

Magic System Design Process Document

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Introduction

This document was made to show the creation process of a magic combat system for a third person 3D game. The document has multiple parts:

- Overall concept description
- Research of magic systems and/or quick-time events/skill check in existing games
- Design of Magic System

Concept

The game takes place in a world where music is magical, and where sound in general is the source of life in the world. Magic can be created through several instruments' music. Each instrument has its own powers, with the ability to deal damage, buff the player, de-buff enemies or do other effects such as slowing or stunning.

When the player fights an enemy, they can quickly equip an instrument and cast 1 of 3 spells at a time. Each spell is different but serves the same purpose in terms of its type of power (damage, buff, de-buff etc.).

Casting a spell spends musical genius, which is the primary resource needed (other games may call this resource 'mana').

Every time a spell is cast, the player must perform a 'skill-check' or 'quick time event', which decides how powerful and/or cost-efficient the spell is based on degree of success or failure of the 'skill-check'. The idea is that this skill-check is based around playing notes with the instruments, either at the right time or with the correct notes, where playing the correct melody or at the correct tempo will increase the efficacy of the spell.

Research

To cover all possibilities with conceptualization and prototyping, I want to first look at how existing games have succeeded or failed in creating good magic systems, and secondly to look at how games implement skill checks or quick time events in real time gameplay.

Magic Systems in Games

https://www.reddit.com/r/magicbuilding/comments/iq5be4/a_beginners_guide_to_writing_a_magic_system/

<https://blankmarks.medium.com/designing-a-video-game-magic-system-68139695b6a9>

The Elder Scrolls III: Morrowind (2001)

<https://en.uesp.net/wiki/Morrowind:Magic>

The reason I am analyzing Morrowind's magic system and not the better known The Elder Scrolls V: Skyrim (2011)'s magic system is because the magic system in Morrowind is much deeper and extensive, with a wider variety of spells and spell effects, and customizability through spell creation and a great range of possibilities with enchanting.

This is also one of my favorite games of all time, and I regard it as a masterpiece of game design.

Morrowind's magic system comprises of 3 different types of magic:

- Spells
- Powers
- Enchantments

Spells can be cast by utilizing one of three character resources: Magicka. Spells can be used to damage or affect enemies, enhance oneself or change the world in various ways. More information about spells is analyzed later.

Powers are similar to spells, but do not require Magicka and are dependent on character creation, through the choice of race or birthsigns.

Finally, enchantments allow weapons, armor or artifacts to be magically enhanced through the captured power of a soul trapped inside of a gem.

Since powers and enchantments are currently not relevant to the analysis I want to conduct for this game, I will only look at the spells more extensively.

There are 6 different types of spells which come from different "school" of magic:

1. Destruction

Destruction spells are cast to, as the name suggests, destroy. Destruction spells can deal damage to enemies in different ways, through reducing their health, fatigue, magicka, skills or attribute stats.

Damage can be created through different elements such as fire, frost, lightning, poison or sun damage. Some destruction spells can also drain instead of damage, which can temporarily reduce the amount of health, fatigue, magicka, skill or attribute the enemy has. Destruction spells can also be used as weakness spells, which decrease the target's resistance in various ways. There are also a few more destruction spells which have their own unique characteristics.

2. Restoration

Restoration spells can heal, restore, and fortify attributes and abilities. Restoration spells include cure disease or poison spells, fortification spells for the different attributes and abilities, resistance spells to different effects, and spells which restore health, fatigue, magicka, attributes and skills.

3. Conjunction

Conjunction spells can summon creatures, weapons and armor from Oblivion (basically hell). Many types of daedric (hellish) creatures can be summoned, and daedric armor or weapons can also be summoned to be used by the player for a short time.

4. Alteration

Alteration spells change the world around the caster in various possible ways. For example, doors can be locked or unlocked, and elemental shields can be created. Gravitational effects can also be created, such as levitation or jump spells which allow the target to fly or jump higher, or spells related to encumbrance. Alteration spells also include water breathing, water walking and faster swimming.

5. Illusion

Illusion spells are used to alter the target's vision or perception. This can include spells such as blinding spells, illumination spells, invisibility spells, calming or frenzy spells and more. These spells can be useful for getting out of dangerous situations by creating illusions.

6. Mysticism

Mysticism spells are used to manipulate the world, through teleportation spells, absorption spells, soul trapping spells or telekinesis spells.

All information on Morrowind Spells was found on an Elder Scrolls Wiki:

[https://elderscrolls.fandom.com/wiki/Spells_\(Morrowind\)](https://elderscrolls.fandom.com/wiki/Spells_(Morrowind))

Morrowind Key Takeaways:

The Elder Scrolls III: Morrowind encompasses a variety of types of spells which all have their own functionality.

One thing to recognize is that one player most likely will not use all types of spells in a playthrough of Morrowind. I have noticed in the past how I usually find myself utilizing 1 or 2 spell types when playing the game, such as destruction and restoration, or conjunction and destruction.

Spell types can be put into 2 different categories:

- Primary spells
 - Destruction spells

- Conjunction spells
- Supporting spells
 - Restoration spells
 - Illusion spells
 - Alteration spells
 - Mysticism

A player may do an entire playthrough only using destruction or conjunction spells as their primary combat mechanic. Supporting spells, however, can only really be used as supporting spells, either used a second spell class or paired with melee combat.

The Morrowind magic system is quite good, but sometimes it can feel a little overwhelming, as there are so many spells and so many ways to customize gameplay. This is a good thing in some ways, but can also be a bad thing, as it can throw off players, especially if the magic system is a core feature of the gameplay.

The Witcher 3: Wild Hunt

Information taken from the Witcher Wiki: <https://witcher.fandom.com/wiki/Magic>

The Witcher 3 is a very successful game with a decent fighting system and a varied magic system. Although magic is not only used by witchers in the series, the analysis will primarily look at how magic is used with the Signs from Geralt's perspective in the Witcher 3, as those are the mechanics which are usable by the player in the game.

Spells are cast using Stamina in the Witcher 3, one of the available resources. This makes things interesting, as Stamina is also used to sprint, meaning that spell casting and movement have to be juggled with properly if the player takes an approach of casting and running during combat.

There are 5 Witcher signs, all with their respective purpose. Each sign can be upgraded by the player in various ways.

1. Aard

Description: This sign is used to create telekinetic thrusts in the desired direction. In the Witcher 3, it can be used to push enemies and stagger them, as well as extinguishing fire, opening certain doors, or blasting a damaged wall.

Upgrades:

- Far-reaching Aard – Increases the range of the sign.
- Aard Sweep – The blast strikes opponents in a radius.
- Aard Intensity – Increases the intensity of the spell.
- Shock Wave – The spell deals damage in addition to its current use.

2. Igni

Description: This sign is used to create fire, to burn enemies or repel them. It can also be used to ignite flammable gasses present in the air, potentially creating explosions which can damage enemies.

Upgrades:

- Melt-armor – Reduces the enemy's armor
- Firestream – Creates a continuous stream of fire instead of a short burst.
- Igni Intensity – Increases the spell's intensity.
- Pyromaniac – Increases chance to apply a burning effect to the enemy.

3. Yrden

Description: This sign allows the player to cast magical traps on the ground. If enemies walk onto the trap, the trap triggers a certain number of times and causes knock back, damage and can inflict status effects.

Upgrades:

- Sustained Glyphs – Increases the duration of the sign.
- Magic Trap – Damages, slows and destroys projectiles which go through the trap.
- Yrden Intensity – Increases the intensity of the spell.
- Supercharged Glyphs – Deals damage over time to Vitality or Essence

4. Quen

Description: This sign allows the player to cast a magical shield around themselves. The shield is broken after being hit once, making the hit deal no damage to the player.

Upgrades:

- Exploding Shield – Pushes back opponents when the shield breaks.
- Active Shield – The shield becomes constant and consumes Stamina to block attacks. Damaged absorbed restores Vitality.
- Quen Intensity – Increases the intensity of the spells.
- Quen Discharge – Reflects absorbed damage to the attacker.

5. Axii

Description: This sign allows the player to charm an enemy's mind, stunning them for 7 seconds or until that enemy is harmed. The charm can also be used to calm down a mount's fear level, and during conversations to obtain otherwise unattainable information or special benefits.

Upgrades:

- Delusion – The target does not move towards the player as they are casting the spell. Increases the effectiveness of Axii in dialogues.
- Puppet – The target briefly becomes an ally and deals more damage.
- Axii Intensity – Increases the intensity of the spell.

- Domination – Two opponents can be affected by Axii at the same time, but the effect is weaker.

The Witcher 3 Takeaways:

The Witcher 3 has a variety of spells which accomplish different purposes. There is one primary damage spell, Igni, but other spells can also deal damage through upgrades (all except for Axii). There are spells which enable stunning, slowing, knocking back, allowing for combat creativity, and there is a defensive spell. The Yrden sign can also be used creatively to create space or do effects towards multiple enemies.

One thing to note is that the spell system in The Witcher 3 is used primarily as a supportive tool to the combat in The Witcher 3. Combat is usually mostly done with the swords Geralt carries, and the spells are meant to be complimentary to this melee combat, to add diversity to the gameplay.

When I played the Witcher 3: Wild Hunt, I found myself mostly using the Quen spell, as it synergized quite well with melee combat, and would only use Igni when fighting enemies that were weak to fire. I almost completely ignored Axii and Yrden in combat, as I never deemed them worthy to cast in combat, and scarcely used Aard.

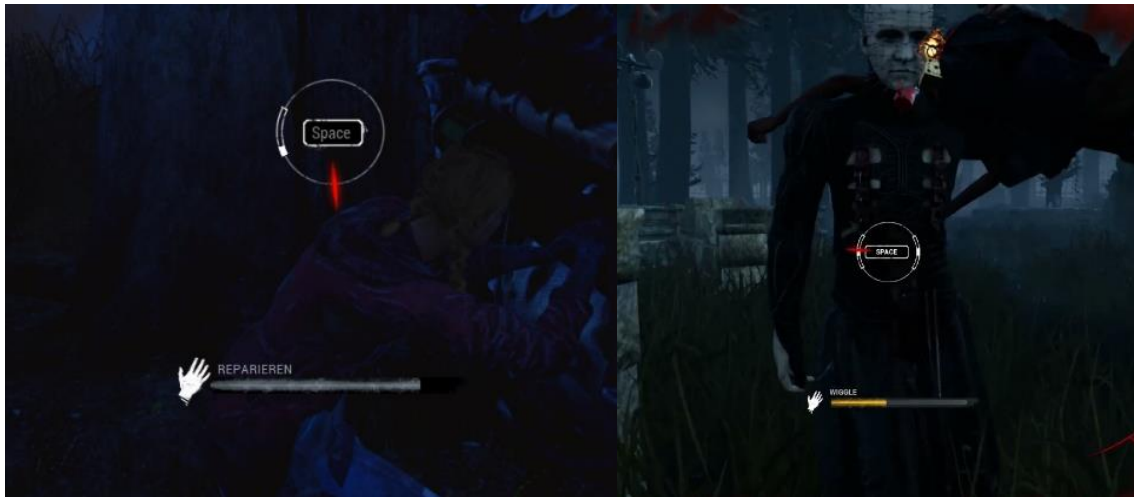
This is not necessarily bad, because the game allows you to choose which branch of spell signs you would like to upgrade, which means that it was probably not intended for the player to always be using all signs.

Skill Checks and Quick Time Events in Games

Dead by Daylight

Dead by Daylight is a multiplayer horror game where 4 survivors play against 1 killer. The 4 survivors must work together by finding generators and repairing them, to eventually open 1 of 2 doors at the edges of the map, allowing them to escape the killer. The killer aims to catch the survivors and kill them before they can escape.

Dead by Daylight is a great example of how to implement a simple mechanic which adds to the gameplay and allows for replayability. Skill checks in DbD require the player to press space bar to land a moving tick at the right spot at the right time. Skill checks happen while repairing generators, healing allies or trying to wiggle out of the killer's hold.



There are 3 possible outcomes from performing a skill check:

1. Succeed the skill check by landing the mark in the outlined box which allows for the player to continue the action they are doing.
2. Succeed and perform the action faster by landing the mark on the very small white filled box which lies inside of the regular success outlined box.
3. Fail the action and alert the killer by landing the mark outside of the success outlined box.

The skill checks add to the gameplay as they make repairing generators more eventful and fun, while adding a sense of skill mastery when players succeed in landing the mark on the white box (a great skill check).

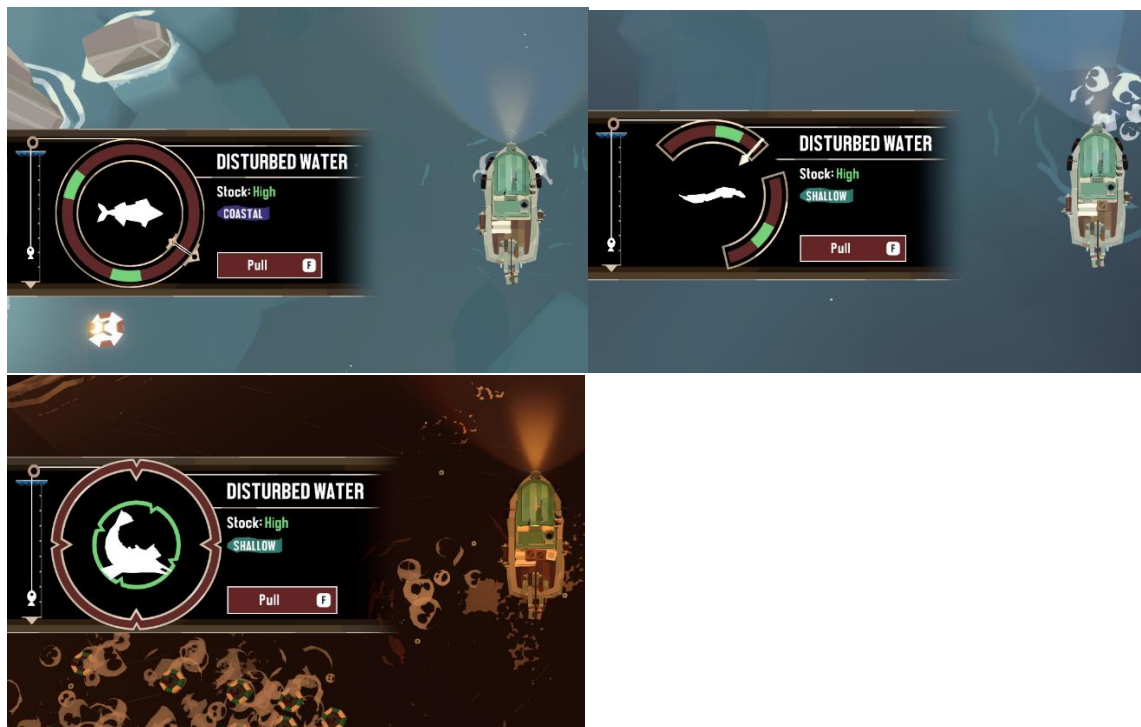
Skill checks also makes the players have to pay attention to 2 things at the same time; looking out for the killer and being ready for random skill checks.

Dredge

Dredge is a fishing game which involves navigating an open world map and catching various fish. Moving and fishing makes time pass, and as the night comes, hostile monsters come out to prey on the player.

Skill checks were added in Dredge in a similar way to Dead by Daylight. While fishing in a school of fish, players have to land a moving marker on the right spots (highlighted by green) to perform the fishing faster.

Pressing F acts as a pull on the fishing rod, and if the player misses the mark by pressing F outside of the green slots, they will gain more fishing time and take longer to finish the job. In contrast to Dead by Daylight, not doing the skill checks at all will not make the players fail, but it will only make them take more time at catching the fish. However, losing time is not a good thing in this game, as it only makes the night come sooner.



The difference between Dead by Daylight and Dredge is that in Dredge, the skill checks are usually the only thing that the player should focus on, unless it is night, and a monster is approaching. The player is also unable to look around while doing the skill checks, which makes them feel like a standalone action.

What makes Dredge stand out is the variety of skill checks and how refreshing and interesting it feels to come across different fish with different skill checks of specific difficulties.

Friday the 13th

Friday the 13th is a game similar to Dead by Daylight, a horror game where survivors must work against a killer to escape the map. Players get skill checks through quick time events when they want to install the battery in the car that will help them escape.

The skill checks are different here, as there are multiple lighter boxes in one whole circle, where each box will require a different key to be pressed. This makes the player have to react in terms of which key to press instead of reacting to when to press a key like in the other 2 games mentioned above.



Metal: Hellsinger

Metal: Hellsinger is a very different type of game, which does not utilize quick time events like in the previous examples of games. This game involves shooting demons while metal music plays in the background. Shooting at the same time as the music's beat increases the damage done to enemies and allows for combos to be performed.



The reason I added this game to the list is because although it is quite different, it fits with the theme of my game's concept and still utilizes skill checks where the player must click buttons at the right time. This requires multi-tasking in a similar way, as the player's success is reliant on shooting enemies while at the same time focusing on the beat of the music.

Metal: Hellsinger also includes different success types based on how close to the beat the player shoots, like how an arcade rhythm game or games like Just Dance would.

Designing a Magic System

General Idea

The magic system I will design and document here is a development of a general design I have created for this idea. This section will only build upon that already existing system and will take inspiration from the research I have done.

The general idea is to have # magical instruments, each with their respective use. Each instrument has 1 main spell which will be upgradable.

Casting a spell starts a small sequence of skill checks, which are driven through rhythm and melody. The player will have to perform the skill checks to determine 2 things:

- The strength of the spell
- The number of resources used (more on this in the next section)

Resource

Musical Genius

The main resource for the game, Musical Genius, will work like mana in other games. Musical Genius works like energy; casting a spell is done by playing a musical melody, requiring Musical Genius, which can be defined as the character's musical inspiration.

Resource Bar

The player has a Musical Genius bar, which is blue in the current prototype version. Musical Genius, or MG, is measured with an integer, and the base amount of max MG a player has in this prototype is 1000. If the player consumes MG, the bar will then visually lower too.

Use of Musical Genius Through Spells

Casting a spell will automatically spend a large portion of MG. Currently, the fireball spell will consume 300 MG. This might seem like a lot, but this only the initial consumption of MG. Subsequent actions can determine how much MG will be used at the end of the spell rotation; if the player hits notes at the correct timing from the skill check sequence, some MG will be refunded to the player.

Currently, the MG refunded per successful note hit is 25 for the fireball spell. The spell casts 5 fireballs, meaning that the player can refund a total of 125 MG, making the spell's total cost 175 MG. With this in mind, the player could cast the spell a total of $1000/175$ rounded down to the nearest integer, so a total of 5 times.

Replenishing Musical Genius

Other than hitting successful spell hits, there will be various ways of replenishing musical genius to the player:

- Killing enemies will drop MG essence, which the player will be able to pick up to replenish some MG.
- Certain potions can be consumed to regenerate MG or to gain temporary max MG, such as the Vial of Chaos.
- Eating certain food can regenerate small amounts of MG.
- Resting at a checkpoint will regenerate all the player's resources to the max.

Magical Instruments and Spell Upgrades

There are 5 magical instruments which the player can utilize:

- Flute
- Drum
- Harp
- Trumpet
- Lute

1. Flute

The Flute is the primary damage dealing instrument. The instrument manipulates the fire element, giving the player the ability to burn enemies or destroy certain parts of the environment.

Primary Spell: Fireball

The player starts a sequence of fireball shots, sending out 5 total fireballs to the targeted enemy or to the direction they are facing. For each fireball shot, a note must be played correctly to enhance the fireball's power.

Upgrade Branch: Firebreath

First Upgrade

Instead of shooting out fireballs, the flute blows out a constant stream of fire, dealing more DPS, with the potential to hit multiple targets, but with a much shorter range. Notes will be consistently played by the player, at a similar interval as the regular fireball, until the player stops holding down the cast key, or until the player has not enough MG to sustain the spell.

Second Upgrade

Upon upgrading the Firebreath branch a second time, the spell will now apply a burning effect, dealing damage over time, lasting for a specific amount of time.

Upgrade Branch: Fireblasts

First Upgrade

The fireballs now explode on hit, dealing damage in an area. Deals less damage to enemies that are not directly hit by the fireball itself.

Second Upgrade

Fireballs now also stun all enemies hit for a short time.

2. Drum

The drum manipulates the earth and ground through wide sound waves. This instrument can be used to slow multiple enemies and create space for some time.

Primary Spell: Earthquake

The player creates an earthquake in the direction they are looking, creating a fractal area on the ground. Enemies in the earthquake are heavily slowed until they leave it. The area also makes them prone to take more damage from other spells.

Upgrade Branch: Spiked Ground

First Upgrade

The earthquake area now also has small spikes protruding from the ground, dealing damage to enemies walking on the ground in that area.

Second Upgrade

If the earthquake is created directly below enemies, those enemies take an initial burst of damage.

Upgrade Branch: Elevated Ground

First Upgrade

The earthquake elevates the ground for a short period of time, blocking the way for enemies who are unable to get on top. This can create a platform for the player to stand on or can isolate enemies for a short time.

Second Upgrade

The earthquake creates a shockwave, hitting enemies in a limited area around it, stunning them for a short period.

3. Harp

The Harp manipulates water, which is a supportive element to the other spells. As sounds carries well over water, water enhances the instruments' spells, increasing their effects and stats.

Primary Spell: Bubble

The player is engulfed in a water bubble for a short period of time. All subsequent spell casts will be more powerful until the bubble breaks. However, the bubble makes the player unable to sprint anymore. If an enemy hits the player, the bubble breaks instantly, and does not act as a shield.

Upgrade Branch: Exploding Bubble

First Upgrade

If the bubble is pierced from an enemy hitting it, the bubble explodes, making surrounding enemies wet, enhancing spells which directly hit the enemy while they are wet.

Second Upgrade

The water now becomes goo, slowing enemies and making their attacks slower.

Upgrade Branch: Shield Bubble

First Upgrade

The bubble now also acts as a temporary shield. Being hit while the bubble is active nullifies the attack, but still destroys the shield.

Second Upgrade

The bubble now can take two hits instead of one.

4. Trumpet

The trumpet manipulates wind, allowing the player to push enemies and environmental objects with gusts of wind.

Primary Spell: Wind Blast

The player shoots out a wind blast in a cone, pushing all hit enemies back.

Upgrade Branch: Wind Blades

First Upgrade

The blast now shoots out wind blades, which deal damage to all enemies hit, but the spell does not push enemies back anymore.

Second Upgrade

The wind blades now apply stacking bleed, which deals damage over time. If the enemies are hit multiple times by wind blades, the bleed will deal more damage over time.

Upgrade Branch: Wind Shotgun

First Upgrade

The blast deals some damage to enemies, pushes them back and pushes the player in direction opposite to the blast direction. The range of the blast is now much shorter.

Second Upgrade

The blast deals more damage.

5. Lute

The lute is a supportive instrument, where playing different tunes will boost the player's musical inspiration through various possible stats.

Primary Spell: Tempo Haste

The player gets a speed boost for a short period of time.

Upgrade Branch: Stamina Fortitude

First Upgrade

Casting Tempo Haste now also gives the player a temporary amount of max stamina.

Second Upgrade

In addition to providing some max stamina, Tempo Haste also fully regenerates the player's stamina.

Upgrade Branch: Virtuoso Inspiration

First Upgrade

Casting Tempo Haste now also gives the player a temporary amount of max Musical Genius.

Second Upgrade

In addition to providing some max stamina, Tempo Haste also fully regenerates the player's stamina.