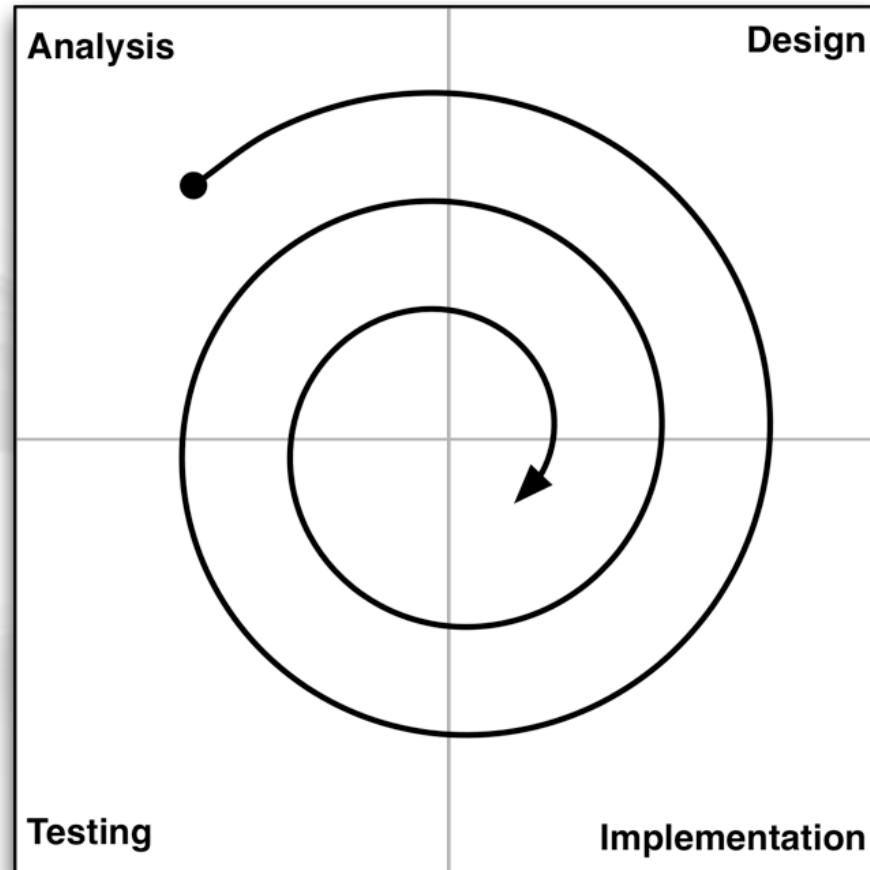# Lecture 3

Game Design Process

The Iterative Process of Design

The Iterative Process of Design

"Game design is 1% inspiration and 99% iteration"
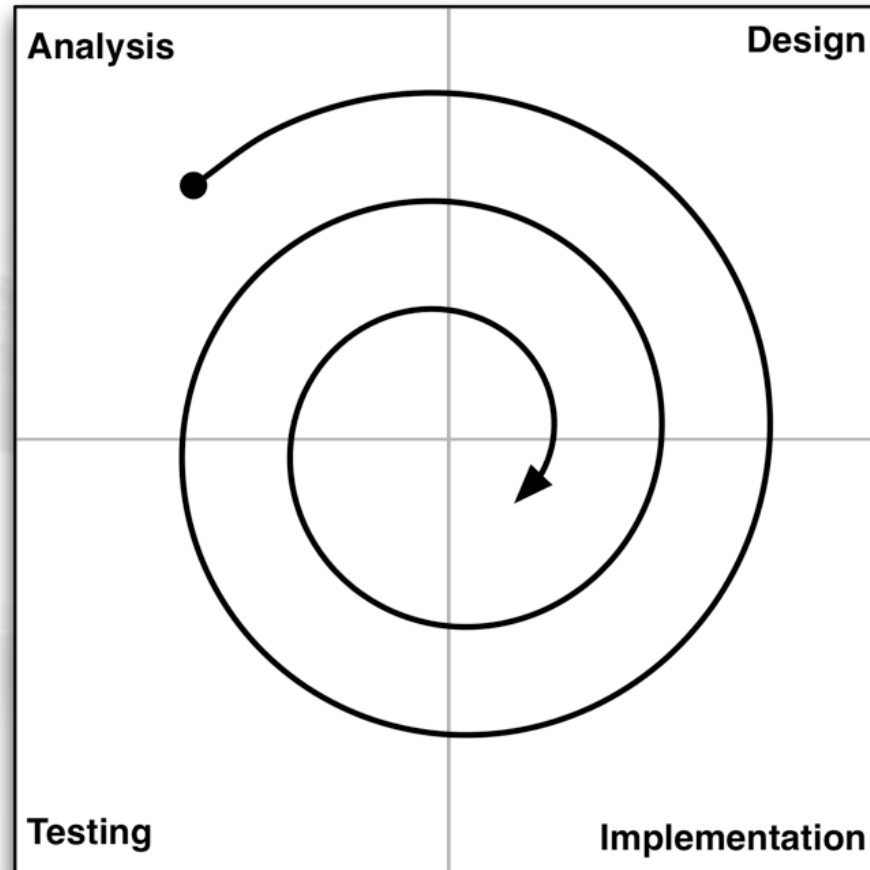
– Chris Swain

The Iterative Process of Design

- **Testing**
  - **Have people actually play your game and get reactions!**
  - **Testing is critically important to this process!**

The Iterative Process of Design

Analysis · Design · Testing · Implementation

- **Iteration!**
  - Analyze the results of your game testing
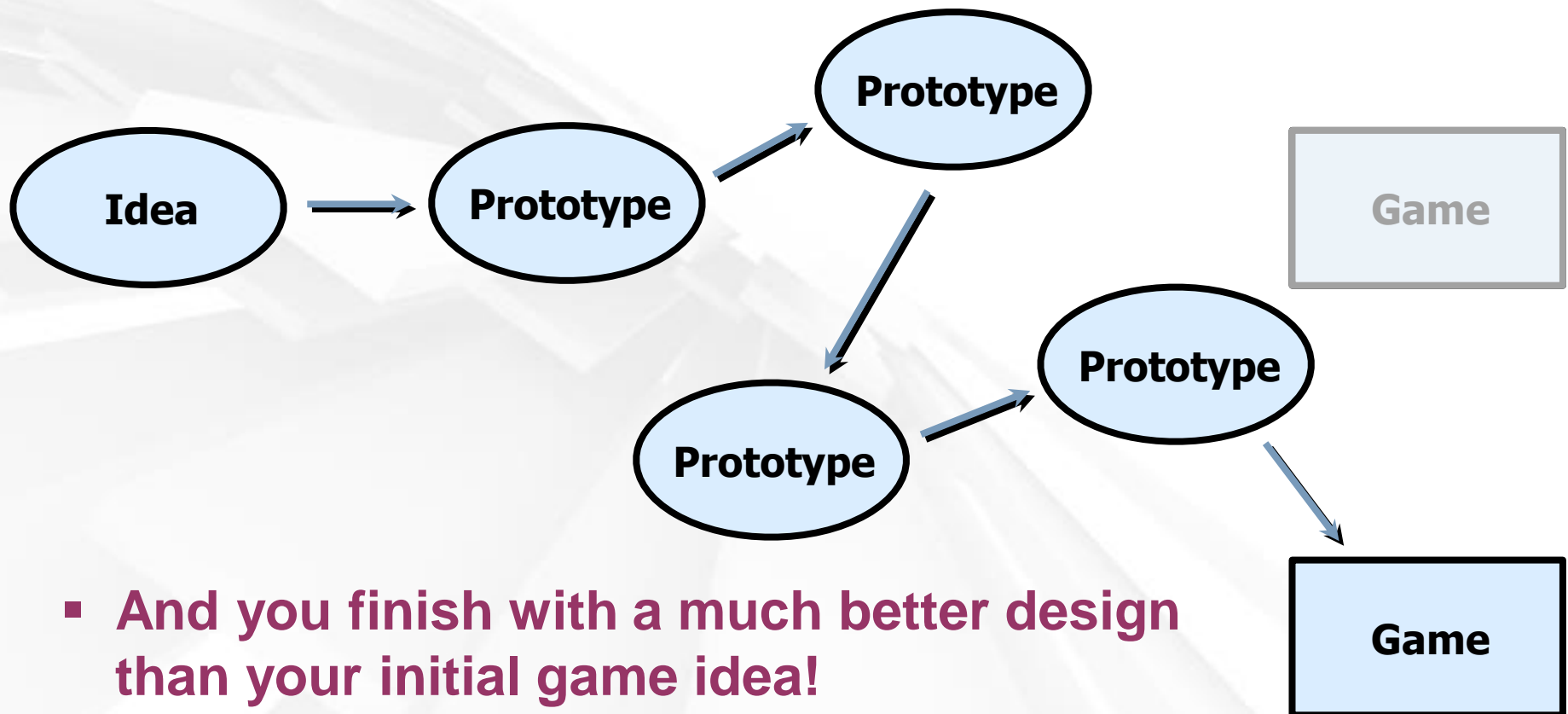 - Modify your design, implement, test again!

Changing Your Mind

- **No one ever goes directly from idea to game**

Idea ❌ Game

Changing Your Mind

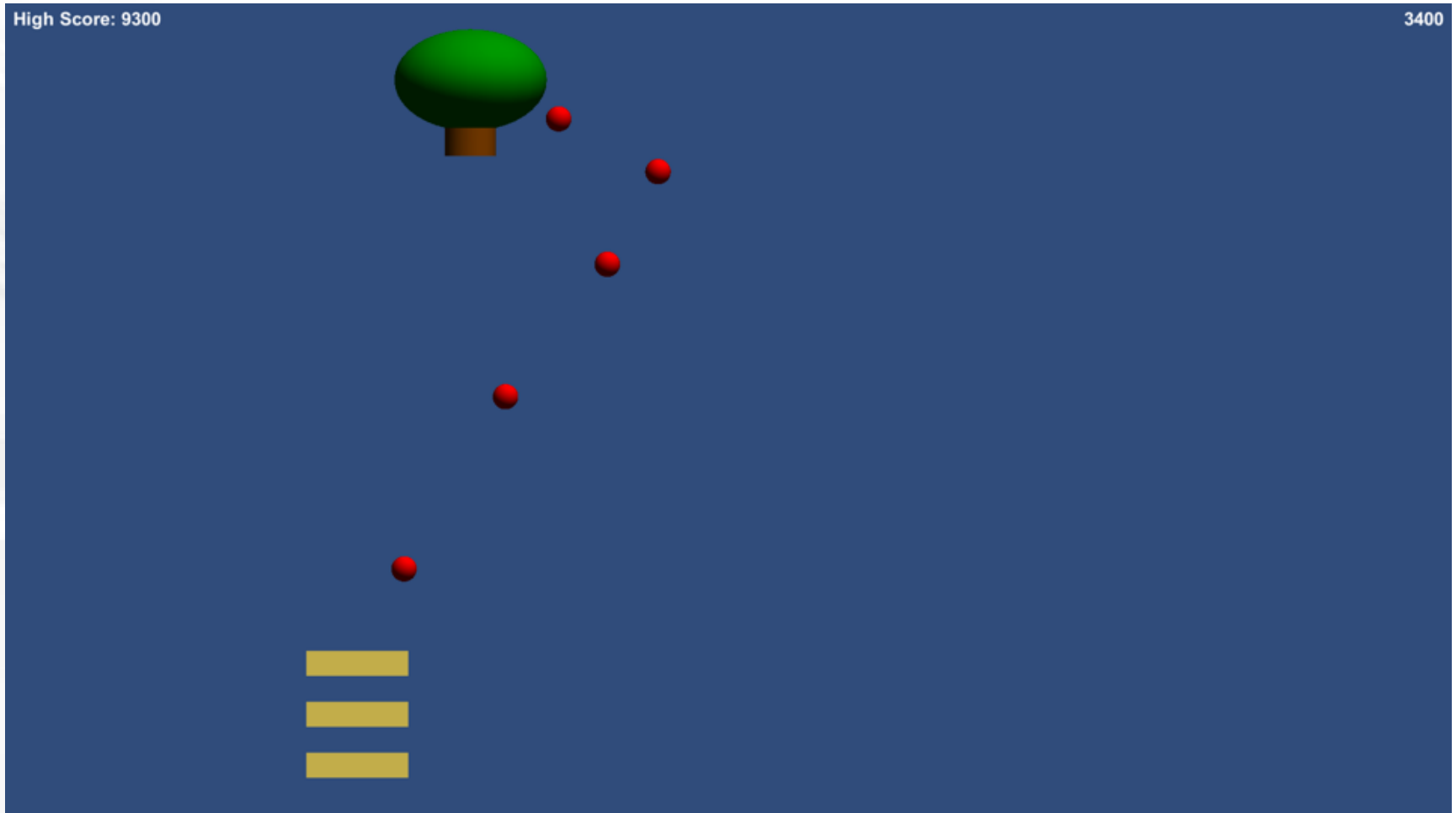- **The real process involves a lot of iteration and changing your mind**

- **And you finish with a much better design than your initial game idea!**

Game Analysis: Apple Picker

The Key to Computer Programming…
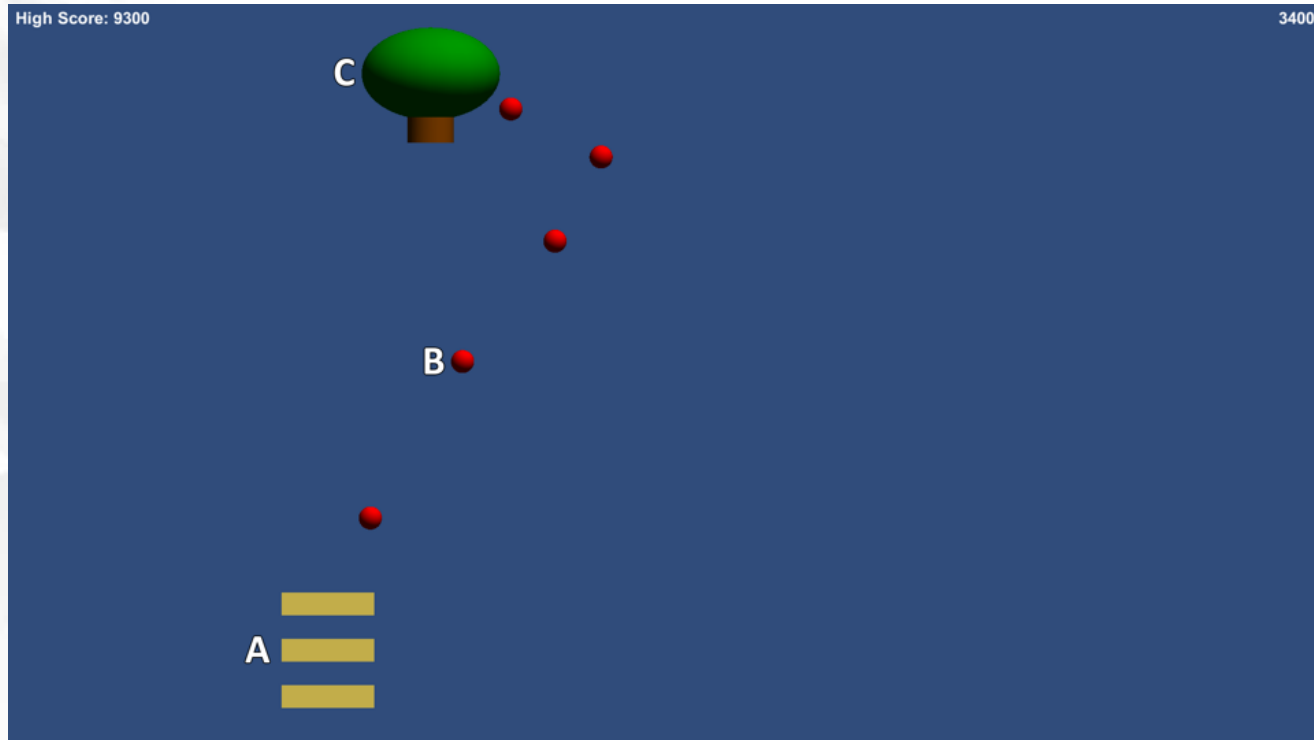
Breaking Complex Problems

into Simpler Problems

Game Analysis

Apple Picker

- **Based on the classic game Kaboom!**

- **Player controls 3 Baskets (A) and tries to catch Apples (B) that are dropped by the AppleTree (C)**

AplePicker GameObject Action Lists

Basket Actions	Apple Actions	AppleTree Actions
Move left and right following the player's mouse. If any basket collides with an Apple, catch the Apple	Fall down. If an Apple hits the ground, it disappears and causes other Apples to disappear.	Move left and right randomly. Drop and Apple every 0.5 seconds.

These can be parsed into flowcharts

AplePicker Flowcharts: Basket
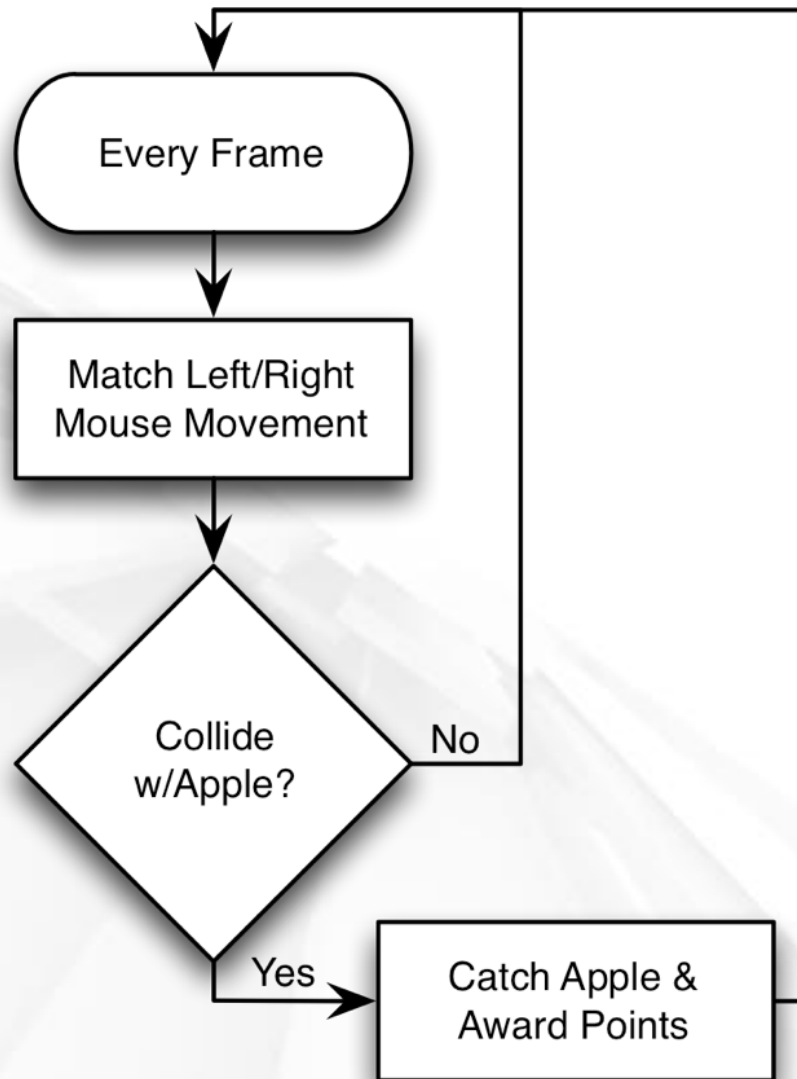
AplePicker Flowcharts: Apple
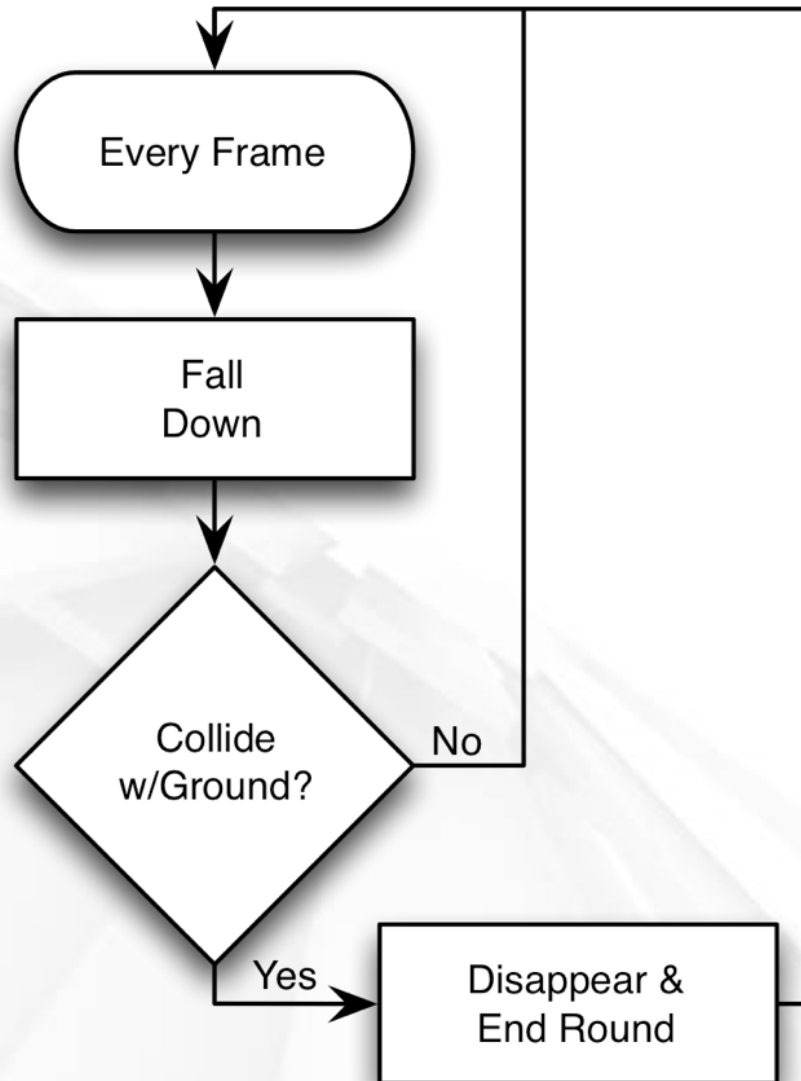
AplePicker Flowcharts: AppleTree
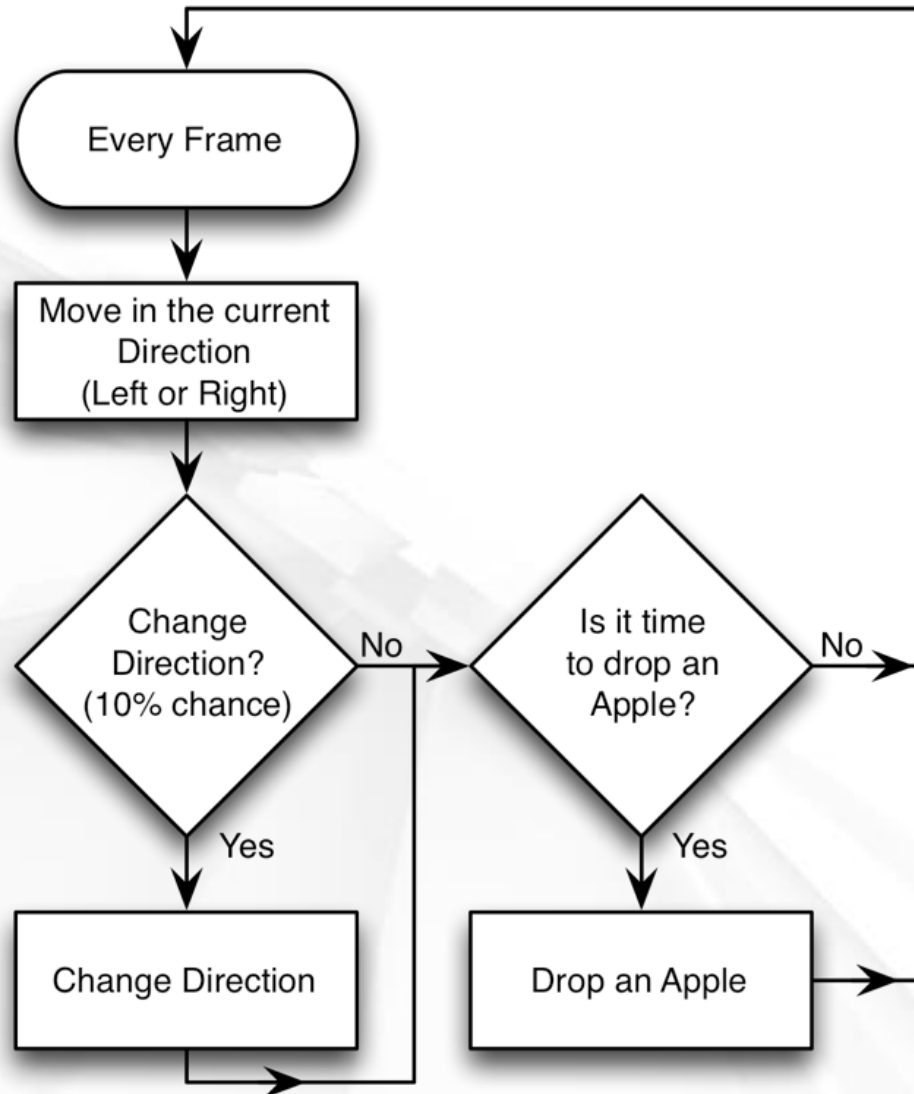
GUIDING THE PLAYER

Topics

- **Guiding the Player**
  - **Direct Guidance**
    - explicit instruction
  - **Indirect Guidance**
    - hidden instruction

Guiding the Player

- **You must ensure that players who have never seen your game before, intuitively understand it.**

- **This requires careful, sometimes invisible guidance**

- **Two types of guidance**
  - **Direct Guidance** - The player knows that he/she is being guided
  - **Indirect Guidance** - The player is guided without realizing it

Methods of Direct Guidance

- **Instructions**
  - **The game explicitly tells the player what to do.**
  - **These can take the form of:**
    - Text;
    - Dialogue with an authoritative non-player character (NPC);
    - Visual diagrams;
  - Often incorporate combinations of the three.
  - One of the clearest forms of direct guidance.

  - Drawbacks
    - May overwhelm the player with too much information;

Methods of Direct Guidance (continue)

- ## Call to Action

  - **The game explicitly gives the player an action to perform and a reason to do so**

  - **Often takes the form of missions given by NPCs**

    - **Common strategy**
      - Present the player with a clear **long-term goal**
      - Then give him/her progressively **smaller medium- and short-term** goals that must be accomplished on the way to the long-term goal

  - **Example: *The Legend of Zelda***
    - **Long-Term Goal**: Navi tells Link that he has been called for by the Great Deku Tree. Link is told by another NPC this is a great honor.
    - **Smaller Goals**: Link's path to the Great Deku Tree is blocked by Mido, who tells him that he will need a blade and guard before venturing into the forest.
    - The short-term goals are directly tied to the long-term goal of reaching the Great Deku Tree

Methods of Direct Guidance (continue)

- **Map or Guidance System**
    - **Many games include a map or GPS-style guidance system.**
    - *Directs the player toward her goals or toward the next step in his/her mission.*
    - **Example:** *Grand Theft Auto V*
        - **Radar/mini-map in the corner of the screen with a highlighted route for the player to follow to the next objective.**
        - In other game, the player relies very heavily on the GPS
    - **Drawbacks**
        - Players don't think about a destination and choose their own path

Methods of Direct Guidance (continue)

- **Pop-Ups**
  - **Pop-ups very short description** of the **action appear when a contextual action is possible.**
  - **Contextual controls that change based on the objects near the player**
  - **Example: *Assassin's Creed IV: Black Flag***
    - The same button controls diverse actions as
      - Opening doors
      - Lighting barrels of gunpowder on fire
      - Taking control of mounted weapons

Judging the Quality of Direct Guidance

- **Methods of Direct Guidance can all be judged by the same four criteria:**
  - **Immediacy;**
  - **Scarcity;**
  - **Brevity;**
  - **Clarity;**

Indirect Guidance

- **Seven methods of Indirect Control** — An expansion of Jesse Schell's six methods from *The Art of Game Design*
  - Constraints
  - Goals
  - Physical Interface
  - Visual Design
  - Audio Design
  - Player Avatar
  - Non-Player Characters

Seven Methods of Indirect Guidance

- **Constraints**
  - **If you give the player limited choices, he/she will choose one:**
    - If given a choice of Red or Green, the player won't try to pick Blue.

- **Goals**
  - **Goals can also be used to guide the player indirectly.**
    - **If the player has a goal to collect bananas, the player heads toward the door with bananas.**

Seven Methods of Indirect Guidance

- ## Physical Interface
  - **The shape of a physical interface can be Indirect Guidance**
    - **If you give the player a guitar-shaped controller, he/she will generally expect to use it to play music.**

Seven Methods of Indirect Guidance

- **<u>Visual Design</u> — The broadest category of Indirect Guidance**
  - **Light**
    - Humans are naturally drawn to light.
    - If you place a player in a dark room with a pool of light at one end, she will often move toward that light before exploring anything else.
  - **Similarity**
    - Once a player has seen that something in the world is good in some way (helpful, healing, valuable, etc.), she will seek out similar things.

Seven Methods of Indirect Guidance

- **Visual Design (continue)**
  - **Landmarks**
    - Large interesting objects can be used as landmarks
    - Example:
      - The player starts in the middle of a desert next to a sand hill.
      - Everything around her **is the same color except** for a **dark stone marker at the top of the tallest nearby hill.**
      - **The player is driven to move up the hill** toward it
      - **Once she reaches the top, the camera rises above her, revealing a towering mountain with light shining from the top**
        - **The camera move causes the mountain to emerge from directly behind the stone marker**, **showing the player that the mountain is her new goal**

Seven Methods of Indirect Guidance

- **Visual Design (continue)**
  - **Arrows**
    - fine arrows can be used to guide the player
    - Example: *Uncharted 3*

Seven Methods of Indirect Guidance

- **Audio Design**
  - **Music can influence a player's mood**
    - Slow, quiet music can lead the player to be more quiet,
    - rough, animated music can make the player more bold
  - **Sound effects can draw attention to possible player actions or hidden objects**
    - Example: *Assassin's Creed 4* & *Tomb Raider* (2013)
      - Special sounds are *used to alert the player when a treasure chest or hidden tomb is nearby*

- **Player Avatar**
  - **A player's character model can have a strong guiding effect**
  - **If the player character looks like a rock star with a guitar…**
    - The player will expect for his/her character to be able to play music
  - **If the player character has a steel…**
    - The player will expect to be able to hit things and run into fight

Seven Methods of Indirect Guidance

■ **Non-Player Characters**

– **Modeling Behavior**
  • The NPC shows the player good or bad behavior and the consequences

– **Example: Kya: Dark Lineage**

– **Negative behavior**
  • NPC shows what NOT to do
  • Image A: Red circle shows a Nativ who stepped in a trap and was caught

– **Positive behavior**
  • NPC shows proper bahavior
  • Image A: Green circle shows Nativ jumping to avoid trap
  • Image B: Green circle shows Native stopping to wait for wind trap

A

B

Seven Methods of Indirect Guidance

Non-Player Characters (continue)

Safety

- Image C & D: Green circle shows Nativ taking potentially-dangerous action
- Because the Nativ shows confidence doing so, the player doesn't fear

Questions?