

Playing Well With Others

The Design and Development of a
Cooperative Board Game



By Grant Chen

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Cooperative Board Game

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Abstract

Although some board games for adults involve teams, many of the board games for children between the ages of 7 and 10 are focused entirely on competition with no attention given to cooperation.

The purpose of this study was to develop a set of rules for a board game for children between the ages of 7 and 10 in which cooperation is a core theme of play. By creating such a game, a new and significant method of play can be brought to children, teach them how to work in a team, and expand their perception of what a game can be.

This research paper was written to provide a comprehensive review of the design process of the game and the review of literature and other factors of decision-making that contributed to the final project. Research methods included book research, internet research, communication with a panel of experts, data collection from surveys, and a study of mechanics found in childrens' games and cooperative games and the behaviors and feelings that rise from interaction with the rule sets.

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Chapter 1: An Introduction to the Problem

1.1 Introduction

The field of game design is a relatively new discipline, in spite of the fact that games have been a part of human culture for a hundreds or thousands of years. In fact, it may even predate humanity (after all, most animals engage in some form of play). Individual works of art such as Chess and Go have been studied in great depth, and team sports have held a prominent place in culture since at least the Roman empire, but the broader field of game design had not been subjected to critical study until computer technology began to help push games into a context where they could be extremely profitable.

With games now occupying a much more prominent position in the public eye, game design is beginning to develop its vocabulary and conventions which may help drive design towards more sophisticated concepts than those currently on the market. However, it still very much lacks a design vocabulary (Church). Terms such as “mechanic” have commonly accepted definitions, but without a large and established series of terms and gameplay concepts, it is difficult to conceive of new ideas, communicate concepts to each other, and push the field of game design towards maturity. It should be noted that the definitions in the upcoming definition of terms section, while accepted, are not universal, and exceptions can be found, especially in words like “play” and “game”, and “fun” will not be given a definition at all. Where these definitions are questionable, care will be taken to avoid situations where there may be confusion.

Game design, thankfully, is a term that is understood within the field, though it is a term that many outsiders do not clearly understand. A game designer is not a programmer, though they may have some skill in that area. A game designer is not necessarily a writer or project manager either, though they may play those roles. A game designer is focused on “designing game play, conceiving and designing rules and structures that result in an experience for players” (Salen and Zimmerman, Rules of Play 1). Game design, or more specifically, game system design is the art of creating rules

for games. A game can exist without characters, without a story, even without pictures, but a game cannot exist without rules to give it form. With these rules formed, a game can create experiences for the players that can teach lessons, communicate ideas, or simply be entertaining.

1.2 Problem Statement

Although some board games for adults involve teams, many of the board games for children between the ages of 7 and 10 are focused entirely on competition with no attention given to cooperation.

1.3 Purpose of the study

The purpose of this study was to develop a set of rules for a board game for children between the ages of 7 and 10 in which cooperation is a core theme of play.

1.4 Significance of the Study

This study is significant because it will help to fill a much-needed niche in board games for children. Children are told to cooperate with each other, but this behavior is not reinforced in recreation, especially in board games which largely involve placing everyone in a context of a zero-sum competition where there is only one winner. The creation of a game where the players must cooperate to win instead of competing will foster feelings of teamwork and demonstrate to children that working together to achieve a goal can be entertaining as well.

1.5 Assumptions

It was assumed that:

- 1) There are few cooperative board games for children.
- 2) Games can teach behavior.
- 3) The players both want to and are able to cooperate, but do not have the opportunity to do so when playing board games.
- 4) The players have few problems with counting numbers or reading.
- 5) Players want the game to start and complete in an hour or less.

1.6 Definition of Terms

- Play – An interactive activity that is undertaken for enjoyment.
- Game – “A problem-solving activity, approached with a playful attitude.” (Schell 37)
- System – A collection of game mechanics.
- Mechanics – The game system’s rules (Hunicke, LeBlanc, Zubek). Restricted to the “logical and mathematical structures” (Salen and Zimmerman, Rules of Play 6).
- Dynamics – Behaviors that players adopt as a reaction to the mechanics. (Hunicke, LeBlanc, Zubek)
- Aesthetic – The feelings of the players as they play the game when they interact with the game system. (Hunicke, LeBlanc, Zubek) Synonymous with Gameplay (Salen and Zimmerman, Rules of Play 310)
- Board Game – A game played on a pre-printed surface in which tokens or counters are placed upon, moved within, and/or moved from the board.
- Positive Feedback Loop – A mechanic that rewards players that are winning, which allows them to become better at winning, or punishes players that are losing, which make them more likely to lose. This pushes the game towards an end state and speeds up gameplay. (Schreiber, Game Design Concepts)

- Negative Feedback Loop – A mechanic that places difficulties on players who are winning, which makes them less effective, or awards players who are losing to help them catch up. This act like a brake on the game, slowing it down and preventing the end. (Schreiber, Game Design Concepts)
- Playtest – An experiment where the game is played. The purpose of this experiment is to see the mechanics in action and discover flaws that are not apparent in a simple reading of the rules.
- Player – A person interacting with the game system in accordance with its rules.
- Avatar – An object which represents the player within the game. (Brathwaite and Schreiber, 26)
- Interactivity – A trait where a user can act on an object or system and the object or system can act upon the user.
- Meaningful Play – “occurs when the relationships between actions and outcomes in a game are both discernible and integrated into the larger context of the game.” (Salen and Zimmerman, Rules of Play 34)
- Token – An object such as a disc or pawn used in a game to represent or count a concept such as points or the presence of a player’s avatar.

1.7 The Parameters of the Problem

The design of this game is targeted at children 7-10. It will not attempt to include complex gameplay that would be too complicated for that age group. The game will not attempt to include any competitive elements, because it is a cooperative game. The narrative and presentation of the game should be acceptable for young children.

1.8 Parameters of the Design

The purpose of this study is the design of the game itself. While art for boards, cards, and other elements will be developed so that it is playable, the primary focus is on the rules of the game. The game must be completely playable as-is and promote a context for cooperation between the players.

1.9 Sub-Problems

1. The game requires a method to enforce a theme of cooperation. In this rules system, the players are to work together, but something must provide them with a reason to do so. On top of that, measures should be taken to encourage players to avoid entering conflict with one another or compete in ways that will overshadow the main goal of cooperation with the other players.
2. The game requires a force to oppose the players that is not another player. A game with no opposition or barriers becomes boring. In most games, the opposition or barrier is provided by other players. Challenges to the players must exist in the game, and they must come from somewhere.
3. The game must be entertaining to play. A game that is not entertaining will not be played. If the game is not played, the system will not enter any interaction with the players and any desired effects on the players will not occur.

1.10 Hypotheses

1. It was hypothesized that a game in which the players collectively win or lose will enforce a theme of cooperation.
2. It was hypothesized that in order to provide a conflict for the players to overcome, the rules of the game itself, rather than another player, must provide the opposition.
3. It was hypothesized that an enjoyable experience would be provided by presenting problems that grow more complex and require more consideration to overcome as the game goes on.

1.11 Research Procedure

The following steps were taken while researching this project:

1. E-mail interviews with a number of people working in game design
2. Researching books on game design
3. Researching web sites on game design
4. Comparing elements of existing games
5. Examining board games stocked in stores
6. A survey on childhood board game experiences

1.12 Chapter Summary

Although some board games for adults involve teams, many of the board games for children between the ages of 7 and 10 are focused entirely on competition with no attention given to cooperation. The purpose of this study was to develop a set of rules for a board game for children between the ages of 7 and 10 in which cooperation is a core theme of play. This may provide entertaining experiences for children where they work together instead of competing. The game will not include any competitive elements, and will be designed so that children between the ages of 7 and 10 can play it without trouble understanding the material. This project's main focus is the mechanics of the game. Though narrative and art assets are going to be a part of the game so that a proper prototype can be made, they are of secondary importance. The emphasis on cooperation will be accomplished by having the players win or lose as a group as they try to overcome obstacles provided by the rules of the game instead of overcoming another player.

Chapter Two: Review of Related Literature

2.1 Introduction

This chapter will cover the preliminary research conducted in the course of discovering an ideal solution for the problem. Sources consulted included surveys, book research, internet research, e-mails conducted with a panel of experts, and comparative analysis of board games for children and cooperative board games aimed at an older audience. This research helped to provide a guideline for a final design for the project prototype.

2.2 Surveys

A survey was conducted to measure attitudes on traditional games such as board games and card games. Because board games and card games are both simple to prototype, and short of the physical components involved, they share a lot of similarities of design, a card game variant was considered for a time. 131 responses were collected, although not every response answered every question. Below is the full text of the survey:

1. I played a lot of board or card games between the ages of 7 and 10

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

2. While between the ages of 7 and 10, I played some board or games where players worked together as a main activity instead of competing.

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

3. I feel that a board or card game centered on teamwork would contribute to the variety of board games for children between the ages of 7-10

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

4. While I was between the ages of 7 and 10, the board games and card games I played used some amount of strategy and planning.

Strongly Agree

Agree

Neutral

Disagree

Strongly Disagree

5. When I was growing up, these were three of my favorite board or card games:

Game 1:

Game 2:

Game 3:

2.2.1..... Survey Results

1. I played a lot of board or card games between the ages of 7 and 10

Strongly Agree: 40 (30.5%)

Agree: 60 (45.8%)

Neutral: 20 (15.3%)

Disagree: 9 (6.9%)

Strongly Disagree: 2 (1.5%)

2. While between the ages of 7 and 10, I played some board or games where players worked together as a main activity instead of competing.

Strongly Agree: 3 (2.3%)

Agree: 19 (14.5%)

Neutral: 16 (12.2%)

Disagree: 65 (49.6%)

Strongly Disagree: 28 (21.4%)

3. I feel that a board or card game centered on teamwork would contribute to the variety of board games for children between the ages of 7-10

Strongly Agree: 45 (34.4%)

Agree: 69 (52.7%)

Neutral: 13 (9.9%)

Disagree: 3 (2.3%)

Strongly Disagree: 1 (0.8%)

4. While I was between the ages of 7 and 10, the board games and card games I played used some amount of strategy and planning.

Strongly Agree: 36 (27.5%)

Agree: 70 (53.4%)

Neutral: 13 (9.9%)

Disagree: 10 (7.6%)

Strongly Disagree: 0 (0.0%)

5. When I was growing up, these were three of my favorite board or card games:

Following is a list of all 371 of the games submitted in order of frequency of appearance, followed by the number of times the game appeared in the responses.

Monopoly - 67

Risk - 34

Clue - 17

The Game of Life - 17

Uno - 17

Chess - 15

Magic – 13

Sorry - 13

Stratego - 11

Scrabble - 11

Battleship - 7

Hero Quest - 6

Candy Land - 5

Go Fish - 5

Hearts - 4

Pokemon Trading Card Game - 4

Trivial Pursuit - 4

Yahtzee – 4

Boggle - 3

Dominoes - 3

Dungeons & Dragons - 3

Guess Who - 3

Hungry Hungry Hippos - 3

Mouse Trap - 3

Poker - 3

Scotland Yard - 3

Up-Words - 3

Crazy Eights - 2

Go - 2

Jotto - 2

Mastermind - 2

Oh Hell! (card game) - 2

Othello - 2

Parcheesi - 2

Pente - 2

Pit (card game) - 2

Scattergories - 2

Scrutineyes - 2

Solitaire - 2

Star Wars Trading Card Game - 2

The aMAZEing Labyrinth – 2

Abalone - 1

Acquire - 1

Aggravation - 1

Amazing Labyrinth - 1

Ani-Mayhem Collectable Card Game - 1

Arch Rival - 1

AtmosFEAR - 1

Axis & Allies - 1

Big Deal - 1

Blackjack - 1

Bumper Cars - 1

By Jove - 1

Canasta - 1

Careers - 1

Checkers - 1

Chinese Checkers - 1

Cocinita Rovada (Taught by the respondent's grandmother) - 1

Connect Four - 1

Cribbage - 1

Deep Sea Diving - 1

Don't Break The Ice - 1

Double Cross - 1

Euchre - 1

Go - 1

Head of the Class - 1

In Search of the Lost Diamond (Jakten på Den Försvunna Diamanten) - 1

Jenga - 1

Jyhad - 1

Kabuki Theater - 1

Kingmaker - 1

Ludo - 1

Master Labyrinth - 1

Midnight Party - 1

Milbourne - 1

Monopoly Junior - 1

Mouse Trap - 1

Omega Virus - 1

Parcheesi - 1

Payday - 1

Pictionary - 1

Rook - 1

Rummikub - 1

Rummoli - 1

Scat (Card Game) - 1

Settlers of Catan - 1

Slapjack - 1

Solitaire - 1

Spy Alley - 1

Squad Leader - 1

Squatter - 1

Star Trek CCG - 1

Star Wars: Escape From The Death Star - 1

Taboo - 1

Texas Hold 'em - 1

The Great Dalmuuti - 1

The Lion King - 1

The Quest of Salazar - 1

The Russian Campaign - 1

Tripoly - 1

Trumps - 1

Witch Hunt (Hexentanz) - 1

2.3 Book Research

Six books were consulted over the course of research for the project. “A Theory of Fun for Game Design” by Raph Koster is a book mainly concerned with a discussion of the nature of fun and the potential that game design has for exploring human behavior. Koster puts forth a statement that what humans find to be “fun” is based on learning. More specifically, “fun” is overcoming a problem. When people play a game, they are given problems to solve. Humans are built to recognize patterns, and those who play a game will try to discover patterns and apply their ideas to solve the problem that the game presents to them. If those problems are too simple, the players are not challenged. They learn

nothing then they become bored and lose interest in the game. Conversely, a game may be too difficult. A player may be unable to discern any meaningful information. When this happens, the player still learns nothing, and as before, this lack of learning causes the player to lose interest in the game. They become bored and stop playing. A good game continues to be mentally engaging for a player for a very long period of time. Though the book goes on to discuss topics such as designing ethically and separating the mechanics of a game from the art and story surrounding it, this main theory of “fun” as a consequence of learning patterns provided a useful perspective for this project.

“Rules of Play: Game Design Fundamentals” by Katie Salen and Eric Zimmerman is another important book consulted for the research of this project. Though far too long to summarize neatly, an overview of the general topics covered by the book will be covered. The book is divided into four general sections, or “Units”. The first unit is core concepts. This section of the book discusses concepts in game design in a general way. Ideas such as meaningful design are discussed here, and many definitions of the word “game” are brought up and examined. The second unit covers rules. This unit goes into the need for rules, as well as rules concepts such as feedback loops and the use of random elements in games, such as a deck of cards. The third unit, “Play”, discusses the nature of playing a game, and the rewards and other ideas that may bring enjoyment to a player. Concepts such as games as a narrative and where a game ends and regular life are also discussed. The fourth and final unit, “Culture”, discusses game design from a broader perspective outside the confines of the players and the game’s system. Games as a commentary on social and cultural issues are discussed, as well as some games which begin to blur the lines between the players and designers.

Another book, “The Game Design Reader: A Rules of Play Anthology” acts as companion book to “Rules of Play”. The authors of “Rules of Play” act as editors for the reader. This book is a large collection of essays and experiences relating to a number of aspects of game design, ranging from formal articles about mechanics to a sarcastically-written guide poking fun at a poorly designed-game. While a number of these articles provided new viewpoints and information for research, because of the broad scope of the book’s subjects, a summary of this book will not be written.

“The Art of Game Design: A Book of Lenses” by Jesse Schell approaches a discussion of game design by approaching it from many different angles. It calls for game designers to approach game design from a wide variety of perspectives, or “lenses” as Schell calls them. The Lens of Freedom (Schell 284) for example calls on the designer to consider elements of freedom and constraint in their games and from the perspective of the players. Rather than focusing purely on game design, the book also covers ethics, pitching an idea, understanding a profit model, dealing with a client, and other ideas.

“Challenges for Game Designers: Non-Digital Exercises for Video Game Designers” is an introductory book to game design. This book consists of a large number of instructional chapters which are followed by several exercises. The focus is on game mechanics, but the book also discusses games as teaching tools and art. Creating games associated with social networking sites is also discussed near the end.

The last book, “Gender Inclusive Game Design: Expanding the Market” was written by Sheri Graner Ray, and addressed the topic of appealing to different genders when designing games. This book approaches the subject of gender in several ways. A retrospective on the history of females as portrayed in games is discussed, along with other elements such as female attitudes towards technology and elements of game design that appeals to them, such as indirect conflict, cooperative play, and the option to be represented by a female avatar.

2.4 Internet Research

A number of websites were consulted for information related to game design. Because of their wide breadth of topics, a summary of each site will not be provided. However, it should be mentioned that these sites helped to provide more up to date information on the current state of the field of game design. Internet research was valuable for discovering alternative definitions and looking for terms that were defined consistently across multiple sources.

2.5 E-mail Sent to Panel of Experts

Over the course of this research, e-mail was exchanged with members of the panel of experts. Of these people, Ian Schreiber, a professor at Savannah College of Art and Design provided the most feedback. Other members include Andy Crosby, a video game designer, and Rob Carroll, a producer for casual online games.

2.6 Shelf Research

As part of the research, several trips were taken to local toy stores and department stores to observe what games were available on the store shelves. Monopoly was the most prominent game and was present in every single location visited. The Toys R Us in Newark, California had seventeen different variants of Monopoly as of the time of the visit. Games present at every location included, but were not limited to Clue, Uno, Scene It, Risk, Battleship, Trouble, Apples to Apples, Guess Who, Trouble, Candy Land (or Candyland. The web site of the owner, Hasbro, has it spelled differently in different places), the Game of Life, Trivial Pursuit, Scrabble, Boggle, Jenga, and Othello. Also present were variants of a number of games, but Monopoly in particular, patterned after a licensed property, usually a popular television program or film. A few examples of this would be Star Wars Monopoly, Spongebob Squarepants Connect 4, Dora the Explorer Candy Land, Pokemon Diamond & Pearl Guess Who, Don't Wake Hulk, and Harry Potter Clue.

2.7 Comparative Analysis of Board Games for Children

Over the course of this study, other board games were examined. A few mechanics appeared in multiple games. These recurring mechanics will be examined in-depth using an example game. A few unique mechanics were found in some of the games examined as well. Two board games, Monopoly and Clue, have been selected as a demonstration of general trends in board games for children.

2.7.1.Monopoly

Monopoly is a board game from Hasbro, targeted at children ages 8 and up. In this game, the players travel around a board representing Atlantic City and purchase properties. If a player lands on a property owned by another player, they must give the player in-game money. When players run out of money, they are eliminated from the game. The last player to be eliminated wins.

This game was selected for exploration in this report because it holds a large number of game mechanics that recur in a number of other board games. Additionally, it is considered by multiple sources to be the most popular board game in the world. Although it, like many other board games, is focused on competition, there are a number of other elements of its mechanics that were examined in the course of the research for this project. This board game held a number of recurring mechanics, such as rolling a die for random movement and the use of a deck of cards to generate random events by drawing cards.

Monopoly features a board which players move around. It has only a single track, flows in only one direction, and it loops. A player who reaches or passes the final square will continue on through what was originally the first square. When a player's turn comes up, they must move their token. To move, a player rolls dice and moves their token that many squares forward. Landing on some squares will help the player while others squares will hinder. The dynamic which arises from this is that players do not get to choose where their token will be placed when their turn comes up. When a player's turn comes up, they must move, and that move will produce desirable or undesirable results. Any element of strategy is also removed from this part of the game. When a player does not have control over what happens, there is little use in formulating plans based on movement. From this, some aesthetics arise. A player may feel angry at being forced to move onto a square they did not want to move. Conversely, a player may feel relief from not landing on a square that would have penalized them, or joy from having landed on a square that rewards them. The game becomes much less predictable. However, in other games targeted at an older audience, this mechanic is absent.

When Ian Schreiber was asked about the value of this mechanic, he offered two reasons for why it

might appear so often. One answer was that very young children might use it to learn counting and other basic gaming skills, such as rolling dice and interpreting the results. The second answer was that it is very easy to design, and “some designers are unfortunately lazy”.

Monopoly also makes use of two decks of cards: the Community Chest and the Chance cards. When a player lands on spaces with the names of either of these decks, they must draw a card from the corresponding deck. The use of a deck of cards provides a large number of possible random events without cluttering the board or other areas with more text. In Monopoly, the cards are also relatively self-contained; A card usually has little relevance to the game outside of the brief period in which it is drawn and its instructions are carried out, though there is a notable exception in the “Get Out of Jail Free” card. This provides a useful situation where information needs to be presented and discarded quickly. The random cards also allow for the singular event of landing on a particular space to have a very wide number of possible resolutions. The dynamic that rises from drawing cards means that although a player knows that drawing a card will have an effect, there are enough possibilities that the effect of the card cannot be guessed at until it is drawn. The aesthetic associated with this means that players may feel hope, dread, or curiosity when called upon to draw a card. In a game where drawing a card is optional, they may have to make a decision about whether to draw a card or not as well. The effect is similar to rolling dice for random movement, but unlike random movement, the player cannot see all possible results because the cards are presented face-down. A deck of cards also has a very large number of possible results, so a player cannot easily guess what will happen.

2.7.2..... Clue (1986 Edition)

Clue is another popular board game. The box suggests it be played by children of ages 8 and up. In this game, players must attempt to uncover the identity of a murderer, determine the weapon, and the location the murder took place. In mechanical terms, there are three small decks of cards. One deck is a list of suspects, the second deck is a list of weapons, and the last deck is a list of rooms. One card is randomly removed from each deck with the faces hidden from the players. A player who can guess all three correctly wins the game. The other cards are randomly distributed among the other players. The players may enter a room and look at the cards in that room, then gradually rule out possibilities for what the three winning cards may be. A player may also “suggest” a combination, and players who have cards that contradict this combination must show the card to that player as proof that the card is not in the winning combination. A player may guess which three cards are hidden. If any part is incorrect, the player are eliminated from the game, but if all three are correct, the player wins. This game uses random movement, although a rules variant gives players a fixed number of squares that they can move their pieces.

The key mechanics of this game revolve around the discovery of information to narrow down a player’s guesses about what the winning combination might be. However, strategy in this game is very limited. A player has information that is either correct, incorrect, or untested. The game consists of a large number of decisions where the correct course of action is obvious, as every decision is a tool for categorizing untested information into either correct or incorrect information. No element of suggestion is more or less valid than another, except for what has already been ruled out as incorrect or known to be correct. However, these decisions, while obvious, are still engaging. What is offered by Clue is the appearance of choice. A player is confronted with a number of possible actions. From here, the player must make a choice. A number of factors might affect the choice that player makes, but whatever the decision, the player learns new information. As a result, the player may feel clever for narrowing down possibilities for some of the categories and excitement when there are only a few possibilities left, or when one of the winning cards is discovered.

2.8 Comparative Analysis of Cooperative Board Games

Over the course of this study, board games with a cooperative element were also examined. Two examples of cooperative board games have been selected for review to illustrate mechanics involved in cooperative games. Where the analysis of board games for children was meant to analyze mechanics in general, this section will focus on mechanics as they relate to cooperative play.

2.8.1..... Pandemic

Pandemic is a cooperative board game that was released in 2008. In this game, all of the players are on the same side. Either all of the players will win, or all of the players will lose. The board depicts a map of the world and a number of cities appear on the map. Over the course of the game, four diseases, represented by colored blocks, appear in cities and the players must try to keep the diseases under control. The players must try to discover cures for the four diseases to win. However, there are multiple ways to lose. The game ends in failure for the players if all of the colored cubes representing any one disease are placed on the map, if eight outbreaks (incidents where a single city would be given more than three cubes of the same color) occur, or if the players must draw a player card but cannot (at the end of each turn, players must draw two). Like Monopoly, this game utilizes decks of random cards.

The shared victory or defeat is a vital part of enforcing the cooperative theme of this game. This mechanic means that the game does not recognize the primacy of any player's efforts over another. The dynamic that rises from this is that players do not try to defeat each other. This produces an aesthetic where the players feel that there is teamwork, and individual players may be more open with other players about their plans. While players with a strong urge to compete may try to, the game's rules certainly don't try to keep score among the individual players, and there are few elements of the mechanics where players can conceivably measure themselves against each other. A player may even give up personal glory to help the team succeed.

Another mechanic, or set of mechanics, is that the game system itself provides the challenge

for the players. The game's rules provide a steady stream of events that, if left unattended, will cause the players to lose. While the players may pursue victory, a lot of their time and effort in the game is spent trying to push away defeat. Once the threats are dealt with, then whenever they can find the time, they can try to pursue the victory condition. This produces a feeling of tension among the players and makes a victory feel better, since there is a very real opposition to the players' efforts, even if it is not guided by another player.

One item of particular note in the mechanics that oppose the players is that this push towards defeat occurs on every player's turn. This causes the game's difficulty to scale more easily for different numbers of players. Whether the game has two players or whether it has four, a challenge appropriate for the number of participants in the game can be used to keep the game from becoming too easy or too difficult. The frequent and consistent occurrence of events that push the players towards a loss condition also reinforces the presence of the threat in the minds of the players.

The game also has a timer in it, in the form of the loss condition where the players lose the game if they run out of player cards to draw. The player card deck cannot be refilled according to the rules of the game, and at the end of every player's turn, they must draw two more cards. Anyone playing Pandemic must act to prevent the game from being lost due to too many outbreaks, try to collect all four cures to win the game, and they must play the game efficiently if they want to avoid losing the game because they took too long. While at the beginning, players may not be concerned with the timer, the players must act more quickly to finish the game as time begins to run out, generating feelings of tension and excitement as the player draw pile starts to near its end. It also helps to ensure that the game does not drag on too long and end up boring the players.

The board is not made up of spaces that players roll to move among randomly. The players have a specific number of actions they may perform per turn, and every space that a player piece moves is a space that the player makes a decision to move through. This results in players having to make decisions about where they would like to move. This added responsibility creates a context where the players feel that there is a purpose in their movement, and that phase of the game

becomes a part of the player strategy instead of simply being an event which determines what random effect may be applied to the player.

The players may also give cards to each other. These cards have a number of uses, but for the purposes of this paper, it is only necessary to know that they are the resources that a player is most concerned about. However, there are firm limits on how a player may give cards to other players. The dynamic that rises from this is that it is difficult to give cards to another player without planning it ahead of time. The players are supposed to cooperate, but because there are limits on how easily they can cooperate, that aspect of play presents a challenge. This may result in frustration for players, who must work to fulfill several requirements before they can give away a card.

2.8.2..... Shadows Over Camelot

Shadows over Camelot is a game in which the players take on the roles of the Knights of the Round Table and try to complete quests. However, there is a chance that one of them may be a traitor and work to ensure the failure of those quests. For the purposes of this study, the traitor mechanic will be ignored, as it introduces a human-controlled adversary for the players.

This game shares a number of features with Pandemic. Victory is shared among all players, and the game clarifies that a player can win even if their avatar in the game dies, as long as their side wins. A negative event happens on every player's turn, coming from the system itself and reinforcing the threat in the minds of the players and causing difficulty to scale. Players have difficulty handing cards to each other, though in this game, there are other ways to cooperate that are less restrictive, though also less direct. A player has a limited number of actions per turn, and they may select where they will move, which gives them a greater feeling of freedom while still placing limits on where they can go each turn. Like Pandemic and Monopoly before it, it uses decks of random cards.

A notable mechanic in this system occurs at each player's turn. The first phase of each turn, titled Progression of Evil calls on the player to choose one of three bad things to happen. They can draw from a black deck of cards, which pushes a quest towards a failure state. They can choose to

sacrifice one of their points of life. If they run out of life, they are eliminated from the game, though there is a way to save them. The last is to place one siege engine on the board. If twelve siege engines are placed on the board, all the players lose, though there are ways to remove a siege engine from the table.

The choice of which consequence to accept presents interesting options to the players and grants them some measure of control over the Progression of Evil. Drawing from the black deck pushes quests toward failure, and if those quests end in failure, black swords are added to the Round Table. If too many black swords are added, the players lose. Placing a siege engine does not push quests towards failure, and unlike black swords, siege engines can be removed, but too many of those will also produce a loss for the players. The other choice is for the player to lose a point of life. This choice is unique because it hurts no one but the player who makes the decision. Both of the other options have negative effects that affect every player instead of only one. In a more traditional and competitive game, a decision like this might be unthinkable, but in the context of this game, self-sacrifice for the greater good makes sense.

2.9 Chapter Summary

Over the course of researching this topic, a number of resources were used, such as surveys, discussion with game designers, book resources, internet resources, and in-depth study of existing games on the market. Book and internet resources created a proper frame of mind with which to approach game design, with a focus on mechanics and the dynamics and aesthetics which rise from them. With this approach, a study of a number of board games for children and cooperative board games was conducted, and a select few of these were held up as examples which contained a number of recurring or potentially useful mechanics. These mechanics were studied, with dynamics and aesthetics taken into consideration when evaluating them.

Chapter Three: Process of Design and Playtesting

3.1 Introduction

This chapter will discuss the design of the solution and how the decisions on each element of the design was made. Graphic design and story elements will be touched upon briefly, but the focus will be on the mechanics. Benefits of the elements of the design will be addressed as well.

3.2 Problem Statement

Although some board games for adults involve teams, many of the board games for children between the ages of 7 and 10 are focused entirely on competition with no attention given to cooperation.

3.3 Purpose of the Study

The purpose of this study was to develop a set of rules for a board game for children between the ages of 7 and 10 in which cooperation is a core theme of play.

3.4 Rationale

This study is significant because it will help to fill a much-needed niche in board games for children. Children are told to cooperate with each other, but this behavior is not reinforced in recreation, especially in board games which largely involve placing everyone in a context of a zero-sum competition where there is only one winner. The creation of a game where the players must cooperate to win instead of competing will foster feelings of teamwork and demonstrate to children that working together to achieve a goal can be entertaining as well.

3.5 Parameters of the Design

The purpose of this study is the design of the game itself. While art for boards, cards, and other elements will be developed so that it is playable, the primary focus is on the rules of the game. The game must be completely playable as-is and promote a context for cooperation between the players.

3.6 Importance of the Hypotheses

1. This report has three main hypotheses:
2. It was hypothesized that a game in which the players collectively win or lose will enforce a theme of cooperation.
3. It was hypothesized that in order to provide a conflict for the players to overcome, the rules of the game itself, rather than another player, must provide the opposition.
4. It was hypothesized that an enjoyable experience would be provided by presenting problems that grow more complex and require more consideration to overcome as the game goes on.

It is important that a theme of cooperation be enforced, otherwise the game will be insufficiently different from other games on the market targeted at children between the ages of 7 and 10. It is also important that opposition exist in the game. Unless the game has a goal, the player actions will lack purpose, and if there are no barriers to achieve that goal, then the game will lack challenges for the players to attempt to overcome. However, these challenges must be appropriate for the players. The game should be easier in the beginning but become more challenging as the game goes on. A “warm up” period that slowly rises in intensity would provide a more interesting challenge for players to overcome and provide an easier context for learning how the game is played.

3.7 Constants

Though the game changed considerably over the course of the development of the project, a few elements remained constant. The first was the decision that the players would win or lose as a team. Though specific ideas concerning victory or loss conditions varied, this mechanic of a universal shared victory remained. At no point in development did the game system acknowledge one player being in a position of superiority in relation to another player.

Another constant was that the game would take place on a board. Although this may seem obvious, it holds several key advantages for the design of a game. A board provides an easy visual element to indicate the limits of where the game takes place in physical space. Other elements of the game such as tokens or decks of cards are usually placed on top of or near this board. It also provides a large flat surface which can be used for art or to communicate information to the players. Lastly, the board is also used to represent physical space in a large number of board games and help to contextualize the narrative of the game for its players.

All stages of the game's design also used tokens to represent the players in the game. This element of design allows the players to not only use the board as a map, but to represent themselves within the context of the game. This allows players to act as a part of the game's narrative, and the piece representing the player may be moved from place to place, voluntarily or involuntarily, to open up more possibilities of the game interacting with the player as a symbol. Other actions may be performed upon a player token, but the possibility of movement was the most significant in the design process of this game.

3.8 Initial Concepts

Early in development, a number of concepts were considered, many taking influence from role-playing games. Explaining role-playing games would be outside the scope of this paper, but for the purposes of this study, all that is necessary to know is that the players are all on the same side and each controls a character who usually has a list of abilities and disadvantages. Together, they try to overcome challenges and create a narrative. Early concepts included ideas such as a band of adventurers in a fantasy setting exploring a dark underground lair and acquire a treasure or a team of explorers on a space ship trying to chart out the galaxy. Many of these ideas fell under a sort of high adventure theme. However, this approach to design was set aside for a more mechanically-oriented start when it became clear that the desired result was not a simulation of a theme, but mechanics to drive a behavior in the players.

3.9 “The Pirate Game”

An early version of the final project was eventually known as “The Pirate Game”. The initial conception of this game was that it would be like a “race game” similar to Candy Land or Snakes & Ladders. In these games, players move their tokens down a track on the board. The player who reaches the final square first wins. The players would be represented collectively by a single token on the board, and one token would be controlled by the rules of the game to provide opposition. If the enemy token reached the end of the track first, the players would lose. The enemy token would move faster than the token representing the players unless the players performed actions (which were undefined at the time) to push their token faster.

Before this idea could be developed further, a mechanic for those actions which the players needed to perform had to be designed. The idea of a second board was introduced to the game so that the players could be represented as individuals in addition to the players as a group. Though it is currently called a board, it could have very well been a part of the same physical media. The key distinction here is that it is distinctly separate from the main board. Although there is a connection

between the two, it was intended that whatever happened on that second board would be a representation of what the players were doing within the story of the game to push their collective token forward.

It was at this point that considerations for a narrative to impose upon the game began. The concept needed to accommodate a situation where player tokens would be present on a board and on another board, a token representing all the players would race against a token controlled by the game system. A race between cars would be obvious, but a race car would probably not house so many people, and what each could conceivably do within the narrative of the game would strain suspension of disbelief. A few other ideas were considered, and a number were discarded for the same reason. However, the idea of players represented as sailors in the vein of fantasy pirates came up, and this idea solved the problem of what that second board space could be used for. The second board space could be used to represent the deck of a sailing ship. Players could move their tokens to different parts of that ship to perform different duties such as sailing or firing cannons. The players and their enemy token would not just be tokens trying to reach the end of the track first, but pirates out to uncover a buried treasure before the other.

This design took on more complexity as time went on. The track first gained branches, then became a full map of a section of the ocean. The map would have random features added such as lightning storms that might slow a player down or coral reef that would render a square impossible to move through. A navigator role was added for players, requiring them to discover what was in a section of the map by having the navigator draw and place a terrain card before they could move through. The goal of the game shifted to the acquisition of wealth by finding treasures and returning to port towns to sell them. Money earned could be spent to repair the ship, upgrade parts of the ship such as cannons, or a variety of other purposes.

3.9.1.The Pirate Game Design Notes

What follows are the design notes for “The Pirate Game” in the state in which they were initially written. They are not edited.

The Pirate Game

Everything aesthetic about this game, including the title, is a placeholder. If necessary, another theme, such as an adventuring party, a space ship, or even a pizza shop, can be substituted in if necessary.

The players are pirates on a ship (Let’s called it the Jolly Roger).

They’re on a search for the Lost Treasure of Blackbeard.

There’s another pirate trying to find it (Let’s say, Captain Ahab).

The game is for 3-6 players. (?)

The board consists of a ship with sections shown, and another section with a “track” where the Good Crew and the Bad Crew have their ships represented in a miniaturized form.

The track will have spaces with events such as “Coral Reef. This ship can’t move next turn” or “Gold” or “Favorable Winds - Move forward more spaces”

The players will take steps like “Fire a cannon”. Loading gunpowder, loading a cannonball, and firing the cannon will take three separate actions, for example.

I need to figure out how the enemy behaves.

Another idea, if the player ship is hit by cannon balls, they slow down. Or if the players hit the enemy ship, the enemy ship slows down.

Maybe have a “track” showing how fast each ship is going.

The players can choose to go up to their maximum speed

Actually, another idea. Maybe a “repair” action might give the players a card that’ll let them move EXACTLY that number of spaces. A compass?

An action that specifically moves the ship forward, maybe? Or maybe an action that moves the ship faster. Say, doing that puts a speed token or something on the ship’s sails, then when the ship next moves, it moves 1d6+tokens. Or maybe make it a little like Brutal in D&D. On the next roll, if the roll is less than the number of tokens, reroll it. Maybe players can choose to ‘save” these speed tokens. Bag of wind? Old windbag? Full of hot air? I dunno what to call it. Maybe a pirate blows really hard. That might not be too bad. One player opens the bag, another player fills it? A two-action move, or maybe even one action considering it takes a bit to build up. Consider a maximum here.

Consider something to outright reroll how far you move

Potential third general action: Morale?

Sea shanty?

Maybe more card draws. - Next person to do something that doesn’t involve morale booster can draw one extra card and choose which to apply?

General activities: Sailing, navigation, morale, firing cannons...

Navigation: Find places? Maybe as card draw.

Looking at it, it looks like it's really easy to give the ship a minimum speed, really easy to buff people, really easy to sail to a new place, but much harder to knock the enemy back.

More ways to interact with bad guys?

Maybe influence from Shadows over Camelot - every player turn has a bad event.

Decoy treasure for other ship to plunder?

Summon kraken?

Islands could be good. Crescendo points in the game.

Cannon fire: Gunpowder could be a red wink, ball could be a black bead

Two boards. A large board where the players will try to reach the end. A smaller board that acts as the ship's deck.

On the large board, players will try to - wait a sec

Overcomplicated.

Idea shelved 7/23/2009. Resume after school.

3.10 Formulating a New Idea

Although the complexity of the game may have been appropriate for an older audience, a re-examination of board games recommended for children between the ages of 7 and 10 showed that this design may have become too complicated. The use of a token to represent the entire group may also have been too radical an idea to introduce when the concept of a cooperative board game would be an idea that the players would already have to get used to. The role of the enemy ship also became smaller and smaller to the point where it was no longer tied to a loss condition. This design was ultimately put aside. It became too complicated, and attempts to return the game to its previous state and continue from a different angle were unproductive.

After starting over, the strengths and weaknesses of the previous design were evaluated. The concept of a shared victory would be kept. The use of a board and tokens would be kept as well. However, a token to represent the group as a whole would be dropped, in an effort to distance the game from its predecessor. The idea of a race to the end of a track as a mechanic was also discarded, as a closer analysis of games for children between the ages of 7 and 10 showed that games where the players attempt to reach the end of a track were not present. In fact, those games tend to target a significantly younger audience. A new victory condition would have to be discovered.

3.11 Escape from Midnight Mansion

A narrative theme was selected for the game earlier this time because of an encroaching deadline and the possibility that a theme might help to provide a rough framework which could help to guide mechanics along with the research conducted earlier. A mansion was selected as a theme for this new iteration of the game. Clue used a mansion setting to good effect, helping to provide a number of types of locations and a clear limit to what could and could not be within the scope of the game board. Another cooperative board game, Betrayal at the House on the Hill also take place in a mansion, though the mechanics for the game could not be examined in depth because of budgetary constraints. What was known about it did, however, influence the themes of this game. Betrayal at

the House on the Hill is a cooperative game of supernatural horror. Another cooperative board game, Arkham Horror uses a similar theme. The project was patterned after these games and given a horror theme to go along with the concept of a mansion, then adjusted slightly to create a haunted house theme, which is a recurring element of Halloween, a holiday popular among children.

An early decision in the new design of this game was to impose a time limit in order to limit the scope of play and to provide tension. When considering a narrative reason for why a time limit might be imposed, the idea of the player characters being trapped in a haunted mansion came up, and the characters would try to leave before midnight, which is a time usually associated with unpleasant supernatural occurrences. In the game's narrative, the mansion is owned by a vampire who will awaken at midnight, and the players must escape before the vampire awakens. The game would begin with the player tokens in a foyer space which would act as a hub from which to access the rest of the house. This provided the beginnings of a framework for the map.

A starting point had been decided, and a potential loss condition, but the central acts of play had not yet been determined. The player goal was to escape the house before midnight, but their method had yet to be decided. In keeping with the Halloween-style child-friendly horror theme, the front door would not be a reasonable way to leave, as it would have been closed and locked once all the characters entered. The obvious solution of finding a key to unlock it produced problems when attempting to determine how to represent this. A direct solution to the problem of a locked door would keep pointing to a direct and simple game mechanic such as trying to reach a on the board where the key exists. Taking some inspiration from stereotypical prison break scenarios, a rope made of bedsheets seemed to be a plausible method of escape in this context that would still allow for some complexity. The act of collecting enough bedsheets to form a rope could be a viable victory condition, and the counting of the sheets would create a clear progression towards a victory condition for the players.

Acquiring the bedsheets tokens would be the core mechanic of the game, and as such, the method of acquiring them should fit with the theme of the game, that of a child-friendly Halloween-

like haunted mansion. The Halloween inspiration suggested that ghosts might be a plentiful source of those sheets, in reference to the stereotypical ghost costume being made of bedsheets with holes cut out for the eyes. In the interest of keeping the game from becoming too easy, ghosts would need to impose some sort of difficulty on the players. Because movement and exploration was a part of game, ghosts were assigned a quality where player tokens could not pass through a section of the board containing ghosts. At this point, a decision was made that each “space” on the board would be an entire room, as opposed to being modeled after Clue’s board, where the board was made up of a large number of spaces with no significance. Clue’s board contained distinct rooms, but there were a large number of squares that served no purpose other than to act as distance for players to cross. By abandoning these junk tiles, the ghosts would serve as a more effective barrier by reducing the number of spaces on the board because the players would be less able to find an alternative route around them.

The design of a method to deal with ghosts was useful in developing a secondary opposing force for the players as well. The player characters would be given flashlights in the narrative which could be used to scare away ghosts, which would leave the bedsheets behind. To introduce some difficulty to this, the flashlights would be said to require batteries as a limited resource. Though the method of distributing these batteries to the players had not yet been decided, putting the battery resources at risk would pose a challenge for the players. A creature in the vein of Dr. Frankenstein’s monster is heavily associated with lightning, so introducing the creature (from here on called Frank) could provide a way for the game to take away the batteries.

The core of the game was established, but one other idea, initially put aside for later development, was introduced to the game so that the game would have more than two obstacles for players to overcome, not counting the time limit. The ghosts already served the purpose of hindering movement, and Frank’s role in the game was to make it more difficult to acquire batteries, so any new obstacles for the players would have to be unique. It would have to work within the framework of the players trying to explore the mansion, acquire batteries, and using those batteries to defeat ghosts.

The concept of the witch was used, where a random room would be selected and anything in the room would be moved to random locations. This obstacle would not always affect the players, but when it did, organization and planning would be disrupted. Both players and ghosts would be moved, since the presence of ghosts may define the borders of where the players can travel, and eliminating a border to create one somewhere else might create interesting opportunities.

3.11.1.Design of Materials

The design of the board was originally a single sheet of as-of-yet undetermined size or number of spaces. At this point, a search was conducted to discover a manufacturer that could produce a game board for a reasonable price in a reasonable amount of time. A site called The Game Crafter was discovered, which had been launched on July 14, 2009, less than a week before the search was conducted. The site offers a service where users can upload pdf documents and have game boards and cards printed and sold, along with a number of player tokens. As of the submission of this report, the site offers boards in the following sizes: 4" x 4", 4" x 10", 10" x 10", and 10" x 16". In contrast, the boards used in Monopoly and Clue are both 18" x 18". The dimensions of the Game Crafter boards were drawn on 11 x 17 paper in order to gain a better understanding of what those dimensions actually looked like. They were significantly smaller than expected. To accommodate the size of the board, a decision was made at this point to restrict the game to support 2-4 players. Although the board of the final design ended larger than the sizes provided by Game Crafter, the number of players were not changed in order to facilitate ease of cooperation and planning during gameplay.

However, concerns about the legibility of text on the board began to rise, and alternative plans for a larger board were considered. The idea of a playing space made of multiple physical boards was explored. It was used in Shadows Over Camelot to indicate locations that were far away from the main board, but here, it could be used to represent individual rooms. A 4" x 4" board from The Game Crafter could be used for every room. A 16" x 16" board could be created with sixteen 4" x 4" boards, but placement of the foyer where the players would start the game would be problematic because it

would not have a clear center. The board was expanded to a 20" x 20" play space in order to introduce a middle row made up of a larger foyer to emphasize its role as a hub of exploration. This would be 4" x 10". Placed above that would be a board representing an upstairs hall, also 4" x 10", to introduce an upper floor. The board would have two columns of five tiles each on either side of the two central tiles, creating twenty rooms.

The twenty rooms are important because of the witch and the ghosts need to be placed in a randomly-selected room. Although most board games use six-sided dice, dice exist in a number of other sides as well. These non-standard die sizes are frequently used in role-playing games such as Dungeons & Dragons. These specialized dice typically come in varieties that have four, eight, ten, twelve, or twenty sides. With twenty rooms, a twenty-sided die would be a perfect match for the number of rooms, not counting the foyer and upstairs hallway, which are meant to be hubs of exploration and relatively stable.

The separation of each room into individual small boards held an unintended but welcome side-effect. Every room tile was not only separable from other tiles, but had a front side and back side. The tiles could effectively be used similarly to a deck of cards. The tiles could be shuffled and laid face-down randomly on the board. This would solve a concern where players who played the game frequently would discover an optimal route through the mansion to take every time they played. By introducing a random element to the arrangement of the mansion, the game would be less predictable each time it was played, so it would remain entertaining for a longer period of time. To differentiate rooms from each other, a number of them were given effects that would be applied upon flipping the tile over when the room is explored. These effects could help or hinder the player.

Because of the benefit that a deck of cards for players provided, as shown in Pandemic and Shadows Over Camelot, it was decided that this game would use a deck of cards for players as well. Each player would be given three actions, which could be used to move, explore a room, or draw a card. These cards might include batteries, but they might provide other benefits as well, such as

being given more actions or preventing the witch from entering the room containing their token. Of the full number of cards, slightly fewer than half were assigned to be batteries.

At this point, the game possessed possible obstacles for the players, but a method had to be decided to provide behavior for these barriers. *Shadows Over Camelot* and *Pandemic* both had the game pushed towards a loss condition on every player's turn. To avoid over-complicating the game, the players would not have a choice about what negative event might happen. A deck of cards with a number of random negative events would have a card drawn from it at the end of each player's turn. It would contain instructions to perform, such as directing Frank's actions or the placement of ghosts.

Each player turn would also end in the advancement of the clock towards midnight. In the final design, the clock begins at noon and for every player turn, 15 minutes pass. Noon seemed an appropriate time because the clock would have done a full rotation before the end of the game. The decision to settle on 15 minutes requires more explanation. Assuming that four players are playing the game, a full rotation of the clock would give the players 12 turns each. Advancing the clock half an hour would cut it down to 6 turns each, which would be unsatisfying as each player is able to do less in each game. Using 15 minutes also divides the clock neatly into quarters and makes it less likely that, should something happen to the clock, players will be more easily able to remember what time it is in the game.

The game should also become more tense as it draws to a close. *Pandemic* has a mechanic that promotes this aesthetic in the form of outbreaks, where cities will rapidly become worse if left unattended for too long. As *Pandemic* went on, an Epidemic counter also went up as players drew them as part of their mandatory draw phase, and towards the middle and end of the game, a larger number of negative events had to be drawn from the deck at the end of each turn than in previous turns. Implementing a similar mechanic in the project would produce a similar escalation of conflict. Because the progression of the game is tied to the advancement of the clock, assigning the thresholds when more negative event cards would be drawn would be assigned to specific times on the

clock in the game. These escalation events were placed at times when the game was halfway done (6:00) and when the game was three-quarters of the way done (9:00).

3.11.2. Playtesting

With these elements in place, a simple playtest could be conducted. This trial run was rough and had only one actual player taking on each of the roles. Everything was printed on simple printer paper and cut out with scissors. Negative event cards were given a single black line on the back with a marker to differentiate them from player resource cards. The player tokens were represented by parts used by other games. The test game was played from start to finish, and observations on the flow of the gameplay and short-term goals were conducted. Several problems in the design became very clear once the rules were actually put into effect, which were practically invisible on a reading of the rules. When multiple rooms were flipped over and explored consecutively in a single turn, it became more difficult to remember how many actions a player could still perform. The entirety of the mansion was explored very early into the game, removing a significant amount of unpredictability from the rest of the game. This issue was addressed by placing a limit so that only one room could be explored per player turn. Under this new mechanic, the earliest the players could have the entire map explored would be nearly halfway through the game.

Few ghosts also made an appearance on the board, leading to a large amount of the game existing in a state where there were no ghosts and every room was already explored. The players would have no immediate goals or direction, creating a situation where no action a player could take would lead to any movement toward an end condition for the game, either in favor of victory or defeat. The only thing the players could do was wait for negative events to occur and simply hope that it might be a ghost, so they could at least have a target. In addition, because there were still many paths that their tokens could move through, ghosts were still not a significant barrier to travel. The issue of the number of ghosts was resolved by the creation of a mechanic where in addition to ghosts having the possibility of being placed as a result of draws from the deck of negative events, one ghost

would have the possibility of being added every turn. After the card is drawn, the 20-sided die is rolled to randomly select a room. If the room that matches that number has not yet been explored, then no ghost appears. This creates a situation where early on in the game, a ghost is not likely to show up, but later in the game, a ghost is guaranteed to appear on every single turn, rapidly shaping the board by acting as barriers. More restrictions were also placed on the paths players could move their tokens to limit where players could move so ghosts could not be walked around as easily. Lastly, because ghosts would appear in large numbers, something had to be done about what would happen if the supply of tokens representing ghosts. To provide additional tension, the game would be lost if the ghosts were unaddressed for so long that every available ghost token were placed on the board. This is modeled after Pandemic's mechanic where if all of the cubes of a single color were placed on the board at once, the players would lose. This would create a positive feedback loop to push the game toward an end condition. The players would have many opportunities to defeat ghosts, but it also became more difficult to move from place to place.

The actual results of using the witch was also problematic, in the sense that the practical results of the random movement meant that the token never went to the same location as a player. Combined with the fact that the witch had to have specific cards drawn to even move, she was largely a non-entity in the game. The witch needed to have a greater effect on the game, but to cause the witch to jump from room to room every turn would be too derivative of the ghosts, and adding more steps to a player turn might add too much confusion. It might also provide too much disruption. If the game degenerated into chaos too frequently, then planning would have no point. The problem was not the frequency at which the witch would activate, but the effectiveness of those movements. The cards were changed so that instead of simply moving the witch one time, it would move the witch multiple times per activation. The chance that the token might be assigned to a player-occupied space would be significantly greater without throwing the game into disarray.

3.11.3.Construction of the Prototype

After the playtest and changes to the rules, there would normally be another playtest and more iterations of rules changes, but these could not be completed due to time constraints. A prototype had to be constructed and materials had to be considered. During the playtest, the standard printer paper was difficult to manipulate. Shuffling the cards was a difficult task because each card would stick to the others, and there was concern that the paper tiles would tear. The use of poker chips and tokens from other games was, however, acceptable. At this point, a parts sample from The Game Crafter was ordered, but as it had not yet arrived, having the game prototype constructed at The Game Crafter would not be fast enough to finish the prototype by the deadline. The cards would have to be printed on regular cardstock instead of the clay-coated cardstock offered at The Game Crafter.

The board tiles would be another problem. Cardstock might not be durable enough and would be difficult to grip and turn over. A service to print on normal game board material could not be found, though an alternative was found. Upon discussion with the professor, mounting the board tiles on foam core board was deemed acceptable and once implemented, was found to be more than adequate.

The cards were given the names “Actions” and “Misfortunes” as a general classification to separate them into the decks which players drawn from as an action, or are forced to draw from as a negative event. The cards would be the standard 2.5” x 3.5” dimensions used in playing cards. Each card required a card title, a description of the significance of the card, and a backing to clearly identify which group the card fell into. A very clear black and white color scheme was suited for this because of the Halloween theme. This also created a firm contrast between colors and helped the prototype remain affordable. Some text was also added to suggest a narrative for each card and to provide some character and humor. Though these do not affect mechanics at all, they still provide the user with greater enjoyment. Because of a time constraints, the cards would not be given drawn art, though typography and simple shapes would be used.

Cards from three other games were examined for concepts related to information manage-

ment. The cards came from Inn Fighting, Give Me The Brain, and Paranoia Mandatory Bonus Fun Card Game (henceforth simply called Paranoia for the sake of brevity). Inn Fighting and Paranoia had a title at the top of the card, centered. Give Me The Brain had the title justified left, but the card had a large bar containing other information along the left side of the card. All card text except flavor text was justified left. Flavor text in these games was usually italicized or otherwise set aside from the main text. The cards also often used elements such as boxes or other borders to contain text. The final design of the informational side of the cards used a centered title, followed by italicized flavor text and mechanical instructions in a box to set it aside from the rest of the card. The typefaces Georgia and Adobe Caslon Pro were selected for legibility and conformity with the pseudo-Gothic atmosphere.

The cards were also given highly contrasting colors in order to prevent one card from being confused with another. Misfortune cards held white text with a black background, and an Action card would have a white background with black text. The card backings held the game's logo and a label of the card category. These would also be colored to identify which category they belonged to. The colors of a card's bleed can help that card stand out if it is placed in the wrong deck, even if there are a large number of other cards on top or below. The card's edge just stands out, especially if the colors contrast sharply.

The board tiles were designed with black colored background with white text in order to reinforce the Halloween-like atmosphere. These tiles needed to display a room name, a number, and mechanical effects. Because these, unlike cards, are not held close to the player, they must be readable at a distance. Of these, the number needed to be the most immediately visible to maintain quick play, so the witch and the ghosts could be placed as quickly as possible once a number was rolled. The number, unlike the rest of the card, would be printed in black on a white background. A small white circle was added to each tile, and the number would be printed on that circle. However, the title of the tile would still be printed at the top of each tile. Below the number, mechanical text would be printed in white and centered. Flavor text was considered for a time, but they were ultimately

omitted because some of the tiles had mechanic text large enough to not leave enough room for anything else.

The foyer and upstairs hallway were given additional treatment. The foyer, as the initial room and hub of the map had the clock printed on it for easy view by all players. To take advantage of this, this special tile was filled with information that players could use for quick reference to ease play. Originally, the clock was going to exist on its own card, but by integrating it with the foyer, it would take up no additional space. Two paper clock hands were added, and a brass fastener was used to attach them and give them room to turn and indicate the time. A condensed version of the turn order was added to the board as well for quick reference. Lastly, a map indicating possible routes was placed on the map, so players could tell what moves might be legal. The foyer is the only component in the entire game that uses a color other than black or white. A red path was added to the map as a path in order to avoid confusing the path for the border of a room, The upstairs hallway was given a number of circles to place bedsheet tokens in so that there would be a clear indicator of how close players were to winning.

The layout of the instructions for the game was given some care too. To keep the game from appearing overly complex, the rules were split into three pages with clear headers at the top of each page indicating the scope of the rules. The first of the sheets contained setup instructions and a list of components included in the game. The second sheet covered the specifics of how each player turn is carried out. The last sheet covered details of the residents of the mansion and their behaviors. An example of play was considered for inclusion in the instructions, but it was omitted due to time constraints.

3.11.4. Escape from Midnight Mansion Design Notes

These are the notes for Escape from Midnight Mansion. They are presented as they were initially written. They have not been edited in any way.

Escape from Midnight Mansion

Escape from Midnight Manor

Escape from the Mansion of Midnight

Midnight Mansion

Midnight Madness

Maniac Mansion?

The Monster of Midnight Mansion

2-4 players, ages 7-10, 30-45 minutes

Each turn, a player must advance the clock? Half an hour? A full hour? Then they do their turn.

At midnight, the players are trapped forever?

It may belong to a vampire. Baron Blood? Baron of Blood? Bloody Baron?

Maybe something in the mansion can turn back time.

24 hours - at 4 players, if it's one hour, then every player just gets 6 turns.

- at half an hour, every player gets 12 turns.

- At 15 minutes, every player gets 24 turns, which MAY be too many.

12 hours - Hourly - 4 players, 3 turns

- Half hour - 6 turns

- 15 minutes: 12 turns

There is a mansion. The front door closes behind the players when they enter. They must find a secret passage out of the mansion.

An item could turn back the clock. Maybe a gear or a clockwork key. An alarm clock in the vampire's master bedroom?

Maybe the players could use flashlights to defeat ghosts, then take the bedsheets to form a rope with which to escape from the mansion. Flashlights could use batteries as ammo. Or batteries could be used to light up rooms. Booracell?

Tentative: 24 hours with 30 minutes, or 12 hours with 15 minutes

Or maybe set it to sunset.

Heavy Duty Maglite (Fraglite? Will they get that?) flashlight

Player actions:

Exploring the mansion

Disarming traps

Being hurt by traps

Running away from monsters

Collecting sheets

Maybe batteries are being guarded by monsters or behind traps

Searching for batteries

Something about ghosts

Idea for flow

Players search the mansion. Maybe 4x4 tiles could be used as individual rooms of the board?

Bedroom - Can turn back time here

Bathroom

Kitchen

Greenhouse

Living Room

Foyer - The starting room.

Garage - Can find batteries easier here, maybe?

The Lab - Frankenstein's Monster. Might have some odd device?

Tower - ?

Dining Room

The players start out in the Foyer. There's a door depicted, but it's locked. The foyer has open door icons on the sides to show where other rooms may lie. A player can use up a battery to unveil the next room, which will be drawn randomly from the tiles.

// The new room MAY contain cards. Decide the mechanic.

Player turn:

Turn the Clock

Actions:

Move into a room

Unveil a room

Draw a card.

Give an item to another player (May be a free action)

Make a Discovery (Use a card to find a new feature in a room)

Pick up an item in a room (May be a free action)

Shadows over Camelot had:

Camelot

Black Knight

Lancelot's Armor/Dragon

Picts

Saxons

Grail

Excalibur

8 total, but a max of 7 quests at a time. 3-6 players

Pandemic has 4 diseases. 2-4 players

3-4 “Hot Zones” seems appropriate.

The Master Vampire (Keep the clock from hitting midnight). This causes the loss condition. The vampire is an ever-present but passive threat.

Frankenstein’s Monster (Eats batteries). Powered by lightning strikes? Unplug him and let him run out of power. if fully powered, maybe he becomes able to move through the mansion on his own. Maybe he can go into the room next to the lab, but can’t go past that. This keeps players from being able to ward off ghosts. Big green token. Maybe he’s recurring, like ghosts and the Master Vampire. In fact, maybe he should be, if he’s to be a presence the whole game. The Monster is a wandering threat. Green Avatar piece? Maybe players could try to steal a battery from him. Roll it. You can gain one or lose one. Or maybe you could gain one but lose all. Or maybe he collects batteries as he travels. Name him Frank? Franc? A French Frankenstein?

Ghosts? (Provides bedsheets) - The players on their way in saw an open window on the second floor. As a threat, maybe ghosts can Spook players and keep them from entering rooms. Maybe they can move from room to room. This causes players to lose time. Maybe something can cause ghosts to multiply in number. At each hour, roll a die, and another ghost shows up? Another ghost shows up per ghost already in play? Green winks? Sheep resource counters? They should show up in greater num-

ber as the game draws to midnight as a positive feedback loop. The players will either be faced with too many to deal with, or they should accumulate bedsheets rapidly. The ghosts are a static barrier to progress and re-entry. Maybe ghosts could show up in dark and unrevealed rooms too.

--- A fourth threat? Consider how it could fit in, mechanically and thematically. Female. A witch? Maybe she wanders and teleports people around. Or turns someone into a frog or a newt. Maybe she wanders randomly, instead of with purpose like Frankenstein's monster

Good things

A "Secret passage" card. Sets up in the room you find it in(?) or you can lay it down in any room you're in. Anyone can move from one secret passage to another for just one action.

Finding batteries?

Finding a cache of batteries

A dumbwaiter. The kitchen has one by default, and one can be "found" in the other rooms. "Make a discovery". Items can be left in a dumbwaiter.

Finding a better flashlight?

Sack of marbles.

Bad things:

Cards in rooms

Bad cards drawn at each hour?

Bad cards drawn every three hours?

Bad cards drawn every cycle of players?

Bad cards that get MORE drawn when Midnight draws closer. Like the epidemic rate in Pandemic

Bad cards could relate to Frank or the ghosts or maybe even the clock. What about monsters that exist only in the cards? Like INvisible Man. Can't see him since he's on the board.

CONSIDER MORE FAILURE CONDITIONS. Shadows over Camelot AND Pandemic had the. Discover the MDA behind them! On the other hand, just one keeps the theme of "Midnight" strong.

Cards

4 players max? Aim for ~60 cards for good. Maybe 40 cards for bad stuff.

Move Frank 1

Move Frank 2 - Power surge

Move Frank 3 - ???

Move Frank 4 - ???

Surge Protector - The next time Frank draws a card that would move him more than one, just move him one instead. After this, the surge protector has to be thrown away because it breaks after only one use.

Tokens

- Wood resource counters for batteries?
- Green Avatar for Frankenstein
- Green winks for ghosts, or sheep resources counters.
- Regular pawns for players.
- Some kind of Resource counter for sheets?

Universal Monsters

Hunchback

Phantom of the Opera

Dracula

Frankenstein

Mummy

Bride of Frankenstein

werewolf

Invisible Man

Creature from the Black Lagoon

Layout

- Foyer.

- Random "Edge" tiles with a distinct backing showing the openings.

- Fixed "Corner" tiles?

- Maybe the back of the tiles could show the way the doors and walls are laid out.

- The clock is a pair of spinners on a 4x4 board, maybe. They not only point at a time, but point at reminders of what happens as midnight draws near.

"The Eleventh Hour" - Consider a special rule to apply at the end.

The players will need... let's say, 12 sheets to escape. Or maybe 10.

Indirect competition? Maybe leave “Bait” to lure monsters.

Spring Forward

Fall back

Card: Crystal Ball - Look at the top three cards in either the good cards or the bad cards, put them in any order you want, then put it back on top of the deck.

Card: ? - Look at the top card on the bad deck.

One idea for ghost movement. If you end your turn within two spaces of a ghost, the ghosts will move one square towards you at the end of your turn. Maybe if they move into your square, you can't leave the square until the ghosts are all gone. Which can be dealt with by another player trying to distract them.

Idea: Players can discard a card from their hand to move one additional square.

Specifics

- How many mansion tiles, and what kinds?
- How many actions can players perform, and what kind?
- What kinds of cards might players draw?
- What kinds of bad cards might players draw?

Expansion Ideas

- Assemble TV's Frank
- Wolfman in the Lunarium
- Consider using tarot or regular playing cards

3.11.5.Escape from Midnight Mansion Card Notes

These are the notes for Escape from Midnight Mansion cards. They are presented as they were initially written. They have not been edited in any way.

Escape from Midnight Mansion Cards

Action Cards

1a) Booracell Battery (Defeat a ghost in your room or a room adjacent to you on the same floor.

Remove the ghost from the board and take a bedsheet counter.)

1b) Poltergeister Battery (Defeat a ghost in your room or a room adjacent to you on the same floor.

Remove the ghost from the board and take a bedsheet counter)

1c) Everdeady Battery (Defeat a ghost in your room or a room adjacent to you on the same floor.

Remove the ghost from the board and take a bedsheet counter) // Actually, this brand is dead (ha ha).

I still need a cute name for the flashlights though, and a Fraglite probably would go over kids' heads.

2) Fall Back (Turn the clock back an hour)

3) Clockwork Key (If you are in the Master Bedroom, you may turn the clock back 30 minutes)

4) Crystal Ball (Look at the top three cards in the deck of Misfortune, rearrange them in any way you want, then put it back on top of the deck)

5) Lucky Break (Everyone draws an Action card)

6) Secret Passage (Play it in a room that you or another player are in. It acts as a secret passageway.)

7) Surge Protector (Put this card next to Frank. The next time Frank moves more than one space, he only moves one space)

8) Disco Ball (Place this card in a room and leave it there. You may play batteries on top of this card. As long as there are batteries here, no ghosts can appear in or enter this room. Remove one battery at the end of each player's turn. If someone puts in a battery when ghosts are already here, those ghosts are defeated.)

9) Bag of Dead Batteries (You're never certain how to dispose of these, but this probably isn't a bad way. Drop the bag in a room you are in. Whenever Frank moves, he must take a path towards this card. When he reaches this card, discard it. Frank resumes normal movement after.)

10) Too Much Coffee (You gain an additional three actions.)

11) Quarter under the couch. (The witch moves to any room of your choosing and teleports players and ghosts as normal.)

11a?) Sack of Marbles. Drop this in a room. The next time the witch or Frank enters this room, their movement stops. No one loses batteries or gets teleported.

12) Close Call (Play this card to prevent a Misfortune card from taking effect immediately after it is drawn. This card may be played even when it is not your turn and does not cost an action to use.)

13) Feeling Chatty (Play this card immediately when the Witch enters your room or decides to stay in it. The Witch teleports ghosts to a random room, but does not target players.)

14) A Lucky Find (You may draw Action cards until there are five cards in your hand, or everyone can draw one Action card)

15) Hoard (You may draw Action cards until there are five cards in your hand.)

20 Batteries

1 Fall Back

4 Clockwork Keys

4 Surge Protectors

2 Bags of Dead Batteries

1 Disco Ball

2 Too Much Coffees

2 Quarters

2 Sacks of Marbles

4 Close Call

2 Feeling Chatty

2 Lucky Find

2 Hoard

48 cards total

Misfortunes

1) Move Frank 1 space

2) Move Frank 2 spaces

3) Move Frank 3 spaces

6) Spring forward. Advance the clock one hour.

7) 15 Minutes Fast. Advance the clock 15 minutes.

4) Roll 1d20. The Witch travels to this room. If the room has not yet been turned over, she stays put. Any players in a room may be teleported (as a group). Any ghosts in the room may be teleported (as a group).

13) Startled the Witch. The witch teleports to your location. She teleports every player in the room randomly as individuals instead of as a group. She still teleports ghosts as a group.

5) A ghost appears. Roll 1d20 and put the ghost in the room that matches that number. If the number has not yet been revealed, then nothing happens.

8) Two ghosts appear. Roll randomly for each one.

9) Three ghosts appear. Roll randomly for each one.

15) Possessed. Put a ghost token under your pawn. Other players must spend all of their actions to move into a room you occupy. Players that begin their turn in the same room as you have only one action. You cannot use your flashlight. A player in the same room or an adjacent room on the same floor can use their flashlight to dispel this effect. If that happens, discard this card.

10) Slippery Floor. You must discard all of your cards, or every player must discard a card.

11) The Invisible Man. You must discard all of your Action cards.

12) Pandora's Box. All Misfortune cards are shuffled back into the Misfortune deck.

14) A Bad Feeling. All players discard an Action card.

15) Deja Vu. The Misfortune on the top of the discard pile happens.

8 Frank 2

6 Frank 3

2 Frank 4

1 Spring Forward

4 15 Minutes Fast

16 Witch Moves

1 Startled the Witch

7 1 Ghost

4 2 Ghost

2 3 Ghost

1 Possessed

3 Slippery Floor

1 2 Invisible Man

1 Pandora's Box

2 Bad Feelings

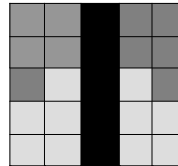
1 Deja Vu

60 cards

3.11.6.Escape from Midnight Mansion “Spreadsheet” Room Notes

These are the notes for Escape from Midnight Mansion cards. They are presented as they were initially written. They have not been edited in any way.

Tentative Map:



Ideas:

Kitchen

Library

master Bedroom

Laboratory

Lunarium

Conservatory

Dining Room

Parlor

Sitting ROom

Guest Room (Multiple?)

Indoor Pool

Study

Storage Closet

Bathroom (Multiple?)

Wine storage

Gym

Garage

Aviary (Full of bats)

Indoor baseball batting cage

Clock Tower, and if you're in it when the time shifts to exactly on the hour, you're penalized somehow.

20 Rooms and Functions:

Guest Room (Bad) (Flip: You lose any actions remaining this turn, and start with zero actions on your next turn)

Guest Room (Bad)

Guest Room (Bad)

Guest Room (Bad)

Bathroom (Good) (Secret passage. You can spend an action to move to any room that has a secret passage)

Bathroom (Good)

Bathroom (Good)

Lab (Bad) (Frank enters play. Reshuffle the bad stuff deck)

Master Bedroom (You can turn back time here. But when it's flipped, you lose an Action card)

Library (Flip: The witch activates. Unveil a room of your choosing. You get teleported to that room.)

Lunarium (Random roll for drawing a card, good or bad)

Kitchen (While here, you can give action cards to the dining room. Picking up these cards takes an action)

Dining Room (While here, you can give action cards to the kitchen). Picking up these cards takes an action)

Conservatory

Storage Closet (You can spend one action per turn to draw a good card. This is in addition to the normal card Draw.) Maybe when unveiled, you can't move from the location anymore on this turn only.

Indoor Pool (Takes two actions to cross)

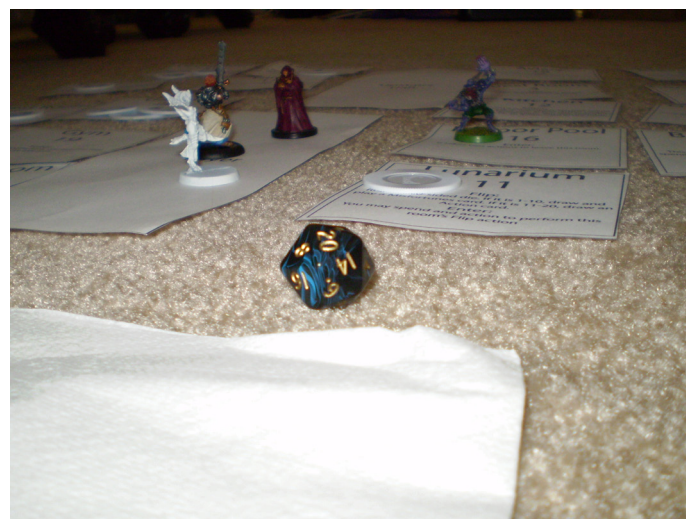
Parlor (Flip: Get one action back this turn)

Aviary (Flip: You lose a card)

Gym (If you start your turn here, you get one free move action next turn)

Garage (Flip: Immediately go to a room of your choice)

3.11.7 Initial Prototype Photographs



3.11.8.Photograph of Final Design



3.12 Research Procedure

A number of research methods were used in the course of this study. Surveys, book research, internet research, communication with experts, and careful analysis of pre-existing games on the market were employed. Analysis of pre-existing games in particular provided a large benefit to the research as they provided a number of mechanics to analyze. The internet and book research provided a useful model under which to examine these games, and communication with the panel of experts provided useful feedback on observations.

3.13 Chapter Summary

The development of this project took considerable effort and a number of alternative design plans were discarded or put away for later use. The rules of the game were the primary concern. However, a lot of research and development was also conducted to create the cards, the tiles, and the instruction manual. User readability was a primary concern, and the finished product is not only completely playable, but visually striking.

Chapter Four: Conclusion

4.1 Problem

Although some board games for adults involve teams, many of the board games for children between the ages of 7 and 10 are focused entirely on competition with no attention given to cooperation.

4.2 Purpose

The purpose of this study was to develop a set of rules for a board game for children between the ages of 7 and 10 in which cooperation is a core theme of play.

4.3 Hypotheses

1. It was hypothesized that a game in which the players collectively win or lose will enforce a theme of cooperation.

This hypothesis appears to hold true in this game and has been replicated in others games referenced such as Pandemic.

2. It was hypothesized that in order to provide a conflict for the players to overcome, the rules of the game itself, rather than another player, must provide the opposition.

This hypothesis holds true in this game and other cooperative games. Shadows Over Camelot provided a traitor mechanism, but the traitor appeared to try to help the system's own opposition to the other players instead of being a threat by themselves.

3. It was hypothesized that an enjoyable experience would be provided by presenting problems that grow more complex and require more consideration to overcome as the game goes on.

The gradual escalation of difficulty is an element exhibited by other games and has been achieved in this one. As the players attain more control over the board, the challenge must rise to compensate.

4.4 Findings

- A visually compelling game can be created with no graphics at all.
- Prototyping a board game can be done quickly and for an affordable price.
- Cooperation works best when there is something to be gained by working together that could not be achieved alone.
- A game must have a goal and a force to provide a challenge to overcome. When the theme of the game is cooperation, using the system of the rules to create opposition can be effective.
- Escalating challenges can produce a rising tension that can keep a game engaging for the players.
- A system of rules, when put into practice, can generate unexpected results that must be addressed and caught early.
- In a game, the players must always have a clear goal visible to them and a method of achieving progress towards that goal.

4.5 Conclusion

This chapter provided a simple overview of the results of the research conducted over the course of this study. As a result of the research and development of this project, a playable cooperative board game for children between the ages of 7 and 10 has been designed and a prototype has been constructed. The game was designed for 2-4 players and should take approximately 30 to 45 minutes to play. This chapter provided a review of the problem and purpose statements, hypotheses, and findings of the report.

4.6 Recommendations

As far as actual production of more copies of the game goes, a number of options exist. More copies created in the style of the prototype can be constructed for around \$14 or \$15 to cover the cost of printing and the foam core board, but these would have to be mounted and cut by hand. The Game Crafter is a game printing service, but as of the time of this writing, the site does not offer boards in any medium other than clay-coated cardstock, the same material they use to print their cards. Though this may change in the future, anything thicker from The Game Crafter is not available. There may be some difficulty in the physical act of picking up a part of the board and turning it over. There is also an issue of cost. If the game is marketed for children of ages 12 and up Any board purchased from The Game Crafter adds \$1.95 to the cost of the game, no matter what the size, whether it uses only black and white, or whether it is printed on one side or both sides of the board. Since the game uses 22 boards, the cost of the boards alone would be nearly \$50, far out of the range of other products aimed at the same target audience, although board games aimed at an older audience tend to fall in that price range.

A few solutions may exist. The larger boards at The Game Crafter could be printed with multiple tiles per sheet, with instructions for the user to cut out the boards themselves, though this carries the risk that a tile may be improperly cut, resulting in the tile becoming “marked”, a state where even when its face is hidden, the identity of the tile is known. This would remove some element of

hidden information from the game. The size of the game could also be scaled down. If each tile were reduced to the size of a playing card, the game could be produced much more cheaply at The Game Crafter, though elements such as the clock on the foyer would have to be moved elsewhere if they were reduced. However, the price for two boards for the central hub is still reasonable. Legibility at further distances might suffer, but as long as the number is still easy to read, actual gameplay should not suffer. An ideal target price would be \$20 to be comparable to other games targeted at the same audience.

The game must also be tested to be safe for children under 12 years old. The fee for this testing is several thousand dollars, significantly more than budgetary constraints will currently allow. The game may have to be redesigned to target an older audience, sold as-is with the target audience listed for children 12 and older, or a workaround must be found to remove the requirement for safety testing.

One feature that was cut because of time constraints was a trait system. There would be large boards for the players that would function as play mats with outlines for cards on them. Each player would be randomly assigned one, and that would give them an additional ability they could use in the game. For example, one player could pass items to other players without having to spend an action, or a player could have one extra action that could only be used to move, or another player could hold six cards at most instead of five. The intent was that the players would be given specialties and the team would perform better if the players acted according to those specializations as a team. The game is playable and has a distinct visual style to it, but as has been demonstrated, the design may require more testing. A game's rules can be evaluated by reading, but as it is a system of mechanics, its effectiveness at achieving a desired outcome is best judged by putting the system into action. A number of concerns still exist related to the current design.

For example, threats other than Frank cannot enter the foyer or upstairs hallway tiles. If players discover this and take advantage of it, they could stand in those two central tiles, drawing cards, and only leaving to shine the flashlight on ghosts they cannot reach from there. This dynamic would allow

them to progress through the game practically unchallenged. However, this might not actually be the case. If Frank activates, he could remove all of the batteries from every player in a single turn, and a dynamic that could arise from this is players spreading out to prevent that. Without more playtesting to see if this occurs in actual play, based on factors such as the frequency of Frank cards being drawn and patterns of actual player behavior, this may be a baseless concern. It is important that to test these possibilities and check for the rise of other unexpected behaviors more tests must be carried out to assure that the experience is enjoyable and does not create situations such as the one above.

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Appendix A : The Panel of Experts

Ian Schreiber is a Professor of e-Learning at the Savannah College of Art and Design. He has designed a considerable number of games and is currently running a site to teach game design. He was chosen for the panel of experts because his game design experience, especially his mechanics-focused perspective. Another reason he was selected is because of his willingness to teach game design to others.

Andy Crosby is an experienced game designer who has taken leadership roles. He also has experience in audio design. He has managed small to medium-sized teams and has worked on a number of gaming systems. He was selected because of his game design and leadership experience.

Rob Carroll is a producer at Hive7, a casual gaming website with a focus on social experiences. He previously worked at companies like Zynga, Lucasarts, and TableStar Games. He was selected because of his experience in a high position over social experiences related to gaming and knowledge of creating a context of alliance and non-competition in games.

Appendix B: Panel of Experts Resumes

Rob Carroll's Experience

Producer

Hive7

(Public Company; 11-50 employees; Internet industry)

September 2008 — Present (1 year)

Hive7 is a top notch social game developer, with hit games like Knighthood and some exciting new titles soon to be released.

Producer

Zynga

(Privately Held; 11-50 employees; Computer Games industry)

June 2008 — September 2008 (4 months)

Game Producer for some of Zynga's hit titles including Vampires, Mafia Wars, Dragon Wars Special Ops and the virtual world, YoVille.

Assistant Producer

LucasArts

(Privately Held; 201-500 employees; Computer Games industry)

February 2008 — June 2008 (5 months)

Producer

TableStar Games, LLC

(Privately Held; 1-10 employees; Computer Games industry)

August 2005 — February 2008 (2 years 7 months)

TableStar Games is a board game development studio with our flagship product, HeroCard, due to hit the stores in May. There are 8 games in the HeroCard suite, each game is a unique board game experience that is wrapped around the HeroCard conflict resolution mechanic.

We are currently starting development of a video game version of these board games, with an anticipated release date of early July.

Freelance Game Designer

Critical Mass Interactive. Inc.

(Computer Games industry)

February 2005 — August 2005 (7 months)

Created game design proposals following detailed project requirements for major publishers including: UbiSoft and Steve Jackson Games.

Created detailed reviews for third party developer game designs. Based on the design and client requirements I would develop suggestions on ways to improve the current design.

Producer

Amorgen Studios

(Public Company; 1-10 employees; Motion Pictures and Film industry)

January 2005 — April 2005 (4 months)

Producer for an independent film project. Managed production staff. Maintained project schedule for pre-production tasks. Scouted and secured movie locations. Obtained permits and approvals for public and private shoot locations. Solicited funds and donations to cover production expenses.

Producer

Sojourn Development

(Privately Held; 1-10 employees; Computer Games industry)

January 2003 — February 2005 (2 years 2 months)

Producer and game designer for an MMOG development studio. Daily task tracking for a team of 10 developers. Content and game design writer. Created and maintained project schedule for development. Ran daily office operations. Designed, scheduled and supervised technical demo project. Developed and maintained web based project tracking system. Interviewed and hired new employees. Provided investors and senior management with weekly project updates. Managed third party vendors & partner relationships.

Supervisor

Woodard and Curran

(Civil Engineering industry)

2001 — 2002 (1 year)

Project Manager

ENSR

(Privately Held; 501-1000 employees; Civil Engineering industry)

1999 — 2001 (2 years)

Rob Carroll's Education

University of Massachusetts, Amherst

B.S. , Environmental Sciences , September 1991 — May 1996

University of Massachusetts, Amherst

Lincoln

Andy Crosby

4005 23rd St | San Francisco, CA | 94114 | 415.269.1748 | spesimen@gmail.com

Summary

I am an experienced lead designer, audio designer, and level designer. I have shipped titles for many platforms including PC/Xbox/360/PS2/PS3 and have development experience using PSP and DS engines. I have managed small to mid-sized design teams, and also possess expert level knowledge of audio composition, mixing, and engineering technique. I seek interesting challenges in game design or audio design, and strive to combine the two disciplines wherever possible.

Work Experience

2007-2008 **Audio Designer, Secret Level Inc**

Implemented audio for *Iron Man* and *Golden Axe* titles for PS3/360. Primary responsibilities included tagging foley to animations, design and implementation of dynamic music system that mixed tracks according to gameplay events, level environment sound placement, effects creation, scripting and metadata sound tagging, and overall mixing. Wrote perl scripts to automate creation of placeholder dialogue assets and worked with localization of over 1500 lines of dialogue. Worked closely with programmers to fine tune performance and solve audio-related engine issues. Collaborated with designers to create gameplay-specific sounds and audio feedback. Specific experience with in-house tools, FMOD, Acid Pro, Pro Tools, Sound Forge, Maya-based positional editor, Havok behavior editor.

2006-2007 **Lead Game Designer, Secret Level Inc**

Acted as lead designer on two titles, one for PSP and one for DS, that were intended to prove out new engines for each platform with a vertical slice. Managed small design team, created documentation, fleshed out gameplay concepts based on ideas from creative director, pitched concepts to Sega CEO and production board, and implemented early gameplay. PSP project was a platformer type game with modified jumping mechanics and rich story environment, DS title used a physics based engine to create a casual game involving the direction of raindrops to achieve plant-life related goals, based on research into ecosystems and nature themes. Projects were put on hold due to staffing requirements on our console titles. Used Maya-based tool set, custom scripting language, custom verlet physics engine.

2004-2006 **Level Designer, Secret Level Inc**

Created level/campaign content for *America's Army* port to consoles. Collaborated with Special Forces consultants to ensure accuracy of missions. Created custom multiplayer map content that was delivered with the title. Participated in gameplay balancing. Worked closely with tools developers to find ways to make limited AI seem more lifelike. Most work done in a modified UnrealEd. Also worked on port of *X-men 3* game to PSP platform, using Maya editor.

2001-2003 **Lead Game Designer, Outrage Games**

Supervised design team on creation of *Alter Echo* a PS2/Xbox title for THQ. Primary responsibilities included overseeing level, writing and systems designers, creating specifications, designing and balancing all gameplay systems. Created "time-dilation" concept to inject a puzzle minigame into the 3d platform/combat mix. Worked closely with programmers and artists to specify AI requirements and ensure that animations and art worked well with game controls. Created and edited some level content and early versions of the combat/controls state machine. Implemented some dynamic music content. *Alter Echo* received "Most Innovative PS2 Game Design" from IGN at

2002 E3. Used Maya-based editor with custom engine. In addition to work on this title I spent time supervising participants in our intern program, in which talented local high school students were given opportunities to learn about and implement level and systems design as part of their coursework.

- 2000-2001 Game Designer, Outrage Games
Systems designer on *Rubu Tribe*, a PS2 title that ceased development when Interplay met its demise. Primarily created documentation for custom combat objects, upgrades, and level scenarios. Used Maya-based editor with custom engine.
- 1998-1999 Lead Tester, Outrage Games
Supervised testing team, prioritized issues and maintained bug database, and provided external tech support on *Descent 3* and *Descent 3:Mercenaries* expansion pack.
- 1993-Now Musician and Sound Designer
In addition to game-specific work I have released several 12" techno records and CD albums, performed hundreds of shows in bands, in solo live electronic performance, and as a DJ. I have extensive experience with mixing, engineering, recording, and songwriting, using many types of gear and software. I primarily use Acid Pro, Spectralis, Elektron Machinedrum, RS-7000, and Reason and have experience with many other packages and equipment.

Education

- 1991-1996 University of Michigan, BS Computer Science
C++, 680x assembly, LISP, Pascal, SQL
Many creative writing and art classes
Honors math program, Independent Track Program, Consider Magazine
- 1987-1991 Rochester High School
National Merit Scholar
Harvard University Summer Program
Competitive computer programming team
Professional theatre tech (audio and lighting)

References available upon request.

IAN SCHREIBER

TEACHING EXPERIENCE

Adjunct Faculty, Columbus State Community College, Columbus OH (2008-present)

Classes taught:

- Introduction to Digital Game Industry, IMMT 115/297 (Wi 2008, Sp 2008, Fa 2008, Wi 2009). An introduction that covers the past, present, and future of the video game industry.
- Introduction to Game Design, IMMT 188/297 (Sp 2008, Wi 2009, Sp 2009). An introduction to the theory and concepts of games, game design, and the iterative process.
- Systems Analysis I, CIT 175 (Wi 2008). Project management, systems analysis, and systems design for business and enterprise software development. The business equivalent of game design and game production.

Professor of e-Learning, Savannah College of Art and Design (2008-present)

Classes taught:

- Game Criticism & Analysis, ITGM 402 (Sp 2008, Fa 2008, Wi 2009, Sp 2009, Su 2009). Fundamentals of game design and analysis, delivered online through readings and discussion boards.
- C++ Programming I, ITGM 315 (currently in development). Creating the online content for this course that covers the fundamentals of programming in C++ using Visual Studio. Scheduled to be taught online in Fall 2009.

Visiting Professor of Game Design, Ohio University, Athens OH (2006-2007)

- Game Industry Survey (Fa 2006, Wi 2007, Sp 2007). An introduction that covers the past, present, and future of the video game industry. Equivalent to IMMT 115 at Columbus State.
- Game Development (Fa 2006). Students combine programming, art, and game design to create rapid prototypes of original game mechanics and core game concepts.
- Advanced Game Development (Wi 2007). Practical game design; students work in small teams to brainstorm game concepts, create documentation, and perform market research.
- Digital Game Design (Sp 2007). An introduction to the theory and concepts of games, game design, and the iterative process. Equivalent to IMMT 188 at Columbus State.
- Senior Digital Media Capstone (Wi 2007, Sp 2007). Students work in a mid-sized interdisciplinary team to develop a complete video game project.

LUDOGRAPHY

- Lead Game Designer, Sanctum: Allies & Traitors expansion set (PC). Developed by NIOGA. Released April 2009. Designed 96 virtual cards for an existing trading card game.
- Game Designer, Marvel: Trading Card Game (Nintendo DS). Developed by 1st Playable. Released May 2007. Scripted the behavior of 860 virtual cards using Lua.
- Lead Game Designer / Instructional Designer / Scripter, Management Training Game (PC). Developed by Minerva Software. Released January 2007. Created content for a game to train newly-hired store managers in the skill of task prioritization, for a Fortune 100 company.
- Lead Game Designer / Instructional Designer / Scripter, Best Buy: My Store (PC). Developed by Minerva Software. Released April 2006. Worked with another designer and the client's subject matter experts to craft a game-based model for interactive human conversation, and the user interface and content for the game that used this model to train new salespeople.
- Lead Game Designer, Chron X: Corruption expansion set (PC). Developed by Blue Sky Red Design. Released February 2006. Designed 120 cards for an existing trading card game.
- Game Designer, Playboy: the Mansion (PC, PlayStation 2, Xbox). Developed by Cyberlore Studios. Released January 2005. Assisted programmers in developing a scripting language to describe game events, and used the language to implement all events in the game; also generated formulas to describe player income and item costs.
- Lead Programmer / Game Designer, Chron X: Reboot expansion set (PC). Developed by Blue Sky Red Design. Released June 2004. Scripted the behavior of 100 cards in a proprietary scripting language, and designed 20 of those cards. Also updated the game client with new features to assist players in deck building.
- Programmer / Scripter, WWE: With Authority! (PC). Developed by Genetic Anomalies / THQ. Released February 2001, with regular expansion sets through January 2003. Scripted all virtual cards in a proprietary scripting language; coded new features and bug fixes for the game client in C++; redesigned and implemented the online tutorials and rewrote the instruction manual to make the game easier to learn; recreated the online rating system to create a more competitive and fair environment; designed a web-based application to assist officials in running tournaments; created a software update process for other developers, to reduce bugs introduced in patches and updates, and trained developers to use this process.
- Programmer / Scripter, Star Trek: ConQuest Online (PC). Developed by Genetic Anomalies / THQ. Released October 2000, with one expansion set released August 2001. Scripted all virtual cards in a proprietary scripting language; coded new features and bug fixes for the game client in C++.

EDUCATION

Bachelor of Science, Carnegie Mellon University, 1996

Major: Mathematics / Computer Science

Appendix C: List of Games Referenced

Board game descriptions taken from www.boardgamegeek.com

Arkham Horror

Designed by Kevin Wilson, Richard Launius. Published by Fantasy Flight Games (2005)

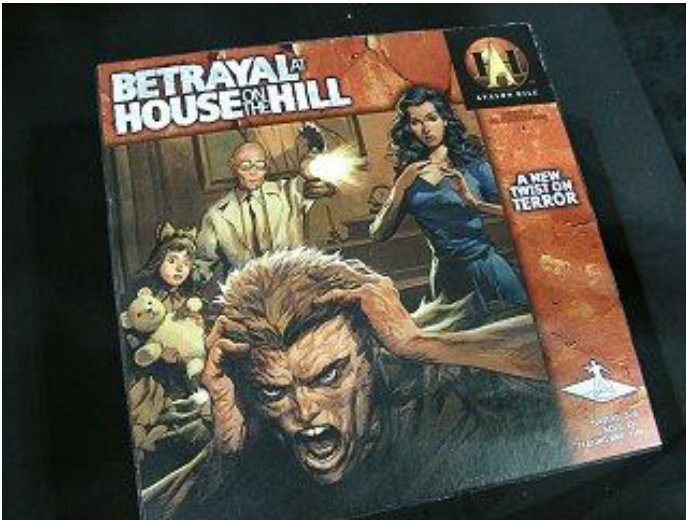


Arkham Horror is a cooperative adventure game themed around H.P Lovecraft's Cthulhu Mythos. Players choose from 16 Investigators and take to the streets of Arkham. Before the game, one of the eight Ancient Ones is chosen and it's up to the Investigators to prevent it from breaking into our world. During the course of the game, players will upgrade their characters by acquiring skills, allies, items, weapons, and spells. It's up to the players to clean out the streets of Arkham by fighting many different types of monsters, but their main goal is to close portals to other dimensions that are opening up around town. With too many portals open the Ancient One awakens and the players only have one last chance to save the world. Defeat the Ancient One in combat!

Betrayal at House on the Hill

Designed by Bill McQuillin, Bruce Glassco, Mike Selinker, Rob Daviau, Teeuwynn Woodruff.

Published by Avalon Hill (Hasbro) 2004.



BETRAYAL AT HOUSE ON THE HILL quickly builds suspense and excitement as players explore a haunted mansion of their own design, encountering spirits and frightening omens that foretell their fate. With an estimated one hour playing time, BETRAYAL AT HOUSE ON THE HILL is ideal for parties, family gatherings or casual fun with friends.

BETRAYAL AT HOUSE ON THE HILL is a tile game that allows players to build their own haunted house room by room, tile by tile, creating a new thrilling game board every time. The game is designed for three to six people, each of whom plays one of six possible characters.

Secretly, one of the characters betrays the rest of the party, and the innocent members of the party must defeat the traitor in their midst before it's too late! BETRAYAL AT HOUSE ON THE HILL will appeal to any game player who enjoys a fun, suspenseful, and strategic game.

BETRAYAL AT HOUSE ON THE HILL includes detailed game pieces, including character cards, pre-painted plastic figures, and special tokens, all of which help create a spooky atmosphere and streamline game play.

Clue

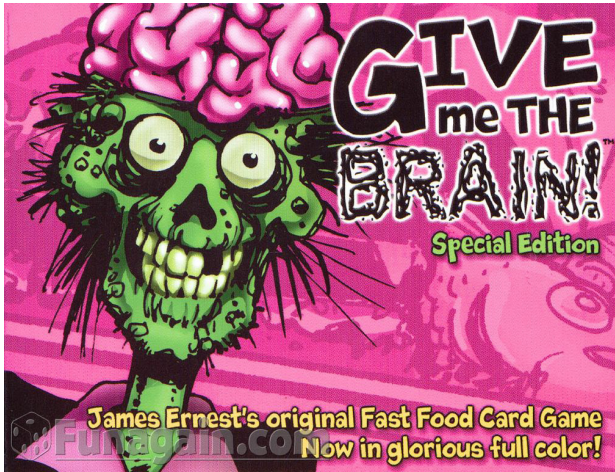
Designed by Anthony E. Pratt. Published by Hasbro (1948).



The classic detective game! In Clue, players move from room to room in a mansion to solve the mystery of: who done it, with what, and where? Players are dealt character, weapon, and location cards after the top card from each card type is secretly placed in the confidential file in the middle of the board. Players must move to a room and then make an accusation against a character saying they did it in that room with a specific weapon. The player to the left must show one of any cards accused to the accuser if in that player's hand. Through deductive reasoning each player must figure out which character, weapon, and location are in the secret file. To do this, each player must uncover what cards are in other players hands by making more and more accusations. Once a player knows what cards the other players are holding they will know what cards are in the secret file. A great game for those who enjoy reasoning and thinking things out.

Give Me The Brain

Designed by James Ernest. Published by Cheapass Games (2006)



Working in fast-food is hell. All the employees are zombies, and you can't find a single brain amongst them. Except for the brain part - there is, in fact, one brain - that's the premise of Give Me the Brain, a card game in which players take on the roles of zombies in a fast-food restaurant in hell. They all have to complete a number of tasks before leaving work, and the work keeps piling on. Even worse, some of the tasks require basic intelligence and there's only one brain to go around.

Inn Fighting

Designed by Rob Heinsoo. Published by Wizards of the Coast (2007)

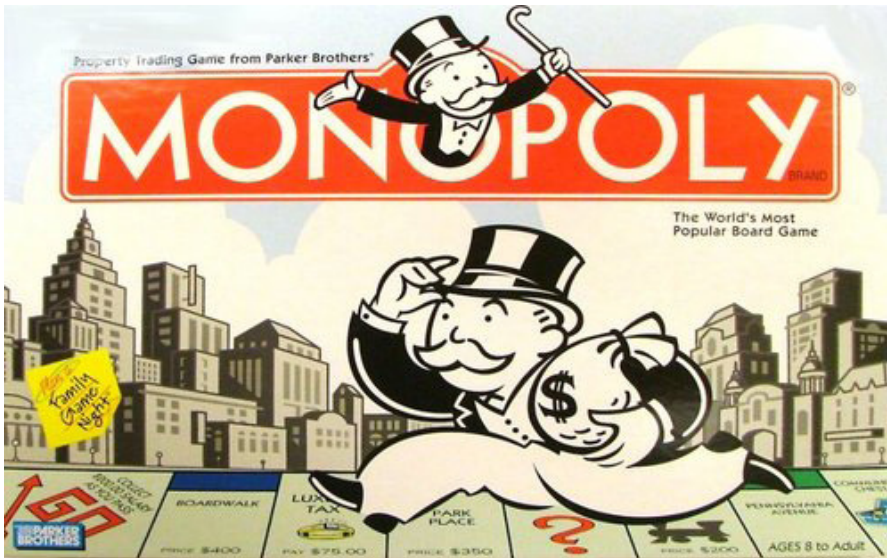


The dice game of champions in the Dungeons & Dragons world.

From the creators of Three-Dragon Ante, the Dungeons & Dragons in-world card game, comes the perfect dice game for D&D players and characters alike. With a roll of the dice, you determine whether to hurl a mug of ale at the warbling bard or smash a chair over the drunken barbarian's back. Treachery and chaos abound, as every game promises a new and hilarious tavern brawling experience. Inside every Inn Fighting box you'll find a rules sheet, a set of 6 special six-sided dice, 1 twenty-sided die, and 52 character cards. Choose a character, trade some dice rolls with your friends, and see who's left standing in the end!

Monopoly

Designed by Charles Darrow, Elizabeth J. Magie (Phillips), George S. Parker. Published by Parker Brothers (Hasbro) 1935.



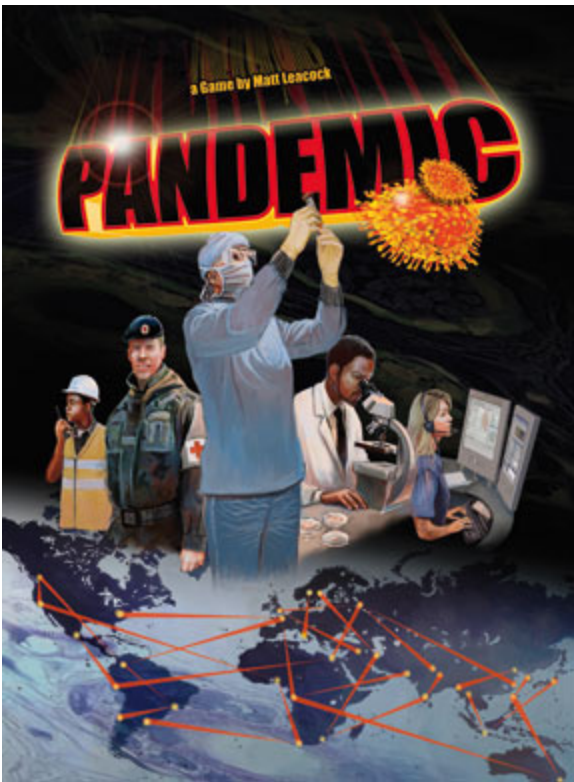
The classic real estate game. Buy properties, build houses and hotels, collect rent from fellow players. Repeat as necessary until everyone else is bankrupt.

Monopoly was patented in 1935 by Charles Darrow and released by Parker Brothers. The game was actually one of a number of variants in existence at the time, all of which date back to an earlier, 1904 game by Elizabeth J. Magie, called The Landlord's Game. Her name is pronounced [MAG ee]. It's worth pronouncing correctly the name of the creative mind behind the most successful proprietary game of all time. Magie was a proponent of the Single Tax put forth by famous author Henry George. The game was designed to show how the Single Tax would work - players could choose to play under regular rules or alternate "Single Tax" rules.

The game didn't really go anywhere and Magie lost interest in it. Variations of the game evolved, however, and homemade versions traveled up and down the Atlantic coast and even as far west as Michigan and Texas, being developed all along the way. Eventually the game was noticed by Charles Darrow who introduced it to the world in its current form.

Pandemic

Designed by Matthew Leacock. Published by Z-Man Games (2008)



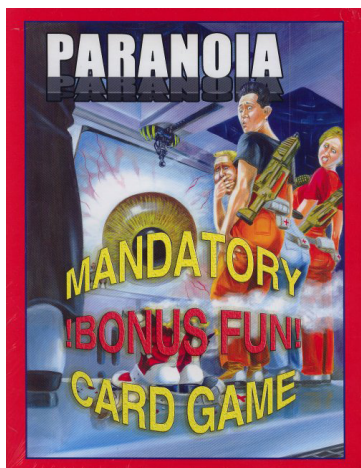
You are specialists at the CDC/Atlanta where you watch several virulent diseases break out simultaneously all over the world. The team mission is to prevent a world-wide pandemic outbreak, treating hotspots while researching cures for each of the four plagues before they get out of hand.

Players must plan their strategy to mesh their specialist's strengths before the diseases overwhelm the world. For example, the Operations Specialist can build research stations, which are needed to find cures for the diseases. The Scientist needs only 4 cards of a particular disease to cure it instead of the normal 5. But the diseases are breaking out fast and time is running out: the team must try to stem the tide of infection in diseased areas while developing cures. If disease spreads uncontrolled, the players all lose. If they can cure all four diseases, they win.

The board shows earth with some big population centres. On each turn a player can use four actions to travel, cure, discover and build. Cards are used for this but the deck also contains Epidemics...

Paranoia Mandatory Bonus Fun Card Game

Designed by Steve Gilbert. Published by Mongoose Publishing (2005)



Serve The Computer... die a lot. Thwart traitors... die a lot. Save Alpha Complex from imminent destruction... die a lot.

Welcome to Paranoia: The Mandatory Card Game. A light hearted death-fest for 3-8 players set in the multi-award winning world of Paranoia.

But, you say, you've never played Paranoia. Don't worry, Citizen, this DNCPCG (definitely not collectible paranoia card game) is the perfect primer to the delightfully lethal world of Alpha Complex. Created by Steve Gilbert, co-author of Me and My Shadow Mark IV, Paranoia: The Mandatory Card Game will have you nuking your buddies before you can say, "The Computer is my friend."

So how do you play? Excellent question, Citizen!

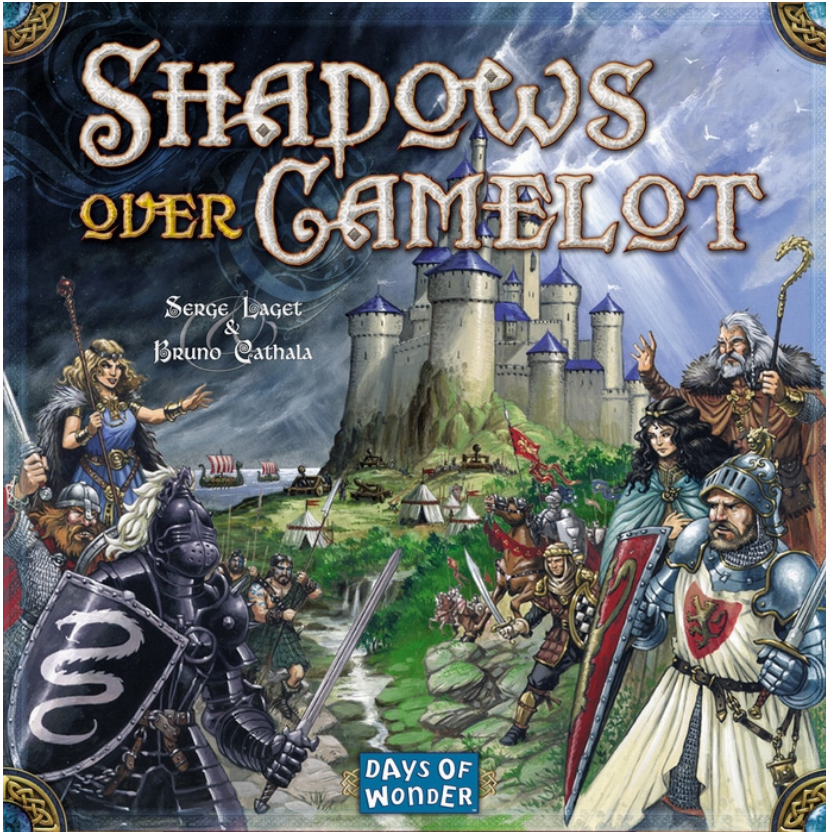
You and the other players are elite Troubleshooter agents for The Computer, trained to root out traitors, mutants and enemy agents. Your friend, The Computer, is going to send your Troubleshooter team on a series of happy fun missions critical to the survival of Alpha Complex (aren't they all). Your greatest fear is that Friend Computer will find out you are one of its enemies. So strap on your laser, and your hand flamer, and your plasma-cannon, and venture forth to rid Alpha Complex of the mutinous, but equally well-armed traitors surrounding you.

Playing time: 60 minutes (that you'll never get back for the rest of your life, so quit your whining)

Stay Alert! Trust No One! Keep Your Laser Handy!

Shadows Over Camelot

Designed by Bruno Cathala, Serge Laget. Published by Days of Wonder (2005).

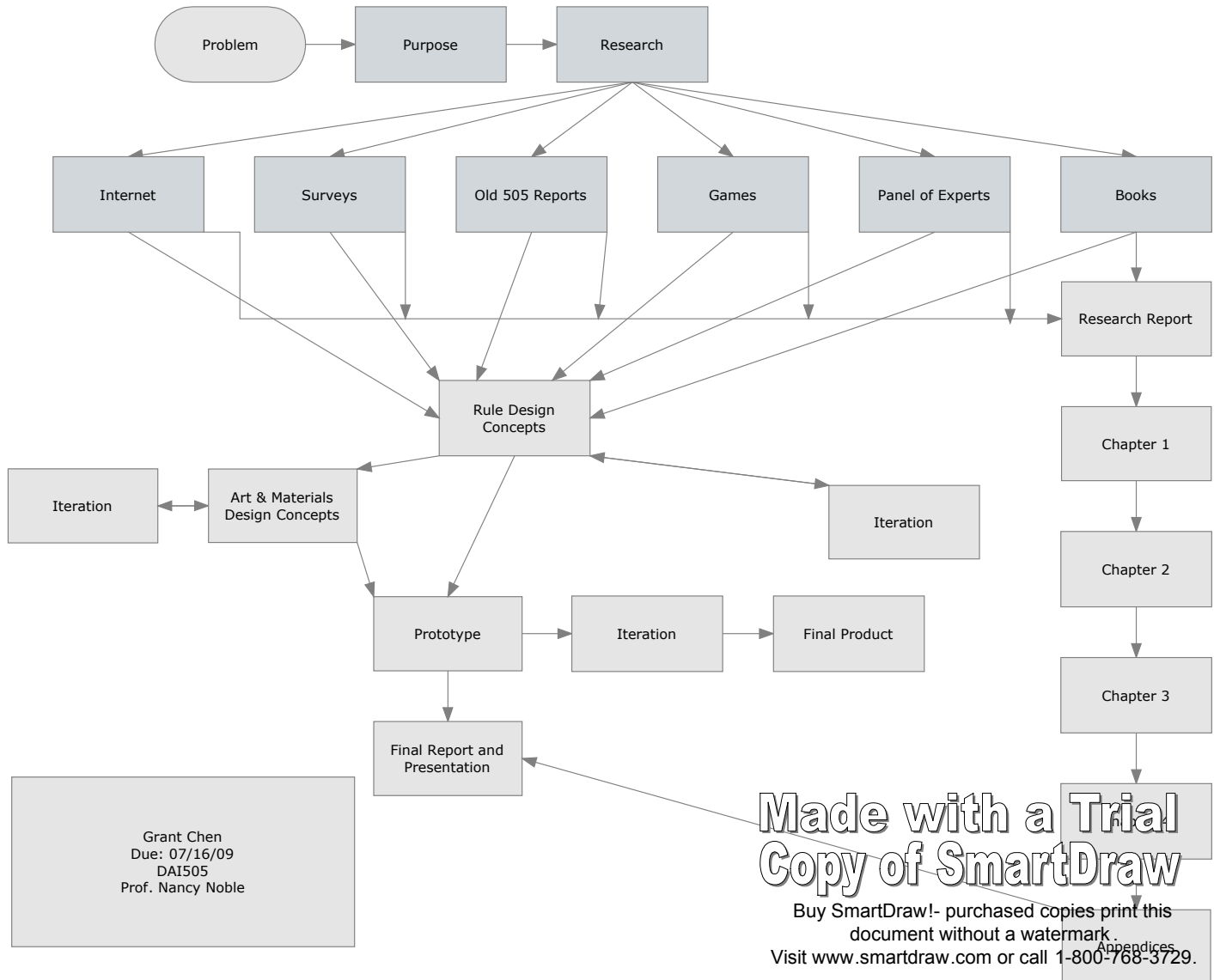


In most games, players compete against each other to achieve victory. Shadows over Camelot proposes a journey of a very different kind, where you and your fellow players, as Knights of the Round Table, will collaborate to jointly defeat... the game!

At first glance, this task seems simple enough. After all, shouldn't a band of young and noble Knights - fleet of foot and sound of mind - easily defeat a game that plays itself? Alas your quest is further complicated by the ever-present possibility of a Traitor in your midst, biding his time, waiting to strike at the worst possible moment...

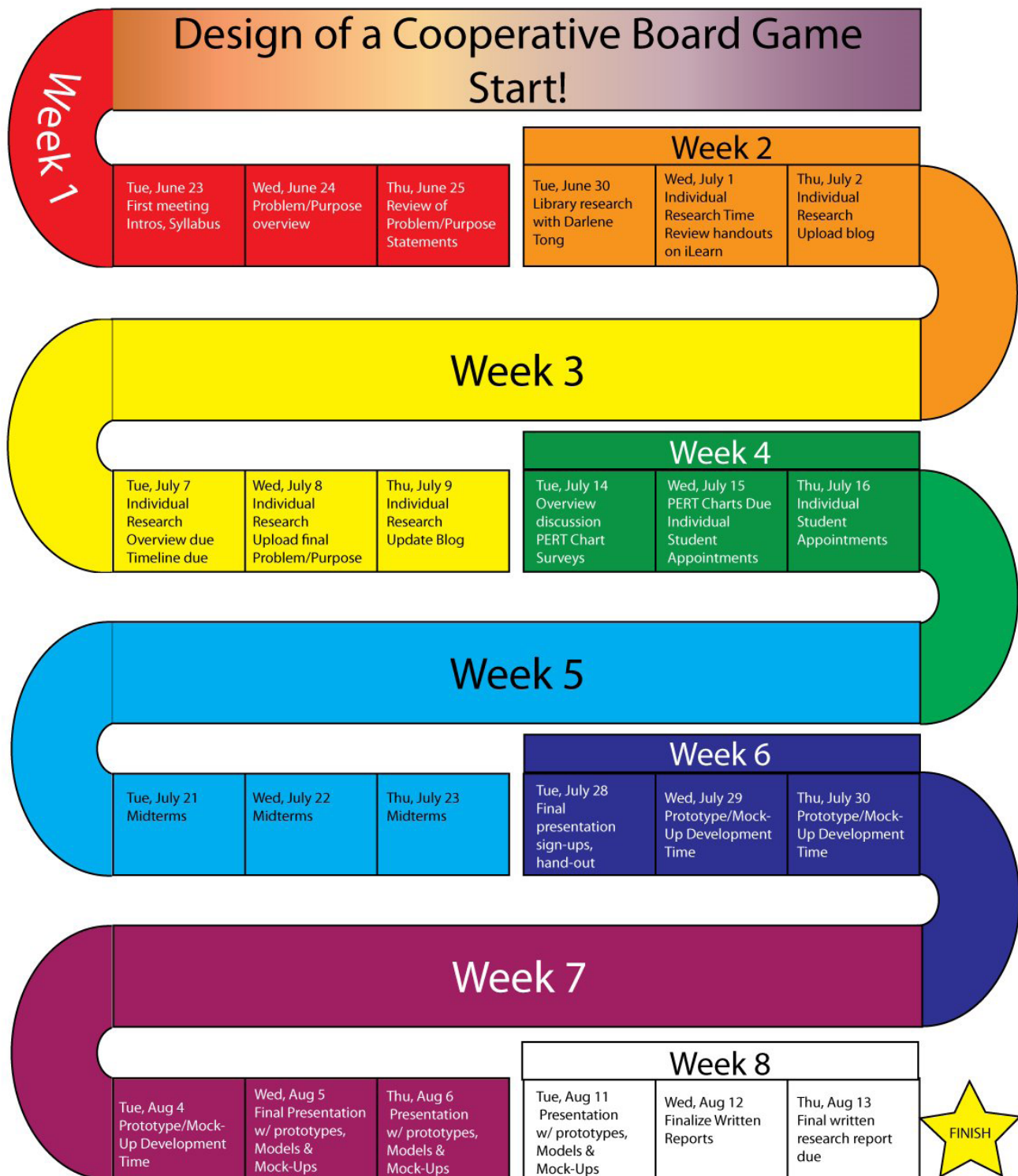
But enough words... Don your cloak, climb astride your warhorse and gallop into the Shadows to join us in Camelot!

PERT Chart:



GANT Chart:

Grant Chen's DAI505 Timeline



Appendix E: The Current Game Rules

Escape from Midnight Mansion

A Cooperative Board Game for 2-4 Players by Grant Chen
August 5, 2009

Contents:

- 4 Player Pawns
- 1 Frank Pawn
- 1 Witch Pawn
- 1 large Foyer tile
- 1 large Great Hall tile
- 20 room tiles
- 50 Ghost discs (White poker chips)
- 12 Bedsheets counters (Red Poker Chips)
- 48 Action Cards
- 60 Misfortune Cards
- 1 20-sided die

Story:

It was a dark and stormy noon, and you and your friends figured you'd head inside Midnight Mansion for shelter. However, the door slams itself shut behind you, and all you've got are heavy duty flashlights. Now you must escape the mansion before the clock strikes midnight, and the vampire awakens and traps you here forever!

How to Win:

Escape from Midnight Mansion! Use your flashlights to scare ghosts away. Make a ladder out of the bedsheets they leave behind, and escape through the second story hall window! When all players with a total of twelve sheets are at the second story hall at the same time, the players win.

How to Lose:

You can lose in one of two ways.

- 1) Midnight arrives.
- 2) You have to put down a ghost token and there aren't any more left.

Setup:

- 1) Place the Foyer on the table
- 2) Place the Great Hall above the Foyer so they create a big large line
- 3) Shuffle all of the room tiles and start laying them out face-down, ten on each side of the two central rooms so they form a big square.
- 4) Shuffle the action cards deck and hand five cards to each player. They may keep them face-up in front of them.
- 5) Every player places their pawn in the Foyer.
- 6) Every player rolls a 6-sided die. Whoever rolls highest goes first. If there is a tie, those players roll the die again to resolve the tie.
- 7) Set up the clock so that both hands point at 12. It is currently noon. Decide which is the minute hand and which is the hour hand.

Player's Turn:

A Player's turn has four phases: Actions, Ghosts, Misfortunes, and the Passage of Time.

1) Actions

A player may take three actions per turn from the following: They may move to an adjacent room, explore a room, draw an Action Card (only once per turn), give an Action Card, or play an Action Card.

Moving: A player may move to a revealed room adjacent to the one they are in if the map below indicates that there is a doorway between them. Any "Enter" effects a room has takes place. A player may not move to a room that is on a different floor without first going up the stairs. The Foyer has a map of the legal paths that a pawn may move through.

Players may not move if the room they would move into has a ghost. A player that starts their turn in the same room as a ghost has only one action.

Exploring a Room: Once per turn, a player may flip over a room tile that they would be able to legally move into, and then move into it. Any "Flip" effects occur. The Flip effect may instruct you to follow an Enter effect as well.

Drawing an Action Card: The player draws an Action card. They may only do this if they have fewer than five Action cards in their hand. If there are no more action cards, you may shuffle the discard pile and place them face-down again as a new action card deck which you can draw from.

Give an Action Card: A player may give one of their action cards to another player if they are in the same room.

Play an Action Card: A player may choose to perform the action listed on one of their action cards. After the instructions are followed, the card is discarded. Put it face-up on a pile next to the action card deck. Take note, however, that some Action Cards do not take up an action to use and may be played at any time.

2) Ghosts

Roll a 20-sided die. If it matches a room, place a ghost token in that room.

3) Misfortune

Draw Misfortune cards and immediately apply the results. If it is before 6, draw one. If it is 6 or later, but not yet 9, draw two. if it is after 9, draw 3. Consult the "Residents of Midnight Mansion" page if you draw a card that mentions Frank, the Witch, or Ghosts.

4) The Passage of Time

Turn the minute hand forward 15 minutes and advance the hour as necessary. If at any time in the game, the time reaches or passes 9, every room is flipped face-up and their effects are applies to the players whose turn it is. If the time reaches or passes 11, one ghost is added to every room. If at any point, it's midnight or later, everybody loses.

The Residents of Midnight Mansion

Frank:

He's a big monster in the laboratory. When the laboratory is discovered, whoever does it loses all their batteries, and the Misfortunes deck has its discard pile reshuffled into it. Any player in a square that Frank enters discards all their batteries. Some Misfortune cards will cause Frank to move towards the closest source of batteries. If he moves quickly enough, he can take batteries from multiple players in one turn. He goes after whoever has the most batteries that he can reach. If multiple players are equally close and have the same number of batteries, the player whose turn it is chooses which one to move Frank closer to.

The Witch:

She's a serious-minded librarian out to try to keep some semblance of order. Unfortunately, the ghosts left books all over the mansion, and she's got to organize them. She's not really a bad sort of person, but she's unpredictable. If you flip the Library over, she teleports you. Move your piece to a still concealed room of your choosing, flip it, and apply any effects. If every room has been explored, roll the 20-sided die and be teleported there instead, and apply any effects. Some Misfortune cards will cause the Witch to teleport to a room. If any people or ghosts are there, she might teleport them to another room. She targets the players first. Roll a 20-sided die. If it matches an already-explored room, all players in her room are teleported to that room. If the room with that number has not yet been discovered, she changes her mind about teleporting the players. Repeat this process for the ghosts.

The Ghosts:

Players may not move if the room they would move into has a ghost. A player that starts their turn in the same room as a ghost has only one action. If a ghost is defeated, put the ghost token back with the rest of the ghost tokens. If every ghost token is on the board at once, you lose the game.

The Vampire:

The Vampire isn't good news. The Vampire spends the entire game sleeping, but if the clock reaches midnight, the vampire awakens, and the players all lose. Act quickly and turn back the alarm clock if you find clockwork keys, or else the vampire will awaken.

Appendix F: Game Pieces

<div><div>Battery</div><div><i>A pair of Everdeady D-Cell batteries.</i> <i>Perfect for powering a ghost-scaring flashlight.</i></div><div><div>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</div></div></div>	<div><div>Battery</div><div><i>A pair of Everdeady D-Cell batteries.</i> <i>Perfect for powering a ghost-scaring flashlight.</i></div><div><div>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</div></div></div>	<div><div>Battery</div><div><i>A pair of Everdeady D-Cell batteries.</i> <i>Perfect for powering a ghost-scaring flashlight.</i></div><div><div>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</div></div></div>
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<div><div><div>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</div></div></div>	<div><div><div>Battery</div><div><i>A pair of Poultergeist D-Cell batteries.</i> <i>Perfect for powering a ghost-scaring flashlight.</i></div></div><div><div>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</div></div></div>	<div><div><div>Battery</div><div><i>A pair of Poultergeist D-Cell batteries.</i> <i>Perfect for powering a ghost-scaring flashlight.</i></div></div><div><div>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</div></div></div>

<p>Battery</p> <p><i>A pair of Rayodrac D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>	<p>Battery</p> <p><i>A pair of Rayodrac D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>	<p>Battery</p> <p><i>A pair of Rayodrac D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>
<p>Battery</p> <p><i>A pair of Rayodrac D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>	<p>Battery</p> <p><i>A pair of Rayodrac D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>	<p>Battery</p> <p><i>A pair of Booracell D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>
<div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div>	<p>Battery</p> <p><i>A pair of Booracell D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p>	<div> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p> </div> <p>Battery</p> <p><i>A pair of Booracell D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p>

<p>Battery</p> <p><i>A pair of Booracell D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p>	<p>Battery</p> <p><i>A pair of Booracell D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p>	<p>Battery</p> <p><i>A pair of Poltergeister D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p>
<p>Battery</p> <p><i>A pair of Poltergeister D-Cell batteries. Perfect for powering a ghost-scaring flashlight.</i></p> <p>Remove a ghost in your room or a room you could enter if it didn't have ghosts in it. Collect a sheet.</p>	<p>Clockwork Key</p> <p><i>The master probably won't notice you messing with the alarm clock.</i></p> <p>If you are in the Master Bedroom, you may turn the clock back half an hour.</p>	<p>Clockwork Key</p> <p><i>The master probably won't notice you messing with the alarm clock.</i></p> <p>If you are in the Master Bedroom, you may turn the clock back half an hour.</p>
<p>Clockwork Key</p> <p><i>The master probably won't notice you messing with the alarm clock.</i></p> <p>If you are in the Master Bedroom, you may turn the clock back half an hour.</p>	<p>Clockwork Key</p> <p><i>The master probably won't notice you messing with the alarm clock.</i></p> <p>If you are in the Master Bedroom, you may turn the clock back half an hour.</p>	<p>Clockwork Key</p> <p><i>The master probably won't notice you messing with the alarm clock.</i></p> <p>If you are in the Master Bedroom, you may turn the clock back half an hour.</p>

<div><div>Fall Back</div><div>Is it really that time again?</div><div>Turn the clock back one hour.</div></div>	<div><div>Surge Protector</div><div>These would help Frank quit a lot easier if they didn't break after just one use.</div><div>Place this card next to Frank. The next time he would move, discard this card instead.</div></div>	<div><div>Surge Protector</div><div>These would help Frank quit a lot easier if they didn't break after just one use.</div><div>Place this card next to Frank. The next time he would move, discard this card instead.</div></div>
<div><div>Dead Batteries</div><div>You were never sure how you were supposed to dispose of these.</div><div>Put this in your room. If Frank moves, he goes here instead of to a player. When he reaches it, discard this.</div></div>	<div><div>Dead Batteries</div><div>You were never sure how you were supposed to dispose of these.</div><div>Put this in your room. If Frank moves, he goes here instead of to a player. When he reaches it, discard this.</div></div>	<div><div>Disco Ball</div><div>For a moment, disco rises from its grave and hungers for new victims.</div><div>Pick a room. All ghosts here are defeated, but you don't get any sheets for it.</div></div>
<div><div>Too Much Coffee</div><div>Ofcoursel'mfinebocouldI notbeI'mfullofenergyandI feelgreat!</div><div>Take three additional actions this turn.</div></div>	<div><div>Too Much Coffee</div><div>Ofcoursel'mfinebocouldI notbeI'mfullofenergyandI feelgreat!</div><div>Take three additional actions this turn.</div></div>	

<div>Book Return</div> <div>Yeah, I found one of your books. It was in that other room. The one far away from us.</div> <div>Move the witch to any explored room.</div>	<div>Book Return</div> <div>Yeah, I found one of your books. It was in that other room. The one far away from us.</div> <div>Move the witch to any explored room.</div>	<div>Sack of Marbles</div> <div>Careful with that! Someone could trip and fall.</div> <div>Put this in a room. The next time the witch or Frank enters it, they stop and do nothing else. Discard this card.</div>
<div>Sack of Marbles</div> <div>Careful with that! Someone could trip and fall.</div> <div>Put this in a room. The next time the witch or Frank enters it, they stop and do nothing else. Discard this card.</div>	<div>Just a Shadow</div> <div>See? There wasn't anything to be scared of.</div> <div>Immediately discard any Misfortune card after it is drawn on any turn. This does not cost an action.</div>	<div>Just a Shadow</div> <div>See? There wasn't anything to be scared of.</div> <div>Immediately discard any Misfortune card after it is drawn on any turn. This does not cost an action.</div>
<div>Just a Shadow</div> <div>See? There wasn't anything to be scared of.</div> <div>Immediately discard any Misfortune card after it is drawn on any turn. This does not cost an action.</div>	<div>Just a Shadow</div> <div>See? There wasn't anything to be scared of.</div> <div>Immediately discard any Misfortune card after it is drawn on any turn. This does not cost an action.</div>	

<p>Break Time</p> <p><i>I think I've earned it.</i></p> <div> <p>The Witch's movement is canceled. You can play this after she rolls. This card does not cost an action.</p> </div>	<p>Break Time</p> <p><i>I think i've earned it.</i></p> <div> <p>The Witch's movement is canceled. You can play this after she rolls. This card does not cost an action.</p> </div>	<p>Lucky Find</p> <p><i>Look what I found under the couch cushions!</i></p> <div> <p>You may draw cards until you reach your hand limit, or you can let everyone draw one, including yourself.</p> </div>
<p>Lucky Find</p> <p><i>Look what I found under the couch cushions!</i></p> <div> <p>You may draw cards until you reach your hand limit, or you can let everyone draw one, including yourself.</p> </div>	<p>Hoard</p> <p><i>Can you believe they just left this lying there?</i></p> <div> <p>You may draw cards until you reach your hand limit.</p> </div>	<p>Hoard</p> <p><i>Can you believe they just left this lying there?</i></p> <div> <p>You may draw cards until you reach your hand limit.</p> </div>
<div> <p>Place this card next to Frank. The next time he would move, discard this card instead.</p> </div>	<p>Surge Protector</p> <p><i>These would help Frank quit a lot easier if they didn't break after just one use.</i></p>	<p>Surge Protector</p> <p><i>These would help Frank quit a lot easier if they didn't break after just one use.</i></p> <div> <p>Place this card next to Frank. The next time he would move, discard this card instead.</p> </div>



Action



Action



Action



Action



Action



Action



Action



Action

Frank Lurches

Frank the Monster really gets a charge out of his battery collection

Move Frank 2 rooms closer to the player with the most batteries that he can reach.

Frank Lurches

Frank the Monster really gets a charge out of his battery collection

Move Frank 2 rooms closer to the player with the most batteries that he can reach.

Frank Lurches

Frank the Monster really gets a charge out of his battery collection

Move Frank 2 rooms closer to the player with the most batteries that he can reach.

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Frank Lurches

Frank the Monster really gets a charge out of his battery collection

Move Frank 2 rooms closer to the player with the most batteries that he can reach.

Frank Shambles

Frank the Monster is an awful lot faster when he's not holding his arms straight out in front of himself.

Move Frank 3 rooms closer to the player with the most batteries that he can reach.

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Frank the Monster is an awful lot faster when he's not holding his arms straight out in front of himself.

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Frank Shambles

Frank the Monster is an awful lot faster when he's not holding his arms straight out in front of himself.

Move Frank 3 rooms closer to the player with the most batteries that he can reach.

Frank Charges

*Frank the Monster charges.
So do batteries.
Just in different ways.*

Move Frank 4 rooms closer to the player with the most batteries that he can reach.

Frank Charges

*Frank the Monster charges.
So do batteries.
Just in different ways.*

Move Frank 4 rooms closer to the player with the most batteries that he can reach.

Spring Forward

It's that time of the year again.

Move the clock
forward one hour.

15 Minutes Fast

*You'd think someone who could
afford mansion could afford a
clock that worked properly.*

Move the clock
forward 15 minutes.

15 Minutes Fast

*You'd think someone who could
afford mansion could afford a
clock that worked properly.*

Move the clock
forward 15 minutes.

15 Minutes Fast

*You'd think someone who could
afford mansion could afford a
clock that worked properly.*

Move the clock
forward 15 minutes.

15 Minutes Fast

*You'd think someone who could
afford mansion could afford a
clock that worked properly.*

Move the clock
forward 15 minutes.

A Lost Book

*The witch takes her job as the
librarian very seriously. Is
there an overdue book behind
you? She'll find out.*

Roll the die. The witch
visits that room and
teleports anyone
inside.

A Lost Book

*The witch takes her job as the
librarian very seriously. Is
there an overdue book behind
you? She'll find out.*

Roll the die. The witch
visits that room and
teleports anyone
inside.

A Lost Book

*The witch takes her job as the
librarian very seriously. Is
there an overdue book behind
you? She'll find out.*

Roll the die. The witch
visits that room and
teleports anyone
inside.

Pile of Books

Somewhere in that pile of books is one that the Witch has been looking for.

Roll the die twice. The witch visits those rooms in that order and teleports anyone inside.

Pile of Books

Somewhere in that pile of books is one that the Witch has been looking for.

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Pile of Books

Somewhere in that pile of books is one that the Witch has been looking for.

Roll the die twice. The witch visits those rooms in that order and teleports anyone inside.

A Lost Book

The witch takes her job as the librarian very seriously. Is there an overdue book behind you? She'll find out.

Roll the die. The witch visits that room and teleports anyone inside.

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The witch takes her job as the librarian very seriously. Is there an overdue book behind you? She'll find out.

Roll the die. The witch visits that room and teleports anyone inside.

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Somewhere in that pile of books is one that the Witch has been looking for.

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Pile of Books

Somewhere in that pile of books is one that the Witch has been looking for.

Roll the die twice. The witch visits those rooms in that order and teleports anyone inside.

Encyclopedias

The witch needs to look something up, but these books are scattered all over. She'll have to look long and hard.

Roll the die three times. The witch visits those rooms in that order and teleports anyone inside.

Encyclopedias

The witch needs to look something up, but these books are scattered all over. She'll have to look long and hard.

Roll the die three times. The witch visits those rooms in that order and teleports anyone inside.

Overdue Book

You accidentally pick up the wrong thing. The witch heads straight for you to put it back where it belongs.

The witch immediately visits the room you are in and teleports anyone inside.

Dinner for Two

This mansion is filled with ghosts. As night draws closer, they start to come out in force.

Roll twice to place new ghosts instead of once.

Dinner for Two

This mansion is filled with ghosts. As night draws closer, they start to come out in force.

Roll twice to place new ghosts instead of once.

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This mansion is filled with ghosts. As night draws closer, they start to come out in force.

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Roll twice to place new ghosts instead of once.

Dinner for Two

This mansion is filled with ghosts. As night draws closer, they start to come out in force.

Roll twice to place new ghosts instead of once.

Table of Three

This mansion is filled with ghosts. You don't know what they want, but you know they're spooky.

Roll three times to place new ghosts instead of once.

Table for Three

This mansion is filled with ghosts. You don't know what they want, but you know they're spooky.

Roll three times to place new ghosts instead of once.

Table for Three

This mansion is filled with ghosts. You don't know what they want, but you know they're spooky.

Roll three times to place new ghosts instead of once.

Table for Three

This mansion is filled with ghosts. You don't know what they want, but you know they're spooky.

Roll three times to place new ghosts instead of once.

Party of Four

This mansion is filled with ghosts. A lot of them are coming you. If you aren't careful, it could get crowded.

Roll four times to place new ghosts instead of once.

Party of Four

This mansion is filled with ghosts. A lot of them are coming you. If you aren't careful, it could get crowded.

Roll four times to place new ghosts instead of once.

Ghost Dog

But he followed me home!

Put a ghost under your pawn. This ghost follows you around.

Slippery Floor

Someone should have put up those little yellow signs.

Discard one of your cards.

Slippery Floor

Someone should have put up those little yellow signs.

Discard one of your cards.

Invisible Man

Hey! Where'd my collection of random junk go?

Discard all of your action cards.

Invisible Man

Hey! Where'd my collection of random junk go?

Discard all of your action cards.

Pandora's Box

I bet there's candy inside.

Move Frank 2 spaces,
move the witch once,
and move the clock 15
minutes forward.

A Strange Chill

*You get a bad feeling
about this.*

All players discard one
action card unless you
discard your entire
hand.

A Strange Chill

*You get a bad feeling
about this.*

All players discard one
action card unless you
discard your entire
hand.

Deja Vu

Didn't that just happen?

The most recently
activated Misfortune
card happens again.



Guest Room

1

Flip: Lose all remaining actions. On your next turn, you have zero actions.

Guest Room

2

Flip: Lose all remaining actions. On your next turn, you have zero actions.

Guest Room

3

Flip: Lose all remaining actions. On your next turn, you have zero actions.

Guest Room

4

Flip: Lose all remaining actions. On your next turn, you have zero actions.

Bathroom

5

Enter: This room has a secret passage. You may use an action to instantly move to any other room with a secret passage.

Bathroom

6

Enter: This room has a secret passage. You may use an action to instantly move to any other room with a secret passage.

Bathroom

7

Enter: This room has a secret passage. You may use an action to instantly move to any other room with a secret passage.

Laboratory

8

Flip: Place Frank in this room. Discard all your batteries. Take the Misfortunes discard pile and reshuffle it back into the Misfortunes deck

Master Bedroom

9

Flip: Everyone discards one Action card, or you discard all of your Action cards.

Enter: Clockwork keys may be used here.

Library

10

Flip: Place the Witch here. Go to any unexplored room. If every place is explored, roll for the room. Shuffle the Misfortunes discard pile back into the Misfortunes deck.

Lunarium

11

Flip: Roll the die. If it is 1-10, draw a Misfortune card. If it is 11-20, draw an Action card.

Enter: You may spend an action to perform the Flip action described above.

Kitchen

12

Enter: This room has a dumbwaiter. You may spend an action to give a card to anyone in a room with a dumbwaiter.

Dining Room

13

Enter: This room has a dumbwaiter. You may spend an action to give a card to anyone in a room with a dumbwaiter.

Conservatory

14

Flip: Draw an Action card and a Misfortune card.

Storage Closet

15

Flip: Lose all your actions, but draw an Action card.

Enter: You may spend an action to draw an Action card in addition to your normal draw.

Indoor Pool

16

Enter: This room costs two Actions to leave.

Parlor

17

Flip: You gain one more action this turn.

Aviary

18

Flip: Discard an Action card and draw a new one.

Enter: You may perform the Flip event once per turn. This does not cost an action.

Gymnasium

19

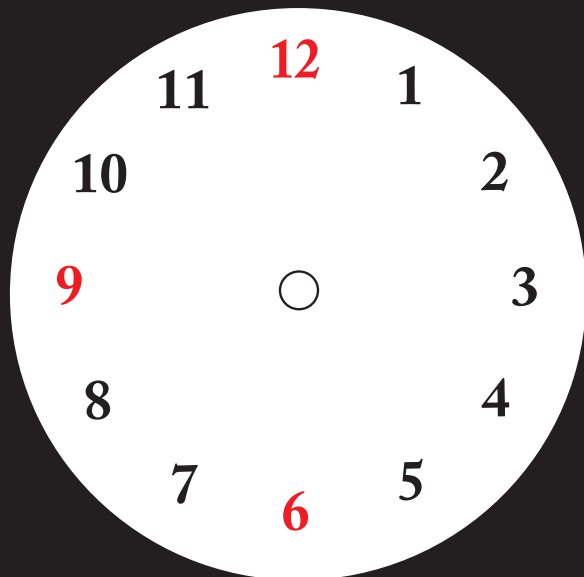
Enter: If you begin your turn here, you gain one free Action that can only be used to move.

Garage

20

Flip: Go to any room of your choice. You can discover a new room this way.

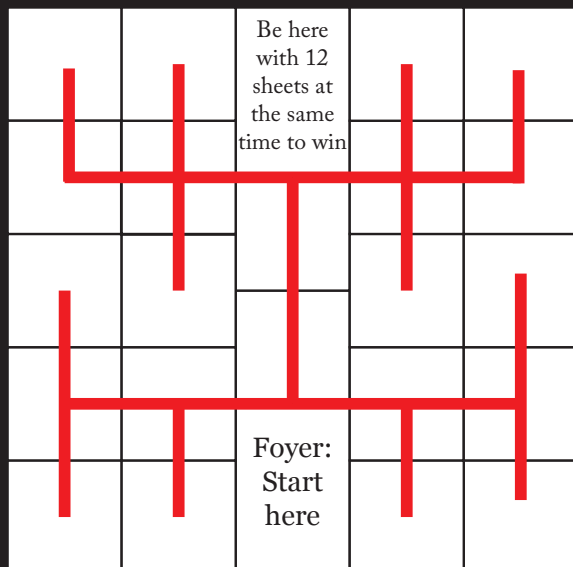
Foyer



Turn Order

- 1) Take Three Actions
- 2) Draw Misfortunes
 - Before 6:00 - Draw One
 - 6:00 Until 9:00 - Draw Two
 - 9:00 Until Midnight - Draw Three
- 3) Roll for Ghosts

Routes



Upstairs Hall

Sheet 1

A good start!

Sheet 2

Sheet 3

Sheet 4

Sheet 5

Sheet 6

You're halfway there!

Sheet 7

Sheet 8

Sheet 9

Sheet 10

Sheet 11

Sheet 12

Get everyone over here and everyone wins!