

CE810 - Game Design 2

Recap

Joseph Walton-Rivers & Piers Williams

Monday, 14 May 2018

University of Essex

Game Design

1. Games have rules

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2. Rules are important

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└ Richard's Hierarchy

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- Tokens (aka entities)

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- Rules

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Richard's Hierarchy

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- Gameplay

Richard's Hierarchy

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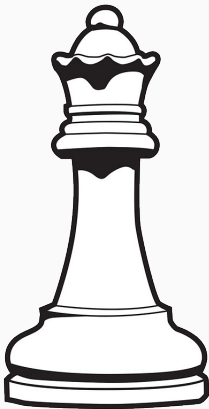
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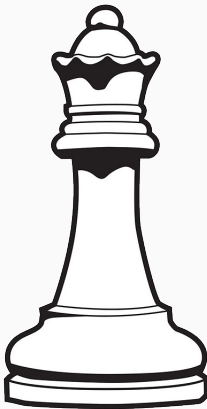
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- Tokens (aka entities)
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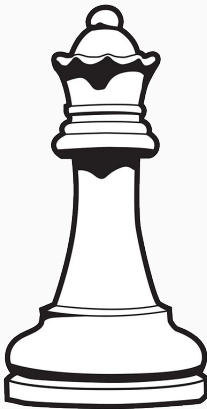
- Things that can act or be acted upon



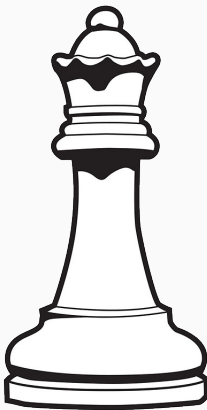
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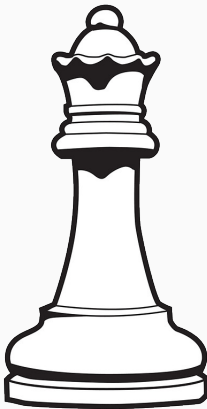
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 - They **may** have associated properties



Rules

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└ Rules

- Rules refer to **tokens** and each **other**

Company of Heroes by Relic entertainment implemented this example

Rules

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└ Features

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Gameplay

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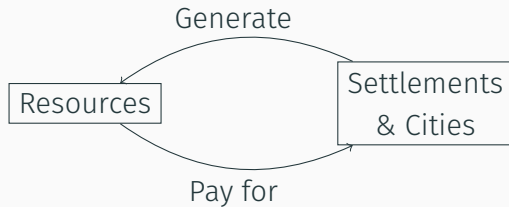
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└ Feedback Loops

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Positive Feedback Loops

- In a positive feedback loop, the better you do something the easier it becomes.



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└ Feedback Loops

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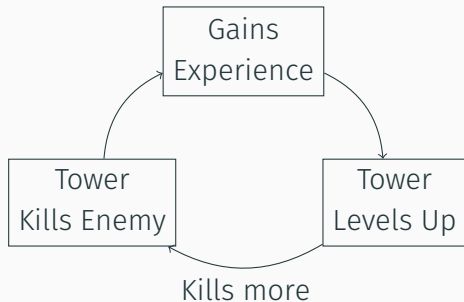
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Positive Feedback Loops

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- Your lead will increase if being ahead gives you an advantage



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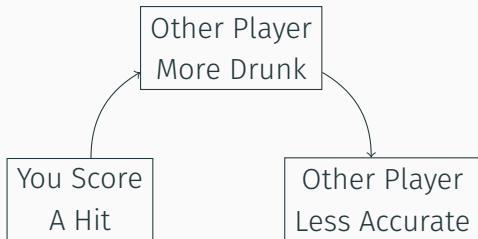
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- Unstable and not good between players



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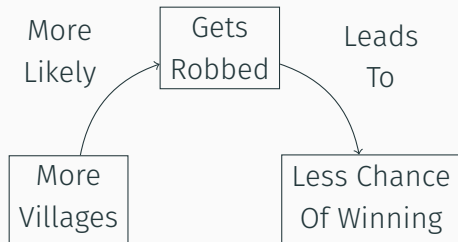
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Negative Feedback Loops

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└ Negative Feedback Loops

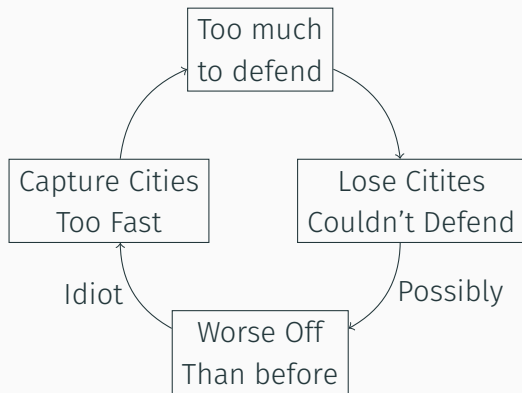
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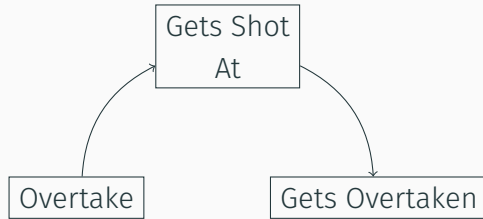
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└ Game Parameters

Game Parameters

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Exercise: Game Characteristics

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└ Game Parameters

└ Exercise: Game Characteristics

Question

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

- Game Rules

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└ Game Parameters

└ Answer: Game Characteristics

Answer: Game Characteristics

- Game Rules
- Object Types

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└ Game Parameters

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- Game Rules
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└ Game Parameters

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Answer: Game Characteristics

- Game Rules
- Object Types
- Vehicle Physics
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- Game Views
- Level Designs

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└ Game Parameters

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

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└ Game Parameters

└ Answer: Game Characteristics

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

- Collisions?

- Collision Matrix
- Points, lives/health/ammo gained and lost
- When is a level cleared??

Game Rules

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└ Game Parameters

└ Game Rules

- Collisions?
- Reward Structure

- Collision Matrix
- Points, lives/health/ammo gained and lost
- When is a level cleared??

- Collisions?
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- Game State transition structure

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Game Rules

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└ Game Parameters

└ Game Rules

- Collisions?
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- Fundamental

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Game Rules

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└ Game Parameters

└ Game Rules

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

- Collision Matrix
- Points, lives/health/ammo gained and lost
- When is a level cleared??

- Things to:

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└ Game Parameters

└ Object Types

• Things to:

- Things to:
 - Shoot

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Object Types

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- Left - right?

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└ Game Parameters

└ Vehicle Physics

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- Related to vehicle physics

Question

Will AI's experience these changes?

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└ Game Parameters

└ Input Controls

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Will AI's experience these changes?

- Things to vary include:

- Things to vary include:
 - Fire rate

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└ Game Parameters

└ Weapon Systems

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 - Weapon firing angles

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- 2D/3D, CO/PO

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- Can radically **alter** nature and difficulty of a game

- 2D/3D, CO/PO

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Level Design

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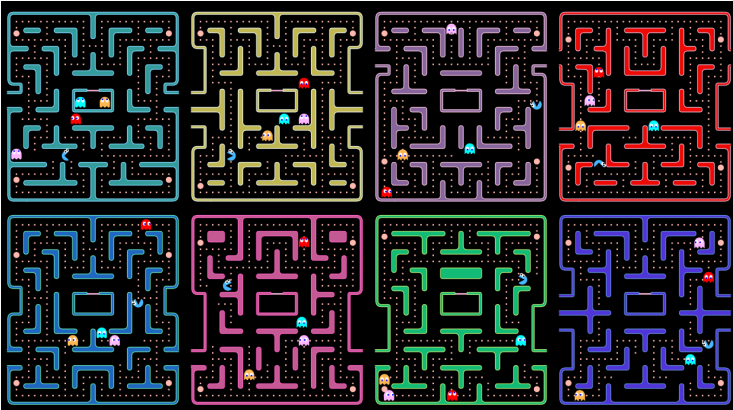
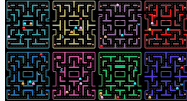
└ Level Design

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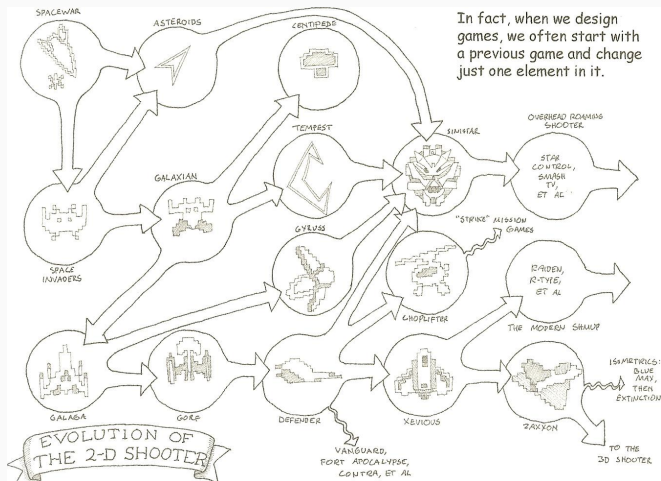
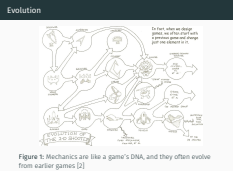
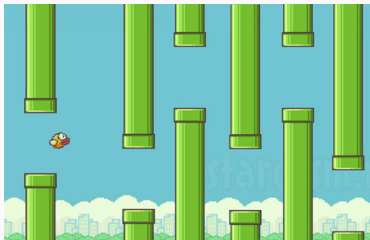
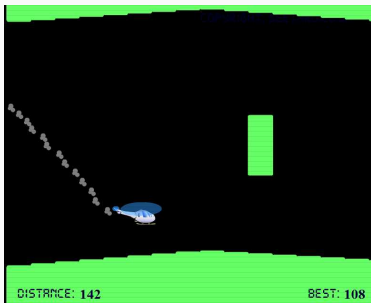


Figure 1: Mechanics are like a game's DNA, and they often evolve from earlier games [2]

- SpaceWar** 2p pvp Asteroids ships fighting
- Space Invaders** Marching columns, single dimension of movement
- Asteroids** Combined the two
- Galaxian** Simple improvement to Space Invaders
- Galaga** Sequel to Galaxian - Added tractor beam
- Defender** - 2D movement and rescuing
- Choplifter** - Reskin of Defender
- Xevious** - Mario style scrolling aircraft
- Zaxxon** - Isometric view

'Inspiration'

There are great opportunities for mining minor variations on existing games



2018-05-25

CE810 GD2

└ Game Parameters

└ 'Inspiration'

'Inspiration'

There are great opportunities for mining minor variations on existing games





R. Bartle.

Lecture slides for ce810, part 1.

2018.



R. Koster.

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