

The Production & Learnings of Trials of the Wolf

TRIALS *of*
the WOLF

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Abstract

This thesis is a reflection of the entire production process and learnings of Trials of the Wolf (<http://www.humblebunch.com/trials-of-the-wolf/>); an approachable roguelike card game about a wolf, created by Björn Lindholm and I over a period of almost two years. It was born out of our concerns about the endangerment of wolves as a result of poaching in Finland. It was my hope that by allowing for an underlying current of realism to exist within the game, some tangential learning would occur, allowing for players to empathise with their situation. The production was broken up into two major stages: pre-production, and production; my responsibilities being that of design, art direction, and animation. During pre-production, my goals mainly consisted of the background research on wolves as well as the necessary game benchmarking, prototyping, and documentation. Production was the development of the digital game based off of pre-production's documentation and learnings. It was during this time the most pivots and learnings occurred when evaluated against the entire production. At the end of the production we were able to deliver a vertical slice of the game which entailed our initial production goals: creating a game that was difficult but still approachable with factual undertones. It is my deepest hopes that my research and learnings from this thesis can be used as a guide for others looking to develop their own digital games with a small team and limited resources.

Keywords Wolf, Wolves, Games, Video Game, Cards, Roguelike, Finland, Game Development

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1 Introduction

1.1 Motivation and Background

The wolf population is endangered in many places around the world. During the late 1800's to early 1900's alone, wolves were slaughtered in Yellowstone National Park, USA, to the point of being completely wiped out (Bauch, 2007, p. 194). Due to the lack of wolves, elk and other animal populations soared and caused enormous environmental damage to vegetation in that area (Stolzenburg, 2008, pp. 136-153). During the mid-1990's wolves from Canada were reintroduced to Yellowstone to contain the soaring animal population (Lopez, 2004, pp. 289-290). This reintroduction helped to once again stabilize the ecosystem. Unfortunately almost undoing all of the work that they had done, as of June 13, 2013, The U.S. Fish and Wildlife Service (2013) has "proposed to remove the gray wolf (*Canis lupus*) from the list of threatened and endangered species under the Endangered Species Act (ESA)".

My thesis partner Björn Lindholm and I wanted to create a digital game that explored this topic, because a similar situation is currently happening here in present day Finland. As one can see from Figure 1, Finland's wolves are endangered.

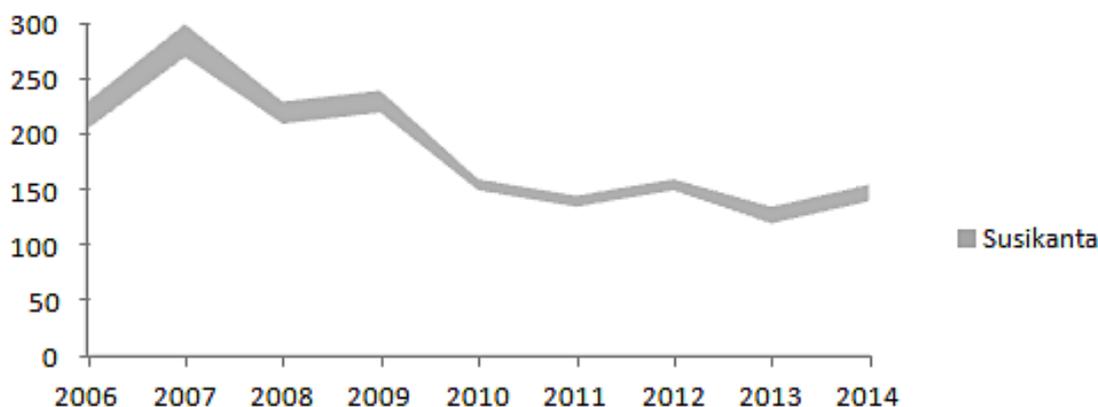


Figure 1: Graph depicting the estimated wolf population of Finland between 2006-2014 (Heikkinen, 2014).

Currently the population is around 140 -155 wolves, which is roughly half the population that existed in 2007 (Salakaadot Seis, 2012). This is largely due to the illegal poaching of wolves (Helsingin Sanomat, 2011). It is estimated that currently 30 - 50 wolves are poached per year in Finland. At this pace, Finland's wolves will be extinct within a decade. In 2008 a large campaign run by the The Wolf Action Group of the Finnish Nature League, was started to stop the poaching of wolves in Finland called "Salakaadot Seis!" (Stop Poaching!). They have been active in protecting wolves and trying to educate about wolves. Even with their best efforts, the Finnish Nature League (Suomen Luonto-Liitto) has reported that poachers

have been using the league's tracking data to illegally hunt wolves as recent as February of 2014. Additional wolf research (TOTW Wolf Research) can be found from the link provided in the Appendix.

Because of our concerns about the endangerment of wolves as a result of poaching in Finland, we created an approachable roguelike ("characterized by random level generation, tile-based graphics and permanent death") card game that would show the difficulties of the wolf's life (Wikipedia, 2014). *Our goal was to create a game that showed how difficult and dangerous the life of a wolf is, through an approachable user experience.* To clarify, to be approachable so that people could easily play it with a mouse or touch interface, but at the same time be difficult enough so that players would empathise with its situation. Though we did not concentrate on learning, we did do our best to allow for an underlying current of realism in hopes that some tangential learning might occur. I concentrated on the production from the design, art direction, and animation.

The production was broken up into two major stages: pre-production, and production. Pre-production's goals mainly consisted of the background research on wolves as well as the necessary game benchmarking, prototyping, and documentation. This was also the time to apply for any necessary funding we may have needed to accomplish those said goals and any future production costs. Production was the development of the digital game based off of pre-production's documentation and learnings. Here we took our initial game design document and evaluated it against our skill set to see if we would actually be able to realize that document's vision. It was during this time the most pivots and learnings occurred when evaluated against the entire production. Along with those pivots naturally came changes to the overall art style and user experience. Fortunately in the end both Björn and I were able to stay agile enough to deliver a product, though different from what was initially intended, which we both felt had accomplished our initial game vision.

I will discuss these stages along with the processes, pivots, and learnings leading to the current iteration; a vertical slice of the game: Trials of the Wolf, before finally wrapping up with a conclusion. It is my deepest hopes that the learnings from this thesis can be used as a guide for others looking to develop their own digital games with a small team and limited resources.

1.2 Defining Game and Game Mechanics

I will be using the terms game and game mechanics throughout the text, thus feel it necessary and important to define how I see them before continuing further. Several respected game designers have given great starting points at a definition and here I name a few examples. Chris Crawford (2003) defines a game as “an interactive, goal-oriented activity, with active agents to play against, in which players (including active agents) can interfere with each other.” Katie Salen and Eric Zimmerman (2003, p. 80) further define it as “a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.” From these two definitions we see that games are defined as a “system” where the importance lies in the existence of players, interactions, goals, rules, competition, and measurable outcomes. Jesse Schell (2008, p. 34) author of the book, “The Art of Game Design: A book of lenses,” further defines them as having a list of qualities, where games:

- are entered willfully.
- have goals.
- have conflict.
- have rules.
- can be won and lost.
- are interactive.
- have challenge.
- can create their own internal value.
- engage players.
- are closed, formal systems.

He goes on to propose that they are: “a problem-solving activity, approached with a playful attitude” (Schell, 2008, p. 37). Here the definition further expands our previous definition by the willingness of the players to actually play the game, along with not only goals defined by the game as a system in and of itself but ones that are internalized by the players themselves, thus gaining greater importance. Not ignoring the importance of the list of qualities, emphasis should be in his more formalized definition, where he states the “*playful attitude*” of the players. This brings us to the most important aspect of games in that they are a form of willful interactive entertainment. Of course a lot of the points made by the previous designers are left open to further scrutiny, leading to the initial problem of defining a game in the first place, and though I may not be fully incorporating all of their points into my formal definition, I still propose one to further formulate what is entailed in a game. Thus I define a game as:

“a system with a defined set of rules whereby willing players are able to competitively interact with it and/or each other, towards system defined and internalized goals of importance, which lead to quantifiable outcomes for the purposes of entertainment.”

Of course many systems that are actually considered games may fall outside of this definition, but as it is not the primary purpose of this paper to formally address what defines a game, I will hold to this definition. With this in mind, I will use the term *game mechanics* throughout the text as defined by Aki Järvinen (2008, pp. 71, 73-74) which: “are performed, the agent, i.e. performer, is always the player, not the game system. [...] are essential elements in that they are always about doing something significant in the game, because they relate directly, or via an instrumental relation, to a goal in the game. If goals are imperatives (‘Guard!’) put forward by the game system, then game mechanics are the verbs with which players respond. [...] they imply player action and performance – in other words: play. Therefore game mechanics are best described with verbs [...].”

Thus, generally I define game mechanics as:

“any and all legal actions the player(s) can perform within the limits specified by the game system or agreed upon by its participants.

With these terms defined, I can now apply them throughout the rest of the production process with greater clarity.

2 Pre-Production

Since it was our intention to create a game about wolves in hopes that people would feel empathy towards them, it was important that the goals for pre-production were properly thought out. We needed to research wolves, benchmark relevant games, prototype ideas, and then create a design document that encompassed all of this information so that it could be used during the production phase to create the appropriate game mechanics to facilitate this empathy. These goals were accomplished in two separate phases. One was through a serious games class that Björn and I took at Aalto University. In it we learned about serious games while creating a board game about wolves. The other was through our application to AVEK's (The Promotion Centre for Audiovisual Culture) DigiDemo Concept Design Grant (AVEK, 2014). In that we created a concept for a digital game about wolves. Both are discussed here, each followed by their relevant learnings.

2.1 Boardgame (Paper Prototype)

To help jump start our research, we decided to take a serious games course in Aalto University. Serious games “ [...] are games or game-like interactive systems developed with game technology and design principles for a primary purpose other than pure entertainment” (Kankaanranta, Neittaanmäki, (Eds.) 2009), and/or are “ [...] called serious games, not because other games aren't, but because game is used in a pedagogical way for political, social, marketing, economical, environmental or humanitarian purposes” (Arvers, 2009, pp. 24-25).

Not only would this class allow us to learn more about serious games, but also motivate us to continue with our research as well as jumpstart our thesis. Since we had no budget and a time constraint, all of our research was based off of information we could readily find from the web. Though not thoroughly discussed here, we put together a list of things that we felt were important about a wolf's life:

- Monogamy
- Heat times (females are ready to mate) once per year during spring
- Howling patterns
- Wolf's diet
- Marking of territory
- Making a den and its location in a safe area
- Litter size
- Attitude towards humans

Because of the classes limited timeframe, and that we wanted to make a strategy game, we decided to make a board game. Designers Andrew Rollings and Ernest Adams (2003, p. 321) wrote in their book: on Game Design, “The origin of strategy games is rooted in their close cousins, board games, and [...] any format of game that is closest to the original precomputer form [...] is a strategy game.” In addition Jesse Schell (2008, p. 88) states, “You can make board games fast, and often capture the same gameplay [...] spot problems sooner — much of the process of prototyping is about looking for problems, and figuring out how to fix them, so paper prototyping can be a real time saver.” Thus the benefits being more time allocated towards actual design, testing, and balancing of a system which could be later implemented if we so chose, versus spending that precious time on just struggling with the implementation. From here we researched a few board games we could borrow mechanics from which fit inline with our research. The two most influential ones were Risk and Drakborgen. I will give a general overview of each game not discussing actual gameplay, but instead concentrating on the affordances their game mechanics may hold.

2.1.1 Benchmarking

Risk



Image 1: RISK Finnish Edition: Picture taken by the author (Sammander, 2014).

Risk is a multiplayer, turn based strategy board game whereby players control territory on a world map by occupying it with troops. The goal of the game is total domination of all territories by one player.

Key mechanics that were borrowed:

- Gaining and controlling of territory
- Attacking and defending
- Resource management (in this case troops are a resource)
- Fate/Luck via probability

Territory based mechanics are useful because territory is extremely important to wolves. They will aggressively defend their territory from other wolves if they are pushed into that situation (Mech & Boitani, 2003, pp. 25-27). Resources in the form of food are also important to the wolf. Depending on the genre and narrative direction taken, wolves could also be a resource that the player must manage. Fate could exist in the form of random encounters with other creatures, disease, change in weather, environment, etc. It could also be used as a way to calculate how a specific situation plays out, for example if a hunt or specific attack is successful. We did have to be careful with how these mechanics would be implemented. Though territory is extremely important to the wolf, it does not actively seek out to “conquer” territory similar to how man does; but “certainly any game about territory is an exploration of boundaries” (Schell, 2008, p. 336). Wolves will adjust and shift their territory to account for various factors, but mostly to accommodate the size of their pack and food requirements, thus traveling along with seasonal prey (Mech & Boitani, 2003, p. 24). Creating a game that revolves completely around trying to gaining all territory in a region to “win” may give the wrong impression of the wolf. This also holds true for attacking other wolves or animals. Using wolves as a resource could create the risk of making them seem expendable and that they can easily just reproduce more pups whenever the player likes. It may also give the impression that wolves are constantly breeding, eventually out of control, thus overpopulating an area, which is not the case. Wolves only breed at certain times of the year (January - April), and will adjust their litter size to accommodate for abundance of food, size of the wolf population in that area and other stresses. Thus large wolfpacks will have small litters (Long, 2005, p. 107).

Drakborgen



Image 2: Drakborgen: Endgame, all characters have perished (Gabrielfalken, 2012).

Drakborgen (Dungeonquest) is a multiplayer board game whereby players take on the role of dungeon crawlers navigating their way through a randomly generated labyrinth in search of a sleeping dragon's treasure. They must find the dragon's den, steal as much treasure without waking him, and escape before the sun sets; at which time all the exits close and those remaining in the dungeon perish.

Key mechanics that were borrowed:

- Randomly generated world
- Discovery / The unknown
- Fate/Luck via probability
- Time Constraints
- Permadeath

Randomly creating the world one piece at a time will allow the players to gain a sense of exploration and discovery as well as make them feel as though the fates are with or against them. These may be similar feelings wolves may have as they are forced to hunt outside their territory because food has gone scarce. The time constraints also work well because like all living creatures, wolves need sustenance to survive. The same case goes for permadeath; all living creatures will die. Unfortunately for wolves, they can easily be injured or killed when trying to take down large prey (Mech, 2007, pp. 315-316). One could argue though that

randomly generating the world may give the impression to the player that wolves are always travelling and living in the unknown. Though in actuality they would only move into unknown territory if they had to follow food, for example if the prey is moving seasonally (Mech, & Boitani, 2003, pp. 25-27). As for time constraints and permadeath, they will only make the game harder on a player, which could turn players off. The flipside to this argument is put nicely by game designer Jesper Juul (2013, p. 7) who states that failure “motivate us to play more, in order to escape that inadequacy, and the feeling of escaping failure (often by improving skills) is a central enjoyment of games.” Thus assuming failure is implemented well, it could be seen as something good.

2.1.2 Development

With our wolf research and borrowed game mechanics, we iterated several times with different paper prototypes till we had created a functional board game. We made sure that the game rules, mechanics, pieces, and board had all of the required learnings baked in. In this way, all that was left to the player was just to play the game.

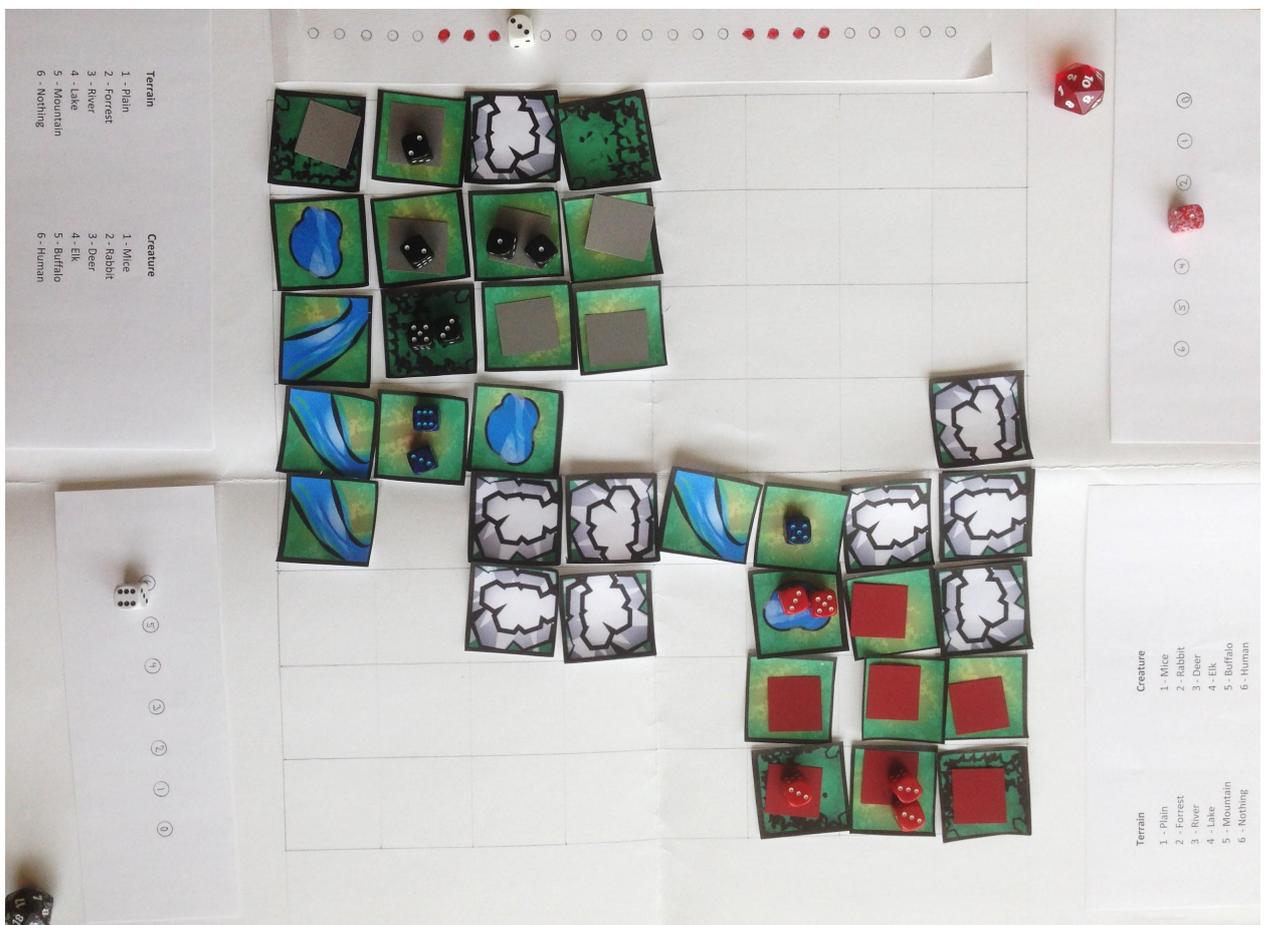


Image 3: Trials of the Wolf Board Game: Wolf packs are claiming territory (Sammander, 2014).

2.1.3 General Gameplay

The players start off in an unknown area on either side of a grid with only two wolves, a male and female. They must travel throughout this grid, revealing the type of land in that grid that has a fog of war, i.e. “you can only see what your characters in the game see,” and search for food to survive (Brathwaite & Schreiber, 2008, p. 116). Different terrain types reveal different animals types. After revealing a terrain, the wolves have the option to mark that territory, which gives them bonuses to travel and hunting in that area. As the game progresses, seasons pass and there are time periods the wolves have a chance to breed. The benefits are that more wolves allow for an easier hunt and higher chance of success, but the drawback is that there are more mouths to feed at the end of each round. The game continues till all tiles are revealed, the year ends, or all of a player’s wolves have been killed; at which point a score is given to the players depending on various factors such as wolves remaining and territory controlled. A thorough breakdown of the games rules (TOTW Board Game Rules) can be found from the link provided in the Appendix.

2.1.4 Learnings

We had about a dozen people play the game, which allowed us to adjust the game based off of user feedback. This way we could ensure proper learning had occurred and that there were no misunderstandings of how wolves functioned. Though I would say that we were successful in addressing most of the problems, our biggest was that of finite territory. Because this was a two player game where wolves were trying to gain “zero sum” territory, “meaning there’s only so much to go around, and when it’s gone, it’s gone;” it was next to impossible for us to prevent players from being competitive and aggressive against each other (Brathwaite & Schreiber, 2008, p 116). This is because “conquest is the most immediately engaging activity in strategy games [...] it directly appeals to the (mostly male) players’ psyches” (Rollings & Adams, 2003, p. 325). Though not enough time was allocated to the game to find an optimal strategy, the two major techniques used in the game were: trying to draw a “circle” by marking areas as quickly as possible, or going in for a quick kill.

The first technique was possible because the players could not expand an area through marking unless it was adjacent to their own territory, thus they could quickly become blocked by a player who was just drawing large arching circles from one end of the board to the other. Eventually the player could then go back and fill in the remaining unmarked areas with an advantage against an invading player trying to overtake that territory. Secondly, a few players immediately rushed towards the other player as fast as possible trying to win an attack roll. Though this was not guaranteed a success, it was a quick way to go in for an early kill and to end the game quickly.

Of course we could have adjusted the rules to account for these two techniques but the learnings may have been affected and other new strategies might have emerged from those changes. In the end, we did not concern ourselves too much with these issues as we knew that the digital game that we were trying to create was not going to be a competitive multiplayer game. We knew that we were just using the class as a testbed to test that Björn and I could work well together, to prove to ourselves that we wanted to continue pursuing the subject of wolves, and finally as a motivational stepping stone for the next phase of our development.

2.2 DigiDemo Strategy Game Concept

At this point, Björn and I had begun thinking about what our next steps would be. Were we both ready to create a digital game? Did we have enough information and experience to begin actual development? We found out that we were not as prepared as we would have liked to be. Creating a board game is easier than a digital one, the rules can be adjusted quickly because the humans are the ones that are running all the systems and accounting for special cases. Unfortunately trying to translate our board game into a digital one became a huge hurdle. Even if we tried to do a one to one copy of the game, we quickly noticed that a lot of the mechanics that worked in the board game would not translate well into the digital domain, and a lot of systems would have to be created to account for these mechanics. This is when we realized that our knowledge and experience was extremely limited and that we needed to rethink the entire design from the ground up as a digital game. Thus we decided to once again work on something together in hopes that we would be able to create a new concept, this time with a digital game in mind.

Fortunately AVEK's DigiDemo Concept Design Grant was an excellent starting point. They would help fund the concept for a digital game design. We applied and chose wolves and their survival as our topic. Fortunately we were accepted and the funding could be used to buy books and other resources for our research towards the design concept. Here I will present a general overview of different games that we benchmarked, followed by the usual learnings.

2.2.1 Benchmarking

Wolf Games

It only made sense for us to initially look at other games about wolves. There were many games that had the characters change into wolves, or werewolves. All of these games put the wolf in a powerful advantageous form. For example some were:

The Legend of Zelda: Twilight Princess - Link can turn into a wolf allowing him faster speed, the ability to dig holes to find items, and follow scent trails given off by NPCs (Wikipedia, 2014).

Darkstalkers - Jon Talbain turns into a werewolf which gives his martial arts speed and power. He also has the ability to summon a flaming dragon and or a pack of mystical wolves (Capcom Database, n.d.).

Okami - Amaterasu is a wolf god with who can attack and use special powers via a celestial brush that can control nature (Wikipedia, 2014).

The Wolf Among Us - Bigby Wolf is the town sheriff of Fabletown, when he gets angry or in danger he changes into wolf form which makes him super strong and also very violent (Wikipedia, 2014).



Image 4: The Wolf Among Us: Bigby about to hit the Woodsman in the head with an axe (Fenlon, 2014).

These games fed into the typical false stereotypes and folklore of wolves that we came across in our research; of being super powerful, aggressive toward man. Unfortunately these stories have been created because of the fear of the wolf, and continued to strengthen their bad image (Long, 1996, & Lopez, 2004). The North American and Eurasian wolves are “extremely shy of man and usually try to avoid him as much as possible,” and that even on the rare occasions there was harm, it has been “extremely exaggerated.” (Mech, pp. 293-294)

Since these games did not support our initial direction of factual realism, we only looked to games that tried to simulate how wolves actually live. Unfortunately there were very few to come by and the two we found were both extremely dated with horrible usability. Because of this, I will only do a general overview of both and quickly touch on why they were not used as references. The games were Wolf and Wolf Quest.

Wolf



Image 5: Wolf DOS Game: a wolf hunting to survive (Kaiser, 2005).

Wolf was an old DOS game that tried to accurately simulate all of the nuances of life as a wolf. Basically it was a wolf simulator where the player runs around a 2D world trying to keep his wolf alive. This is done by hunting animals while trying to maintain various stats that keep him alive. He can also mate and have pups.

Unfortunately the game is extremely hard to play and use even with a mouse. I had absolutely no idea where I was going, what I was doing, and why I would randomly die (probably because of the poor feedback). It also seemed that they were trying to cover every single situation that a wolf can be in, as I would suddenly pop into different screens at what seemed random times to do totally different actions. To its credit, It is extremely understandable the game is in this state because it was made almost two decades ago. When this was released, people were used to looking through manuals and going through all the trial and error before they could actually play any games. Personally sometimes this was part of the pleasure of purchasing and playing a game. I'm sure once a player learned everything, he would probably enjoy the experience somewhat. In this day and age with in game tutorials and online playthroughs, along with more emphasis on user experience, this game makes it extremely hard to use as a reference when making a modern game. I believe that the amount spent trying to find anything useful, could be better used looking elsewhere.

Wolf Quest



Image 6: Wolf Quest: a pair of wolves howling (Minnesota Zoo & Eduweb, 2014).

Wolf Quest is a free educational 3D wolf simulator released Minnesota Zoo and Eduweb. In it, the player is a wolf that runs around a park following colored scents that represent where different animals have been. Using your mouse, you can click to follow them until you find an animal. Then you can click on an animal to chase and attack said animal till it dies or you die. Rinse and repeat. The wolf can mate and also have pups. There is also a multiplayer version where players can hunt together. It seems that the game was developed as a free learning game geared towards a younger audience, thus it keeps the gameplay simplified. Unfortunately, when broken down to its core mechanic it is so simple that it is boring. Though this game had some interesting ideas and mechanics, the way that the core game loop functions, it can just makes wolves look like killing machines which just run and eat. In the end I felt that we could create a better game looking elsewhere.

Other Games

Taking into account how wolves live and interact with each other and the world around them, we looked at a variety of other more modern, “non-wolf” themed games and their mechanics in hopes to be able to find ones that would help us to concept something that was hopefully fun, yet meaningful. To keep things streamlined, the table below shows the mechanics that were explored in each game, again please refer to the full breakdown of each game (TOTW Benchmarking Games) which can be found from the link provided in the Appendix.

Game	Mechanics Borrowed
Risk Factions (Digital Version)	<ul style="list-style-type: none">● Gaining and controlling of territory● Attacking and defending● Resource management (in this case troops are a resource)● Fate/Luck via probability
The Sims Social	<ul style="list-style-type: none">● Survival / Nurturing
Minecraft	<ul style="list-style-type: none">● Meaningful Exploration and the Unknown● Uniqueness and Randomness● Survival
Frozen Synapse	<ul style="list-style-type: none">● Strategical Hunting● Teamwork with several agents
Faster Than Light	<ul style="list-style-type: none">● Strategical Hunting● Roguelike game● Balancing energy
Tokyo Jungle	<ul style="list-style-type: none">● Strategical Hunting● Generations and mating

Table 1: Benchmarked games and game mechanics borrowed (Sammander, 2014).

With the benchmarking out of the way, I went on to create the concept design document which we hoped to use as a foundation in creating the digital game. Below is an general overview of the major areas of the design, the full concept document (TOTW Strategy Concept Design Document) can be found from the link provided in Appendix.

4.2.2 DigiDemo Concept Design Document

Introduction

Trials of the Wolf is a roguelike game concentrating on the main principle of survival. The player must help a pack of wolves survive a harsh environment slowly being overrun by humans.

Basic gameflow

The game has two views, a world view and a hunting view. When the player starts a game for the first time, his wolf pack is placed on a random tile on the map (after progressing in the game and unlocking more wolf types, he will be able to modify his pack before placement). It is now the pack's job to hunt for food before the wolves completely starve. The player is able to select any adjacent tile to hunt in. Depending on various factors, he may be able to see the prey (various types of animals with different behaviors) he is hunting. He can then choose to move his pack into that tile to hunt for prey. Doing so costs one hunger on all wolves because one movement in the world view corresponds to one month of in game time.

Upon entering a new tile he will enter the hunting view. In this view, it is the player's task to hunt for prey before it escapes that area. If he is successful, he will have recouped the loss of that initial movement into that tile. The game continues indefinitely till all the wolves die and / or humans have inhabited all tiles in the world view (which leads to the wolves' extinction). Fortunately every year that a wolf survives allows some of its genetics (skills) to be passed down to its ancestors. This, an interesting narrative, along with unlocking other wolf roles and types along with their respective benefits, allows players some type of progression and story to look forward to.

Wolf Generations

Wolves are able to pass on some of their skills to future generations. For every year a wolf is alive, a percentage of its skill is carried on through its bloodline. The longer the wolf lives, the higher the percentage passed to the next generation of wolves. Once the wolf dies (a marker is created on the location of death in the world view) and the player starts a new game with a new wolf. This new wolf will inherit some of the skills of its ancestors, thus starting off with a higher set of values. All experience gained before a year is complete is lost if a wolf dies before its yearly birthday. Thus, if a wolf dies at two years and nine months, the wolf's bloodline only gains two years worth of experience. Finally this percentage is not cumulative, and cannot be distributed amongst wolves of the same class.

When the game is over (all wolves die) the player can play the same map where he left off with the next generation of his wolf pack. This can continue until the humans have expanded throughout the whole map and there is no place for the wolves to spawn, thus ending the game and forcing the player to start on a new map.

World

To add variety, for every new game, the map is procedurally generated, which is described in detail in *Procedurally Generating a World For Trials of the Wolf Project* by Björn Lindholm (Lindholm, 2014). The player can choose to move between tiles by selecting any adjacent tile from the one his pack is currently in and then by clicking on it, his pack moves to the new tile. Rivers and roads are placed between tiles on the borders as thick lines.

Narrative

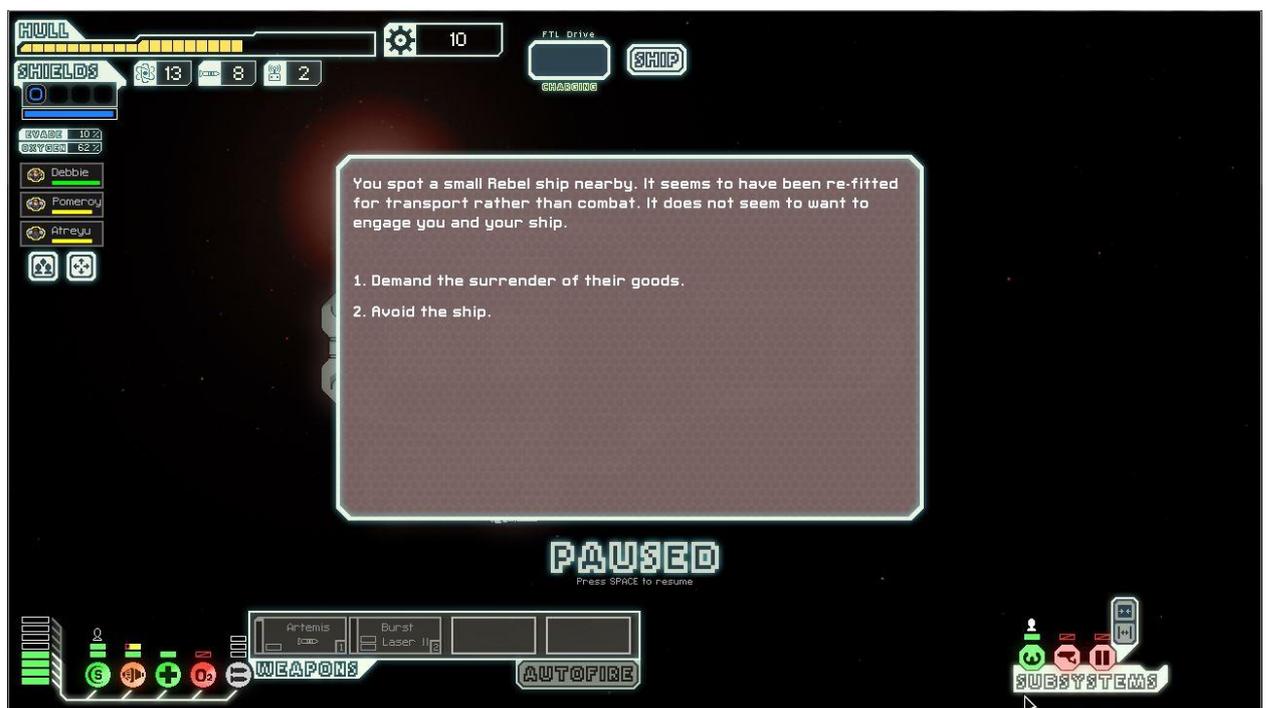


Image 7: FTL (Faster Than Light): Player making a narrative choice (Sammander, 2014).

Storytelling will use a method similar to the one found in the game *Faster Than Light* (FTL) where every "jump" to another location gives the player a narrative snippet with text and sometimes a choice of action. A similar mechanic will be used in a direct or indirect way, to give the player the illusion of choice, even if there is a very linear storyline. Our overall story arc is one of a world where the player is one of the few remaining wolf packs on the brink of extinction. Any area on the map may have a unique storyline attached to it, some of which could be a generic interaction between the wolves in a basic situation, while others could be more unique, maybe paying homage to classical folklore but with a twist in favor of the

wolves. Unlike FTL, there is no ending or winning condition. The players will eventually lose, not matter what they do. Their “winning” is passing down their genes in hopes of having an easier game the next time around. Though this is such a bleak outlook on things, I believe that it is closer to reality, and it also will help users to really see just how hard wolves have to work in such a world, one that is at times, similar to ours. Some narrative examples are as follows:

Basic / Generic Situations

- You find a lone wolf. Do you approach it, leave it be, attack it?
- There is a dead caribou carcass next to a group of trees. Do you eat it, leave it, send one of your wolves to scout the area?
- There is a strange scent in the area which smells familiar to you. Do you follow it, ignore it, send out a wolf to investigate?
- You come across a large road, do you cross it?

Twists on Folklore

- You come across a row of three houses. Two of them which seem to have been made out of straw and wood are both destroyed, there are bear tracks leading towards a brick house. Outside you see a bear trying to break in the door. Do you attack the bear? Ignore him? Run away?
- It seems a hunter is following a girl with a basket and a red scarf. Do you follow them?

Missions Based

- There is a diseased animal that is spreading its sickness to the rest of the herd, kill it before the disease spreads.
- One of your wolves suddenly falls ill, he can no longer hunt with your pack, bring him three meat before he dies.

2.2.2 Learnings

Having gotten funding from DigiDemo was a great moral boost for both of us. It gave us access to information that we would not have had access too, which allowed us to explore wolves more thoroughly. Because of this, we had an easier time benchmarking game mechanics against that research which helped us to create a detailed concept document. Unfortunately access to all of this information also allowed our game scope to expand dramatically. At that time, both Björn and I were still new to the industry and were making a lot of mistakes that we would not see the effects of till much later on in actual production

3 Production

We had finally developed a strong foundational design that we both felt would allow us to comfortably begin production. Production's goal was the development of the digital game based off of pre-production's documentation and learnings. Like pre-production, production was also broken into two phases, a strategy game and a card game, each with their own learnings. The reason for this was that early on into the implementation of the strategy game, we realized that our game's scope was too large, forcing us to rework our scope and in turn creating a card game. I will be discussing both phases here.

3.1 Strategy Game

Both Björn and I felt ready to move forward with the digital game and believed that it would be best to make decisions on the technologies that we would use before proceeding. We reviewed different software and in the end both decided to use Unity 3D along with Adobe Photoshop / Illustrator because we both had the most experience with them from past projects. From here we began planning out development. Since we had no exact deadline to deliver the project, we did not create a roadmap, but instead a feature list to work off of.

3.1.1 Development

After reviewing the design concept we created a high level feature list. These features would then need to be broken down into the relevant tasks that we would each need to accomplish. Below is a general overview of the features that would need to be implemented in order of importance.

Feature List:

World

- Procedurally Generated
- Biomes (Lake, Ocean, Plain, Tundra, Mountain, Desert, Forest, City)
- Rivers and Roads

Wolves

- Pack Dynamics / AI
- Stats (Speed, Attack, Defense, Sneaking, Sight, Health, Hunger, Status, Stamina, Gender)
- Roles (Omega, Alpha, Enforcer, Hunter, Scout)
- Types (Gray, Red, Arctic, Dire)
- Hunting (Sneak, Attack, Lunge and hold, Walk, Run, Eat, Howl)

Prey

- Pack Dynamics / AI
- Types (Hare, Muskox, Moose, Caribou, Boar, Bear)
- Stats (Health, Speed, Stamina, Status)

Dangers

- Humans (Normal, Hunter)
- Traps (Covered pits, Bear traps, Poisoned carcass)

Generations

- Passing down genes

Narrative

- Basic
- Folklore
- Missions

Art

- Characters (wolves, prey)
- Animations / Special Effects
- World and Environment
- Camera Views / Screens
- GUI / Menu System

Audio

- Music
- World
- Animal
- GUI

We wanted development to be as agile as possible. So both of us would work up to a point where a question would arise, then we would try to resolve it together before moving forward. Since most of the preliminary design was already done, Björn began fleshing out the world while I spent most of my time evaluating different art styles and camera perspectives. I had to lock these down as soon as possible because they would have a big impact on how things would be implemented as well as how players would interact with the game.

Perspective Issues

While doing the initial game design, it became apparent that we would have to make a decision on the viewpoint / perspective. Initially I believed that an over head “top-view” would be best for the player to be able to strategically place the wolves into positions that would allow them to take down other animals. I also believed that this would be the view that would require the least amount of work because I would not have to draw the animals from multiple viewpoints depending on the direction they were running. This view can be seen below.

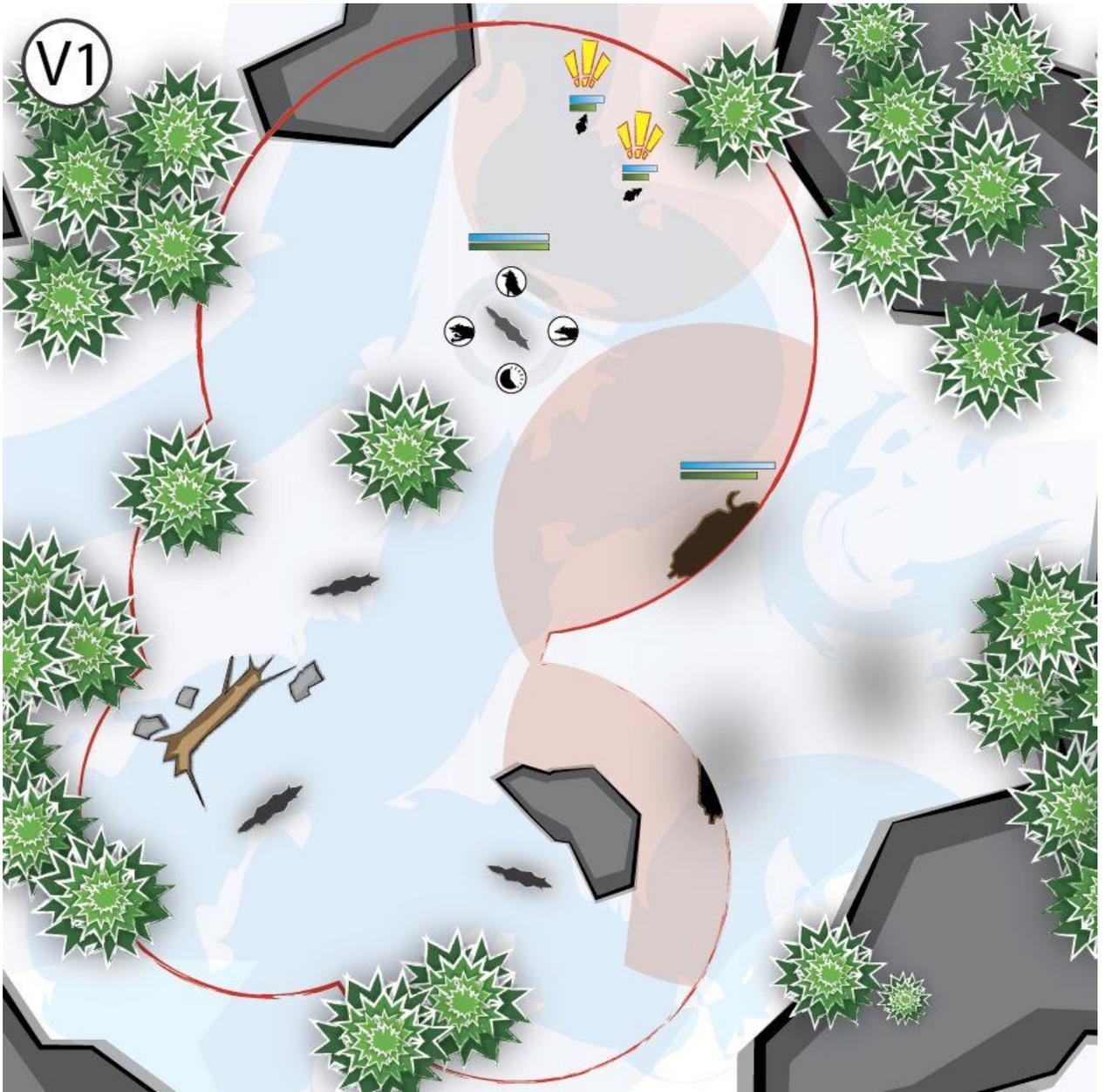


Image 9: Trials of the Wolf Strategy Game: Overhead view concept art drawn by the author (Sammander, 2014).

The problem that arose was that I had never viewed animals from this view and had a very hard time finding any reference work. It quickly became apparent that I would not be able to properly draw or animate them and was worried players not being used to viewing characters

from this angle, might find them confusing. I then began looking at other strategy games, for example StarCraft II and noticed that it had a side/isometric view.



Image 10: StarCraft II: Terran attacking Protoss base with tanks and anti air units (Blizzard Entertainment, 2014).

I felt that this view would make things a lot more understandable for players because they would be able to make more sense at what they were looking at. So I decided that this was the proper perspective. Because so many other strategy games had used this view successfully, I didn't want to try to find something new and be punished for making a poor choice later. Unfortunately this new perspective would require a lot more artwork and animation on my part, but I felt that this was needed nonetheless. *I would not realize how much animation work I would end up doing until much later in development.* With this new perspective chosen I began researching different art styles.

Art Style Considerations

Even though Unity 3D was developed with 3D games in mind, both Björn and I had agreed that 3D was not the way to go. I had just come out of a year long project where I handled most of the 3D pipeline and I knew that going down that route again by myself would be too

much work for a single artist. So I concentrated on finding different 2D styles of art that I felt would inspire me. I had a pretty good foundation in using Adobe Illustrator and wanted to find artwork that I would be able to render. I started looking into more flat and simplistic styles and for some reason was attracted to children's books from the 1950's and 1960's, when I stumbled upon the work of Josh Agle, better known as Shag. He used a lot of monochromatic and complementary color schemes which were very intriguing and also easy for me to replicate.



Image 11: "Bossa Nova Now": Artist Proof, Sold Out Edition (Shag, 2011).

Interestingly enough, around the same time Google.com had done a nice "interactive" media in place of its logo celebrating the Brothers Grimm's retelling of Little Red Riding Hood, which had a nice simplistic graphic style done by Matthew Cruickshank. Something about its simplicity and use of elementary shapes had caught my eye. I really enjoyed how he was able to tell so much with so little, and felt that his style would be a good choice. In the end I decided to use his work as as my baseline. Below is an example of his work in from that production.



Image 12: Samples of 200th Anniversary of Grimm's Fairy Tales for Google.com (Cruickshank, 2011).

Below are some concept images and how Cruickshank influenced my style. These did not make it into the final production, but were only used as foundational art.

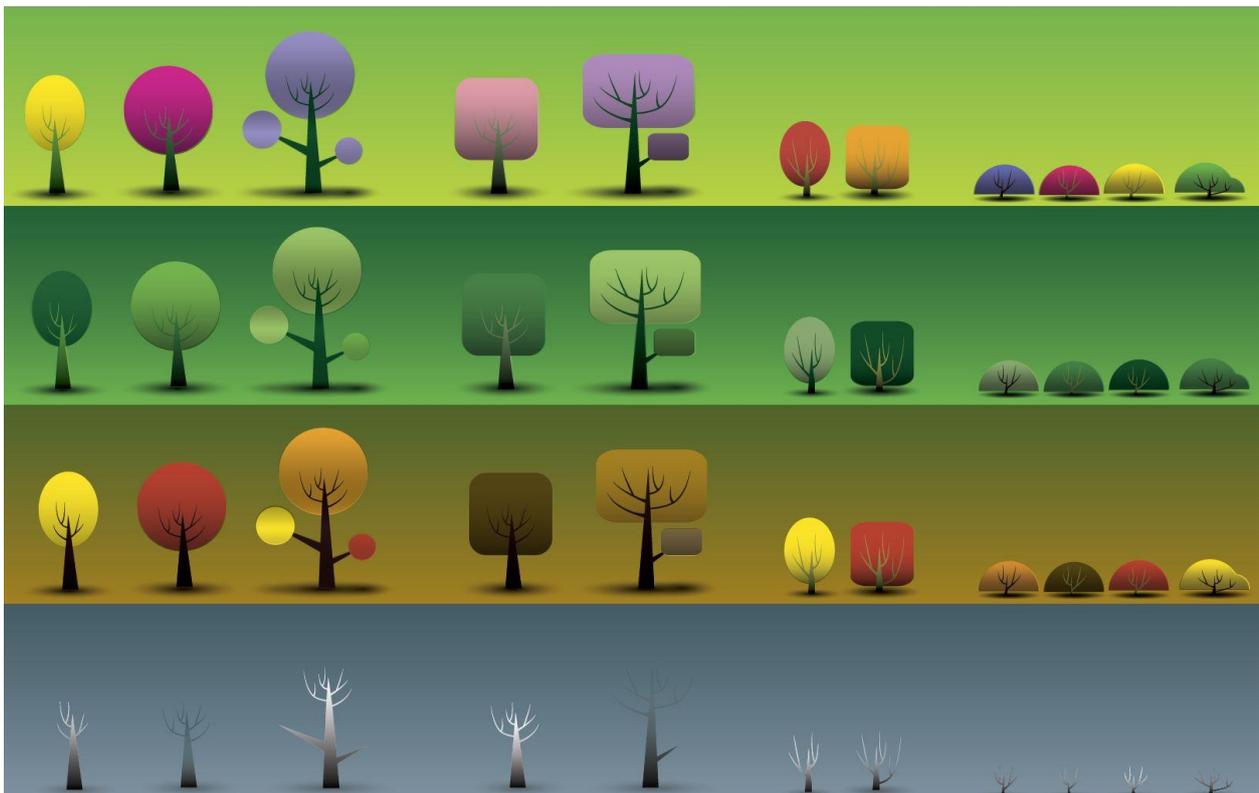


Image 13: Trials of the Wolf Strategy Game: Early tree concepts and their seasonal change (Sammander, 2014).

I swayed from Cruickshank's style when doing the animals, as one can see, they are more realistic and less cartoony compared to his work.

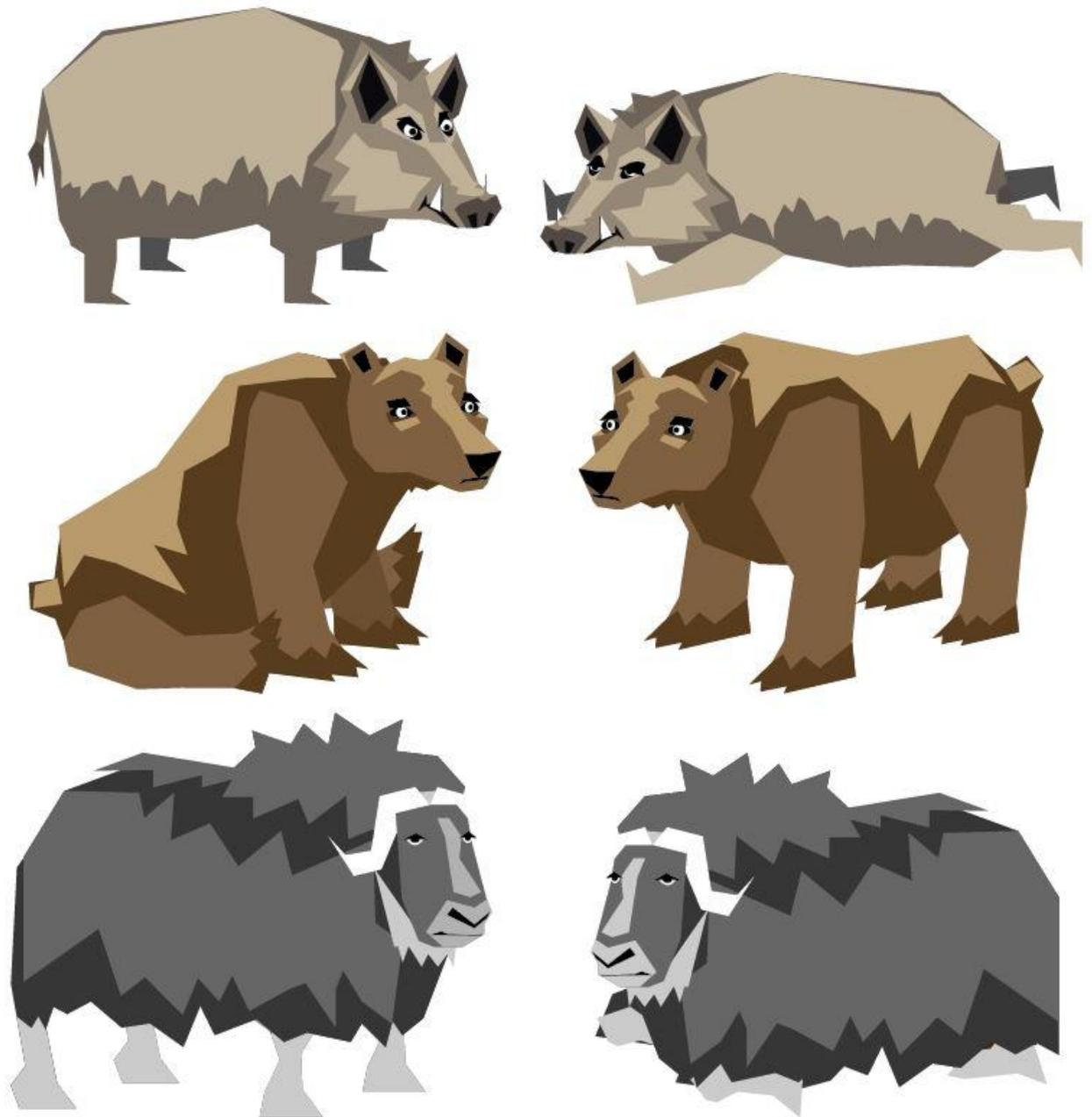


Image 14: Trials of the Wolf Strategy Game: Boar, Bear, and Muskox Concepts. Not in Alpha (Sammander, 2014).



Image 15: Trials of the Wolf Strategy Game: World concept mockup (Sammander, 2014).

I now had enough concept art done that Björn could use to populate the game world for testing.

Movement / Control Issues

After a basic game world had been created, Björn began the creation of the wolves. This is when we ran into our first major roadblock, how would the wolves navigate around objects in the world? We noticed that it was very hard to figure out the correct way to control the wolves as a group and on an individual level. Even after we had examined different games such as the Baldur's Gate, Company of Heroes, and the Starcraft series, we still were left with more questions than answers. For example Starcraft II's *simplified* controls had over seventeen different inputs (Nebu, 2012)! Just between these three games, there were so many different combinations of character selection techniques which involved the mouse, keyboard, or both that we were unsure which would be better or worse. Outside of just problems with controlling the wolves, we also had issues on deciding on how camera switching would work.

What would happen when one wolf separated from the pack? Should we let wolves split up? Should we keep them all on one screen? How would we switch between them? What if one was injured, how would the player be notified and attend to that wolf? There were so many mechanics that would have had to actually be implemented and tested before a decision could be made, because just imagining something working in our heads or seeing it in other games did not always guarantee they would work in our game. All of this piled on top of the fact that we still would have to solve the various interactions between the wolves, animals, and world; it soon became apparent that we were in over our heads. It was now time for both of us to take a step back and see how we could address the growing number of problems before we were completely overwhelmed.

3.1.2 Learnings

After reevaluating our current position in the production, Björn and I tried to find out what the causes might have been that had led us to our current state. Even though we believed that we had planned accordingly, in our excitement to get started with development, we made a lot of novice mistakes. Of course the number one problem was the lack of experience to know better. Yes we worked on other projects, but the responsibilities were spread across other people as well. Also, though there were a lot of benefits from attending a serious games class and also creating a design concept, there were also drawbacks. We spent so much time researching wolves and learning, that we forgot about delivering a fun user experience. It was easy to get caught up in all of the nuances of the design's creation and all that it would entail, instead of thinking of the delivery of an actual product. Because we did not check the project against our skillset, and because we did not create an actual roadmap with major milestones that needed to be achieved in a specific timeframe, we had no idea that we were in over our heads and were setting ourselves up for failure. Thus the scope of the project had ballooned into a massive undertaking that neither Björn nor I had the experience to handle. We needed to once again reevaluate the current design and revise it into something more manageable for the two of us.

3.2 Digital Card Game

After taking the learnings from our previous design and its challenges, we knew that the only way for us to succeed in bringing this game to life was to take drastic measures. We had realised that our scope was too large and that we would need to cut it back somehow. Our biggest challenges revolved around trying to control an entire pack of wolves. So I made the hard decision to drop it down to just one wolf. This immediately made things a lot more manageable. I also made the decision to not allow ourselves to get caught up with facts and realism, but instead focus on just trying to make a fun game.

Both Björn and I had also spent some time reevaluating our own skills. Instead of thinking about what kinds of games we enjoyed playing, we instead looked at what types of games we were good at making. We came to the realization that our strengths lied in board, card, and dice games. Thus we had to find a way to create a game that could easily be translated from an “analog” game to a digital one. After some exploration we decided to go with a card game. The immediate benefit was that there were other digital card games that we could use as a reference and we could also quickly paper prototype the game to find the proper interaction model before proceeding further. In the end, our goal was simply to create a card game that could exist on one screen that would allow players to see the interactions between a wolf and other animals.

Also during this time, we decided to that it would be extremely beneficial get help from another artist. Though I did consider myself an artist as well as a designer, I was not a professional game artist. I came to this realization as soon as I began to try an animate the characters for the game. Since they were not drawn and segmented with animation in mind, I struggled to get anything moving on the screen. Fortunately a very close friend of mine Matei Molner, agreed to help us to rework the art so that it was more coherent and easier for me to animate.

Development

During this phase of development we knew that the only way for us to succeed was to keep our scope small, and to keep an eye out for feature creep. Since we were doing paper prototyping again, it would have been extremely easy for us to get excited about incorporating too many new mechanics. To prevent this we made sure that we created a base deck consisting of a simple set of only three different card types. One card had to be offensive, the other defensive, and one in between those two. We then played the game with these cards against one another until they felt balanced but also interesting. Below is an image of the game.

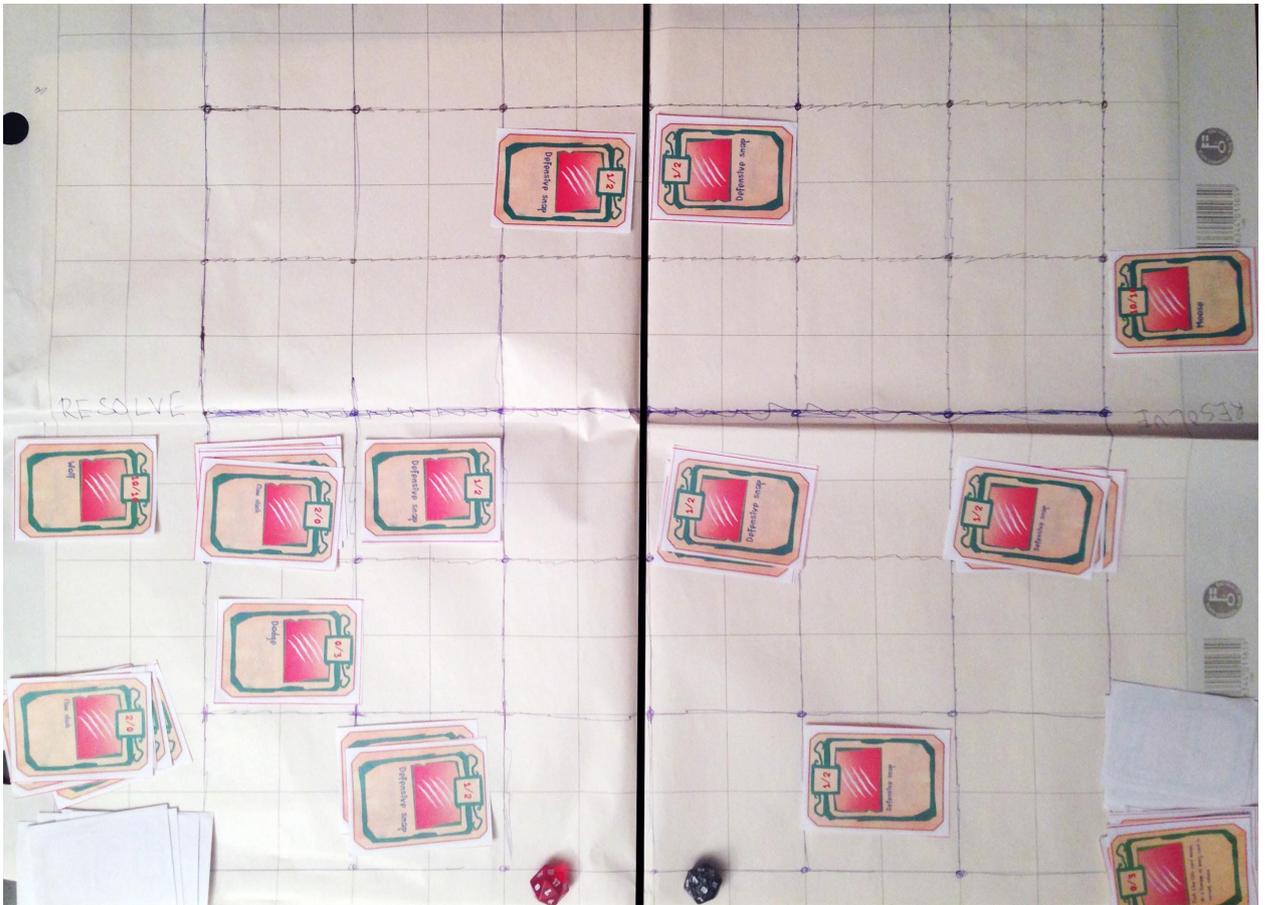


Image 16: Trials of the Wolf Card Game: Game board and cards in play (Sammander, 2014).

Only after playing and balancing this basic game, did we introduce new cards. These cards were created using a grid system we had designed to card synergies, which afforded for varied gameplay. It functioned by way of a “circle” of different grouped cards which shared something in common. Björn would have one group, I would have another. Each group of cards consisted of one Legendary Card and two Rare cards. Each of us would create a synergy group and then borrow one Rare Card from the other’s group and use it in the creation of an entirely new group. By borrowing from groups from either side of each other, we were able to create a circle of cards that shared something in common. The image below shows a sample of this system whereby I borrow one of Björn’s cards in the creation of my own group. The full grid system (TOTW Card System) can be found from the link provided in Appendix.

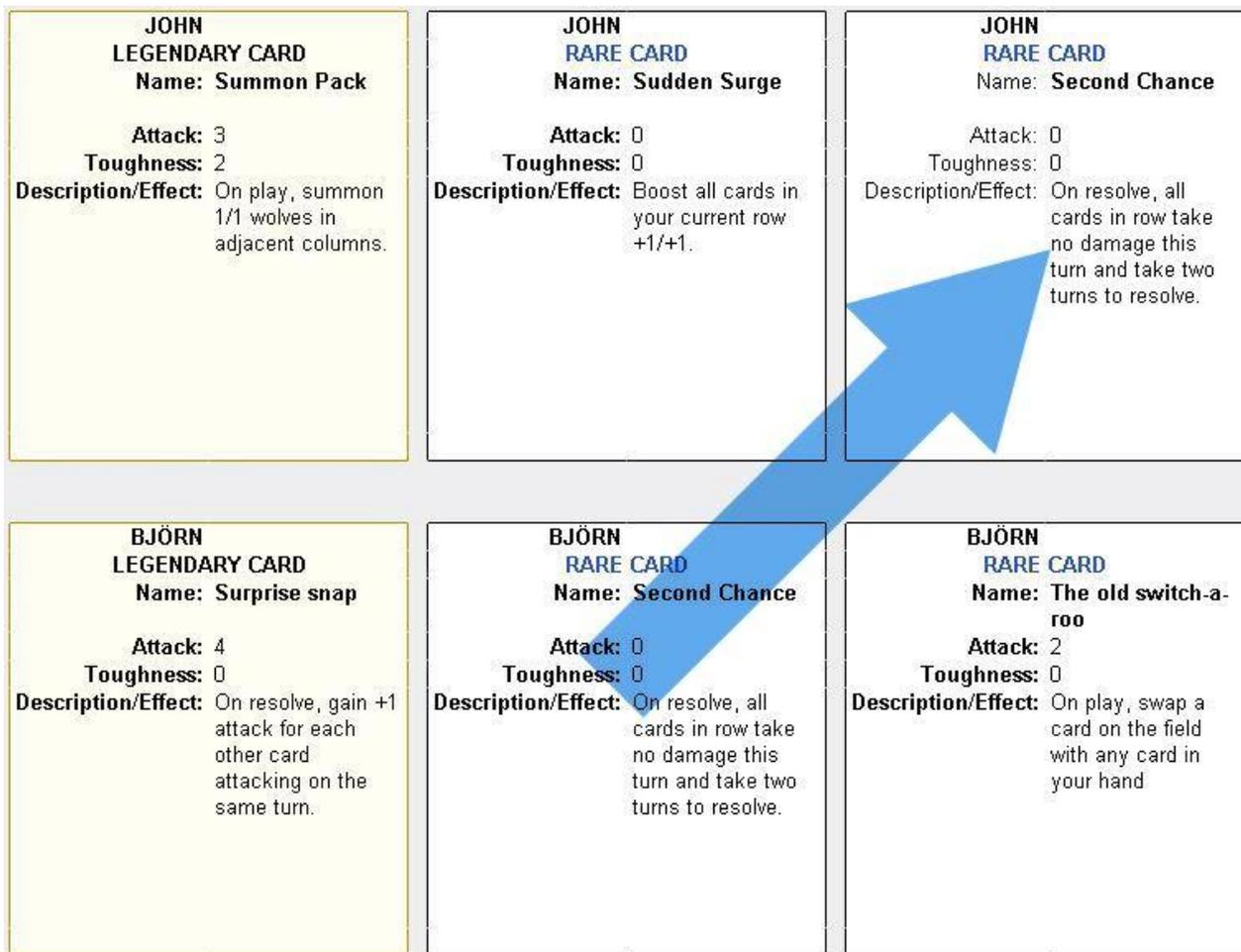


Figure 2: Sample of Trials of the Wolf Card System showing flow of shared card (Sammander & Lindholm, 2014).

After playing with the different special cards, we picked the most interesting ones that would be implemented into the digital game. We also decided to the common base cards generic so that they could be used by all the animals and not just the wolf. The benefit of this was that it would save time on design and further balancing, and also allow for quicker content creation.

GUI Issues

Before diving straight into into the digital implementation, we first decided to play some other strategy games to see how they handled card / character placement, as well as interactions and animations. Games like Might and Magic: Clash of Heroes and Hearthstone became our references. Since this card battle view was the place where players would spend most of their time, we concentrated on just that specific portion of the game and put all other views aside till it was resolved.

Our first major issue was translating the board over properly to the digital screen. In our paper prototype, the game board was in a portrait view but our screens were horizontal. As one can see between V1 and V2 in the image below, we tried different mockups to help decide which would be appropriate before we began actual implementation. I personally liked V1 very much because it took the most advantage of the screen real estate and also left room at the top for the “interactions” between the animals. The main problem with this view was mostly the shape of the cards versus the grid they were placed on. Also the feeling of dealing out cards vertically and their movement to one side just felt awkward for a single player game.

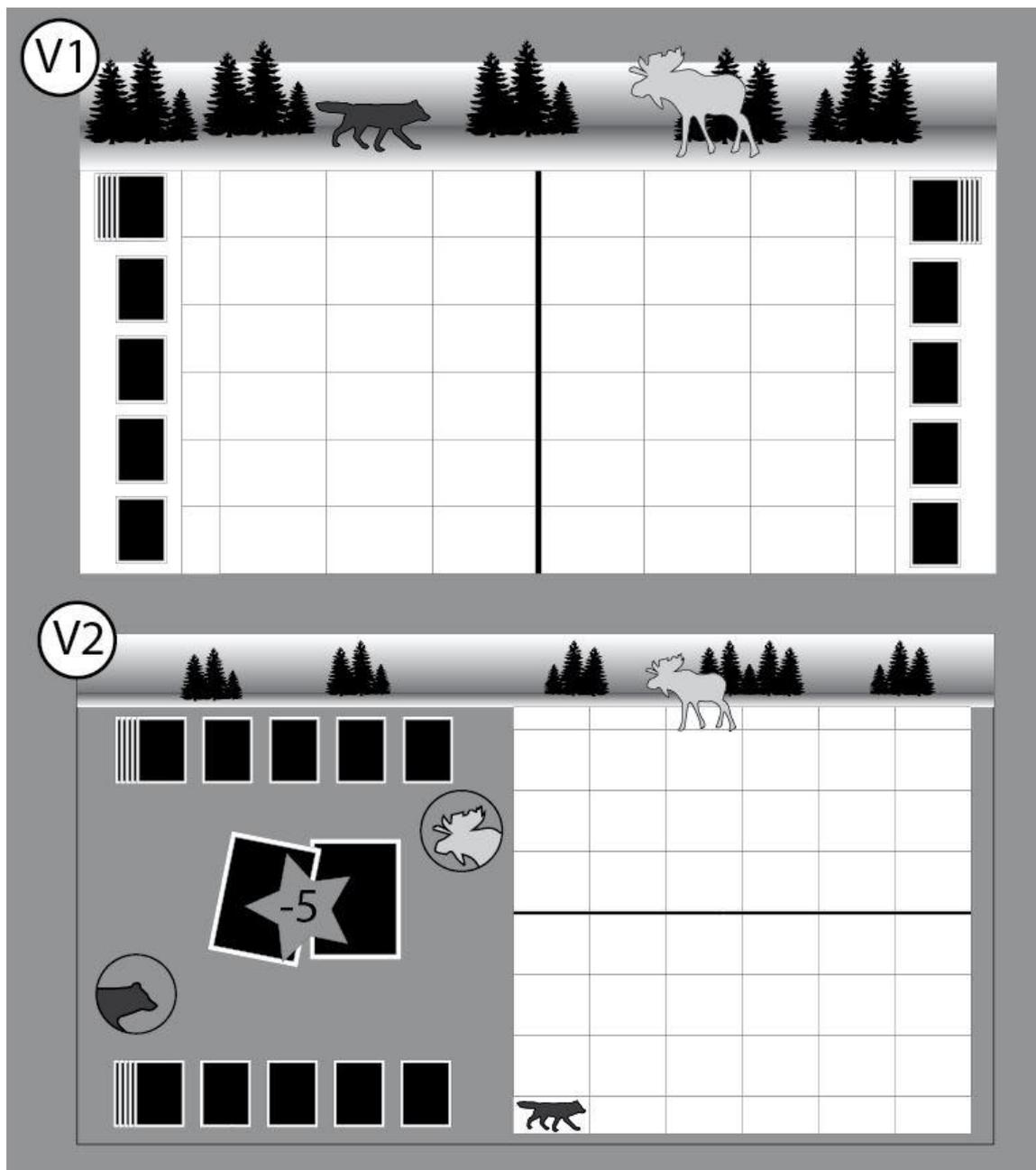


Image 17: Trials of the Wolf Card Game: Two GUI concepts which were later combined (Sammander, 2014).

This is where V2 worked better because left room for the cards and they would be spread out along the bottom and then move upwards away from the player towards his opponent similar to other card games such as Magic the Gathering and Hearthstone. Also this view would allow room for other GUI elements. The problem with this view was that placing the cards on the grid was still confusing. The player would spread them out on the left and then place them on the right. Also the grid which was the most important area of the game took up only half of the screen. I felt that this area should actually be the center of attention because this is where all of the actual gameplay took place.

In the end we decided to use a layout similar to Might and Magic: Clash of Heroes because it shared a similar grid as in our game; albet not visible unless the player enabled it. Similar to our game, the character placement was like our card placement and movement towards the enemy resolved at a centerline. This view also left the sides empty for GUI elements.



Image 18: Might and Magic Clash of Heroes (PC): Anwen versus Cyrus (Julien, 2012).

We did have to make a slight modification to the camera angle because unlike Clash of Heroes, we had cards which had values and text on them. Even though players would be able to hover over them to see this information, they should still be fairly readable. By skewing the perspective the player's cards would be easier to see and also allow the him to project himself easier onto the wolf character. Björn finally had enough information to begin developing the digital version of the card game.

Killing Our Darling

Because of the time spent playing the card game, the digital implementation came along fairly well considering; our previous attempts. Our next major hurdle was integrating the card game into the rest of the world that Björn had already created from our previous strategy game. In the previous iteration of the game we had two other views. They were the *World View* which was a digital map of the world, and a *Hunting View* which was the action based part of the game. We decided that the best way to integrate these was to connect them by the wolf's movement and interactions. Though we did not really need these other views, we felt that we had put so much time and effort into them that it would be a shame not to have them. So we decided that the wolf would run around in the hunting view trying to sneak up on other animals. When they attacked each other, it would then jump to the *Battle View* (i.e. Card Game). If he was able to surprise the animal in the hunting view before being detected, then he would gain the initiative and go first in the card battle view.

Unfortunately during the process of implementing this, we noticed that the hunting view had a lot of problems. We still did not have a good interaction model in place and it was extremely hard to figure out how to balance this to make it feel right. It got to the point that we figured out that this view had become a darling, i.e. it had been a carry over from our previous iterations that was never dropped because of a sunk cost bias mentality of *"let's keep it because we spent so much time and resources on it."* Again, taking drastic measures, I decided to cut this view entirely so that we could spend our time and energy towards actually completing the game. With the Hunting View out of the way, the wolf would now just move from tile to tile in the World view until he saw an animal that he could hunt. Upon entering the occupied tile, the player would then jump into the Battle View where he would play the card game. After a few iterations with this change, we were finally able to create what is now the current Alpha build described below, which again, represents only a vertical slice of the final game.

3.3 Final Game Design Document

3.3.1 Introduction

Trials of the Wolf is a roguelike survival card game about a lone wolf looking for a mate. The player is trapped on an island that is slowly being overrun by cities. For the master's thesis we will deliver an alpha version which represents a vertical slice of the game so that one could get a sense of how the game flow. Therefore I only discuss implemented features and not ones that will be introduced in later builds.

3.3.2 Basic Gameflow

The game has two views, a world view and a battle view. When the player starts a game for the first time, his wolf is placed on a random tile in the center of the world map. It is now his job to hunt other animals to survive long enough to find and “defeat” (win over) a female wolf. Every time he successfully hunts an animal, he has a chance to gain a new ability (as a card) and also regenerate some health. The player loses the game if his wolf dies during a battle or the entire world is blocked off by cities and he can no longer move in the World View. The basic core loop can be seen in the image below.

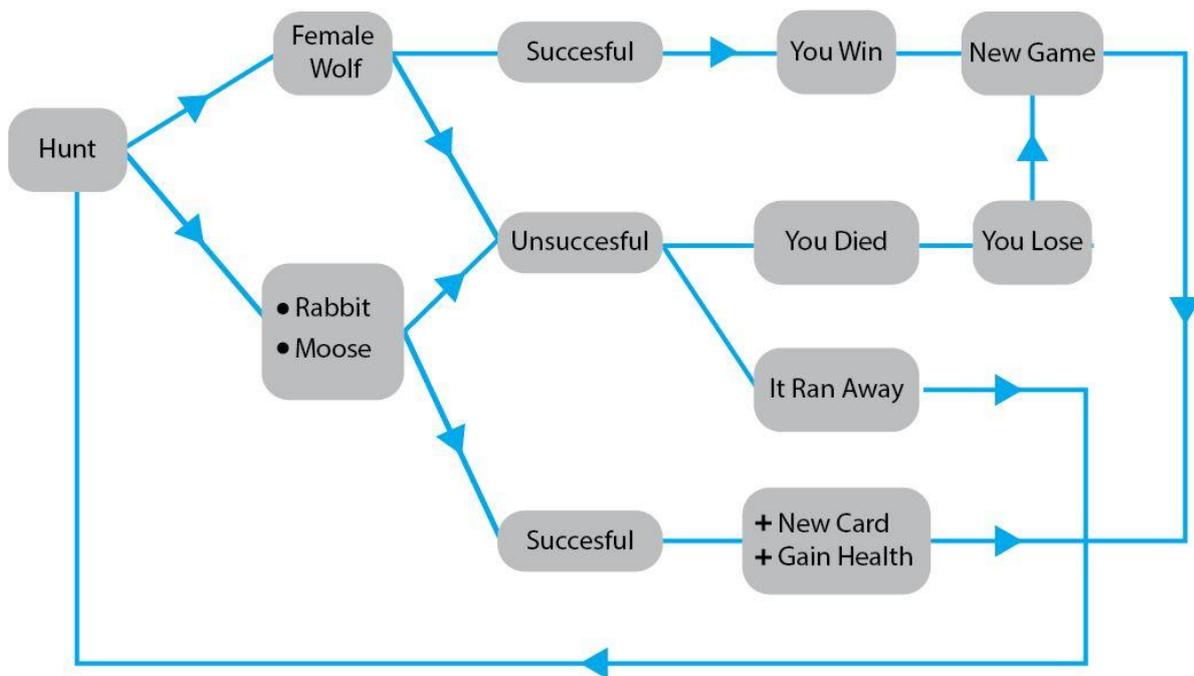


Figure 3: Trials of the Wolf Card Game: Core game loop (Sammander, 2014).

3.3.3 World View

This view consist of a procedurally generated island with different biomes. (REF) These biomes not only have different types of terrain, but also contain different types of animals that the wolf can interact with. They are Mountains, Lakes, Ocean, Tundra, Forest, and Cities. There are additional biomes that the player can't see but are used to place objects such as trees, rocks, and rivers in the correct locations, as well as where animal encounters can exist. Also because it is only the winter season, most things will be covered in snow.



Image 19: Trials of the Wolf, Alpha Build: World View, updated with Matei Molner's graphics (Sammander, 2014).

Movement

The player will be able to move to any (non-city) tile adjacent to the one that his wolf is currently occupying. By mousing over and clicking on a tile, his wolf will move to that tile. If he moves into an occupied tile a battle will initiate.

Time

Every single movement from one tile to another counts as the passage of one week.

Cities

These tiles are occupied by humans and hurt the wolf every time he passes through the tile. As time passes (about every two months, but this accelerates over time), the cities grow in a random open tile adjacent to the tile they are currently occupying. They prefer growing on tiles with more resources like forests, and rivers. Eventually the cities will cover every single tile in the game.

Animals

Currently there are only three types of animals that the player can interact with. They are hares, moose, and other wolves. Each animal type has slightly different AI so that it reacts differently during the battle. Each animal also has a set health and action cards like the player.

3.3.4 Battle View

Upon entering an occupied tile with another animal, the player enters the Battle View. Depending on the direction the animal was facing when the player entered that tile (facing away being in favor of the wolf), the player or the animal will gain the initiative. Once in battle view, the world map changes into a zoomed in view with a 6 x 6 grid that is split in half. The top half belongs to the enemy animal, i.e. prey and the bottom is player's area. In this view, the two animals battle each other with a set of offensive and defensive moves represented by stackable cards. The UI shows the cards currently in the player's hand (up to three at a time), the current number of cards remaining in his deck, the amount of actions remaining during his turn, his current health, as well as his howl gauge (special move).

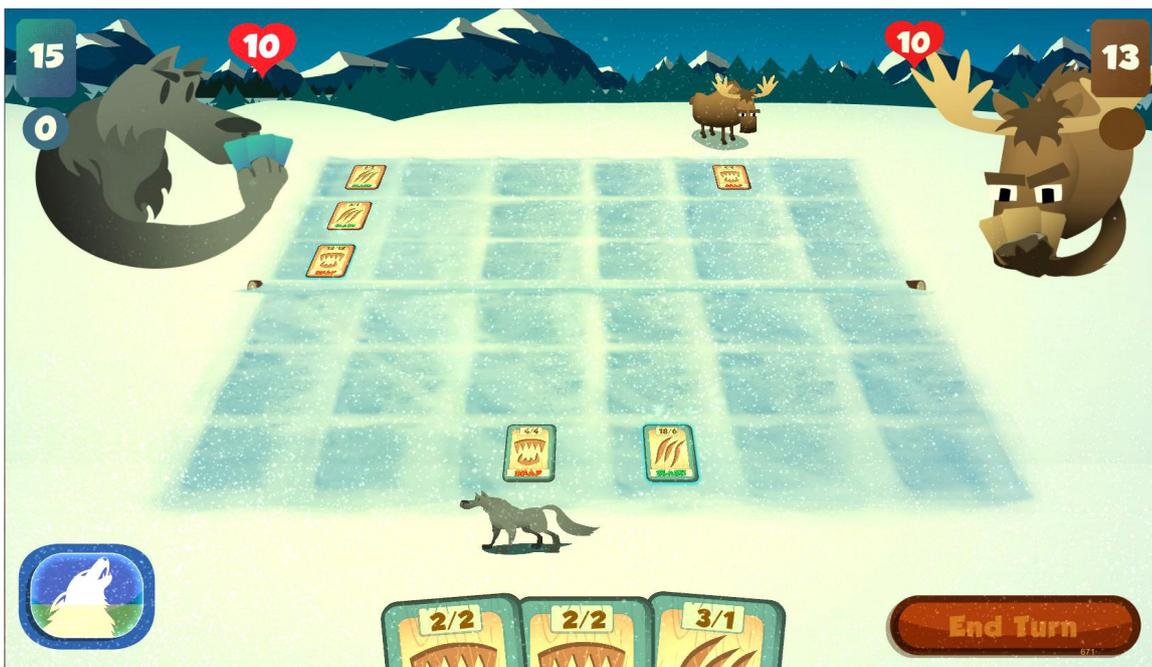


Image 20: Trials of the Wolf, Alpha Build: Battle View, updated with Matei Molner's graphics (Sammander, 2014).

Play

During any one turn, a player (or enemy) can do up to five actions. He can move himself at the end of any of the columns on his side of the grid and place an action card on the field in that column. A move and the placement of a card each costs one action. Performing his super move does not cost an action; see Special Move. At the beginning of the player's or enemy's turn, all cards on the field move forward one row (unless affected by special cards). If they would pass the centerline, then those cards will resolve. Resolved action card's are matched against any blocking opponent cards. The card with a higher value wins and destroys the weaker card. Cards that are not destroyed during this process remain on the battlefield with adjusted values based off of damage taken. When their defence value reaches zero, those cards are destroyed. Any resolved cards that are not blocked cause damage to the enemy or player equal to the total damage value of that card. If the enemy's

life drops to zero before either side runs out of cards, then the player wins. If either the player or the enemy run out of cards before the enemy dies, the enemy gets away and the player must find it on the world map and initiate the battle again. If at any time the player's life reaches zero, he loses the game.

Battle Grid

The player may place any card on his side of the grid in any open slot. Each card takes up one slot unless it is stacked with a similar card of its own type. Placing a card of different types in the same row pushes those cards forward till they reach the centerline.

Cards

There are two types of action cards. The standard card has two stats, an attack value and a defence value. Specialized cards may have stats along with additional properties such as allowing the play to modify the regular flow of cards or play. Currently there are only two special cards implemented in the game.

Intimidate: Freeze the entire column on the grid as long the card is in play.

Rush: Merge all cards in the active column and move them to the front row.

Card Stackings

Cards of similar type may be stacked, up to a total of three cards per stack. When cards are stacked, their values are added together. Maxing out a stack gives additional bonuses which equal the sum of each value on all cards added together and then multiplied times two. The player will also get one additional move for every three-card stack; theoretically having six moves in one turn if he is able to successful stack with his first three cards.

Special move

The wolf has one special move in the game. It fills any time damage is dealt from either side. When it is full, the player can click on it during his turn (without losing an action), at which time three wolves will show up at random places on the opponent's side of the grid and do 1d6 (1 through 6) damage distributed randomly across its cards.

Card Collecting

If a player's wolf successfully defeats an animal, he gains one new card.

Health Regeneration

Currently the only way for the wolf to regain health is to successfully defeat an opponent, or eat berries off of bushes found in the world view.

4 Postmortem

As with any production, there are positive and negative situations that one must endure to become successful. From those, there should always be reflections and learnings that one would hope to be carried on to future productions. Though there were many of these situations that could be discussed, the top four of each type are as follows:

4.1 What Went Right

Strong Passionate Team

Both Björn and I had a strong work ethic and worked well together. This was tested all throughout production. When things began to drag on and it felt as if the production would never come to an end, we were able to keep each other motivated and push forward. Björn helped me to stay grounded and I tried to keep him inspired with ideas. This shifting helped us to create what we have today. Without this synergy, this production would have failed.

Received Funding Early

Getting funding from Digidemo was not only a great financial help but also a great morale boost as it gave us confidence that our design had some merit. Getting a production funded because people believe in what you are doing is extremely motivational. It also helps you to set goals and milestones because you are now required to deliver on your promises.

Ample Background Research

We spent enough time researching about wolves and other games before jumping into development. This allowed us to not only understand the subject, but also have enough knowledge to create meaningful game mechanics. All too often, not enough time is spent in this phase and it affects later development when further research and adjustments need to be done because of unknown variables.

Prototyping of Ideas

Our skills were very strong in paper, board, and card games. We took advantage of this and made sure to paper prototype as much as possible before actually developing anything digitally. This saved us a lot of time in the long run implementing something that might have to be dropped because it was not tested properly beforehand.

4.2 What Went Wrong

Scope

I would say that of all things that went wrong in Trials of the Wolf, the biggest issue was that we let the scope get out of control. Though this could be attributed to many factors, I'd say the main reason was our lack of industry experience at that time. Looking back on it now, with several years under my belt, it is easy to see that we got so caught up in the details of the design that we allowed for feature creep. Because we were constantly adding new features without knowing it, the production became something neither Björn nor I could handle alone. We never really sat down and created a strong vision along with a minimum baseline for the production. Instead we dreamed big and tried to achieve that dream in one production. We never sat down and asked ourselves what success actually was, and lost sight of the fact that this was for our thesis, not a commercial product.

Killing our Darlings

It can not be said enough that throughout the production we developed darlings unbeknownst to us. It was only much later in development that we noticed the massive amount of features carried over from earlier iterations, like the hunting view or controlling multiple wolves. These features, though interesting, slowed down development dramatically because they created so many design questions that had to be answered. It had never occurred to us at the time to incorporate them into future revisions, instead of assuming they were absolutely necessary for the production to be successful.

Perfectionism

Doing a job well is one thing, but obsessing over it is another. There were times that we would spend too long on a system that would barely be noticed by the casual observer. This could easily be seen in the amount of time that I would spend on art. It got to the point where I would spend hours on animating a tree only to barely notice the animation once it was actually implemented in the world view. Another example was that we were convinced that the animals should all be drawn and animated from all sides. Fortunately my laziness payed off and I only did everything from one direction and Björn just flipped the animal when necessary. Absolutely no one has noticed this fact when playing unless I specifically pointed it out to them. The point is, our eyes got tired and saw things that most other people did not see because we were too close to the development. We should have gotten feedback from others before spending too much time in any one area.

Getting Help

I waited too long to get help when I needed it. From the beginning I was worried about how I would be able to draw or animate everything by myself. Try drawing an animal in a position that you have never seen it in before, and good luck finding the necessary reference material for that position. If someone were to say to me that that animating a person walking is difficult, I would propose to them to try adding another set of legs to the equation. I could have saved us a lot of time and grief if I would have just admitted to the fact that I was not skilled enough at that time to do everything on my own. As soon as we brought Matei who was a professional game artist on board to help with the art, things moved along much faster and everything looked more cohesive.

5 Conclusion

Looking back, it is deceptively easy to feel that things went along very quickly. The span of the of the production actually took about two years, where most of the actual work and development time being done in the last six months. This was because both Björn and I worked full-time in other companies. During this two year time period, I had witnessed many multi-million dollar games fail, a few I had personally worked on. I took all of those learnings along with what I had learned from our own game and tried to apply them back into our own development, which allowed us to finally realize the current iteration of Trials of the Wolf. I hope that our production and thesis will help others in the future to avoid some of the pitfalls that we had to overcome. When looking back, the entire process of implementing the digital card game went very well for us compared to our previous iterations. The main reasons are as follows:

- We actually paid attention to the learnings from our previous failures.
- We got help from a professional artist which afforded me more design time.
- The game was of a type that we had experience in creating.
- A physical card game was created while keeping in mind that it would eventually become a digital game.
- We kept things as simple as possible before adding any additional game mechanics.
- We constantly reevaluated our scope, making sure that it was under control; cutting anything that I felt had become a darling.
- We had fun!

With these in mind, it is important to reflect on our initial goals: *to create a game that showed how difficult and dangerous the life of a wolf is, through an approachable user experience.* The games difficulty is immediately apparent because of the affordances given to us by our generated world and permadeath. The benefit of the world changing in-between plays means that players cannot memorize locations, but still get a varying experience for every new session. Permadeath helps to make the player's actions meaningful because of their dire consequences of failure. "It is the threat of failure that gives us something to do in the first place" (Juul, 2013, p. 45). Because the player is worried about dying, he will pay more attention to his actions, and also learn what not to do next time, after a death. Thus players are learning through failure and enjoying it. Jesper Juul (2013, p. 46) states learning in games is " [...] different from regular learning: we find it easy to learn to drive a car, but we are disappointed if a game is too easy.

Designer Donald Norman (2002, p. 9) states in his book, *The Design of Everyday Things*: “Affordances provide strong clues to the operations of things.” As for the cards, there is an inherent benefit afforded by them; the simplicity of their real world actions (picking up, putting down, stacking). Since this is a card game, these actions are more tangible and easier to understand than an abstract concept or complicated movement. This is because, “when affordances are taken advantage of, the user knows what to do just by looking [...]” (Norman, 2002, p. 9). By taking the complex interactions between the animals and transmuting them onto the cards, the players already gain an understanding of how they can be interacted with. As long as we kept the GUI simple and these card interactions close to their real world actions, we hope that players will be more receptive to play the game and also continue even after many failures.

When it comes to factual learnings and if they occur; this is currently unknown. Will players figure out there is an advantage to attacking animals from behind? Will they know that by hunting one type of animal there is a direct or indirect affect on the environment or other animals? Will a player question how a wolf could get killed by a rabbit, but not take into account it could have gotten sick? What about the time of day that a wolf hunts? Why is it mostly during the day? There are many little facts baked into the game that could spark the player’s curiosity. This is the exact spark that we hope for. Something that influences him or her to go out and find out more. If at the very least this happens, then I feel we have been successful in our endeavor.

In the end, both Björn and I are extremely happy with the current outcome. We would love to add seasonal changes, more animals, and of course more cards in the future. It all remains to be seen on how well the current game is received as well as what kind of feedback we get back from the public. What is more important is that we both not only grew as designers but also as friends.

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7 Appendix

TOTW Wolf Research

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TOTW Board Game Rules

https://docs.google.com/document/d/1s6PCKWaqJ2Ut2aTn6Wq9B8BtKnZrSVGgZVDt69um_ig/edit?usp=sharing

TOTW Benchmarking Games

<https://docs.google.com/document/d/14nRpDMCUCCiJzxyIZVIXrmdU1ABw3eqci-x8nQuSBKc/edit?usp=sharing>

TOTW Strategy Concept Design Document

<https://docs.google.com/document/d/14hey2GIEtPpWyBTMdlmyJV8wHvsZGQGUKJKIfnVsceU/edit?usp=sharing>

TOTW Card System

https://docs.google.com/spreadsheets/ccc?key=0ApZLc-BQ_NvldG1ydFR3SENSRUhxdk5vaGhHQUXlemc&usp=sharing