A MEDITATION ON LOSS WITHIN GAMES

By

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ABSTRACT

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Failure is something which we are all familiar with, but when we look at games and the rules which govern them failure takes on a different form. This kind of failure, unique to games, is what I term Loss. To be truly unique to games, Loss must be the result of gamic actions taken by the player, must be constrained by the limitations of the game, and must represent a unique occurrence or state within the game. Taking these constraints into account I propose the following as a definition of Loss. *Loss is a player state in a game, entered into when a 'Loss Condition' has been met by the direct actions of the player, wherein something valued by the player within the game is removed.*

This definition, upon inspection, leads to several different and unique aspects, or dimension, of Loss which provide useful tools for understanding, analyzing, and creating Loss within games. The Digital Dimension of Loss consists of the binary triggers, Loss Conditionals, which lead the game to enter a State of Loss. The Design Dimension of Loss is the method of translating Loss Conditionals into unique game events understandable to the player. The Value Dimension of Loss consists of the gamic measures of effort that are taken away from the player by Loss. Finally, the Experience Dimension of Loss concerns the subjective effects of Loss on the player and methods for predicting what these effects will be.

Together, this definition and the 4 aspects of Loss provide us new tools for understanding Loss as unique to games and distinct from failure in non-game contexts.

This thesis is dedicated to my loving wife Katrina who supported me and encouraged me throughout the writing process in spite of the fact that she does not particularly like video games.

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I want to thank my parents Mark and Darlene who pushed me to do my best in school while also letting me get away with playing video games a little more than I probably should have.

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I'm very grateful for the direction and guidance of Casey O'Donnell who helped me turn a small idea into a set of interviews, an Object Oriented Ontology of death in Mega Man, a conference presentation, and finally this thesis.

Stephen, thank you for getting Katrina and I obsessed with board games. This analysis would have been much poorer without the inclusion of all of the non-digital games I've played since then.

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PREFACE

This thesis is submitted for the Master of Arts degree in Media & Information at Michigan State University. This is original, unpublished, and independent work by the author Justin C. Tokarski. Parts of this project were presented during the 2016 Meaningful Play Conference at Michigan State University.

TABLE OF CONTENTS

LIST OF FIGURES

"You've met with a terrible fate, haven't you?"

-Happy Mask Salesman, *Legend of Zelda: Majora's Mask* (Nintendo EAD, 2000)

Introduction

What happens when we lose in a game?

Many have addressed failure within games. Bernard Suits and Jesper Juul have both taken a more philosophical approach to failure. Bernard Suits in *The Grasshopper: Games, Life, and Utopia* (2014) focuses on the imposition of unnecessary obstacles. Suits views games as a "voluntary attempt to overcome unnecessary obstacles". Players actively choose to make success less likely to achieve, and failure a more likely result. The imposition of arbitrary obstacles, according to Suits, is what makes games so attractive to players. We enjoy overcoming obstacles, and games give us the opportunity to test our abilities as far as they can go. The voluntary choosing of these games helps match our skills with a given challenge. Failure is something that is accepted as a necessary outcome because these unnecessary obstacles are the reason games are enjoyable. Jesper Juul in *The Art of Failure* (2013) addresses the paradoxical choice of game players to actively engage in an activity (game playing) that will result in negative emotions as a result of failure. He looks at theories of why we consume painful art, unspoken rules of sportsmanship, and the behavior of players who do not experience failure in game play to address this odd choice of players. Juul concludes that the emotional investment the player makes during gameplay is tempered by the lack of tangible punishments, allowing players to experience the fullness of the challenges games pose without being forced to accept the results of failure in the way non-game activities do.

Others take a psychological approach to understanding failure. Mihály Csíkszentmihályi introduced the concept of flow, one of the earliest psychological theories which explains the attractiveness of games, which he outlined in *Beyond Boredom and Anxiety: Experiencing Flow in Work and Play* (1975). Flow refers to the mental state that results from being fully immersed in and enjoying an activity. Balancing player skill against the level of challenge within a game brings the player into the state of flow. Taking this view, failure occurs because flow in games occurs when the player skill is closely matched against the game challenge, so failure is a likely outcome. In her book *Reality is Broken: Why Games Make Us Better and How They Can Change the World* (2011), Jane McGonigal takes a very broad view of the psychology behind motivations among game players. She devotes some time to the psychology behind failure and concludes that players enjoy failure under certain circumstances. Failure within games communicates agency to players and promises that this agency can eventually lead to success in overcoming the game's obstacles.

Anthropological approaches to games and failure often focus on the cultural meanings within games and how failure fits into the broader cultural context of games. Johan Huizinga's seminal text *Homo Ludens* (1971) examines the role of Play within culture. He tracks games and gameplay among the development of culture and sees games as essential to that development. Other sociologists such as Clifford Geertz focus on the effects of gameplay and game failure in culture. *Deep Play: Notes on the Balinese Cockfight* (1977) emphasizes the value which the players, both trainers and bettors, put into the cockfights and how much stands to be gained and lost. This kind of extra-gamic value (the results of game failure which occur outside of the game world) is the focus of

many examinations of culturally important games as it tends to reveal characteristics of the culture under investigation.

Game development, both in the areas of entertainment and persuasive/serious games, addresses failure within games more directly than the other areas, but it is often from a functional perspective. Game flow, difficulty curves, perceived fairness, and gameplay balance are the constructs which designers appeal to when engaging with failures in games. The experience of the player is the object focus for game designers, and the relationship to failure is typically a one-way relationship. Experience is the framework and failure is just a tool for crafting that experience. In the case of serious/persuasive games this dynamic is even more pronounced. Most serious/persuasive games attempt to model real world actions into digital analogues with as much fidelity as possible. Because of this, failure is limited by the desired player experience and the need to map the failure onto some kind of real world analogue. (Though some games in both categories employ forced failure on the player for narrative or educational reasons, these constitute a special kind of loss and will be discussed as anti-games.)

Though all of these areas of study are illuminating in their own right, they fail to distinguish failure within games from failure in non-game settings. They do not answer the question of 'what happens when we lose in a game?' Voluntary acceptance of unnecessary obstacles occurs in many non-game contexts. Likewise, emotional investment in activities that may lead to painful, yet intangible, results occur in non-game activities. *Flow* happens in many non-game contexts, and Mihály's initial investigation was not focused on games or gameplay. The kinds of motivations for gameplay McGonigal associates with failure are only a subset of the broader experience of game

failure. Extra-gamic value, both cultural and tangible, associated with game failure by necessity exists outside of the games themselves.

Any examination of game failure needs to distinguish it from failure in non-game contexts. Its characteristics and results must be relegated to the world of the game. The ways in which failure occurs and effects the player must follow the restrictions imposed upon the player by the game rules. In the following meditation on and examination of failure I propose a definition of failure within games which I call Loss. This unique form of failure distinguishes it from non-game failure and distinguishes game activities from non-game activities. After defining Loss, I will be distinguishing four major characteristics which make up the Loss Event within games; Loss Conditionals which define the rules of Loss unique to a game, Loss Design which translates these Conditionals to game events, Loss Value which defines the results of Loss in terms of player effort, and Loss Experience which expresses the player reaction to Loss.

I hope that defining Loss will provide a shared vocabulary which can be used across the many fields of game studies, reducing confusion between disciplines and encouraging future work examining Loss. I will examine a few possibilities for implementing this definition of Loss in different areas of game studies in the hope of encouraging the use and exploration of this new concept.

Defining Loss

Failure is something that all of us encounter constantly. We wanted to reach specific goals or outcomes and for some reason did not achieve the desired end. These can be relatively small failures, like burning yourself while trying to light a candle with a lighter, or monumental failures, like burning down a house after dropping a lit candle. Some failures have relatively minor repercussions, like a mildly painful burn, while others have quite major repercussions, like needing to buy a new house. Many of our everyday activities can include failure, even without any noticeable punishments. I like to go down stairs two at a time, but if I lose my balance I may have to take the next 3 steps one at a time. I still had a specific goal I did not achieve (going down stairs two at a time), but there was no significant negative outcome. Regardless of whether the failure itself is great or small, or whether the associated outcome is significant or not, we do not like failure. We can typically identify why we have failed at something, whether it is by unfortunate circumstance or some personal inability to achieve the desired goal or outcome.

Failure within games is also very common. Players of games spend up to 80% of their time failing (McGonigal, 2011, Chapter 4, para. 1). In many ways though games are unlike our everyday life, and so it is reasonable to assume that failure within games will be different than failure outside of games. How might we identify these differences, and how can they help us define game failure as different from non-game failure?

It is important to first understand that games do not follow the rules which govern non-games. Games, and the rules which govern them, have been alternately described as

"arbitrary", "unnecessary", and comprising a "Magic Circle". The important distinction which all of these characterizations make is that the rules which govern games are not dictated by the rules which govern our non-game lives and that these rules are wholly accepted by players. In the board game *Mysterium* (Asmodee, 2015) players work together to solve the mystery of a murder. One character plays a ghost while the others play psychics trying to communicate with the ghost. The ghost cannot speak during the game and can only communicate by handing out cards with surrealist imagery on them in an attempt to lead the characters to the murderer, location, and weapon. The game would be much simpler if the ghost would simply tell the players which are the correct choices, but within the game this is not allowed. The rule against speaking is arbitrary in that it is not enforced by any rules governing behavior outside of the game (assuming the player acting as the ghost is not gagged for the duration).

If we think of games as a closed system, the "magic circle" being the thing which separates games from the non-game world, then we can think of game rules as the analogue of physics within that system. Bernard Suits uses golf as another example of this kind of restriction. It would be much simpler to pick up the ball and drive it over to the hole in a golf cart, but the players accept the rules governing how the ball may be moved towards the hole (only by hitting the ball with clubs). The action of moving the ball within this closed system only occurs when a club hits the ball (or if the ball is hit out of bounds). If the ball is moved in a different way, such as a player picking it up and carrying it to the hole, that action does not take place within that closed system because it violates the rules which govern game action.

As a game event, failure must occur through the mechanisms that govern game actions. If failure were to follow a different set of rules, it would not occur which the closed system of the game world. So we come to the first requirement of a definition for failure in games; **the failure must be caused by actions that follow the rules of the game world.**

Extending the analogy of non-game physical laws and laws governing game behavior, actions taken by players within the game must have reactions which also conform to the rules laid out by the game. *Tekken* (Namco, 1994) is a fighting game where each player avatar has a health bar. If that health bar reaches o, the player loses a round. The players fight each other with their avatars and each attack has a certain value which determines the amount of damage a player will receive. Because we know the basic laws that govern player actions, it would be strange to see an attack succeed in hitting another player avatar but have that player avatar not lose health. Likewise if a player avatar loses all of their health, the battle should not continue. Any response to player actions must also follow the rules governing the game. Thus, the second requirement of a definition for failure is **the results of the failure must follow the rules of the game**.

Finally, with respect to the effects following failure, we need to separate extra-gamic results of failure from in-game results of failure. In many cases, there are extra-gamic results of failure. These typically include, but are not restricted to, monetary bets and measure of status. Because the definition of failure within needs to be unique to games, the results of failure must likewise be unique to the game. Results of failure which occur outside of the mechanisms of the game may be important in understanding

how players experience gameplay and failure, but they cannot be a part of a definition. Therefore, **any results of failure must be limited to those which occur in the game**.

Combining these three requirements with a definition of general failure we can identify 4 requirements for defining failure within a game.

1. The failure is the result of deliberate player action in attempting to achieve a desired outcome
2. The deliberate player actions must have followed the rules governing gamic action
3. The state the player is in following the failure must exist within the confines of the game
4. The results of the failure must be contained within the game

To distinguish between failure in general and failure specific to games, which I call Loss, I propose the following definition.

Loss is a player state in a game, entered into when a 'Loss Condition' has been met by the direct actions of the player, wherein something valued by the player within the game is removed

The concepts of Loss Conditions and an examination of the valued things lost by the player will occur in the following sections where 4 distinct aspects which follow from this definition of Loss will be addressed in more detail.

With this character's death, the thread of prophecy is severed.
Restore a saved game to restore the weave of fate,
or persist in the doomed world you have created.
-*The Elder Scrolls III: Morrowind (*Bethesda Game Studios, 2002)

The Digital Dimension of Loss

The Loss Conditional

I want to propose a theoretical game. In this game, a player must hold up a weight. This weight is attached to small metal bar. This bar connects together two wires which completes a simple circuit and powers a timer. If the player lowers the weight, the circuit will be broken and the timer will reset. In this game the player's only available action is powering the timer. The player may struggle holding the weight until their strength wears out. Perhaps they develop strategies to maintain the weight longer, such as shifting the weight between their hands, or crouching to hold the weight above them. The timer is reset every time the weight drops, but the player may track their highest time. Maybe others come and compete to earn the highest time. Players may taunt other players, jeer at them, or try to distract them. Others may bring money, placing bets on their own performance and the performance of others. In spite of all of these things, all these ways in which the players have changed this game, one thing remains constant; the player has lost when the circuit is broken. Our hypothetical game only exists in two states, unbroken circuit and broken circuit, 1 or 0. When the circuit is broken, the game is in a State of Loss. When the circuit is unbroken, the game is in a State of Non-Loss. The binary state of this game is predicated on the flow of electricity through the circuit. By simple fact of staying on, the timer is constantly checking against this conditional. This conditional is what I call the Loss Conditional. It is what determines whether the player is still actively playing the game or whether they have lost.

The Loss Conditional is always digital — that is to say, it only has two states. Our hypothetical game had only one Loss Conditional, however most games will possess multiple Loss Conditionals. For example, the original *Mega Man* (Capcom, 1987) on the Nintendo Entertainment System has three Loss Conditionals.

1. Mega Man's health is greater than zero **or** Mega Man's health is less than or equal to zero
2. Mega Man is not in contact with a death floor **or** Mega Man is in contact with a death floor
3. Mega Man is not vertically scrolling to a non-existent screen **or** Mega Man is vertically scrolling to a non-existent screen.

These three Loss Conditionals were derived from this ROM dump of *Mega Man*.

```
MegaManKilled
0001C219: A9 FE     lda #$FE
0001C21B: 20 77 C4  jsr IssueSound                      ; $C477
0001C21E: A9 FF     lda #$FF
0001C220: 20 77 C4  jsr IssueSound                      ; $C477
0001C223: A9 20     lda #$20
0001C225: 20 16 D1  jsr TimeDelayWithAllObjectsHalted

0001C228: A9 31     lda #$31        ; Mega Man exploding
0001C22A: 20 77 C4  jsr IssueSound                      ; $C477

; if ((LifeMeter-=$0C)<=0) then Kill Megaman
$A23F> 38:      SEC
$A240> A5 6A:   LDA Meters+0
$A242> E5 0C:   SBC $0C
$A244> 85 6A:   STA Meters+0
$A246> F0 02:   BEQ +                                   ; $A24A
$A248> B0 07:   BCS ++                                  ; $A251
+
$A24A> A9 00:   LDA #$00
$A24C> 85 6A:   STA Meters+0
$A24E> 4C 19C2: JMP MegaManKilled                       ; $C219

; Spike?
; Spike kills in all three positions.
0001D7BE: C9 03     cmp #$03
0001D7C0: F0 1C     beq SpikeKill1

; Ladder?
0001D7C2: C9 02     cmp #$02
0001D7C4: D0 0A     bne +
0001D7C6: A5 30     lda CurrentTileState
0001D7C8: 1D DB D7  ora CurrentTileStateBits,x
0001D7CB: 85 30     sta CurrentTileState
0001D7CD: 4C D6 D7  jmp $D7D6
+
0001D7D0: C9 05     cmp #$05
0001D7D2: D0 02     bne $0001D7D6
0001D7D4: 85 94     sta MegamanWalkTimer
0001D7D6: CA        dex
0001D7D7: 10 C3     bpl -
0001D7D9: 98        tya
0001D7DA: 60        rts

CurrentTileStateBits:
    .byte $08 ;ladder here
    .byte $04 ;ladder above
    .byte $02 ;ladder above that

SpikeKill1
0001D7DE: 4C 19 C2  jmp MegaManKilled                   ; $C219


; Not in ladder, or scrolling position is not even (Xlo != 0)
$9242> A5 26:   LDA CurrentStripeEndType
$9244> C9 03:   CMP #$03
$9246> D0 0C:   BNE $9254
$9248> A9 00:   LDA #$00
$924A> 85 26:   STA CurrentStripeEndType
$924C> A9 F8:   LDA #$f8
$924E> 8D 0006: STA  ObjectPosY+0
$9251> 4C 19C2: JMP MegaManKilled                       ; $C219
```

Figure 1: Code from a *Mega Man* NES ROM image

These conditionals are necessarily constructed in a way such that at any point in the game a check can be run against the current configuration of the game system. In fact, looking again to our hypothetical game, the flow of electrons through the circuit implies that the system is checking against the Loss Conditional at every moment in which the

game is being played. This allows us to very easily construct a Loss Conditional Tree to determine the state of the game at any point.

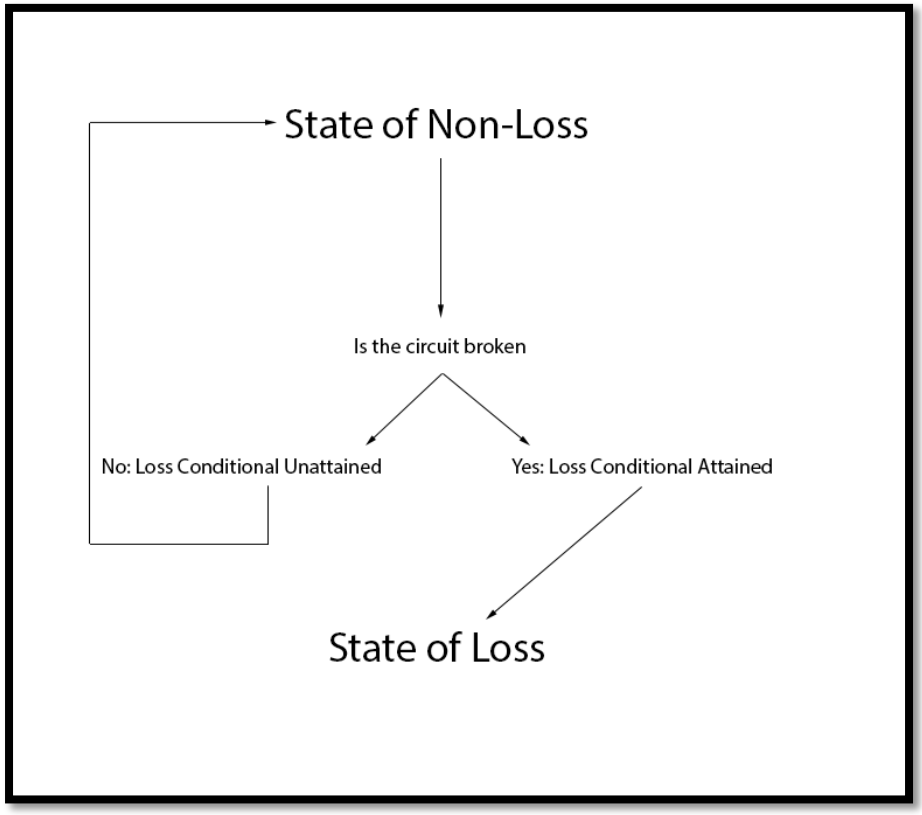

Figure 2: Example of a simple Loss conditional tree

Such a conditional tree can be constructed for any game. As I mentioned before, *Mega Man* has three Loss Conditions, so a Loss Conditional Tree for this game will have three branching paths. *Mega Man*, as a digital game, represents one level of abstraction away from our Weight Game. Whereas in the Weight Game the Loss Condition represented a physically necessary continuous check, in *Mega Man* this is a programmed continuous check. In a sense, this check is still one of physical necessity the hardware for the game is produced in such a way that there is a physical response to the conditional which causes the state change), but *Mega Man* can exist as a full game without being in either state, i.e. the cartridge is not currently being played.

For the vast majority of games, however, this physically necessary state change does not exist. Board games, card games, words games, and games of physical fitness do not possess the physical necessity of digital games. Though they require an abstraction from the physical entirely, the Loss Conditionals still are present in their binary form. Once one becomes accustomed to thinking about Loss Conditionals, it becomes quite easy to identify them.

Once a person is experienced enough with a game, it becomes easy to understand the construction of the game from this conditional perspective. We become familiar with what precedes losing and what happens when the game transitions to the State of Loss. This familiarity however leaves something hidden. We may know what losing is from a rulebook or a screen telling us we have lost, but what exactly is the State of Loss?

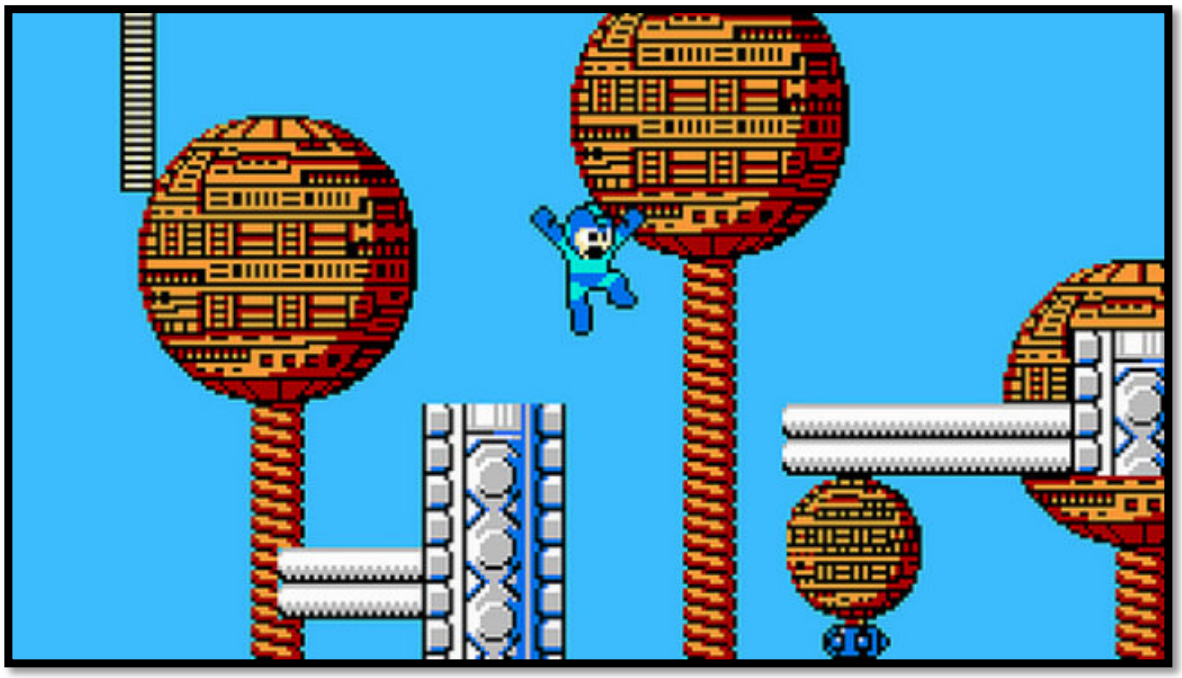

Figure 3: *Mega Man*, Capcom, 1987

The Role of the Player

I don't wish to engage here with Wittgenstein's concepts of familial resemblance in language, for that would be an entirely different endeavor, but the idea that losing is something experienced and felt but not readily defined is an attractive one. As players, Loss is a unique event which seems present in every game, but its myriad presentations seem to defy strict categorization. Playing *Super Mario Bros.* for just a few minutes illustrates this quite well. Have I lost when I fail to get a mushroom before it goes offscreen? What about when I am hit by a Goomba, but am only shrunk down? Perhaps I fail to make a jump several times in a row and become frustrated. What distinguishes these events from the case in which I lose a life and must restart from a checkpoint? If the game did not inform me that the event was unique by playing a death animation and showing a black screen before restarting me at a checkpoint, would I recognize that as being different in some way to the previous examples? This approach assumes one very large, and ultimately faulty premise; that a player is necessary for Loss to exist.

Following our abstraction away from physical necessity and to the non-physical Conditional Trees, it is prudent to ask whether the player matters at all in establishing the State of Loss. I currently own several games which I have never played (a tragedy which most gamers are familiar with), but it is not a requirement to have played them to understand how I may lose in them. Even if I never played *Super Mario Bros.* and never experienced the myriad of personal failures one might encounter, I could still understand that falling down a pit will kill Mario. There are clear rules governing which configurations of various game elements lead to the state transitions in the Loss

Conditional Tree, but from the perspective of the system that is the game the way in which that configuration was arrived at is inconsequential.

The rules of the game govern the results of player actions even in the absence of a player. The possible configurations of the game in which a player could find themselves conform to the restrictions placed on their actions and map onto our Loss Conditional Trees. Any game has a large, but finite, set of possible configurations of the elements which make it up. These exists without any player having ever played the game. For every one of those configurations, the game either remains in the State of Non-Loss, or moves into the State of Loss.

If we think of a game as a house, there are a finite number of rooms within that house. Whether it is a 192 square foot tiny house or the 2.15 million square foot Istana Nurul Iman Palace of Brunei there is still a finite number of rooms one can enter and a finite number of ways to get to those rooms while staying within the confines of the house. In the same way that the rooms of a house exist regardless of whether a person enters it or not, the State of Loss is a part of every game which exists by necessity, regardless of whether a player is playing the game or not. From the perspective of the player, each instance of Loss is unique because they have arrived there in a different way, but this perspective is misleading. The journey may have been different, but the destination (the State of Loss) is the same, and in fact must be the same because it is a part of the 'architecture' of the game.

However, simply discussing configurations as static states ignores the communication which occurs between game elements. The Binary Dimension of Loss does not simply exist without a player, it is best understood as independent of the player.

A Conversation

The rapid rise of digital games has changed the way many people think about games. Prior to this, the players were the arbiters of the game rules. If a player missed or ignored an important rule, the game continued on. However, once a game becomes a programmed artifact the player no longer holds that role. Returning to our *Mega Man* example, what role does the player hold in determining the outcome of the Loss Conditional checks? The player does not tell the game what value Mega Man's health is, or how much damage an attack does. The player does not mark which areas are death zones and provide a level map to the game. The game tracks all of this by itself, all its parts interacting with each other.

The Loss Conditional Check is something which occurs as a constant process. The check could not be a single event, for the simple fact that it would not be possible to predict when the game should 'look' for a configuration which would meet the requirements of prompting a state change. To use an (admittedly oversimplified) analogy, if a person's job was to send a message every time they saw a flag raised at a specific spot, they would need to constantly be looking at that spot. Unless they were given a specific set of times to look for the flag (in which case there would be no need of a watcher at all) they would need to be constantly checking for the flag by looking at that spot. In addition, because the appearance of the flag prompts the transmission of a message, the act of raising the flag is a method of communication.

Obviously a game does not 'look' in the same way that our hypothetical flag observer does, but the analogy demonstrates the necessity of constantly running a Loss Conditional Check. Also as in the case of our flag observer/messenger the act of

presenting a response to the Loss Conditional Check is a form of communication between elements of the game itself. In this case, the message refers to the current configuration of key elements of the game. Though the elements comprise a single artifact, the game, they can be understood as being in a form of constant communication with each other. Though we may not be able to understand what it is like to be a program, or a digital game program to be more specific, the closest that we may come to understanding this experience is as a constant conversation regarding the status of oneself.

This extends to the realm of non-digital games as well. The difference here is that the game does not have the ability to execute the state change on its own. The player must enact the state change, however this does not man that the 'conversation' between game elements only occurs in the realm of digital games. When the player fails to enact a state change, this is comparable to an instance in which an action within a digital game stops a state change after the requirement of the Loss Conditional has been met. For example, *Olympus* (MSU GEL Lab, 2013) is set in a fictionalized journey through several Greek legends. In this game, when they player's character reached 0 health, they had to struggle against the hands of Hades which were pulling them into the underworld. If the player failed, the game entered into the State of Loss. But at one point I triggered a cutscene while struggling against the hands of Hades. When the cutscene ended, I had full control of my character, but the hands of Hades continued pulling at me. Because of this, my health was stuck at 0 but the state change never occurred. As a result, I was essentially immortal because I could take no damage from enemy attacks and no longer needed to fight against the hands of Hades. Clearly the game properly communicated the configuration which preceded the state change, but a disruption in the medium of the

change (the program code which enacts this change) caused the state change to not occur. It is the same with a player of a non-digital game who fails to recognize or ignores when a state change should occur; the state change should have occurred, but the game continues as though the Loss Conditional was not met.

Figure 4: *Olympus*, MSU GEL Lab, 2013

With respect to the Binary Dimension of Loss, the perspective of the game itself is what matters, not the perspective of the player. Loss Conditional Trees represent how this game communication takes place, but the actual conversation is one which a player cannot truly be privy to, but only approximate.

The State of Loss

While we have avoided the complicating role of the player, in *Super Mario Bros.* the instance of hitting a Goomba and shrinking down is still allowed within the possible configurations of the game devoid of player experiences. Does this event count as an

instance of Loss? When this happens, the player loses access to some of their abilities, is no longer able to get the Fire Flower power-up, and is now one hit away from death. These all seen as though they are punishments for the bad performance of the player. Punishment and failure however are not synonymous with Loss. I would argue that there are two elements which distinguish the State of Loss from other game events.

1. A measure of player effort is taken away from the player.
2. Actions which the player would be able to take in the State of Non-Loss are no longer available to the player in the State of Loss.

I will be addressing the first element in more detail in a later section on the Value Dimension of Loss, but I will give a brief defense here. Loss should not be seen as equivalent to punishment, however Loss is a unique game event and punishment is an aspect of it. Capital 'L' Loss is an event which is not just unique within a game, but is unique to games. Therefore, what distinguishes it from other game events must also distinguish it from non-game events as well. It is something which must be bound by the magic circle of the game, and so can only act on things which happen within the circle. Finally, because it is something which occurs to the player, it must be concerned with the role of the player within the game. The only thing which meets all of these criteria is something which takes away something the player has achieved in the game, a measure of player effort. This may be in the form of points, progress, in-game currency, etc. but it must be relegated to the player's effort in the game world.

The second aspect is one which is more directly connected to the Binary Dimension of Loss. If we can distinguish whether a game is in a State of Loss or a State of Non-Loss after a Loss Condition has been met, and we accept a finite number of configurations that

any game can exist in, then the State of Loss must represent a change in the possible configurations of the game from the State of Non-Loss. Indeed, if these are two different states, then there must be no overlap in the of game elements possible in each state. In our previous example with *Super Mario Bros.*, even after Mario is hit by a Goomba and shrinks down, it is still possible for Mario to get another Mushroom and return to a larger size. Even though a small Mario cannot break blocks, the blocks are still breakable. These configurations are still allowed by the game. Though it is not possible for Mario to break the blocks, that configuration is still technically allowed, even if it is not realizable with the current options available to the player. The only way for a total state change to occur would be if the blocks were no longer breakable regardless of the status of Mario's height, or if the Mushrooms were no longer collectible at all. For this to occur, even the possibility of those actions being taken by the player must not be allowed as a configuration within the State of Loss. The only possible configuration of game objects in this case is if the ability of the player to do those things is removed entirely. Within *Super Mario Bros.* then the State of Loss is one in which control is removed from the player. Likewise in our hypothetical Weight Game from earlier in this chapter, the only possible set of configurations which would separate the State of Non-Loss from the State of Loss is one in which the timer no longer tracks player progress.

The State of Victory?

I have thus far focused on the State of Loss and the State of Non-Loss, but is there a third state, a State of Victory? Obviously for some games there is no explicit way to 'win'. The most obvious example of such a game is *Temple Run*, a popular game in the Endless Runner genre. In Endless Runners the player simply attempts to avoid obstacles

and gain points along a randomized track until they hit an obstacle and can no longer continue. The player must then restart with zero points and attempt to get more points on subsequent runs. Other games present the player with persistent worlds which provide the player with individual challenges without a defined ending. MMORPGs, such as *World of Warcraft* (Blizzard, 2004), and open world RPGs, such as *Kingdoms of Amalur: Reckoning* (38 Studios, 2012). These games are in the minority. Most games have an end and a way for the player to win. In single-player and cooperative games, simply reaching the end is equivalent to winning. In competitive games, there is typically a restriction on the length of the game and there are some criteria for determining the winning player at the end.

Figure 5: *Kingdoms of Amalur: Reckoning*, 38 Studios, 2012

When we compare winning to the State of Loss and the State of Non-Loss, is there anything unique about winning? When the player wins, the game typically ends. In the case of a game continuing after an 'ending', this almost always consists of a feature

allowing the player to go back through the game with some changes, as in the NG+ feature of *Bloodborne* (FromSoftware, 2015), or further explore the world of the game, as in *Fallout 3* (Bethesda Game Studios, 2008). In these cases, the player has clearly stayed in the State of Non-Loss as the game continues on as it did before. Card games and board games have definite endings to them, at which point players no longer have any moves available to them, which fulfills the second requirement of the State of Loss, players can no longer perform actions available in the State of Non-Loss, but for the winning player the first requirement is not fulfilled. The player's effort has resulted in their being evaluated as the best player in competitive games, or as having beaten all of the challenges within the game in the case of single-player and cooperative games. Thus, there is no need for a State of Victory. The State of Non-Loss covers the game event of the player winning. Perhaps we could conceive of victory as being a special instance of the State of Non-Loss, but it does not require a unique classification.

Multiplicity and Persistence of Loss States

Though we've already established that there can be multiple Loss Conditionals within games, is it possible to have multiple States of Loss? Following the previous interrogation of the uniqueness of the State of Loss, it would seem that multiple States of Loss would necessarily entail different measures of player effort being taken away and different sets of game elements configurations not shared with the State of Non-Loss or other States of Loss. In fact, going by these requirements, it may even be possible for a game to be in a State of Loss with respect to one set of game element configurations, but in a State of Non-Loss with respect to another. Outside of the hypothetical existence of

such a set of states, are there concrete examples of multiple States of Loss within a game? And if there can be multiple States of Loss, does this suggest a non-binary framework?

While uncommon, there are games which have multiple unique States of Loss. *The Elder Scrolls III: Morrowind* (Bethesda Game Studios, 2002) is an example of such a game. *Morrowind* is an open world RPG which contains multiple questlines, but one primary questline which follows and resolves the main plot of the game. One of the possible States of Loss occurs when the player character's health has reached zero. When this happens, the player loses all player controls and must restart from a previous save point to re-enter the State of Non-Loss. However *Morrowind* is unique in that it is possible to kill every Non-Player Character (NPC) in the game. Among these killable NPC's are ones required to complete quests, including the main quest. If such a NPC is killed, the player is presented with the message which begins this section. The player is told that the thread of prophecy is severed and the world is now doomed. The player can no longer proceed in the main questline. (Though it is possible to still complete the questline by killing the final boss Dagoth-Ur through a clever use of a Scroll of Icarian Flight, the Sunder/Keening glitch, and several clipping glitches, the actual quests in the main questline are no longer accessible.) There is no longer any configuration of the game in which these quests are accessible, and any effort the player has put into completing the questline no longer has any worth insofar as it relates to the completion of the quests. If the player chooses to continue playing, they are now in a State of Loss which is unique from the State of Loss which occurs when the player character's health has reached zero.

What the previous example also shows is that States of Loss can be persistent. Another example of such a persistent State of Loss is in the game *Valdis Story: Abyssal City* (Endless Fluff Games, 2013). Within *Valdis Story*, it is possible to save the inhabitants of several cities the player encounters throughout the game. Saving these citizens requires completing specific tasks before reaching certain points in the game (previous version of the game required performing certain tasks before the total play time reached a set point). If any of these groups of civilians are not saved, it will be impossible for the player to receive a certain ranking at the end of the game, and any effort the player has put towards achieving this ranking is, to put it simply, moot.

Establishing a State of Loss

The previous example brings up a complicating aspect of the State of Loss, namely whether it is possible for Loss Conditionals to exist outside of the explicit rules of the game. Below are two possible Loss Conditional Trees of *Valdis Story: Abyssal City*.

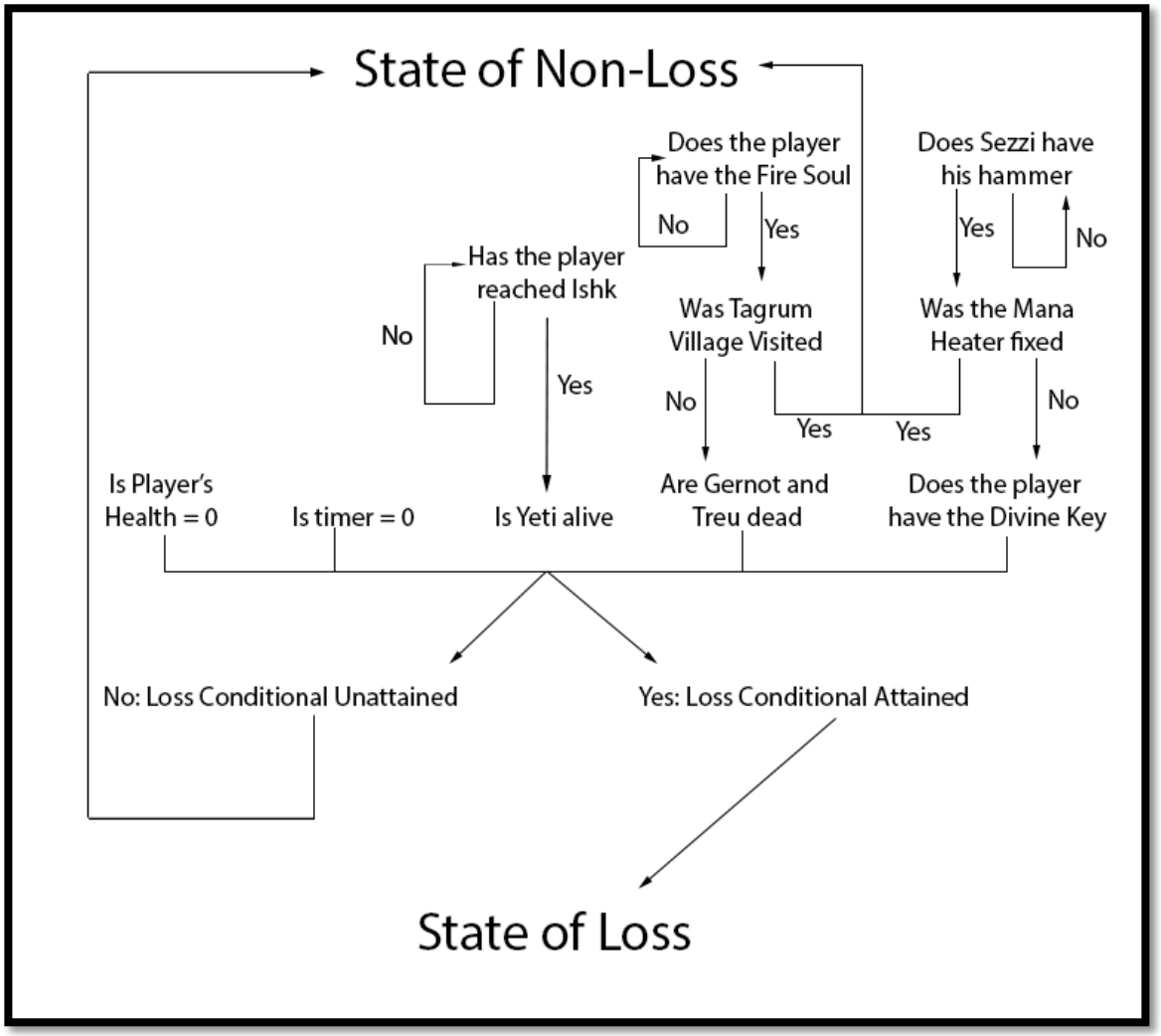

Figure 6: Loss conditional tree for saving villagers

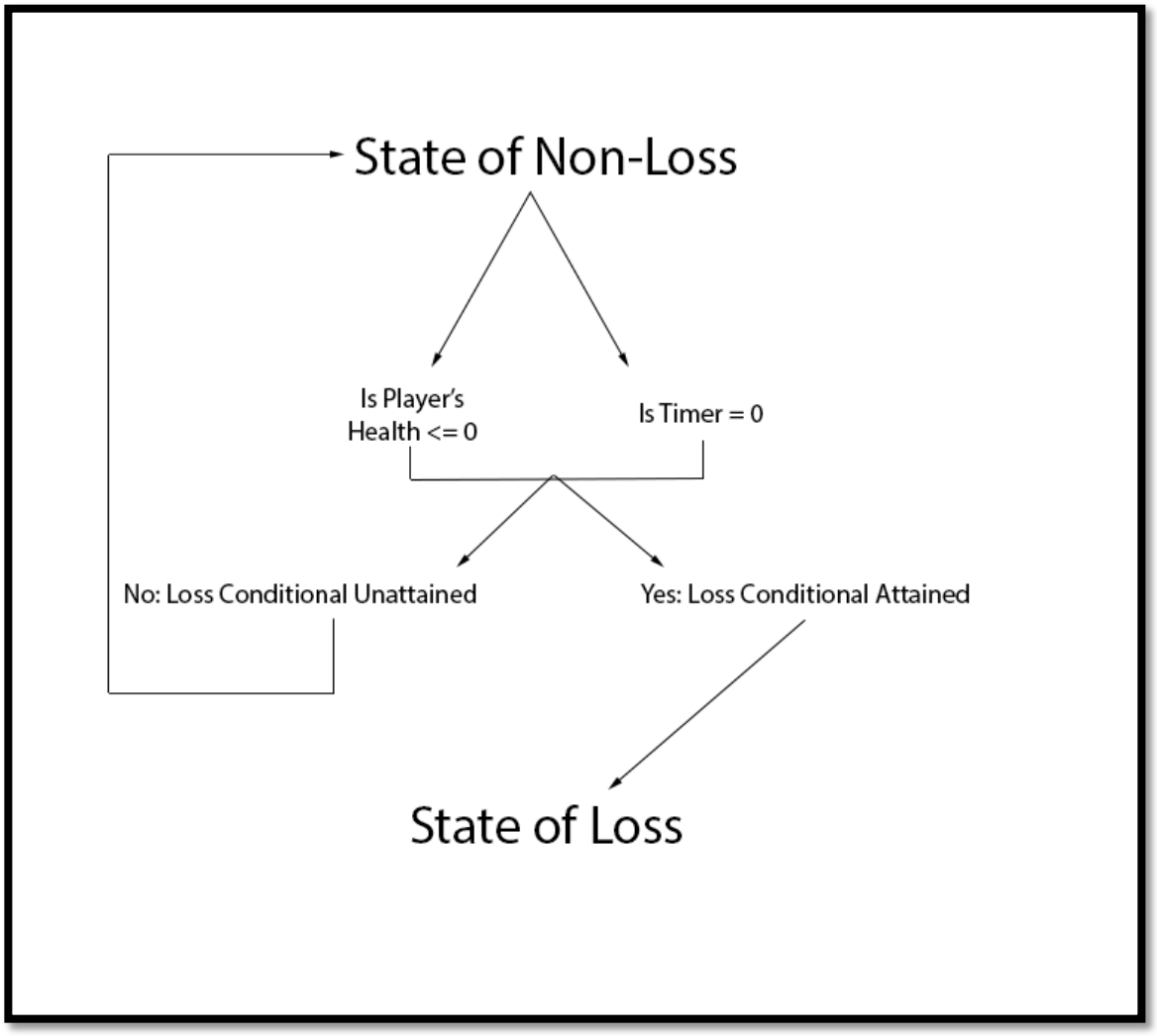

Figure 7: Loss conditional tree without saving villagers

We can see that, in this case, what seems to be the same game can be construed as having different States of Loss. If the State of Loss is a unique state within a game, how is it possible to have two different Loss Conditional Trees for one game? There are two possible answers to this problem.

1. One of the Loss Conditional Trees is wrong.
2. The two Loss Conditional Trees represent two different games.

The first option seems the most likely. The only reward for saving the civilians is the receiving of a specific ranking at the end of the game. Receiving or not receiving a reward seems to be a different type of game event than the ones we have been looking at as instances of Loss. However, I would argue that in fact it is the second possibility that represents the nature of Loss and that this second possibility provides a fuller understanding of the relationship between players and games.

To understand this, we need to take a detour into the realm of extra-gamic challenges. These are challenges which are not in the established rules of the game (rulebooks for physical games and the programmed code of a digital game). These challenges are self-imposed and typically are introduced to increase the level of challenge in a game. This may be a result of subverting the expectations of player behavior, introducing extra role-playing elements into the game, exploring the limits of the mechanics of the game, etc. but they all require the player to play the game with a different set of Loss Conditionals. One of the most common examples of this type of extra-gamic challenge is the speedrun.

Speedruns are attempts to beat a game as fast as possible. Even within the realm of speedrunning there are numerous types of speedruns (100% runs, any % runs, no glitches, low level, etc.). However, what is important to understand is that the speedrun imposes a restriction on the player, completing the game within a certain timeframe, which is not present within the basic rules. When we compare the way in which speedrun goals are treated, see that it is indistinguishable from the way in which States of Loss are treated. When a player goes over a self-imposed time limit, the totality of that player's effort in that 'run' is lost because it is no longer possible for any configuration of the speedrun endpoint (typically, but not always, the end of the game) to occur within the speedrun

timeframe. The player must start over completely to re-enter the State of Non-Loss as it relates to the speedrun. In addition to speedruns, some of the more common extra-gamic challenges are low-level runs, low kill runs, and low death runs. But does this point to the introduction of extra-gamic challenges creating a new game, or does it suggest that we should introduce a third element to our definition of the State of Loss, that the State of Loss must exist within established rules of a game?

While the physical necessity of Loss Conditionals leading to the State of Loss within digital games helps illustrate many aspects of the Binary Dimension of Loss, here it can be misleading. It is important to remember that the rules governing games, and thus the rules governing the Loss Conditionals, are arbitrary. Self-imposed Loss Conditionals are no less arbitrary than the explicit rules governing the traditional form of a game. Introducing new Loss Conditionals necessarily introduces new rules into the game, creating a different game. Though it may be viewed as a simple variation on a game, it is still a different game in the same way that a variation on a melody represents a different piece of music.

The final issue which needs to be addressed is whether it is possible for two players to be playing different games at the same time. If for example, I am playing the board game *7 Wonders* (Bauza, 2010) with three people, and I have decided that I am introducing a self-imposed extra-gamic challenge, that the majority of my points must come from green (technology) cards, am I playing a different game while also playing the game that the other three people are playing? Though it is a complex situation, I believe the answer is yes. Following from the previous claim regarding the uniqueness of games with the addition of extra-gamic challenges, I would be playing a different game. I would share a

Loss Condition with the other players (not having the highest points when the game has ended) which is also present in the game I am playing, but because I am following a different arbitrary set of rules which only has partial overlap with that of the other three players I am in fact playing a different game.

The Absence of Loss and the Anti-Game

Alexander Galloway in his book *Gaming: Essays on an Algorithmic Culture* (2006) discusses the concept of the Anti-Game. Galloway identifies the Anti-Game as a reinterpretation of the elements of a game or the subversion of a game archetype for artistic or expressive purposes. I like the concept of the Anti-Game, however I believe that there is a simpler and more comprehensive definition for such a game. An Anti-Game is something which is constructed with or resembles the elements of a game but does not possess a Loss Condition.

Many of the examples he provides are art pieces which use pieces of games, such as *Adam Killer* (Condon, 2000), but I would also include media artifacts such as *Journey*. I do not think that assigning something the title of Anti-Game is a negative characteristic. In fact I very much enjoyed *Journey* and appreciate *Adam Killer*, but such media artifacts cannot be considered games in the the absence of any Loss Condition. And this is not exclusive to digital artifacts. When one is playing with other in a rough approximation of the rules of baseball, but does not keep track of score or impose a set limit on the duration of play, this too would be considered an Anti-Game.

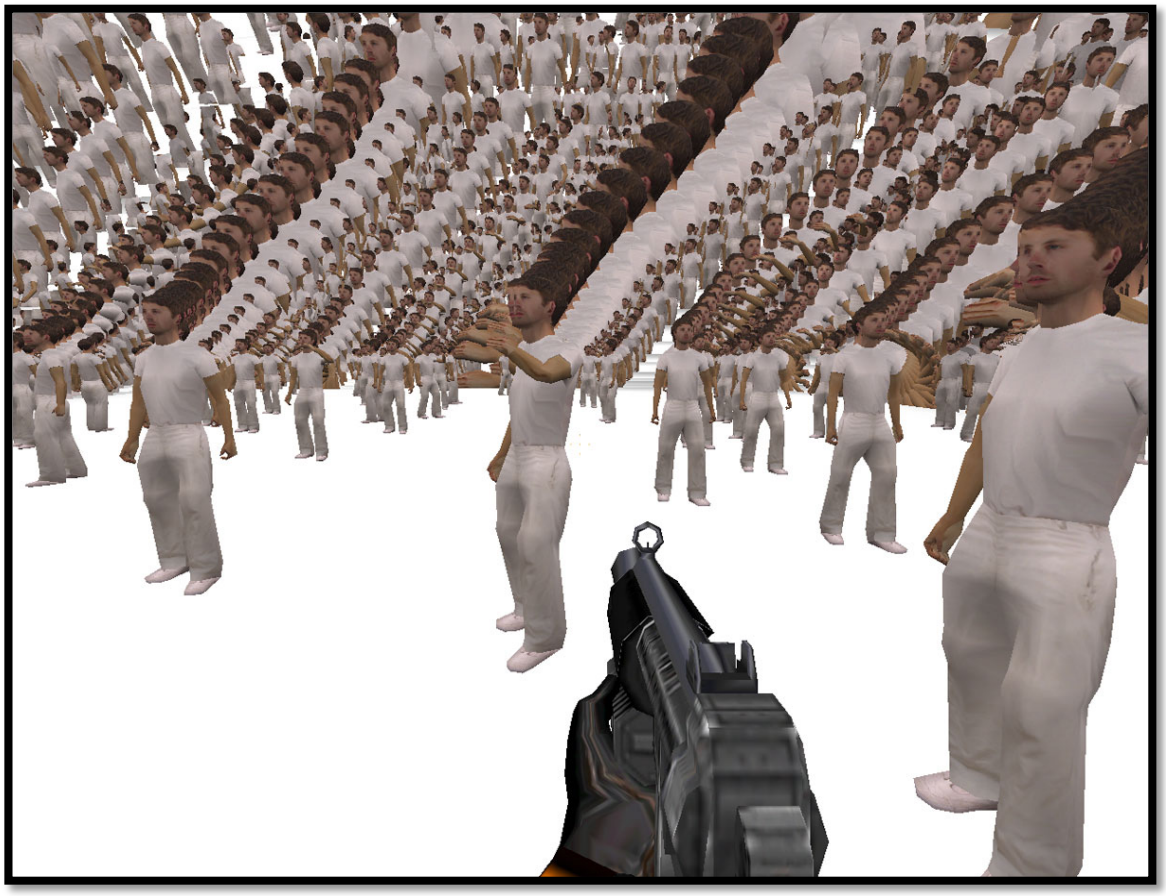

Figure 8: *Adam Killer*, Codon, 2000

(While I use the terms 'playing' and 'play' to refer to engagement with non-game activities, exploring the role of games as nonessential to play is outside of the scope of the current project.)

The Creation and Ontology of Loss

As I discussed in the beginning of this investigation into Loss, I believe that Loss is a defining characteristic of games, and that a shared vocabulary of Loss will assist in interdisciplinary discussions of games. The Binary Dimension of Loss is the most basic dimension of Loss, and speaks to the understanding of Loss as an essential element in defining what a game is. As a grounding, I hope this helps refine discussions of games within the realms of anthropology and sociology, but also in cross-disciplinary work

between those fields and designers of games. I think such work holds a lot of promise which I have not yet seen explored, especially as it relates to studying games as objects outside of their cultural role or value.

Looking at games from this perspective also suggests that games can be viewed as objects with their own unique ontology. I have not seen explorations of games as objects with their own unique being, but I hope that this conception of the Loss Conditionals and communication of the game within itself may lead to such investigations.

Predicting a players (sic) actions perfectly as to maximize surprise and humor/frustration is a way a game can have good level design. The level design is accomplishing it's (sic) goal and doing so quite well.

-Michael O'Reilly, creator of *I Wanna Be The Guy*

The Design Dimension of Loss

Devil May Cry (Capcom, 2001) is one of my favorite games. I have played through the game more than thirty times. It is the reason that the extreme action genre of games became one of my favorites. It is well known for its fast paced battle, high level of difficulty, and stylish action. Several years after D*evil May Cry* was released, a prequel to the original NES *Ninja Gaiden* (Tecmo, 1988) games was released, similarly titled *Ninja Gaiden* (Team Ninja, 2004). There have been many comparisons made between these two games, and while I did enjoy both of them, there was one aspect of *Devil May Cry* which I felt *Ninja Gaiden* fumbled on. When playing *Devil May Cry*, whenever I died, I felt as though it was my fault because I didn't properly gauge distance, or my timing was off, or I had made some other tactical error. In *Ninja Gaiden* I frequently would die because enemies from offscreen would come in and interrupt what I was doing or kill me with exploding projectiles. Unlike in *Ninja Gaiden*, *Devil May Cry* showed me how I was going to die, and it was through my own error that I died, not because I was surprised by something.

While I may feel as though *Devil May Cry* was more fair in how it doled out deaths, I still understood how I died in both games. From the perspective of the Loss Conditional Tree, these two games are almost identical; when the player character's health is equal to zero, the game has entered into the State of Loss. In spite of the

similarities at the level of the Binary Dimension of Loss, the way in which death occurs from the perspective of the player is very different. The transformation of the Loss Conditionals into game events where the player may experience Loss is the Design Dimension of Loss.

Communicating with the Player

With respect to the Binary Dimension of Loss, I argued that it was best understood as a conversation between different elements of the game itself. The Design Dimension of Loss could be understood as a kind of conversation, only here it is between the game designer and the player. The player is presented with various scenarios in which they may encounter an instance of Loss, and through these experiences the designer communicates the Loss Conditionals to the player. In understanding the Loss Conditionals, we sought to escape from the subjective experiences of the player to avoid falling into the problem of defining based on familiarities between instances of Loss. However, here that familiarity makes sense if we understand that the player never directly experiences the Loss Conditionals, but only can experience the Loss Conditional as it is portrayed by the designer. It is a result of experiencing Loss as individual game events rather than mapping those events onto a single, static conditional.

Unlike the communication between game elements, which is continuous, the conversation between game designer and game player is temporally disjointed and discrete. In a sense, the game designer must predict the possible responses a player may have to a game event and prepare a response. The game designer must also understand that these game events in which Loss can occur are singular. Even if all of the game elements were in the same configuration during two instances of a game event which

leads to an instance of Loss (which in itself is highly unlikely outside of an event which only occurs under specific circumstances) because the player is involved extra-gamic activity also factors in. There will never be any two game events, and thus no two instances of Loss, which are identical. I will come back to the issue of extra-gamic elements in a later section, but for now I want to address the issue of temporally disjointed communication and how we might be able to represent such communication within a game.

The Loss Diagram

At any time during active gameplay (excluding non-active events such as cutscenes or pause screens) when the game is in the State of Non-Loss, it is possible that the player may encounter an instance of Loss. As with the discussion of the Binary Dimension of Loss, this refers to the possibility of game elements being configured in such a way that the game could enter into the State of Loss. Therefore, even if the player is in a particular situation where there are no enemies or obstacles which could reduce their health to zero present, there is nothing within the rules of the game which would preclude those elements from damaging and killing the player in that situation. However, because the design of Loss is concerned with specific game events, it is better to understand it as a finite amount of possible game events rather than merely the possibility of fulfilling a Loss Conditional.

Such possible unique game events could be represented individually as shown below in three images of *Castlevania* (Konami, 1986).

Figure 9: ***Castlevania*****, Konami, 1986**

Figure 10: ***Castlevania*****, Konami, 1986**

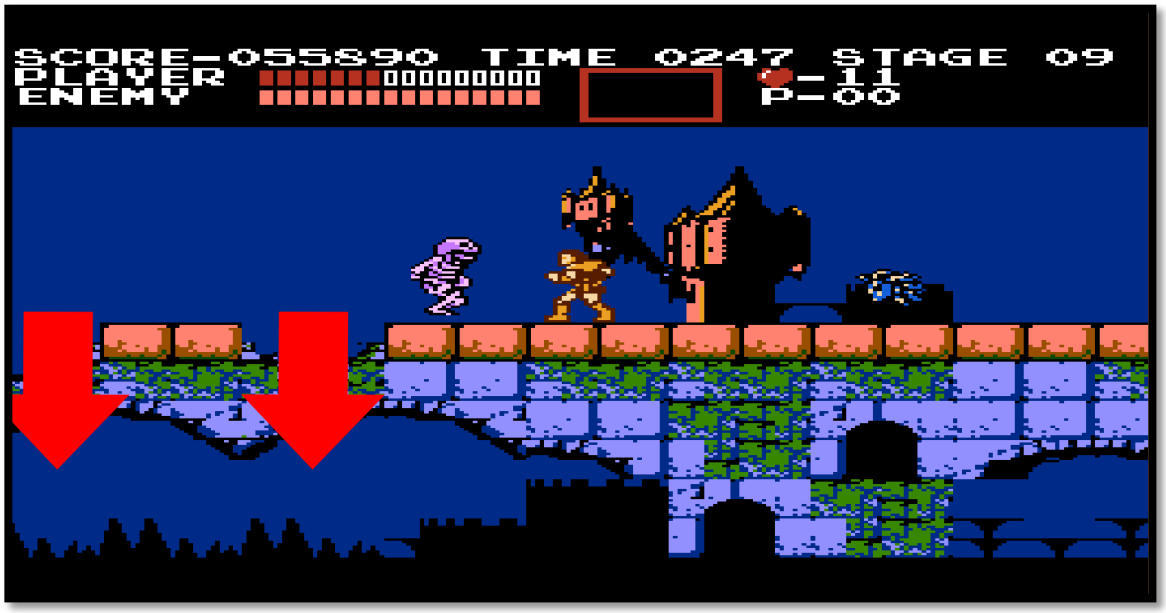

Figure 11: ***Castlevania*****, Konami, 1986**

While this may be useful in some cases, plotting out all possible game events in which the player could experience Loss is unreasonable. Instead, I propose the concept of the Loss Diagram.

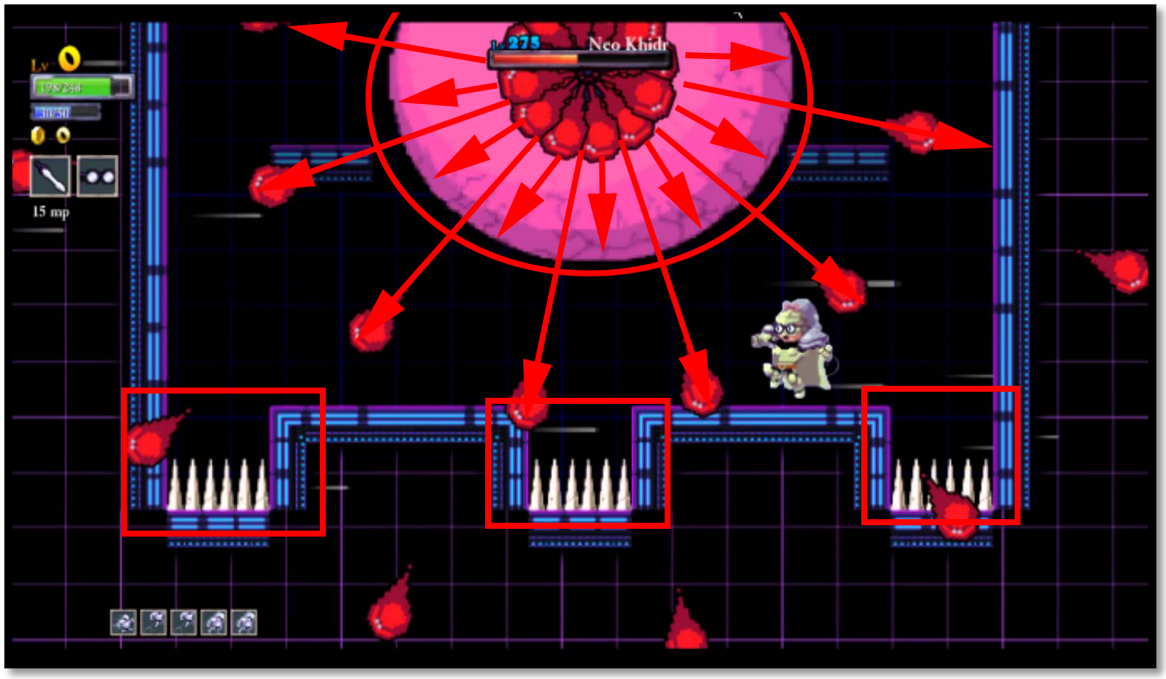

Figure 12: ***Rogue Legacy*****, Cellar Door Games, 2014**

In the above diagram, we can see all of the possible situations in which the player could experience an instance of Loss. If we understand the player's possible actions in the game which may lead to Loss, that too can be plotted out.

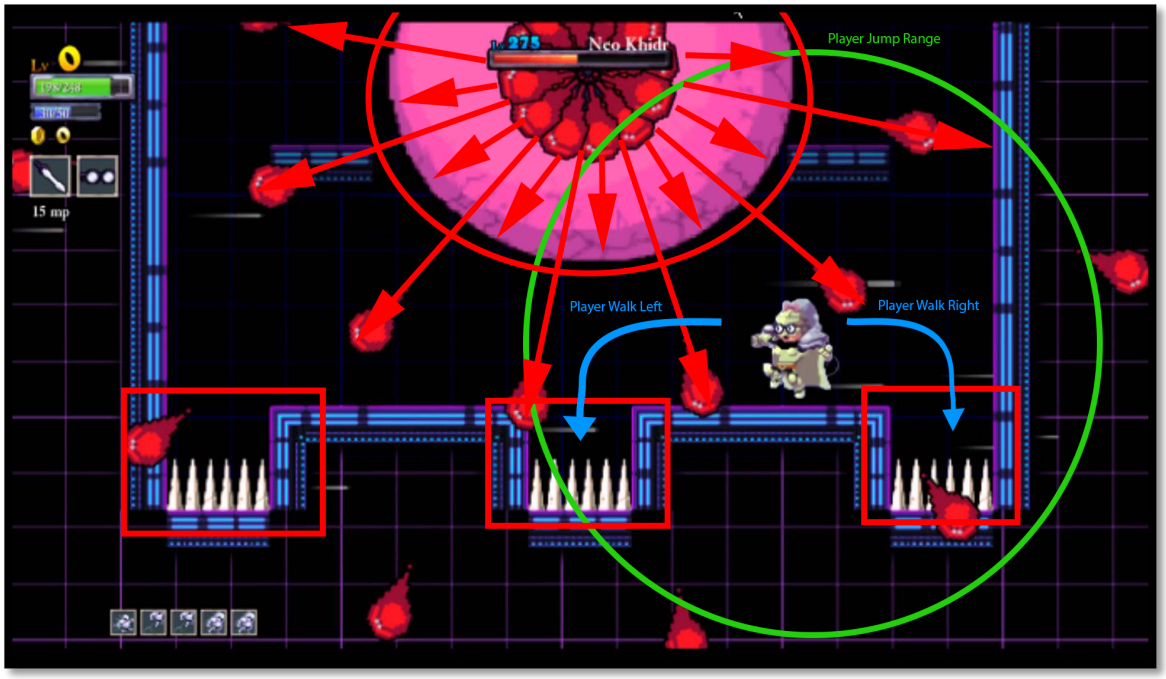

Figure 13: *Rogue Legacy*, Cellar Door Games, 2014

We can see that mapping the possible character actions are more situational and do not tell us as much about the possible configurations of the game elements as the basic Loss Diagram does. This is not a failing in representation however; it speaks to the importance of understanding designing Loss within a game as creating a set of possible response to a player. Because the communication between the designer and player is temporally disjointed, this is the only way in which the designer can effectively respond to them; by planning out a realm of possible responses to the player. These examples have all dealt with single player games in which the designer takes on an adversarial role, but Loss Diagrams can be constructed for any game.

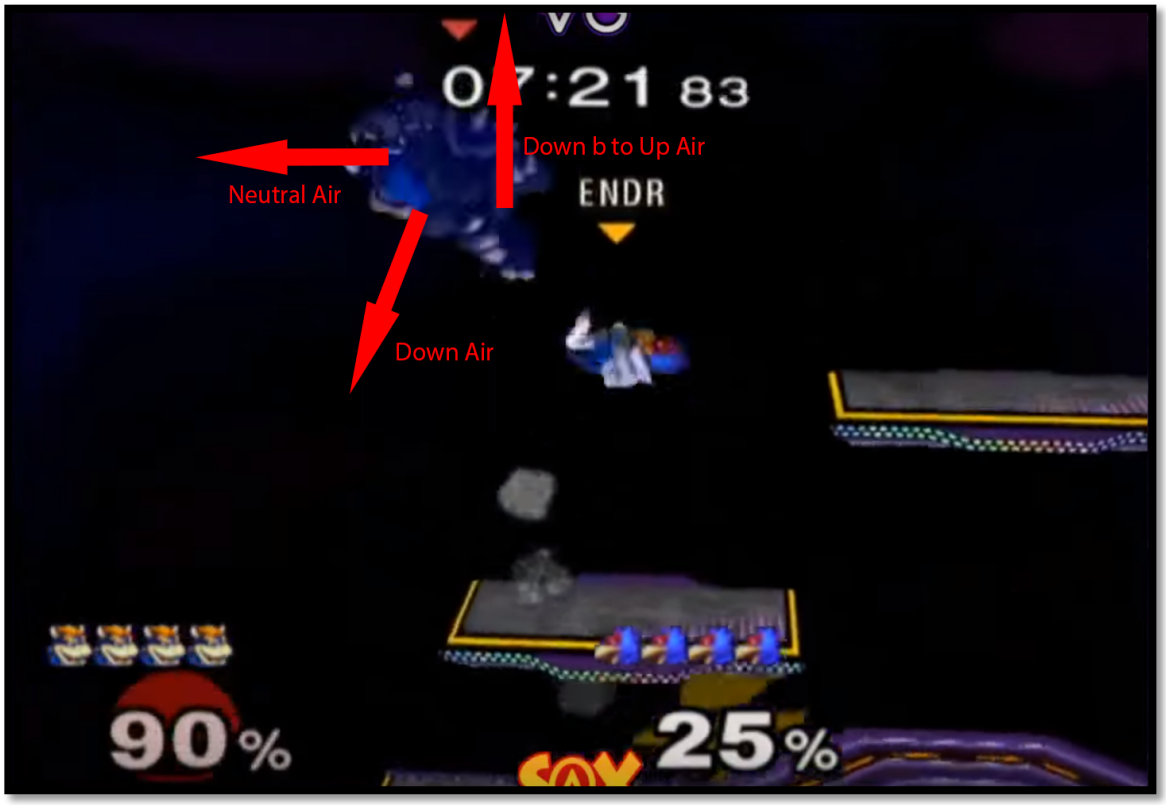

Figure 14: ***Super Smash Bros. Melee*****, Hal Laboratory, 2001: Smash @ Xanadu, 3/18/2015 DJ Nintendo (Bowser) vs. Bones (Falco)**

This Loss Diagram is much more complicated than either of the previous diagrams because in this case the designer is not just engaging in a temporally disjointed conversation (because the characters can all be computer controlled) but creating a vocabulary around which players may have this kind of conversation with each other.

Vocabulary and Conversation

While other terms could be substituted here for 'vocabulary' and 'conversation', I find these to be the most useful because they connect our familiar linguistic relationships between a rigid structure and complex expressions within that structure to the similar dynamic between the design of a game and the possible gamic actions within it (indeed one could even draw a connection between the adoption of new terms and phrases in a

language with the adoption of new Loss Conditionals, but I think that stretches the analogy to the point of possible confusion).

The simplest expression of this language is

1. What can the player do/what are the affordances?

2. What is the result of a specific player action?

3. What is the new configuration of game elements post player actions?

4. Does a state change take place?

Every situation a player faces within a game where they have control can be broken down into a statement which follows this vocabulary. It defines the structure of the game and the way in which available player actions will influence the configuration of game elements. Though the vocabulary of gamic action is an interesting topic, it is not one which I will be exploring here. Instead I want to focus on how this vocabulary enables the communication between designer and player.

Let's return to the previous example of *Mega Man*'s Loss Conditionals and represent them with a Loss Conditional Tree.

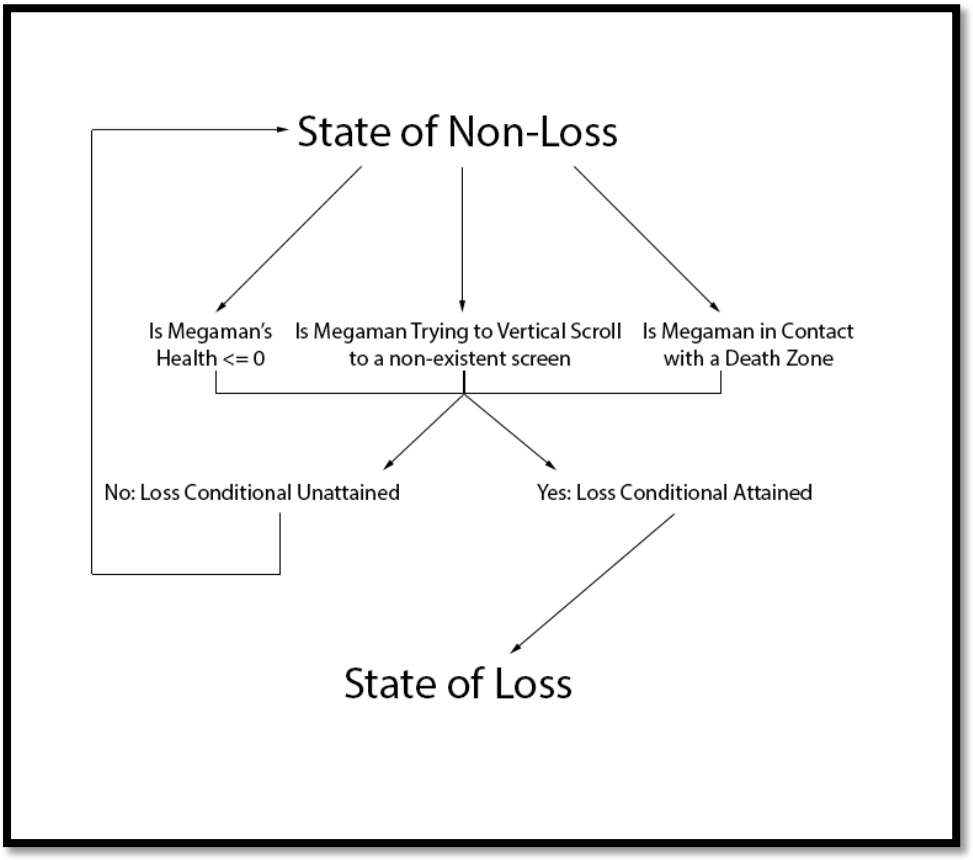

Figure 15: Loss conditional tree for *Mega Man*

While it is true that some enterprising players may take apart the ROM code to discover the exact conditionals which result in Mega Man's death, one would not expect this to be common knowledge. When a player falls off of a platform into the abyss, they understand that Mega Man fell to his death. However, looking at the Loss Conditional Tree, we can see that what has happened is that Mega Man has attempted to scroll onto a non-existent screen. So how do we resolve this issue? Is the player wrong in their estimation of the situation? Is the Loss Conditional deficient when it is lacking the context of the gamic event presented to the player? I propose that in these two different

interpretations are different perspectives resulting from the difference in vocabulary between the designer/player and the game/itself.

A game can be constructed as a series of unique, discrete configurations of game elements. Each of these inform the next unique configuration of game elements. This is the what a game is in even in absence of the physical necessity found in digitally programmed games. We cannot be a thing composed of multiple parts which we are all aware of as a computer program is, or an abstracted structure of rules which (through the physical medium of the player who makes no mistake in following them) functions similarly any more so than we can be a bat. However, we can try and approximate what being such a thing might be like, in spite of how deficient such an approximation might be. Regardless of how close or far we may be in such an approximation, it is important to understand that these states are static configurations even though the information contained within them leads to future states.

The vocabulary of gameplay presented to the player by the designer is one based on action. This is not just one way in which to view this, but is necessitated by the role of the player. The player's relationship to the game is one of action. The player is defined by what actions are available to them. The player does something, the game responds to the new configuration of game elements, and the player then takes another action. The bridge between action (player perspective) and pre-determined possible configurations (game perspective) is the designer. The designer takes that conversation between the game elements and presents it to the player as shared vocabulary with which they can converse. The designer takes the Loss Conditionals and presents them to the player as a gamic event resulting from their actions.

The Antagonist

SHODAN, the antagonistic female AI from the games *System Shock* (Looking Glass Studios, 1994) and *System Shock* 2, is often listed as one of the most memorable villains in video games. She constantly taunts the player with her superiority both in terms of the power she wields and her status as an intelligent being above humans. GLaDOS, the antagonist of the game *Portal* (Valve Corporation, 2007), is also listed among the most memorable video game villains. In many ways similar, both are female AIs which cruelly taunt the player throughout the game while trying to kill them, GLaDOS possesses one quality which SHODAN lacks; GLaDOS is explicitly testing the player. In presenting the player with challenges, SHODAN may also be construed as testing the player, but GLaDOS literally puts the player through a series of puzzles and challenges ostensibly to test the Portal Gun device. We eventually discover that GLaDOS is a malevolent being, actively desiring the death of Chell, the player's avatar. GLaDOS is a more interesting character because she functions as a representation of the game designer; an antagonistic (from the perspective of the player) being who constructs a series of challenges with the intention of defeating the player.

While there are many things which the designer may attempt to elicit from the player during the game (frustration, elation, contemplation, money, etc.), creating scenarios in which the player may experience Loss is an inherently antagonistic enterprise. The Design Dimension of Loss necessarily casts the designer as the opponent of the player. The designer must translate the Loss Conditionals into traps for the player to fall into. Trap should not imply surprise (though surprise may factor into such game

events), but merely describes possible situations from which the player cannot escape. These events are ones which inevitably result in the game entering into the State of Loss. Once a player has been put into a position which will cause the game to enter in the State of Loss, there is no longer anything they can do except lose.

Let's revisit the Loss Diagram, but with a more complex example. We're moving into the realm of 3D.

The Loss Diagram is not simply a depiction of the ways in which the player may experience Loss, but a predictive map so to speak. Those 'death zones' don't show where the player will encounter Loss, but show where the designer intends for the player to fail. While some games are more antagonistic than others, such as the infamous *I Wanna Be The Guy* (O'Reilly, 2007), the very existence of a possible way for the player to encounter Loss means a designer has placed it there with the intention of it serving as a way for the player to lose. A bottomless hole predicts a player falling down. An enemy predicts a player taking damage and dying. Because the vocabulary shared by the designer and player is based on action, the Loss Conditionals must be communicated as a series of actions. And because this communication between the designer and player is temporally disjointed, it must be predictive on the part of the developer; it must assume actions which the player may take and provide appropriate responses.

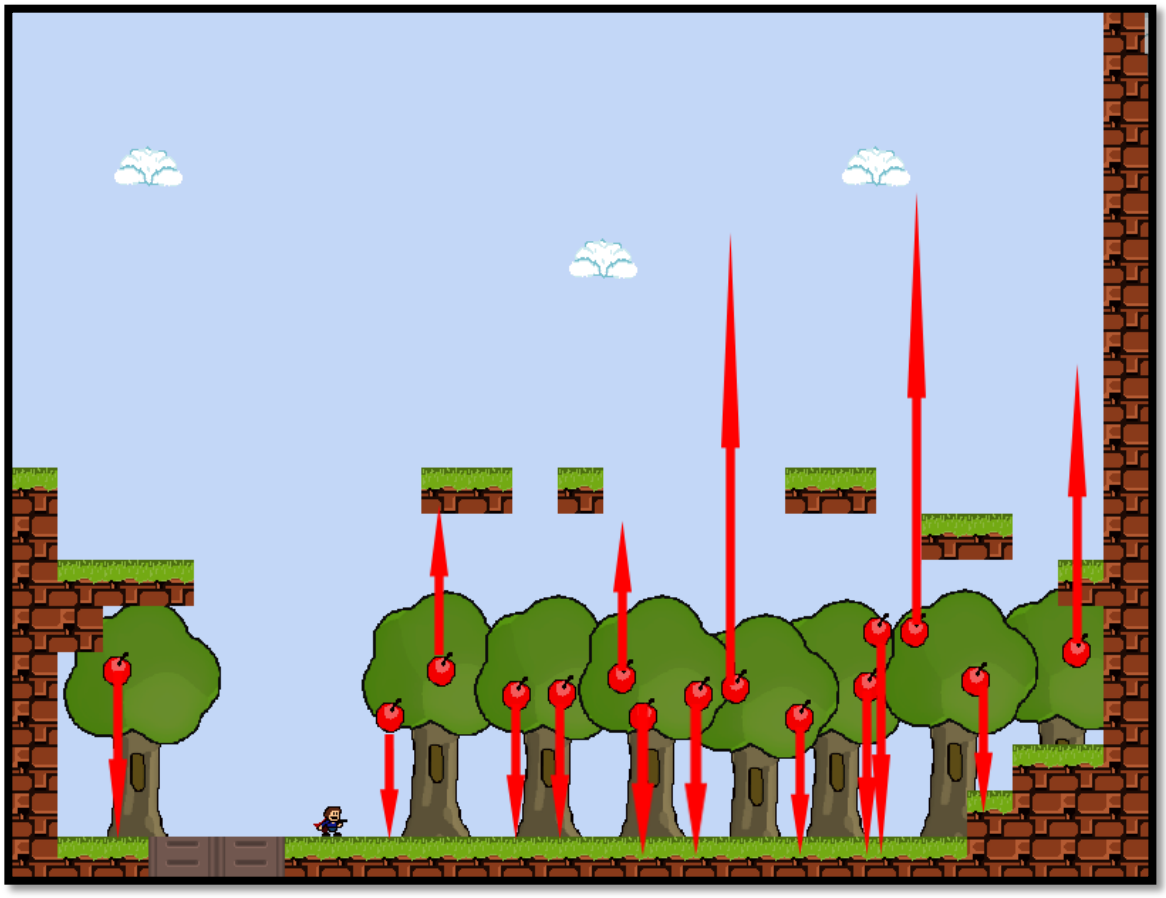

Figure 16: ***I Wanna Be the Guy*****, O'Reilly, 2007**

The necessity of the antagonism of the designer can be illustrated as such.

1. The shared vocabulary of the designer and player is based on action.

a. The Loss Conditionals must be communicated in the vocabulary of actions.

2. The communication between the designer and player is temporally disjointed.

b. The designer must be predictive in their responses to the player.

3. Therefore, The Loss Conditionals must be communicated as responses to predicted player actions.

Good and Bad Communication

I think that all of us have encountered good and bad conversationalists, and the same is true of game designers. Some are much better at communicating with the player,

and this extends to the Loss Conditionals. Even though the designer is plotting the defeat of the player in communicating these Loss Conditionals they can still be presented with differing degrees of fidelity to the actual Loss Conditional, typically to the aid or detriment of the player.

Let's again return to our hypothetical Weight Game. Instead of the timer being powered through the circuit which is completed when the weight is raised, pretend that the power source actually is hidden. The timer is powered by a switch which is activated when the player has a raised arm. Our player does not actually understand the Loss Conditional. If they attempt to use some other methods of holding the weight up, such as balancing it on their head, they will lose and will not understand why. Through trial and error, they may discover the actions which lead to the timer turning off and the game entering into the State of Loss, but they may also assume the timer is broken and quit playing.

The Loss Diagram, as a predictive map of possible player actions, is understandable within the vocabulary of the game. If the player understands this vocabulary, they should be able to construct such a Loss Diagram on their own. Now, I am not suggesting that deliberately confusing the player with these Loss Conditionals is bad design, or that effectively communicating these Loss Conditionals is good design. Bad Design and Good Design is relative to the goals of the designer. But understanding how such a vocabulary is developed and shared is important to generating the intended experience for the player.

Understanding Design

Understanding Loss as a conversation between designer and player which is predicated on action seems most applicable to game designers themselves. As game players themselves, it is likely that they would have an understanding of this dynamic, even if they do not articulate it as such. While having a more robust understanding of this dynamic would be useful, I believe that understanding the Design of Loss would be more useful to researchers in the game studies field. To answer specific research questions it is important to choose (or build) games such that they will avoid as many confounds as possible. Looking at games through the lens of the Design of Loss would provide a fuller view of the relationship that the player will have towards the game. If we are to consider Nass' Media Equation (Nass & Reeves, 2015), understanding that dynamic can provide insight into the reaction that a player may have towards the designer by way of the game as proxy. The player would experience losing as though they were losing to another player (in this case the designer). Using this analysis could give researchers more tools when deciding on games to use in research, when implementing those games in the lab or field, and when determining what participant reactions are relevant to the research question.

They killed Mirial, emptied the corp's accounts and hangars, stole everything that wasn't bolted down and blew up everything that was...$16,500 (again, real-world money) worth of items destroyed or stolen in the raid.

-Luke McKinney discussing a paid assassination in the game Eve Online

The Value Dimension of Loss

Before the Evo 2012 videogame tournament, competitive player Ari "Floe" Weintraub played the first act of a new video game live on stream. Ari had previously streamed a playthrough of the notoriously difficult game *I Wanna Be The Guy* and was asked to play the sequel, *I Wanna Be The Guy: Gaiden* (O'Reilly, 2012), as its world premiere as a pre-Evo event. While playing the game, Floe was mocked through a chat window by the game's creator, Kayin. As with its predecessor, *I Wanna Be The Guy: Gaiden* was punishingly difficult. Floe played the game on stream for over an hour. Over the course of that hour, Floe seemed visibly pained by the constant barrage of death. Finally, he reached a section reminiscent of the final castle in *Super Mario Bros.* However, instead of Bowser standing on the bridge over the pool of lava, a giant Sagat was jumping around and throwing Tiger Shots. As in *Super Mario Bros.*, behind Sagat was the axe which dropped the bridge and defeated Bowser. After many tries, Floe finally made it past Sagat, jumped on the axe… and promptly died. Kayin mocked Floe, asking why a person would jump directly onto an axe. Floe stopped, looked at the camera, and the commentator simply said, "He is broken."

Figure 17: Floe following his death on the axe. EVO 2012

Jesper Juul noted in *The Art of Failure* (2013) that games are unique in that we inevitably will encounter an instance of failure, and these instances bring on many negative feelings. We understand that we will encounter these experiences, and are actively inviting them by playing a game. While these failures invite negative emotions, these experiences are relegated to the game world and so we as players can regulate how much these failures affect us.

I disagree with Juul. His analysis suggests that the failure that takes place within games are to a degree relegated to that space. However, every action taken by a player in a game represents an investment that the player has put into the game that can be mapped onto something of value outside of the game. When the player encounters a Loss experience, a measure of that investment is taken away from them. Whether it is measured by a timer, points, in-game currency, or simply distance traveled in the game, there is a representation of the effort which the player has put into the game. When the player experiences an instance of Loss, they lose their points, or their timer jumps, or

they are sent back to an earlier save point. The price of failure —that which the player has earned through their effort, measured both inside and outside the game — is now taken away. That is the Value Dimension of Loss.

Arbitrary Value in an Arbitrary World

One of the hallmark characteristics of any definition of games is that the rules of the game are arbitrary. Arbitrary here doesn't refer to the rules having no rhyme or reason, but instead refers to the fact that games are created as separate from the rest of the world. There is no reason for the rules of a game to be any certain way rather than another way except that someone made them that way. There is no force from the outside world which compels them to be constructed in a certain way, and, aside from any extra value players introduce, the game has no effect on the outside world.

In this sense, the measures of value associated with player effort are themselves arbitrary. Without the arbitrary rules which govern it, a set of numbers on a screen has no value. Looking at the board of *Ticket to Ride* (Moon, 2004) midway through the game there will be colored train cars snaking across the map. Without the arbitrary rules governing the point value of these train cars this collection of colored train cars would have no value. The values associated with the differing lengths of these trains and their correspondence to a set of player cards are also arbitrary. However, as with the game itself, the arbitrary nature of the value does not diminish its value to the player while engaged in the arbitrary world of the game.

Once the player has entered into this game, accepting the rules governing their actions within it, they also accept the exchange of their effort for a representation of that effort in the game. Just as a person may exchange money they have earned (effort) for

some purchased good (value measured by its cost) so does the player exchange their work within the restrictions of the game (effort) for some reward (points, progress, etc. as measured by the values provided by the game). Though these values are arbitrarily decided by the designer of the game, they still represent real value outside of the game through this exchange of player effort and representative value. Viewing the cost associated with Loss in this way acknowledges the fact that such losses may not affect the player's life in the way that other failures might but legitimizes the often strong emotional reactions of the player.

The Game Gives, and the Game Takes Away

Once we accept that when the player experiences Loss something real has been taken from them, we can begin to understand why Loss is such a powerful event. "To play a game is to make an emotional gamble: we invest time and self-esteem in the hope that it will pay off" (Juul, 2013, p. 14). Loss is more than just an undesirable event, one which implies that the player was deficient in their skill and that their time was wasted. For the player, Loss actively erases this effort.

I was in high school when I first encountered *Chrono Trigger* (Square, 1995), an RPG on the Super Nintendo. I was captivated by the visuals, the music, the characters, and the story. Even now, many years later, it remains one of my favorite games. As I was playing through the game for the second or third time I forgot to save while attempting to get through Magus' castle. I finally reached the boss battle with Magus and, through several errors on my part, I died. When I reloaded my game, I found myself back at a much earlier boss fight. While I had been disappointed in losing to Magus, I was devastated by the realization that I had not saved. I had not only lost the progress I made

in the narrative of the game, but also the considerable time I spent fighting battles for extra experience. All of my progress, the effort I had put in to the game, had been erased.

RPGs illustrate this well because of the save system which most incorporate. When the player experiences Loss, they are returned to their previous save point and all of the effort they put into the game between the save point and the place of their loss is gone. But this is true of any game. The board game adaption of *Sid Meier's Civilization* (MPS Labs, 1991) takes an average of four to five hours (from personal experience) to complete. Once the game has ended, only one player retained the value of their effort. For all of the other players, all of their effort has been erased and there are no save points. For some games, such as competitive fighters, the effort put into a single match is quite small compared to an entire game of the *Sid Meier's Civilization*: *The Board Game* (Wilson, 2010), but the player still loses the total effort which they put into that match. Permanent death, or "perma-death", is a feature in some games and is often tied to a higher level of difficulty. In these cases, the player also has the sum total of their effort erased upon experiencing Loss.

Though time is the most obvious and objective measure of player effort, it is not the only one. Jesper Juul mentions self-esteem, which suggests that emotional investment may be a kind of effort on the part of the player, but that is not something which is measured or given value by the game. Though player skill and focus are subjective, games do allow for those to be translated into valuable representations of player effort. These can be represented by scores, performance ratings, combo length, and even remaining health. These do not map directly onto player effort in the same way that

playtime does, but they do still represent the effort players have put into the game. When the player encounter Loss, these too are often erased.

A popular example of this kind of representation of effort is found in the *Souls* games (*Demons Souls* [FromSoftware, 2009], *Dark Souls* [FromSoftware, 2011], and *Bloodborne* [FromSoftware, 2015]). When an enemy is defeated or certain items are used, players receive souls or blood (in *Bloodborne*). These souls serve as experience as currency, but can only be used to purchase items or upgrade their character at specific locations. If a player dies, they lose all of their souls or blood. If the player can return to the place where they died, they can retrieve their lost souls or blood, but if they die again before returning to that location their souls or blood are lost completely. This example is particularly interesting because it shows an alternate representation of player effort, but it also shows that Loss can be experienced differently based on the Value Dimension of Loss.

Figure 18: *Dark Souls*, FromSoftware, 2011

This raises an important question: if the value associated with a loss changes, is that loss different? The Loss Conditional and the Design of Loss remain the same, but the thing that has been taken away from the player has changed. In an instance of Loss, does it matter if a specific thing is taken from them, or only that some measure of value is taken? Does each instance of Loss in which a unique measure of effort is taken from the player constitute a different Loss event?

As I discussed previously valuations of player effort within the game do not always map directly onto the differences inherent in player ability. Even time, the most objective of measure of player effort, has variable outcomes. Thirty minutes for one player may result in three levels of progress while thirty minutes for another player may result in completing the entire game. Even for the same player thirty minutes on the

weekend that results in three levels of progress is a different measure of effort than thirty minutes after two days without sleep that results in three levels of progress.

The game can only ever approximate player effort because the player effort is intrinsically bound to extra-gamic factors. Because measures of player effort cannot directly map onto player effort in a consistent way, even if a player loses a different measure of effort within the game during an instance of Loss with the same design and the same Loss Conditional as another instance of Loss it is impossible to prove that this represents an actual difference in player effort. Though the valuations of player effort may be consistent within the game, they are inherently representations of player effort and as such cannot truly be consistent. Player effort cannot be extricated from extra-gamic factors, thus we cannot use them in defining an experience which exists entirely within the arbitrary world of the game.

Extra-Gamic Value

Thus far we've primarily focused on the ways in which effort is measured and taken away from the player within the game. Even though player effort is tied to extra-gamic factors, it is still represented in the game by something of value. In many cases however there are extra-gamic things of value tied to the player experiencing Loss.

One of the more extreme examples of this comes from the *Mesoamerican Ball Game*, also known as *Pitz*. Though the specifics of the game have changed over the years, based on Mayan carvings and records of more modern permutations of the game archaeologists believe they have an understanding of how the game functioned. The game involved players on two opposing teams striking a heavy rubber ball with their hips (though variations have players using forearms, bats, and rackets). The rules are assumed

to be similar to racquetball with points being earned when the opposing team fails to keep the ball in play. Several carvings found on such courts seem to indicate that some games held ritual significance resulting in the beheadings of the opposing team; a very heavy price to pay for failure.

The aforementioned *Notes on the Balinese Cockfight* presents another example of a high extra-gamic value of Loss. The losers in these cockfights can lose enormous amounts of money, social standing, and also the cock into which they have invested large amounts of time and money. In modern e-sports prizes are often in the hundreds of dollars at the amateur level and up hundreds of thousands at the professional level. Losing a major tournament means that the time players have spent training (as it is represented by the game) is taken away from the player. *Street Fighter IV* presents a useful example. Though the game cannot map valuations of player effort onto the hundreds of hours spent practicing for this tournament, the health bars of the players and the time left in the match provide the closest comparative measure of player effort that the game can provide. Understood in this way, when the health bar of a player is reduced to zero and the measure of their effort is erased (the remaining health bar of the opposing player) the Loss event erases the effort which that represented (the practice the player put in as it relates to that particular match).

But this only covers effort which has been put in by the player previously. What about measures of effort that come post-game, such as prize money? That is not a measure of effort which the game provides. Is that value associated with player effort outside of the Value of Loss? As we already established, the Value of Loss established by the game is representative of player effort, but cannot be an accurate, consistent measure

of player effort. The important aspect of the Value of Loss is that it represents some amount of player effort and it is taken from the player when the player experiences Loss. These extra-gamic values are likewise tied to player effort. In fact, these are tied to player effort through the measures of player effort employed by the game. A cash prize in a *League of Legends* (Riot Games, 2009) tournament is given out based on which team has (using the terminology of Loss) remained in the State of Non-Loss while reducing the health of the enemy nexus (base) to zero. Player effort is measured in *League of Legends* by the duration of the match, remaining health of each team's nexus, and several other stats such as K/D ratio (number of kills per player death). That cash prize is dependent on the measures of player effort within the game. The game transforms player effort into some representation of that effort within the game, and the introduction of prizes transforms that measure of effort within the game back into something valuable outside of the arbitrary world of the game. Thus these kinds of extra-gamic measures of player effort are still tied to the Value of Loss and thus still factor into the valuation of Loss.

Must the Value of Loss Be Negative?

Roguelike refers to a genre of games that typically involves randomly-generated dungeons, high difficulty, and some form of permanent character death. There has recently been a resurgence in the popularity of roguelike games. Among these are *Risk of Rain* (Hopoo Games, 2013), *FTL: Faster Than Light* (Subset Games, 2012), and *Rogue Legacy* (Cellar Door Games, 2013). Each time the player experiences Loss, they lose the progress made with that character and they must start the game at the beginning of a new randomly generated world. What is particularly interesting about these games though is that the player still can earn rewards representing player effort even after experiencing

Loss. Rogue Legacy is particularly notable in that the player earns money which can be used to purchase items and upgrades but they do not lose this money after experiencing Loss. In fact, the player can only access shops and upgrades outside of the randomly generated castle in which the game takes place. In *FTL: Faster Than Light* and *Risk of Rain*, items and upgrades are earned after completing in-game challenges. While it is conceivably possible to fully complete each of these games and receive the items and upgrades at the beginning of a new game, based on their difficulty it is highly unlikely that could be the case. What is interesting is that these mechanics incentivize Loss. If I need the double-jump upgrade, or a health regeneration item, or a new ship model, when I have earned enough money/completed the challenge to receive that upgrade or item it is much more expedient to simply die and restart with a new randomly generated world and the upgrade/item.

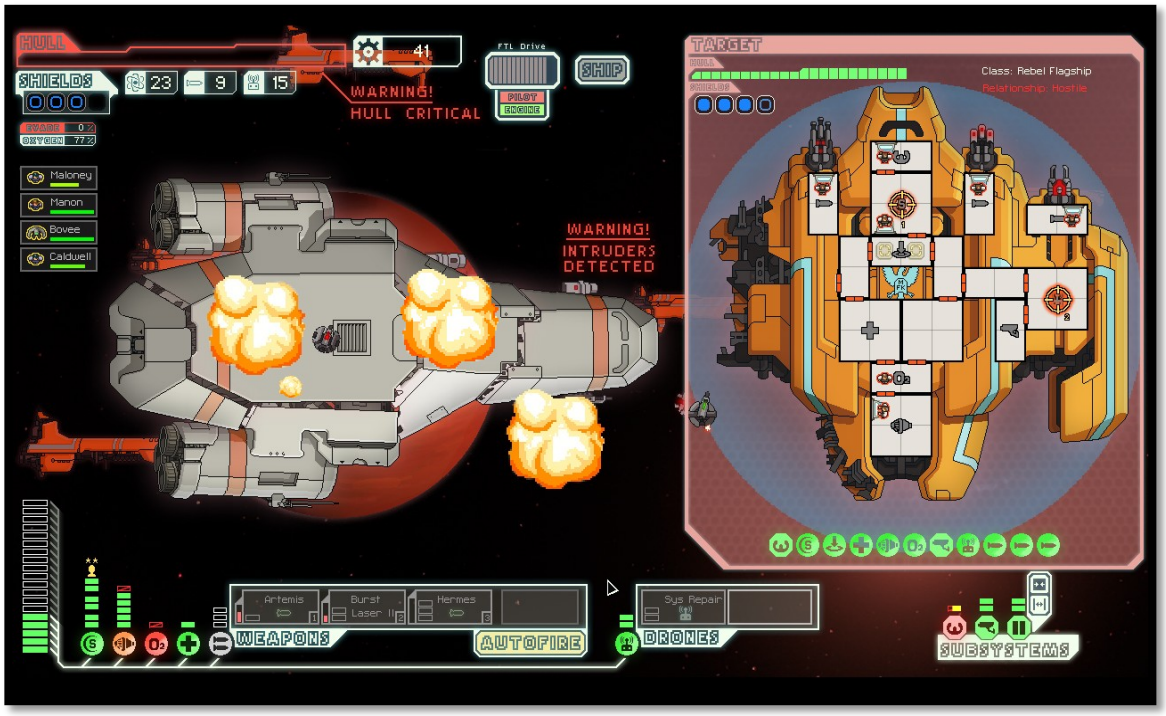

Figure 19: *FTL: Faster Than Light*, Subset Games, 2012

How then does this measure of player effort, this valuable in-game item, factor into the Value of Loss? As with the previous question regarding whether value generally or a unique measure of value defines an instance of Loss, we need to ask what the relationship between the measure of player effort (item/upgrade) and the Loss is. In this case however, the answer is quite simple; there is no relationship. The thing of value is not received as a result of the instance of Loss, but rather experiencing Loss merely speeds up the process of the player receiving an in-game measure of their effort.

Following the popularity of achievements starting with the implementation of the gamer score on the Xbox 360, game designers have created very unique achievements. Some of these unusual achievements are only acquired through an instance of Loss. In the game *Too Human* (Silicon Knights, 2008), the player receives the Valkyrie's Folly achievement after dying 100 times. Likewise, in *Guitar Hero III* (Neversoft, 2007) the player receives the Blowin' It achievement for failing a song 10 times. In these instances, experiencing Loss is not just a method of achieving some other objective (e.g. reducing the time needed to receive an item or upgrade) but is the method itself. To understand how this relates to the Value of Loss we need to remember that Loss occurs when the elements which make up the game are configured in such a way that it fulfills a Loss Condition. That does not preclude that same configuration of game elements from having another effect. These achievements are predicated upon fulfilling some conditional which is related to the Loss Condition in that both are fulfilled by a similar configuration of game elements, but that does not mean it is the same as the Loss Condition. The Loss Condition is unique because it triggers the State of Loss. This ‘achievement condition’ requires a similar configuration of game elements but does not trigger the State of Loss.

Even though the configuration of game elements that fulfill the Loss Conditional can be used for other conditional triggers and the outcomes of experiencing Loss can be used by players for other purposes, Loss as a unique game event does not have any positive outcomes as it relates to measures of player effort.

The Pain of Loss

Though failure is an aspect of Loss, Loss is not reducible to failure. To fully understand why Loss can be so painful, even though its outcomes tend to be relegated to the world of the game, we need to understand that those outcomes are infused with real-world effort. This is why that particular instance of Loss experienced by Floe while playing *I Wanna Be The Guy Gaiden*, where his effort was tied up in the extra-gamic context and the game did not provide an accurate measure of his effort in relation to the total progress and his numerous deaths, was such a powerful blow to his resolve.

From the aspect of developing games, understanding why Loss is so powerful focuses the designer on what the best representation of player effort is. In some situations simply using points is the most appropriate choice, but experimenting with ways to translate player effort into valuable things within the game leads to unique and compelling game mechanics like those found in the Souls games. This could also be a useful analytical perspective for determining why similar games may have greater success than others based on how player effort is represented and taken away when the player experiences Loss. The Value of Loss may also be a useful perspective for sociologists developing ethnographies of gaming subcultures, especially those in the professional gaming or revenue-generating streaming groups where Loss can have wider extra-gamic outcomes.

You and your friends are dead.

Game Over.

-Friday the 13th

The Experience Dimension of Loss

Unlike the other three dimensions of Loss, the Experience Dimension of Loss does not lend itself to a rigorous definition. Whereas the others can be understood independently of each other, the Experience of Loss cannot be discussed without engaging with all of the other Dimensions of Loss. It is also intensely personal; the experience of a Loss event will vary widely between individual players and individual instances of Loss. In spite of this subjectivity, one can make generalizations regarding the Experience of Loss which make it useful in both the design and analysis of games.

Loss and Time

The role of time in the Experience of Loss is twofold: the amount of time incorporated in the Value of Loss, and the duration of the State of Loss.

As a general rule, the more time associated with the Value of Loss the more impactful the Loss Experience will be and the greater the negative affect of the player. Time in this case can be broken down roughly into two different categories.

1) Duration of the State of Loss

2) Time input associated with the player effort erased.

The duration of the State of Loss encompasses character animations associated with the Loss event (typically the player avatar dying), load times between the occurrence of the Loss event and returning to the game (hardware limitations), and game animations

associated with the return to the State of Non-Loss (respawn, level reload, etc.). Let's take a look at *Super Mario 64* as a real example of these three aspects of the duration of the State of Loss.

In *Super Mario 64* the player enters into new areas of the game by jumping into paintings. Each time the player enters one of these paintings, they begin are placed in the same starting point within that area. Each area contains several different challenges which the player must complete to earn stars (the measure of player progress within the game). Within *Super Mario 64* the player may enter the State of Loss in two ways. The player may run out of hearts due to enemy damage and environmental hazards. The may also immediately lose all of their hearts due to a special environmental death such as drowning or falling out of the sky. In each of these cases the player will return to a specific point checkpoint near their death. When the player also exhausts their lives, they will be sent out of the game area and lose all of their progress within that area, not just their progress post-checkpoint.

Figure 20: ***Super Mario 64*****, Nintendo EAD, 1996**

When Mario dies without losing all of his extra lives, there is an animation of Mario falling over, a screen transition when the level reloads, and a return to the nearest checkpoint. The total time for all of this comes to roughly 6 seconds. When all of the lives are lost Mario still goes through the falling over animation, the screen transition, and a different animation of Mario being ejected from the painting. Because of the longer animation associated with the return to the State of Non-Loss this total time comes to a total of 10 seconds, 4 seconds longer than respawning from a checkpoint. The longer duration of the State of Loss in the second case corresponds to a significantly larger loss in the second category, time input associated with player effort.

Each area Mario may enter contains several different challenges which the player must complete to earn stars (the measure of player progress within the game). Because

each of these challenges are placed in different areas of each individual, large game areas the player must put in significant effort navigating past enemies and maneuvering through the platforming obstacles. There is also a large amount of time the player must put into the game traveling to each of these challenges within the level. In the case of Mario running out of hearts but retaining extra lives the player will return to a specific point checkpoint near their death. When this happens however, enemies will return and the player will have lost the effort the put into the distance between the checkpoint and the point of death. When the player also exhausts their lives, they will be sent out of the game area and lose all of their progress within that area, not just their progress post-checkpoint.

In both situations the player loses the time put into traversing platforming elements of the area and navigating the enemies. When the player loses all of their progress within the area in the second situation, the time loss is increased significantly. However, the overall state of the game is important to consider as well. Depending on how many challenges remain in an area, the time lost will vary. Not only do different challenges require different amounts of time to complete, but when there are more challenges within an area the player will spend more time deciding which challenge to attempt, they may change the challenge they are focusing which results in time lost pursuing the prior challenge, or they may make incidental progress in more than one challenge which is removed when they die or fully complete one challenge (the player is ejected from the area when a challenge is completed). So we can see that there are many factors which contribute to the time input associated with player effort.

Now that we have a better understanding of these two categories of lost effort measures in time, let's look at a game in which the player loses a significantly shorter amount of time when entering the State of Loss. In *Borderlands* (Gearbox Software, 2009) the players almost instantly respawn at checkpoints (short duration of the State of Loss), checkpoints are plentiful (small travel distance lost) and previously killed enemies stay dead (small player effort lost). When we compare this to *Super Mario 64*, we can assume the entering the State of Loss will produce a much weaker negative affect in players. As in *Super Mario 64*, other specific game elements may change the amount of time lost. Bosses who are not killed prior to the player entering the State of Loss will regain all of their health. Raid bosses in particular will require a large amount of ammo to kill, and the amount of ammo lost as a result of the boss regaining health will have some measure of time associated with the effort to regain it. Generally though these two categories can be used to predict the experience a player will have as it relates to the time effort associated with the State of Loss.

Competition and Loss

In games that focus on competition between players or AI intended to simulate human players, we can expect player affect to be heightened when encountering Loss. Some games, like competitive fighters, have short matches which already encourage heightened physical and emotional responses from players. We would expect these kinds of responses to carry over into the player experience of Loss. Though the direct player effort is minimal (measured by the length of the match and performance against the other player through remaining health or lives), physiological responses would likely be higher. The type of game player will also effect the Experience of Loss in these games. The

direct player effort may be minimal, but players usually have invested time into the game through previous matches. For highly experienced and professional gamers, this indirect measure of player effort also factors into the expected emotional and physiological Experience of Loss.

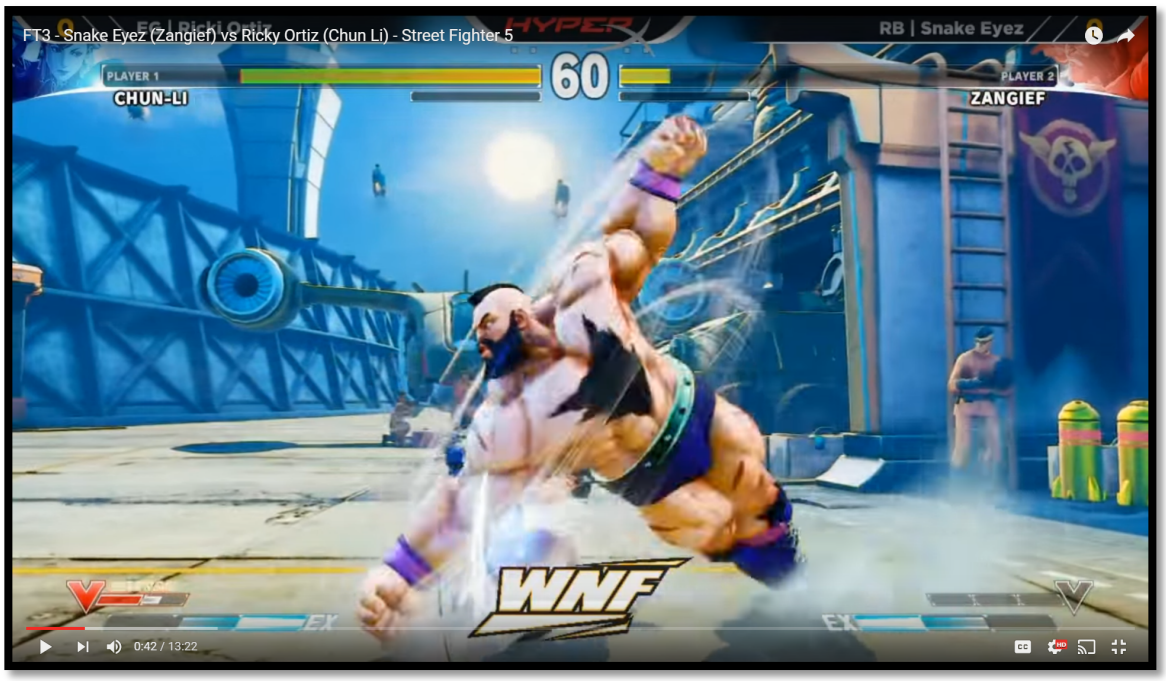

Figure 20: *Street Fighter V*, Capcom, 2016: Wednesday Night Fights, 2016. Snake Eyez (Zangief) vs. Ricky Ortiz (Chun Li)

Competitive games which require longer time input, such as MOBAs like *League of Legends* and 4Xs (eXplore, eXpand, eXploit, and eXterminate) like *Civilization V* (Firaxis Games, 2010), would likely result in less intense emotional and physiological responses to Loss. The duration of gameplay includes spikes of intense focus and effort as well as times of less required player effort. In MOBA's, these can be understood as times of direct combat with enemies vs. time spent optimizing skills and engaging in practiced behaviors that have become instinctual. One would expect that this would lead to emotional and physical fatigue, resulting in a less intense Experience of Loss.

In both of the previous cases, player effort was measured in terms of direct player action and previous effort invested in gaining experience and skill. Objective game measures of player performance, such as k/d rations in FPS's and total wins vs. losses in online fighters, will contribute to the player experience. The value of these measures and their salience to the player during Loss will change how strong the negative affect in the player is during the Experience of Loss. The rise of the competitive video game scene necessitates that we also take the experience of high level competition into account. The kind and size of the prize as well as the social status associated with winning or losing suggests that competitive players will experience Loss in very different ways than non-competitive players.

Positive Affect and Loss

Not all experiences of Loss will be negative. Jane McGonigal notes that in the case of *Super Monkey Ball 2* (Amusement Vision, 2002) players responded positively to Loss. She identifies this positive experience to be the result of players acknowledging their full agency within the game world, their perceived ability to succeed in the future, and the cartoonish visuals of the player avatar falling off the game map. Some negative reactions to Loss can also paradoxically be positive. Jesper Juul suggests that failure within games allows us to understand how our actions directly work within the game world and the lack of tangible results focuses our attention on the possibility of future success rather than the results of failure. While the Value of Loss shows that Loss does have tangible results, the principle still stands; players can respond positively to the negative affect resulting from Loss if they perceive themselves as being capable of future success.

Figure 21: ***Super Monkey Ball 2*****, Amusement Vision, 2002**

The presentation of Loss in terms of visuals and the ability for the player to understand how their actions lead to Loss can greatly change the Experience of Loss and transform even a negative affect into a positive response to Loss.

You and your friends are dead.

Game Over.

-Friday the 13th

Moving Forward

Defining Loss as distinct from failure in non-game contexts is useful for distinguishing games from non-games. Though not a sufficient definition for games, I believe Loss functions as a necessary condition for games. Current discussions of games vs. non-games can have consequences beyond arguments regarding semantics. Providing definitions for objects of study, both games and anti-games (as were discussed in the Digital Dimension of Loss), can help focus attention on shared characteristics within the different categories.

Looking at games from the different perspectives of Digital, Design, Value, and Experience can help direct studies of games. From the perspective of psychology, being able to use the vocabulary of Loss can help identify the most appropriate game for chosen experimental purposes as well as possible confounds. Understanding how player history and experience with different genres can also allow researchers to more properly interpret participant results of game-focused experiments. The Dimensions of Design and Value may prove useful in sociological studies of games, gaming culture, and specific populations of game players. Distinguishing between different values associated with Loss among players and the ways in which the Design of games encourages certain behaviors from players can help interpret gamer behaviors and cultural responses to games and gamers among populations being investigated. This shared vocabulary can

even help promote interdisciplinary work between designers and academics in the various fields of game studies for entertainment and serious purposes.

As a new definition for an integral aspect of games and game playing, it is my hope that this investigation will promote further discussion of the concept of Loss and its future applications.

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