the gamedesigninitiative at cornell university

Lecture 3

Design Elements

Reminder: Aspects of a Game

- **Players**: How do humans affect the game?
- **Goals**: What is the player trying to do?
- **Rules**: How can the player achieve the goal?
- **Challenges**: What obstacles block the goal?

Formal Design Elements

- **Players**: Player Mode Sketches
- **Goals**: Objectives
- **Rules**: Actions and Interactions
- **Challenges**: Obstacles and Opponents

Player Mode Sketches

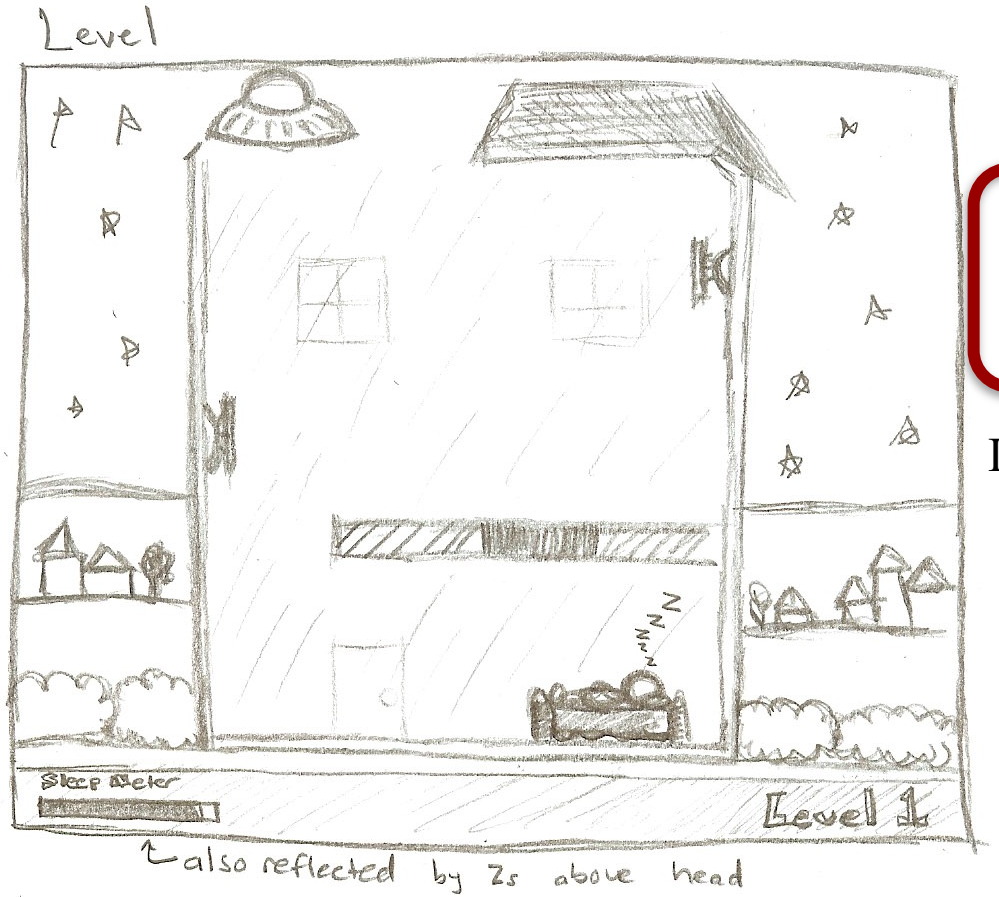
- Game may have several *player modes*
  - Ways in which player interacts with a game
  - **Example**: Inventory screen vs. combat screen
- You should *storyboard* all of your modes
  - Sketches of each of the major player modes
  - May have action (like movie storyboard)
  - Illustrate how player interacts with game

Dragon Age: Standard Mode

Dragon Age: Inventory Mode

Aside: *Help the Hero*

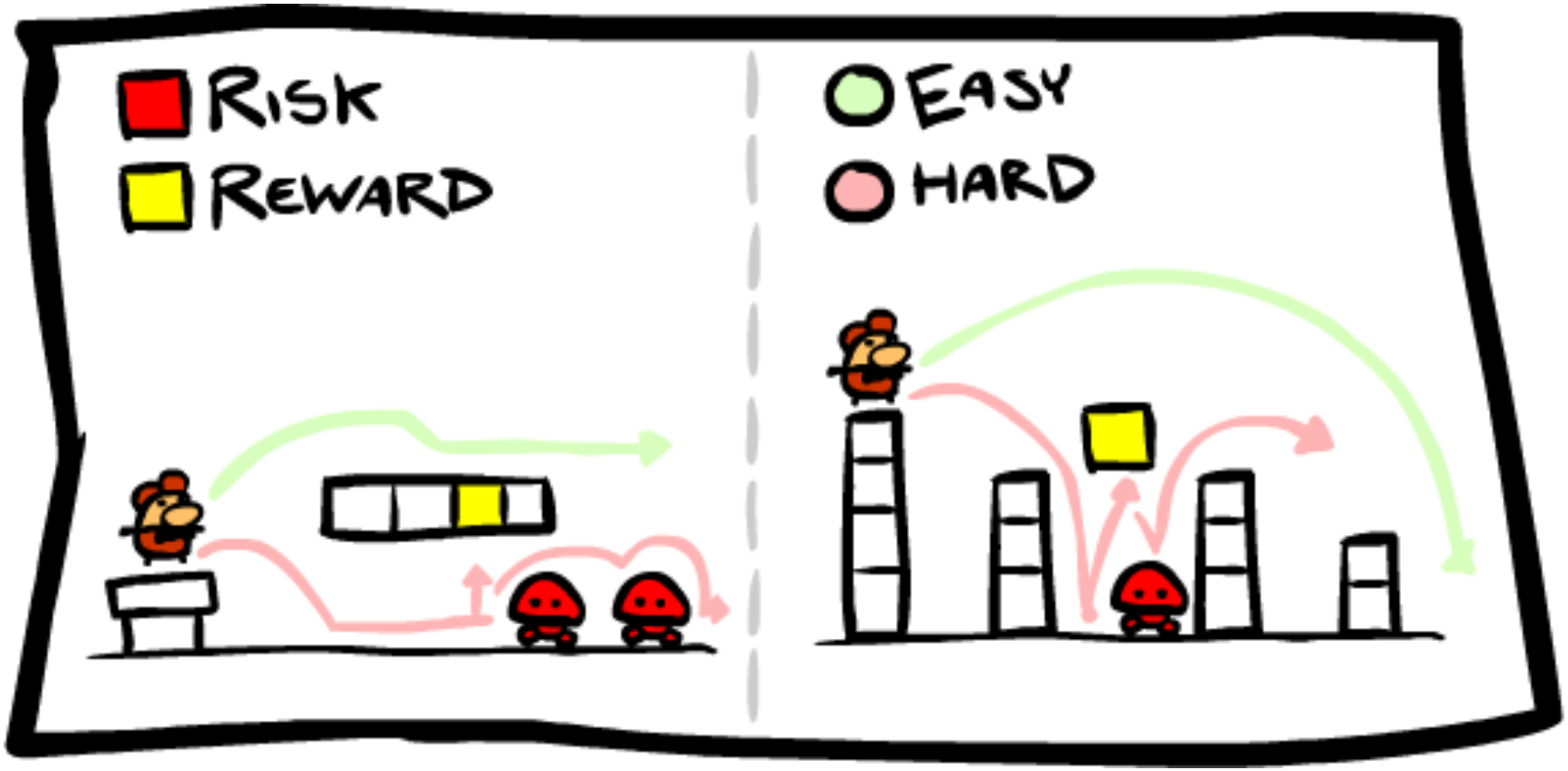
Lifted: Player Mode Sketch



Indicating Action

Lifted: Completed Game

Diagramming Action



Objectives

- Anything a player might strive for
- May be a primary game objective
  - Progressing the story
  - "Completing" the game
- May be an auxiliary game objective
  - Side missions/quests
  - Unusual achievements
- Sometimes player-directed
  - Reward structure in sandbox games

Objectives

- **Primary** objectives reflect vision
  - Wish fulfillment: I want to _____
  - Help player realize the dream
- **Auxiliary** objectives address player style
  - Achievements for achievers
  - Easter eggs for explorers
  - Online resources for socializers
- **Player-driven** objectives require a different focus
  - Start with a toy, and layer dramatic elements on it

Some Objective Categories

- **Capture**: take or destroy something of value
  - Includes "kill all enemies of type X"
- **Race**: reach a goal within time
- **Chase**: catch or elude an opponent
  - Race with a dynamic goal/destination
- **Rescue/Escape**: Get someone to safety
- **Exploration**: Locate something in game world

Actions

- **Verbs** that describe what the player can **do**
  - Walk
  - Run
  - Jump
  - Shoot
- Does not need to be attached to an avatar
  - Build
  - Swap
  - Rotate

Actions

- **Verbs** that describe what the player can **do**
  - Walk (left or right)
  - Run (walk, but faster!)
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Action Platformer

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  } Action Platformer

- Does not need to be attached to an avatar
  - Build (RTS or simulation)
  - Swap (Bejeweled clones)
  - Rotate (Stacking games)

Designing Actions

- Starts with brainstorming the verbs
  - Define the types of verbs
  - Define the scope of the verbs
- **Design Goals**
  - Enough verbs to avoid being too simple
  - But not so much to be confusing (verb bloat)
  - Do the verbs *directly* achieve the goal?
- Each verb maps to a single **input**

Evaluating Your Actions

- How important are they?
  - Do they help achieve goal
  - If not, why are they there?
- **Example**: Platformers
  - **Goal**: reach exit location
  - Killing enemies is *optional*
  - Other actions are *secondary*
- **Goal**: Minimize verbs
  - More verbs lead to **bloat**
  - Leverage **interactions**

The Game State

- Collection of values representing game world
  - Location, physical attributes of each game object
  - Non-spatial values (e.g. health) of these objects
  - Global non-spatial values (e.g. difficulty)
- Actions *modify* the game state
- Not necessary to specify this in early designs
  - Focus on coming up with your actions first
  - Only need enough state to understand **interactions**

Interactions

- Not a *direct* action of player
  - Result of the **game state**
  - Can happen w/o controller
- **Example**: collisions
  - May be bad (take damage)
  - May be good (power-up)
- **Other Examples**:
  - Spatial proximity
  - Line-of-sight
  - Resource acquisition

Game Mechanics

- **Game mechanic**
  - Relationship of **verbs**, **interactions**, and **state**
  - Often call this relationship the "rules"
  - **Gameplay** is manifestation of these rules
- **Example**: Joust
  - Verbs: Flap; go left or right
  - Interaction: Collision with opponent
  - Rule: If hit opponent, lower player dies

Gameplay Example: *Joust*

Verbs vs Interactions

- **Design Idea**: minimalism
  - Game with very few verbs
  - Mechanics are all interactions
  - Common in mobile, tablet
- **Example**: Sneak Beat Bandit
  - Has only one verb: *move*
  - Rhythm game; move to beat
  - All movement on rails
  - If obstacle in way, turn
  - Line-of-sight mechanics

Beat Sneak Bandit

Avoid Verb Proxies

- **Proxy**: verb that activates a separate mechanic
  - "Use an item" (what does the item do?)
  - "Shoot" (what does the weapon do?)
- Make the **outcome** of your verbs clear
  - Fire standard projectile (effects have "travel time")
  - Fire continuous beam (effects are instantaneous)
- Important questions to ask
  - How does help reach the goal?
  - How is it outcome challenged?

Avoid Verb Proxies

- **Proxy**: verb that activates a separate mechanic
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- Make the **outcome** of actual verbs clear
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Behavior is defined by the *interaction* of projectile/beam

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  - How does help reach the goal?
  - How is it outcome challenged?

Challenges

- **Obstacles**
  - Prevent progress towards goal
  - Have to be “overcome”
- **Opponents**
  - Players or bots with their own goals
  - May or may not need to be overcome
- **Dilemmas**
  - Can only perform one of several actions
  - “Correct” choice not immediately clear

Challenges: Limitations

- You cannot always perform an action
  - Shooting may require ammo
  - Cannot (always) jump in mid air
- **Limitation**: requirement to perform action
  - Boolean test (like an `if-then`)
  - Checked at time of user input
- Only **one** limitation per verb
  - If more than one, split into more verbs
  - Reason double-jump is distinct

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Challenges: Resources

- Resources are **non-spatial** part of game state
  - Any value not a location or physical attribute
  - May be global or attached to an entity
- Examples
  - **Entity:** ammunition, health points
  - **Global:** enemy spawns, time remaining
- Resources often implement **limitations**
- They also define the **game economy**

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Will cover in more detail later.

Putting It All Together

- Start with your **vision**
  - I want to _____
  - This creates setting and player goals
- Create a (partial) list of the following:
  - **Objectives**
  - **Actions**
  - **Interactions**
  - **Challenges**

Sketch **player modes** to show them in action