

CE810 - Game Design 2

Recap

Joseph Walton-Rivers & Piers Williams

Monday, 14 May 2018

University of Essex

Game Design

1. Games have rules
2. Rules are important
 - Too many rules \Rightarrow Not fun
 - Too few rules \Rightarrow Not fun

Richard's Hierarchy

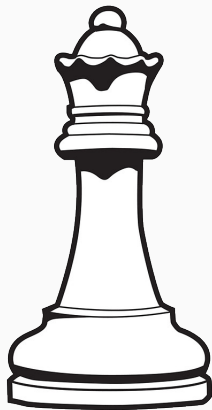
Richard's Hierarchy

- These slides are 'borrowed' from Prof. Bartle's slides.
- Although we've used a different font...
- We're recapping this because it's important to what we're doing
- also, you've done exams since then...

Richard's Hierarchy

- Tokens (aka entities)
- Rules
- Features
- Gameplay

- Things that can **act** or **be acted upon**
- Game Rules **directly** concern tokens
- In **computer** games, tokens are usually the **programming** objects/entities
 - They **may** have associated assets
 - They **may** have associated properties



Rules

- Rules refer to **tokens** and each **other**
- Features emerge from rule interactions
- Example:
 - Rule 1 - Artillery kills infantry with no cover.
 - Rule 2 - Artillery makes craters.
 - Rule 3 - Craters provide cover for infantry.
- The **emergent feature** is “Defences need to be managed”
- Rules **together** with features form the **mechanics** by which gameplay emerges

Features

- Features are what makes this game different to other games.
- In terms of mechanics, this usually means ways to organise tokens
- it can mean ways to organise rules
- Features emerge from interactions between game rules
- Gameplay emerges from iterations between features.

“A series of interesting choices”

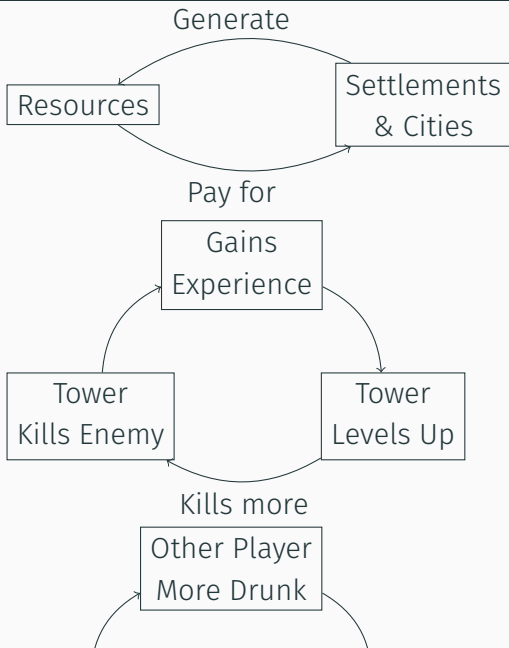
– Sid Meier

- In the same way that features emerge from rule interactions, gameplay emerges from feature interactions
- Gameplay is what players do in the game to have fun
- There are subjective degrees of gameplay

Feedback Loops

Positive Feedback Loops

- In a positive feedback loop, the better you do something the easier it becomes.
- Your lead will increase if being ahead gives you an advantage
- Unstable and not good between players



Negative Feedback Loops

- In a negative feedback loop, the better you do something the harder it becomes.
- Your lead will decrease if being ahead gives you a disadvantage
- Very good at all levels of gameplay



Game Parameters

Exercise: Game Characteristics

Question

Identify characteristics of a game genre, e.g. 2D Arcade Games

Answer: Game Characteristics

- Game Rules
- Object Types
- Vehicle Physics
- Input Controls
- Weapon Systems
- Game Views
- Level Designs
- AI Behaviour

Game Rules

- Collisions?
- Reward Structure
- Game State transition structure
- Fundamental
- Small changes can radically alter the game

Object Types

- Things to:
 - Shoot
 - Collect
 - Jump on
 - Protect
 - Infect
 - Bounce Off

- How do actions affect the movement of the vehicle?
- Left - right?
- Up - Down?
- Car-like?
- Asteroids-style space ship?
 - Thrust always on?
 - Drag?
 - Rotation friction?

- Related to vehicle physics
- How the ship is controlled?
- Classic arcade or one touch controls?

Question

Will AI's experience these changes?

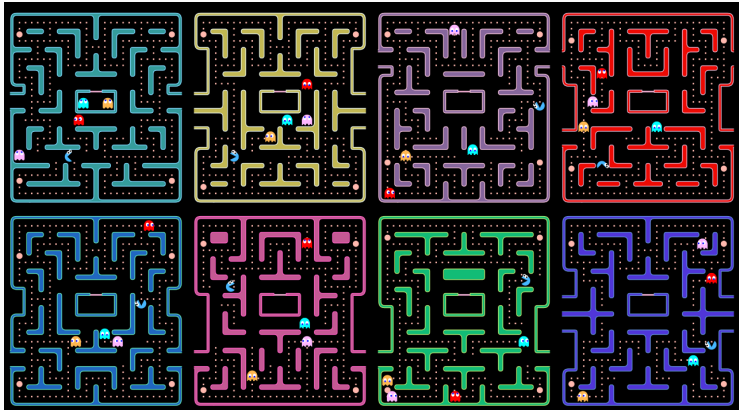
Weapon Systems

- Things to vary include:
 - Fire rate
 - Weapon Cooldowns
 - Weapon firing angles
 - Bullet velocity
 - Bullet Time to Live
 - Guided / Unguided
 - Damage
 - Size

- Fixed or Panning? Scrolling? Zooming viewport?
- Can radically **alter** nature and difficulty of a game

- **Significant** impact on difficulty and interest
- Ms. Pac-Man classic example
 - Levels differ in maze layouts
 - Parameters such as speed of Ms. Pac-Man and Ghosts
- For asteroids focus on speed, size, and movement of the Asteroids

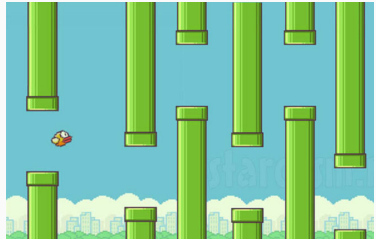
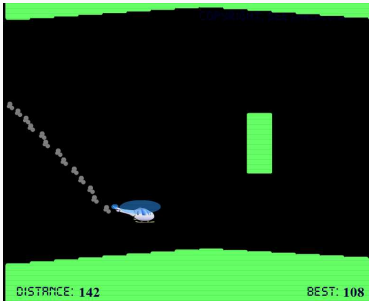
Level Design



- Complex problem
- Interesting AI can **make** or **break** a game
- Keeping AI intelligent **without** being too powerful is hard
- Need to **monitor** the player and tweak
 - Towards the **desired** player experience ...

'Inspiration'

There are great opportunities for mining minor variations on existing games





R. Bartle.

Lecture slides for ce810, part 1.

2018.



R. Koster.

Theory of fun for game design.

" O'Reilly Media, Inc.", 2013.