CS/INFO 4154: Analytics-driven Game Design

Class 24:

Balance
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<td>10/27 Friends Release</td>
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Friends Release

- Requirements
  - *Smooth progression* of nine* tasks
  - Tutorials
  - Music
  - Sound
  - Logging

* Negotiable; “task” definition depends on your game
Friends Release Report

- Due BEFORE CLASS by 10:10am on Friday 11/3
1. Report the median levels completed and time played.
2. Show burndown charts for both levels completed and time played.
3. What is the biggest problem with engagement?
4. How did you identify this problem with the analytics? (i.e. burndown chart analysis)
5. Where is the problem happening?
   - Visualize this with a spatial heatmap.
6. What proportion of players are affected?
   - Visualize this with a Sankey or state-transition diagram
7. How will you fix the problem?
Goal

- Communicate a *perspective* on game balance
- Set of questions you can use to improve your game
Outline

- What on earth is balance
- Recalling memories of balance
- Balance techniques
Outline

- What on earth is balance
- Recalling memories of balance
- Balance techniques
Language of Balance

OP  nerf

imba  broken  rework

buff  qq  underpowered
Perspectives on Balance

“Zerg OP, Toss imba!! So can we nerf terran now?”

- rockman

StarCraft 2 Battle.net forums, 11/2013
Perspectives on Balance

“Zerg OP, Toss imba!! So can we nerf terran now?”

Translation:

_Zerg and Protoss are too powerful, so why are they reducing the relative power of Terran?_
Years of Balancing
League of Legends

Highest Win Rate Champions (9/16/2012 - 9/23/2012)

Win Percentage  Popularity Percentage

Mouse over elements for details.
StarCraft II
StarCraft II
Case Study: Halo 1
Halo 1: Overpowered Pistol
Case Study: Halo 2

totally unbalanced
Case Study: Halo 3
Halo 3 Balance Interface

Pistol: 2
Sniper Rifle: 4
Halo 3 Balance Interface

Pistol: 3
Sniper Rifle: 4
Halo 3 Balance Interface

Are you having fun? Y/N

Pistol: 3
Sniper Rifle: 4
Why is balance so hard?

- Games are complex interconnected systems
- A small change to one part affects other parts
Famous Balance Bug: Civilization

Overly Aggressive Gandhi

"Very well, we will mobilize our armies for WAR! You will pay for your foolish pride!"
What is balance?

- Narrowest sense:
  - Fairness
Fairness

- When I fail, is it:
  - my fault?
  - the game’s fault?
Fairness in competitive games
52-56%
Fairness in noncompetitive games

- Players struggle against the *environment*
Outline

- What on earth is balance
- Recalling memories of balance
- Balance techniques
Sid Meier: “what is a game?”

a series of

*interesting decisions*

(GDC 2012)
5 minutes: pair activity

- Pick your favorite game

**Discuss:**
- What are the *decisions* you must make in the game?
- Why are these decisions *interesting*?
- What characteristics does a game need to have for the *space of decisions* to be interesting?
What is balance?

- Narrowest sense:
  - Fairness

- Expanded sense:
  - Depth
  - Variedness
  - Interestingness

- A set of desirable characteristics about the *decision space* of the game
Outline

- What on earth is balance
- Recalling memories of balance
- Balance techniques
Modeling Decision Spaces

Now

I move

Opponent moves

I move
Noncompetitive interpretation

Now

I move

I move
Key Balance Questions
Problem

Now

I move

I move
Problem

Now

I move

I move
Key Balance Questions

- Are the starting conditions of the game fair?
- Does it matter what the player does?
Problem?

Now

I move

I move
Problem

Now

I move

I move
Key Balance Questions

- Are the starting conditions of the game fair?
- Does it matter what the player does?
- Is an action too powerful?
- Is the outcome known long before the game’s end?
Outcome known too early

Now

I move

I move

Interesting things need to be happening deep in the tree
Problem?

Now

I move

I move
Key Balance Questions

- Are the starting conditions of the game fair?
- Does it matter what the player does?
- Is an action too powerful?
- Is the outcome known long before the game’s end?
- Is some strategy *useless*?