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PART ONE: DIGRA

Sean Duncan, Guest Editor

WHERE'S BATTLETECH IN MECHWARRIOR ONLINE? A CASE STUDY IN GAME ADAPTATION

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Battletech, *MechWarrior Online*, and the Clan invasion

On December 13, 2013, Vancouver-based developer Piranha Games, Inc. (PGI), announced the first expansion to their free-to-play shooter *MechWarrior Online* (MWO), the latest of a long line of digital games based on the strategic board game *Battletech*, first released by FASA corporation in 1984. Scheduled to be released only nine months after the game's official launch on September 13, 2013, the expansion in itself as well as the changes it would introduce to gameplay were heavily contested in the official and fan-moderated forums of the game. Hampered by technical problems, an extremely complex copyright situation, and a problematic business model, MWO had missed deadlines for feature injection on a regular basis. Players were thus skeptical of the new promises, as some elements envisioned as

core game features upon the beginning of the closed beta phase in May 2012 had not yet been implemented at the time of writing (1).

The vocal criticism of PGI's policies is certainly related to the fact that the developer only had two – at best – moderately successful major games to its name (*Die Hard: Nakatomi Plaza* and the console port of *Duke Nukem Forever*) before taking on the long legacy of *MechWarrior* games. Especially the 'founders' who participated in the initial crowd-funding of the project by raising several million dollars have been very outspoken in their general criticism of PGI's design decisions since the late beta phase. Discussion of the 'Clan invasion' event, however, connected a number of points of contention, and did so at an unprecedented scale. Within four weeks of announcing the feature and rule changes in the envisioned expansion on December 14 (Inouye, 2013), 1785 replies of lengths up to 2000 words had been posted in reaction to the design paper, and discussion in the thread continued until it was closed a week before the expansion launch ("MWO Forums: Clan Technology – A Design Perspective – Feedback," 2013).

Players not only dissected those changes and proposed alternate possibilities, but pointed out high-level problems the expansion would be creating and linked both to the Freemium business model used by PGI. That players did so with great skill and insight is unsurprising given that MWO has already been discussed in economics as a prime example for the realization that the "indirect link to the historical customer base from the acquired intellectual property assets is compelling because it presents significant funding and knowledge opportunities to entrepreneurs" (Smith, 2013, p. 25). In other words: the 'founders' had not only significantly co-financed game development, but had initially been pivotal in suggesting game design and features. By announcing the Clan invasion, PGI signaled that they would not prioritize bugfixes or the inclusion

of long-awaited features but would instead focus on creating an immediate influx of revenue through an elaborate pre-order model for additional game assets. What is more, the Clan invasion is a pivotal event in the fictional history of the BT universe, in which said Clans are an initially invincible enemy who temporarily unites factions that have been at war for centuries. One of the features announced in the initial design documents of MWO, yet never implemented, is 'Community Warfare,' a strategic component of the game that would recreate the complex political environment of BT prior to the Clan invasion, and which became partially obsolete by moving forward the invasion event. And while the developers and a part of the community debated how the Clans can be implemented without introducing extreme balancing issues, many voices raised the question whether balancing should be an issue at all when introducing an enemy that, according to game-world lore, is supposed to be overpowered (2).

The Clan invasion in MWO is a highly paradigmatic example for a number of fascinating issues of adapting analog games for the digital domain, because it showcases the intimate connection between evolving rules, intricate lore, player psyche, and business practices. *BattleTech* is best described as a modular game system in which the tactics of armored combat are only one, albeit central, level of abstraction, complemented by rules for actions on every scale, from a role-playing game up to a galaxy-spanning strategy rule-set. The unifying factor of these game modules are a common set of general rules (which, given their level of abstraction, might rather be identified as doctrine) and a coherent history of humanity's colonization of the stars, set forth in over one hundred novels. The traditional incarnation of BT, rooted deeply in the tradition of serious wargames, has been modified in quick-play rules, a collectible card game and a miniature-based tactics game. Since the late 1980s, *BattleTech* has expanded to digital games, again in several genres, from

adventures to strategy games and simulators. In the early- to mid-1990s, FASA's sister company Virtual World Entertainment ran arcades featuring exclusively their own battle pods, a networked set of up to 32 *BattleTech* simulation booths (Jacobson, 1993), which impressed players with real-time 3D graphics and detailed physical cockpits: "It took at least one gaming session (about a half hour) just to learn what all the switches did! It was as realistic a gaming experience as I've ever had" (Rogers, 2010, pp. FN 5). Given the tremendous effort required in creating the simulation booths, it can be assumed that the impression of realism conveyed by them was intentional, which would not be surprising at all if the BT rule-books didn't disavow the idea of realism for the board game: "Classic BattleTech is a game, not a detailed simulation. Therefore, the real world must take a back seat to game play—for simplicity, length of play, space required and simple enjoyment. […] Players are encouraged to remember such abstractions and not get bogged down in real-world mechanics and physics. Just enjoy the game!" (Bills, 2006, p. 36)

This paper will take a close look at the game design strategies with which PGI have translated a by-now venerable board game into a real-time action game. The argument presented here is that PGI have solved most design challenges in an ingenious way that is not only adequate, but resolves some issues inherent in the original game in quite elegant fashion. Their achievement in game design, however, has only been possible through a business model which forces them to take unpopular design decisions and alienate the long-term fans of the franchise who, both financially and intellectually, made the development of MWO possible in the first place. As such, this contribution to Well-Played demonstrates how the very same game can be a best-practice example in one respect while being worst-practice in another, ending up in a highly contested middle ground.

In the following, I will use aiming, one of the central concepts

of both games, as my central paradigm for the strategies of adaptation from board game to the temporal and spatial logic of a real-time game in a 3D environment. In doing so, I will draw on the current official BT rule-books as well as the MWO player community's theory-crafting and reverse-engineering efforts aimed at making the rules of the computer game transparent, but the core of my argument is formed by my own playing experience and a detailed comparison between the board game's probability-based and the computer game's skill-based approach to the same scenarios.

Holy cows and prime beef: Adaptation of core rules

Despite the great variety of games that have emerged from the BT franchise, all of them share a number of central assumptions and design principles. All games revolve around fighting in BattleMechs – walking tanks reminiscent of robots, yet controlled by a pilot in their head. The rationale for this kind of warfare is that in the 25th century, weapons of mass destruction have been banned, which leads to mechanized infantry becoming the dominant force on battlefields throughout the galaxy. In terms of unit diversification, Mechs come in four different weight classes between 20 and 100 tons. They are, except for a few rare exceptions, bipedal and powered by fusion engines, use an internal skeleton and artificial muscles, and are protected by armor. A Mech body is divided into 11 zones: head, both arms, both legs, front and rear left, middle, and right torso. The limiting factor for every Mech action, especially offensive ones, is heat generation by fusion engine and weapons. Mechs use three types of weapon systems, energy based (e.g. lasers), ballistic (cannons), and missiles, with every type subdivided into classes with their unique relationship between weight, range, damage, and heat. Energy weapons, for example, tend to create more heat than ballistic weapons, but require no ammunition and weigh less, while missile weapons generate heat in proportion to the number of missiles fired at a time, from two to 40, which will

spread damage over several body zones of the target. Because of this intricate balance of co-dependent factors, not only on weight and speed of a Mech determine its fighting style, combat role, and preferred tactics, but its exact weapon load-out. That is why each weight class in BT offers dozens of different Mech models with numerous variants. MWO has only implemented a fraction of these, yet already contains 39 chassis with a total of 169 unique variants at the time of writing.

Three factors make the adaptation of BT into real-time, 3D games a special challenge. While BT fiction (including expository parts of rule books) stresses the pivotal role of the pilot as a skilled warrior, the rules focus almost exclusively on the Mechs: Mechwarriors supply only two base values on the BT record sheet. As with every board game, time and space are modeled in ways that are fundamentally different from digital games. "In nondigital games, overall game time is often logical, specifying the ordering of events, whereas in digital games, time is often used in a chronological fashion, notably as a balancing tool in multiplayer and massively multiplayer games" (Tychsen & Hitchens, 2009, p. 171). Similarly, space in board games is usually divided into discrete, simplified units, which means that "conditions can become more complex and multilayered when players engage in 3D game spaces" (Nitsche, 2008, p. 43).

These factors are aggravated by BTs coarse granularity. The board game is played on a surface with hex squares of one inch in diameter, operating at 1/1200 scale, and each turn represents ten seconds of game-world time. BT uses two six-sided dice (2d6) throughout its rules, with values, modifiers, and results tables carefully chosen to account for this dice-combination's pronounced preference for mid-range values: statistically, almost half (44,5 %) of all rolls will be 6, 7 or 8. Targeting in BT is based on the Mechwarrior's piloting skill, which is modified by distance to target, relative speeds and similar factors. The effective range of weapons is evenly divided into close, medium,

and long range. A modifier of +2 is added to the to-hit probability at medium range, which increases to +4 at long range. Given that the base value is equal to the pilot's gunnery skill (which defaults to 4), these modifiers are drastic, especially as attacker and target movement also contribute modifiers (see Table 1).

Table 1. Hit probability calculations in BT

range	base value	attacker movement	target movement	range modifier	to-hit value (2d6)	to-hit percentage
short range	4	+ 1	+ 2	0	7	58,4 %
medium range	4	+ 1	+ 2	+ 2	9	27,8 %
long range	4	+ 1	+ 2	+ 4	11	8,4 %

A young and inexperienced Mechwarrior with a skill of 4 will thus have little chance of hitting moving targets at great distances, yet fares reasonably well in close combat. Hit placement is similarly semi-randomized through the use of tables without any influence of pilot skill. Missiles are always fired in clusters, whose hit locations are resolved via an additional table. Only immobile enemies can be targets of aimed shots, while in all other cases, roughly 45 % of shots will hit the torso-area of a Mech.

In the following sections, I will show that PGI achieve great fidelity to BT logic (if not rules) because they make creative use of the side-effects of realistic time and space in their game-world. By fine-tuning elements not present in the board game but necessary in real time, e.g. acceleration, twist rates and angles, the various game units become even more clearly differentiated from each other than in BattleTech and thus more viable in their individual roles on the playing field.

Discrete time and real-time

It almost goes without saying that BT uses an asynchronous relationship between playing time and world time (Tychsen & Hitchens, 2009, p. 193), while MWO employs the 1:1 mapping typical of shooter games (Tychsen & Hitchens, 2009, p. 181). Furthermore, BT is turn based and uses a mixture of consecutive and simultaneous turn resolution (Tychsen & Hitchens, 2009, p. 198): In the initiative phase, the turn order of players is determined, before a consecutive movement phase and a simultaneously resolved attack phase ensue. This leads to a situation in which game time "is further complicated by turns being normally taken in sequence, but the turns of all players in a round occupying the same world time, thus, mapping different playing times to the same world time" (Tychsen & Hitchens, 2009, p. 199).

These differences are nowhere more apparent in MWO than when it comes to targeting and firing weapons in BT. Every weapon can be fired once a turn, i.e. every ten seconds, regardless of its other characteristics. A class of burst weapons (such as rapid-fire autocannons) exists, yet even they can be fired only once per turn and differ from their 'regular' counterparts by being treated as firing clusters of simultaneous shots which are resolved using the same tables as missile volleys. Heat generation is relevant insofar as it limits the number of consecutive rounds a weapon can be fired before overheating the Mech.

In a real-time game, being able to fire all weapons only once every ten seconds is obviously not feasible. Therefore, MWO and previous *MechWarrior* PC games are using weapon-specific cooldown periods to determine when they can be fired again. In MWO, these range from 0.52 to 4.75 seconds. The cooldown correlates vaguely with the damage output of a weapon, allowing for smaller weapons to be fired more often and less carefully. Compared to its predecessors, MWO uses short cooldown

periods: a Large Laser will be ready to fire after 3.25 seconds in MWO, while in *MechWarrior 4: Mercenaries*, it would take 6.5 seconds. While this gives fights a faster pace, PGI has counterbalanced this design decision by stressing the temporality of actual attacks. Laser weapons need to remain on target to transfer energy and thus do damage, from between 0.5 seconds to one second. Firing this type of weapon thus means having to face the enemy for the full duration of the shot constantly correcting for the movement of both Mechs. Shooting a Medium Laser at its optimum range of 270 meters at a big Mech like the Catapult, the target is only three times as wide as the center reticule, which at a standard Full-HD resolution of 1920×1080 is 14 pixels in diameter. At this distance, an aimed shot at a moving target is possible, yet extremely difficult – the Catapult's center torso is only 5 pixels wide. Similar effects have been achieved with ballistic and missile weapons by choosing rather low projectile velocities compared to other shooter games. The biggest ballistic weapon in the game, the Autocannon 20, has a maximum range of 810 meters, and its projectiles travel at a slow 650 m/s, so that it takes the bullet 1,25 seconds to reach its target. While other projectile weapons have a higher velocity, they are still slow enough to have to lead their target significantly. All weapon types are thus clearly distinguished by their respective drawbacks, having to compensate for movement either before or during the shot, making each weapon type distinct and none overpowered.

Interestingly, the implementation of autocannons, the most important and widespread type of ballistic weapon in the game, is one of the few instances where MWO departs significantly from BT rules and descriptions in fiction: "With calibers ranging from 30 to 90 millimeters at the lighter end, to as much as 203 millimeters or more at the heaviest, most autocannons deliver their damage by firing high-speed streams or bursts of high-explosive, armor-defeating shells through one or more barrels"

(Bills, 2007, p. 207). While the word "most" in the BT description leaves some room for interpretation, it is clear that, originally, autocannons are conceived of as firing more than one projectile per round and that their damage derives from multiple hits that are only counted as one. Not only does the interpretation of autocannons in MWO differentiate this weapon more clearly in its usage and effect from laser weapons, but it revises an incongruence in the BT rules: As mentioned above, there is a class of fast-firing Ultra autocannons, which are considered cluster weapons in the BT rules, distributing their hits randomly like those of missiles, while the burst fire of standard autocannons is treated as a localized effect. In MWO, burst fire autocannons suffer from both the drawbacks of laser and projectile weapons, making them inferior to other weapon types. It is in exactly this fashion that Clan autocannons have been implemented to counterbalance their otherwise superior capabilities.

Board game rules versus object design in 3D environments

As with the shift from discrete to contiguous time, the move to 3D does more than "heighten the level of immediacy *within* the virtual environment" (Nitsche, 2008, p. 34) in MWO. The physical modeling of both environment and Mechs necessitates a more diverse and coherent treatment of spatial relationships. Hills and buildings are not uniform shapes, but have protrusions and arches that may block fire or complicate aiming. The canonical division of a Mech into 11 hit zones becomes problematic when one tries to translate this schematic layout to a physical entity. Where, exactly, does the center torso end and where do the side torsi begin? Is the hip counted as part of the torso or the legs? What about joints and neck? Although MWO remains mindful of BT rules, major departures from the board game are inevitable because of the concretization necessary in the resolution of these questions.

As mentioned before, there are no targeted shots in BT. The hit location table specifies which of the 11 body zones of a Mech is affected by a successful attack. If one converts the absolute die results in the rule books to percentages based on 2d6 probabilities, the weighted nature of the hit location table becomes apparent. The probability of hitting center torso is about 20 percent, followed by side torsi and arms at roughly 14 percent, each leg at 11 percent, and the head at under 3 percent. These values are identical for all Mechs, regardless of their shape and size. The rules of BT even stress explicitly that fiction and illustrations, "though essential in making the game universe come alive, should never be construed as rules." (Bills, 2006, p. 9). When dealing with 3D-models in a virtual environment, this generalization is impossible to maintain, as the shape of an object is obviously more than a merely aesthetic factor. Analyzing the shape and hitzone distribution of Mechs in MWO – which is easily done in the training portion of the game, where it is possible to shoot at immobile targets and check where hits register on their body-zone diagram – the results are somewhat surprising (see Figure 1). The Cataphract, a common heavy Mech, shows two noticeable oddities: The visual size of its cockpit area is significantly larger than the percentage in BT, but only a small part of this section is counted as the head hit zone, making the head actually significantly smaller in MWO than it is in BT. The second major deviation is the size of its legs, which are almost twice as big than they should be according to the hit location table.

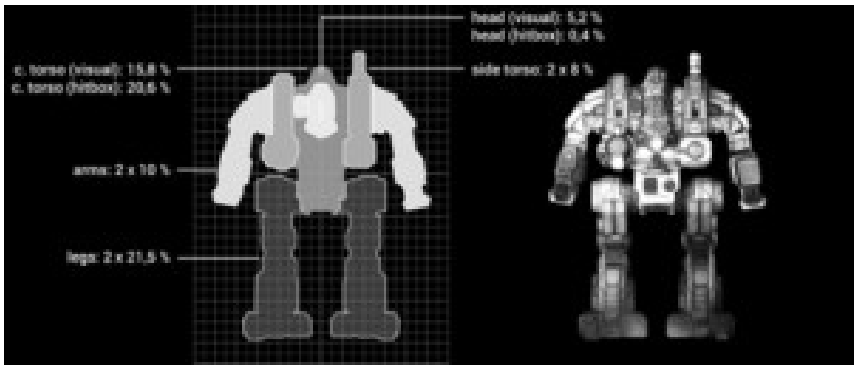

Figure 1: Appearance vs. hit boxes in MWO

A very similar shift in proportion can be observed in all Mechs in MWO (see Table 2). The changes to head and legs are motivated in different ways: Because the disproportionately large heads of many Mechs would make headshots easy, their effective size is reduced without altering appearances or necessitating the allocation of additional armor. The physical size of Mech legs, however, can neither be reduced, nor is it possible to dissociate physical model and hitbox as in the case of the head. The physical models of Mechs are reasonably faithful to the design drawings of BT rule books (Bills, 2008, p. 231). If we manipulate the dimensions of the Cataphract frontal view to fit the proportions suggested by the BT hit distribution table, we arrive at a unbalanced, top-heavy form (see Figure 2). It is thus safe to say that PGI's decision to double the amount of armor allocated to legs for all Mechs has resolved an issue inherent in the BT rules through a minimal departure.

Table 2. Frontal hit zone percentage differences between BT and MWO.

Zone	BT frontal to hit percentage	MWO frontal surface (Cataphract)	MWO frontal surface (Battlemaster)	Cumulated difference
Head	2,8 %	0,4 % (visual 5,2)	0,6 %	- 82 %
Center Torso	19,4 %	20,6 % (visual: 15,8)	16,8 %	- 4 %
Side Torso	27,8 % (13,9 each)	16 % (8 each)	14,4 % (7,7 each)	- 45 %
Arms	27,8 % (13,9 each)	20 % (10 each)	24,2 % (12,1 each)	- 21 %
Legs	22,2 % (11,1 each)	43 % (21,5 each)	43 % (21,5 each)	94 % bigger

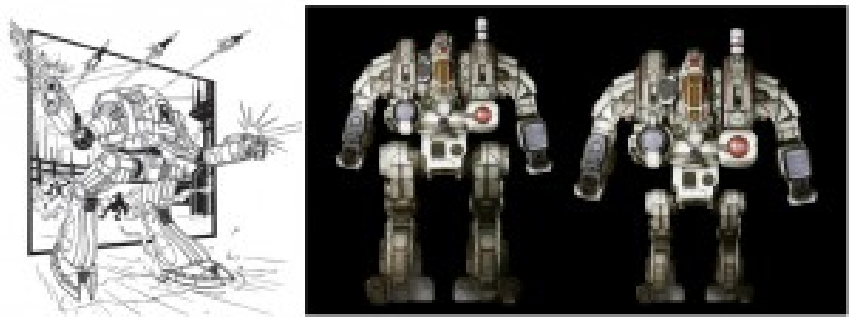

Figure 2: BT illustration, MWO model, MWO model scaled to BT body zone percentages

Board-game movement versus contiguous space

The player's contribution to aiming in BT is as minimal as it is crucial. Mechs can fire all their forward-facing weapons in a 90 degree arc straight ahead and hit targets with arm-mounted weapons on the respective side, thus giving a Mech with weapons in both arms an effective 270 degree field of fire (see Figure 3). Every target within this zone can be targeted in the attack phase, provided it is not hidden behind cover.

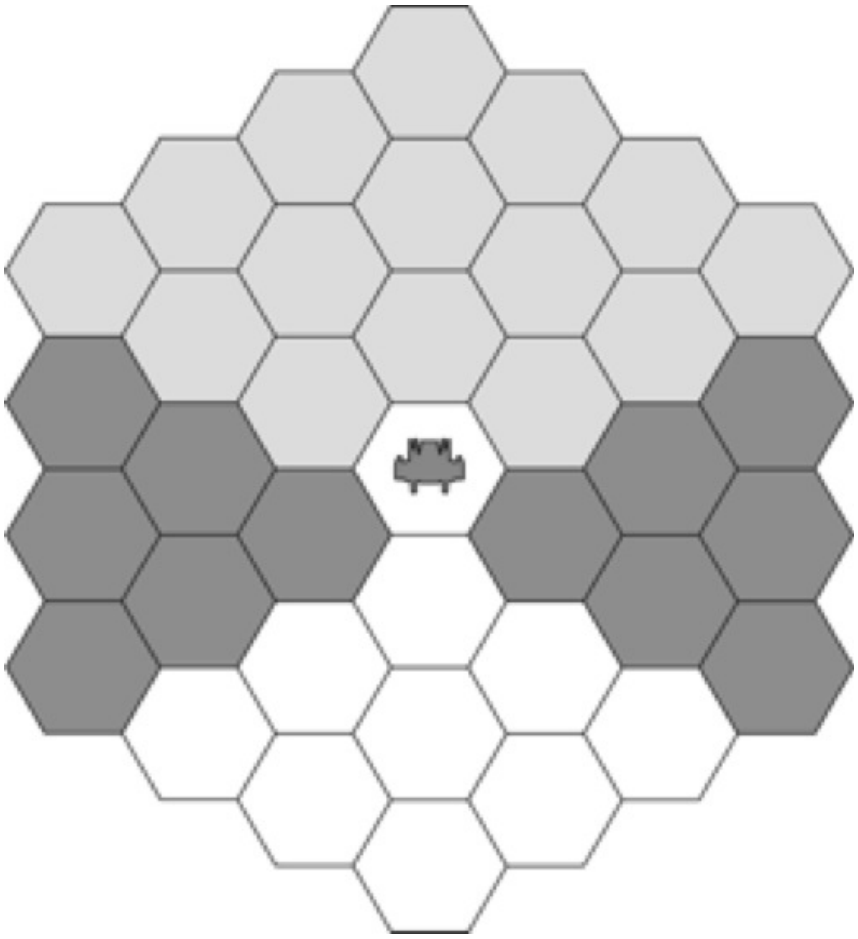

Figure 3: Forward and lateral firing arcs in BT

Turning a Mech by one hex side, i.e. 60° in BT, comes with a fixed cost of 1 movement point (MP). The slowest Mechs in BT have a maximum of 5 MP, the fastest 14 MP, meaning they could turn as many hex sides. Expressed in degrees, this means 300 degrees respectively 840 degrees, which, based on the turn-length of 10 seconds, results in a turning speed of 30 degrees per second and 84 degrees per second, respectively. In MWO, these speeds are accelerated, slightly at the low end of the scale – an Atlas AS-7D with a 300-rated engine turns at 34 degrees/sec. – and more noticeably at the high end – a Spider SDR-5V with a

270-rated engine turns at 103 degrees/sec. –, i.e. by 13 and 23 percent. MWO thus not only increases the turn-rate of all Mechs, it increases the turning speed of light Mechs disproportionately. As with the shorter cooldown times compared to previous *MechWarrior* games, this gives MWO a faster pace, yet it again further differentiates weight classes by making light Mechs even more agile and thus increasing the survivability of this least well-armored class.

While the changes made to turning speed are incremental, a complete paradigm shift has been necessary in the implementation of torso-twisting in the real-time game. In BT, a Mech can turn its upper torso in 60-degree-steps in relation to the legs (and thus its direction of movement). This type of movement does not consume movement points and is executed not in the movement but the attack phase, yet can only be done once per turn. Before initiating the attacks of a turn, the player decides whether the Mech's upper torso will face straight or 60 degrees left or right for the remainder of the turn. Combined with a 270-degree field of fire, this means that Mechs with arm-mounted weapons are able to cover their complete rear arc. Backstabbing tactics are thus difficult to carry out in BT (see Figure 4).

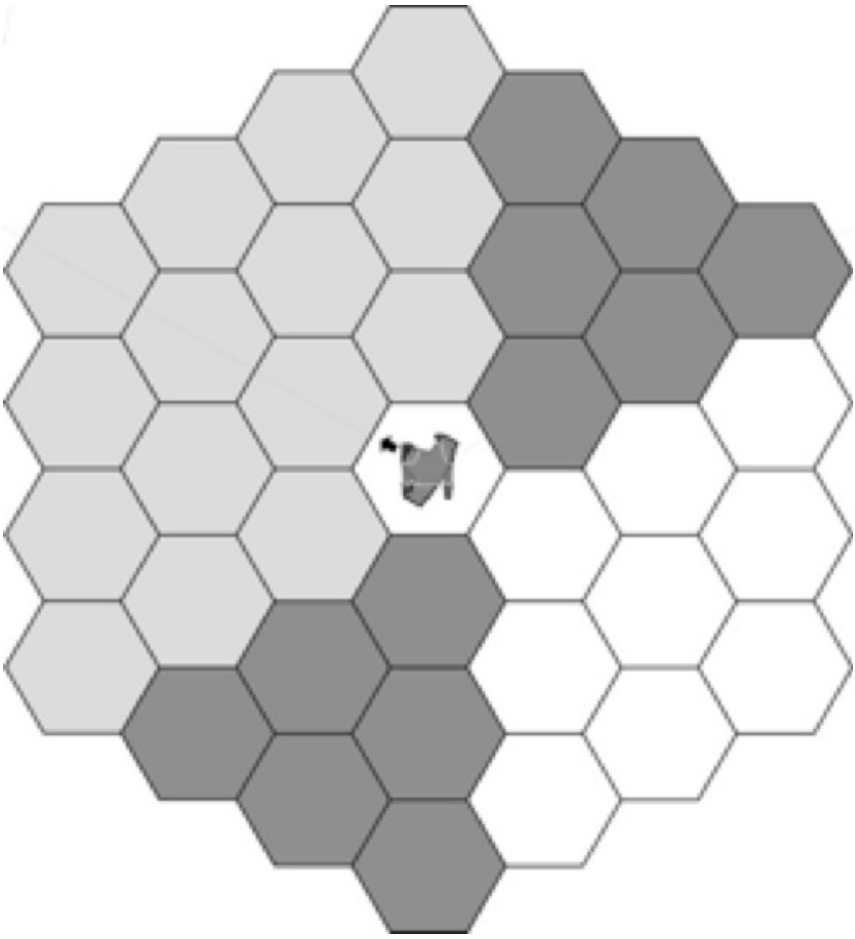

Figure 4: Torso twisting in BT

The facing of the torso, however, determines only the firing arcs, i.e. which objects can be targeted; when the Mech itself is hit, the torso direction is ignored. This handling of torso-twisting has two side-effects that would not work in real-time and -space: First, all Mechs turn their torso at the same speed. Second, a Mech can face a target to its left without exposing its back to an enemy on the right. The torso-twist feature in BT thus determines exclusively the direction in which the Mech's weapons are pointed.

In MWO, torso-twisting gains additional significance and strategic value. While it can be used for preliminary target selection as in BT, its primary purpose is aiming at targets and following their movement. While in BT, every target in the 90 degree arc in front of the attacking Mech can always be targeted with all weapons, a Mech in MWO needs its torso-twist ability to aim within this arc and, as explained above, sometimes keep the enemy targeted for a significant amount of time. A the same time, torso-twisting is one of the most important defensive maneuvers in MWO, because it enables a target to expose less vulnerable body parts and spread damage instead of allowing it to concentrate in one area. Both because of these additional effects and because of logical coherence, each Mech chassis has individual twist ranges and speeds in MWO. The least mobile Mech, the 85-ton Stalker, has a torso twist range of 120 degrees and fixed arms, allowing it to merely cover the forward firing arc in BT by using its full range of motion. Only the most agile Mechs in terms of combined torso and arm movement, such as the 55-ton Griffin, can cover at least part of their rear arc with arm-mounted weapons the way it is possible for every Mech in BT. Mechs in MWO thus are more agile and fire more frequently than in BT, but have a much narrower field of fire, need to constantly turn their torso in order to aim their weapons, and thus more than compensate for their slightly higher speed and rate of fire compared to BT.

While horizontal turning is only slightly adjusted in the adaptation of BT rules to MWO and torso twisting undergoes a noticeable paradigm shift, vertical aiming is a vital component of the 3D game that is without real equivalent in the board game. There, environment elevation is taken into account mostly for determining line-of-sight. This is true for MWO as well, yet at a, once more, much finer granularity. BT rules stipulate that as long as line-of-sight exists between two units, they can fire at each other. In the fleshed-out 3D environments of MWO,

each individual weapon needs an unobstructed line of fire, which gives models with many high-mounted weapons a significant advantage: Not only do they need to expose a smaller portion of their body before firing, the pilot's view and the weapon position are optimally aligned. Only with breast- and shoulder-mounted weapons, the BT-logic of line-of sight is valid in MWO, while other weapons are literally 'shoot from the hip' and will inadvertently hit buildings, hills, or allied Mechs. Another consequential interpretation of BT rules in MWO is that torso-mounted weapons can only be aimed by moving the torso as a whole, which limits especially the vertical range of weapons significantly. This is another case in which PGI fill a gap in the BT rules in a way that does not contradict them, creates a coherent spatial logic, and even is a game balancing element. The Battlemaster and Banshee assault Mechs mount multiple heavy weapons high on their chest, giving them a significant strategic advantage. This is counterbalanced by severely limiting their torso movement speed and range, restricting the ability to bring their weapons to bear, especially on small and fast-moving targets which they might obliterate in a single hit. Particularly the torso pitch range of only 20 degrees forces those otherwise powerful Mechs to keep their distance from enemies on both higher and lower ground (see Figure 5). Standing in a steep, narrow canyon, those Mechs will be barely able to aim at their attackers, while the same situation in BT would be unremarkable, as adjacent fields are considered to always have line-of-sight (Bills, 2006, p. 99).

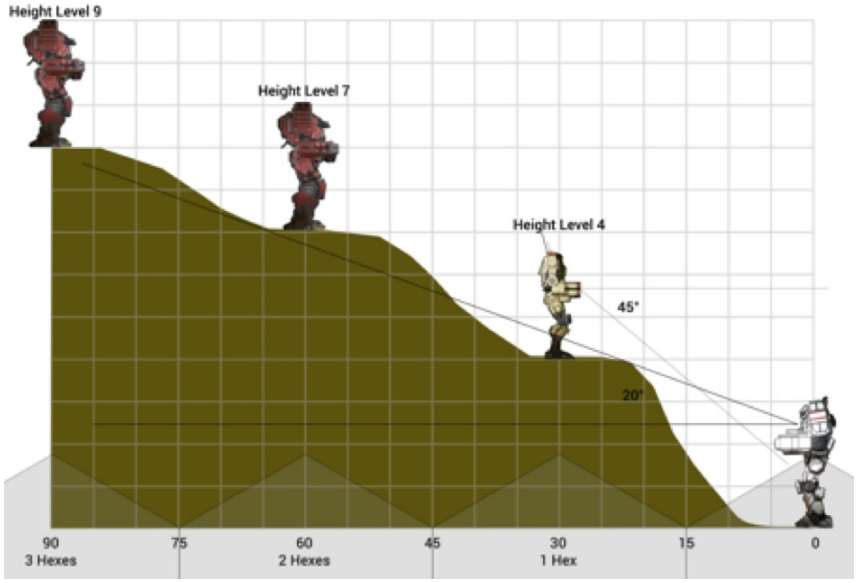

Figure 5: Correlation of topology and pitch movement

By the same logic, light Mechs can effectively enter a safe zone by staying within less than ten meters of these Mechs that could annihilate them with a single hit of all their weapons (see Figure 6). In conclusion, it can be observed that MWO creates additional rules and even derives additional depth from nothing more than consequently applying physics and spatio-temporal logic.

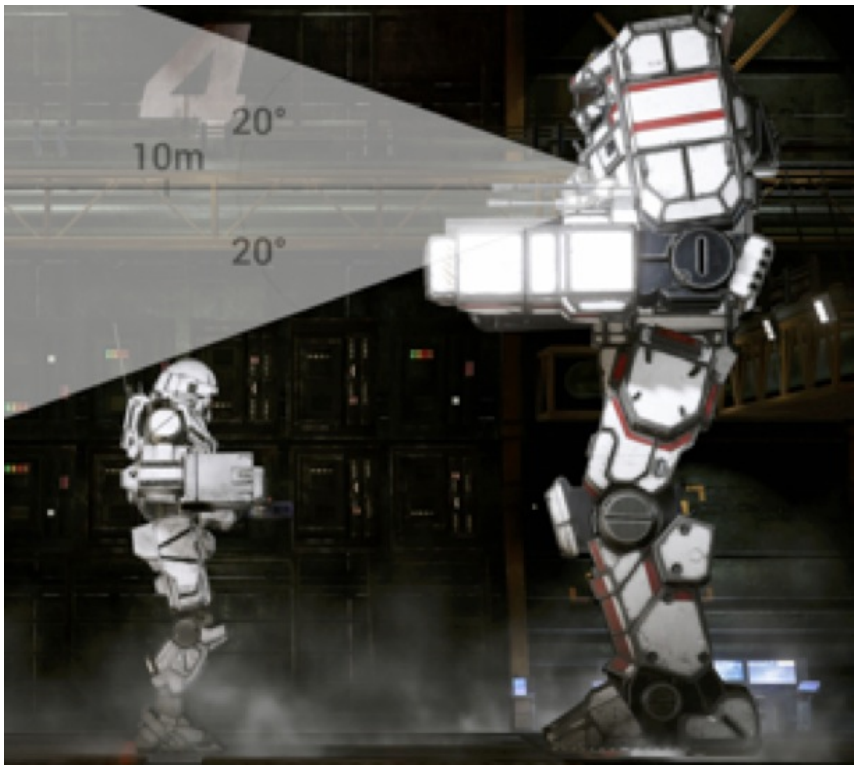

Figure 6: Limited yaw movement creates a dead zone

Conclusion: The Freemium Conundrum

As described initially, long-time players of BT who had provided "direction towards features, the evolution of the game, and historical insight into the game" (Smith, 2013, p. 25) have been instrumental in developing MWO through financial and intellectual contributions, and much of their criticism of the game's recent development has identified the Freemium business model as the culprit. Although there are indications that PGI had no real choice in terms of business models – licensing of the *MechWarrior* trademark from Microsoft apparently excludes retail products (Smith, 2013, p. 25) – they make use of the most important Freemium strategies as identified in recent research (Niculescu & Wu, 2011, pp. 2-10; Pujol 2010 #594: 2-3). The

freely playable core game multiplies the number of people who will have a first-hand impression of the game, providing "market seeding" (Niculescu & Wu, 2011, p. 3), while a constant stream of a variety of commercial features (game resources, customization items, collectible items, and affiliation items) in the game provides monetization through item-purchasing (as opposed to restricted access or advertising) (Luban, 2012/2012). Their thorough understanding of the business model is most apparent in their recent introduction of high-price prestige items. User statistics indicate that in Freemium games, the willingness to spend money on in-game purchases follows not a linear or normal distribution, but a logarithmic one. In other words: the few statistical outliers who spend most on the game are spending so much as to not be statistically irrelevant, but to be the driving force behind the commercial success of the model. To fully benefit from this player behavior, a game needs to allow for extreme purchasing behavior (Lim, 2012/2012). MWO has catered to this audience through the offering of gold-skinned limited edition Mechs priced at $500.

Even if one does not identify the implementation of Freemium strategies such as those of PGI in MWO as downright "evil" – the term Warren Spector chose (Spector, 2014) –, there are moral implications in this case. PGI have identified *Battletech* as a brand with a loyally devoted, very knowledgeable, and affluent fan base and used them to create a well-balanced game, which then underwent countless modifications which upset or diluted the game the primary target group had helped create.

The initially mentioned problem of how to handle the Clans' as an overpowered enemy force in MWO has been handled in a way that is, unfortunately, typical for PGI's design decisions since the launch of the game. Clan units were introduced as overpowered to give extra incentive to pre-purchasers. This way, PGI not only secured advance payments from players, but insured a mid-term interest of players in the game. While it is undoubtedly a

sound business strategy to keep financing and player-base stable, the following re-balancings were so radical as to make some of these previously overpowered Mechs barely playable. Some Clan Mechs can equip a very high number of energy weapons. Firing too many of them concurrently is penalized by a disproportionate surge in heat, initially by a factor of 3. For two months after their injection into the game, Clan Mechs were reserved for those who had pre-purchased them. When they were then released to the general public, PGI waited four weeks, giving interested customers the chance to buy one of these overpowered Mechs, before increasing the heat penalty on Clan Lasers from a factor of 3 to a factor of 12, making the Clan Nova with 12 Medium Lasers so hot that it will self-destruct after firing two full salvos ("MWO Forums: Nova Is Dead," 2014/2014).

PGI has shown great awareness of the fact that long-time fans are stakeholders of their game in the development and initial release phase, but has since then ignored their input and often taken the game into the opposite direction from this fan-base's wishes. It is hard not to interpret this behavior as disrespectful and exploitative, both towards the (especially long-time) players and the game itself – which is a shame, given the high quality adaptation of *BT* that PGI created with the help of the fan-base. The constant changes to the game necessitated by the Freemium business model do, however, also mean that there always remains a chance that the initially balanced game-state will return at some point – or even improved upon. Only time will tell.

(1) While this paper was under review, a number of features have been added to MWO, including the long-promised strategic component "Community Warfare." The resulting changes to the game are too numerous and far-reaching for inclusion in this

paper; it therefore reflects the game's development up to July 2014.

(2) A concise and representative position is that of user Aim64C on the official forum: "The Clans are, by definition, not supposed to be balanced." http://mwomercs.com/forums/topic/144895-clan-technology-a-design-perspective-feedback/page__view__findpost__p__2991312

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CAUSE NO TROUBLE: THE EXPERIENCE OF "SERIOUS FUN" IN PAPERS, PLEASE

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Aesthetic Experiences and Political Games

Bundles of paperwork, waiting in line, and lists of government regulations are not things you'd necessarily associate with fun gameplay. Yet they are the trappings of *Papers, Please* (Lucas Pope, 2013), a puzzle game and self-described "dystopian document thriller" where you play a border inspector in the fictional 1980s Eastern Bloc country of Arstotzka, and you have the power to allow or deny people entry into your "glorious" nation. Designed by independent developer and former Naughty Dog programmer Lucas Pope, the game has sold hundreds of thousands of copies and won the "Innovation Award" at the 2014 Game Developers Conference. The core gameplay consists of examining people's passports, work permits, and other

paperwork for discrepancies or failure to follow government-issued rules. Let the right people into the country, and you receive wages to pay your rent and feed your family; let the wrong people in, and the consequences start with fines and get worse from there.

The game's story mode explores issues such as privacy invasion, immigration policy, and the banality of evil. In one event, you must decide whether to allow a refugee with bad papers through with her husband, which would result in your pay being docked; or, you can follow the letter of the law by denying her entry and abandoning her to arrest or worse in her home country. The way that both gameplay and narrative provide a sense of bureaucratic heartlessness and the precarious qualities of life under a repressive regime might put *Papers, Please* in good company with other seriously-themed games, such as news-based terrorism-commentary *September 12th* (Newsgaming, 2001) and historical research forgery simulator *Opera Omnia* (Increpare, 2009). Indeed, one reviewer has argued that "you couldn't really describe *Papers, Please*, as fun… it's not a game you'll fire up for a 10-minute distraction" (Whitehead 2013).

However, the gameplay has compelling and even entertaining qualities; another review describes the mechanics as "an intrinsically satisfying process" (Walker, 2013). In the other games I just mentioned, after one playthrough and after you understand the message, there is no particular reason to return to them for the experience of their gameplay. In essence the games are vehicles for their themes. On the other hand, with *Papers, Please* the gameplay is not solely a rhetorical delivery mechanism and there is even an "endless" mode to keep playing for better scores after the story campaign is complete.

What might we make of the conjunction of serious social themes and addictive, fun gameplay mechanics? How can we reconcile having a good time playing a game and acknowledging its

thoughtful subject matter? Here I examine *Papers, Please* by focusing on the embodied experience of play. That is, I share the stance elaborated by games scholar Henrik Smed Nielsen that video games are embodied experiences, and not just those most obvious examples of Wii and Kinect motion-controlled games – all games act upon sensory perception, evoke feeling, and make space for intentional action. In the end, the locus for all of that is the body (Nielsen, 2012).

Thus in *Papers, Please* I am not focused solely on narrative representation or gameplay rules, though those are certainly important determiners. Instead, I look at the actual embodied experience of "what it's like" to be in the moment playing the game. I am looking at game *aesthetics*, an area which Graeme Kirkpatrick has argued deserves further exploration:

> The tensions in the hand are shifting and if we recorded the movements of fingers and thumbs against the plastic buttons we would find a series of crystalline representations of game action, which articulated to their corresponding events on the screen would constitute the game's "effect-shapes." In a sense, the important forces that drive the action of the on-screen game fiction are present in the tension between fingers, thumbs and plastic controller. (Kirkpatrick, 2011)

To map those "effect-shapes" I look at player intentionality: how he or she acts upon the game, and vice-versa. The method that flows from examining an intersubjective relationship such as this, according to media and philosophy scholar Vivian Sobchack, is the correlation of the subjective act of audiovisual perception with the objective structures expressed by the form of the work – a phenomenological approach (Sobchack, 2011).

Bringing this method to bear on *Papers, Please* means discerning and describing how the game "feels" to play – how player intention is channeled, facilitated, blocked, and manipulated. This happens at the level of the interface, in how the player

acts upon the game and how the game acts back. That point of contact constitutes a world of experience that has room to produce both fun gameplay and the recognition of a relevant social reality. Here I examine three salient aspects of that experience: the booth, the stamp, and the queue.

If the concept of the game's "feel" at this point appears to be somewhat imprecise and subjective, I hope that the phenomenological reductions I perform below reveal their own kind of rigor, and yet I would also argue that the realm of the subjective and personal is itself worthy of being part of what we talk about when we talk about games.

Figure 1. The main gameplay screen of *Papers, Please*, divided into three areas: the booth (left), the inspection desk with stamps (right), and the queue (top).

Figure 1. The main gameplay screen of Papers, Please, divided into three areas: the booth (left), the inspection desk with stamps (right), and the queue (top).

The Booth: Papers over People

Aside from a few expository cutscenes and after-level transitions, you spend most of your time in *Papers, Please* on the main

gameplay screen (Figure 1). It depicts the main Inspector character's workplace, a checkpoint on the border between the nations of Arstotzka and Kolechia. Like a cubist painting or multi-windowed desktop, the screen is divided into three sections, each a separate vantage point that converges on the player character's subjective perception. The lower left corner is a first-person view of the inspection booth where travelers step up, present their documents, and answer questions. To the right is a close-up of the inspection desk, where you can examine documents in more detail. At the top is a bird's-eye view of the border, showing the checkpoint and the queue forming outside. Although this last section appears at first to be merely ambience, it plays a complex role in the flow of gameplay, which I will address later.

However, for now note how this segmentation structures the experience of gameplay and encourages your attention to flow along certain lines. Though the fixed, static viewpoints and the dreary lo-fi aesthetic help evoke the 1980s Iron Curtain setting, they also create a relationship between the player, the game space, and the characters that inhabit it.

Philosopher of technology Don Ihde has described the categories of relations formed among human subjects, technological artefacts, and the world, and one of those categories is a *hermeneutic* relation: technology allows a person to "read" the world, such as a thermometer which provides information about the temperature (Ihde, 1990). Hermeneutic relations condense aspects of the world into information for the human subject; the interface of *Papers, Please* provides one such relation. Its layout is one specific way of looking at the world, and it expands particular facets of subjective perception while narrowing or closing off others.

We can see this in action by examining an iteration of the gameplay loop, from my embodied player perspective: to start

off, I click on the loudspeaker at the top of the screen, and this brings a traveler into the lower left booth. Dialogue starts:

"Papers, please," my character says. The traveler presents two documents: a passport and an entry permit. "What is the purpose of your trip?"

"I pass through."

"Duration of stay?"

"It will be only two weeks."

I click and hold to drag the documents from the left-hand booth to the right-hand inspection desk; as they cross the threshold the objects magnify in size so I can read them more clearly. I look at the information on the entry permit: "Transit." I look at the date on the entry permit, then look at the clock and calendar in the booth. Clicking on a button to enter "Inspection Mode", I then click on each of the dates. "This document is expired," the Inspector says.

"I could not come until now." Unfortunately for him, this is not a valid excuse. Clicking on another button on the interface makes a set of stamps shoot out from the side of the screen: green for "approved" and red for "denied." On his passport, I use the red one. Then I drag the documents back to the left and through the window, and the traveler silently walks away. I click on the loudspeaker again, and my character's yell of "Next!" brings another traveler to the window. The game clock continues ticking towards five o'clock and the end of the workday.

This gameplay cycle shows that *Papers, Please* involves elements of time management along with paying attention to detail, as in hidden object or puzzle games. The ticking clock provides time pressure, while the escalating difficulty of more documents and more rules means that players are challenged to become

more efficient and precise in the way that they handle each cycle. Players must be dexterous in juggling the documents and the ever-necessary in-game rulebook within a limited space that can become a cluttered mess in the wrong hands. They must also possess mental acuity in remembering the cities of the region to detect forged documents, and a keen eye for minor discrepancies in weight, height, or even a single digit of a long serial number.

With player attention being a key resource in the game, it's significant how the interface guides and structures that attention. A major question is thus: *What is privileged by this structure?* In this hermeneutic relation, what comes to the forefront of player attention?

In this case it's certainly not the people. Consider the ramifications of alternate design choices and of what could have been. In this case, we might imagine a version of *Papers, Please* that used only a "realistic" first-person perspective: you see the world only through the eyes of the Inspector. Travelers walk up to the booth, and you pick up their documents in a similar way, perhaps using a button to zoom in and examine them more closely – but the key difference here is that this perspective, with unified space and a more personal point of view, uses the scale of person-to-person interaction as the default. Such a perspective emphasizes the nature of these travelers as people.

This sense is not totally absent from the actual game, but the game's aesthetic effaces that sense in multiple ways. The queue provides a distant and detached perspective where people are seen as a blob of amorphous silhouettes, and even when they step into the booth they seem to fade into the background with their cool colors and muted tones. The most colorful elements in the game are the passports, which are a bold rainbow of reds and greens and blues. The game's spatial structure privileges the presence of the documents over the people. Not only is most of the game's space reserved for those documents, but they are also

the only objects that directly cross from one section of the game environment to the other, and from one section of the interface to the other.

You must pass the documents from left to right, from the booth counter onto the desk, in order to read them. As they cross the threshold, they are magnified and grow larger than life; when you're done with them, they go right to left and shrink back down again. This motion and transformation is visually striking within the game, and it also happens quite frequently. As you rapidly cycle through these documents, this transition occurs forty or more times during an average level. All this motion is certainly livelier than the people themselves, who primarily remain in one place with an unchanging expression matching the ones in their documents.

This interface privileges a certain way of looking at the world. Comparing it to the hypothetical only-first-person *Papers, Please*, which might be characterized as interacting with people carrying documents, this game encourages the inverse – dealing with documents that happen to be carried by people. The documents are of course key gameplay elements, but the privileging of documents over people also informs the game's thematic preoccupations with bureaucracy and state control. Other elements of the interface make this connection not only visible, but tangible and tactile as well.

The Stamp: Touching the Game

Another category Idhe uses to map human-technological relations is the *embodiment* relation: tools and implements serve as a channel for human intention upon the world. The hammer is a quintessential embodied technology, transforming bodily intention into pointed force. In *Papers, Please* embodiment can be found in the controls the player acts upon and the cursor that makes those actions manifest. Here, the tangible and tactile

quality of things is paramount, and the game uses a number of audiovisual strategies to evoke those qualities. Although this dimension is subtle and perhaps not something one consciously considers while playing the game, it is key to structuring the world of the game and the way one plays through it.

The sense of touch here is not a literal one; you do not actually touch any of the elements in the game, and though one could conceivably play this on a touchscreen, the game assumes a mouse and keyboard as the default controls. Nevertheless, there are objects that, through the correlation between what we see and hear and how we manipulate the controls, feel more tangible and more responsive than others.

Again, the documents come to the fore. It starts with the simple sound of rustling paper when you click on a document to pick it up. They also have a sense of heft to them, as you have to hold down the mouse to carry the documents around the screen and from one space to another. You can position the documents anywhere on the desk and stack them on top of each other, while within the booth passports and papers clatter onto the surface of the counter. Some of these aspects simply speak to competent and intuitive user interface design, but little touches add up to create the feeling of these documents having manipulability and tangibility. In any case, the player's relation to these documents could have been designed in any other number of ways.

Imagine another version of *Papers, Please* where instead of needing to handle representations of physical documents, all the relevant information were displayed in a table on the screen. The same information presented in a different form changes play. If the same type of information were displayed in the same position on the screen every time, that rigidity and sameness would make discrepancies and errors less difficult to spot. It would also eliminate the difficulty in managing and organizing the available space. Part of the game's challenge comes from

positioning the rulebook and documents on the table so they can be cross-referenced, as you need to click on both the rule and the violation to link the two. A player might also need to compare serial numbers across multiple documents, which may be difficult to fit in the space allotted and thus would require shuffling through papers. A poorly-organized space can lead to a key document being lost under another or left in a corner, requiring precious seconds to retrieve. These challenges stem from the documents possessing tangible and tactile qualities.

A document-less *Papers, Please* would (aside from requiring a new title) also shift the balance of the player's intention and attention as currently split between the people and their documents. Not only are the papers in the game more vibrant than the people, you interact with the documents more directly. You pick them up, move them from place to place, click on them, and stamp them. In fact, with a few exceptions, you do not directly interact with these people unless they are rendered into documents themselves. The Inspector character may question a traveler, for instance, but those questions do not become something for you to act upon until they are printed out in transcript form. In later levels, you X-ray people for contraband or examine their fingerprints to verify identities; the resulting documents are touched and grasped, while the people are handled at a push-button remove. In the game the people can only be "read" or "touched" via the paperwork they provide.

Even without having any knowledge about the game, an observer would probably be able to guess at the significance of the stamps, as they are the most lovingly crafted and detailed part of the interface. When you press the button to access the stamps, the spring-loaded tray shoots out from the side of the screen with velocity and momentum; multiple frames of animation give it a little bounce before the tray settles to rest. When you use the stamp on the traveler's passport, it lands with a meaty thump and holds for a moment to make sure the digital ink seeps into the

digital paper. One in-game upgrade even gives you a keyboard shortcut for the stamps, which not only saves precious seconds but adds a more tangible dimension to the tool, a physical button to press. All the attention to detail in this part of the interface (and the detail that draws attention to it) is fitting, as the choice of stamp is the ultimate gameplay decision in *Papers, Please*. With every traveler, all your actions and observations boil down to answering the question: "Approved or Denied?"

The Queue: Dynamics of Attention

The rules of *Papers, Please* encourage you to perfect a process: what steps to take, in what order to take them, and how to physically execute them. As a game, it also throws up challenges to test that process. Generally that challenge steadily and predictably ramps, as more documents and more rules are added in each level, which means you must perfect a more complicated set of tasks. That gradual complication is also punctuated by extreme moments that call the process itself into question. Within the interface, the queue plays a major role in structuring the shape of that process and the shifts of player attention and intention that accompany it.

The top of the game screen shows the queue of travelers waiting at the checkpoint along with the border and the guards patrolling it. At first, this interface element appears to be mere window dressing, like the ambient crowd and traffic noise, to help situate you in the otherwise solipsistic space of the inspection booth. Indeed, the only element you can act upon in this section is the loudspeaker to call the next traveler, and because of this the entire queue recedes from subjective awareness. With your attention focused on the booth and desk below, the top of the screen becomes merely a large peripheral button to press.

However, the game disabuses that notion rather quickly; during the second level, your controls are suddenly locked out and the

booth's security shutter slams down. The queue up top becomes the center of attention, as a silhouette jumps across the fence and throws a bomb at a guard before being shot and killed. This scripted event ends the day and the level; at this point the queue's "attentional value" permanently shifts. Most of the time it remains a benign background presence, but it also carries a latent threat. This comes to the fore in later levels when you are suddenly asked not to deal with documents below but with threats from above; you must defend the checkpoint by unlocking a cabinet, retrieving a gun, and pointing and clicking in the top portion to shoot someone. In these moments, the game interrupts familiar routines and brusquely shifts the space of play; you must think and act quickly in that shifting space.

In other words, when I play *Papers, Please*, during each day the bottom portion of the screen is a flurry of activity and attention: I shuffle documents back and forth, click on buttons, and stamp passports. As I approach an optimal process of embodied and hermeneutic relations with the game, that process takes shape within and through my body in the form of elegant, precise action. I develop a rhythm that is matched by the game's aesthetics. The shuffle of papers, the thump of the stamp, and the blare of the loudspeaker correlate to my actions. These actions grow more and more difficult, but usually in predictable ways; I *internalize* the process. Yet the queue, which recedes into the background of my perception, remains. It marks the threat of something unexpected, something to disrupt my rhythm. It reminds me there is always something *external* to the process I'm enacting. My flow is a fragile thing, after all.

This vector of experience links fun gameplay with the meaningfulness of the game's social realism. That is, the game's aesthetics encourage a mindset of focusing on documents over people and then nuances, challenges, and disrupts that mindset. For one, it does so overtly with the story's political commentary and moral choices. The game's characters—asylum-seekers,

criminals, terrorists, corrupt officials, soldiers doing their job—all disrupt the gameplay with their political signification. However, the act of disruption is itself significant.

As we play, the rhythm of the gameplay process takes form within and through our embodied perception; in the flow of gameplay that process may even appear to the constitute the totality of the circumscribed world of the game, not in the nations and places and times that lie outside the inspector's booth but in the seemingly transcendent process within it. A fun activity is inscribed onto the representation of dreary work, not through simple mimesis but through the similarities of form and urgency as they act upon the living, perceptive, active body. The game completes this inscription by reminding us through disruptive events that the transcendence of that process (of bureaucracy) is at best fragile, illusory, and fleeting. The disruptions within the world of the game have narrative significance and gesture towards social significance, of course; but even before we read those events into a narrative as such, they immediately appear to us on the horizon of experience as disruptions of our intentionality and embodied action, and thus we experience these disruptions (these people) as threats or hindrances or problems. In producing that kind of experience, *Papers, Please* also evokes a social concern worthy of reflection.

An Attitude Adjustment

Returning to the basic formulation of the phenomenological approach, at this point we can correlate the objective structures expressed by the game with the bodily and subjective perception that we bring to that game. At its core *Papers, Please* is a game of error-checking paperwork. Like many other games, it takes what would otherwise be tedious drudgery and reshapes the experience. It builds drama around it. It takes an amorphous activity and gives it a definite shape. To play the game is to play with that shape, and to feel its texture and its rhythm; that shape

gives us access to both the rewards of playing well and a sense of the social reality underpinning that play. The Inspector in the game's story wants to do his job well so he can feed his family and not die; by the game's rules, we want to do his job well so we can earn points and overcome challenges. In story and in play, we encounter obstacles to success. Our embodied intention and action upon the game links those facets together.

An experience that builds such a connection must maintain a careful balance between focusing on the player's actions and the world that flows out from those actions. A game that deploys social commentary too self-consciously and too didactically runs the risk of making any sort of play feel trivial in light of a serious issue; it delivers a message, but sloughs off its sense of "gameness", and calls to question why it was a game in the first place. On the other hand, a game that uses the political and social charge of real history without sufficiently connecting it to the actual gameplay experience ends up marginalizing the reality of that history and treating it as mere window dressing.

Papers, Please successfully modulates those two extremities with a gameplay experience that encourages the player to inhabit a role more effectively than many actual "role playing" games. At no point in playing did I ever "feel like" an Arstotzkan Inspector, but the mindset cultivated by successful play – an obsession with efficiency, intensive focus on details, following the letter of the law – is the same mindset demanded of the Inspector, and embodies the attitude one might develop in the shadow of bureaucratic repression. Specific events in the game bring this idea to the foreground, but even the game's basic structural and aesthetic components help suffuse this "attitude adjustment" throughout the world of the game, and into the player's sensory, embodied, intentional experience.

In a video playthrough of the game, one reviewer noted a missing document, and instead of continuing to interrogate the traveler

to find out more, he merely stamped the denial and handed back the papers. The reviewer jokingly added, "I don't give a fuck about your story" (Scanlon, 2013). It was certainly a valid gameplay action, and from the perspective of earning money and scoring points, even the optimal one, because the story indeed mattered very little when the papers said it all. In the video's comments one viewer mentioned having worked a similar job in real life; singling out that moment, they noted that mindset as being all too common. *Papers, Please* provides a gameplay experience that helps you cultivate and internalize that mindset yet also gives the space to step back and examine that attitude, the reasons for it, and the consequences it carries. In trying to mix the fun of playing games with the weight of social realism, it's a strategy as good as any.

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PLAYING FOR THE PLOT: BLINDNESS, AGENCY, AND THE APPEAL OF NARRATIVE ORGANIZATION IN HEAVY RAIN

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Introduction: Characteristics of Crime Fiction

The main appeal of crime fiction lies in its treatment of narrative organization, in particular, its application of the double stories of crime and investigation. Centered on the search for answers to the who? how? and why? questions, works of crime fiction revolve around the resolution of an enigma, and it isn't until the very end that the interrelatedness of the various clues is revealed and the gap between the two stories is bridged. Enthusiasts of crime fiction read for the plot; every word on the page adds to the anticipation of the final revelation, and the longer that instant can be pushed back, the stronger the concluding moment of illumination will be. Bayard (2000) argues that "this game-playing dimension is essential to the construction of blindness, which is all the more powerful when the veil is lifted at the last

possible moment" (p. 20). Solving the mystery or murder is a type of game, and like any good game, it is built on rules, in this case, "fair play" rules of narrative organization (Pyrhönen, 2010, p.). Works of crime fiction have to give the reader, or in the case of videogames, the player, a fair chance to solve the enigma before the narrative comes to an end and everything is resolved. In literary works, this type of fair play is achieved by "showing readers the clues needed for solving the case, while simultaneously confusing [and blinding] them as to the correct meaning of these clues" (Pyrhönen, 2010, p. 46). Solving the murder or finding the key to the puzzle should be a difficult but possible task, and in all cases, the process should appear evident in retrospect.

Drawing on literary theory about crime fiction, especially classic detective fiction, this article examines how the videogame *Heavy Rain* takes crime fiction's practice of reading for the plot and amplifies its appeal by putting the player in charge of four different story threads. In their own way, each of the four playable characters (Ethan Mars, Scott Shelby, Norman Jayden, and Madison Paige) work towards stopping a serial killer known as the Origami killer and saving his latest victim, Shaun, the son of protagonist Ethan Mars. The end result is a well-designed work of crime fiction that successfully combines the analytical skills related to reading practices with player agency, all the while managing to stay true to the genre and blind the player for most of the experience. In their quest to find the killer, players are given the ability to make meaningful choices in regards to character actions, including selecting dialogue topics or thoughts from a series of choices that appear above the characters' heads and performing quick time events.

Figure 1: Screenshot showing the two dialogue options "clients?" and "repair." (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

Figure 2: Screenshot showing an example of a quick time event. Players have to hold down the buttons indicated on the screen. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

These elements of play shape players' experience of the game by giving them influence over the actions of characters and the development of the narrative. Throughout the game players are

presented with different choice idioms and *Heavy Rain* "has been praised for the dilemmas that it presents to the player, usually through the use of two equally undesirable outcomes" (Mawhorter, P., & Mateas, M., & Wardrip-Fruin, N., & Jhala, A., 2014). Although they exert some control over the on-screen actions, players don't have full insight into the minds of the characters and in accordance with the norms of crime fiction, are repeatedly blinded and misled. In other words, despite players' assumption that they are playing the game, in the end, the game ends up playing them.

Unpacking the Experience of Blindness

With a narrative focused on stopping a serial killer and finding a kidnapped child, *Heavy Rain* easily lends itself to a variety of analyses from the perspective of crime fiction. Many elements contribute to the overall suspense of *Heavy Rain*. The best example of blindness however, is the sudden revelation at the end of the game that detective Scott Shelby, one of the main characters, is in fact the Origami killer. As this is the most notable and well executed surprise of the game, I've chosen to engage in a close reading of the experience of blindness and focus on how *Heavy Rain* successfully keeps Shelby's true identity hidden from the player until the very end. When playing as Shelby, players are encouraged to think they are helping with the investigation and working towards solving the murders, when in reality they are covering up the criminal's tracks and collecting evidence that might incriminate Shelby. Having the investigator turn out to be the killer is not a new trope in crime fiction. Worpole (1984) points out that the popularity of the genre is due to its clever use of semiology "in which nothing is what it appears to be and everything is a shifting world of signs and meanings" (p. 27). Misleading readers about the identity of characters is quite common, yet by inviting players to unknowingly act out incriminating actions and blind them as to their true meaning, the game adds a new twist to the genre. Indeed, because so much

of the game revolves around players' sense of control over the development of the plot, the revelation that one of the main protagonists is the killer comes as a double shock. Not only were players wrong in thinking that Shelby was one of the good guys, they were also wrong in thinking that they knew the character's motivations. Both the character of Shelby and the actions players performed while playing him were not always what they appeared to be.

In *Rules of Play*, Salen and Zimmerman (2004) identify four types of interactivity that describe a player's level of engagement with a game: Cognitive interactivity, functional interactivity, explicit interactivity, and beyond-the-object interactivity. In *Heavy Rain*, the first and third modes are used alongside conventional narrative devices to shape the player's experience of play and push back the final resolution. In addition to interactivity, the game carefully uses the concept of agency to confer upon players a sense of control while at the same time misleading their attention. In an observation about what distinguishes games from written texts, Perlin (2004) states that "by telling us a story, [the novel] asks us to set aside our right to make choices – our agency. […] A game does not force us to relinquish our agency. In fact, the game depends on it. […] While you're actually playing the game, the very effectiveness of the experience depends on you becoming [the character]" (pp. 13-4). For the construct of blindness to be effective, players must believe they are in charge of characters' actions otherwise there is no purpose in creating an elaborate deception. And it is this perception of player agency and the notion that the choices one makes are meaningful, that make story-driven games so appealing.

Nixon and Bizzocchi (2014) have previously pointed out that *Heavy Rain* successfully uses interactivity to foster character identification and encourage players to fully immerse themselves in the universe of the game. This article partly builds on their observations and examines how *Heavy Rain* thoughtfully

balances agency and blindness, so as to create an enjoyable gaming experience that involves a certain level of deceit, yet does not rob players of their sense of control. I've identified three distinct ways in which *Heavy Rain* successfully pushes back the final shocking revelation by incorporating the concepts of distraction and blindness alongside empowering interactive actions. First, blindness is used together with cognitive interactivity to divert players' attention away from the investigation and towards Shelby's backstory. Second, blindness and distraction are used in connection with explicit interactivity to distract the player from the story of the investigation and instead emphasize quick time events and Shelby's hero-like character. Third, fragmentation is used to make it harder for players to pick up on the interrelatedness of clues and recognize incomplete scenes.

Blindness and Cognitive Interactivity

In the words of Salen and Zimmerman (2004), cognitive interactivity refers to "the psychological, emotional, and intellectual participation between a person and a system" (p. 59). It's a form of interpretive interactivity that focuses on the player's mental engagement with the game. Early on, detective Shelby visits Lauren, the mother of one of the Origami killer's victims, and introduces himself as a private investigator who was hired by the families of the victims to help apprehend the killer. While not much else is revealed about his background, this simple backstory is enough to shape players' consciousness about the character's function in the story and blind them as to his true intentions. Steven Jones (2008) makes a similar observation about the persuasive power of backstories and explains that "even when a player is only half-conscious of them, such story elements […] partly determine the mood and feel of the gameplay experience" (p. 85). Indeed the knowledge that Shelby is a detective, that is a problem-solver rather than part of the

problem, shapes how players approach playing the character and sets the tone for the remainder of the game.

Figure 3: Shelby introduces himself to the mother of one of the victims. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

When she first meets Shelby, Lauren, who works as a prostitute, assumes he is a new client. The detective quickly disproves this notion by stating his name and function and proceeding to ask a series of questions about the disappearance of Lauren's son. As short as it is, this introduction invites players to think positively of Shelby by distinguishing him from the less desirable characters that are Lauren's clients, and it also provides them with a clear goal in the game, namely finding the Origami killer and providing justice for the victims. There is no reason for players to doubt Scott Shelby's integrity at this stage in the narrative, which is why the game is able to effectively use cognitive participation to create blindness and divert the player's attention from the story of the crime to Shelby's backstory. By employing psychological participation in this way, *Heavy Rain* does exactly what a well designed work of crime fiction is supposed to do: It prevents players from seeing the bigger picture by producing a type of "psychic blindness" that influences how

the narrative and its characters are perceived (Bayard, 2000, p. 19). As a player, one of my first reactions when playing as Shelby was to make narrative choices and take actions that fitted the persona of a detective. I selected choices based on what outcome I anticipated to be most useful to a detective and did so mostly because of how the backstory framed Shelby.

Explicit Interactivity and Distraction

The initial blindness established through cognitive interactivity is reinforced via the use of explicit interactivity in an effort to engage the player on two planes, and deepen the immersive experience of play. Explicit interactivity is the type of interaction we most commonly think about in connection with videogames and involves using the joystick to make characters move and pressing buttons to enact actions or choices (Salen & Zimmerman, 2004, p. 60). Active participation of this type changes the conventional crime fiction experience of being misled because players, unlike readers, have an expectation of agency. In traditional mystery novels, such as the classic detective novel, crimes are solvable and there is always a logical explanation for the killer's behavior and motivation. This is why readers can peacefully abandon themselves to the mysteries of the novel – they know that eventually everything will be resolved and order will be restored (Malmgren, 1997). There is a certain pleasure in being passively misled and then realizing how all the clues fit together. By making crime fiction interactive, *Heavy Rain* challenges the assumption of peaceful deception. A certain tension comes about from pitting the concept of agency against the incomplete presentation and trickery associated with the crime fiction genre. In *Heavy Rain*, players may not be able to change who the killer is, but their interactive engagement with the game is directly related to how certain parts of the narrative unfold and this ability to make meaningful choices keeps them on edge. Indeed, because their choices can have severe consequences, such as the death of a main character, players

cannot afford to fully surrender themselves to the mysteries of the narrative. They are constantly left wondering whether they could have taken a different action which would have prevented an undesirable turn of events.

Before delving deeper into the analysis of how explicit interactivity is used to encourage blindness, a few words about *Heavy Rain*'s choice idioms and alternate story paths are in order. As Murray (1997) explains, "there is a distinction between playing a creative role within an authored environment and having authorship of the environment itself" (p. 152). While the *Heavy Rain* developers created alternative scenarios for each episode, and many possible endings to the game, as a player one could envision hundreds of other scenarios and endings, none of which can be acted out. Players can thus only operate within the limited freedom given to them by the makers of the game. In an interview for Gamasutra, Guillaume de Fondaumiere, co-CEO of Quantic Dream, stated that *Heavy Rain* doesn't use a typical success or failure mechanism, but that "depending on [one's] actions, something different is going to unfold; something different is going to happen" (in Sheffiled). This means that even if a player fails to press the correct buttons during a quick time event or chooses not to act during an action scene, the game will move on and the narrative will unfold based on the player's choices, effectively enhancing the player's sense of agency and control. While there may be no failure or game over in the traditional sense, completing the quick time event with the least amount of mistakes is generally the desirable options since it is the one with the most predictable outcome. Additionally, some of the choices players are confronted with can be labeled as either good or bad, where good choices are popularly viewed as successes and bad or immoral choices as failures. And lastly, although it is possible in some scenes to remain inactive or unresponsive to the prompts, this type of behavior defeats the intended purpose of the game since the player is not actually

trying to solve the crime or make progress in the investigation, but playing with other motives in mind (Mawhorter et al., 2014). This article takes alternate choices into consideration when discussing the construction of blindness in *Heavy Rain*, but assumes that players are playing with diegetic or semi-diegetic motives in mind and are trying their best to complete the game's interactive components.

To reinforce the initial blindness established through cognitive interactivity *Heavy Rain* uses explicit interactivity to build up dramatic tension and distract the player from the investigation. Various early chapters stand out by the way in which they distract players from both the story of the investigation and the story of the crime by highlighting the hero-like nature of detective Shelby rather than his detective skills. In *Sleazy Place*, players have the option to perform a series of quick time events to save Lauren, from an abusive client. By inviting players to act out the scene rather than watch it, the game increases their sense of agency and invites them to actively participate in the conceptualization of Shelby as a good guy who stands up to injustice. The fight scene flows naturally as part of the narrative, yet when considered within the broader story of the investigation, it is just a distraction. Completing it is highly exciting and results in Lauren being appreciative, but it does not provide the player with additional clues.

Figure 4: Fight scene from the chapter Sleazy Place. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

In the chapter titled *Hassan's Shop*, the player is once again given the opportunity to play the hero when in control of Shelby. A number of narrative choices in this chapter lead to a positive outcome where Shelby saves the clerk either by knocking the criminal unconscious or by talking him out of robbing the store. Having the true criminal "conceal [his] oppositional status by pretending to [be a helper]" or hero is a common trope in crime fiction and is used to blind not only the player but other in-game characters as well (Malmgren, 2010, p. 155).

Figure 5: Shelby calming down the robber in the chapter Hassan's Shop. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

The interactive moments in *Hassan's Shop* appear meaningful in the context of that scene, yet their overall contribution to the story of the investigation is negligible and this chapter too, is mostly a distraction. Like in the previous example, skill and reaction time are important for the successful completion of the action scene and quick time events, but in most alternate endings for this chapter, how the player saves Hassan has no bearing on the development of the story of the investigation – for example, the player is given the shoebox with a clue whether he saves Hassan by calming down the robber or by allowing Shelby to get shot during the confrontation. Explicit interactivity here is used primarily as a form of distraction from the investigation and to delay the inevitable discovery of a clue. The dialogue options during the confrontation test the player's ability to think ingeniously, but rather than advance the story of the investigation, they merely reinforce the idea that Shelby is a noble detective. Indeed, while the discovery of the clue seems to be a promising step in the development of the story of the investigation, the game does not invite the player to examine the shoebox, but instead switches to a cutscene where Hassan

thanks Shelby for his help, placing the detective and his heroic act at the forefront of the narrative. After playing through this chapter, I felt that my main accomplishment was saving Hassan, not finding the shoebox. The series of quick time events in this chapter built up dramatic tension and focused my attention on the action rather than the story, thereby deepening the experience of distraction and psychic blindness.

Tension between Agency and Fragmentation

A third way in which *Heavy Rain* successfully distracts players from Shelby's identity and confounds them as to the true meaning of clues is via the use fragmentation. According to Pyrhönen (2010) fragmentation "both permits a progressive recovery of past events and retards a comprehension of these same events. It tests readers' ability to combine the narrated pieces with one another, a task that is made difficult by their achronological and incomplete presentation" (p. 50). A first manifestation of fragmentation is found in the structure of *Heavy Rain*'s narrative. The existence of four distinct story-threads, where the characters each have their own approach to saving Shaun and stopping the Origami killer, complicates the story of the investigation by requiring the player to keep track of multiple plotlines. This task is especially challenging for players who do not play the game for long stretches of time. If one were to only play one or two chapters per day, a significant amount of time would pass before one gets back to a particular character's storyline, thus making it much harder to recognize how various narrative parts fit together.

A second important observation about *Heavy Rain*'s narrative structure in connection with fragmentation is that clues relevant to Shelby's implication in the Origami murders tend to be buried in-between distracting scenes and revealed towards the end of chapters, right before the narrative switches over to another character. This particular presentation makes it more difficult

for the player to recognize the relevance of a particular clue or recall its discovery during the next Shelby chapter. In the episode *Suicide Baby* for example, players have to first perform a series of tangential actions such as saving Susan from her suicide attempt and feeding her baby, before finally being led to another clue. However, once they are in possession of the mysterious cell phone that Susan believes is somehow related to the Origami killer, no investigation-related interaction is possible. Shelby tries to turn on the phone and right after this attempt, he exits the house and the narrative switches over to another storyline. This scenario is similar to the one in *Hassan's Shop*. In both instances a clue is revealed to the player, but the chapter concludes before any progress is made in the investigation. *Heavy Rain* purposely fragments the narrative in this way to delay the ability of players to make connections between the clues collected across the various storylines. By cutting off the experience right before Shelby should technically begin to realize how the pieces of the puzzle fit together, the game successfully manages to postpone the revelation of the detective's true identity and keeps the players guessing.

Out of the various narrative devices *Heavy Rain* uses to blind, distract, and confuse the player, the use of incomplete presentation is probably the most difficult to detect. When incomplete presentation is applied, the player believes that he is experiencing a particular scene in its totality when in reality, important narrative links are subtly left out. In a game based on interactive choices, where players can control not only characters' movements, but also make decisions about how chapters play out, detecting instances of incomplete presentation is especially difficult. *Heavy Rain* works hard to make players believe that their actions always matter by placing them in situations where their ability to successfully complete quick time events can have severe repercussion. If players fail to complete the quick time events during Madison's fight with the doctor for

example, Madison dies and her character is no longer playable. This is a very powerful moment in the game and in this instant the player is indeed experiencing the scene in its totality. By confirming the player's agency over the development of the story throughout most of the game, *Heavy Rain* is able to successfully blind the player in a few select instances.

Figure 6: Failure to properly execute the quick time events in the chapter The Doc leads to the death of Madison Paige. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

Incomplete presentations are often hidden in-between dramatic scenes or followed by quick time events as this placement makes it harder for players to notice them. The chapter titled *Manfred* is an example of a noticeable incomplete presentation. Shelby and Lauren go to Manfred's office to question him about a possible piece of evidence. After a brief conversation, Manfred disappears in his back office. When he fails to come back after a few minutes have past, Shelby goes to check on him and finds him dead. Something clearly happened to Manfred in the time interval between the discussion with Shelby and his death, but the action took place "off stage" and the player is left wondering what happened in the absent scene. From a playing perspective, it

appears the player is in control of Shelby's actions during the entirety of this chapter, yet this assumption is false. There is a second, less obvious, incomplete presentation in this chapter and it is only when this one is divulged that the player is able to reorder the story fragments and reconstruct the scene of Manfred's murder. Several chapters later, when the player realizes that Shelby is the Origami killer, a recollection scene clears up the incomplete presentation from the *Manfred* chapter. After watching the flashback, players are led to realize that during the brief instance in which the camera was focused on Lauren, they were in fact not in control of the detective's actions. Shelby was off-screen during that short moment, which explains how he was able to sneak to the backroom and kill Manfred.

Figure 7: Shelby is standing in the store with Lauren. He is still visible in the shot. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

Figure 8: For a few seconds the camera focuses exclusively on Lauren. Shelby is no longer visible in the background. (Source: Heavy Rain; Copyright: Sony Computer Entertainment 2010)

Incomplete presentations such as this one are difficult to detect during a first playthrough of the game because of how well they are integrated into the narrative and cinematic cutscenes. Additionally, the brevity of the scene in which the camera switched from the wide angle to the close-up of Lauren doesn't suggest a clear interruption of the player's interactive experience, and therefore doesn't give cause for suspicion. Players are led to think that Shelby is standing in the background and that they will resume their control of the character any minute. In this chapter, *Heavy Rain* cleverly uses players' perceived sense of agency over the Shelby character to squeeze in an incomplete presentation that prevents them from recognizing what is actually happening. When examined more closely however, it becomes evident that the scene in Manfred's store provides just enough information to where in retrospect players are capable of recognizing where they were blinded and distracted.

Conclusion

This article examines how, in accordance with the norms of crime fiction, *Heavy Rain* includes blindness, distraction, and fragmentation to increase suspense and play with players' sense of agency and control. While there are many ways of approaching the topic of crime fiction in connection with *Heavy Rain*, I chose to focus on how the game effectively delays the surprising revelation that detective Scott Shelby, one of the main characters, is in fact the killer the player has been trying to apprehend all along. Three distinct ways in which the game successfully postpones this concluding moment of illumination are identified. First, blindness and cognitive interactivity are used together to divert players' attention away from the investigation and towards Shelby's backstory as a friendly detective. Secondly, distraction is used in conjunction with explicit interactivity to emphasize action-packed quick time events and Shelby's hero-like character, thereby shifting the focus away from the investigation. Thirdly, fragmentation and incomplete presentation are used to make it more difficult for players to pick up on the interrelatedness of clues and notice incomplete scenes. Overall, the game respects crime fiction's fair play rules of narrative organization. It scatters meaningful clues and hints throughout the game all the while making it challenging for players to put together the various pieces of the puzzle. The interrelatedness of the various clues only becomes evident in the final chapters, making *Heavy Rain* a well-designed interactive work of crime fiction that effectively uses its medium to enhance the shock of the final revelation and challenge the player's assumed sense of agency and control.

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TAKING APART THE PROVOCATION MACHINE: IAN BOGOST'S A SLOW YEAR

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Figure 1. A Slow Year

Introduction

Game scholars and critics sit quietly in a darkened room in Snowbird, Utah, for the Well-Played Summit at the Digital Games Research Association's 2014 conference. On the front wall, the game being shown has the telltale short fat pixels of the Atari VCS, yet the game does things graphically that the Atari never achieved during the peak of its popularity some three decades ago. As volunteers take turns passing the controller, I read aloud from a collection of haiku that seem to have subjects and objects out of joint. For the first three minigames, themed by season, participants have done well given nothing but a didactic haiku to guide them through each game: they catch wayward leaves with a waiting pile, sip coffee at sunset and pair thunder with lightning. But the last game gives them trouble; I hand over the book to another reading and take the controller. The volunteer reads: *"A lonely surface / Grasses whirl beyond hot groves / Brush retires it."* On the screen, logs float along a placid stream and the speakers produce a metallic approximation of the cyclical hum of insects. My task is to match my gaze with one of the logs floating lazily downstream. I press the red button on the Atari controller; I close my eyes; the screen goes black, the curtains of two eyelids rising and falling from top and bottom. *"The pond tapped its shores / Gardens shut over smooth floors / Dream reinforcements."* I hear a soft chuckle while I count silently, then release the button. Out of practice, I have missed: the cursor representing my pensive gaze is a few pixels short of the target log. I mutter and try again, counting more slowly this time. This time, when I release the button and the idyllic squat-pixel screen pops back on screen as I open my eyes, the cursor and log are aligned: the game gives a validating beep and a yellow dot counting the point appears at the corner of the screen. *"One voyage did end / Low, lonely, still indigo / Across blues, shorelines."*

* * *

Revisiting *A Slow Year*

Ian Bogost released *A Slow Year*, a self-described "game poem," under his Open Texture imprint in 2010 as both a deluxe limited edition cartridge for the Atari Video Computer system (on the market for 33 years before *A Slow Year's* debut) complete with handmade case and a CD-ROM packaged with an Atari VCS emulator compatible with Mac and Windows operating systems, both accompanied by printed volumes far removed from standard spare and utilitarian game manuals. The collection of game poems consists of an Atari game and 256 "machined haiku" for each season, totaling 4k in assembly code, the standard capacity of an Atari cartridge, and "1k" (1,024) haiku generated by a program written by Bogost, as well as a handful of essays describing his intentions for the project. The Atari games won the Virtuoso and Vanguard trophies at Indiecade 2010, in addition to selection as a finalist for the Independent Games Festival's Nuovo award. By the summer of 2013, twenty-four of Bogost's hand-made, limited edition copies of *A Slow Year*, with a list price of $500, had been sold. One of those limited copies, by way of the University of Colorado at Boulder's Media Archaeology Lab, is destined for preservation in the collection of the U.S. Library of Congress (Media Archaeology Lab, 2013). At the end of 2013, the Story Bundle offered a digital download of *A Slow Year* as part of a gaming-themed promotion, and again as part of a Humble Indiecade Bundle on a pay-what-you-want basis in the fall of 2014. As this essay goes to press, Bogost announced that the final deluxe copy of *A Slow Year*, previously reserved for exhibition, will be offered for sale at $5,000.

A Slow Year is a curious project, dubbed a "provocation machine," by its creator (Bogost, 2010, p. 5)—an intricate condensation of meaning that requires the player's interpretation to become whole in the same way that poetry does. Made for an archaic video game console while redefining what that same console is

capable of more than three decades after the system's release, this collection of game poems also serves as a window into the creative practice of a pioneering games studies scholar and game designer. Leigh Alexander (2011) identified *A Slow Year* as the counter-point to *Cow Clicker*, a satire of games built for the Facebook platform: earnest and market-agnostic, where *Cow Clicker* dripped with cynicism and found players despite Bogost's intentions. As the physical of presence of games has steadily diminished, from the near-extinction of the monolithic arcade cabinet to the waning of game packaging and "feelies" (Karhulahti, 2012) to the rise of digital downloads in favor of retail purchase, both the hand-made deluxe packaging and the book with included CD-ROM stand out from increasing ephemerality. *A Slow Year* has to be understood in the context of Bogost's concept of carpentry, "philosophical lab equipment" constructed as a "theory, or an experiment, or a question" that operates in a way distinct from traditional humanist methods of writing and verbal argument (Bogost, 2012, "Carpentry")—in "My Slow Year," he writes that in order to write about the Atari he knew he would have to learn to program it (*A Slow Year*, p. 8). *A Slow Year* is the finished product of Bogost's experiment with the Atari; *Racing the Beam,* his book with Nick Montfort is the traditional written product, and *A Slow Year* is the fruit of his carpentry, up to and including the careful razor-blading of felt required to build each limited-edition box by hand (Alexander, 2011).

In this essay, I will attempt to unpack a subset of meaning in *A Slow Year* with the analytical tools Bogost himself has provided us in his own scholarly work on games and procedural media joined with a broader context of electronic literature and haiku than Bogost provides in his introductory remarks. I published the first review of *A Slow Year* for *Kill Screen* about a year and a half after the game was released (Rousse, 2012). Every few months, I have returned to the emulator and played through

each of the seasons and paged through the machined haiku. As I grew more familiar with Bogost's body of work, my thoughts and interpretation of *A Slow Year* (and especially its haiku) began to change. I begin by contextualizing the platform through Montfort & Bogost's *Racing the Beam* (2009), describe and analyze each game-poem via procedural rhetoric, discuss the short-comings of the "machined haiku" by the standards of its traditional form, and conclude by offering an alternate reading of the work using Bogost's foray into object-oriented ontology and speculative realism in addition to Espen Aarseth's writing on the cyborg author.

The Atari Video Computer System

With Nick Montfort, Ian Bogost literally wrote the book on the Atari with *Racing the Beam* (2009), the first entry in a MIT Press series on platform studies. Platform Studies explores how the affordances and constraints of software and/or hardware systems influence the designers who create games for those platforms and now includes analysis of the Nintendo Wii, Commodore Amiga, and the Flash web plug-in. The Atari VCS (later branded as the Atari 2600) is a particularly minimal platform, requiring all programming to be done in low-level 6502 assembly language tightly coupled to the hardware's machine code instructions—"You have to program right up against the metal," (*A Slow Year,* p. 9). The Atari itself used the MOS Technology 6507 chipset, capable of 8K of ROM, while cost constraints made many games just 2K or 4K (Montfort & Bogost, 2009, p. 24). In *Racing the Beam,* the authors emphasize the strange nature of the Television Interface Adapter (TIA) chip, which provided both graphics and sound. The TIA lacked a screen buffer, meaning programmers were required to "race the beam" and time the calculations required for changes in the display to the rhythm of the cathode-ray tube's electron beam (Montfort & Bogost, 2009, p. 28).

A Slow Year is Bogost's second title for the Atari. Bogost's first is *Guru Meditation*, a game built for the obscure Amiga Joyboard peripheral in 2009; he claims that it is a game "you play by literally doing nothing" (Bogost, 2010, p. 10) but when I had the opportunity to experience it at the San Francisco Museum of Modern Art during the Game Developer's Conference 2013, I saw that the real challenge of the game was screwing one's core into such a configuration that it was possible to balance on a three decade old plastic peripheral unsuited to the weight of an adult long enough to gain points. *Guru Meditation* shares a theme with *A Slow Year*, rewarding patience and encouraging players to observe and contemplate rather than act (p. 11).

Bogost has clearly applied some of the technical tricks he discovered while researching *Racing the Beam* to his own work: the black bar on the left edge of the screen, visible in the Autumn screenshot (below) is an adaptation of a process developed by Activision for *Pitfall!* and other titles (Montfort & Bogost, 2009, p. 114) to allow extra time for calculation before drawing the next line. His evocative use of the Atari's 128-color palette seems to be a homage to Steve Cartwright's backgrounds in *Barnstorming* and *Frostbite* (Montfort & Bogost, 2009, p. 132; Bogost, 2010, p. 13). Built for the Atari, *A Slow Year* conforms to the system's affordances, such as the symmetrical playfield and the console's lack of ROM-based alphanumeric characters, necessitating the stand-alone packaging for the haiku. Comparing the results of Bogost's expertise with Atari games from commercial developers of the hey-day of the platform reveals his total command of the system's intricate and idiosyncratic technical affordances; freed from commercial constraints and firmly in the domain of art, Bogost is able to wring evocative visuals and audio from the VCS. Bogost contrasts his own leisurely development with the frantic pace of the ongoing industrialization of video game development and the crunch aesthetic of the game jam in "My Slow Year," while in

Racing the Beam (2009, p. 49), Montfort & Bogost note that early game developer Warren Robinett worked himself to exhaustion to create the ground-breaking *Adventure* (1979). *A Slow Year* is an anachronism as both a release for a console long past its commercial relevancy and a project unconcerned with the temporal demands of the market.

The Season Games

In his introductory essay, "My Slow Year," Bogost sets out four goals for *A Slow Year:* to "interpret the Atari's constraints through the lens of poetry," to "explore naturalism" by developing novel techniques of creating full-screen effects, to "capture the practice of observation," and to create four game seasons that are "really games" that "involve rules and processes" (Bogost, 2010, pp. 12–14). Instructions for controlling the game and the goal of each season are given in haiku composed by Bogost (as opposed to the 1,024 machine haiku generated by a computer program of his creation). I argue that Bogost's game seasons meet his goals, in all but one instance.

To better understand *A Slow Year*, I turn to the related concepts of unit operations and procedural rhetoric developed by Bogost in *Unit Operations* and *Persuasive Games*, respectively. Bogost defines unit operations as "modes of meaning-making that privilege discrete, disconnected actions over deterministic, progressive systems" (2006, p. 3). Rather than presenting coherent narratives that inexorably lead to a single outcome, unit operations emphasize variations on repetitions to illustrate a process. I claim that three of the games, with the exception of autumn, are variations on a unit operation expressing patient observation. Notably, while there are four "stages" on the cartridge or emulation, each is completely distinct from the last. No scores transfer from one to the other, and the system has no way of knowing if you've "beaten" one level before moving on to the next. These unit operations coalesce into a broader

procedural rhetoric (Bogost, 2007), the persuasive use of process and computation. Bogost's procedural rhetoric in *A Slow Year* is one of slowness and "sedate observation" (p. 11)—yet while procedural rhetorics typically make their persuasive points by demonstrating "*how things work*" (Bogost, 2007, p. 29, emphasis in original), the game-poems are not instrumental. There is no moral or aesthetic valence assigned to the acts of quiet contemplation the game-poems compel, though in fulfilling his goal of making them "really games" each keeps score in a vague and perhaps vestigial manner. I will turn to each of the games in turn, starting with the trilogy of games played from a first-person perspective and ending with the problematic fourth game poem.

Winter

Figure 2: Winter

Winter is the game poem that best expresses Bogost's unit

operation of patience: he developed *A Slow Year* at a leisurely pace, without the pressure of a release date or publisher deadlines (Bogost, 2010, p. 15) and asks the player to experience it in the same spirit. There are no environmental sounds, just a hissing rendition of a slurp when the player chooses to take a sip of coffee by pressing a button. The only real challenge for the player is not to drink the coffee too fast.

The game begins with a full, hot cup of coffee and the darkness of a cold winter morning out the window. As time goes on, the sun rises and the color of the sky lightens and warms. If the player gulps the coffee down in the beginning and leaves just a splash, it quickly grows cold. A simple thermometer displays the coffee's temperature—let it get too cold, and the game ends. To see the sunrise, the player must sip methodically, pacing the temperature of the coffee with the reddening sky outside. On a real Atari joystick, pulling back the stick mimics tilting a coffee cup to take a sip. In one kilobyte, Winter is a surprisingly accurate simulation of drinking coffee.

This season best takes advantage of the beautiful color range of the Atari, from a subtle range of blues to a shock of magenta. The overlap between the blocks of color conveys a remarkable sense of depth to the view outside, giving a glow of light to the edges of the window frame. Bogost recognizes the importance of the fuzz of cathode-ray tube displays, and his emulation blends the blocks of colors together, eschewing the sharp accuracy of a liquid crystal display (2010, p. xi). By making the transitions between colors abrupt, *Winter* emphasizes the strange colors of dawn that seem normal because nature introduces them so gradually. When the sun finally rises, the player realizes that the world outside is covered in a layer of white snow.

Spring

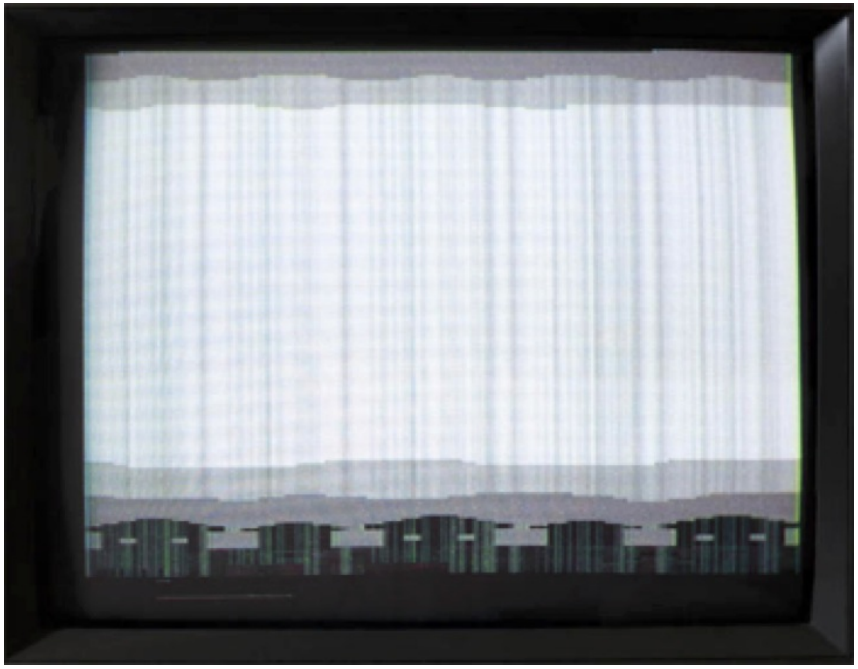

Figure 3: Spring

This game poem is about watching the rain, and given the humble squawks of the VCS, it does an admirable job of capturing its sound. There is a deep monotonous fuzz punctuated by staccato squeals, which emulate the distant roar of heavy rainfall and the splash of nearby puddles. The screen is filled with rapidly alternating shades of gray, torrents of rain falling on a few squat buildings. The player's task is to watch for lightning and then press and hold the button from the time of the flash to the clap of thunder. The yellow line of lightning lasts for just a moment; if the player looks away, she might not even know she missed it.

At first, it is difficult to distinguish much besides the long skinny blocks of gray. After a while, I let my eyes lose focus and the sharp lines faded into sheets of oncoming rain. I found

Spring the most meditative of the seasons; it required patience and quick response, but unlike *Autumn*'s hanging leaf and changing wind, there was no need to plan or anticipate. The player is always prepared in *Spring*. In the long intervals between flashes, all I had to do was listen and watch, and then react.

Summer

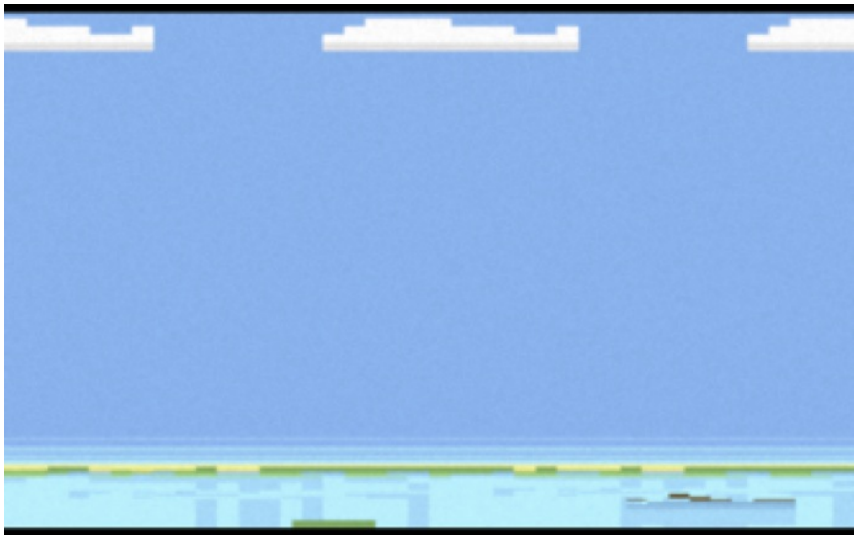

Figure 4: Summer

The player watches a log float downstream; the water shimmers and clouds pass slowly overhead. Given the platform, it is easy to imagine the stream as a first-person view of the top-down *Frogger* landscape, especially because the pulsing audio sounds like the chirp of crickets. A short green bar represents the player's gaze. Pressing the button causes the player's eyelids to slowly droop shut, leaving the screen black. The player's task is to doze off. At first, I simply closed my eyes at random intervals, hoping to stumble upon the right pattern. The trick is to close one's eyes and open them when the log, which moves at a steady rate, is at the point where the green bar rests. I realized the chirps came at regular intervals, and I closed my eyes and counted.

I actually closed my physical eyes and counted. It speaks to the immersive power of simulating eyelids, and the visual similarity between closing one's eyes in real life and within the game world. Once I started pressing the button and keeping my real eyes open (to stare into a black screen), the task was easy.

Autumn, Or What It's Like to Be a Pile of Leaves

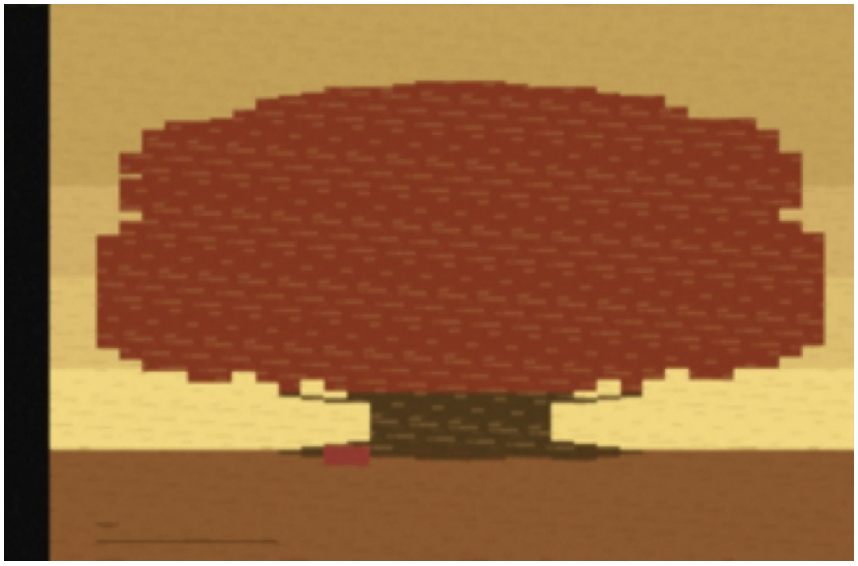

Figure 5: Fall

A leaf hangs for a moment before dropping down to the ground, its path determined by the wind that travels in check patterns across the screen. The player controls a red block representing a pile of leaves, and must catch the falling leaf. Given the score at the bottom of the screen and the assuring beep that accompanies successfully catching a leaf in the pile, I did my best to follow Bogost's advice in the book and treat the experience as "really a game." Despite my efforts, I realized after a few attempts that I was clenching my teeth with frustration.

In my experience at least, *Autumn* failed to exhibit the same unit operation of patient observation and subsequently broke with

the procedural rhetoric of *A Slow Year* as a project. While I found the other seasons meditative, I found *Autumn* frustrating and unfair. Furthermore, *Autumn* is the only game where the player controls an inanimate object, the pile of leaves. Bogost claims that all of his season games are presented in the first person (2010, p. 13), but how can I look onto a pile of leaves and also *be* the pile of leaves? *Autumn* is the only game that makes the player truly feel the technical limitations of the Atari platform. While I cannot explain the precise technical detail of this game poem, suffice to say that the Atari is capable of rendering a limited number of moving objects (Bogost, 2009, p. 45-47), and to allow the leaf to fall, Bogost strips the player's control of the pile of leaves away at the decisive moment. Because the leaf does not fall straight down, the player has no way to adjust his or her leaf pile position, making the game an exercise in luck.

Machined Haiku

In my previous review of *A Slow Year* (Rousse, 2012), my strongest criticism of the collection of game poems was reserved for Bogost's machined haiku. I complained of clunky verbiage and occasionally impenetrable combinations of randomly generated poetry. I honed in on his admission that the machined haiku were page fillers for the book which carried the CD-ROM in the standard edition (Bogost, 2010, p. 16). I returned to the haiku shortly after reading *Alien Phenomenology* (Bogost, 2012) and looked to *Cybertext* (Aarseth, 1997) for guidance on how to evaluate the aesthetics of machine-generated literature, and I began to recognize that the haiku were much more interesting when viewed in light of Bogost's recent work on object-oriented ontology. In short, I have elected to revisit the haiku and "find another use for them entirely" as the author suggests (Bogost, 2010, p. 21).

Judged even leniently by the aesthetics of the haiku tradition, my original assessment stands: while the four games are excellent

adaptations of the tenants of Imagism (a modernist movement of short evocative poems) to the medium of the videogame (Bogost, 2010, p. 3), the machine-generated haiku can be skipped with no great aesthetic loss to the player. Particularly egregious is the inclusion of adjectives for each season. Autumnal, hibernal, vernal, and estival are included in the haiku-machine's word bank, or *saijiki*. Compare Japanese dramatist's Chikamatsu's admonition against labeling, rather than evoking, a subject: "When one says of something which is sad that it is sad, one loses the implications, and in the end, even the impression of sadness. It is essential that one not say of a thing 'it is sad,' but that it be sad of itself" (Yasuda, 2001, p. 4). In addition, the haiku-machine occasionally reveals its cogs: there are curious constructions, such as double negative adjectives ("ununtaut") and strange plurals ("deers"). Reading even one season of 256 haiku is a tiring endeavor, and the layout of the haiku one after the other makes it tempting to simply gloss over each instead of giving it the moment of consideration that haiku beg for. Too often, the haiku seem to make little sense, with subjects, objects, verbs, and adjectives tossed together in ways that are grammatically correct but fail to cohere into any particular meaning.

But might we appreciate Bogost's machine poetry by a standard other than that of the haiku tradition? Bogost writes: "Just as the emergent dynamics of game rules produce unexpected experiences, so the emergent configurations of game rules produce unexpected experiences" (2010, p. 17). After reading *Alien Phenomenology*, my interpretation of the machined haiku began to change—I found the strange jumble of inanimate or abstract subjects with active verbs very provocative indeed. In *Alien Phenomenology,* Bogost writes: "The philosophical subject must cease to be limited to humans and things that influence humans. Instead it must become *everything*, full stop" [emphasis in original] (Bogost, 2012, p. 10). When viewed as a radical denunciation of human-centered poetry, Bogost's machined

haiku become much more intriguing. As a creative adaptation of the object-oriented ontology that Bogost explores in *Alien Phenomenology*, the machined haiku transform into an object-oriented poetry. Consider haiku 117 in the Autumn cycle:

An hour wafts the plants
The lair wipes up bare wheezes
Wild, a park applauds.

Or haiku 399, from Winter:

Quaffs blaze cold outside
Nonetheless dry, one fleece mourns
Black and yet frosted.

These haiku, if the reader can push past the initial impression that they are simply nonsense, force us to confront the role of non-living actors in the construction of each season. They would have us speculate on what actions might be possible for objects which have little enough in common with humans, and the relationships between objects to which human observers are not privy. As Bogost writes "Wonder has two senses. For one, it can suggest awe or marvel, the kind one might experience in worship or astonishment. But for another, it can mean puzzlement or logical perplexity" (2012, p. 121). That second sense of wonder, which I argue is produced by the occasionally senseless verse generated by the haiku machine, allows us "to underscore the irreconcilable separations between all objects, chasms we have no desire or hope of bridging" (Bogost, 2012, p. 123) fundamental to object oriented ontology. In his essay on "How to Play" *A Slow Year*, Bogost effaces his role in the creation of the haiku, claiming "the computer does the poetic work" and noting that "[w]riting haiku by hand would only impose my own interpretive ideas" (Bogost, 2010, p. 21). In *Alien Phenomenology* (2012), Bogost gently critiques Bruno Latour for his human role in selecting the objects in his disparate litanies in similar fashion:

"the nonsensical aspect of this litany is compromised by the fact that it had to be assembled by a human being."

Following Aarseth, we might say that the machined haiku are the work of a cyborg (1997, p. 134), a synthesis of Bogost's curated collection of words that connote each season and instructions on how to make grammatically coherent phrases adhering to the syllabic constraints of haiku, with the machine's ability to mash subjects, objects and verbs together without any reference to human-centric ideas about which ones ought go together. Thus, we might look at these machined haiku "as a separate class of texts rather than as failed pastiches of 'human literature'" (Aarseth, 1997, p. ibid) and judge them accordingly. The haiku form does avoid the problems of narrative that Aarseth finds with examples from the mid-1990s (Aarseth, 1997, p. 141), allowing instead for a form with few constraints and none of the diachronic concerns of narrative.

Conclusion

Might we even rehabilitate the frustrating mechanics of the Autumn game poem? After all, this is the game where we are asked to live out a simulation of what it is like to be a pile of moving leaves. Perhaps *Autumn* was simply the first game Bogost crafted, and he was unable to convincingly fit it into the collection of unit operations revolving around patient observation that he later devised. In the time I have spent with Bogost's unique collection of generated poetry and exquisitely hand-made games, I have had an opportunity to see what Bogost means by calling his work a provocation machine. His later writings on object-oriented ontology have significantly colored my reading of his machined haiku and perhaps even increased my capacity to consider existence with a flat ontology. As I spend more time with the collection, it becomes more useful as a fertile test subject both for Bogost's earlier work on computational expression and for his later speculative projects that seek to

displace human-centered ways of understanding the objects around us.

Images reproduced in this essay were provided by the publisher as part of a press kit.

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SPORE'S PLAYABLE PROCEDURAL CONTENT GENERATION

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Spore (Maxis, 2008) was first conceived as *SimEverything*: a conceptual followup to the wildly successful *SimCity* (Maxis Software, 2003) and *The Sims* (Maxis, 2000). The game would operate at a galactic scale, with the player able to interact at multiple layers of abstraction, inspired by the concept of being able to zoom out on the universe by "powers of ten" (Johnson, 2013). The entire game would be enabled by a procedural simulation of the universe and procedural generation of planets and creatures. Will Wright, the father of the *Spore* concept, spoke excitedly about creatures and planets being represented as "DNA", which would enable the vastly reduced file sizes necessary to have a rich, shareable, procedural universe. The game spent years in development, breeding hype among reviewers and game enthusiasts. When *Spore* was finally released in 2008, it was met with mixed reviews—confusion and criticism over the shallow gameplay and poor model of evolution mingled with excitement over player creativity and user-created content.

Spore is a game that is broken into five core "stages". The cell stage has the player take on the role of a single-celled organism, fighting for survival and the right to evolve into a more complex form of life. The creature stage has the player take control of this fledgling lifeform as it interacts with other creatures in its world, guiding the creature's development and evolution to give it a competitive advantage. The tribal stage marks where the creature attains intelligence and the semblance of a society; in this stage, the player must gather food to help grow the tribe and socialize with other tribes on the planet. The civilization stage has the player grow their tribe into a larger civilization, competing with others on the planet for resources. Finally, in the space stage, the player has become the dominant civilization on the planet, and ventures into space to meet and conquer other planets.

In its gameplay, *Spore* initially seems to present itself as a single-player strategy game, inviting the player to build up a civilization that can compete on the galactic stage. However, the relatively simplistic design for the five "mini-game" phases it presents makes it a failure in this regard. Where the game shines is in its support for player creativity via a suite of design tools that allow the player to create professional-quality models and creatures and share them with other players. All content created by players is saved into the *Sporepedia* (Maxis, n.d.), a publicly-accessible, online repository.

The core tool to support player creativity sits at the transition from the cell stage and is then used throughout the creature stage. The creature creator lets the player design and "evolve" creatures using a library of existing creature parts—arms, legs, eyes, lips. The tool is so delightful to play with that it was initially released as a standalone toy before the full game was released. It includes extensive procedural support for creature creation; it will procedurally texture and animate any creature created within the tool without any assistance required from the player.

However, the creature creator also defines some of the controversy around *Spore*. Its failure to model evolution in any way turns *Spore* into a game about intelligent design, rather than a simulation of the universe.

To understand *Spore*—in both its successes and failures—is to understand procedural content generation (PCG), user-created content, and how the game fosters a relationship between them. The much-acclaimed design tools lean heavily on PCG to enable users to create content for the game, and its use to support player creativity fed both the excitement and controversy around *Spore.* However, the mismatch between how the player interfaces with this procedural support and the generator's actual design leads to a shallower model of evolution, resulting not only in criticism of the game's failed scientific underpinnings but also too much freedom for players to change their creatures to address gameplay challenges. This article explores the ways in which PCG is deeply integrated into *Spore*.

Nurturing Life from Cell to Creature

Let's begin our examination of *Spore* midway through the cell stage of the game. In this stage, the player navigates their cell around a vast procedurally generated ocean, filled with other cells at varying scales. The player has one main evolutionary decision to make in this stage of gameplay—whether their cell should be an herbivore or a carnivore. Herbivores seek out green plant life to eat, while carnivores chase down other, smaller cells for a snack. Both herbivores and carnivores are subject to attack from larger cells that are floating around in the primordial soup. When the "giants" of this playground attack each other, "DNA" is released for the player to pick up. These pieces of "DNA" correspond to components that can be added to the single-celled lifeform to alter how it moves, eats, attacks others, and defends itself.

The gameplay in this stage of the game feels almost meditative at times, and is heavily exploration-driven. The procedurally generated environment means that each time the player picks up this stage, they are experiencing vastly different content that makes it impossible to memorize paths. The simple rules for play and randomization of other content do not lend themselves to developing complex strategies for survival. Rather, the player is content to float around the pool, seeking out sustenance and occasionally breaking from this meditative state to either attack or defend oneself against other cells.

As the little cell eats and grows, it has several opportunities to seek out a mate, thus allowing the player to guide its evolutionary path by adding and removing cell parts. Entering a mating ritual launches a simplified version of the creature creator, where the player can manually alter the function of the organism using whatever cell parts are currently available, as well as changing its appearance through recoloring and retexturing it. The fiction for entering the creature creator—that a single-celled organism would reproduce sexually—is not based in science in the slightest. However, the transition is done playfully and the ability to make sweeping changes to even this tiny single-celled organism helps keep the player invested in their creation.

Figure 1 shows the use of the game's editing tools to create a more "evolved" cell, with flagella to help it move and turn more quickly and a stinger to defend itself against attacks from the rear. The player is given free reign for altering the cell, with the only limit being the number of cell parts that the player has found thus far.

Inside the creature creator, altering the cell's composition. The player drags components on and off of the main cell "body" to make changes, and is free to make as many changes as desired.

Once it has eaten enough from the ocean that it is as large as it can get, our little cell is ready to turn into a complex, multi-celled organism. In a shockingly vast evolutionary leap, the cell enters the creature creator, the player gives it legs, and the newborn creature toddles onto land to start its new life and push the player into a new stage of gameplay (Figures 2-3).

Figure 2. The cell becomes a creature with the addition of legs.

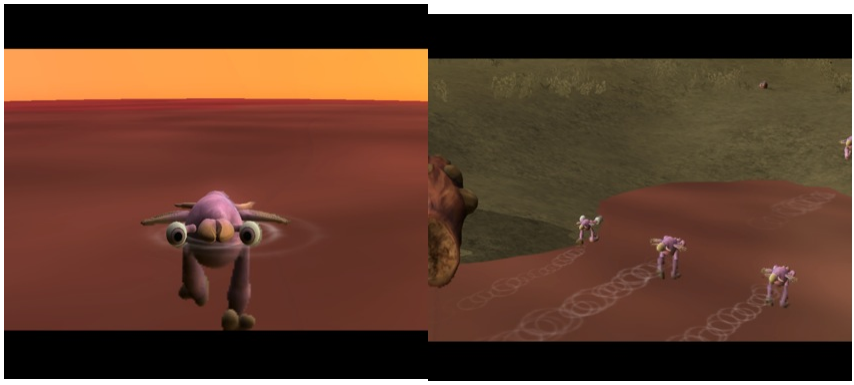

Figure 3. The new creature walks onto land.

In the cell stage, PCG was used to procedurally texture and color the creatures; however, this transition phase marks the first time that the game uses PCG to support the player in creating *functional* creatures. A procedural animation system determines how the cell should walk around space based on where the creature's legs are placed.

As in the cell stage, the creature stage involves the player collecting fragments of DNA that correspond to creature

components. When the player is ready to "evolve" their creature, they click the "mating call" button to find a mate for the creature. An elaborate (procedurally animated) mating dance occurs, the creature lays an egg1, and the creature creator loads so that the player can design the next generation to be born (Figures 4 – 5).

Figure 4. Having defeated her first enemy and found DNA, the creature goes back to the nest and engages in a mating ritual.

Figure 5. Inside the creature creator, it is possible to completely reconfigure the components that make up the creature, as well as its appearance. Our new creature bears little resemblance to the parent.

The creature creator really shines late in the creature stage, when the player has found a large number of creature components. The player can completely strip down their creature and reform it on each stage of its "evolution", if desired. This includes an ability to change the creature's spine length and shape, to swap out and add in functional creature components such as limbs and eyes, to provide the creature with decorative elements, and to alter its appearance. The procedural animation system reacts quickly, and the player will receive immediate feedback when altering limb placement. The creature immediately raises a newly added limb to stare at it admiringly and make a sound of approval.

Nurturing Creativity and a Community

After only a few moments of play with the creature creator, its broad appeal is obvious. The tool provides simple and casual play—one of the design motivations was to have the player feel like they are drawing with "magic crayons" (Gingold, 2003): simple tools that are natural and easy to create with, yet seamlessly imbued with artificial intelligence so that, as if by magic, the crayons create an amplification of what is actually drawn. The creature creator has the player interact as though they are creating a lifeless, static model, and the computer provides support to automatically turn that static model into a real character. The procedural animation and texturing systems underlying creature creator provide this "magic". The tools allow the player to feel creative agency, in that they can make meaningful decisions about the creature's appearance and some characteristics, while relegating the more technically challenging work of modeling, rigging, and animating to the computer. *Spore* kickstarted the growing trend in games to support user-created content. Games from the *Little Big Planet* (Media Molecule, 2008) series and, more recently, *Minecraft* (Persson, 2011) are built entirely around user-created content, but neither offer the kind

of procedural support that made *Spore*'s creation tools so simple and engaging.

In addition to the creation tools, *Spore* provides means for players to share what they have created with a broader audience, both within and outside the game world. Whenever the player saves a creature, it can be published to the *Sporepedia*, an online resource storing information about every creature, vehicle, and building that has ever been made for *Spore.* As of this writing (October 2014), the *Sporepedia* contains almost 186 million unique creations, with hundreds of new creatures made each day. Additionally, the game lets the player export video of their creatures that is uploaded to YouTube, offering an additional method for players to share their creative work with people outside of the game.

Within the game, other players' planets are randomly populated with creatures from *Sporepedia*, with the option of using creatures from a particular set of players by subscribing to individuals' "sporecasts". This is where *Spore* begins to blur the lines between procedural and user-created content, by using user-created content as a means to achieve a common goal of PCG: replayability. Each time the player begins a new game, the environment they play in is shaped by the creations of other players. Additionally, players can browse other creatures from *Sporepedia* within the game, download them to their own game and modify them further. This introduces a light social layer on top of the user-created content, and encourages a community of modding and sharing among players. This ability to modify "parent" creatures downloaded from *Sporepedia* again flirts with the idea of evolution without explicitly addressing it in game—there is a sense that a creature can have a parent, and that lineage is preserved in the metadata for the creature in *Sporepedia.* However, this concept of parentage for creatures is drastically removed from any basis in the actual science of evolution.

PCG Analysis

Spore is built heavily around the use of procedural content generation to enable user-created content. In order to understand how PCG is influencing the player's overall experience, see what makes the PCG in *Spore* successful, and unpack how it also contributes the game's controversy, it is necessary to dive deeper into how the PCG system is designed. This section will examine *Spore*'s use of PCG in comparison with other games, as well as how PCG interfaces with the game's mechanics, dynamics, and aesthetic goals (MDA) (Hunicke, LeBlanc, & Zubek, 2004).

Positioning Spore along Spectra

Broadly, there are three main spectra along which we can compare PCG systems, defined here by their endpoints: 1) data-intensive vs. process-intensive systems, 2) graphical vs. playable content, and 3) developer vs. player authoring. *Spore* manages to position itself at extremes along all these axes—the creature creator, as discussed later in this section, even sits at *both* ends of the data vs. process-intensive spectrum.

Many PCG algorithms are typically highly data-intensive, drawing from a rich library of human-authored content and recombining it using simple algorithms. This seems especially prevalent in commercial games where the use of data-intensive PCG means that the qualities of the content can be tightly controlled through crafting the palette of building blocks used by the system. Process-intensive systems, on the other hand, use more sophisticated algorithms with a small and limited set of building blocks; this is common in graphical PCG systems used to create smoke or water (Ebert, 2003) where the algorithm can dictate how individual particles flow to create emergent effects, and also in more recent advances in PCG, such as evolving weapons in *Galactic Arms Race* (Hastings, Guha, & Stanley, 2009).

Spore sits in an interesting position along this spectrum of PCG systems. As a design tool, the game provides players with a great deal of data—in the form of anatomical parts for the creatures—for the player to piece together using their own internal "algorithm" for deciding how the parts should fit together. However, the PCG system itself is highly process-intensive, using the raw 3D geometry created in the tool to determine how the creature should act in the world through a set of complex algorithms (Hecker, 2011).

Over time, PCG has moved from focusing on how to create graphical environments and effects to creating content that the player must deeply interact with, such as weapons and puzzles, to even creating entire game rulesets (Hendrikx, Meijer, Van der Velden, & Iosup, 2011). *Spore* sits closer to the "graphical" end of this spectrum; it uses sophisticated tools to support creating content that is only lightly interactive, from a design perspective. The environments that are generated procedurally and even the creatures do not need to support the player interacting with them deeply—the creature creator effectively creates the equivalent of canned animations that play when instructed by the player. The player does not need to manipulate these behaviors as part of gameplay.

Finally, it is interesting to look at PCG from the perspective of *whose* authoring is impacted by the system. The earliest PCG systems were created to allow a developer to create vast amounts of content, essentially as a form of data compression (Braben & Bell, 1984). In these systems, the developer is using the algorithms as a means for authoring non-varied content. Control over authoring is loosened in systems that use PCG for a variety of aesthetic reasons, supporting content that changes on each play and even adapts to player behavior. The next stage of evolution for this spectrum is supporting the player directly authoring content for games using procedural support. *Spore was*

one of the first games to use this form of PCG, letting the player shift difficult parts of their design burden onto the computer.

MDA Analysis of PCG in Spore

Understanding how *Spore*'s use of PCG works relative to other games that are PCG-enabled can help us see that the game is an exemplar of PCG in games. It firmly established PCG as a tool to support player authoring of rich, graphical content. To better understand this role that PCG plays in supporting player creativity, it is important to understand how the system fits in to the overall design of the game. The following analysis builds on a framework for understanding content generation in games that was previously published (Smith, 2014). The framework and vocabulary for describing content generation is based around Hunicke et al.'s MDA framework, and is intended to help understand the role that PCG plays towards a player experience and a game's design.

Aesthetically, Spore is a game about *discovery*—players discover new generated worlds and new creatures that they can create. These aesthetic goals are realized through the dynamics of *practicing the game mechanics* in different settings and *interacting with a community of players*. It's important to note that these dynamics do not arise directly from the use of PCG, but rather from its indirect use in supporting the user-created content. The use of PCG is *core* to the player's overall experience—without the content generator, there would be no user-created content, and without user-created content, there would be no *Spore*. Yet it is also acting firmly in a support role; it is user-created content that drives *Spore*'s replayability and makes the game appeal to players who want to flex their creative muscles.

Mechanically, the PCG in *Spore*'s creature creator plays an interesting role. It operates *online*, able to respond immediately to the player's actions when creating their creature. This design

decision has remarkable impact on the experience of using the creature creator. Instead of needing to wait until the creature has been fully fleshed out and placed into the world to see how it moves around, the player gets instantaneous feedback on the decisions they have made and how that impacts the creature's behavior.

The player has strong *compositional* control over the creatures they are creating—a rich library of creature parts, the ability to shape the creature's main body, and being allowed to place the parts anyone on that body means that there is an extremely wide variety of unique creatures that can be made using the tool. The player can create almost any creature they can imagine, and while all look stylistically similar in that they share a common art and animation style, the player can still take creative ownership over what they produced.

The other two facets of the mechanics of PCG in the creature creator are more interesting to examine, as the player's perception of the system they are interacting with is quite different from the reality. From the perspective of the player, they are *directly manipulating* the creature, and the underlying model for how the creature is assembled is as a combination of *experiential chunks* of geometry. Each chunk has a clear set of aesthetics and purpose for being added or removed from the creature. However, the underlying PCG system operates on a much different scale—the player is manipulating a creature that is then taken, as a whole, as input to the procedural animation system, and the knowledge representation used for the creature is of raw geometry and a skeleton. The procedural support in the creature creator does not understand the creature on the same scale as the player. The player understands semantic information about not just the appearance of the creature but also its function. The PCG system understands only a set of vertices that make up a creature to be textured and its underlying skeleton that must be animated. And it is here, at the layer of

understanding the mechanical systems to that make up the PCG of *Spore,* where the controversy surrounding *Spore's* treatment of evolution lies.

Mismatched Expectations

Spore is successful for exactly the same reason it has been considered a failure. PCG is used to support player creativity, and the system is expressive enough that it allows for the creation of millions of unique creatures. But the ways in which PCG is integrated into the tool also means it would never be able to support the a rich model of evolution in the way that many players had hoped, given the original marketing for the game.

The core issue is the mismatch between how players perceive their interaction with the tool vs. how the interaction is actually handled computationally. Players perceive that they are using a data-driven tool; a set of customized lego blocks where the player understands and communicates each blocks' "evolutionary" function for the creature. But this semantic information about the function of the creature is not at all considered in the procedural support for the tool, and it becomes the player's responsibility to maintain a model of evolution, if it is even desired. *Spore* is a game about creativity and player expression.

Spore's creature creator is not a tool intended to provide intelligent support for the science-based *design* of creatures. Rather, it is intended to help players realize a vision for *making* creatures. The input to the procedural system is merely a mesh and a skeleton, with no way for the creature creator to explicitly reason about evolution as part of its support to the player. Nor does this seem to be a goal of the system. The language of evolution is used only to lightly frame the game, not as a core mechanical component. The focus is on supporting players using an engaging, simple tool to realize their creative potential.

This is what makes the creature creator so powerful as a creative tool, and in turn what makes *Spore* a successful game. The player can complete forget that the underlying PCG system is present, and focus only on playing with the creativity toy. The ability for the system to rapidly produce an animation for any arbitrary geometry provides the player with the freedom to play with a wide variety of creature combinations and immediately see their creation come to life.

Conclusion

The successes and perceived failures of *Spore* are driven by its use of PCG to support player creativity and user-created content. Players can create a wide variety of polished, professional-quality creatures that are automatically textured and animated. Yet this user-created content lies at odds with some of the game's original stated goals of offering a rich simulation of the universe and evolution. The game touches upon evolutionary themes on occasion—allowing players to build creatures based on user-selected "parents" or producing newer and more capable creatures as a result of "mating"—but this theme is superficial. Evolution cannot be modeled in *Spore* because the PCG for its creature creator does not explicitly reason about it.

Despite failing to live up to some of its hype, *Spore* is a groundbreaking game. It was the first game to really carefully consider how to incorporate user-created content and provide rich support for player creativity. It provided intelligent, playful creativity tools that have not yet been paralleled in other games. The hype over *Spore* as an evolution simulator and a deep strategy game, and subsequent frustration over its inability to deliver on these promises, have obscured *Spore*'s actual contributions to game design: a deep focus on enabling player creativity with the appropriate supportive tools to make players feel like they are capable of creating vast worlds and sophisticated creatures with ease and enjoyment.

(1) It appears to always be the player-controlled creature that lays the egg. Either all playable creatures are biologically female, or the player is to assume that sex of individuals does not matter for sexual reproduction in *Spore*.

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WHAT HOCKEY WANTS: DRAMA, NARRATIVE, AND SPORTS

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Introduction

Like many sports, ice hockey, or "hockey," as it is known to its players and fans, generates legend, myth, history, biography, autobiography, and other forms of narrative at a furious pace. In, around, and among instances of gameplay, hockey produces dramatic situations which resolve into a variety of public and private narratives. Some of these narratives, such as the stories of an individual game played late at night on a neighborhood rink, are ephemeral and known only to certain players; others are so widely told and acquire such cultural significance that they are memorialized in statuary, feature films, currency, or novels; and some leave traces in the game itself as strategies, traditions, superstitions, play styles, and written and unwritten rules. Hockey is a creature of narrative – it eats it and excretes it

– and yet, somewhat amazingly, it does not require any kind of centralized story department or author to spin its yarns. Rather, like all sports, and to a certain degree like all games, hockey is a set of protocols that propagates and iterates itself by producing the kinds of situations that are worth telling stories about.

Despite this impressive narrative capability, sports like hockey are not frequently mentioned in the discussions game studies and game design communities stage around the topic of narrative. One possible explanation for this relative lack of mention is that the ways narrative manifests in sports may at first glance seem more related to modes of spectatorship than modes of play, and therefore may be considered exterior to the kinds of narrative thought to be more properly "native" to games. It may also be the case that narrative is perceived as simply more central or essential – particularly from a player experience perspective – to things like adventure games, role-playing games, storytelling games, open-world exploration games, and interactive fiction, than it is to sports. Such overtly story-centric games are certainly worthy of consideration. For scholars and designers interested in the poetics, aesthetics, and politics of digital gameplay, it is perhaps understandable that the sweaty world of sports be overlooked. It is also understandable that some researchers will prefer to explore more exclusively digital forms of gameplay insofar as their work may relate more directly to how narrative connects to current trends in technology and communications than to games as a broader category of design. Regardless, eliding sports from the discussion risks depriving us of important ways of speaking about and designing about games and narrative. Understanding the powerful and parsimonious ways in which sports instantiate various forms of narrative, and the ways in which those instantiations can in turn become incorporated into the most basic structures of the games themselves, can provide useful models and metaphors for examining all games as both artifacts and producers of culture.

This paper presents an examination of hockey as a cybernetic system, paying particular attention to the role of narrative. Like all sports, hockey offers opportunities for individuals to take part in dramatic situations that would not otherwise occur. As players, teams, and fans actively engage with these situations, they produce and consume various kinds of public and private narrative. These narratives in turn shape subsequent situations both within and beyond the formal boundaries of the sport. Through a series of examples from hockey and related games, this paper examines how narrative emerges in, around, and among various contexts of hockey gameplay; how this narrative impacts both ludic and paraludic situations; and how it can become encoded in the formal structures of the game itself.

Shaping things

We live in a symbiotic relationship with the artifacts we create. Who exactly is in charge – us, our creations, or some other force that bonds the two – is not always easy to sort out. "We become what we behold," writes Marshall McLuhan, channeling William Blake. "We shape our tools and afterwards our tools shape us" (1994, xxi). For example, a hammer is ostensibly a tool that we use to drive nails. The hammer can be said to work for us. But from another perspective, once it has been invented, it is also we who work for the hammer, for we are the ones that manufacture it, spread the news of its existence, and improve it as new hammer-making techniques become possible. By coming to depend on the hammer, we become the means by which the hammer replicates itself and evolves. The hammer does not exist or get better without us. It needs us to survive and flourish as a thing in the world. By being useful to us, the hammer changes us, becomes integral to our cultural processes, and secures its place in the order of things.

Much the same can be said of a sport. To understand how, let us briefly explore what a sport is so as to expose what it offers us

in exchange for its survival. We may formally define a sport as a competitive activity, usually but not necessarily involving some kind of athletic performance, wherein the skill of one player or team of players is tested, through individual contests or sets of linked contests, against the skill of one or more other players or teams of players. More broadly, a sport is a set of rules, procedures, limits, and traditions that gives rise to specific kinds of situations, or opportunities to act. Some of these situations are the direct result of ranging team against team and player against player, and produce the "beautiful plays" (Lowood, 2013), strategic blunders, heroic comebacks, gritty campaigns, chokes, and other sequences we often remember as fans or players. The interpretation and contextualization of these events play central roles in whole genres of public and private narrative, from live commentary and after-the-fact journalistic reportage, to in-game momentum swings and the autobiographical identity constructions of individual players and teams. Other situations are more indirect outgrowths of a sport. These situations can include everything from a beer league player dealing with an injury or a "slump," to fans discussing strategy on the Web, to Mohawk tribes experiencing changes in power dynamics as the result of a victory in a game of *tewaarathon*. Crucially, the situations and stakes around or "outside" the game can shape the situations within it, and vice-versa. Known in the parlance of live action role-playing as "bleed," this phenomena is common to all games. As Mia Consalvo notes, "we cannot say that games are magic circles, where the ordinary rules of life do not apply." Rather, situations of gameplay exist "in addition to, in competition with, other rules and in relation to multiple contexts, across varying cultures, and into different groups" (2009, 416).

We interpret ourselves and each other by making sense of our actions through narrative. In the absence of action, there is no story to tell. Sports provide players with a range of unusual and

often very high-tension situations within which to act, and out of this action, players and fans alike may construct various kinds of meaning. Put differently, the objectives, rules, players, mechanics, and dynamics of a sport constitute a shifting field of breaches and imbalances that is the "[trouble] that provides the engine of drama" (Bruner, 1991, p. 16; see also, Burke, 1978, p. 330-335). This "trouble" enables kinds of meaning-making that would not otherwise be possible (or, as in the example of "the little brother of war," discussed below, would entail reflection on very different and much more destructive forms of activity). As Sartre summarizes, "there is freedom only in a situation, and there is a situation only through freedom . . . There can be a free for-itself only as engaged in a resisting world. Outside of this engagement the notions of freedom, of determination, of necessity lose all meaning" (1956, p. 621).

Like the hammer's utility, the capacity of a sport to create dramatic situations can be thought of as a kind of evolutionary survival adaptation – that is, the means by which the activity secures its place in the ecosystem of human attention and energy. Drama is what a sport offers us in exchange for its continued existence. Whether it is the low-stakes drama of the pick-up game, or the high-stakes drama of an overtime National Hockey League (NHL) playoff series, drama is what makes sports interesting and meaningful to players and fans alike. Sports create focused opportunities for us to act and perform – as players, fans, and even as people who don't like sports at all – and therefore opportunities, for good or for ill, for us to make meaning and to interpret and define ourselves, our peers, and/or our communities. Like other arts, sports are a "creative treatment of actuality," (Grierson, 1933, p. 8) to borrow from one kind of practice – or a way of "making the ordinary strange" (Jakobson in Bruner, 1991, p. 13), to take from another. The drama of sports resolves into narrative as we make meaning (fabula) out of the actions (sjuzet) we take and/or observe (see Jenkins, 2006).

Further, the greater a sport's capacity to create drama, the more "well-played" it will be: that is, the more narrative it will create, the more widely it will spread, the more formative it will become to the lives of its players and fans, and the longer it will survive. *We shape our sports and afterwards our sports shape us.*

A formula for drama

Hockey is a powerful formula for drama. Consider its fundamental components: a sheet of ice bounded by wooden and Plexiglas walls; armored human beings on steel-bladed boots wielding six-foot-long composite metal sticks; a fire-hardened rubber puck propelled at blindingly fast speeds; a steel-framed net protected by a masked and padded player; and so on. Even before the rules of the game are applied, there is tension in the spectacle, not to mention the simple fact, of such heavily-equipped human beings moving so quickly within a constrained space. While people attending a roller rink or an ice garden will generally take care to move in the same direction so as to avoid collisions, in hockey, at any given moment, each player may be skating – fast and hard – in completely different and potentially opposite directions. The risk of high-speed collision is constant. Spatial awareness is essential. The first piece of advice you will receive as a neophyte hockey player is, "keep your head up.

In love, war, and games, danger and risk are the stuff of drama. It is only when we have something to lose – or, perhaps more precisely, when we are *aware* that we have something to lose – that our actions take on meaning. As is the case with many sports, hockey places us in situations where both failure and injury are distinct possibilities. While physical jeopardy is far from the only source of drama in hockey, any game that involves the swinging of sticks and the shooting of a projectile necessarily invokes danger and violence in both its dramaturgical structure and its broader social function. Indeed, across a multitude of cultural settings, the histories of territorial stick and ball games

like hockey are often explicitly tied to warfare and mortal combat. The Icelandic game of *knattleikr* – a 10th century *broomball*-like contact sport played on frozen ponds with bats and a ball – was said to be so violent that deaths would routinely occur during the course of play. As the *Grimkelsson Saga* records, during one game between Strand and Botn, "before dusk, six of the Strand players lay dead" (Society for International Hockey Research [SIHR], 2012, p. 23). One of the foundational tales of the Irish mythological hero Cú Chulainn involves his use of a *hurley* (the bat used in *hurling*, the national sport of Ireland and a likely ancestor of both field hockey and ice hockey) to shoot a *sliotar* (the heavy and compact ball used in hurling, equivalent to the hockey puck) down the throat of a ferocious hound. The Mohawk game of *tewaarathon*, the Choctaw stickball game, and the Anishinaabe game later known as *lacrosse*, were highly ritualized games sometimes used to settle disputes between and within tribes. So violent were these games that one 18th century European observer noted, "if one were not told beforehand that they were playing, one would certainly believe that they were fighting" (Conover, 1997). Tewaarathon literally means, "little brother of war."

It is not the purpose of this paper to wholly unpack the tangled relationships among aggression, violence, and hockey. Indeed, numerous scholars have explored – in far greater detail than is possible here – how sports like hockey can be understood as psychosocial analogs (or extensions) of warfare (Sipes, 1973; Keefer, Goldstein, and Kasiarz, 1983; Nickerson, 1995). While the cultural, political, economic, and psychological dimensions of hockey are doubtless of crucial importance in any consideration of the kinds of narrative produced by the game, what is at issue in the present context is not so much a question of kind as it is of means.

To begin to understand how dramatic situations emerge in hockey, consider the dynamics of the *power play*. A power play

occurs when one team must play "short-handed" (that is, with one or two fewer players on the ice) for a limited amount of time due to the assessment of a penalty or penalties. During a power play, the short-handed team will attempt to gain possession and "kill" the duration of the penalty either by icing the puck (that is, by shooting it down the ice so as to waste time, a play that is legal only when short-handed) or by attempting a weak attack. However, because possession can be difficult to maintain when short-handed, penalty-killing teams will often find themselves in situations wherein the opposing team has control of the puck. In this case, the short-handed team will tend to collapse toward the middle of the ice and fall back into their own zone to protect their goal. The attacking team will then attempt to draw the defending team out of position by passing the puck around the perimeter of the offensive zone and by placing their forwards in front of the defending team's goalie so as to obstruct (or "screen") her view. As they open cracks in the defending team's defense, the attacking team will take shots. The very best teams will score on around 20 percent of their (5-on-4) power play chances (Sportingcharts.com, 2014).

A power play creates drama on a variety of levels. At its most visceral level, it creates a situation of heightened danger, as the team with the advantage will often pepper the short-handed team with a barrage of heavy slap shots from the blue line (or "point") – shots which the short-handed team, assuming they are sufficiently intent on winning, will attempt to block with their bodies. This can produce some of the game's most dramatic – and unsettling – moments. For example, during a game against the Pittsburgh Penguins in the 2013 Stanley Cup playoffs, Boston Bruins penalty killer Gregory Campbell dropped to the ice to block a point shot from Russian superstar Evgeni Malkin. Malkin's heavy slap shot hit Campbell on an unprotected part of his right leg, shattering his fibula. Campbell would later receive surgery and undergo months of rehab in order to recover from

his injury (Beattie, 2013). Nevertheless, as the Penguins continued to pour on the pressure, Campbell struggled to his feet and kept playing for over a minute, at one point fearlessly attempting to block another shot from Penguins defenseman Kris Letang.

For Boston fans, Campbell's shot block and heroic (or, depending on your perspective, insane) refusal to give up on the play became one of the key moments of the 2013 playoffs, and fed into the emerging narrative of the Bruins being a tough team looking to go the distance on grit and hard work. For players, the block proved to be a crucial turning point in the game – and ultimately the series. On the Boston bench, Campbell's sacrifice was a source of pride that energized the Bruins as they continued their (ultimately successful) underdog run against the Penguins. As coach Claude Julien remarked, "when you see a guy go down like that and the way he went down and what he did . . . the guys are going to want to rally around that" (McDonald, 2013). Out of the dramatic situation of a power play, then, emerged a story of sacrifice and courage that fed into both the Bruins' own identity construction processes and the enveloping narratives produced and shared by fans.

Of course, not all power plays are created equal. The danger inherent in an NHL playoff game is markedly different from that in a pee-wee exhibition matchup. However, even in the absence of the kinds of physical jeopardy described above, power play situations, like the other situations generated by hockey's ruleset, excel at creating drama. For example, power plays can also produce, amplify, and modulate "scripts" – that is, generic narrative patterns – that challenge competitors to live up to, or break with, various expectations. When these expectations are confirmed or upended, narrative emerges at a variety of scales. At its most basic level, the power play places the short-handed team in the position of being outnumbered, and with that position comes the expectation that they will be scored upon.

Likewise, the power play challenges the team with the advantage to capitalize on a golden opportunity to score. The differential, or lack of differential, between the expected outcomes associated with these roles – that is, the drama that unfolds from a situation wherein the short-handed team is expected to be scored upon while the team with the advantage is expected to score – can change the narrative of the game, conferring a psychological boon to one side or the other. This boon is evocatively referred to in hockey (and many other sports) as *momentum.*

Narrative accrual

All this narrative adds up as a hockey game, season, or career wears on. Like all sports, a game of hockey is more than merely the robotic execution of a set of rules and procedures – it is also a dynamic psychological landscape, the topology of which is determined by the accrual of narrative over time and across multiple contexts. Hockey goalies provide a simple example in this regard. Goaltending is a position of great responsibility that depends on instincts, split-second reactions, and calm under fire. Confidence is an essential component to playing such a crucial position. A goalie who "thinks too much," second-guesses herself, or otherwise falls victim to her anxiety is a goalie that is going to be scored on – and a goalie that gets scored on doesn't get to play. For goalies, the stakes are always high: both their own fates and those of their teams depend on them playing well. There is minimal margin for error. A goalie that lets in a "soft" goal must thus take care to let go of the mistake as soon as possible, for if she allows a pessimistic narrative to take hold – for example, that the other team "has her number," or that she's "having a bad night" – her confidence can quickly collapse. As with all competitive athletes, aside from physical training and natural ability, the difference between winning and losing for a goaltender lies in her ability to manage and frame her natural inclinations to "story" her play and performance (Douglas, 2009). Further, to return to Consalvo's discussion of the negotiable and

permeable boundaries of the so-called magic circle, identity processes exterior to the game — such as, for example, a player's response to a crisis in her personal life — can impact in-game performance, and vice-versa.

What holds true for a goaltender holds true for an entire team. As in all team sports, momentum swings often occur in hockey as certain narratives take hold, leading to individual and team identity trajectories that can sometimes spin out of control. Otherwise excellent teams can have a bad night and suffer a blowout loss, sometimes leading to multi-game "slumps," while mediocre or bad teams can upset stronger competitors and experience radical turnarounds in performance. In professional sports, negative team identity narratives can become so entrenched that management will sometimes find it necessary to intervene to break the spell, changing personnel or hiring sports psychologists to inject new scripts into a team's identity structure. Some teams, such as the ill-fated Toronto Maple Leafs, will underperform for decades despite often having reasonably top-notch rosters thanks in part to what is sometimes described as a "culture of losing." Such teams may resort to desperate measures as they attempt to right the ship. In one notable incident, Maple Leafs coach Red Kelly installed special pyramid sculptures in the team's dressing room and under its bench in a misguided attempt to refocus psychic energy during a 1976 playoff series (Shoalts, 2013). Of course, such measures tend to only reinforce a narrative of ineptitude. The Leafs lost that playoff series, failing to win the Cup as they had each year since 1967. At the time of this writing, despite being the most valuable team in the National Hockey League — and the 26th most valuable team in sports worldwide — the Leafs have still yet to win a championship since their glory days in the late 1960s (Fox, 2014).

Slumps, streaks, momentum, and myriad other kinds of "storying" are just as integral to youth hockey and adult

recreational leagues as they are to the NHL. While the additional pressure exerted by millions of fans undoubtedly amplifies the hills and valleys of a team's narrative topology, the simple facts of the game having rules, a finite duration, and a quantifiable and valorized outcome (see Juul, 2003) makes drama inevitable. A recreational hockey team can choke. A 12 year-old goalie can get inspired and "stand on her head." Even I, with my lumbering gait and bad aim, once, long ago, had a scoring streak. Regardless of the level of play or its relationship to capital, there is an undeniable commerce among in-game and across-game micronarratives and the larger cultural and psychological contexts of the story of hockey writ large — and of the story of self. As a child growing up in Canada, it is hard to overestimate the role playing hockey had in my own *bildungsroman*: the way I positioned myself both within it and against it, the way I rejected it for a time to explore other identities, and the way I have returned to it in adulthood at least in part in an effort to claim and understand an aspect of my past.

Encoding

Thus far I have discussed how hockey produces dramatic situations; how these situations resolve into narrative; and how this narrative is both a kind of "output" of the play of the game — insofar as stories of what happened during the game may be told after the fact — and a constituent element — insofar as the ways players "story" the play of the game will dynamically shape and define subsequent gameplay situations. In short, I have described hockey as a kind of cybernetic loop, or set of nested loops, wherein the state of the game gives rise to narratives which in turn modify the state of the game, giving rise to new narratives, and so on, across a range of time scales. This loop between state, or situation, and narrative could be cast in terms more familiar to some readers as a feedback relationship between emergent and embedded narrative elements.

What I would like to conclude with is a brief consideration of a third dimension of narrative as it relates to this feedback loop. If the dramatic situations of hockey are the source of its emergent narratives, and if those emergent narratives in turn become embedded in the experience of playing and watching the game, redefining future dramatic situations, then we might ask, what gives rise to hockey in the first place? What gave rise to its rules? When did hockey begin? These questions address a third dimension of narrative, a kind of highly-compressed or "lossy" form – or distillation, or derivative – of narrative we might call *encoded narrative*.

Hockey's precise origins are murky. Early depictions show dozens of players engaging in what appears to be a relatively formless game played on a frozen swamp or fen (SIHR, 2012). As with association football (or "soccer"), many of the oldest hockey-like progenitor games are "mob" games. *Canmag*, a clear "ur-hockey" candidate and direct ancestor of Gaelic games like *shinty* and hurling, has few rules and allows for an unspecified number of players. Played to this day on the Isle of Man and in some parts of the Hebrides, canmag is essentially mob football with sticks: players join a side based on the part of town they hail from, then swarm a ball which they attempt to whack to the opponent's end zone using clubs, shepherd's staffs, brooms, or fallen branches. While the evolution of hockey as we know it today implicates a wide range of folk games and sports from both sides of the Atlantic, its deep origins, like those of all games, lie in various kinds of free and unstructured play. On a very fundamental level, hockey is about the pleasure of hitting a ball with a stick, and of struggling against one or more other agents for the control of that ball. In fits and starts, across cultures and time periods, stick-and-ball play evolved from various kinds of *formlessness* to various kinds of *form* — from *paidia* to *ludus*; from *play* to *game*. Like other kinds of institutionalized traditions, the rulesets that

emerged from this branching evolutionary process constitute a kind of narrative.

Unlike many of the games that may first come to mind to early 21st century videogame fans — I am thinking here of digital games whose rules are sometimes (at least as of the writing of these words) literally engraved for all time in optical media — sports like hockey are constantly changing. The same loop that can be observed in the relationship between situation and narrative in a single game can also be seen across multiple games and seasons, and is in fact integral to the evolving structure of the game itself. Consider the NHL's icing rules. During the 1930s, as the financial and social stakes of professional hockey rose throughout Canada and parts of the United States, teams began protecting leads by simply shooting the puck down the ice — a play referred to as "icing." This tactic would serve the dual purpose of killing time and reducing the likelihood of being caught out of position. However, it made for extremely boring hockey for both fans and players. News reports from the period describe tedious games where one team would take a lead, then proceed to ice the puck dozens of times in an attempt to run down the clock (Klein, 2013). Finally, in 1937, responding to increasingly urgent complaints from owners, fans, and players, the league implemented Rule 81, which states in part:

> Should any player of a team, equal or superior in numerical strength . . . to the opposing team, shoot, bat or deflect the puck from his own half of the ice beyond the goal line of the opposing team, play shall be stopped.
> (NHL, 2014, rule 81)

Rules accrue in sports traditions in much the same way as case law in legal systems. "Insofar as the law insists on [precedents]," writes cognitive psychologist and legal scholar Jerome Bruner in his seminal paper on the narrative construction of human experience, "and insofar as 'cases' are narratives, the legal system imposes an orderly process of narrative accrual" (1991, p. 18).

Rulesets such as the *Official Rules of the National Hockey League* (2014) are complex encodings of a multitude of narratives, and as such become "instruments for assuring historical continuity" (Bruner, 1991, p. 20). The process of this encoding begins with the narration of individual events that take place during gameplay. These narratives become general principles if the things they describe recur often enough. As these principles become more widely recognized in the contexts of status, investment, and attention within which the game exists, they can become "endowed with privileged status" (Bruner) as new elements of the tradition. As in the case of the icing rule, if the general principle amounts to an undesirable game state — from the player experience perspective, the spectator perspective, the owner perspective, some other cultural perspective, or a combination thereof — then a new rule may be created or applied to change the situational architecture of the game. Thus amended, the game's new ruleset will now give rise to new situations and new narratives, continuing the loop. In the case of icing, while the added rule could be said to have "patched an exploit," it also produced new and extremely dangerous situations of play. Indeed, some of hockey's worst injuries were produced by Rule 81, because, in addition to the passage quoted above, the rule states:

> For the purpose of interpretation of the rule, "icing the puck" is completed the instant the puck is touched first by a defending player (other than the goalkeeper) after it has crossed the goal line. (NHL, 2014, Rule 81)

This aspect of Rule 81 led to furious "foot races" as players on both teams would skate at full speed toward the end of the ice in order to be the first to touch an iced puck. Since these "races" would frequently end with players crashing headlong into the end boards, serious injuries were a common occurrence (Klein). Over the decades, most professional and amateur leagues adopted the "no-touch" icing rule so as to eliminate these

dangerous situations, but it took almost 90 years for the NHL to do so. Ultimately overwhelmed by the number of cases of serious injury and the outcry from elements of the players' union, the NHL instituted a "hybrid" no-touch icing system for the 2013-2014 season.

In this manner, the rules of hockey accrue over time as a kind of consequence or distillation of narrative at a variety of scales. This ongoing process begins with the narration of individual gameplay incidents, proceeds through the generalization of those incidents into patterns, and finally ends as those narrative figures are encoded into rules and traditions.

Conclusions

Understanding how narrative works in games like hockey can provide us with new ways to think about and design about ludonarrativity in other game forms, including videogames and tabletop games. Central to this understanding is the idea of games being productive of *situations*. In hockey, the objectives, rules, players, mechanics, and dynamics of the sport create a shifting field of tension-filled dramatic situations. These situations resolve into narratives as players and fans make meaning out of the actions they take and observe, adding to the situational complexity and hermeneutic richness of subsequent instances of play. As this loop plays out over time and across contexts, it can affect the formal structures of the game itself, resulting in rule modifications which in turn give rise to new situations and new narratives – and on it goes. Narrative and situation can thus be seen to exist in a strong feedback relationship with one another. Further, the rules of the game themselves can be seen to constitute a highly compressed "encoded" form of narrative insofar as they provide a kind of historical continuity analogous to that provided by legal systems and other institutions. Beyond contributing to our understanding of sports, this perspective on narrative can

provide us with additional ways of thinking about games and storytelling. Storytelling in games has never been exclusively about what's "in the game" (*pace* Electronic Arts) – rather, it is also, and perhaps most profoundly, about what comes *out* of the game, and how that emergence in turn affects the game itself, its players, and the context within which it exists. This cybernetic relationship, between the dramatic situations of hockey, the narratives it produces, and its rules, is at the heart of how a sport like hockey propagates itself and evolves – that is, it is at the heart of how hockey gets what hockey wants. And what hockey wants is to be *well-played*.

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PART TWO: GAMES LEARNING SOCIETY

Caro Williams, Guest Editor

ELDER SCROLLS ONLINE: HOW ESO ENCOURAGES GROUP FORMATION AND COOPERATIVE PLAY

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Introduction

Elder Scrolls Online (*ESO*) transforms the single-player worlds expressed in Bethesda Softworks' series of five games into a Massive Multiplayer Online Role Playing Game (MMORPG, or hereafter, MMO). It draws much from *Oblivion* (fourth in series) and *Skyrim* (fifth in series); however, the *ESO* narrative includes elements from all the former games, referencing and building upon the four Eras. *ESO* is set in the Second Era while *Skyrim* is set in the Fourth Era, and *Oblivion* the Third Era. The game provides a rich narrative that weaves together Tamriel religion, lore, and culture to tell the story of why the three alliances are

at war, alongside a narrative for the solo hero's quest to defeat Molag Bal, the enemy of all factions. The game has separate areas for the Player vs. Environment (PvE) and Player vs. Player (PvP) (please reference Figure 1). The PvE areas are: Ebonheart Pact – red, Daggerfalls Covenant – blue, and Aldmeri Dominion – yellow; each Alliance has five areas. Playing PvE leads one through all 15 areas, providing hundreds of non-person player (NPC) quests including the hero's quest line that culminates in Cold Harbor (not pictured in Figure 1). The PvP area, Cyridill, shaded green, also has NPC quests but is primarily a massive game of Capture the Flag with several servers running multiple Alliance Wars in Cyrodill. The battle for Cyrodiil is fought among three alliances. When one's faction dominates an Alliance War map (Figure 2), players receive a weapon damage bonus for their characters. Quests can be completed individually or in a group. Typically, people form groups of four for dungeons (i.e. an contained area where players cooperatively defeat various formations of "bad guys"); groups of 12 for timed trial runs (explained below); the largest group option is 20 and is commonly formed to run PvP campaigns in Cyrodill.

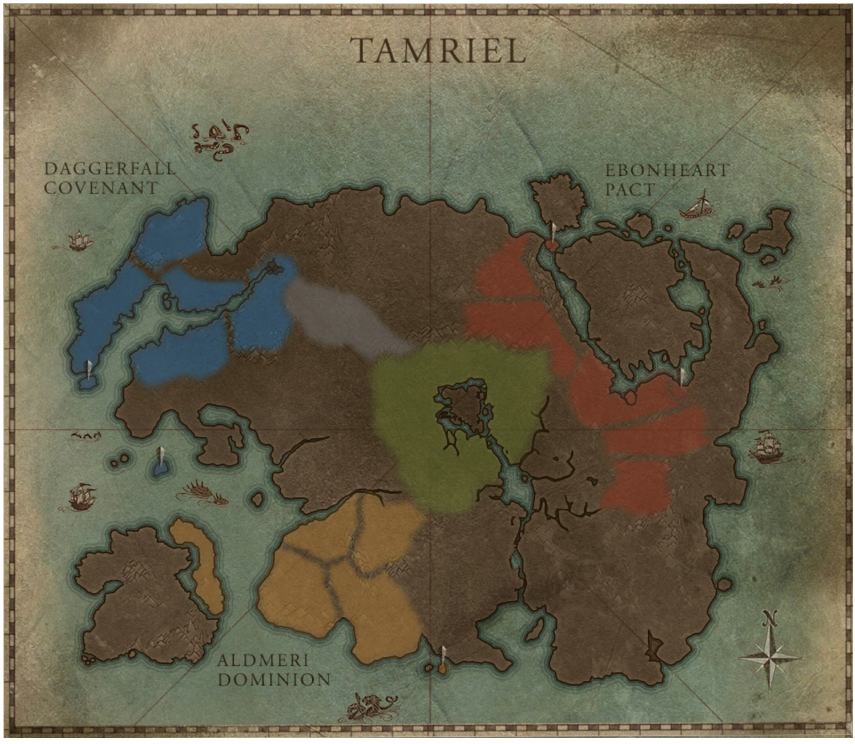

Figure 1. The map illustrates the three PvE areas around the perimeter and the central province of Cyrodiil, the PvP area. To the north west of Cyrodiil is Craglorn, an area dedicated to four person group dungeons and 12 person timed trials in dungeons. Online intearctive map from: (http://www.elderscrollsonline.com/en-gb/map/tamriel).

Figure 2. Cyrodill, Alliance War: Azura's Star, dominated by Aldmeri Dominion (note the yellow).

One caveat regarding the information related herein is that what might be true today, might not be true tomorrow. Frequent updates continually strive to expand player options and respond to player feedback. As a result, some bosses have been "nerfed" – made easier to defeat. For example, Molog Bal is now one of the easiest bosses to defeat when originally it was wicked difficult! Additionally, the Developers are continually adding new content, fixing bugs, and changing the balance of skill sets for the four classes of characters: Sorcerers, Dragon Knights, Templars, and Night Blades; and working towards improving the PvP experience.

Figure 3. New skill trees are displayed as constellations, similar to Skyrim.

From the time of release in March 2014, there have been five major updates in addition to the minor patches. The sixth update is expected in March 2015, which introduces the Justice System, iterating on Thieves Guild from Skyrim and Oblivion, and the Champion System, an account-wide character progression, which is the last phase of the veteran rank redesign. Player's options for skill choice will be displayed on Skyrimesque constellation skill trees (Figure 3, above). In addition, after finishing the initial quest line within one's alliance's region, players will be free to explore all of the areas in any order. All dungeons will scale to the player's ability level rather than the former loose linear progression through the various areas; it is expected that this will give players more of the open world feeling of earlier Elder Scrolls games. In this respect ESO appears to be the victim of Bethesda's own success. Updates to ESO appear to be moving the game closer to the single-player experience of *Skyrim* a design-scheme not opposed by players. In our initial play through of ESO in spring 2014, Eames seemed to signal the feeling of many players.

> Maybe my interest in *ESO* was doomed from the start. After all, I was hoping to extract a single-player experience from a massively

> multiplayer game… I found the presence of so many other players pulled me out of the immersive experience, especially when I had to wait for a computer-controlled adversary to come back to life because another player beat me to it…. I was hoping my experience was going to open my eyes to the joys of gaming online with new friends, but so far, that has not been the case. The overriding emotion I feel when playing *ESO* is a strong desire to return to my old stomping grounds in *Skyrim*. (Eames)

Bethesda appears to be responding to player desires to explore ESO in the ways they did in earlier Elder Scrolls games. Both in design and economics Bethesda is responding to player feedback. On January 21, 2015 Bethesda Online Studios announced that on March 17, 2015 ESO will become free-to-play, rebranded under the title ESO: *Tamriel Unlimited*, however, a monthly subscription option will still be offered. ESO has been in constant flux since its release in spring 2014, thus in this article, we have focused primarily on the game in it's current iteration between updates five and six. We have refrained from addressing changes that are playable only through the Public Test Server (PTS) where current subscribers have been playing (and earnestly discussing) various iterations of the forthcoming March Update.

A few basics of the game

ESO may serve as a bridge from the single-player experience of the Bethesda series to those new to MMOs, as are authors Aubrecht and Eames. The multitude of character build, play and play-style options offer newbie MMO players an easy-on-ramp to the MMO experience.

Initially, *ESO* adheres closely to the Elder Scroll games; only when the tutorial level is complete do MMO mechanics begin to surface. As in all Elder Scrolls games, players go through a rich character- creation process. The process is another step forward in detail than the earlier games, such as *Skyrim,* and considerably more detailed than seen in most MMOs. Players choose race,

gender, character class, voice, and physical appearance. The choice of one's race (think species, not ethnicity here) determines which of the three alliances one's character belongs to and, hence, which regional area the player will begin the initial game: Ebonheart Pact, Daggerfall Covenant, or Aldmeri Dominion.

Once this process is complete, players begin as always, imprisoned[1], trading on player's familiarity with the single player franchise. This time Molag Bal has taken your soul and you must fight to get it back. During your escape from prison, you grab your weapon of choice. This choice of weapon is an interesting break from MMO conventions: therein, one's class often determines one's weapon. In ESO players are empowered to choose what they like, find their own play-style, and build their characters from a large variety of options. The prison break serves as a tutorial on questing, loot, narrative, and combat. Aside from the multitude of players running about, the prison break is comfortably similiar to the openings of every Elder Scrolls game. It balances well the need for tutorial while being short enough that players experienced in both MMOs and Elder Scrolls games can finish quickly. After your prison break and the initiating "tutorial," you are transported to the starter town associated with your alliance. At this stage, typical MMO conventions begin.

Player options include questing, fishing, crafting, gathering materials, seeking treasure, defeating world bosses and Daedric demons, joining various NPC factions such as the Undaunted, Fighters, and Mages guilds, dungeon running, and buying horses. Players gain experience points by completing quests and killing enemies of various sorts and are rewarded with gold and various items. Players level up to 50 by gaining the required number of experience points (XP), then continue earning XP through 14 veteran rank levels. For those who reach Veteran Ranks, there is Craglorn with several repeatable four-person dungeons and

1. The Elder Scrolls games all begin with the player escaping imprisonment of some form.

end-game content for Vet 14s: two 12-person timed trials, and the four-person Dragon Star Arena (a series of mob and boss challenges). Since the current Veteran Rank system will be replaced with the Champion System, we offer this explanation of what is to come: Dimillian (2014) states that the Championship system includes some game mechanics similar to other MMOs such as Diablo's paragon system for leveling and World of Warcraft's experience bonus for players. This is example of how the developers are continually redesigning the player experience in response to player feedback.

No matter which alliance one is in, all PvE players go to Cold Harbour, the final area for the hero's quest line and home to the game's antagonist, Molag Bal, a Daedric Prince who harvests the souls of mortals. Like all of the other 15 regional areas that comprise Ebonheart Pact, Daggerfall Covenant, or Aldmeri Dominion, the area of Cold Harbour, has world bosses, dolmans (portal tombs or "dark anchors" that release Molog Bal's servants), one public dungeon, one four-person group dungeon, as well as solo dungeons and myriad NPC quests.

ESO features three types of dungeons – solo, public, and group. Except for the solo quests in the main quest line, all activities can be done while grouped. To run a group dungeon, groups are formed before entering and game play is instanced[2] as in most MMOs. In a public dungeon it helps considerably to have more than one person and it is nearly impossible to solo if you are playing at a level commensurate with the dungeon. Solo dungeons are not instanced and often many people are running it at the same time, although some quests are phased.[3] If two people run a quest together it could include solo dungeons. Certain

2. Instanced dungeons are where the game creates a unique, closed copy of the dungeon for each group running the dungeon.
3. When a quest has multiple parts, the NPCs must respond according to the progression of the narrative, so two people might be in different "phases" of the quest and thus not able to see one another until they get to the same point in the progression of the quest.

quests have difficult bosses and mobs that make duo questing more efficient and quick. Dungeons are best defeated with a group that has a healer, tank (one who keeps the boss focused on them while others attack), and two damage-dealers. This same group dynamic is used for the 12-person timed trials and the four-person Dragon Star Arena area.

An interesting design aspect of *ESO* is in the ability to play PvP. The ability to play PvP is not dependent on the server of the player but instead PvP is withheld until a player reaches level 10. The authors had differing opinions on if this is well-played by the developers. Aubrecht felt this gave new players time to develop the necessary agency to play ESO and give PvP players an opportunity to experience the PvE aspects. Kuhn, however, felt this a removal of choice for more experienced MMO players. Updates to the game have provided PvE leveling content within the PvP area (Cyrodill) so that players may gain skill points necessary for character building and avoid the PvE area almost entirely if they choose to (that is – after they reach level 10).

Once past level 10, PvP players can travel to Cyrodiil to join a tumultuous battle for the heart of Tamriel. Many who play PvP form groups and employ military style tactics for siege and defense. Players may purchase medieval siege warfare equipment and kits for repairing the holds. This opens up a new skill line, achievements, and point system for advancement. Some are in pursuit of the Emperorship. One becomes Emperor by having the most alliance points within your alliance and when that alliance controls all six keeps around the Imperial City.

Even though all players are choosing from among the same skills, potions, and armor and character-build options, one is playing against other players who are also calculating how to create the best character build. Unlike NPC characters, characters controlled by players can be calculating and unpredictable. It requires a more concerted effort to monitor how other players

are building their characters. This sets up a cycle for people to develop and try new character builds and strategies in order to be competitive in an evolving game, especially as new game updates influence how specific skills function. Many people have armor sets and skill sets they use for specific kinds of game play such as PvP or filling the roles in a four-person dungeon, (please see discussion of dungeons below). Some people build more than one character in order to better facilitate specific game play.

Players can create up to eight characters and join up to five player-directed guilds. These guilds are an example of what Gee (2012) refers to as "Big G" – player activities outside and surrounding the game. ESO makes this activity easier by supporting guild activity in game. All guilds and trading guilds (where one uses game gold to purchase game items sold by players to players) are supported in game with a guild user interface (see Figure 4) with submenus providing access to messages, member roosters and information, Alliance War activity, and listings of items sold by and to members (see Figure 5), and more. (See below for a more detailed discussion of player guilds.) In addition, many players have their own websites and you tube channels, some individual and some connected to guilds, where they explain how they build their characters and give advice on how to play the game most effectively. Furthermore, some players form role-playing guilds for an immersive experience. Often these stories are communicated to other players through the in-game chat box. For a list of forthcoming events scheduled to take place within ESO see: http://www.teso-rp.com/. Here is an example: "Tuesday, February 17th [NA] – 9 PM: Ebony Flask Boxing Match: Bare knuckles & bare chested!"

Figure 4. Neon Grind's home page. From here, players can see all of the member's names, ranks, when they last played and basic character information as well as guild activity (see Figure 5).

Figure 5. Two guilds activity logs. Neon Grind's activity log shows who sold what to whom and for how much. Epic Synergy's shows the guild's Alliance War activity.

There are six crafting skill lines that require collecting, sorting, and storing of materials which supports developing those skills, some of which are very complex: provisioning, enchanting, alchemy, woodworking, blacksmithing, and clothing (Figure 6 below). To gain experience (up to level 50) one either breaks down items or crafts them. For crafting items in the Woodworking, Clothing, and Blacksmith skill lines one must research traits such as durability or increased armor that can be added to crafted items. Placing an item in a research slot begins

a timer and when the research is complete up you have learned how a particular trait. These traits can then be added to your crafting of clothing or weapons. It takes anywhere from six hours to a month of real time for an item to be researched.

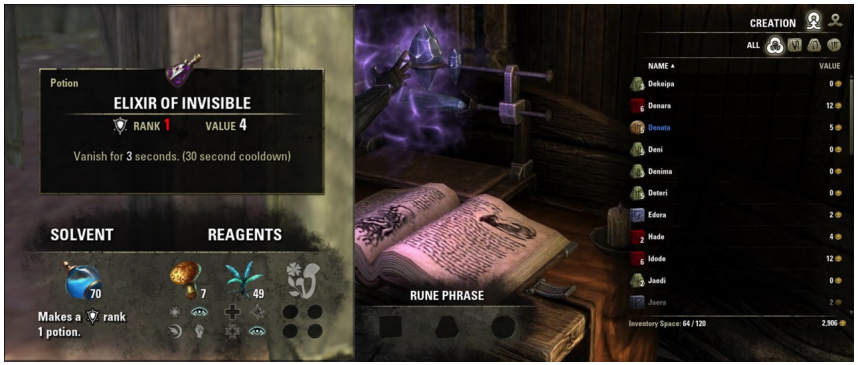

Figure 6. Crafting in the Alchemy skill line (pictured left) and the Enchanting skill line (pictured right). Each offers the player several options to discover different potions. With alchemy and enchanting, one must make something to determine the properties and then try various combinations.

The game environment ranges from deserts and volcanoes to lush jungles with tigers to fantastical mushroom houses and unusual flora (Figure 7 below). There are waterfalls and beaches that, with the right graphics card, look surprisingly real. The environment is crafted with rich details in architecture, furniture, books, flora, fauna, NPCs (non-player characters), and exquisitely designed weapons and armor. The world is home to realistic weather effects like fog, snow and rain, a night and day cycle, as well as being populated with creatures such as frogs, snakes, squirrels, and deer, that make it feel full and alive. The other Bethesda games also have rich environments, especially Skyrim (the most recent release). "For me, this stunningly beautiful environment makes the game more engaging and enjoyable than games that have very cartoony environments and characters" (Aubrecht). Many players have commented to Aubrecht that there seem to be more women in ESO than other

MOOS they've played. It is difficult to say why that is, but Aubrecht suggests it could be the variety of gaming options, realistic environments, character creation, and a complex narrative. For fans of the Elder Scrolls series, ESO is a well-played game that brings a generous helping of the series' lore that provides it a much richer narrative than other MMOs.

Figure 7. ESO game environment (left) and Aubrecht's Khajiit character (right).

Facilitating Cooperation

Cooperation is a player choice, since there is much that can be done individually. *ESO* has created a system for player interactions that encourage players to communicate, including in-game email, zone and guild chat, and a system for creating a contact list which lets you know who's online, where they are and which character they are playing. *ESO*, as in most MMOs, sends a message letting your contacts know you are there when you log on. This communication supports players forming communities and playing together. By providing multiple ways for people to play together and tools for in-game communication, ESO has provided an easy-on ramp for cooperative play for those playing an MMO for the first time.

Boss difficulty is a primary way the game encourages player cooperation. As players find themselves in situations where they die frequently, they are more likely to group with others who

are in the same space, attempting the same goals. For example, every area has a few world bosses and dolmans, both of which are meant to be fought with a group. In addition, each area has a public dungeon with a group challenge boss. In these spaces, people are more likely to cooperate or form pick-up-groups because they are designed for players cooperating to defeat various mobs and bosses.

Grouping can lead to joining player-guilds (described below) which leads to having more options for dungeon running and PvP events such as siege and defense of keeps and "ganking," (i.e., using a small group to take out lone players unawares). Group dungeons are places for small groups to work together. In running dungeons, *ESO* sticks to convention with all the expected roles: healer, tank, and Damage Per Second (DPS). By questing together and running group dungeons, players learn how to fight together. Grouping can lead to extended play and to in-game friendships. This often formalizes in players adding one another to their contact list, joining guilds and talking in real time with headsets (using out of game communication programs such as Mumble or Team Speak) or typing messages in the in-game chat window.

ESO, *Skyrim* & Game Narrative

Some players like to read the story as it is presented from NPCs and others read little or skim the dialogs, picking up on themes without getting the details. Players may layer on how their participation and interaction in the world matters, creating their own hero story. Some players even create and participate in roleplaying guilds that help them in creating an immersive experience. In *Skyrim*, one could play through the main quest line and never pick a side: Imperials vs. Stormcloaks. In *ESO*, choosing one of three alliances is required when creating one's character. For example, if one chooses to be Argonian, then one is automatically in the Ebonheart Pact and the quests received

once completing the initial training area of the game are tied to that specific faction.[4]

These factions are an interesting design choice to rationalize the PvP in *ESO*. Players are all thrown into a war and are given different scenarios about why the alliances are at war with one another for the PvP aspect. At the same time, the game must set up the PvE narrative of why players all are united against Molag Bal. For novice players this could lead to some confusion as each thread is steeped in Elder Scrolls lore. In this sense, the developers perhaps extended the story too far. From conversations with players, the authors have found many who loved *Skyrim* and bring with them a rich sense of the story created there. For example, an *ESO* guild, the Stormcloak Rebellion, is referencing an alliance they chose when playing *Skyrim*. Also, some players who've played *Skyrim* have a dislike for the High Elves who, in *Skyrim* were Thalmor and in opposition to the Stormcloaks. On the other hand, High Elves make good healers, so are welcome despite any preconceived ideas about them from *Skyrim*. This presents another aspect of the game where Bethesda could be a victim of their own success as players have brought so much from previous Elder Scrolls games. These players have tried, unsuccessfully, to bring story and gameplay from Skyrim into *ESO*.

Each new patch in ESO appears to be moving the game closer to the conventions and design of the single player games in response to this player behavior. Bethesda has announced that in update 6 both the Thieves' Guild and Dark Brotherhood would be slowly introduced into the game as well as opening up the Imperial City (found in the heart of Cyrodill, the PvP area). ESO it seems is attempting to be two genres of game at once: a single-player RPG and an MMORPG. Time will tell how the designers

4. Players who purchase the Imperial Edition may select from any of the nine races when creating their characters and join the Alliance of their choice.

attempt to balance this as ESO moves to a free-to-play model. Yet where the game may face challenges in the single-player experience as an MMO, it does make interesting choices in grouping.

LFG (looking for group) in *ESO*

The game does implement an informal grouping mechanic that serves to open more of the game to single-player cooperative play. Lone players working together can attack the same mob for experience (XP) and loot. Interestingly, the design of *ESO* heavily uses quest-completion dependent phasing that favors this informal grouping. If players join a formal group with a friend of a higher level, that friend may be unable to see, much less participate, in the quest objectives of the lower-level player. This informal grouping design choice opens up the game to a fluid group-on-the-fly play structure that can serve as an audition for formal groups and guilds. In other MMOs, such as *World of Warcraft*, a single player may run a quest line only to be stymied by a final quest that requires more players to complete. In *ESO* players can hedge their bets that others will be running the same quest. It's an effective design choice that helps lone players maintain momentum outside of formal group play. MMOs are by nature designed to play socially, yet there are times when friends are AFK (away from keyboard). It is a refreshing take on the together-alone style of play that has been underutilized in MMOs. Players have all been in a tight spot in an MMO where they have pulled a trash mob too big to tackle alone. The two options have been to run or hope an altruistic player would bail out the player. In *ESO* the altruism still exists yet the knowledge that helping other players gives XP and loot is a powerful incentive to pitch in and help. This together-alone style design approach also extends to all non-instanced quests and areas in *ESO*. Updates to ESO scale group dungeons to the group-leader's level.

Kuhn is a veteran MMO player who, perhaps against the trend, has never joined a guild in any MMO. This play style choice in previous MMOs has meant that most end-game content stays out of reach. Kuhn played solo in previous MMOs which often meant he lacked the guild support to run dungeons, which require a minimum of 5 players. In order to experience end-game content he would run dungeons only after the level cap had been raised through game expansion. For example, running *Wrath of the Lich King* dungeons in *World of Warcraft*, only after the *Mists of Pandaria* expansion had been released. The increased level cap meant Kuhn would have the damage capabilities to run older dungeons solo. While an unorthodox style of play, ESO takes the unusual design approach of accommodating it. The designers have included dungeon types to engage single players. The traditional group-centered dungeons adhere to standard MMO conventions, however the solo and public dungeons take a different tack. Public dungeons are more akin to adventure zones where all players can run the dungeon, choosing to group at on the fly. Personal dungeons allow individual players to solo level-appropriate dungeons as well. This design choice has allowed Kuhn to run instances in step with leveling in the game as opposed to a level-up then backtrack approach that he needed to implement in previous MMOs.

Economy of Participation

Players not in guilds are able to play all end-game and instance content in *ESO* but could find themselves marginalized in the economy. Individual players are able to buy and trade through chat window advertising or selling items to NPC vendors that function as gold sinks[5], and interact with NPC guild traders. However, the economic engine of the game relies on player participation in trading guilds. One need not be in a trading guild

5. Gold sinks remove excess gold or rare items to keep value in the economy. Items of significant value or rarity may only be sold to vendors to remove them from the economy as opposed to being passed from player to player.

to buy, but must be to sell. The game actively encourages players to join multiple guilds, up to five, in order to maximize their trading profits and access to goods. Zenimax, the designers of ESO, has decided to eschew the standard auction house model of game economy, opting instead for guild stores. Each guild of fifty players or more can operate a guild store where members post items for direct sale; item bidding is not allowed. Should the number of guild members drop below fifty all current transactions will be honored but after that the guild store will be shuttered. As the game matures unique guilds could develop tremendous power via public trading akin to the Elder Scroll's series East Empire Trading Company.

ESO drives active player cooperation by public trading; allowing Guild Stores to become Public Guild Stores that are accessible by any player in the game (Figure 8 below). These guild stores can be found throughout the various regions. In addition, the narrative device of the Alliance Wars has each faction fighting to take control of Keeps. When your faction controls a Keep, guilds aligned with the faction can convert Guild Stores to Public Stores. These shops remain open as long as dominance is maintained. Guilds with enough gold and influence could recruit player mercenaries to maintain long term holds on Keeps in order to keep business running smoothly. This economic structure balances *ESO*'s economy between the controlled markets of *World of Warcraft* and the more player-manipulated economy of *EVE Online*.

Figure 8. In all guilds with 50 members or more, there is an option to buy and sell items to members and in some cases, through NPC guild traders. Filters displayed above allow one to search for desired items. One must set a price and pay a portion of the proceeds to the guild for using this mechanism to sell items.

Trading need not be only among guild members, but it might lead to creating a guild of one's own. Through questing, Aubrecht met another player with whom she began exchanging items crafted. Aubrecht collected materials and motif books that allowed her friend to learn new armor crafting styles. He made armor for her and she gave him crafted food items that he used to increase character health, stamina, and magicka. This allowed both players to gather materials and exchange them and then to craft items and exchange those. Together they started a small guild in order to have access to a guild bank (which opens when the guild reaches 10 members). Within this guild, she found another craft buddy with whom to make and exchange glyphs.

Glyphs made by others can be broken down to level up more quickly in the enchantment crafting skill line.

Other strategies for addressing storage issues include mailing items to a friend and leaving them in the email system for up to 30 days and creating a character dedicated to storage. For example, Aubrecht has a level three character that is never used for questing. When loaded in game, that character is always in the bank ready to carry out transactions. The bank is shared by all of one's characters; that makes it convenient to exchange materials, albeit time-consuming. Thus, crafted materials can be shared among all of one's characters, given to others, sold, or deposited in the guild bank to benefit members. Because Aubrecht chose to advance all of the crafting skill lines, she uses more than one character. To advance a crafting skill line, one must spend skill points, which are acquired by finding skyshards (3 skyshards = 1 skill point) (Figure 9 below and dungeons yield skill points), and through the PvP area. It requires about 15 skill points to develop a typical crafting skill line fully. The total number of skill points available to a character is about 300; however, the total number of skills one could choose from would cost 450 skill points. Players can opt to redistribute their skill points for a cost of about 50 gold per skill point.[6]

Table 1. Number and source for skill points. Source: Tamriel Foundry & reddit.com, adapted by Aubrecht.

6. Originally the cost was 100 gold, making it much more costly to rebuild one's character. The cost was reduced during one of the early updates.

Skill Point Source	# of Skill Points
Sky Shards (336)	112
Leveling	50
Alliance War Ranks	50
Zone Quest Lines	48
Group Dungeon Quests	16
Public Dungeons	16
Main Story Quests	10
Total	**302**

Figure 9. Gathering a Sky Shard.

Guilds in *ESO*

Guilds are the heart of an MMO because guild structures allow one to find like-minded players and reflect the player interests and focus for the guild. These range from highly structured to very loosely formed groups, all women guilds, or trading guilds. Guilds help one in trying out new things like the PvP area and finding people with whom to discuss strategies, builds as well as to go questing, running dungeons, or participate in timed

trials. This is the same as with World of Warcraft, Diablo, and other games where groups can play together online. Some guilds have a long history, dating back to games such as Everquest. These groups usually have guild websites and support members in multiple MMOs. Some guilds have websites, a process for joining, provide newsletters, and have team meetings. Guilds communicate in multiple ways, using out-of-game online talk channels such as TeamSpeak for discussions and coordinating group efforts and some just rely on in-game text chatting. Some guilds have been around for a long time and their members play other MMOs. Some guilds are specific to *ESO*.

Interestingly, the design of guilds in ESO encourages participation in multiple guilds. Being able to join up to five guilds allows for more fluidity in meeting people and finding groups that want to do the same kinds of things you do. In a sense, it's like going out into your neighborhood and finding a group to play with, except it doesn't matter what the weather is or what time it is; there's always someone online.

While allowing players to join more than one guild might seemingly divide a player's loyalty, it can instead provide more options for players to meet new people in game and find those who have different focuses such as singularly PvP or dungeon quest oriented, or a mix of both (see Figure 10). This feature is especially good for people who have never played an MMO before and are unfamiliar with guild conventions.

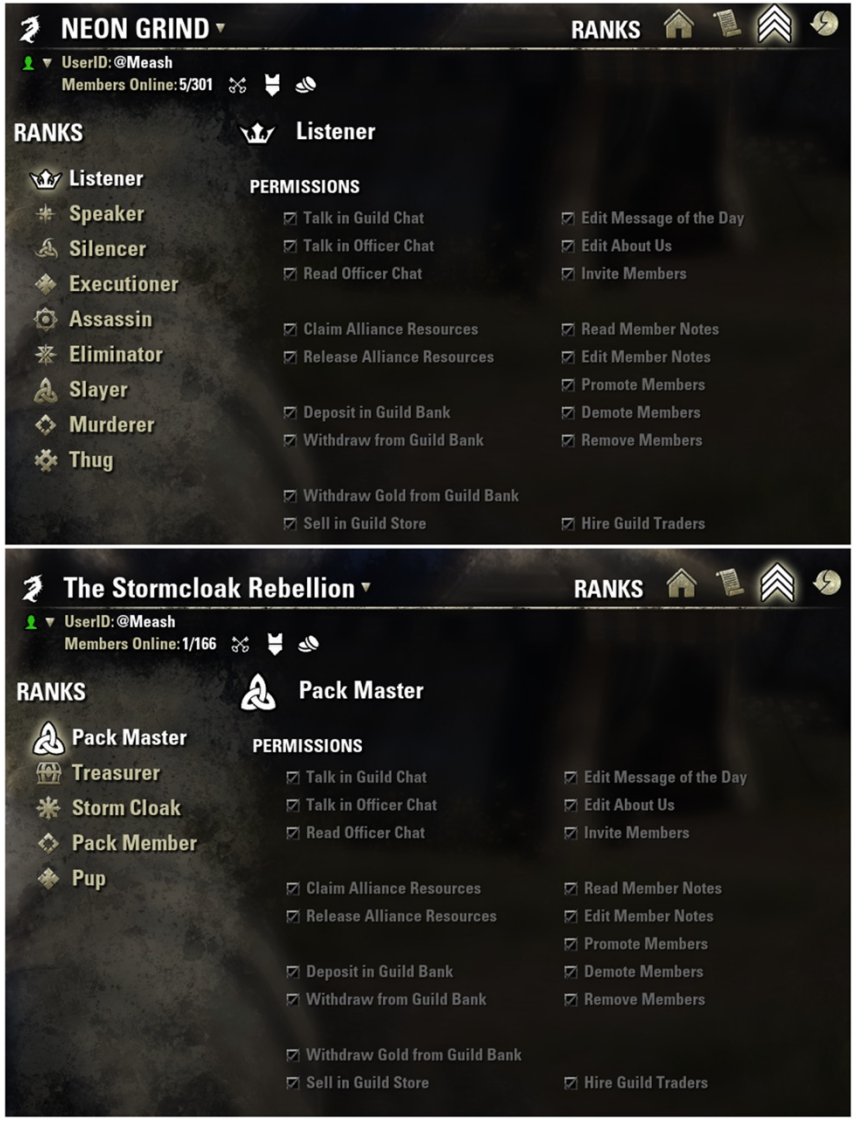

Figure 10. Player-directed guild ranks. Guilds choose the way to describe or identify the ranks of members. Stormcloak Rebellion is a werewolf-focused group, whereas Neon uses rank names that signify various sorts of killers reminiscent of Skyrim's Assassins Guild. Each rank is allotted permissions selected by the guild master.

Guild structures in game can be repurposed if the members agree. Because of the limited inventory space and large number

of materials required for crafting, Aubrecht views guilds as indispensable for crafters since guild banks can hold up to 500 materials, whereas individual banks hold only 60 items. However, additional space can be acquired by upgrading one's inventory space by spending in-game currency.

Aubrecht is new to MMOs and took this time in *ESO* to become involved with several guilds. For the most part, Aubrecht maintains membership within five guilds at all times. Since the game's release, guilds have come and gone or become dormant; this results when those who form a guild decide to disband it or leave the game. Guilds range in size from a minimum of 10 people to several hundred.

Crafting and sharing items is much easier when you join with others. Aubrecht regularly makes crafted items for people in her guilds. They help her by providing materials, or likewise crafting things she hasn't progressed far enough to make for herself. For example, one guild member gave her a Daedric Motif book that could be sold for up to 40,000 gold. Aubrecht regularly gives him fishing bait. While the exchange might not be financially equal, there are other economies at play such as time and in game play styles. Searching for items and finding rare things can be its own reward. For example, it is rare to find Columbine, an alchemy flower that is necessary for crafting a Panacea potion that supports health, magicka, and stamina. Likewise, food recipes for buffs in two or three areas (magicka and stamina, for example) always require one material that is hard to find, such as pepper. This game mechanic is a reward structure compellingly designed to keep players on the edge of searching without tipping them to despair so that they give up searching every nightstand, barrel, crate, and fishing hole (Chatfield, 2010)

> After playing *ESO* for nearly a year, I have found a few guilds that I enjoy. Within these guilds, I've met people who have given me great advice, helped me further my crafting, and with whom I've shared crafted items and armor. I currently have a small group which

whom I meet regularly and run dungeons. One friend, Razor and I have been playing together since the summer. The guild where we first started playing is mostly defunct, but we found new guilds to join. Initially, we did a lot of questing together. Because Razor and I have a similar attitude toward playing ESO, our playing together led me to realize what those who have played other MMOs have known for a long time, which is, when one is part of any group, success depends upon the character's class skills one can contribute in addition to the execution of those skills. As we quested together, we were able to essentially expand or double our skill sets. Meaning, each player has five skills to access, plus an ultimate ability. When one reaches level 15, a secondary skill bar is accessible giving players 10 slottable skills and 2 ultimates. At the time, Razor played his Night Blade and me, my Dragon Knight. Each has different class skills. Together we used those skills to the benefit of both. Since neither of us had played MMOs before, nor been part of a guild, we didn't realize that by supporting one another, we were really learning how to play roles necessary for group dungeons. (Aubrecht)

MMO Guild traditions

Longtime MMO players may find *ESO* undermines the traditional role of guilds. During a discussion with Lucas Gillispie (personal communication, 2014), a long-time MMO player and the founder of the Harbingers of Light guild, he said that in some ways as MMOs have matured as a game genre and as more in-game features have been added for player ease, it has actually undermined the guild community. In *ESO* this is most evident in the informal grouping tools and option to join multiple guilds. Harkening back to *EverQuest*, one had to have a website and systems for communicating with guild members to plan raids, have discussions, and provide a guild message board. The effort required resulted in stronger commitments to the guild by guild members. Time spent on guild business out of game allows time for reflection and that reflection can translate into solid guild cultivation and growth. It remains to be seen if this guild cultivation and growth can developed in an MMO that actively encourages multiple guild membership for both

character and economic development. In essence, this is about forced interactions that result from a game support-driven environment versus one that is player-driven. Gillispie explained further that in other MMOs, unlike *ESO*, an icon floated above player's heads that represented their guild. Guilds built recognized and valued reputations and letting people know about it was a source of pride. Seann Dikkers (personal communication, 2014) concurred with Gillispie's point that as solo play is made easier and there are fewer barriers to entry, aspects of cooperative play have changed. Dikkers argues that automated LFGs and pick-up groups have lessened the need for guild support. Meanwhile in-game scheduling, shorter raids, and the ability to server jump have reduced the need for out-of-game communication for MMOs. While these changes to the traditional mechanics of guilds have been found wanting by veteran MMO players, they have allowed for newer players to benefit from guild support faster and with a quicker learning curve.

Conclusion

Although it shares a rich mythology with previous Elder Scrolls titles, *ESO* must be analyzed, evaluated, and played as something different. Fans of *Skyrim* who played to experience the rich narrative and explore an engrossing world will find that ESO is primarily social, but social engagement is not required. In fact, you can hide your presence in game if so desired. The need to help one another to advance encourages conversations, selling items, trading items, and working cooperatively. Earlier Elder Scrolls games cast the players as mostly solitary heroes, uniquely equipped to fight the dark forces of Nirn. The solitary hero archetype came with a sense of isolation that meshed especially well with the frozen tundra of *Skyrim*. *ESO*, on the other hand, casts the player as one of thousands of questing heroes and encourages players to form community ties that keep them coming back and experiencing the expanding content of Tamriel.

The *ESO* community is in the process of defining and growing itself as players navigate the space, form communities, and find ways to do what they desire within the created system. The exact number of players is unknown; various estimates found online in August 2014 range from 800,000 to 3 million. Aubrecht's experience in game is that the user population is somewhat fluid ranging from people trying it and leaving and to those who stay and love it; and now, with the forthcoming update in March, returning to try it again. With the myriad MMOs available, people are able to find a game that appeals to their specific tastes for the overall scenario and player options. If you like medieval structures and a rich environment, *ESO* might be a good fit.

A few Tips for success

1. Strategic use of skills points – place as follows: an armor line, a weapon line, expand repertoire as skill points increase; assign at least one point for each of your class skill lines.
2. In the beginning ignore putting skill points into crafting and focus on skills that support questing.
3. Find crafting buddies to more quickly progress in a craft skill line.
4. We're all in this together…quest with a friend!

Classroom Applications

The Hero's Journey curriculum, while largely focused on *World of Warcraft*, provides learning quests that could be used with other MMOs. This curriculum has been tested with students and resulted in increasing student school attendance rates and advancing their academic skills. Student work is focused on game quests, journaling, group work, and machinima; however, students could potentially bring any number of reading skills/ strategies to bear in regards to MMOs. Given that young people are bombarded with digital content and have access to staggering

amounts of information, using time-tested reading strategies to analyze and comprehend new types of media is especially important. "The same techniques we teach students to utilize when reading novels and informational texts can easily be applied, as they take notes, make connections, ask questions, and make predictions" (Gilliespie, 2014, personal communication). The MMO has the added benefit of being highly engaging for many students, especially those who already enjoy gaming as a hobby. In addition to the curriculum guide, they made teacher professional development movies. Please find resources and curriculum download of *WoW in School – A Hero's Journey* here http://wowinschool.pbworks.com/w/page/5268731/FrontPage.

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ACTING IN THE LIGHT AND ON FAYTH: RITUALIZED PLAY IN JOURNEY AND FINAL FANTASY X

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Introduction: To Play Well, To Act Well

Play is one of humanity's most basic and enduring actions. It is to deeply consider and even to laugh at that which matters most to human existence, from birth to death and the necessities of self and society that one encounters in between. This journal explores play, especially playing well, in terms of the voracious playing of games and of finding excellence in actions, design, and criticism. This idea of excellence in play is central to games scholar and practitioner Bernie De Koven's *The Well-Played Game: A Player's Philosophy* (1978/2013). Here play is the "enactment of anything that is not for real," and playing well is to be "fully engaged, totally present" in this enactment (p. xxiv).

Playing games well is to do so in the context of the separate form of reality that are games, or "performances, like works of art… belonging to some special sphere of human activity which clearly lies outside the normal reality of day-to-day living" (p. xxiii). Games are not reality, yet as an artistic medium, they reflect it, and "what unites them with the totality of experience is not just their metaphorical quality but the manner in which they are played" (p. xxiii). Thus, to play a game well, one acts with focus and seriousness but with a spirit of immaterial exploration, both drives in such balance with one another as to obtain excellence in goals that satisfy the player far beyond the boundaries of the game.

Video games inhabit a unique place both as works of art and as vehicles of play (Caldwell, 2013). They combine audiovisual elements with a mediated form of play, one contained within highly specified and specialized boundaries via screens and input devices. Thus, even more so than traditional play, video games are necessarily experienced in a fully realized space outside of mundane life.

The necessarily established (but often permeable) boundaries between reality and digital games (i.e. the mediation of experience via a contained but related space) draw an interesting parallel with religious practice, another common form of human experience. Although religion can be defined in as many ways as there are ways to practice a religion, one might generally understand religion as a system of intertwining acts, emotions, ontologies, and organizing forces through which an individual, a group, and/or a society can establish its/their relationship to the realities of existence (Caldwell, 2014). These relationships are variously but ubiquitously established through the dichotomy of the sacred and the profane. To be sacred, an object, place, idea, or action must not be profane; that is, the efficacy of religious practices often relies upon their adherence to rules and existence within boundaries, whether of place, time, intention, or

otherwise (Eliade, 1959). Actions within those boundaries are the domain of ritual, which, as described by cultural anthropologist Victor Turner, is not just a formulaic series of actions, but rather a deliberate performance that, through prescribed or goal-oriented actions in a specific context, transforms the participating individuals or group if performed well (see 1982, 1985). Ritual, due to its role in the establishment of the sacred and the profane, has consequences far beyond the actions themselves, again mirroring the serious yet immaterial exploration of play.

Thus, questions regarding play and the realms of religious life emerge. Can play be sacred? Can ritual be playful? Can individuals, groups, and societies establish their relationship to reality and existence via play? These questions push beyond the understanding that games, particularly video games, can aptly explore and mimic religion, instead querying if play within games can be the functional equivalent to religious experience. However, wrapped in this question are many others. What forms can religious experience take, and how might they rely on internal and external motivators or conditions? How do sacrality and sacralization occur? Such questions are best considered via phenomenological, comparative study to avoid generalizations while providing grounded clarity. Thus, here I will turn to two video game case studies and considerations of comparative ritual.

These case studies approach similar themes in divergent ways, which allows a somewhat more holistic illustration of the plurality of potential experiences. *Journey* is a brief (two to three hours), nearly wordless game created by a small, independent American team. Its world is a vast desert and the ruins beneath it, both from times unknown, and its only characters are anonymous, quiet figures that skim the sand with a history of varied interpretive potential (thatgamecompany, 2012). In contrast, *Final Fantasy X* (*FFX*) runs at least eighty hours, is filled

with text and speech, and was created by a massive and famous Japanese development team (Squaresoft, 2001). The named world varies in terrain as much as the large cast varies in background, motivations, and personalities. The two games afford different focuses, but each is one of the most compelling examples yet of video games' potential as spheres of religious experience.

For video games, and in many ways for ritual, content necessarily follows form, but form is often tied inextricably to content through mechanics, or as specified by James Paul Gee (2012), "all that a player must do or decide in order to succeed" (p. xvii). To better analyze the full experience of my case studies, I draw upon Drew Davidson's (2011) stages of involvement, immersion, and investment, which will also be used for presenting ritual practices.

Before diving into my case studies, I need to first qualify the latter usage of Davidson's stages, which work somewhat differently in a ritual context. Naturally, some rituals do progress as linearly as games like *Journey* and *FFX*, and some video games have more fluid or less structured progression. However, for many rituals, the chronological connotations of involvement, immersion, and investment stages may be problematic. Instead, a thematic alternative for framing the experience of ritual participation may be more appropriate: actions, setting, and symbolic narrative, in respective correspondence. These themed experiences will be explored in greater depth in the appropriate sections below.

To Act: Involvement

Davidson's first stage, *involvement*, is the player's introduction to the game, from first interactions through learning the control system (2011). This stage continues through the player's decision to continue the game with the mechanics presented, thus

focusing involvement around the utility and enjoyability of the actions themselves.

Journey moves swiftly through Davidson's stages due to its brief length, which affords the additional immersive power of single-sitting playthroughs. As such, the involvement stage is swift but effective. A nonplayable sequence opens the game, showing what seems to be tombstones rising out of sand that glitters under a burning sun. An orb of light flies to a humanoid figure who sits on the sand until a translucent controller appears on the screen, prompting the player to swivel the camera and move the figure forward (see Figure 1). During the next five minutes of play, *Journey* presents the mechanics through explicit but simple instructions that can immediately be applied to further gameplay, a tutorial technique that proves highly effective in the quick understanding of control systems, especially with the simple system of *Journey* (see Gee, 2005). Soon the player is able to activate the figure's robes and matching but separate and seemingly living cloth pieces in the environment, causing both to glow and float upwards. The animation and feel for this action is graceful and serene, with a catharsis derived from the transcendence of limitations in this mediated space. Like many action games, the player's direct control of the figure creates a different connection between mind and body, centered on the mediation of the controller and the avatar. Thus, as the figure further explores the world of *Journey* by running, walking, faltering, and flying, the player achieves a mindfulness and presence that transfers from the real to the digital and in so doing mimics meditative practices that seek to separate the mind from the physical body and blur the distinction between what is internal and external.

Figure 1. Movement instructions in Journey.

Meanwhile, in *Final Fantasy X*, the involvement stage is expanded, lasting closer to six hours than six minutes, drawing players in more slowly than in *Journey*. This allows players to become used to the more complex though less direct system of interaction that is a hallmark of the game's genre, the Japanese-styled, turn-based role-playing game (RPG). Most of the player's actions in *FFX* are limited to movement through the field and battle management via the selection of equipment, character abilities, and actions to be taken during combat (see Figure 2). Game designer Darby McDevitt (2013) suggests that games of this type provide *"destiny mechanics,"* which limit player interactivity in favor of telling a rich, non-variable story focused on characters and world-building. Thus, the mechanics are closely linked and even subordinate to the narrative; for example, some mechanics only become available when a new character is introduced. Thus, it is not until after much of the main cast is introduced that the game moves into the *immersion* stage, which carries more of the game's weight.

Figure 2. Battle system of Final Fantasy X.

Much like someone playing a game, a ritual participant must learn and perform the requisite actions of that ritual, a form of involvement that continues throughout via the physical actions themselves. However, actions such as moving from one place to another or clapping one's hands together are not sacred on their own; rather, they need the setting and a symbolic depth to reach full efficacy, as will be explored below, and as involvement needs immersion and investment to transmit a fuller experience.

To Explore: Immersion

Immersion is the stage in which players have learned the controls and can use them to explore the world created within the game (Davidson, 2011). Much of a game exists within this stage, during which the player is interested enough not only in the mechanics, but the game's whole ecosystem, including characters and settings. These are often the primary motivations for continuing to play throughout this stage, so world-building is crucial during immersion. World-building is done in large part through the audiovisual elements, as in the real world.

The absence of text in *Journey* highlights the power of its audiovisual presentation. Light is the most important visual element; its shifts in color and saturation mark the player's progression and the game's tone. Early in the game, the desert dunes shimmer in warm, pastel colors that encourage the player to explore. Later, the cool blues of a dark cave give the impression that the figure is underwater, softly gliding through the air while jellyfish-like creatures beckon the player onwards. Near the end, the light fades into a deep gray as frost overtakes the figure, who is no longer able to fly. Each alteration of the light brings one of sound. The music is carefully composed and played back to enhance the affect evoked by the light and the player's interaction with it. The player can further interact with light and sound by emitting a communicative glowing glyph that is accompanied by a chirp, which can be reciprocated by animated cloth pieces that are found throughout the game. These cloth pieces help the player navigate the ubiquitous ruined architecture (see Figure 3). Although these ruins are not fully explained, part of *Journey*'s efficacy is that its world is not otherwise alien. The connections between the ruins' sandstone buildings and Mughal Indian palaces, the complex geometric patterns in the windows and Iranian mosques (see Figure 4), and between the communicative glyphs and kufic script (an Islamic tradition of imbuing Koranic phrases with precious materials in a deliberate calligraphic style; see Figure 5) lend *Journey* the cultural associations of their real-world counterparts, especially from the practices of Sufism, a mystical, esoteric Islamic sect practiced amongst architecture similar to that cited above. These associations are those of the sacred and otherworldly, and as *Journey*'s world is built around them, the player is primed to explore *Journey* much as one would act within sacred space.

Figure 3. Architecture in Journey.

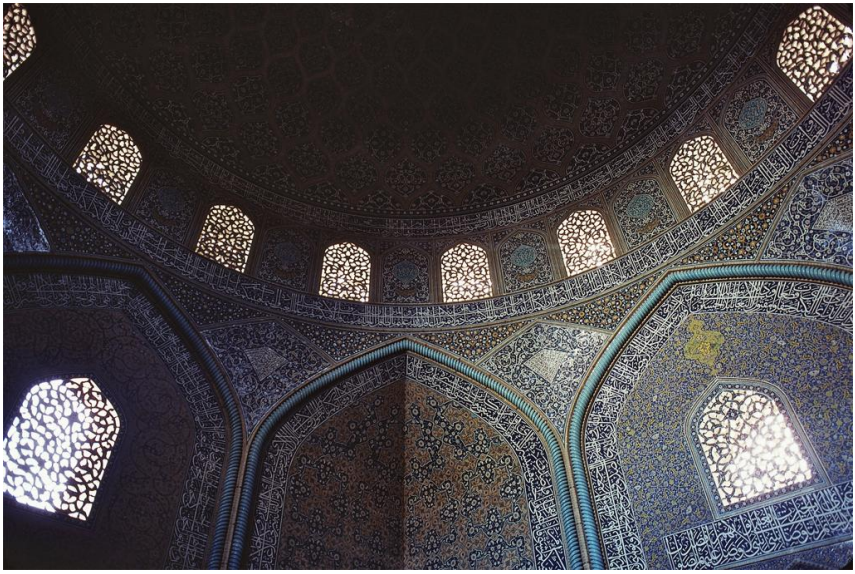

Figure 4. Architecture of the Mosque of Shaykh Lutfallah in Isfahan, Iran.

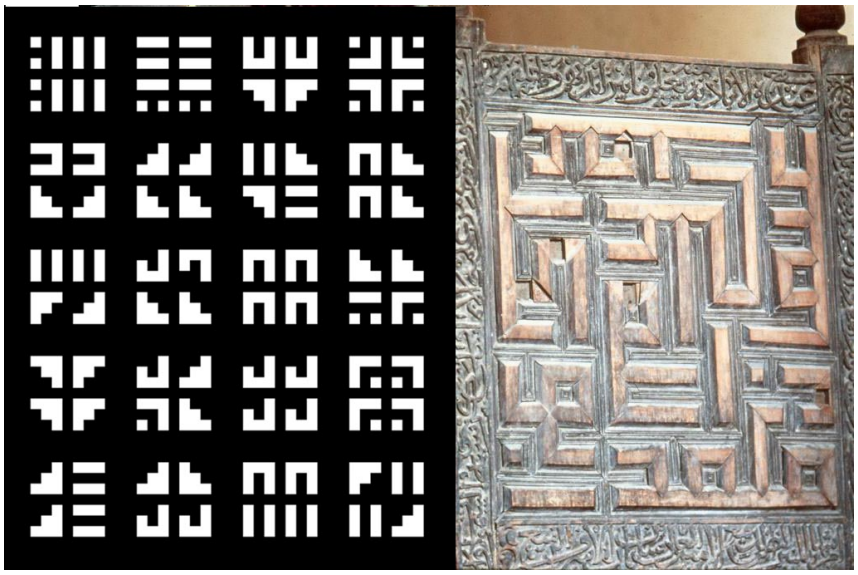

Figure 5. Comparison: Left, Journey script. Right, kufic script from Beysehir, Turkey.

Sacred space in *Final Fantasy X* is more explicitly defined than it is in *Journey*. The temples of Spira, the world of *FFX*, are designed to be specifically and exclusively sacred. However, this is not their only claim to sacrality. Each temple opens into a dim, high-ceilinged rotunda with side chambers and a staircase to an area called the Cloister of Trials, which itself precedes the deepest, most sacred chambers. In the rotunda are statues of accomplished Spiran clerics and a large mandala on the floor inscribed with runes, a script separate from Spira's common one.[1] Upon entering the temple, a song can be heard, sung slowly by a chorus and then repeated by a solo vocalist in the innermost sanctuaries. These elements, replicated with small variations in all of Spira's temples, are precedented in real-world places of worship. The temple plan, statues, and hymn recall Catholic

1. The visual comparisons between real-world ancient and modern scripts and the in-game text run quite deep, as one player explored in an online blog. The sources are difficult to verify, but the writer contributed intriguing connections with abundant evidence from the game. See Helluin. (n.d.) Final Fantasy X symbols and glyphs. Squidoo. Retrieved from http://www.squidoo.com/final-fantasy-x-symbols-glyphs

cathedrals (see Figure 6), while the runes resemble a classical Sanskrit script used in several Japanese and Indian Buddhist traditions that invoke deities through their Sanskrit initials (Bogel, 2002, p. 49; see Figure 7). These Spiran temples are thus digital reproductions of sacred space in the real world, including how the characters interact with that space. The sacrality of other spaces in *FFX* is fluid, which is also congruent with real sacred space. That is, other spaces can be made sacred by the actions, the rituals, of those entrusted with the temples' sacrality, namely the summoners. Summoners are clerics who undertake pilgrimages to purge the world of Sin, the massively deadly manifestation of Spira's past transgressions. The main cast of *FFX* is one such summoner and her companions, the guardians that provide emotional support and physical protection during summoners' pilgrimages. Thus, a large portion of the game features the main characters traveling from one sacred location to the next, performing rituals along the way.

Figure 6. Besaid Temple in Final Fantasy X.

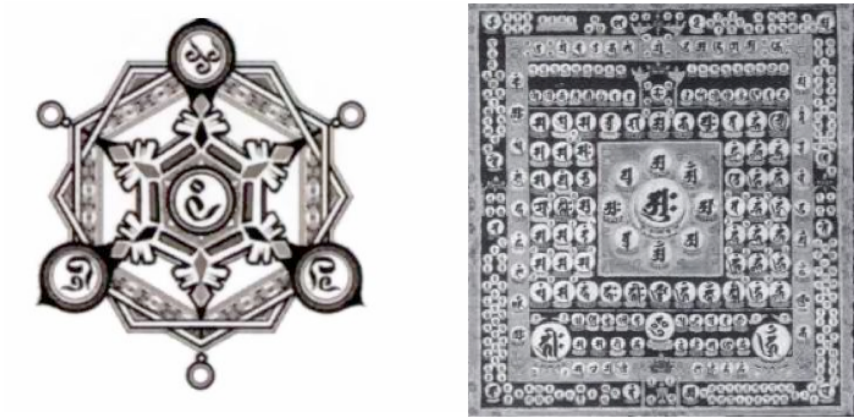

Figure 7. Comparison: Left, Glyph of Macalania Temple in Final Fantasy X. Right, Japanese Buddhist seed syllable mandala.

In real world religious practices, sacred space and sacred actions are intertwined, to the point that it is unclear which comes first: does sacred space sacralize actions, or do sacred actions sacralize space? Arguably, both occur at different times. For example, medieval Christian pilgrims traveled great distances to arrive at sacred spaces, cathedrals, in order to perform small, often personal rituals within. The space was sacralized by the presence of relics, bodily remains of saints that bridged the saints' presence in heaven to their presence on Earth, in turn connecting the pilgrim to heaven via this intermediary (Brown, 1981). In the Hindu practice of *pûja*, the family home welcomes the invoked deity as a guest, treating the deity as one would treat a profane guest and thus sacralizing an otherwise profane place and occurrence (Huyler, 1999; see Figure 8). Therefore, due to shifting causality, the sacrality of space is fluid across and even often within traditions, much like it is in *Final Fantasy X*. Yet, once a space is considered sacred, especially when sustained in a building like a church or mosque, then nearly all actions within tend to be upheld to that same sacrality, as in *Journey*. The crux of what the practicing community holds sacred often lies in the

overarching narrative of a place or object or action, a concept to which I will turn next.

Figure 8. Hindu pûja worship in Nepal.

To Transform: Investment

In Davidson's *investment* stage, the player is nearing the end of the game, having mastered the controls and being intrigued enough by the game's world to continue towards the end. This stage relies strongly on the game's narrative, whether that is linear or not. However, I would add that investment can also incorporate earlier parts of the game, more specifically anywhere the narrative changes directions and launches the player deeper into the game world, as both a part of immersion and of investment in continuing to see where things end up. With that in mind, I will look closely at passages from *Journey* and *Final Fantasy X* to illustrate how narrative compels players' actions, rather than describing each whole narrative.

In *Journey*, the narrative at first is no more than the presence of a mountain that lies in the distance, yet seemingly within reach. It is set as a vague but inarguable goal immediately and remains always before the player as he or she continues through the game. At one point nearly halfway through the game, the player finds his or her avatar surfing down a billowing slope of sand. This segment employs a control scheme that is related to but controls slightly differently than the rest of the game, due to the nearly constant downwards momentum. Like the rest of the game, the player can move left to right, jump into the air, and emit conversational chirps, all of which are easily discoverable as the figure slides and the involvement stage is again set and concluded. Here the setting sun blazes across the ruddy sand, filling the screen with a fiery, glistening gold that overwhelms nearly everything in sight, excepting the mountain and the silhouette of the figure. This immersion feels nearly literal, bathing the player in the golden sunlight and melting away any complexity of control as the figure surfs onwards. The narrative in this passage is subtle, balanced on those controls and the game's forced camera perspective. The figure surfs down the sun-drenched dunes to two cliffs. At the first cliff, the player is merely pushing the figure via the analog stick towards the cliff. At the edge, any jump or even inaction catapults the figure up and forwards, aligning its silhouette with that of the mountain. The figure drifts slowly down from the cliff edge, surrounded by fluttering, butterfly-like cloth pieces. After a short, simple environmental puzzle, the player is lifted up again to another cliff, and the surfing continues. The exhilaration from the simply controlled but symbolically powerful jump from the first cliff primes the player for the second one. However, at this second cliff, the jump does not take off, despite the player's attempt to mimic the first one. The figure falls downwards with the player's sudden loss of agency (see Figure 9). The mountain quickly rises out of sight, and the bright gold and red tones fade away into a cool blue surrounded by darkness.

Figure 9. Falling away from the mountain of Journey.

This passage not only shows off the impressive visual design of the game, but it also highlights *Journey*'s potent non-verbal storytelling. Instead of being told that something has gone wrong, the player feels it. There is a shift in the control's responsiveness and thus player agency that abruptly ends the positive feelings connected to the surfing and the presence of the mountain. That shift in both mechanics and audiovisual tone spurs the player onwards towards the restoration and resolution of the serenity established in the early parts of the game. Yet, from then on, the player's further actions are tempered by the trepidation elicited by the controls' momentary failure and the newly established possibility of further failures.

As *Final Fantasy X* is a much longer and text-based narrative experience, its narrative is more explicit and can feature more tonal shifts. There are several appropriate passages for how this occurs, but one of the earliest ones revolves specifically around ritual. Tidus, the game's main character, is transported suddenly from his sparkling career as a star athlete in the bustling metropolis of Zanarkand to the villages and wilderness of Spira,

a world one thousand years in Tidus's future. Due to his displacement, Tidus finds himself outside of Spiran society and confused by its customs. These "social facts," or as defined by seminal sociologist Émile Durkheim (1895), "ways of acting, thinking, and feeling that present the noteworthy property of existing outside the individual consciousness," are "endowed with coercive power… independent of [the] individual will" (p. 2). However, he befriends an island villager named Wakka, who helps Tidus adjust to these customs (see Figure 10). Wakka is in a particular position to do so as the guardian of a budding summoner. Tidus is completely and controversially unaware of the teachings of Yevon, the god or institution (not to be made clear until much later in the game) that is the heartbeat of Spiran society. Wakka sends Tidus to the village temple to learn more about Yevon; however, here Tidus transgresses against the customs he has come to learn. Wakka's novice summoner has not emerged from a what can be a dangerous ritual in the depths of the temple. Rather than respecting the taboo (that is, a prohibition that preserves social facts and sacrality; see Durkheim, 1912) of entering the temple's deeper chambers, Tidus forces his way in to lend help to the summoner. Here he encounters the Cloister of Trials, an environmental puzzle that the player must solve for Tidus to advance. Here the player's focus shifts from combat management to the manipulation of magical spheres that can open doors and unlock objects within the Cloister. The completion of the Cloister seems to be a purification ritual; it is only through the psychosomatic actions taken and decisions made that Tidus (and thus the player) and other characters can proceed to the inner sanctuaries of the temple. The Cloister separates the profane world outside the temple from that which is held most sacred, including in this case the summoner herself, who Tidus reaches after completing the Cloister as she did before him. Thus, the narrative in FFX has a strong effect on both the player's actions and the space in which

they occur, which is made especially apparent in this passage of the game

Figure 10. Wakka (right) showing Tidus the Yevon blessing.

The two different ways in which *Journey* and FFX explore the relationship between actions, space, and narrative are similar to those used by various religious traditions. Referring again to medieval Christian pilgrimage and Hindu puja, the actions taken by practitioners and the sacralization of the relevant spaces would make little sense without the conceits upon which they are built. These traditions are somewhat more explicit, but some, like the practice of zazen or sitting meditation in Zen Buddhism, suggest that ritual can occur everywhere, making anywhere sacred with or without a determinable narrative cause (see Suzuki, 2003). Ritual, space, and narrative are all still connected, but with far less specificity and far more fluidity.

Conclusions

Comparative studies are extremely useful in humanities scholarship and especially in studying the slippery and diverse nature of human experience. Coming to understand the differences between versions of similar systems is also an

exercise in understanding the similarities between such versions and thus what emerges as the most important throughout such systems. In this case, the comparison of ritual practices and game design is an unusual but fruitful one. Religion is one of the keys areas of humanistic research and has been for as long as such research has existed. In contrast, games studies is a much newer branch that is quickly rising to meet a large part of today's popular culture. By relating established humanistic fields such as religion or art history to game studies, the popular cultures represented by games and play are taken seriously, and through using established humanistic methodologies like those within comparative studies, this new medium can be "read" appropriately and effectively for an accurate (and thus applicable) understanding of contemporary human experience.

Yet, this work and others in this journal or elsewhere can be useful not only to academic research but also to the creation of games as cultural artifacts with the power to entertain, inspire, and educate. The "games for impact" or "serious games" movement revolves around the idea that play and designed experiences can be transformational (see Squire, 2006) in ways similar to ritual, as posited here. In order to build richer, more compelling games for the sake of education or even play itself, game designers can and often do draw from the vast corpus of human experience seen in the domains of the humanities. Not only can games have elements of these experiences, but they can become a new sphere for them, allowing more effective education on the importance of such experiences as well as greater access to them for those outside of cultural traditions. It is my hope that by playing well, players can connect to others through a deep appreciation of the intricacy and diversity of potential experiences so that playing well can also mean to live well.

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WELL PLAYED & WELL WATCHED: DOTA 2, SPECTATORSHIP, AND ESPORTS

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Introduction

Multiplayer and competitive games, such as Multiplayer Online Battle Arenas (MOBAs), require players to master complex systems, sophisticated mechanics, and collaborative play. In this paper, I outline *Dota 2*, a MOBA known for its steep learning curve and an extended commitment of its players toward mastery, to illustrate how play and *participatory spectatorship* are integral to not only mastery but also perseverance in learning to play a game. And yet, how might an investigation of *Dota 2* in its notable role as an "eSport" also necessitate a rethinking of what we consider relevant in understanding a game? How appropriate is the framing of a "game" for understanding this kind of social and technical space? How does a look at *Dota* 2 help to clarify the differences between "games" and "eSports" and

the potential implications of both? *Dota 2* presents a complexity that begs further study as a space for play and learning in the one of the most socially-negotiated and economically significant game genres. Here, I will discuss how the emergence of live streaming and the new framing of these games as "eSports" work in partnership with play, providing new opportunities for engagement with *Dota 2* and similar communities of media engagement.

Participatory Spectatorship

Participation in competitive games is highly specialized and demanding. Relevant membership within competitive gaming communities requires an understanding of complicated and nuanced discourse, expert execution of play, and high-level strategic understanding. This leads to the question: why do players continue to persevere and pursue expertise despite a harsh learning curve and competitive atmosphere? I posit that one factor is engagement with live streaming and eSports. While the term "participatory spectatorship" has a history in games, theatre, and invasion sports (Douglas, 2002; Jensen, 2011; Ludvigsen & Veerasawmy, 2010), here it represents *the active observation of a sport or spectacle in the pursuit knowledge though without requiring a recognized information need*. As such, the act of "watching" serves as a foundational element of participation and may simultaneously serve as entertainment, a means of social engagement, as well as provide opportunities for learning the game and community's discourse.

As with Squire (2011) and Gee (2003), games themselves provide the primary texts for analysis, with additional sites and channels that provide discussion and analysis of the game. Game streamers comprise a central population of digital and tabletop gamers. eSports represent an interesting and vital subset of streams that broadcast live professional gaming tournaments. *Dota 2* and its premier tournament, *The International Dota 2*

Championship, have an unquestionable influence on participation in the complex media spaces that surround play. Last year's international championship, *The International 4*, was the biggest event in the history of eSports. Sixteen teams from around the world competed for a prize pool of nearly 11 million US dollars. Over the course of the event, *The International 4* was streamed live to over 39 million viewers via Twitch.tv and traditional sports distribution channels, including ESPN.

From MOBAs to *Dota 2*

To begin, we need to situate ourselves in the relatively recent but eventful history of the MOBA. *Dota 2* is only one of many recent games in this genre, all of which originally spawned from the *Warcraft III* modification ("mod") titled *Defense of the Ancients* (*DOTA*). The mod was developed and released in 2003 using the "World Editor" of *Reign of Chaos*. *Warcraft III* is as a real-time strategy game in which play focused around the development of heroes supported by an army of units. The *DOTA* mod shifted the focus to the development of a single hero, and units became AI-controlled. *DOTA* laid the basic landscape for the MOBA genre, its real-time strategy, roleplaying, and combat characteristics, its signature map (based on the "Aeon of Strife" *StarCraft* map: see Figure 1), and series of objectives. Several authors maintained the specific scenario that evolved into *DOTA*, but the longest running developer, the anonymous "IceFrog," has maintained the project since 2005.

Dota 2 is often recognized as one of the most nuanced, competitive, and unforgiving games in the MOBA genre. Though all MOBAs originally evolved from *DOTA*, Valve Software, staying truest to the original formula, went so far as to hire IceFrog as lead designer. This is not a new model for Valve, who has developed mods like *Counter-Strike* and *Team Fortress* into successful videogame franchises of their own right, as well as crafted entire franchises by hiring the developers responsible

for productive game demos (e.g., the hiring of Kim Swift, based on *Narbacular Drop*, leading to *Portal*). In both instances, Valve purchased the intellectual property and hired the developers of the original modifications to lead the new franchises. While in the case of *DOTA* to *Dota 2*, there has been some degree of legal contention with Activision Blizzard over the appropriation of the name "DOTA" (hence Valve's subtle change of title away from the "DOTA" acronym to "Dota").

But, regardless of the game's production history, there is much to be learned from an investigation of its particular space in the gaming world at the moment and developing an understanding of its mechanics. *Dota 2* plays like the mash-up of a single-session, accelerated, massively multiplayer online role-playing game and a focused real-time strategy game in which players control just a single unit. During each match, players command a single hero, leveling up, acquiring skills, and buying increasingly powerful items. Two teams of five players — the Radiant and the Dire — square off in what Valve calls an "action real-time strategy game" or ARTS, shifting the framing of *Dota 2*'s genre even further from the "MOBA" acronym, to one of their own making.

As with many board games and tactical wargames, every match of *Dota 2* is played on a single, shared map. The map is divided into three lanes with a river running through the middle. Each lane has three defensive towers followed by a barracks that must fall sequentially. From the barracks, streams of AI-controlled "creeps" spawn every thirty seconds and march up or down the lanes. Next, enter player-controlled heroes. Heroes kill creeps, destroy towers, and clash with enemy heroes. The game ends only when one team pushes into the opponent's base and destroys a large central structure called the "Ancient."

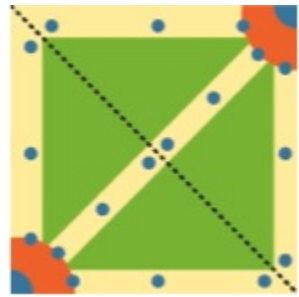

Figure 1. A depiction of the prototypical MOBA map.

This is *Dota 2* at its simplest — a game with a relatively direct team goal, albeit one that sits within a collection of complex systems that must be managed to achieve the goal. For some, it's a model "sport," in which the game's complex and balanced design ensures a level playing field and winning is based on execution, practical experience, and a hint of good fortune. "Well play" of Dota 2 is implicit in the nuanced details of the tactics employed by players and their related understanding of the game's multiple, interlocking systems. Yet, "well watched" relies on players' engagement with the game and its community as participatory spectators of an eSport.

eSports

I see the recent rise of the "eSport" – digital video games that are played professionally, with LAN tournaments, corporate sponsorships, and lucrative prize pools – in digital gaming communities as worthy of deeper investigation. While competitive games and even professional competitive gaming (Taylor, 2012) have been a staple of the digital gaming world for some time now (e.g., Quake, StarCraft), the emergence of the MOBA and the related rise of streaming services (e.g., Twitch.tv) have introduced these games to millions of new players. In 2014, *Dota 2* had a total prize pool of nearly 17 million US dollars. Moreover, the growth in popularity of eSports can be seen

through its rise as a form of public, internet-streamed performance — professional and amateur games from across the globe are streamed live on Valve's *Dota 2* interface or via online streaming services, such as Twitch.tv. Twitch (the premier gaming live streaming service) has reported that *Dota 2* viewership has seen an increase in minutes watch at a growth rate of 508% (Morris, 2013).

eSports are fashioned for excitement with casters delivering dramatic play-by-play paired with former professional players turned analysts and physical arenas filled with capacity crowds. Therefore, how appropriate is the framing of a "game" for understanding this kind of social and technical space? How does a look at *Dota 2* help to clarify the differences between "games" and "eSports" and the potential implications of both? So, then, if *Dota 2* represents an interesting case that necessitates some form participatory spectatorship in order to develop competency in the game, then there is clearly some form of learning in practice that occurs. However, what motivates one to learn in the contexts of this game? Why would one persist in a game that provides little explicit instruction, requires a great deal of individual and group participation in the game's systems, and can be brutally competitive? What motivates play of *Dota 2*? With this in mind, a characterization of the tools that mediate engagement with competitive games requires a deeper look at the structures of eSports.

Image 1. Day one of The International 4 in KeyArena, Seattle, WA

Dota 2 is not a single-player game, and is clearly designed for team-based competitive play as well as team-based competitive *professional* play. Unlike many other complex games, consideration of *Dota 2* as an eSport is significant in explaining the impetus for committed play and guiding performance within it. As Kow (2013) claims, studying learning with eSports raises a number of questions regarding the lived experiences of players, as well as the influence of a shared, competitive purpose on the learning practices within a game community. Considerations that should be made in regard to the shared, competitive purpose as laden with cultural and economic significance. And yet, sports are not simply rule systems, no more than digital games are simple programmed embodiments of these rule systems. *Dota 2* illustrates that even while we attempt to account for the practices of players by detailing the elements of the game, we still miss a major part of the picture. Understanding "well played" in *Dota 2* is in vain until we consider the motivational, economic, and social impact of the framing of *Dota 2* as a "sport."

The Noob Stream

Spectatorship through the venue of live streaming is as diverse as it is abundant. *The International 4's Newcomer's Stream* served to act as an introduction to the game. Aptly coined the "noob stream" (located at http://www.twitch.tv/dota2ti_noob), it catered to brand new (or relatively inexperienced) players with the explicit intent to be educational by teaching the mechanics of the game, terminology, strategies, and the culture of eSports. For instance, every *Dota 2* match begins with a "draft" where players select or ban heroes. During this time, the casters of the match are able to comment on individual heroes, their repertoire of skills, how well they pair with other heroes to set up for a particular strategy or which heroes are a professional player's "signature." Moreover, the casters take time to elucidate jargon, terminology, and abbreviations that would normally be delivered as assumed knowledge and without explanation. At first glance, *Dota 2* is quite difficult to follow and watching with the support of a Newcomer's Stream offers players a basic description of game mechanics but also a subtle introduction to the depth the game has to offer, serving to teach as well as introduce new players to *Dota 2* to the participatory culture (Jenkins, 2013; Jenkins, 2006) of eSports.

Image 2. Gameplay during The International 4

Though I may not be able to mimic the finely tuned reflexes of professional players, I was able to watch the stream and reflect on my comprehension of the game. Outside of high-stakes tournaments, professional players regularly stream public matches. Such streams offer an opportunity to watch elite players in action, as well as engage with the community of fans (or critics). Streaming offers multiple routes for spectators of varying skill level to engage with *Dota 2*. By identifying these channels, players can participate in strategic and technical expertise; as such, both novice and expert players turn to live streams and eSports as an outlet for entertainment and instruction. Streams and eSports provide an active and participatory alternative to seeking information aside from in-game play and out-of-game textual interactions. Yet, it seems that participatory spectatorship in these spaces does not require a recognized information need and the disseminators are not necessarily responding to a call of a specific problem or inquiry. Subsequent meta-commentary and "theorycrafting" (Choontanom & Nardi, 2012) are actively disseminated by spectators through participation in the affinity spaces of *Dota*

2, reflecting lessons learned and interpreted through watching competitive gameplay.

I would also argue that, for some players, the viewing of *Dota 2* streams presents opportunities for cognitive apprenticeship (Brown, Collins, & Newman, 1989) at a distance. For novice player watching a complex game, eSports brings game mechanics, technical skills, and expert strategies to the forefront, a level of perception that in other gaming situations may require hundreds – if not thousands – of hours of practical experience. In this form, *Dota 2* is modeled in real-time and in real-world (albeit digital) situations, allowing new players to observe *Dota 2* as spectators and later enact learned skills and practice in the form of play. Cognitive apprenticeship at a distance, in the form of participatory spectatorship, again reinforces that spectatorship and play are active processes in these media spaces, and that learning and cognition are situated in a particularly performative form of gameplay.

Much like other information spaces, it seems that streaming and spectatorship are innately participatory. Players watch professionals and other personalities for the pleasure of observing gameplay and as informal students of the game, managing the streams as information resources to both learn how to play and to be a part of a larger gaming enterprise. When "well watched," participatory spectatorship takes on a new form of play, acting as an alternative to what we typically consider gameplay. In this regard, spectatorship may serve at least three key roles: (1) to allow novice players to develop understandings of the game's systems and dynamics in a space free of consequence; (2) to spur on and foster further engagement with the game and discussions in affinity spaces; and (3) present opportunities for the mediated experience of a gaming stream to serve cognitive apprenticeship roles for new and expert players.

Conclusion

I have discussed only a provisional analysis of the affordances of *Dota 2*, the noob stream, and eSports as a means of illustrating the ways that participatory spectatorship may be consequential for enculturation into informal learning communities and for the collaborative play found within them. Spectatorship becomes overtly participatory as observations and interpretations are added to knowledge and later articulated in practice. Yet, as games are embodied forms of play, participatory spectatorship may also afford a sense of physical participation in a performance or hypothetical scenario. The present work does not investigate how spectators engage with live streams, nor does it interpret all the possible forms of participation surrounding *Dota 2* as an eSport. It is only the first step in understanding how participatory spectatorship serves participants as they move toward more central membership in a larger gaming enterprise.

Dota 2 is overtly intended to be more than just a "game," at least in the way that many tend to conceive of them. eSports such as *Dota 2* remind us that *why* people play games is still a relatively unexplored. We tend to focus on *how* players play games, ignoring that the context within which a game is presented to a player can be of consequence not just in leading them to the game experience, but also in driving their persistence toward learning the game. With difficult, complex, and complicated games such as *Dota 2*, I argue that its framing as an e-sport is integral in understanding how the game drives players and that the understanding of *Dota 2* can gain from further exploration in this area. Perhaps the play of games is not enough to sustain involvement and drive the persistence toward mastery, and I argue that we need to better understand the connections of tools, resources, and practices (including eSports spectatorship) that drive play, and therefore learning, in "the wilds" of performative play.

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MAGIC THE GATHERING: A LEARNING GAME DESIGNER'S PERSPECTIVE

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Introduction

This article is going to introduce the popular Trading Card Game Magic: The Gathering, and explore how it's structure and relationship to game design offers interesting mappings to educational game design. In particular, the structure of Magic allows for players to factor design considerations as a component of strategy in the game itself, allowing the game to be a bridge to systems thinking and test-driven design strategies. These are fairly unique components of both game design and instructional material, and could be expanded on with new games tilted towards specific design-driven learning objectives.

A prior version of this work was presented at the Games+Learning+Society 10 Conference.

Who am I?

I am a professional learning game designer. That means I wake up most days, put on some form of pants, go to work, and

hammer on the problems and opportunities of designing games that are about teaching something in particular. I am also a lifelong game player, which while far from interesting, is relevant in the sense that out of all the games I've played, *Magic* has offered something fairly unique as a played experience, and hopefully worth articulating.

What is Magic the Gathering?

Magic: The Gathering is a card game. There are many variants, but all forms of *Magic* I've played involve taking on the role of magic-wielding heroes called "Planeswalkers". As a Planeswalker, you summon forth giant monsters and deadly spells to do battle with and defeat one or more other Planeswalkers. Conveniently, all your universe-shattering powers take the form of cards. There are an inconceivably large amount of cards, and an even more astounding amount of ways you can arrange these cards to create your own specific deck.

Once you have chosen the cards for your deck, you take turns with your opponent playing and activating your cards for the purpose of destroying them. Some cards are subtle, some cards are direct, and some cards only reveal their power when paired with other cards. Finding and exploiting interesting interactions between cards is one of the joys of the game.

Why *Magic The Gathering* For Well Played?

Simply because someone has played a game, even if that game is good, does not mean it's worth reading or hearing about. As a learning game designer, I create and test games about a wide variety of subject matter, which makes my job pleasingly esoteric. That means I also try to play strange things, as well as play as many things as I can, in general. Recently someone in my office found that you could purchase a "core set" of Magic cards, giving you more than enough cards to build a deck and play for under twenty dollars. Myself and about six or seven other staff bought

them to get started. Some were seasoned Magic veterans (the game is twenty years old at this point, with new cards coming out every year), and some were rookies, like myself.

I've played Magic for several months now, including the hosting of some friendly office tournaments. In the world of Magic players, some people have been playing for decades. I'm by no standard of anyone an advanced Magic Player, but even now I feel like I've gotten a lot of benefit from my short time with it. Hopefully the things I've learned are of interest to the broader game development and design community.

Playing by the Rules and Changing the Rules

As a designer, there are a lot of things about Magic that are challenging and interesting. Normally when you design a game, you construct a set of rules that the agents inside that game conform to. Monopoly pieces move clockwise, Halo players wait in cover to recharge their shield, etc. Players who seek to master these games must exploit the seams of these rules to triumph. For example, a good medic in the game Team Fortress 2 knows that a full overheal fades in 10 seconds, so they know when to begin and end overhealing cycles on teammates. Esoteric, but it's the kind of small rule that a dedicated player can use to make a difference.

In Magic, however, it's a different story. As the rules for Magic say, "When a Magic card contradicts the rulebook, the card wins." (Laugel, 2013). The Cards you play aren't just agents in the game world – they frequently can undermine or alter the rules of the game itself. For example, certain spells can only be cast on your turn, before or after combat. However, there is a dragon creature that can be summoned, that aside from being a dragon, which is pretty cool, also changes the rules so that all of your spells can instead be cast whenever you like (Figure 1).

That's just one of the countless shifts in rules that take place over 10,000 different cards, the combinations of which are simply staggering.

Magic throws two wrenches of boggling complexity in front of the player – not only are there a staggering amount of rules generated over an enormous set of cards, but the relationship between cards and rules are in flux, based not only on the cards you've planned on, but your opponent's cards as well. Every game of magic isn't only just unique due to random cards, but is unique based on the rule permutations that are derived from the combinations of cards in play. For example, your deck might be built on retrieving creatures from your graveyard, while your opponent seeks to "mill" your deck out. The fact that your opponents winning strategy actually compliments your own

winning strategy will change how you decide to use your cards that support building up your graveyard.

Personally, I can understand how this level of fluidity in the rules can seem intimidating – but in another sense, it's liberating. The game is large enough that you can carve your own area of preferences and specialty out of the space. The space of the game lets you apply an entire layer of identity and ownership over a playstyle, color (Magic uses resources of five different colors to determine what abilities can be used), or even just a particular card.

Build Your Story

Players are encouraged to "tell a story" with their deck, deciding on a theme and purpose for their deck. Then, through play of Magic against opponents, they can see whether they win and lost, and perhaps more importantly, *how* they won or lost. Based on this feedback, they can alter and improve their deck to "clarify" the story, adding or taking away cards that better focus their goals. They can change their deck's story or enhance it. Like a well-constructed argument, a good magic deck provides both the context and purpose for victory, defining how it will win and why.

For example, my current favorite deck is based on the idea of summoning small, relentless soldiers that attack as quickly as possible. All of my spells are cheap and instant (Figure 2), allowing me to cast them at will, usually to help my soldiers attack with more damage or more quickly. Not one of my creatures is essential, which makes it hard for other players to decide who to kill or when to kill them. I've played with this deck probably thirty or forty times, changing it meaningfully ten times or so and adding modest tweaks another 15 times.

In this way, players of Magic get to participate as game designers in their own right – obviously that design has constraints, but so

does all other good design. Players can conceive of combinations of strategy that can create local revolutions or arms races amongst peer players, and players can even go so far as to create decks to specifically counter other player's decks.

Players will find that the more they play and test their decks, they'll see that their core strategies form a "narrative", or a story that they want the deck to tell. My deck of small relentless soldiers feels, to me, like a raiding army pouring onto the battlefield. My opponents deck might be a dangerous cabal of sorcerors looking for ways to wipe out my units in sudden large attacks. The stories inform deck design, which then informs the narrative again, creating a loop.

This gives players of Magic a "behind the curtain" component of game and even narrative design, letting players take an extremely deep perspective on how to master Magic.

An interesting sub-component of this narrative element is that players can generate ideas that aren't even focused necessarily on winning, but instead attempt to do something purely creative and/or entertaining. Some quick examples are a "Wizard of Oz" deck composed only of lions, tigers and bears (Oh my!) or a whimsical deck I'm currently putting together called "Have a Goat". Decks like these are certainly not necessarily competitive (but conceivably could be), but the creation of them is still an interesting exercise in design and teaches players more about the structure and system of magic while reinforcing their sense of creative agency.

Different Kinds of Depth

There are, simply put, a lot of cards in Magic. Looking at the online Magic the Gathering Database, there are well over 10,000

playable cards (cards that aren't frivolous or banned outright). A player is allowed to construct their deck in most forms of play in a deck size of roughly 40-60 cards, usually with a suggested minimum or maximum cap, depending on the type of play. Constraining players into even focusing only on contemporary cards still gives the player a very large possibility pool to choose from (about 1000 cards).

Even so, the *quantity* of cards is matched by the *systemic* complexity of the rules themselves (Harrington, 2013). Each turn in Magic is composed of a complex series of phases. Each phase of the game can be "responded" to, which means that either player can "retort" an action or phase in the game by doing something that would happen before that event. The simplest comparison might be if Magic were a soccer game, one player could say on their turn "I am going to kick a goal in the right side of the net", and the other player could respond with "In response, my goalie will step to the right side of the net".

So in Magic, a player might say "I will cast boros charm, doing 4 damage to you'. The opponent might respond by saying "in response I cast this spell that cancels your boros charm". The first player then might say" In response to your cancel spell, I will cancel your cancel spell!". These cards form a "stack" of actions, which once both players agree that they are done responding, are then executed in the reverse order on which they were declared – working back down the stack, to continue the metaphor. Understanding the stack leads to the most intricate and mind boggling maneuvers in the game, with occasionally players changing and undoing their own actions in order to create new outcomes.

How Is This Relevant to Learning Games?

Learning games often have to model a "problem space" that is congruent with system or practice in the real world. Often

though, that problem space is turned into a rule-set with a constrainable (and understandable) outcome. While this makes for a "knowable" (and thus assessable) terrain for players to master, quite often in the real world problems are vastly more messy. Magic is simultaneously gigantic AND intricate, and offers a problem with enough "mess" that players are often pushing the edge of what they think is possible, rather than just fulfilling a rote concept.

Learning game designers should consider that they can make games about things that are often not entirely knowable, and that in some cases, letting players wade into a problem space in a game with an unknown solution to mastery can create deep play and deep thought that would better prepare that player for grappling with the actual problem. Spending time on depth and intricacy is obviously costly and difficult, and has taken Magic many, many years with many mistakes, but learning game designers should at least weigh the benefits of adding depth purely to increase the fidelity of the learning objective, even if at the expense of immediate clarity. Some problems are fun BECAUSE they are obscure!

Similarly, sometimes when designers make learning games they feed the player's need for order by oversimplifying the player's agency. In the real world, sometimes you can change the rules of the game in order to win, or approach a problem from an entirely different angle. Giving the player a second tier of agency that allows them to change the rules of play can allow for thinking that supports multiple layers of systemic thinking, bringing the learning game more into alignment with the types of problems in the real world that we consider non-trivial.

Play is Expression

The publishers of Magic develop cards based on a set of assumed playstyles (Rosewater, 2006). These playstyles are diverse, but

essentially boil down into three essential categories of style for players: players who play to experience, players to play to achieve, and players who play to express. The subdivisions of these playstyles inform the development of cards and in turn inform options for players in deck construction in terms of how they play, and how they define mastery.

For complicated learning objectives, such as systems-thinking, argumentation, language arts, etc. it's worth considering whether there are multiple ways for players to consider themselves competent in the learning objective. If so, it might be possible to consider structuring those different type of mastery into playstyles with their own identities, goals and success metrics.

Play is Prototyping

When working on learning games that address scientific or engineering concepts, it's often difficulty to conceive of how to create an authentic experiment-driven gameplay cycle for players. But in Magic, it's a natural, healthy and creative part of play.

As you play Magic against opponents, you're learning about play at two levels at once. At one level, you're learning and analyzing the game you're playing right at that moment, considering when and how to play your cards for maximum benefit. Additionally, you're analyzing your deck's strengths and weaknesses for the next game. Is a card too expensive to play reliably? Are there cards in your hand that are too specialized, or don't complement everything else? Does your deck have an obvious weakness that can be exploited by opponents?

Most games of Magic end with a spirited discussion between the two players about the expected and unexpected elements of play that occurred in the match, along with comparisons of the observations on play. Tactical errors will be reviewed, of course, but also macro-level strategy is discussed, to see either deck

might be improved ("Your deck is too low on mana, pull out some of those fliers to make room") or whether it was simply a mismatch of strategy that led to the outcome ("don't feel bad, my deck is designed to chew slow decks like yours").

Magic doesn't just teach you to be a better player of Magic (although it certainly does), it teaches you to be a better designer of Magic in future games. Players improve in the micro (tactics of play) and the macro (design of decks) through every play session and observing the expected and unexpected interplay of cards.

If your learning objectives demand reflection, iteration, testing or hypotheses, engineering a testing/playing structure like Magic may help you integrate those objectives authentically into your gameplay model without being overly prescriptive or reductive to the player's process.

Play is Debate

With ever-shifting rules and complicated sequences of events that run in ways that can sometimes seem backwards, players will inevitably come to a disagreement on how a rule actually works. This means returning to the rules and actually participating in what looks suspiciously like municipal laws to determine the finest-grained details of how the combination of rules might work together at the same time.

This feels like bureaucracy in one way, but in another sense the game gives the player the unique thrill of being entirely technically correct. Many of the most ingenious combinations of cards rely on both a grasp of the big picture of the game along with the focused close-up detail of a single card's intricacies. This level of distance between the scopes of understanding in Magic is fairly unique, and it's always entertaining to have a player gleefully explain how in this particular instance of the game why they are winning in a way you had never considered possible.

It's worth noting that at the GLS presentation I gave on this topic, I was approached by a professional Magic player who pointed out that at a certain level of competency, debate is very rarely part of play, as both players are skilled enough in the rules to have very few, if any points of contention. But I'd say that as a component of scaffolding in Magic, debate is an important part of the mastery trajectory, and in many situations even a fun element of the play cycle.

In a learning game, encouraging discussion and debate of the game's structure and objectives can only be viewed as a healthy sign that you've created a rich and interesting game environment. If players argue about the best way to conduct a population survey inside your ecological science game, you have strong evidence you've made a learning-conducive environment. It's also a sign that you've added enough depth into your play structure that players are able to craft and inhabit a meaningful identity in the game – one worth fighting about.

Play is Experimentation

The same amount of creative freedom that makes room for decks like"Lions, Tigers and Bears" could also be bent towards creative problem solving spaces with learning objectives. Spaces like design thinking, systems creation or collaboration benefit from play structures that focus less on fixed "victory" or "loss" conditions as the only measurement of success. If you can create learning-objective-parallel systems of creation and experimentation in your game, you'll have made a compelling "safe space" for deep systems learning. For example, if you've made an engineering game that let's players create unique machines to solve problems, testing to make sure that players are able to make widely varied machines that solve the problem in different ways will help ensure that the problem space is large enough for players to think of themselves as legitimate problem solving engineers.

How Can These Design Goals be Actionable?

Designers can approach systemic depth through two fundamental types of measurement – the number of parts, and the number of relations between those parts. The game of Go for example has very few relationship and rules, but many, many permutations of ways that the game board can be arranged. Understanding Go by memorizing orders of movement is very ineffective (especially when compared to Chess), and effective play is marked by excellent pattern recognition and switching between multiple viewpoints of board analysis. The game of Chess has far fewer board combinations, making it very memorizable or searchable through brute force computing – good chess players are expected to memorize "known" sequences of chess moves to create optimal board position in the beginning and end of the game.

When considering your learning objectives, analyze the type of problem the game embodies, and determine if it's a problem that is expressed through difficulty through the number of parts ("player will be able to identify the bones of the human skeleton") and/or through the number of relations ("player will be able to understand and describe the relationship of creatures shown in a food web"). Consider tailoring your games system to be congruent with the objective's problem space.

Additionally, ask yourself if there is room for creative or subversive play with the objective. What types of unorthodox decisions would a player want to have while solving the problem you've given them? What parts of the rules would players want agency over bending or breaking? What parts of the learning objective are murkiest, and might benefit from the player manipulating them by themselves? Creative subversion is a perspective that empowers learners to understand and master systems, which is a powerful learning theme that games have a fairly unique capability to harness. Creating a game with enough

depth to give players the freedom to subvert inside the rules creates a whole new tier of agency and empowerment.

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FOR THE RECORDS – UNDERSTANDING MENTAL ILLNESS THROUGH METAPHORICAL GAMES

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Abstract

For the Records is an interactive transmedia documentary project about the lived experience of mental illness conceived by game designer Doris C. Rusch and documentary filmmaker Anuradha Rana. It includes short films, interviews, photo romans, animation and games which revolve around four mental health issues – Obsessive Compulsive Disorder (OCD), Attention Deficit Disorder (ADD), Bipolar Disorder and Eating Disorder (anorexia nervosa). The project was produced at DePaul University with students and recent alumni. All pieces complement and provide context to each other and are embedded into the website www.fortherecords.org. This paper discusses the design of the four games, including a description

of our collaborations with people who have lived experience with the portrayed disorders, how we identified the metaphors to capture what these disorders "feel like", as well as an account of our playtesters' gameplay experiences, particularly in regard to cognitive and emotional game comprehension.

Introduction

The interactive transmedia documentary project *For the Records* is inspired by research on the phenomenology of mental illness conducted by Mona Shattell and Barbara Harris at DePaul's School of Nursing (Jones, Shattell, Harris, Sonido, Kaliski-Martinez, Mull, & Gomez, 2014; Jones & Shattell, 2013; Schrader, Jones, & Shattell, 2013; Shattell, 2014). The goal of *For the Records* is to capture what living with mental illness feels like in order to foster dialogue and promote understanding. Many social problems surrounding mental health issues are founded in insufficient understanding of the fullness of experience, not merely the cognitive understanding of symptoms or physio-psychological mechanisms. Lack of experiential understanding often burdens relationships between people with mental health issues and their social environment. To accurately portray what living with mental illness is like, we worked closely with people with lived experience and involved them actively into the design process of all media pieces. We identified our five subject matter experts by conducting interviews during the annual NAMI Walk in the Fall 2013, and drawing on our personal network. Their expertise included Obsessive-Compulsive Disorder (OCD), Attention Deficit Disorder (ADD), Bipolar and Eating Disorder (anorexia nervosa), which is why we chose to focus on these issues. To create the various media pieces, we split into a game development and a film group. The games group was further divided into four teams of 3-8 members, each team working in parallel under faculty supervision. The film group similarly formed four teams, each responsible for the production of one

film. Pre-production and development of games and films spanned Summer 2013 to Spring 2014.

The four *For the Records* games are: *Into Darkness* (OCD); *It's for the Best* (ADD); *FLUCTuation* (bipolar disorder); and *Perfection* (eating disorder). The following starts off by sharing the four game synopses. Then, the discussion will be split into two parts: the first part is concerned with the question whether the games have been well designed. By that we mean how well they reflect the portrayed disorders with the games' rules, mechanics and fictional components. We will explore the roles of our subject matter experts in each of the games before going into detail about how we identified and implemented the core metaphor for a single game, *FLUCTuation*. The second part of the paper focuses on insights gained from playtesting about players' experiences of playing the games, and how those playtesting results informed design iterations as well as our contextual considerations for how to integrate the games into the bigger *For the Records* website in order to promote game comprehension and post-game reflection.

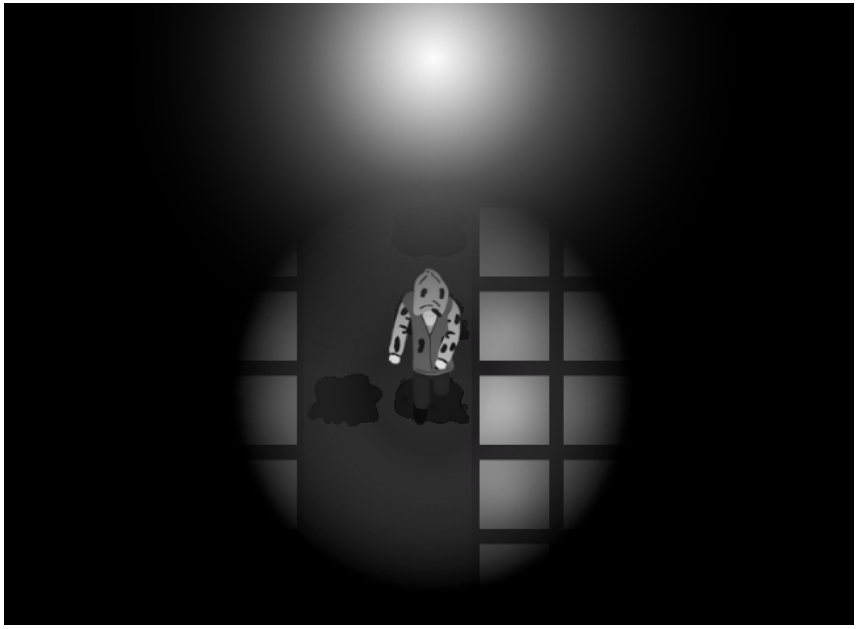
These playtesting observations are preliminary. A rigorous, in-depth user study with therapists [N=30] and patients [N=40] is under way. Its results will be published at a later date in another article.

Game Synopses

All four games are single-player, browser-based experiences that require between 5-15minutes of playtime. They are best played in Google Chrome.

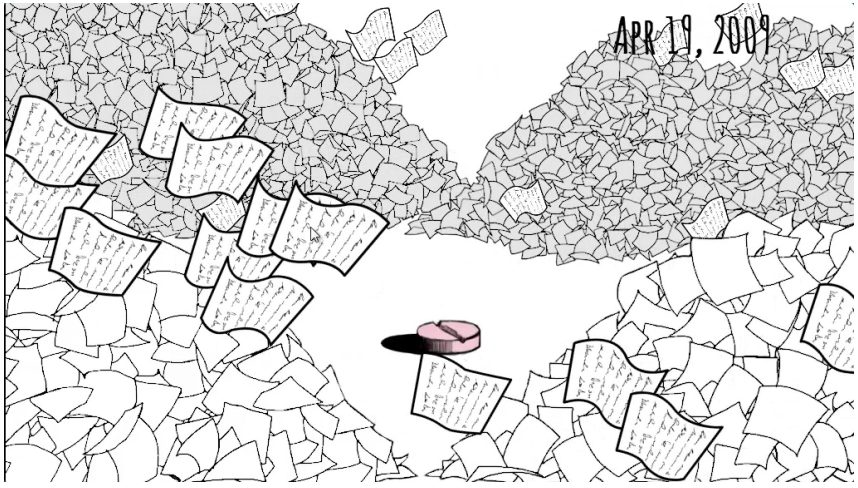
Into Darkness (Fig.1) (http://fortherecords.org/into_darkness.html) is a game about OCD and focuses on the compulsion to perform rituals in order to fend off anxiety. The player navigates a maze without exit, a metaphorical

representation of the disorder itself. As the player aims to find the exit (i.e., leave the disorder behind), darkness encroaches from all sides accompanied by scary music. Performing a ritual – walking in circles several times by pressing the arrow keys – staves off the darkness. This provides temporary relief from anxiety, but at the same time prevents the maze's exit from appearing. This models one of the core conflicts of OCD: the desire to escape the compulsion, but dreading the anxiety that comes with it. Once the player resists the compulsion to perform the ritual, an exit appears, allowing the player to escape and win the game. OCD is a mental illness that can be overcome, which is why this game has a win state. Other mental issues, such as ADD or Bipolar Disorder can be effectively dealt with, but the affliction will always remain, which is why the games tackling these experiences have no win state.



It's for the Best (Fig. 2) (http://fortherecords.org/for_the_best.html) is a game about ADD. According to the experience of our subject matter expert, ADD is usually

considered "not a big deal" as far as mental health issues go. This under-acknowledges the troubling feelings of worthlessness ADD can bring with it and the self-doubt that accompanies the need for medication to function. By modeling the ADD experience, the game aims to promote a mindful way of communicating the need for medication to ADD patients. In the game, players try to keep up with assignments represented by papers that flutter onto the screen with increasing speed. Clicking on papers makes them disappear and is accompanied by a satisfying sound effect, but the onslaught of papers is so heavy that one cannot possibly keep up. Unfinished assignments start to pile up in the background and to clutter up the screen. Choosing to click the pill featured prominently in the middle of the screen clears off the papers, but diminishes the experience of agency and self-reliance. The game is accompanied by unnerving whispers of "you're not good enough". The experience ends after a certain in-game date has been reached. There is no win state, since ADD is a life-long disorder that can only be dealt with but not "won".

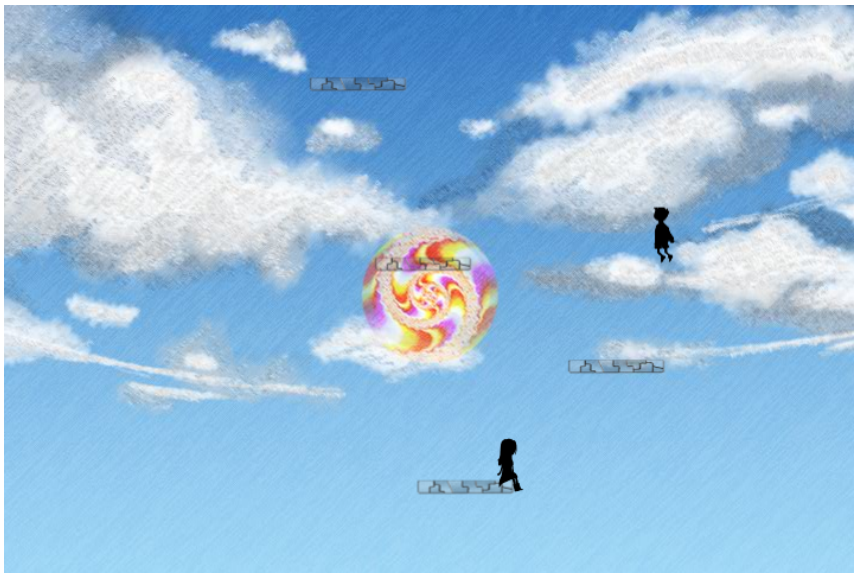


FLUCTuation (http://fortherecords.org/fluctuation.html) intends to communicate incomprehensible behavior of people with bipolar disorder to their friends and families in order to alleviate

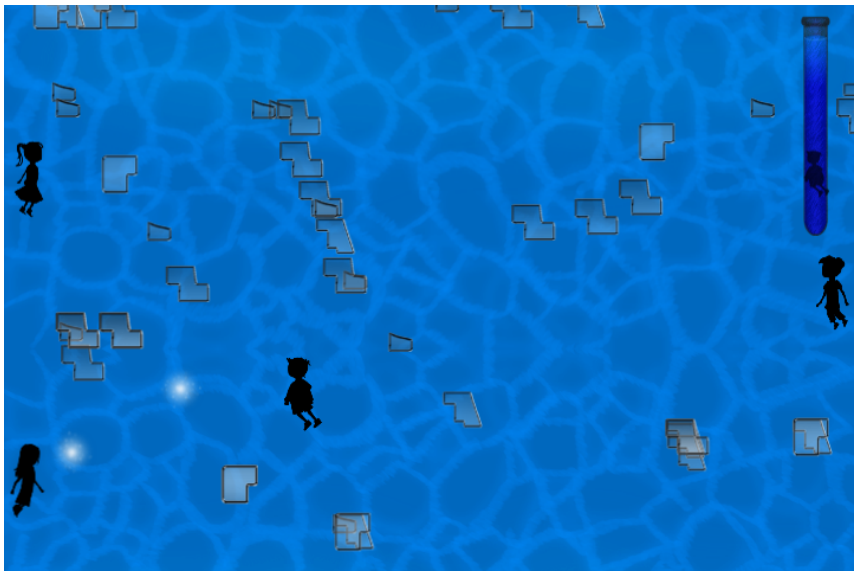
alienation from loved ones. The game consists of three phases that have been modeled after three phrases our subject matter expert used to capture his experience with the different states of the disorder:

Phase I: The onset of mania: "Why can't they [e.g. friends] keep up?" This phase is briefly represented by an introductory party scene in which the player character starts out as "the heart of the party" who is first imitated by others, but then shoots off through the ceiling into the sky, leaving everyone else behind.

Phase II: Mania: (Fig. 3) "It feels like architecting a divine plan. Everything is in sync and coming together in perfect unison". This phase has been implemented as a platformer in which the player character is catapulted higher and higher up by jumping onto glass platforms that shatter underneath his feet. The shattering glass represents the damage done due to bad decisions made in mania (e.g., irresponsible relations, overspending, etc.). Some platforms carry people. Jumping on those platforms is accompanied by rainbow sparkles, representing the intense gratification of social interactions during mania, but also the potential damage done to the people one interacts with in that state. Game control decreases over time. Simultaneously, a fractal image grows in the background, which represents the feeling of being part of a bigger whole. Mania ends suddenly and plunges the player into depression.



Phase III: Depression: (Fig. 4) “It feels like wading through mud, lost in the company of others.” The player finds herself in the deep, dark ocean of depression, where the broken shards from the manic phase platforms conglomerate to block her path to the surface. The player’s agency is restricted to painfully slow up, left and right movement (like wading through mud). The people positioned to the sides of the screen send out lights that gravitate towards the player character. These lights stand for well-meant but overwhelming questions such as “How can I help you?” A depth meter shoes how far one is from the surface, but it is unreliable and cannot be trusted. There is no way of knowing when depression will be over. This last phase of the game transitions into an ending cut scene that represents the end of a manic-depressive cycle and return to normality. Each part of the game is timed to decouple it from player skill. It does not have a win state, since bipolar disorder can only be managed, not “won”.



Perfection (Fig. 5) (http://fortherecords.org/perfection.html) is a game about the eating disorder anorexia nervosa, a phenomenon that is often highly incomprehensible to people without first hand experience and freight with misconceptions (e.g., persons with anorexia do not eat simply to look better). It aims to align the player's mindset with that of a person with anorexia by suggesting a (false) win state (i.e., perfection) whose pursuit has devastating side-effects. The game's core metaphor is the body as garden. The game suggests that a perfect garden is devoid of slugs and weeds. To achieve perfection, the player is asked to eliminate these unwanted elements until only the main plant in the middle is left. The conflict of the game revolves around garden saturation. Watering the garden increases its saturation, the main plant flourishes, but so do the weeds and the numbers of slugs rise (i.e., representations of unwanted emotions). Eliminating slugs by moving the mouse over them in a scrubbing motion (i.e., a metaphor for exercising) decreases saturation, as does parching the garden. De-saturation further kills the weeds, but it also damages the main plant. The game is structured in three stages in which an increasing number of weeds must be eradicated (i.e., representing increasingly higher weight-loss

goals). At the end of stage three, when no more weeds are left, the *Perfection* ending is reached. This ending, though, has come at the cost of a healthy main plant and equals "starvation". It turns out that the Perfection ending is not a true win state after all. There is another ending, though – Imperfection – hidden in the game. This ending represents the true win state and encourages the player to challenge her previous assumptions and change her behavior. To reach it, players have to consistently keep their garden within an ideal saturation range, learn to accept the slugs and weeds and nurse it back to health. While the eating disorder may never fully be "forgotten", there are good chances to overcome it, which is why this game has a win state.

Collaboration with Subject Matter Experts

We were lucky that two of our subject matter experts were game development students/alumni and they took leading roles in *Into Darkness* and *It's for the Best*. *Perfection* and *FLUCTuation* did not have a person with lived experience on the development team, but we conducted extensive interviews with our experts, showed them every draft of the game design document and had them

playtest all our prototypes. Their continuous feedback was crucial to our design iterations, particularly for the identification and evolution of the game's visual, procedural and experiential metaphors. Experts also had last say in regard to the game's rule structure. If a rule did not correspond with their experience, we scratched it and asked them to help us understand the relationships between system elements better. E.g., it is really hard for someone without an eating disorder to gage what the emotional effects of eating are. What does the intake of food mean for an anorexic? We learnt that it is about opening the door to unwanted emotions and that all emotions – bad and good – are unwanted, because they seem incontrollable. To feel means to discover needs and there is always the danger that needs are not being met, so it is better to suppress feelings altogether and strive for total control.

We further learnt that exercising is not just a means to lose weight, but to regain control over one's feelings. Since these mechanisms differ so much from an outside view of anorexia, we had to make sure we captured the interdependencies of system elements (e.g., eating, emotions, exercising, control) as perceived by the person with lived experience. Playtestings with people without lived experience primarily served the purpose to ensure that system interdependencies were clear, that we gave enough and the right feedback to help players understand the game's if-then relations. Without the players' ability to make these connections between elements, it would have been impossible to capture the experience of "what it's like" to live with a disorder (and even with the most accurate systemic representation, it is hard to predict or control player's emotional and cognitive response to a game, as Mitgutsch and Weise (2011) pointed out).

The Role of Metaphors in Understanding and Designing The Experience of Mental Illness

Metaphors played an essential role in the process of

understanding and representing the experience of mental illness. After all, we were trying to make inner processes tangible and since inner processes are abstract (i.e. they cannot be directly observed or delineated from a physical reality), metaphors are a great way to make them concrete. We follow Johnson and Lakoff's definition of metaphor: "The essence of metaphor is understanding and experiencing one kind of thing in terms of another." (1988, p. 5). We distinguished between three types of metaphors in the design process: visual, procedural and experiential. A visual metaphor is defined here as an image that shares certain salient characteristics with the concept it represents, but without possessing significant in-game behavior. Procedural and experiential metaphors, while having a visual component, are more strongly intertwined with the game's rules and mechanics and are experienced by the player through moment-to-moment gameplay. A procedural metaphor represents a complex, abstract concept through game rules to illustrate "how it works", while an experiential metaphor models a complex abstract concept through game rules to evoke an experience of "what it feels like". For an elaboration on these different types of metaphors in game design see Rusch & Weise 2008; Rusch 2009 and Begy 2011.

Metaphors naturally came up when our subject matter experts described how certain aspects of the disorder made them feel. We paid special attention to their figurative speech, exploring the usefulness of their images for game design. The metaphors employed ranged from very specific snapshots of emotional states (e.g., feeling like a gutted fish in the down-phase of the bipolar cycle)) to bigger, multi-dimensional structures with several related elements that encompassed the dynamics of the disorder itself (e.g., OCD as a maze without an exit in which one remains stuck unless the compulsion to perform a ritual is broken). Due to space constraints, the following focuses on an exemplary discussion of the design process of *FLUCTuation,*

which started with an in-depth interview with our expert on June 21st 2013:

Manic phase feels like there is a purpose, like one is architecting a divine plan. It involves a loss of control, an inability to exercise free will in an effort to calm down. It's the meteoric rise of a solitary runner. You're alone in your mania, propelled forward. There's an intoxication that comes with operating at great heights. There is a multi-sensory perception of shit coming together as if planned by God, like erratic cacophonous sounds shaping themselves into a symphony. The fall from manic is a jagged descent. You're trying to hold on to it when you feel it is about to end. The inability to do so reminds me of a child's futile mid-summer's attempt to sustain the glow of lightning bugs trapped in a jar. No matter how vigilant the stewardship, no matter how many air holes you drill into the jar's lid, the light burns out in a dishearteningly desultory fashion.

The highly metaphorical description of depression phase focuses first on the experience of social relationships:

Everyone is staring, hoping something will change. I am a dead, empty, gutted fish. People ask how you're doing and it feels so freight with obligation. Like a chorus of a thousand screeching prayers amplified through an electric bullhorn. There is an intense feeling of isolation as one realizes the pain one has caused others during mania. Interventions from other people are not received the way they are intended. You cannot respond to them the way you should, because the realization of this pain that you caused fuels an increased sense of isolation / detachment as well as anger and resentment toward the ones who've been harmed during mania.

The interview then shifts to the distorted sense of proportion in depression phase:

A pile of three dishes becomes a pile of 3000 dishes. The

individual problems you created for yourself in manic form a huge heap of problems that seems insurmountable in depression. Whatever you need to tackle you can't tackle because it's too big and has spiraled out of control. It feels like wading through mud or quicksand. There is a sense of suffocation when stuck in depression and there is no way of knowing when it is going to end.

From this interview, we identified the main themes for *FLUCTuation*: a sense of loss of control in both mania and depression, as well as alienation from self and others. We also identified the gameplay experiences we were aiming for in the various phases of the disorder: an addictive and incontrollable exuberance in manic phase and a feeling of being overwhelmed and avoiding other people in depression. As with all *For the Records* games, we translated this into concrete game mechanics by first figuring out the game's *core metaphor*. The function of a core metaphor is to provide a conceptual framework, a larger metaphorical structure, into which all other game elements can be embedded. This helps to keep all aspects of the game coherent, in line with one possible reading, thus promoting interpretation and sense-making. Finding the right core metaphor is the key to the whole design and needs to consider gameplay experience (i.e., the actions the player can take and what emotions they might evoke). Without a solid core metaphor, there are always bits and pieces of the concept and or experience that do not quite fit. Most of our design iterations focused around identifying the core metaphor, which proved to be most difficult for *Perfection*.

Informed by our subject matter expert's reference to the "intoxication of operating at great heights" as a salient element of mania, *FLUCTuation's* core metaphor is spatial and leverages the "up is good, down is bad" dichotomy. The interview further emphasized physical movement as a metaphor for the emotional experience in manic and depressive state: being propelled forward in mania and wading through mud or quicksand in

depression. This already implies gameplay variables to tinker with: movement speed and sensitivity to player input. The quality of movement in each state further determined the metaphor for the game-space in mania and depression: the sky is limitless and thus lends itself to be the scenery for the unstoppable ascent in mania. We wanted to capture the "devil-may-care" aspect of mania, which is why we used glass platforms to jump on that shatter in a gratifying way upon impact. This further enabled us to tie mania and depression together by reusing the shards of the broken glass platforms as obstacles in the "down" phase: what was done without consideration of consequences in mania comes back to haunt you in depression. We further introduced the visual metaphor of the growing fractal to illustrate the sense of purpose and synchronicity described by our expert.

The lightning bug metaphor that was mentioned to explain the jagged descent into depression could not be as easily integrated into our core metaphor and was thus left out. The same was true for the "gutted fish" analogy to capture the mental state of depression. We kept our focus on space and movement as pillars of the core metaphor in the depression phase, plunged the character into a deep, dark ocean of despair and reduced the formerly hyper-sensitive, exaggerated controls to hardly responsive, slow, sluggish up, left and right movements. This, in combination with the conglomerating glass shards from the manic phase that create blockades on the way back up to the surface (representing having to deal with the aftermath of bad decisions made in mania), aimed to capture the experience of being overwhelmed by simple tasks and feelings of remorse. It was important to us to also include the sense of alienation from others and create a dynamic of "social avoidance" in this phase. Hence, the friends that once sat on the glass platforms in mania reappear on the left and right of the screen in depression. The lights they send out towards you are metaphors for well-meant

questions that are fraught with obligation and only intensify feelings of guilt, resentment and isolation. Whether you come in contact with the glass shards or the lights that gravitate towards you, you are being sent further down into despair, farther away from the goal of reaching the ocean's surface. Consequently, players avoid both of these elements and start to perceive the other characters in the space and the lights they emit as hindrance. To capture the gnawing question of how long this state is going to last, we included the "depth meter", an interface element that starts out by signaling the avatar's progress towards the surface, but soon becomes unreliable.

Well Designed?

According to the standards we set for ourselves above – i.e., to derive all aspects of the design from the lived experience of our subject matter experts – all four *For the Records* games can be considered well-designed. No game contains even a single element, no rule, no mechanic, no procedural, experiential or visual metaphor that is not meaningful in regard to the portrayed issues. According to our experts, not only do all game elements make sense on a cognitive level, they also evoke an emotional resonance through moment-to-moment gameplay. Our experts, however, already know what each element means. The big question thus is: what is the gameplay experience for people who lack first hand experience with the portrayed disorder and/or who have not been involved in the design process and are coming to these games "cold"?

Gameplay Experience

As powerful as metaphors can be to communicate abstract aspects of subjective experience, they can also be hard to understand. Further, players' expectations vis à vis the experiential structure of the game as medium (i.e., that there is a goal, a clear win or lose state) can conflict with the experiential

structure of the portrayed disorder. Since promoting understanding about mental illness was our declared goal for *For the Records,* we had to design and test for maximum game comprehension. We did four "open house" playtests during the development process in Fall 2013. Each attracted about 15 testers (students and faculty) from different schools at DePaul. We noted two kinds of game comprehension: an emotional comprehension tied to what game elements and the bigger game structure made players feel like during gameplay, and a cognitive comprehension that was needed to interpret the gameplay experience in the context of the game's theme (e.g., ADD, OCD). It turned out that emotional comprehension corresponded well with our design intentions, while cognitive comprehension sometimes lagged behind. Before we investigated how the game as a whole promoted understanding of the portrayed mental health issue, we first focused on a much more fundamental understanding of the game's rules and mechanics: were players able to discern how game elements related to each other to form the underlying system? E.g., the questionnaire to an early *Perfection* prototype asked: "Was it clear to you what effect scrubbing had in the game apart from scrubbing away objects?" This basic understanding of the game's rule structure is key to both emotional as well as cognitive comprehension.

We then asked about how certain game elements and mechanics made players feel. The responses to this, even when we tested very early prototypes with abstract concept art, were encouraging. The first version of *Perfection* featured a laboratory (not a garden) as its core metaphor. The goal was to make the lab as sterile as possible. For that purpose, the lab's temperature had to be carefully monitored. If it got too cold, a red button signaled alarm (this was an early attempt at modeling the body's cue for hunger). Pressing the button (i.e., eating) increased the lab's temperature (later replaced by increased garden saturation) and flooded it with abstract objects signifying "contamination"

(later replaced by the slugs in the garden metaphor). We asked players how the increase of objects after pressing the button, made them feel. Across the board, players' emotional disposition towards the objects were negative: "They must be eradicated." "Uneasy, I didn't want to get overrun by them." "Frustrated / annoyed. I need to get rid of them." We then asked how scrubbing away objects made players feel: "Pretty good. When screen was clear, I felt good"; "It felt like I was rubbing away something bad"; "Good, like a kid torching an anthill with a looking glass." Reading these emotional reactions to game elements in the light of their metaphorical meaning indicated that we were indeed capturing the experience we were going for and that our planned alignment of the players' mindset with that of an anorexic was successful. It was thus really surprising to us that some players, while having the reactions to individual game elements we intended them to have, had difficulties to cognitively interpret them. They knew the objects that appeared in the lab after pressing the button were "bad", but they didn't know what these objects represented in the context of eating disorders. In retrospect it seems obvious that one could only know what these objects meant, if one already had an intimate understanding of the mechanisms of eating disorders! Most of the players, however, got the "big picture" and understood the games' core metaphors (e.g., garden as body; watering as eating; jumping higher as mania; struggling to the surface as depression). Only the visual metaphors we used to represent the less well-known (and possibly more idiosyncractic) aspects of the issue were lost in translation: the oil puddles in *Into Darkness*; the slugs, weeds, growing garden box in *Perfection*; the fractal, depth meter and floating lights in *FLUCTuation*; and the calendar in *It's for the Best.* With explanation of these elements, though, players' experiences really seemed to gain depth and provide valuable insights into the disorders the game portrayed.

Another aspect that hindered game comprehension for some

players' was their preconceived notions of what games are as media. While we told players upfront that the games they were about to play aimed to model what certain mental illnesses "felt like", players frequently just played to win. They had a hard time adopting the mindset of exploring the game as a means of understanding the portrayed issue; they wanted to beat the game and when it was not obvious how to do so, they got frustrated and confused.

From all of this feedback we learnt that while principally the games had clear strengths as tools to foster an experiential comprehension of mental illness, we needed to give players more context and explicit clues to guide their gameplay experiences and interpretations thereof. We added a "what it all means" page to *Perfection* that spells out the meaning of every game element and asks the player to reflect on their gameplay in the light of this meaning. We added quotes from our subject matter expert in between the different phases of *FLUCTuation* to facilitate decoding of each phase's metaphorical content. We also discovered that people who watched the film-clips we made as part of the bigger *For the Records* project before they played the thematically corresponding games had much better game comprehension. The *For the Records* website that includes all media pieces is thus designed in a way that suggests viewing the films or animations first. Additionally, each game description on the website aims to prepare players for the experience they are about to explore, reminds them that these games are "different", that winning them is not the point and that players should not worry about "doing it right" and rather pay attention to what they see on screen, what they can do, how it makes them feel and to reflect on what that might tell them about the portrayed mental illness.

Conclusion

Games, like no other medium, enable embodied experiences and

can thus provide a first hand understanding of "what it's like" to live with mental illness. Metaphors play a huge role as inter-subjective transformations of subjective experience. They were used both by our subject matter experts to explain their experiences to us verbally, and by the design team to make those experiences tangible to players through gameplay. Making metaphorical games to facilitate a deep, experiential understanding of mental illness, however, is anything but easy. While dialogue allows for mixing and matching of metaphors to highlight various salient aspects of the experience, a game's metaphorical set up needs to be simpler to avoid confusion. There needs to be one, core metaphor into which all relevant elements can be embedded and that lends itself to a coherent interpretation and experience of what it represents. While our procedural and experiential metaphors that constituted the game's core metaphors proved to be successful in evoking the intended emotional experiences, the visual metaphors often remained opaque to players and required further explanation. This confirms that using a game's structures, rules and mechanics as main vehicles for meaning is most promising to get ideas across and that finding the right visuals to supplement that meaning is an art form in itself. We further found that the complementary use of different media is most powerful in increasing understanding and fostering empathy. Games are only one piece to the puzzle. A game designer's pride of wanting to "say it all" with a game might prevent more effective ways of communicating complex issues to a broader audience. Creating *For the Records* as an interactive, transmedia documentary project shed light on the potentials and pitfalls of each medium and the strength that comes from a well-orchestrated integration of film, games, animations, photo romans (i.e. a form of digital storytelling using photographs and voice over) and written interviews.

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GAMING A NON-GAME? A LONG TERM (SELF)-EXPERIMENT ABOUT FARMVILLE

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Abstract

The rise of Social Network Services was accompanied by a huge success of Social Network Games (SNGs). SNGs show specifics which distinguish them from traditional video games. Especially remarkable is the system architecture induced option for a continuous and seamless game development and the extensive use of timer-based game mechanics. These unique features led to an experiment where I played for 4 years *FarmVille*, a genre-coining SNG, to experience its limits and development trajectory. This paper discusses findings from this game play and discusses the effects of selected game design elements. Though SNGs are not well-received in traditional game communities and this experiment partly witnesses reasons for this reception,

I conclude that they are a noteworthy phenomenon in the field of video games. They can contribute to the evolution of video games through some of their specifics both in the negative (DON'Ts) and in the positive sense (DOs).

Introduction

With the rise of social network services (SNS) such as *Facebook* (FB), SNGs have also gained a huge audience. FB based and Zynga provided *FarmVille* (*FV*) (2009) became one of the first genre-coining SNGs with a peak player base of 80 million daily active users (DAU). Providing a high accessibility via web browser and later by mobile apps, SNGs opened up to a new target audience with a higher percentage of female players and older players in general compared to traditional video games (DataGenetics, 2010; Snow, 2010). SNGs are played in a casual manner; cycles of play can be short. Usually, the Free-To-Play payment model is utilized: Starting the game is free, but certain in-game items have to be paid for.

FV's game play consists of trivial, basic actions: The player starts by placing items on a farm – an isometric playground with grid-bound positions. Items can be plots, animals, trees and decorations. Plots are used for seeding and harvesting crops. Animals and trees are harvested by clicking on the item. This click restarts a timer – often a main game mechanic of SNGs – when the timer elapses the item can be harvested again. Harvesting an item results in a *Farm Coin* reward, which are an in-game currency. Experience Points (*XP*) are the level-determining, accumulating resource: for seeding crops and placing items on the farm, the player is rewarded with *XPs*. The placed items are either rewards for missions or have to be bought from the market. Currencies needed for market purchases are *Farm Coins* and *Farm Cash*. *Farm Cash* is the rare "hard" currency which urges the players to invest real money in in-game transactions (Kelly, 2010). Missions mostly consist of placing or

harvesting certain items. Another type of mission are resource-gaining interactions with neighbors, often posting a help request to the player's FB news feed. The help request is confirmed by a neighbor's click. Neighbors are also *FV*-playing FB users, who get their neighbor status by an invitation-approval procedure. In general, this is a rough but complete description of the elementary rules of play in *FV*.

Figure 1. FV: Basic elements (Arrowed explanation boxes added by the author)

Such game play, in connection with no required synchronous interactions between players, almost no story and relatively simple graphics and sound effects, seems not to be appreciated by players of conventional games: It is described as "mind-numbingly repetitive […] no thrill in playing" (Newton, 2012). The reactions of traditional gamers indicate a kind of cultural shock: the game is not in agreement with any of the development directions of "real" video games, striving to improved graphical effects – powered by continuously sophisticated hardware – as a prominent example. Their production becomes more and more

elaborate and costly. In contrast the development of the first version of *FV* has been accomplished by a team of 11 people in 5 weeks (Mahajan, 2010). Admittedly costs cannot be compared to game play, but these figures on their own exemplify why SNGs are an additional branch of video games. Therefore, it is no surprise that SNGs cannot meet the expectations of so-called hardcore gamers. Another point of criticism is the option to buy progress in the game. From a different point of view, this business model of in-game transactions could be considered as an official, publisher-organized and more user-convenient version of the phenomenon of "gold farming". This term describes the paid, work-sharing production of game progress. For example players in countries with a low level of income level up game characters and generate in-game items as a business model. Finally these rewards and high-level characters are sold using third-party web platforms to players who want to save time (Gilmore, 2010). In this way those players buy game-progress as well. However, as this phenomenon is not supported in the game itself, it is not as obvious as in SNGs.

One culmination of the SNG criticism is Ian Bogost's SNG parody "Cow Clicker" (Bogost, 2010a) – a game which shows those game mechanics commonly in SNGs used: simple click accomplishable, and optionally purchasable, game progress, easy post-and-click interactions with FB friends, and the use of timers. Bogost points out that SNGs' game mechanics create compulsion and destroy even the time when the player is not playing, "through obligation, worry, and dread over missed opportunities" (Bogost, 2010b, sec. 4. Destroyed Time). Sulzdorf-Liszkiewicz (2010) matches FV with Caillois' (2001) six criteria of games and cannot confirm any of them. So as a game *FV* and SNGs in general are disputed controversially. Beyond the discussion, if *FV* is a game or not, further characteristics of *FV* are on the research agenda: the combination of *FV* and FB is seen as

virtual Third Place with ritual playing habits (Burroughs, 2014). Gruning (2013) investigates the value of virtual goods in *FV*.

This article is structured in mainly three parts: In the first part *FV* as an SNG is described. The incorporation of genre-typical appearance as the steady stream of new content and the need for player-guidance are addressed. Thereafter I delineate traits and experiences of my game play, which was driven by the goal of optimization. Finally there is a discussion about typical phenomena of SNGs (or claims typically attributed to an SNG), followed by a summarizing section.

The agile game: *FV* as a continuing and player-including experiment

FV started as a small prototype (Mahajan, 2010) and is still continuing development. A constant stream of new content is added. Game development is driven by commercial requirements: players need to be attracted and bound to the game (Kelly, 2010). From the developers' view SNGs have a unique advantage: new content can be tested in the (restricted) field. So-called A/B-testing allows game developers to choose the more accepted alternative for the final roll out (Nutt, 2011). In general, a SNG functions as an online laboratory for testing game mechanics with short feedback cycles – an ideal environment for game developers. Game developers are aware of a certain game element's effects on players and its acceptance within the playership. Thus they are in the position to add only those game elements which have proven their usefulness. Conversely, this means that whenever a game element is *repeatedly* added to the game it can be considered as serving the needs of the game developer.

Extension by configuration

An important mechanism in *FV* to provide easily new content

is configuration (Mahajan, 2010). As an example, adding a new crop to the game needs only the configuration of attributes as name, harvest time, seed cost and harvest gain. Additionally images of the crops at well-defined stages of the ripening process need to be provided (see *Table 1*). This configuration approach is effort saving: it avoids programming work and keeps the game software stable.

Attribute	**Crop**
Name	White Grape
Growing Time	12 hours
Cost	245 Farm Coins
Sell for	360 Farm Coins
XPs	2
Mastery	1200; 2400; 3600 (in plots)
Images	[IMAGE]

Configurable extensions also can be more complex. In March 2011 – almost two years after the start of *FV* – an even greater extension was introduced: a new farm, called *English Countryside*. This farm worked in the same way as the original farm, now called *Home Farm*. Directly after the release, switching to the new farm set all ripening processes on the *Home Farm* on hold. A few weeks later an option was introduced: the player could choose if the farm should be paused or not during the work on the other farm. It was communicated that this change has been made on request of players. This is an example how they influence the development. After the introduction of *English Countryside* new farms were added to FV regularly – now they act as a way to add new content to the game. A newly added farm may slightly differ from the preceding farms in supported game mechanics. An analysis of those – added or removed – game mechanics, reveals a development over time (see Table 2). In farm no. 4, *Winter Wonderland, Snow Treasures* appeared: These heaps were spread over the farm and blocked placing items on their spot.

They could be removed by adding a certain number of materials. The removal released an arbitrary item as reward. Now such a heap-material-reward game mechanic is element of each newly released farm. In contrast, a not continued example is the limitation of plots: Starting with farm no.3, *Lighthouse Cove*, the player was not able to cover the whole farm with plots. Since farm no.7, *Haunted Hollow*, there is no longer such a restriction. This trajectory results in a set of features, which are assigned to a currently released farm.

Farm No.	Novelties
2	Extension by new farms
3	Limitation of plots
4	Resolvable treasuresStationary building[1]
5	Water plots
6	Farm specific level
7	Limitation of plots removed (cf. farm no. 3)Kinds of plots reduced

Table 3 shows this (dynamic) feature set as it is valid for farm no. 19, *Oasis Garden*.

FEATURE
No limitation of plots
Unique kind of plots
Stationary building
Resolvable treasures
Farm specific currency and level

Game changers

Although *FV* introduces a high amount of new content through configuration, from time to time the development of FV brings

1. In FV a Stationary Building is a building with a fixed position outside of the common landspace. It holds no animals or trees; however it can be harvested periodically for certain random FV items. The value of gained items depends on the level of the building. A stationary building can be leveled up by collecting a certain number of building-specific types of material.

game changers. These are adjustments or introduction of game mechanics, which change the game play basically: the player will probably adjust her goals. Efforts change considerably for certain actions. Table 4 shows examples of game changers. The existence of such events often outdates results of planning and estimation processes.

Game mechanic	Impact
Introduction of farm no. 2	Enables the specialization of farms; farm land is no longer the limiting resource
Combine (Agricultural machinery)	Less "work" – more impact per click; introduction of fuel game mechanic
Search Functionality	Better overview: items can be located and counted on a farm. Specific actions (e.g. breeding) are eased.
One Item Per Purchase Operation	No bulk purchase (one click per item) possible any longer. A purchase requires at least three clicks. A consequence is a better overbuy protection: players are prevented from accidental purchases.
Dairy	New leading game mechanic for game progress.

Diversification

From time to time new mini games, which address other motivations of players, have been introduced. So the game tries to embrace more player motivations and therefore player types. It becomes a kind of vendor's tray, where players can pick those actions they like most. The types of those mini games comprise elements besides collecting: dexterity and gambling are examples for game mechanics in new mini games. *Anglers Pond* is a mini game which employs dexterity game mechanics. Until now no additional, similar game has been released, so such a game seems not to meet great acceptance of typical *FV* players.

Regular stream of contents

The *Mystery Game* is a raffle and an example for a gambling mini game (see Figure 2). The tickets, *Mystery Game Darts,* are earned among others as rewards for missions. Every fired dart results in a reward. There is a set of 6 different rewards. This set changes from time to time and is numbered. On Dec, 27th 2013 *Mystery Game 238* has been released (Quantcast, 2014 "Mystery Game 238"). The number 238 exemplifies the huge amount of items which is introduced in regular intervals.

Figure 2. Mini Game: Pop the Balloons (Mystery Game, Gambling)

The insisting game – guiding players

Although elementary actions in FV are very simple and easy to execute, the game contains a lot of functionality which guides the player. This functionality works as a kind of game embedded

side rail. One result of these assistances is a never dry-running-source of tasks for the players. From the developer's point of view, tackling these tasks generates a lot of opportunities to sell game-progress-easing items (Kelly, 2010). A good example are the decorating control elements on the main screen of *FV* (see Figure 3): in the screen's left side there are mission icons, each of these missions consists of elementary tasks. Examples for such tasks are harvesting a certain number of plots of a specified crop, harvesting or placing an animal or asking fellow players for certain items (using post-and-click interactions). A mission manager was introduced to improve the player's overview

Figure 3. Player guidance through control-decorated game-screen

When the game screen appears, often dialogue windows will open to present special offers and opportunities of play. These windows (Figure 4 shows an example) have to be closed mostly one after the other in order to start game play.

Figure 4. Special offer at the start of FV

The Experiment

I started playing *FV* for the first time in February 2010 – when I wanted to know how that "new style of game" works and if such a game could be facilitated as an educational tool – an option as development costs were said to be relatively low. Because I just wanted to get an impression of the game mechanics of *FV*, I decided not to use real money. Luckily, this clear principle saved me at many points a decision to use *Farm Cash*.

FV is also known as a decoration game: players arrange items on their farms artistically resulting in a beautiful overall picture or in an idyllic rural landscape. Those farms reminded me of virtual model railways, a sort of digital display case (Figure 6) or ASCII art (Figure5). I did not choose this style of playing as I like the challenge of optimization. Another reason was that many decoration items needed *Farm Cash*.

Figure 5. Decoration-style oriented farm (Wei, 2010)

Figure 6. Decoration-style oriented farm (blogcdn, 2011)

After a few days my ambition spurred me to play *FV* systematically. The goal was to level up as fast as possible, as higher levels release more items to the player. *FV* itself does barely support optimization by in-game information. The

needed information could be found on the web. On the website *www.farmviller.com*[2] I found the information I had missed so far: the harvests of animals and trees, and also the space which certain items require. It was a systematic presentation of *FV* related information. This site helped me to start optimizing my game play: there were lists maintained which showed game-optimizing calculations already and which made it easy to discover the most yielding items. The goal at that time was to level up since the *Belted Cow*, an animal which delivers a harvest of *incredible* 3000 *Farm Coin* each day, could be bought starting at level 75. This level was a milestone I reached after almost 5 months of purposeful game play, having taken before the intermediate steps level 35 (*Saddelback Pig*) and level 55 (*Arapawa Goat*).*Saddleback Pig* and *Arapawa Goat* are further animals with a comparatively high harvest, which is beaten only by the gain of the *Belted Cow*. 3000 *Farm Coins* each day – 4 *Belted Cows* per plot – this resulted in 12,000 *Farm Coins* per plot and day. I measured the harvest in this way. All other options had to compete with this benchmark.

Principles of playing

My progress in *FV* has been grounded on only a few cornerstones: First I tried to use farm space as efficiently as possible, i.e., there was no free space, and all space has been filled up with animals, trees or plots. At this point I strived to save all *Farm Coins* for buying *Belted Cows*, as they are the most lucrative animal. To illustrate the progress: at the beginning it took 10 days to buy one *Belted Cow*, currently it takes 15 minutes of work a day to harvest the amount of *Farm Coins* necessary to buy 40 of them. Mainly these facts accompanied by perseverance and tenacity are the foundation for leveling up in *FV*.

At a later stage of the game the *Blue Whale* became the most

2. This website is no longer available. It has been shut down in 2011.

profitable animal – but buying a *Blue Whale* does not result in as much XPs, i.e., it does not help on leveling up directly. This is a difference to purchasing a *Belted Cow*: whereas a *Blue Whale* costs 500.000 *Coconuts* (which is a farm specific in-game currency of the 5th *FV* farm *Hawaiian Paradise*) and results in 630 *XPs*, for the Belted Cow applies the 1:100 default ratio of purchases: it costs 1,000,000 *Farm Coins* and is rewarded with 10,000 *XPs*. However, in terms of earning power a *Blue Whale* is the better choice: It results in 5000 *Farm Coins* (plus 4250 *Coconuts*) – compared to 3000 *Farm Coins* of a *Belted Cow*. Therefore my strategy has been to buy as much *Blue Whales* as possible and convert their gain into XPs by buying *Belted Cows*.

In general my game play is about allocation of resources. Resources are limited and I have to use them in the most productive manner. The first limited resource is land space – so I saved my *Farm Cash* for farm expansions. Starting from a certain farm size expansions can be bought only by *Farm Cash*. Up to level 250 each level is rewarded with 1 *Farm Cash*. This is the only way to receive *Farm Cash* without paying real money. The next resource is building material: buildings can be useful in the optimization process, e.g., the *Cow Pasture* allows storing of up to 100 cows. This saves land space and makes them harvestable with only one click. Of course building material can be bought, but it needs the very limited resource *Farm Cash*. A completely constructed *Cow Pasture* requires more than 300 pieces of building material – each at a price of 1 *Farm Cash* per piece. Thus it is impossible to fully upgrade only one pasture with the freely, through level ups supplied *Farm Cash*. The alternative is sourcing it through post-and-click interactions from neighbors. My main sinks for "requested" building material are *Cow Pastures* (for *Belted Cow*s) and *Aquariums* (for *Blue Whales*).

Of course playing FV for such a long time requires a personal definition of cheating. Taking the frame given by Vázquez &

Consalvo (2013) I considered any use of external software as cheating. However, in the first time I used two alternative accounts in order to accomplish needed interactions. Later on these accounts became to time consuming. Furthermore, I (almost) urged a friend to login from time to time in order to fulfill helpful tasks.

Optimizing systematically: An Engineer's Approach

Besides using spreadsheets for identifying most profitable items, I used an online spreadsheet to track the efficiency of my measures by defining "Key Performance Indicators" (KPI). Corresponding to the development of the game and the player the KPIs changed over time, they have to fulfill the need to measure progress. "Progress" is redefined from time to time during the game's and the player's trajectories. I recorded the status at the specific events, like buying a *Belted Cow*, buying a farm expansion or starting a new farm. Each row in the spreadsheet denotes such an event. An important KPI has been "Guaranteed Daily Income" (GDI): the gain which can be reached by simple clicks on animals and trees without the effort to cultivate crops (At the time, when I introduced GDI, cultivating crops was the most time-consuming activity). GDI has been used to measure the earning power of the farm. In 2013 the most important KPI was "Dairy Level Up XPs" as most earned XPs originated from the *Dairy* game mechanic. The change of KPIs over time is visible in Figure 7: KPI appear and at a certain time they vanish again. So I tried to estimate the next *Belted Cow* purchase. Later this figure has developed to the number of *Belted Cow* purchases per day. This KPI developed itself to the number of level ups per day, as 10 Belted Cows are needed for another level

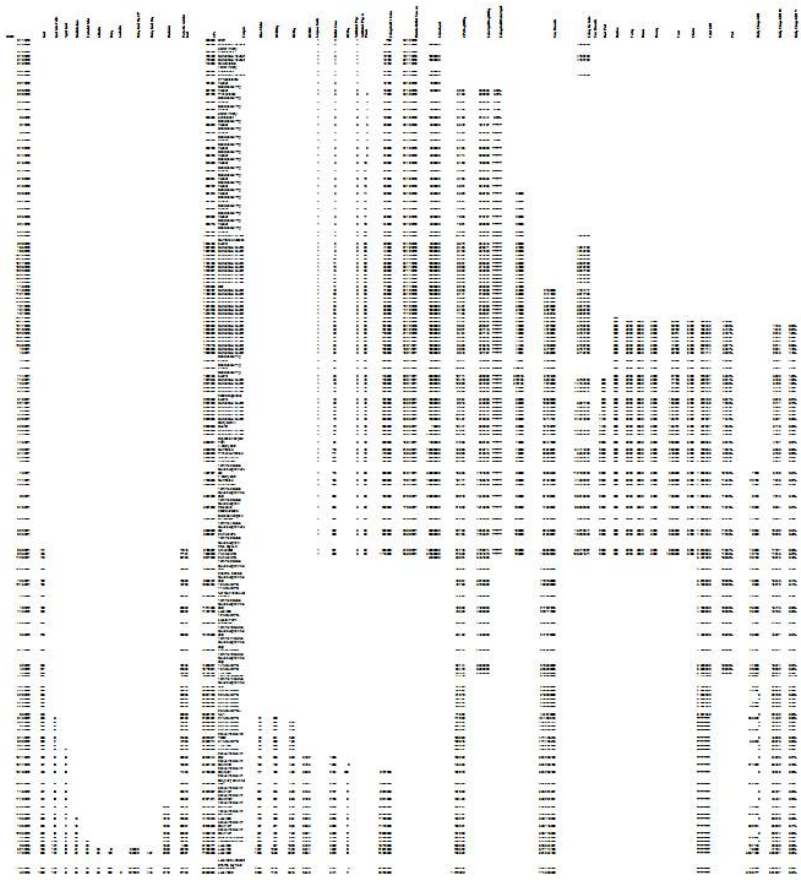

Figure 7. Spreadsheet to keep track of progress (overview)

As the above spreadsheet demonstrates, an overarching activity during my game play has been estimation and planning. Estimation (mainly of the GDI) was connected to the most profitable game mechanic. At a certain point of time this has been *Belted Cow*, superseded by *Blue Whale* and finally excelled by the *Dairy* game mechanic. The estimation boiled down to a comparison of reward schedules: Level ups, caused by *Belted Cow* (and indirectly by *Blue Whale*) purchases increase day by day by a fraction of their price, as a kind of interest rate. The *Dairy* game mechanic at regular time intervals distributed amounts of XPs. These amounts increased from reward to reward by an additive

constant. So this estimation becomes an analysis of limits, as presented in Figure 8: In the "short" term the *Dairy* is the most valuable game-mechanic, but it will be outperformed by the *Blue Whale* in the long run. In short: *FV* made me exercise a limit analysis.

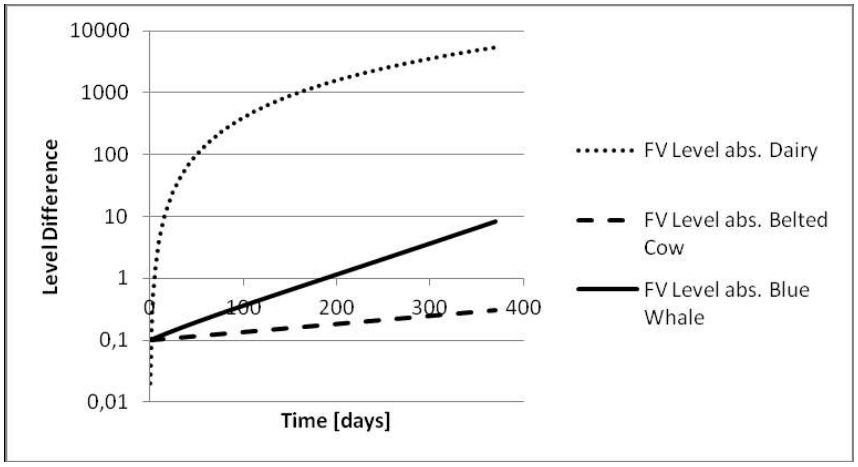

Figure 8. Estimation of Level progress for various leading income sources

Figure *9* shows an example result of optimized game play: A farm completely filled up with 5000 *Belted Cows*. This farm provides a harvest of 15,000,000 *Farm Coins* per day, which can be "reinvested" in 15 *Belted Cows*. Interestingly "completely filled" is not defined by available land space, but by the maximum number of items a farm can accommodate. In the beginning of my purposeful game play it was one rule to cover the available land space completely with harvestable items. However, at a certain size of the land space and a certain type of land usage, the available land space is no longer the limiting restriction. It is replaced by a – beforehand for the player invisible – maximum number of items. This maximum number has been reached because the space requirements of a cow are less than those of a plot: a farming plot needs four times the space of a cow. Of course the limitation would have not been reached in case of

stacking cows in *Cow Pastures*. Such a building occupies 12 times the space of a cow. There have been two reasons not to use *Cow Pastures* on this farm: First, the scarceness of building material for *Cow Pastures*. Secondly, harvesting buildings necessitates one manual click per building, whereas all animals on a farm can be harvested simultaneously by an item called *Farmhand*. Of course there is a bulk harvester for buildings, but it is available only for *Farm Cash*[3]. A *Farmhand* is also a limited resource, but harvesting this farm from time to time generates more gain than just buying unproductive decoration items to convert coins into *XPs*.

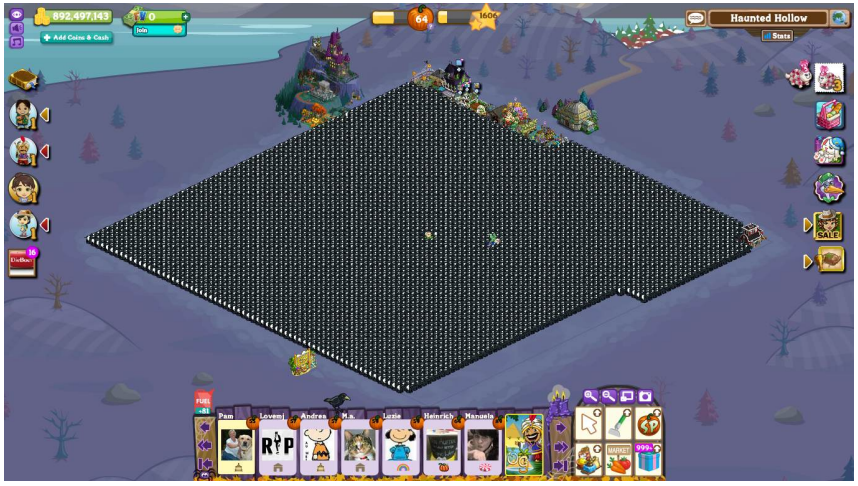

Figure 9. Result of optimized game play: farm holding 5000 Belted Cows

Resource "Time" and rhythm of play

Time is an important resource in *FV*. In the later stages of my game play it was the most limiting resource and guided the game play. Plowing, planting and harvesting required a lot of time, so I preferred crops with longer harvest times. Also I upgraded

3. *Harvesters for buildings, which allow harvesting multiple buildings (orchards and animal stables) in parallel, have been introduced in early 2013. For an optimizing gaming approach they would be very helpful as they save many clicks. However, they require Farm Cash. This is one of the first exceptions from the rule, that all game-mechanic relevant items can be acquired by pure game play (Farm Coins, interactions with neighbors, waiting time) also.*

my machines as soon as possible to multi-plot machines, which saved a lot of time. A kind of revolution was the release of the *Combine*, a machine doing all three processes (harvesting, plowing and planting) at one click. It is very helpful for the ambitious farmer and really worth its price of 500,000 Farm Coins! I also detected at that time the web browser shortcut *STRG + Left Mouse Click* to open a link in a new window. This made harvesting the FB news feed far more efficient: instead of clicking on a *FV* link, opening the FB page again and positioning it next to the new news feed entry, it allows you to click on one link after the other.

There is also another aspect of "Time" in *FV*: the game play needs to be scheduled as crops, trees and animals are characterized by harvest times. To be efficient it is useful to establish a rhythm of play and to plant crops accordingly. On one side the rhythm of play is determined by the harvest time of animals. Fortunately the harvest time of animals always is a multiple of a day. So playing each day at the same time is a good choice. The game design supports this approach: real harvest times calculate with duration of one day of 23 hours. Therefore I could start each day at the same time and integrate game play into my daily routine.

The goal of optimization turns success into failure

FV provides excessive positive feedback to the player. By harvesting animals, trees and crops the player accumulates rewards. There is only one noteworthy opportunity to get sanctioned negatively: crops wither when they are not harvested in time. But even in this single case there is an antidote: the *Unwither Ring*. Once it is placed on the farm, it interrupts the withering mechanism forever (of course such an item can only be purchased for *Farm Cash*). Therefore, nominally a player is always successful in *FV*.

Establishing a rhythm of playing was important for me as it

ensured a maximum of gain and game progress. In this sense missing the best opportunity to play (and thus reaching not the maximum gain possible) felt like a failure – although in fact there has been progress. This feeling comes close to the phenomenon Bogost (2010b) calls "compulsion". Being aware of it I tried to tune the game play according to the next planned visit on my farm.

Set of goals

Often a game offers different goals within different time frames (Squire, 2011). This statement was illustrated by my game play, as at any time there has been a set of current goals. Table 5 shows such a goal set. The goals are categorized: they may be relevant for the overall goal, which was in my case optimization. A "No" in this category indicates a kind of "luxury" goal – a goal I tried to achieve for "just for fun". Game mechanics of *FV* may promote a goal directly. For example leveling up on a farm (goal no. 1) is guided by *FV*, as it provides the level-display as a direct measurement. The time frame, when the goal should be reached, is an attribute of each goal. Goal no. 5 and no. 6 have been dismissed since the last goal dump: No. 5 is no longer possible as it was reached: The farm has been filled up. Goal no. 6 is not valid anymore, because it is too time consuming. Goals also are affected by the current trajectory status of the game. In the early years of the game the number of game mechanics was limited, so it was possible to play each mechanic of the game. Now that the player faces a huge range of game mechanics, s/he has to make choices. In general, goals may be aligned with each other, but there has been always a self-determined set of current goals.

No.	Goal	Optimization relevance	Guided by FV	Time Frame
1	To level up in *Jade Falls*	No	Yes	Middle
2	To increase *Blue Whale* population	Yes	No	Long
3	To breed 20 exemplars of each tree species	No	No	Middle
4	To breed profitable trees	Yes	No	Long
5	Add *Belted Calves* to farm	Yes	No	Middle
6	Operate each available farm on a daily base	Yes	No	Short

Almost beaten the game – the lightheaded reward schedule of the Dairy

One motivation for my game play was testing the limits: what happens at formerly undiscovered points of the game? At one particular point of game play there was at least one answer to this question: The *Dairy* (compare Section "Optimizing systematically: An Engineer's Approach") is a self-contained mini game about harvesting and transforming resources, that was rolled out in January 2013 and maintains its own level status. The original reward schedule issued 1000 XPs more for each level reached than for the previous level. It is possible to level up 2 times per day. As a consequence there was once a reward of more than 230,000 XPs for one *Dairy* level up. Each level in FV requires 100,000 XPs, so after 5 months of play the *Dairy* reached the same game progress as the result of 3 years of optimized play before. Furthermore the *Dairy* rewards increased much at a faster rate. In this way the *Dairy* had become the leading, time-saving, game mechanic for game progress (see Figure 8). I earned 500 levels with this game mechanic. "Unfortunately" – from my point of view – a nerf of the reward schedule has been made. Thus the game is open again: it is worth again to focus on *Belted Cow* and *Blue Whale* cultures and to be on the hunt for game

mechanics providing a higher gain than these two animals. Such a game play is by far more time consuming than simply "operating" the *Dairy* and receiving more and more rewards for the same amount of game play. The original *Dairy* reward schedule would have marginalized all other possible *XP*-relevant rewards. It would have reduced the necessary playing time to a few minutes per day. This probably could have had a huge impact on the in-game purchases, which would not have served the developer's commercial interests.

Competition or: Go at your own pace!

Competition is a main game mechanic. For example the list of my neighbors in the main screen of the game is ordered by their level (see Figure 10). So I am aware of my performance compared to these other player's achievements. In the beginning of my *FV* "career" there have been neighbors with better progress in terms of levels. I used the possibility to tend their farm to check the reason for their progress. I wanted to make sure, that I had not overlooked an optimization mechanic. However, it became clear that they had used *Farm Cash*. So I ignored this list. Nowadays I am second in this ranking list at a level of 1940 with almost 1300 levels margin to the next follower. In the lead is a farm of a level higher than 2400.

Figure 10. Leaderboard in FV – omnipresent as element of the default screen

There is no world-wide highscore list, only a player-centric ranking list with all her/his affiliated neighbors. Therefore from time to time the question arose, how the performance of my

game play can be linked to global leaders, In forums on the web there are farms of level 200,000 mentioned (Mondal, 2011b, n. comment dave smitty). However, this player is said to have used bots. Another player, who presents a farm of level 43035, demonstrates in a video the handling of the third party software tool *FarmVille Bot*. Therefore his level seems to be achieved with the help of software, too (Mondal, 2011a). As a conclusion I draw that competition probably has led to either using real money or software bots. Both possibilities are no elements of my game play. With the target of optimizing game play, competition may have an indirect impact, but is not sufficient as a main motivation: By definition of the approach the performance has reached a maximum value, considering the given conditions. Therefore the meaning of competition vanishes: Ok, go at your own pace – it is the fastest possible!

Is it still a joy or already a chore? When Level Up starts bothering

At the moment the most important resource is time: three standard actions sum up to a 40 million *Farm Coins* gain and take 15 minutes a day (one of these actions is harvesting the farm shown in Figure 9). The problem arises thereafter: *Farm Coins* have to be converted into *XPs* in a way which cumulates the earning power of the farms. (until now the most productive way to reach this goal is buying *Belted Cows*). However to place them it needs either land space or building material and time. All of them are limited resources. At the moment of writing I have piled up the money for 820 cows. Buying a cow from the market takes around 10 seconds, so there is the need to invest at least two hours of work. Also the message of leveling up, which appears every 10 cows, has to be acknowledged by an additional click. Yes, it is a chore at this point. At the moment there is no vision: game play becomes linear. There seems to be no further development to continue my approach of leveling up: increasing the GDI further would mean investing more time. And time is a resource I do not want to increase.

Is this game play representative?

The described game play is for sure not representative. It is highly connected to my context: traits of my personality guided the game play as well as my personal situation. According to Bartle's taxonomy (1996), I play predominantly as an achiever. Also I tend to fulfill my duties assiduously. This seems to be a good foundation for dealing with a game that is attributed as "compulsive" (Bogost, 2010b). Another circumstance which stimulated this once-in-a-lifetime experiment (other SNGs I play only for capturing their game mechanics) has been my personal curiosity in the game mechanics and lifecycle development of such an SNG. The sake of procrastination has "fostered" a lot of game progress, too: I estimate an average of 2 hours a day for four years. From my view point now the puzzle is solved (Koster, 2004): the resource "Time" is the limit.

Discussion

How social is an SNG?

The question of sociability arises when the word "social" is part of the game genre name. However, from a developers view these games can be seen as "games on the technical and organizational platform of a social network service". The successful usage of social interactions and social bindings as elements in a viral distribution model and competition as an element of motivation does not require deep social interactions. So the claim of SNGs as "being social" may overburden the intentions of commercial game developers. Nevertheless, the discussion is justified as there are games which show traits of fostering sociability.

Originally there was the game mechanic in *FV* that neighbors have to be acquired from the FB friend list. This consideration did not work out, as there have been special threads in forum to find new FV neighbors. So FV became the only common ground of FB "friends". Later the design of FV accommodated this failed

assumption: now an in-game functionality allows establishing new neighbor relationships without friending them on FB. Even more convenient, but (almost) no longer social is a recent feature, which allows the player to add FV-suggested neighbors. If that action reaches the maximum number of neighbors, FV can be instructed to replace inactive neighbors automatically.

The main interaction scheme between players happens when a player creates a FB news feed entry and other players click on this entry. This results in a piece of material for both, the posting and the clicking player. There is no personal interaction between players needed. This turns fellow players into resources, as success is correlated to the number of neighbors. This aspect is often criticized in the context of SNG, but also attributed to other game types, as Yee (2014, p. 193) states, that MMOGs such as *World of Warcraft* "turn friends into fungible, disposable resources."

Gruning (2013) played *FarmVille 2*, the successor of *FV*, on an alternate account without developing a social context. Therefore she could not proof hypotheses about the values of virtual goods. According to my experiences, even with the social context of my primary FB account, no *FV*-related social context has developed. There is only a small or empty set of original FB friends, who play *FV* contemporarily. However, this observation may induced by my playing goals. On the other hand Bachvarova & Bocconi (2013) support this finding when the state that in SNGs exists only little conversation between players. In contrast Wohn & Lee (2013) showed that there is a group of FB users, who play SNGs in order to build a common ground with existing acquaintances. This hypothesis is approved by Burroughs (2014), when he identifies the combination of Facebook and *FV* as a virtual Third Place – which requires a lot of social interactions.

In this context voting buildings are a noteworthy appearance. These voting buildings are used to ask fellow players about their

perception of the player's personality traits. An example for such a question is shown in Figure 11. At least 4 fellow players have to decide for one of the two alternatives to create a valid answer (see Figure 12). Once such an answer is available, the next question concerning player's preferences gets released. So in theory players have to reflect about their neighbors and there will be a personality profile at the end. However, in fact players hunted the different rewards which are assigned to each answer option (see Figure 11): when posting the question, mostly there were commands to the neighbors, which option they should choose.

Figure 11. Voting building – player's view

Figure 12. Voting building: fellow player's view

Free-To-Play payment model

Almost any game process can be bought in *FV*, and an example is shown in Figure 11. In general there are so many "Buy" options that it is easy to spend one's *Farm Cash*. As a consequence there are reports of misuse: an example is a person who complained in a forum that his mother has spent over $1000 in the last month on *FV*; money that originally was intended for paying the rent. Furthermore it is easy to lose one's *Farm Cash* accidentally – just by incautious clicking, for example on caption-changing buttons. Figure 13 and Figure 14 demonstrate such a change. In this case caption- (and function) changing is problematic as adding the required 40 treats at once seduces the player to increase the click speed.

Figure 13. Treats available: "Use Treat" button

Figure 14. No treats available: "Buy Treat" button in the same position as former "Use Treat" button

A decisive step in the career of a *FV* player is entering his credit card number. From time to time there are charity events which encourage the player under the pretext of a donation to add this information. Once this information is added, further *FV* related transactions are eased. The same purpose fulfills the *Coins-Into-Cash* schedule: To convert superfluous *Farm Coins* into rare *Farm Cash*, payment information have to be submitted.

A questionable business model becomes visible in Figure 15. It shows a special offer of US-$100 for mainly all expansions of only one certain farm. One novelty is that the player pays directly in real currency: before *Farm Cash* had to be bought for real money. The amount of US-$100 is remarkable, as almost any traditional video game is cheaper. Subscription models commonly do not require that amount of money at once, either. Last but not least the additional text "A $600 value" proves how much money can be spent on FV. There have been released recently other alternative payment models in *FV*, like memberships. Nevertheless some of the presented payment models here are not recommendable.

Figure 15. $100 offer (Captured: 06/12/2014)

Every start is easy – every ending is hard

Compared to other, conventional video games, leaving *FV* seems to be a hard process. Seldom players have talked in a positive way about their *FV* career. Often stopping the game has a negative connotation as in the following FB post is indicated by the word "*Also*": for S2 being fed up with *FV* seems to be the only logical explanation for such a question.

N: **How do I delete my FV account?**

S1: You got a pm.

N: Thank you!

S2: **Also fed up with FV?**

Another reaction of a former FV player about the reason to quit

has been *"[...] I started to align my daily routine according to FV – which is bad. Thanks to god I have recognized it. [...] I cannot involve myself only a little bit – therefore I quit FV completely. [...]"*

A further player talks about "[…] It required too much time.[…] ". These reactions acknowledge the idea of SNGs as being compulsive. Players may have difficulties to adhere to self-chosen and not game-directed goals, as it is possible in *FV* (Söbke, Bröker, & Kornadt, 2012) .

Conclusion

Four years of game play have accompanied a considerable part of the development of *FV*. During this development *FV* has grown to a broad, versatile SNG with an excessive number of items and features. This article presents only a condensed selection of game play experiences and connected phenomena. Nevertheless, there are some cornerstones which remain after all the game play. The design of FV is highly driven by its commercial background as a Free-To-Play SNG. Similar to ad-funded TV, players as consumers are supplied with those game mechanics they prefer. For a game-designer, an SNG is a perfect online laboratory. Development of SNGs can be done in parallel to their productive use with short feedback cycles. This lowers development costs, which can spread over a longer time. Another characteristic, which distinguishes an SNG from traditional video games and impacts game play significantly, is the steady development of the game. At any arbitrary point of time a game-changing modification can occur and require the player to change her goals. Also remarkable is the subjectivity of failure and success. Each player can define her own measurement for success. In this experiment *FV* was played in a less social way. However, there is research showing that SNGs are played at least partially for the sake of sociability.

The pervasive offerings to buy game progress are justified from

a developer's point of view. However, they easily can become annoying. Consequently the Free-To-Play payment model has to be observed and developed. Outgrowths as a "$100-Special Offer" seem to be more than questionable. The used game mechanics as competition and interactions with fellow players and the open-ended game style tend to overburden some players. As delineated by Pixie (2010), who seems not be an isolated case, quitting the game is often related to frustration. These effects need game design rework. Harmful effects of excessive play are not limited to FV or SNGs in general, but in SNGs there is an easy possibility of technical regulation as there is always a connection to a central server. Furthermore in the context of game design, the usage of timers can be and has to be aligned with affordances of real life. Effects of long-term play on players have to be investigated.

However, the positive traits of SNGs could let them extend the set of tools for learning. It has been shown that SNGs also foster learning processes and the development of meta skills (Söbke, Corredor, & Kornadt, 2013). Due to the SNG format, they acquired a group of people for gaming which have not played before. So accessibility induces usage. It is worthwhile investigating the game mechanics which are used now successfully to lure the player into becoming a paying customer: probably they can be used in educational settings to guide player's learning progress. Noteworthy is the temporal structure of game play which is almost as steady-going as the time schedule of formal education is.

The discussion of whether SNGs are games or not points to player-type dependability. Each player decides for herself if a game is intriguing. For stakeholders, like game developers and educators, it is a matter of quantity. They need to attract a preferably great number of buyers or learners with a game to mitigate their costs. SNGs are just another game genre with different characteristics. They have an on own audience. "Why

are you trying to make them do more?" is the concluding question of Jason M. (2010) in a response to an SNG-critical article (Bogost, 2010b).

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THE STANLEY PARABLE

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Stanley looked patiently at his empty screen, awaiting further instruction.

The Stanley Parable is a game that often elicits the discussion "what IS a game, really?" among the kind of people who tend to miss the point.

That isn't to deem discourse on the subject an unworthy endeavor, but Stanley really isn't the type of person to get involved with that sort of thing.

Lucky for us, Stanley wasn't there. He, well…he didn't show up (quite unlike Stanley).

Now there's no need to worry. Stanley is perfectly fine – content in the life composed of the decisions he has made, compliant ONLY to his own will.

When no further instruction came, Stanley began to feel anxious. People had expectations.

"Player Choice!" the crowd chimes, united at the prompt to recite where why and how "games" excel.

Player Choice is how individuals express agency! Action without alternative isn't compelling! How can choosing option "C" be particularly meaningful if not for the presence and possibility of an option "B"?!

"Choosing C" then might well be the same as "being shown C" or "being told C"!

And so, choice we were granted. At least, it did seem that way.

Stanley would wait. In the mean time, he could take a sip of his water. Or maybe twiddle his thumbs.

But what of option "D"? Or "E"? Or "H", "K", "Q", and everything between? Does the mere existence of each alternative in turn somehow amplify the meaning of our chosen "C"?

Ah, but alas, a game can only do so much. What if we just *pretended* there was an "E"?

Maybe it's just the *belief* of an alternate – the *illusion* of choice that begets meaning…

Maybe a player need only *think* she could have done otherwise – that the judgment she commands bears consequence…

…maybe?

No! Stanley would not sit idle. He would take control of the situation. He would let his will be known!

So there he stood. Confronted with the very real consequences of his very real choice.

But that didn't really matter. Not with respect to "what could have been", anyways.

More than any significance derived from choosing one thing as opposed to another was delight from the affirmation of the very thing we chose! Reassurance of progression towards a distinctly non-existent goal. Cooperative exploration of the deterministic space set in front of us. Play.

Things were going well for Stanley.

The Stanley Parable IS a game, and it DOES employ choice. But to tout it (and games in general) on account of the wonderful "Choice" within is to do it a great disservice. When presented with a door to your left and a door to your right, one can't help but find excitement in the speculation of what lies behind the door inevitably left unchosen.

But this excitement is fleeting – we'll just come back and try that other door next anyways.

Stanley was free.

In performing music, satisfaction isn't drawn from the knowledge that at any moment you might decide to play off-key. Instead it obtains from the enforced state of *resonance* with respect to intent and action that is required for the song to continue.

It is not the agency to choose one door over another, but instead the permission to linger in a place of consequence free entropy until you are ready to be the driving force behind the interaction. You can pace back and forth, become familiar with the expectations set before you, warm up to your surroundings until comfortable. Only when satisfied, you continue onward – you *choose* the door on the left, intent and action aligned in enchanting synchrony.

Free to engage with the delight that our narrator has planned for us – on our own terms.

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