

I love game design. I believe it to be the great art of our times, combining the wonders of imagination with the precision of mathematical technique. And, fortunately enough, technology has made it so that anyone with enough interest can create their own games for very low budgets. Actually, with a 1000 USD budget you can (almost) simply buy the pieces of your game, and just work on putting them together. Or go the open source way and search the web until you find a solution to a reasonably similar problem and adapt from there.

From this amount of freedom, the question of game design becomes more relevant. Having the option to do almost anything, you really have to start thinking what is it that you really want to do (after all, creating a game does take huge amounts of time, so you better spend that time well). So I decided I want to give a shot at creating a CCG (Collectible Card Game).

There are many reasons why CCG/TCG games are attractive, but the one that convinced me is that it represents a perfect platform to implement many of the principles of game design, in a discreet stable model, that allows you to better visualize the impact of design choice on the actual game play.

During its creation, I will be writing about the process, mainly because it helps me put my ideas in order, but also, because there seems to be a sort of void surrounding the subject, especially from a game design perspective; maybe someone else will benefit from the experience.

So I will focus on how I understand game design ideas to implement a CCG, as well as the workflow I used to develop it. Lets begin!

Let me tell you a little bit more about the game. Its basic mechanics resemble a game called *Sanctum* (although I didn't know of it's existence when I thought of doing this) and it comes from my early passion for RPG and *Magic: The Gathering*. In "Mages" (that's the unofficial name of the game) you play a mage in a hexagonal grid based world, In what you'd expect of a standard RPG. You have shops, and missions and encounters, but... THERE IS NO LEVELING SYSTEM. Sure, creatures leave loot and resources, but no XP!. Wait, what? An RPG with no Levels? And wasn't this supposed to be a CCG and not an RPG? Ok... you are right. The secret lies in the combat system. When you start a battle, you have access to your "Book of spells", or, from the game design perspective, a deck of cards that you can use to defeat your enemy. 50% of the strategy of the game, lies in correctly choosing which spells you have. Hence: no levels. You are as good as you deck building abilities. So, for now, forget about the RPG thing I said, and let's focus on building a good combat mechanic.

The whole idea of removing the level system is that we don't separate the player base making it boring for experienced to kill newbies and frustrating in the other direction. In this same sense, we don't want paying players to simply crush the ones playing for free (notice how marketing strategies start playing a role from the early designs of the concept). We want the biggest possible player base, because the richness of the experience of the game comes from playing against the wits and trickeries of other players. This in turn means, that balancing the decks must be done in such a way, that a basic deck is not simply overruled by an expensive one. The enjoyable experience comes not from the differences in the strength of the decks, but on their variability. **Players should be able pick their own unique way of playing.** And the game should be fun even if you don't spend a dime.

So, lets work this idea towards a prototype. Ohhhh. Before that... Research. My workflow is Research -> Prototype -> Minimum Viable Product -> and ... we will cross that bridge when we get there. So, before even started thinking of this, I played a lot of CCG's, anything from Dominion, Chez Geeks, Munchkin and of course, Magic. And then I went and looked some more in the Internet, and founded things like Sanctum or Dengen Chronicles. Research is a tow sided activity: on one hand, it gives you an idea of what can be done, on the other it tells you what has already been done. And, to avoid the tendency of game creation as a copy/paste or clone activity and do some actual game design, we want to create something new. So when doing research I'm always considering: could I do this? Does this choice in mechanics improved gameplay? What consequences, what messages, what ideas where behind such and such decision? You then take the elements that you find that fit better with your scheme, and start your way up. I will try to mention how and when I used this references and the design reasons behind them. Magic will be mentioned many times, because it's the most popular and studied system, but I will also try to explain why some of the things we see in many CCG games repeatedly are not mere copies of the Magic Rules, but general solutions to the problems presented in CCG by their own nature.

Ok, so for the prototype we are looking for a very diverse set of spells that can be balanced and used in an RPG style game. The most obvious solution is creatures. You are a mage, and you summon RPG-like creatures. Lets start with that. What we need to do, is find a way to balance the properties of the creatures so that no matter how distinct they appear, their more or less equally useful. The principle here is variability and balance.

These properties we are going to balance depend on the rules of engagement, and in order to introduce such rules, we need to realize where the true potential of CCG game play lies: since cards are made by "combining" properties that originally complied with the rules, the combination of cards should comply with the same set of rules. But the combination space is huge, so that means that we get a lot of depth in the game, for a reasonably small complexity. So, ideally we are looking for the simplest set of rules that allows a very deep experience. In fact, for the prototype, we are looking to just build the simplest set of rules that show the game play at work. Further more: computer games **can't break the rules**. When thinking about Magic, part of it's charm it's that it "alters the rules". It uses players ability to interpret code and overrides its own manual. To do thin in code, what you do is that you create the set of rules that the computer follows, and then you tell the player a different version of the rules, so that he thinks that the card broke the order. But every "violation to the code" has to be permitted in the script. So, for our prototype, and probably for the whole game, I will use the rules that the player knows, even if this means the "no breaking the rules" policy. If we manage to make it diverse enough, we wont miss this part of gameplay.

Now, to some basic rules:

1) A player wins when the opponent has 0 life.

2) Creatures basic properties are:

Life (L): How much damage it can take.

Movement (M): how many hexagons can it advance in one turn.

Range (R): What is the possibility that his attack hits someone in a specified tile of the grid (Meele typed creatures only hit close, while Ranged creatures only hit far)

Attack (A): A value that adds to the range

Defense (S): If opponents  $\text{Range} * \text{Attack} < \text{Defense}$ , then the hit is missed.

Damage (D): If attack is successful, how much life does it take away.

Of course there are many ways to model RPG combat, but I think this is a bare-bone version that can work.

So, the question is how much powerful is a creature that has 2L,2M,2R,2A,2S,2D, from one that has just 1L1M1R1A1S1D (hope the notation is clear). They are definitely different, but for how much? What we need to build is a sense of distance between different cards, or, as mathematicians call it: METRICS. We are going to build a number to measure this, and we are going to call it the cost of a card.

In order to balance a powerful creature with a small one, the big one has to be more difficult to acquire. And here, Magic's mana system works like a charm. By pacing the access that the player has to mana, the importance of cheap spells increases, because it can give you a head start advantage in the early stages of the games, while at the same time, it provides the game different stages with different types of strategies. There also needs to be a moment where resources stop coming in, a way to promote progression and limit the time spend in each battle. The details are yet unclear to me, but I will need to address this somewhere along the line.

So, in my game, I will also use an economy system where access to resources increases in time, but I will greatly simplify it. Each turn, you get a colorless mana, or chi, or energy (haven't decided on a cool name yet). So, yes, no colors in the energy. What? An RPG with no leveling system? A game about mages with no colors? Well, not exactly. Will get there. Lets focus on the prototype for now.

So, in the same spirit of increasing low cost spells, creatures with low cost, should have high speed. You see, in Magic creatures are always ready to attack, no matter the position of the opponent, but in our RPG version, the map plays a role. So, if you cast a chap creature, but by the time it gets to the opponents side of the board, he finds a very big creature, then that unit was almost useless. If the speed of the cheap creatures is sufficiently large, then they will enter and resolve conflicts before the big troupes can arrive, give a sence of having tow acts. We'll see if we manage this. So  $\text{Cost} = 1 / \text{Movement}$  (Roughly. That 1 will maybe become some other number, but you get the idea). Cool! The first original metric of the system.

Now, back to why CCG are so amazing, I love that most of the strategy comes before the match, but during the match you still have tons of tactical decisions to make. And I think that a flexible gameplay should allow you to adapt the strategic decisions you made with tactics that respond to your opponent's style of play. Hence, a big question: Fog of war or not??? If you can see the whole map, then you can instantly adapt to what the other player just did, which seems good, but on the other hand, if you are being watched, it becomes more difficult to develop more long term plans. In the end, I think I'll go for a FoW with scouts (low cost, high speed 0/0 creatures), which may add a sort of Strategy game element to it. Maybe down the road this turns out to be a bad choice, but I have to

start somewhere. I'll try to rely as little as possible in this feature (at least for the prototype) because this is one of the questions that maybe should be resolved at early stages of testing.

Now, another thing which can have a huge impact and I need to solve is turn structure. If each player controls 10 creatures, and one player is allowed to move all his creatures at the same time, then the advantage of playing first is huge, and it only increases over time: the more creatures, the bigger the advantage. So maybe there is a queue, where there is one creature from the player, and the one from the opponent, and then another from the player and so on. I remember enjoying the final fantasy tactics system (with the time mage) but I'm not sure this is what is needed. Another interesting possibility is that each player gives instructions to all its units, and then when both players have submitted their instructions, they all execute "at the same time" (with some rules to resolve conflict like: if to units try to occupy the same space, then cancel the movement, or something like that). I played this system a lot in a game called Roborally and it gives very chaotic results very quickly. Plus, the order in which the orders are placed, their priority, becomes really important. And, although I like the fact that you work without knowing what your opponent is going to do, maybe all of this goes against the whole depth/complexity theme. Maybe, the solution is breaking the board turn based pattern and transforming this into a RTS??? After all, in gameplay we are amassing units and using them to fight the enemy's army. Although an RTS-CCG mash up sounds like a very interesting idea, the fact that well balanced RTS rely on the skill of players to make game progression, but this naturally divides the player base, which is the first thing we said we didn't want to do. But, hey, maybe for a future project. What is important is to realize that we can conceptualize the basic RPG fighting systems for multiple units, essentially as a very slow RTS, so we can import lessons learned from RTS into the turn based game.

For the prototype I will go for hybrid between the simultaneous order and the queue: turn is divided into phases, and in each phase, players choose what to do, and then this is executed simultaneously. In a first approach the turns will be divided in: Spawning -> movement -> special phase I will explain later -> attack->modify ->spawn.

For now, turn rules are the biggest design problem.

So, we have a mage that casts creatures that move around the board in turns and fight each other. Good.

So, lets add another metric. This I will call the **Neutral Balanced Line**, and its supposed to give a variety of creatures, which are perfectly (meaning, as best as I can possibly imagine) balanced. We start by our **Most Basic Representative** unit. This is sort of the initial condition, but it does not mean that it is the simplest creature possible. Lets start with a 1/1 (Attack/Defense) 4Speed(depends on the map size) 1Damage, 1 life. Lets make it cost 2 energies. **Ok, now, lets make the metric that any change to these properties equals 1 in cost** (except for the movement. That will be fixed by the cost so we won't change it). So now a 1/2 4S 1D 1L should cost 3 energies, right. But so does the 2/1 4S 1D 1L. And the 1/1 4S 2D 1L.

We are getting variety and balance.

And the scout we discussed earlier should cost -1 (remember a 0/0 high speed 0D 1L), So because we took one from the attack, and one from the defense, and 1 from the damage,  $2-3 = -1$ . Ups... lets try to fix this. First, the damage can be something different than 0. Because the attack is at 0, it doesn't matter how much damage it does, because it

will never hit. So let raise the damage to 1. Maybe some spell or ability changes the creature's attack to 1 and then the damage becomes relevant. And also, let's take high speed and make it higher than the default. Scouts should have a 5Speed. With this, a scout cost 1, which makes him a good candidate to be summoned in the first turns.

Now, every creature that conforms to the **Neutral Balanced Line**, that is, any creature in which the cost equals what the **Most Basic Representative** plus (or minus) the modifications to its parameters will be called a **Common Creature**. For now am only concentrating in summoning spells, but something similar has to happen with other spells like enchantments. We would expect the +1/+1 enchantment to cost 2 energies. Right. All this is going well.

With what we have so far, we can build different decks and start trying them out. Actually, we can do this with paper, pencil and a few seeds. This is important. For me, a well designed strategy game needs to be fun and playable at the board scale, because that means that there is something interesting in the process of taking time to make your choices, so the mechanics are good. This game is not about how fast you move your mouse around the screen (skill) but rather how good the decisions you take are (strategy). But, for now, common creatures are plain and boring. Sure, some run faster than others, and some hit a bit stronger, but they are basically flat templates with no flavor. So here goes my first really big design choice. There will be a set of abilities (much like Magic's flying, defender, vigilance, etc....) which will be attached to creatures, but that are activated only if the creatures are adjacent to a hexagon of a particular color in the map. An example of an ability could be: "This creature gains +1/+0 if it's next to a water tile" Hence, the creatures interact with the map to activate their abilities. And, you as a mage have a very common spell that allows you to turn a tile into a particular color during the special phase I talked about before. Therefore, you not only think what to do with your troops, but you modify the map to create advantage for your troops. Could this work? The idea is that this acts like the colored mana, adding flavor and variety to the mix, but puts it in a different layer, so that you can first balance the creatures, and then worry about the special abilities. Then, I think about it as the Mage throwing an Aura over a specific place to help his creatures fight. If there are 3 conflicts in the board and you can only use this Aura enchantment in one tile, the decision becomes really important. And your opponent is presented with the same choice, so, what is the best alternative? I really think this can become strategically a very intense choice, so this is what I think is the key piece of mechanics that makes this game different to others. So the idea is that you spawn your creatures, march them into battle, enchant certain areas, fight with extra magic, and start over. Ok. I think I have enough to start prototyping now. Let me get my hands into some code.