate messages across their procedures, when game design becomes an academic practice, there are open problems to solve. For instance, how does one make such a game in a timely manner? Blow had enormous resources in both time and labour, while also selling his work to recover those costs. Making a serious, procedurally communicative game in an academic context that expresses the intellectual work done by some scholar requires remarkable down-scaling. Pippin Barr’s *The Artist is*

Present (2011) is a good example, in so far as it models waiting in line to stare at an artist's eyes in the MoMA. While techniques in game design, better tools, and a reduction in expectations of polish might help, I feel we are still far away from reliably making works that might withstand peer-review. As works get downscaled, they do not leverage simulational and emergent benefits of game design. If they do express something it is closer to the way art expresses ideas, and in that sense we do not expect peer-review to work as a model. Even with unlimited resources, the problems I repeatedly faced in my work and describe in this thesis remain unsolved.

My suspicion is that while we can find successful implementations of procedurally argumentative games, there are ways to wield the properties the proceduralists talk about. One way to get around the problems of transcribing a system into formal rules is to draw from other fields that already do so. Nicky Case does this almost exclusively on ncase.com with her “explorable explanations.” Here she takes formally described systems such as the Thomas Schelling segregation model I discussed in chapter 4. By plotting peer-reviewed, well-described mathematical formulae modelling the world, Case does not need to go at the problem backwards. While she is limited to what has already been modeled, the possibility for growth or alterations are pretty large. While Case turns these academic models into playable objects, she avoids misinterpretation and limits confusion by redundantly describing her dynamic models with text. In this way, Case facilitates decoding by telling the player how to play and how to interpret the results of that play. The risk of failing to encode is similarly low because she is adapting formulas from papers. The grocery list of problems I highlight throughout this dissertation goes away because she does not choose some arbitrary thing to present and then work to find rules that represent it. Instead, she finds the works of people who have found rules that model some

source system, and illustrates them by making them playable by providing goals for players to achieve.

While Case often uses game theory, such as the prisoner's dilemma, the alternative approach might be to use reverse game theory. Also referred to as mechanism design, Leonid Hurwicz, Eric Maskin and Roger Myerson received the Nobel prize in economics in 2007 for their contributions to the field. In essence, they chart incentives that might lead to social coordination around certain goals; they are game designers for the real world. Mechanism design has received attention of late in crypto-economics. Digital currencies such as Bitcoin or Ethereum were designed to produce certain human behaviours. In this case, their reward schema makes it unreasonable to cheat the network, because, so far, doing so is less profitable than supporting it. While mechanism design and reverse game theory are largely constructed around money, I suspect there are many fruitful avenues for proceduralists to explore.

5.4 Relevance to Game Studies Other Fields

I think of Game Studies as four branches. The first is formalist in nature, including both the ludological/procedural and narratological/anti-procedural perspectives. My dissertation speaks most directly to the scholars here. After all, I am interested in the way games are constructed and how they produce meaning. That said, branch two, which I think of as player-focused, ends up overlapping quite a bit. In this dissertation, I repeatedly point to the places where formalism is complicated by players. I also think that I do this in a significantly different way from standard Player Studies scholars. While there is no formal ethnographic work, my research depends on playing games and then building a model for why players would behave a certain way. It is in the conflict between the game's goals and the player's interpretive apparatus that I find a productive site of research here. Branch three, serious games for

change/learning/health/art/advertisement, as a more pragmatic field looking to deploy findings should also benefit from this work. If anything, I demonstrate that deploying games to reach only desired outcomes is a fool's errand. My suspicion is that these projects are extremely expensive to get right and that knowing the vulnerabilities of a project will better shape expectations. The fourth branch, the very technical computer-science/HCI, overlaps with regards to its focus on algorithmic research. When working through *Passage*'s code with this branch's scholars, I was struck and excited by new ways of seeing authorship.

While this project looks exclusively at games trying to represent narrative content, these belong under a larger umbrella. They are all systems trying to engender behaviours. Those behaviours are couched in a narrative context to complete some set of enthymemes, but the lessons here need not apply specifically to them. When we strip away the narrative content, we are still building rules and objectives, incentivizing behaviours, controlling people. So when some politician or middle manager creates some arbitrary obstacle or reward mechanism to foster a behaviour, they are likely to face some of the same challenges a game designer does. Incongruities in narrative examples are easier to point out, but there are obvious examples of unexpected behaviours emerging as a result of newly imposed rules. For instance, when Mao Zedong ordered the population to eliminate sparrows to improve grain yields, the net result was a locust bloom that led to massive famine.

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ⁱ Robertson creates this distinction to recuperate the good games can offer outside the domain of entertainment. Instead of using another neologism, I will continue to use "gamification" in the sense that it means "pointsification," and reserve the term "serious game" for what Robertson may at times call gamification.

ⁱⁱ Not only has his essay had wide purchase since its publication in 2014, with citations in over a dozen different journals, he remains the only scholar explicitly arguing for their merger. While there are stakes in critiquing this article to correct errors in the peer-reviewed literature, I use Landers as a springboard to begin arguing for serious games as necessarily procedural.

ⁱⁱⁱ They deploy Caillois' distinction in *Man, Play, and Games* between *paidia* and *ludus*.

^{iv} In this genre, turrets are constructed in order to eliminate waves oncoming foes. Complex decision making arises from selecting both the optimal location and the type of turrets.

^v Recently, this design goal has been troubled by “legacy” genre games, which include Risk: Legacy, Pandemic: Legacy, Gloomhaven, etc. In these games, fundamental alterations are made to the board, either by adding stickers or destroying components.