Game Mechanics

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Previous lecture - Gameplay

- **Target audience**
- **Gameplay:**
  - Game mechanics
  - Core gameplay loop
  - Challenges
  - Limitations
Core gameplay

Core gameplay - remove as many features from a game as possible until it becomes unplayable. The last version that still has enough features to be meaningful is the core gameplay.

Quake’s core gameplay - killing the enemies and avoiding being killed.

Tetris’ core gameplay - fitting blocks into each other.

Core game mechanics - game mechanics which allow to carry out the core gameplay activities.
Homework recap

- Continue discussing game ideas with other students.
- Write your best game-ideas to Discord. Find other students to team up with.
Today’s topics - Game mechanics

- Game mechanics
- Mechanics / Dynamics / Aesthetics (MDA) framework
- Feedback loops
- Emergent gameplay
- Designing your game’s functional space
- Skills
Game mechanics

**Gameplay mechanics** determine how that game operates: what its rules are and how the player interacts with them.

Game Maker’s Toolkit video: [Mechanics of Movement](#)

**Design the game not the software** - game mechanics should define the rules of the game not how the game engine will do it.
Goal

**Most important rule** - the goal of your game

- Good game goal:
  - Concrete
  - Achievable
  - Rewarding
- What is the goal in Chess?
Goal

Good game goal: Concrete, Achievable, Rewarding
Goal in Settlers games
MDA framework

Mechanics, Dynamics and Aesthetics (MDA)

Second order problem: game designer can only create Mechanics
Mechanics -> Dynamics

Spawn points

Mechanic? Dynamics? Aesthetics?
Spawning mechanic

How to fix spawn camping?
Actions

- **Operative actions** - direct actions the player can perform
- **Resultant actions** - high level actions, performed through operative actions

Kingdom: New Lands
Decision

- Freedom

How to design a decision - Jonas Tyroller
Decision

- Freedom
- Impact

How to design a decision - Jonas Tyroller
Decision

- Freedom
- Impact
- Understanding

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- Freedom
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- Meaning

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- Freedom
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- Challenge

How to design a decision - Jonas Tyroller
Emergent gameplay

Emergent gameplay - game with simple mechanics but complex dynamics. Eg. Chess.

Design principle - instead of designing rules, design “meta” rules that will be building blocks for players to design their own rules.
Emergent storytelling - in Slime Rancher

Needs:
- Eat food
- Escape danger
- Go somewhere

Wants:
- Stacking
- Flying
- Stealing
- Blowing up
- ...

GDC talk: https://youtu.be/GbVFa89kUhw
Hidden game mechanics

Some mechanics are there to enhance the experience

- **Non linear healthbars** - last 10% health is actually 30%
- **Projectiles curving** towards the enemy
- **Collider sizes** tweaked to player advantage.
- **Coyote time** (jump few frames after the ledge)
- **Jumps before landing** get queued
- **Ledge climbing**

[Links]

Why Does Celeste Feel So Good to Play
How Dead Cells Secretly Stops you from dying
Feedback loops (dynamics)

- **Positive feedback loop** - when something happens that causes the same thing happen again
- **Negative feedback loop** - when something happens that makes it harder to happen again

<table>
<thead>
<tr>
<th>Positive feedback loop</th>
<th>Negative feedback loop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tend to destabilize the game</td>
<td>Tend to stabilize the game</td>
</tr>
<tr>
<td>Cause the game to end faster</td>
<td>Cause the game to take longer</td>
</tr>
<tr>
<td>Put the emphasis on early game</td>
<td>Put the emphasis on late game</td>
</tr>
</tbody>
</table>

Both are useful!
Feedback loop Use Case - XCOM

Soldier dies → Harder to survive → Replaced by rookie → Makes the player want to play safe = boring
Feedback loop Use Case - The Swindle

Epic Heist
Story

Failure

Greed

Tension

Longer explanation: https://www.youtube.com/watch?v=cUbyNJKsi7E
Feedback loop Use Case - Civilization

Player expands → Increased costs → Unhappy citizens
Feedback loop Use Case - Total War Shogun 2

Player expands

Realm Divide
(everyone attacks the player)

Clan’s fame increases
Feedback loop Use Case - Mario Cart

Player lags behind

Target first player

Gets powerful items
Chance

- Probability
- Combinatorics
- Booleans
- Normal Distribution
- Randomness
Functional space

Game space:

- Discrete or continuous
- Number of dimensions
- Bounded areas connected or disconnected
- Boundaries of the space
- Are there subspaces?
Functional space
Functional space
Functional space
Functional space
Functional space
Most important object in game
Objects, Attributes, States

- **Objects** - characters, props, tokens, scoreboards
- **Attributes** - information about an object
- **State** - current state of an attribute
Point task

Each person gets a AAA game.

Use the game that matches with the last digit of your student number.

If you don’t know this game at all, pick a AAA game of your own liking.
Group 1
Group 2
Group 3
Group 4
Group 5
Group 6
Group 8
Group 9
Task

Design a mobile game spin-off using one touch principal.

Make a drawing that describes its gameplay!

Try to find a new aspect of this theme. Your game doesn’t have to use the same mechanics. Eg. Fallout vs Fallout Shelter
Example

Dark Souls

- LVL 22
- Enemy health
- Swipe up - Attack
- Dungeon boss
- Swipe left - Move left
- Swipe right - Move right
- Enemy next attack
- Swipe down - Dodge
- Player
Homework 3

Pick one of your game idea for the project.

1. Create a mockup drawing containing following things:
   ● Functional space of your game
   ● Most important objects in your game (4-7 objects)
   ● Operative actions and decisions (3-7 actions)

3. Describe each element on your drawing.

4. Make a state diagram about one object (4-7 states).

Submit your homework in a PDF document.

You can use any tool (eg. Google Drawing or pen and paper)
Next week

**Lecture:** Pre-production
- Game development phases
- Pre-production steps
- Prototyping
- Design document
- Minimal viable product