Travis Moore

GAT211—Fall 2014

Instructor: Jeremy Holcomb

Lab Report 1

Build 3 Combat Systems

Table of Contents

**Lab Report 3 – 8**

Combat System 1—Deck Wars 3 – 5

Intention 3

Math 3 – 4

Playtesters 4

Playtesting 5

Combat System 2—Kung Fu Madness 6 – 7

Intention 6

Math 6 – 7

Combat System 3—Drunken Boxing 8 – 9

Intention 8

Math 8 – 9

Combat System 1—Deck Wars

Intention

The combat system that I brought for lab utilizes a custom designed deck of cards that both players must use to both defend and combat one another. The idea for this combat system is that you want to force your opponent to run out of cards before you do. However, the way you attack and defend is by playing cards from your hand.

The cards in this game are both the hit points and the ability to attack and defend. I thought that this might make for an interesting mechanic because you need to carefully use hit points to win the game. This game only uses a custom deck, so the hit points, attack, and armor are represented on the cards with no way of defense, or attack avoidance, provided in the game.

When creating the deck I made it so that each card has both an attack and armor value. I tried my best to make the cards balance in their attack and armor values. For example, if a card had "Attack 3" it would have only an "Armor 1". I was not sure how this game would play out as far as the turns goes, so I thought it could work well as a simultaneously played turn or one player attacks and the other player defends. When a player's armor does not meet or exceed their opponent's attack, then the opponent gets to discard cards equal to the difference between the attacks minus the armor from the player's hand. This aspect of the game acts like a randomizer where the player can lose a really good card if their opponent picks the right card to discard. It is my hope that this will give both equal weight to attacking and armor in the game. This is something I was hoping would come through during the playtesting.

Math

"Deck Wars" has 30 cards in total with a breakdown that consists of:

* 3 "Attack 3/Armor 1" cards
* 3 "Attack 3/Armor 0" cards
* 4 "Attack 2/Armor 3" cards
* 4 "Attack 2/Armor 2" cards
* 4 "Attack 2/Armor 1" cards
* 4 "Attack 1/Armor 2" cards
* 4 "Attack 1/Armor 1" cards
* 3 "Attack 0/Armor 3/Draw 2 Cards" cards
* 1 "Attack 0/Armor 0/Swap Hands" card

Because the game is played with cards, the probability of drawing any one card from the deck varies with every card drawn or used. However, the probabilities of drawing any one card from the deck with all cards available in the deck are as follows:

|  |  |
| --- | --- |
| Card Type | Probability |
| "Attack 3/Armor 1" | 3/30 or 10% |
| "Attack 3/Armor 0" | 3/30 or 10% |
| "Attack 0/Armor 3/Draw 2 Cards" | 3/30 or 10% |
| "Attack 0/Armor 0/Swap Hands" | 1/30 or 3.3% |
| "Attack 2/Armor 3" | 4/30 or 13.3% |
| "Attack 2/Armor 2" | 4/30 or 13.3% |
| "Attack 2/Armor 1" | 4/30 or 13.3% |
| "Attack 1/Armor 2" | 4/30 or 13.3% |
| "Attack 1/Armor 1" | 4/30 or 13.3% |

The purpose behind this deck is meant to make strong "Attack 3" cards less prevalent with only a 20% chance of being drawn, while the more common "Attack 2" and "Attack 1" cards making up the bulk of the deck at 66.7% of the deck. The last card probabilities are the "Draw 2 Cards" at 10% and "Swap Hands" at 3.3%. These cards are meant to be special and add to the luck of the player who is able to get one, so the low chance of drawing them is meant to offset how strong they can be.

Playtesting

Classmates from the GAT211 participated as first-time players for the combat system that I brought to lab.

**Name: Email:**

* Jason Guelbert j.guelbert@digipen.edu
* Berne Capone [charlesberne.capone @digipen.edu](mailto:g.huxtable@digipen.edu)

Playtesting

I was lucky enough to have Jason and Berne playtest my combat system. I have had them as playtesters before, and they have always provided great feedback. On top of that, they have a way of getting immersed into games easily if they seem to work right. For the first play through of "Deck Wars" I decided to have them play in turns where one player would play a card as attack, while the other plays a card to defend.

This playtest worked, but it became clear that the system did not offer much real choice. Both Jason and Berne agreed that the game was simply a "play your best card" for both attack and defend. There was some success from the card types though, as Jason was able to use a "Draw 2 Cards" to recover some hit points when it looked like he would lose. However, Berne ended up winning the game. Both players liked being able to randomly pick cards from each other's hands to discard upon successfully attacking, but the game was not as interesting as I had wanted it to be.

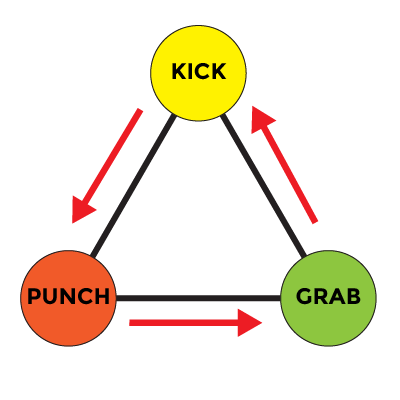
The second playtest between Jason and Berne had the cards playing double-duty as both attack and defense. At the same time, both players would play a card to attack and defend in the same turn. This way of using the combat system was much more effective. While they both agreed that it gave them more to think about, the makeup of their hands played a huge part in what card they would decide to play. Jason ended up winning this game by fooling Berne into using all his good cards, then swapping hands with him. Jason liked this mechanic, but it did seem rather unfair.

Overall, this combat mechanic worked better as a simultaneously played combat, rather than an attack/defend turn-based mechanic. If I were to expand upon this game further, a better card balance throughout the deck would need to be developed and playtested further.

Combat System 2—Kung Fu Madness

Intention

"Kung Fu Madness" is my take on a sort of "Rock, Paper, Scissors" combat mechanic that uses all combat mechanics discussed in class: Attack, Defense, Damage, Armor, and Hit Points. The idea behind this game is to make a card and dice game that involves kung fu moves with cards and damage dealt with dice. The game has 3 types of cards: Kick, Punch, and Grab. These cards work like "Rock, Paper, Scissors" in that Kick beats Punch, Punch beats Grab, and Grab beats Kick.



Turns start with players rolling a d6 to see how many kung fu moves are made. Players then draw cards equal to the die roll and plan in what order they want to play their moves. Each player lays out their cards in sequential order and when both players are ready, they reveal their cards one-by-one to see what moves each other made. Each player adds up how many times they were able to hit their opponent. The player with the most hits will roll 2 d6 to see how much damage they did, while the other player with the least hits rolls 1 d4 to block as much damage as possible. The damage done to the defender is the difference between the attacker's d6 roll and the defender's d4 roll. If the defender's d4 is equal to or higher than the attacker's d6 roll then no damage is done. The first player to inflict 10 hit points of damage to their opponent wins!

Math

The math behind "Kung Fu Madness" is dependent upon the number of "Punch", "Kick", and "Grab" cards in the deck and the die rolls made throughout a game. I would imagine that this game would probably consist of an equal probability of "Punch", "Kick", and "Grab" cards at 33% each because I do not see any real reason to have more of one card than another. The likelihood of any one card being placed in any one spot of the combat sequence is so variable, due to the nature of drawing cards from a deck and the player's decision of what cards out of all their cards that they have drawn they will play. Because of this, I am at a bit of a loss to how the math would work for the cards.

The reasoning behind the dice decisions for attacking with a d6 and defending with a d4 is to give the attacker a bit of an advantage for winning the combat. The average die roll for a d6 is 3, edging out the average die roll for a d4 of 2. This should mean that the attacker should be able to hurt the defender more often than the defender is able to block all damage, but there is still a chance that the defender might block some damage.

Combat System 3—Drunken Boxing

Intention

While my first three combat systems primarily used cards, "Drunken Boxing" has the players using dice. The idea behind drunken boxing is that each player is playing a boxing coach who must decide whether to sober up their boxer or make their boxer drink more in-between 5 rounds of boxing.

Choosing to have your boxer drink upgrades the one of the 2 dice from its current die to a die with a higher value, for example:

d4 -> d6 -> d8 -> d10 -> d20

Choosing to have your boxer sober up, drops one of your boxer's 2 dice down from its current die to a die with a lower value, for example:

d4 <- d6 <- d8 <- d10 <- d20

Each player starts out with 2 d6 as their boxer and rolls these dice together during a boxing round. Each die throw is compared between boxers and the boxer with the higher dice throw wins as long as the added difference between the two throws is less than the maximum total value of the losing player's two dice. For example:

Boxer 1 has a d4 and a d4 meaning that Boxer 2 can only win by a max 8  
Boxer 2 has a d6 and a d10 meaning that Boxer 1 can only win by a max 16

If Boxer 1 rolls a 5 and Boxer 2 can win if he rolls a 6 through 13. If Boxer 2 rolls higher than a 13 it beats Boxer 1 over the max of 8, meaning that Boxer 1 will win. The first person to win 3 out of the 5 rounds wins.

Math

Because this game involves dice, there is a lot more math involved with this game. The decision to either higher or lower your dice is highly dependent upon what dice your opponent has. It can benefit you to have higher dice or lower dice if you want to either win rounds by having the higher die roll or by forcing your opponent to go over the maximum total value threshold. I'm not going to lie, this kind of math is a little lost on me, but I do know that the average die rolls for a d4, d6, d8, d10, and d20 are 2, 3, 4, 5, and 10, respectively. With this knowledge, you can apply a simple expected outcome for you and your opponents dice. This should allow you to make a fair assumption of what you and your opponent can roll in any given dice acquisition. This being said, there is a certain amount of luck with dice, so it is still possible to be wrong due to having a bad dice throw.