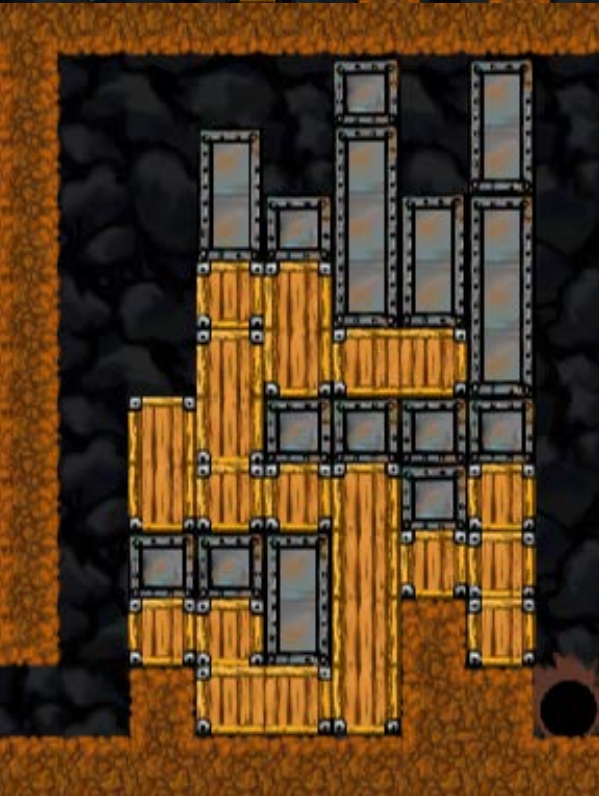


# CS/INFO 4154:

## Analytics-driven Game Design



Lecture 5:

Level Design and  
Progressions

# Game design document

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- Converge on one idea
- Plan for the development cycle
- Identify unknowns in the design
- Due **FRIDAY, SEPTEMBER 18<sup>th</sup> at 11:59pm**

# Throwaway Prototype

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- Pick *some piece* of your game and build it
  - Avatar moves/jumps on flat land
  - Hexagonal grid with nothing on it
  - Background artwork
- In class on **Tuesday, September 22<sup>nd</sup>**

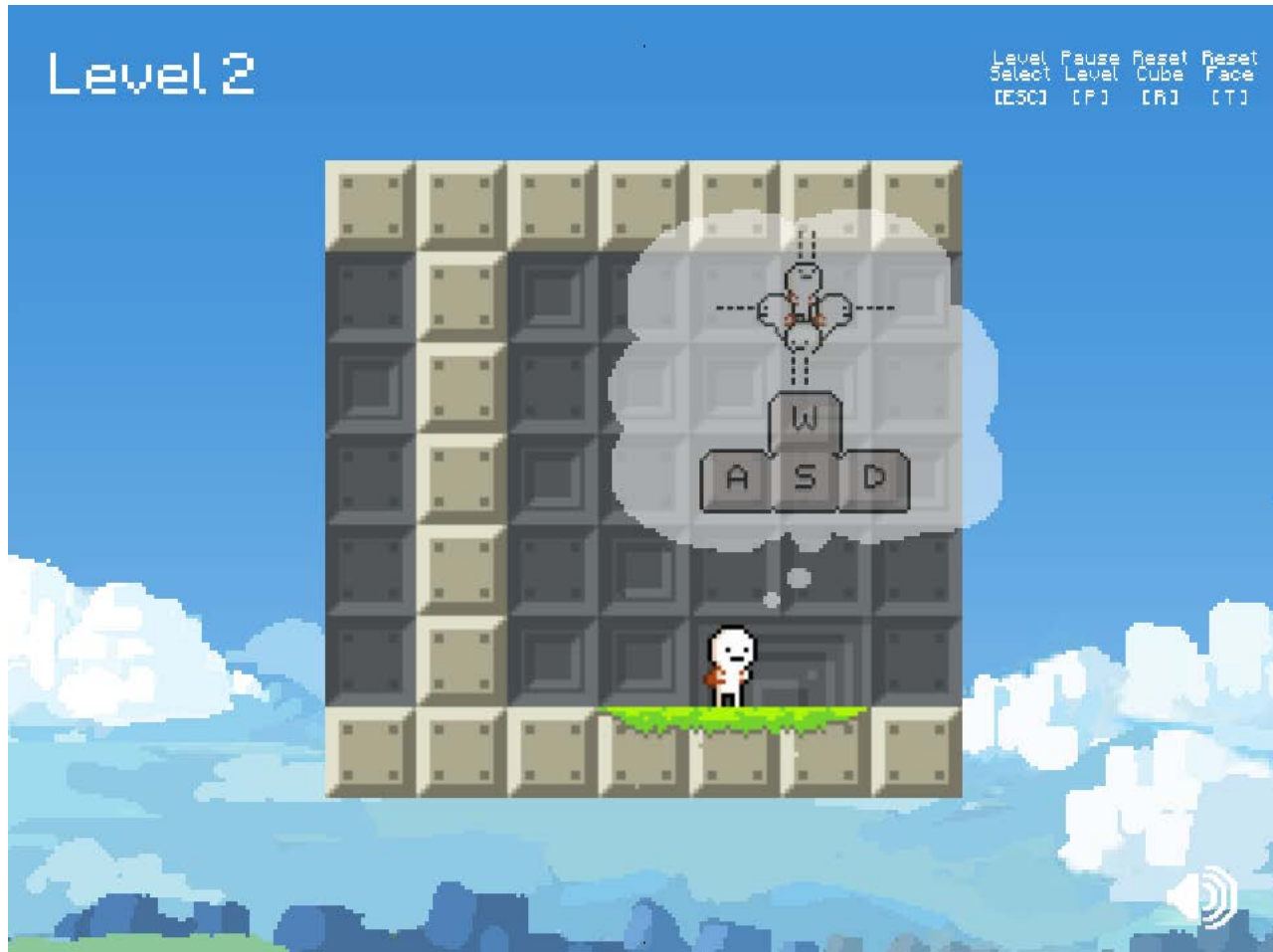
# Pong / Asset Creation Resubmission

---

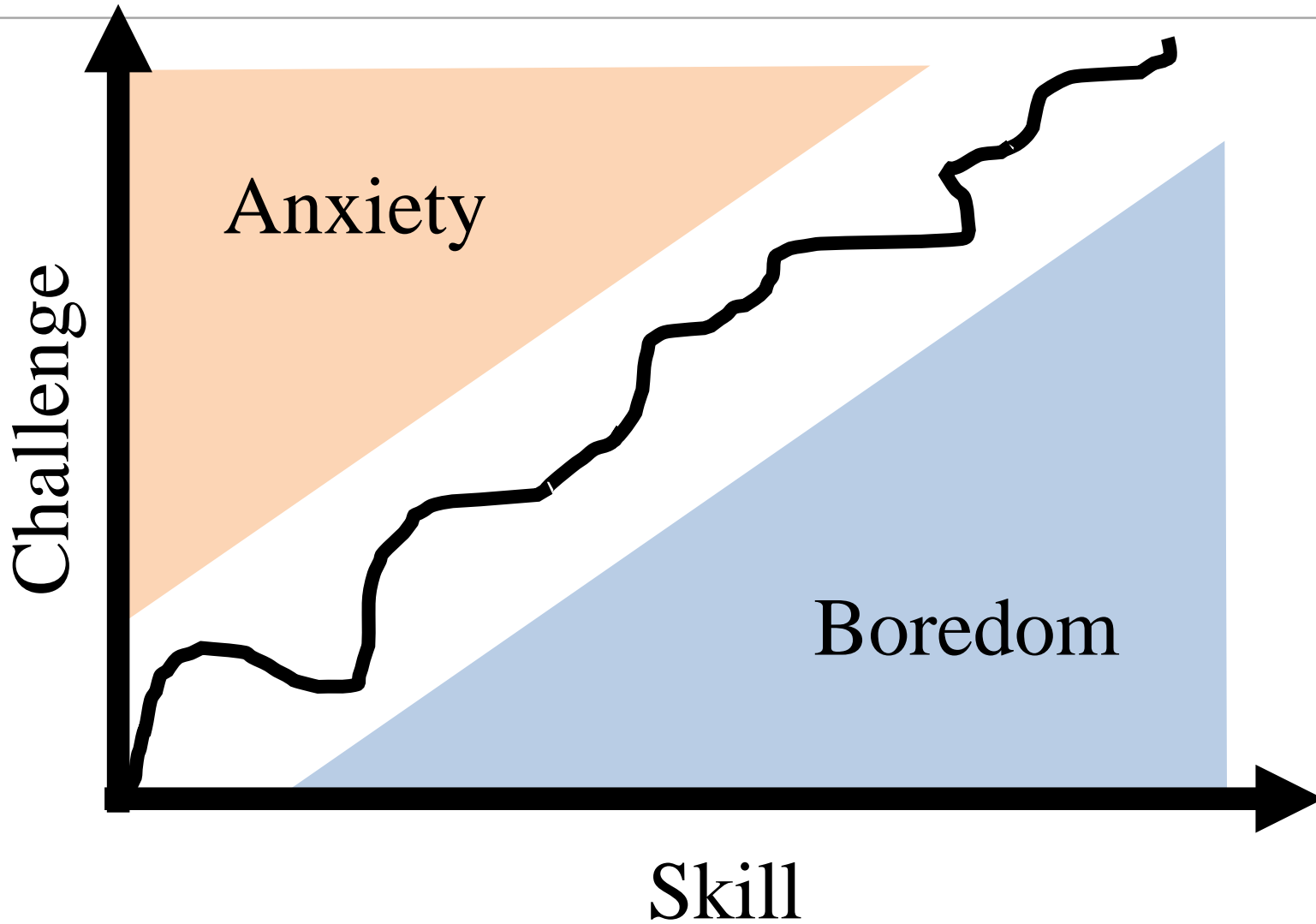
- **Thursday, September 17<sup>th</sup>, 11:59pm**

# Previously: Learnability

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# Previously: Flow



# Today: Progressions

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learnability + flow = **progression**

# Level design techniques

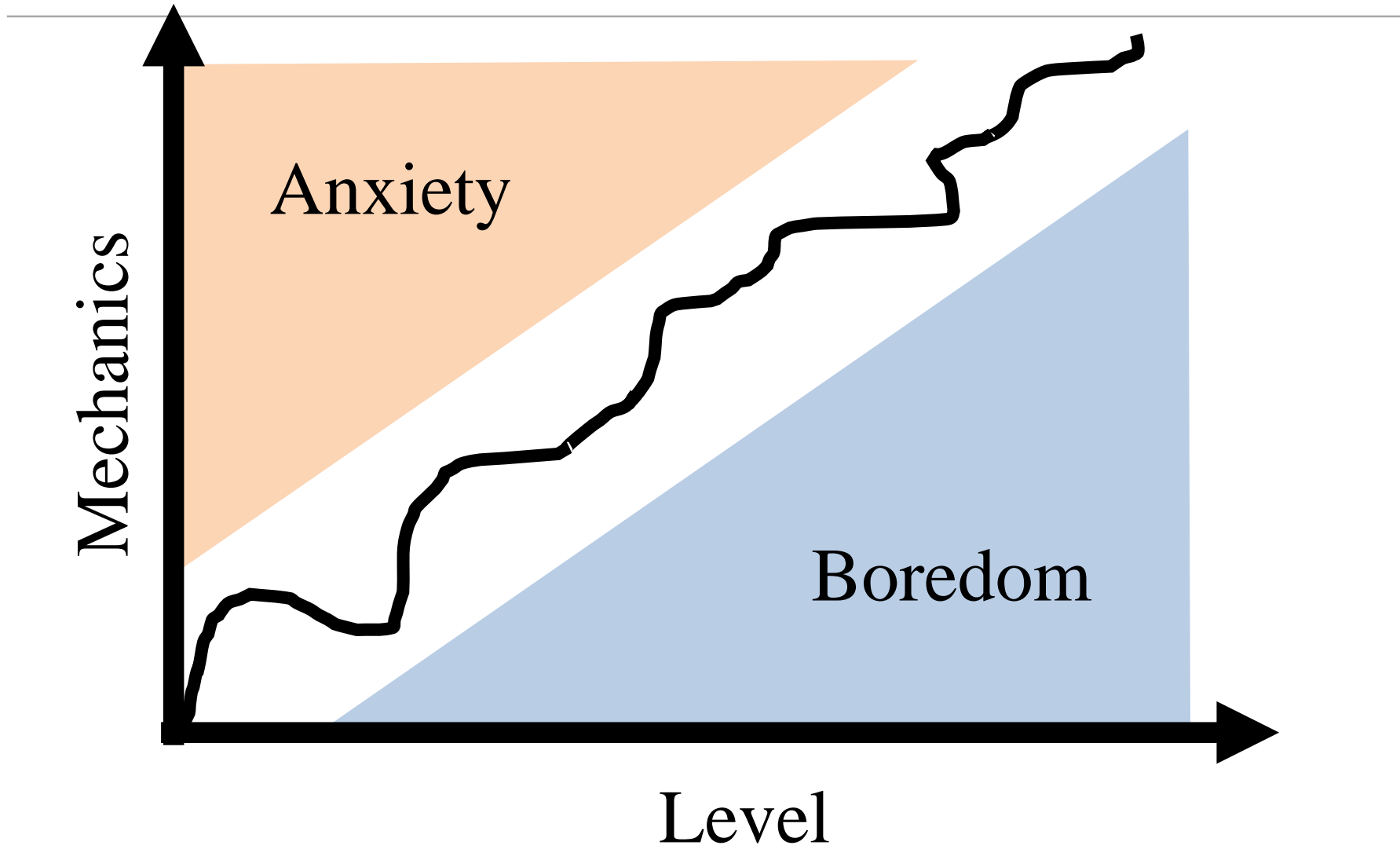
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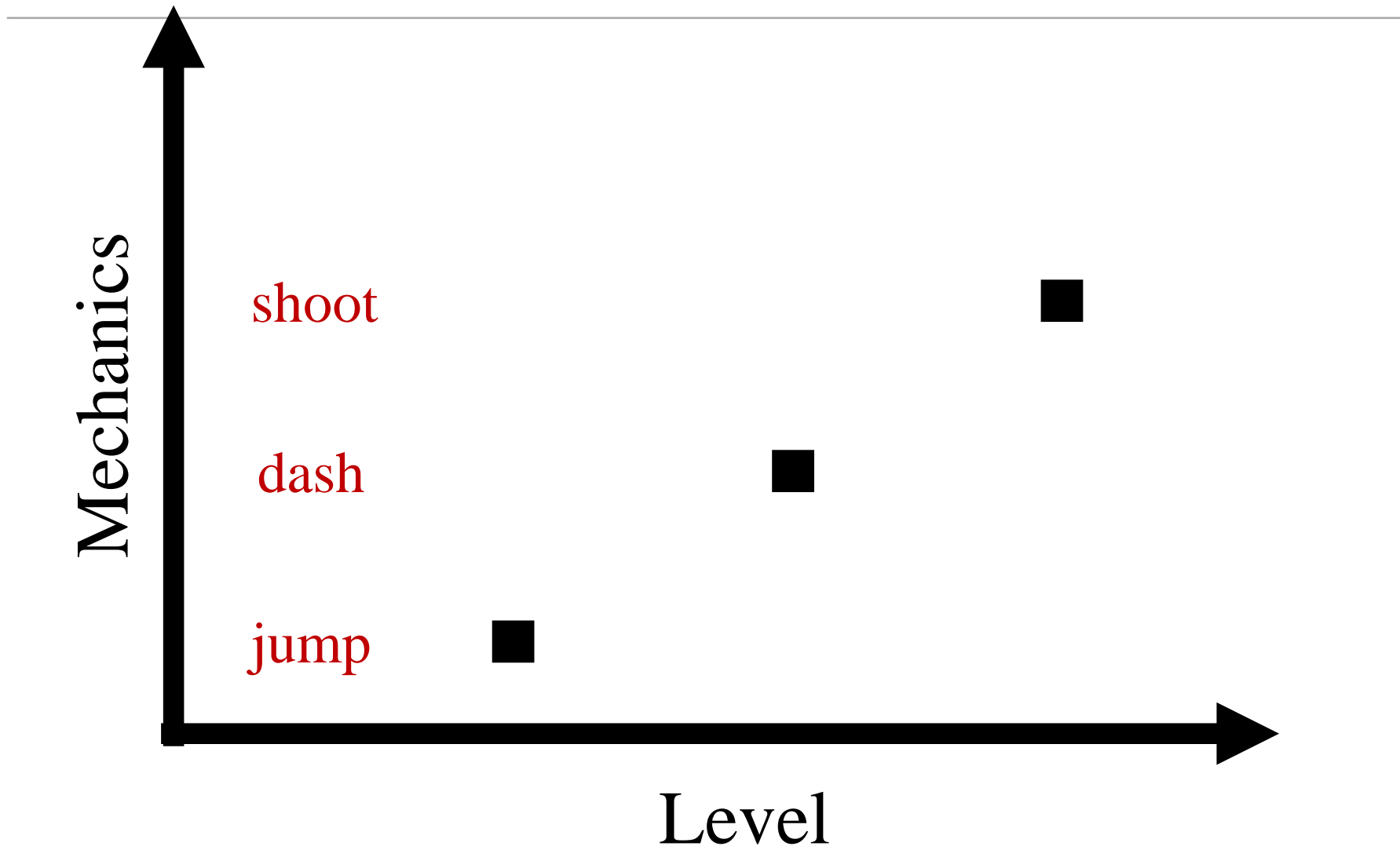
- Progress through mechanics
- Progress through decisions
- Use design patterns

# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns





# Reinforcement

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- How long to “dwell” on a mechanic before introducing a new one?

## Actions:

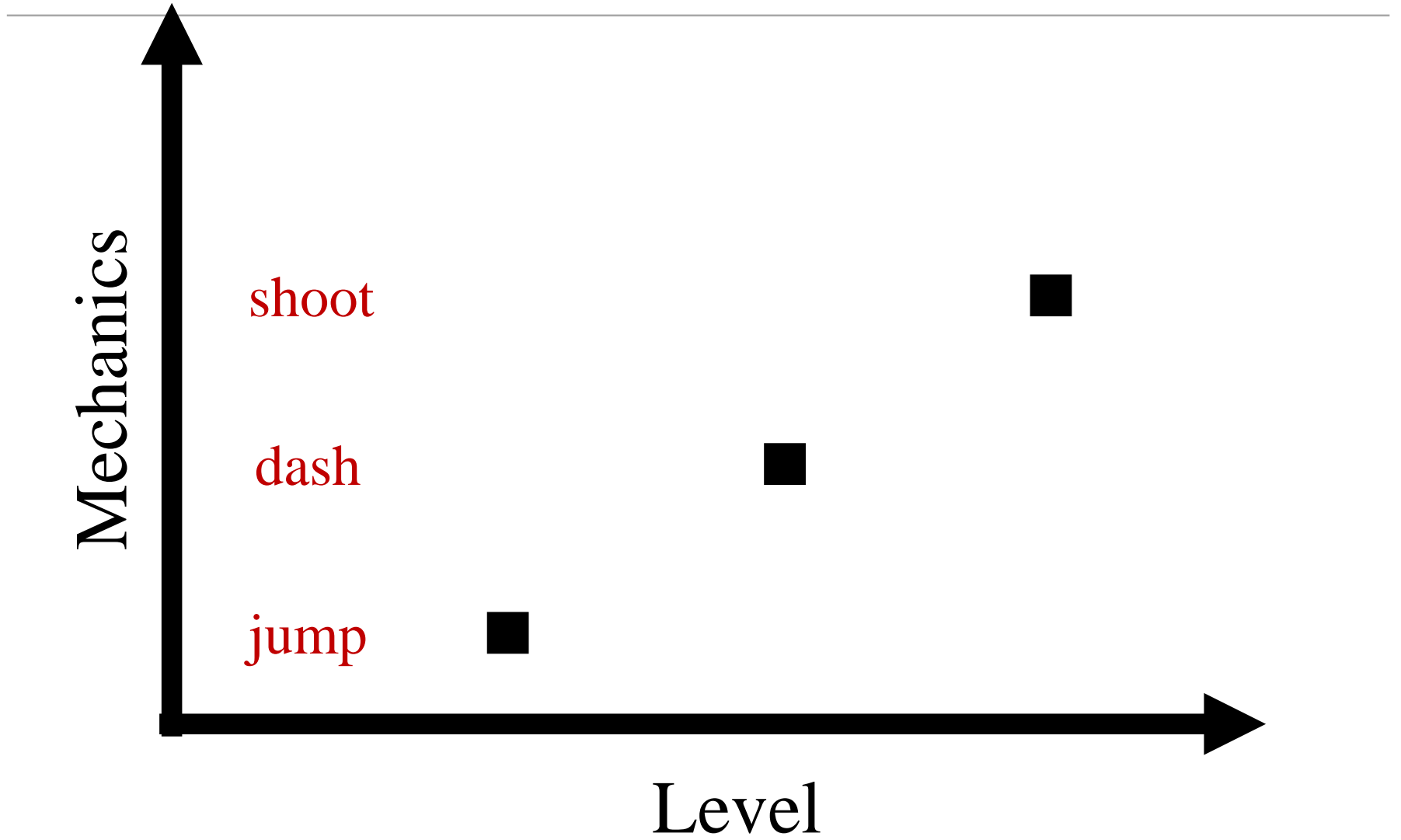
**A** = jump

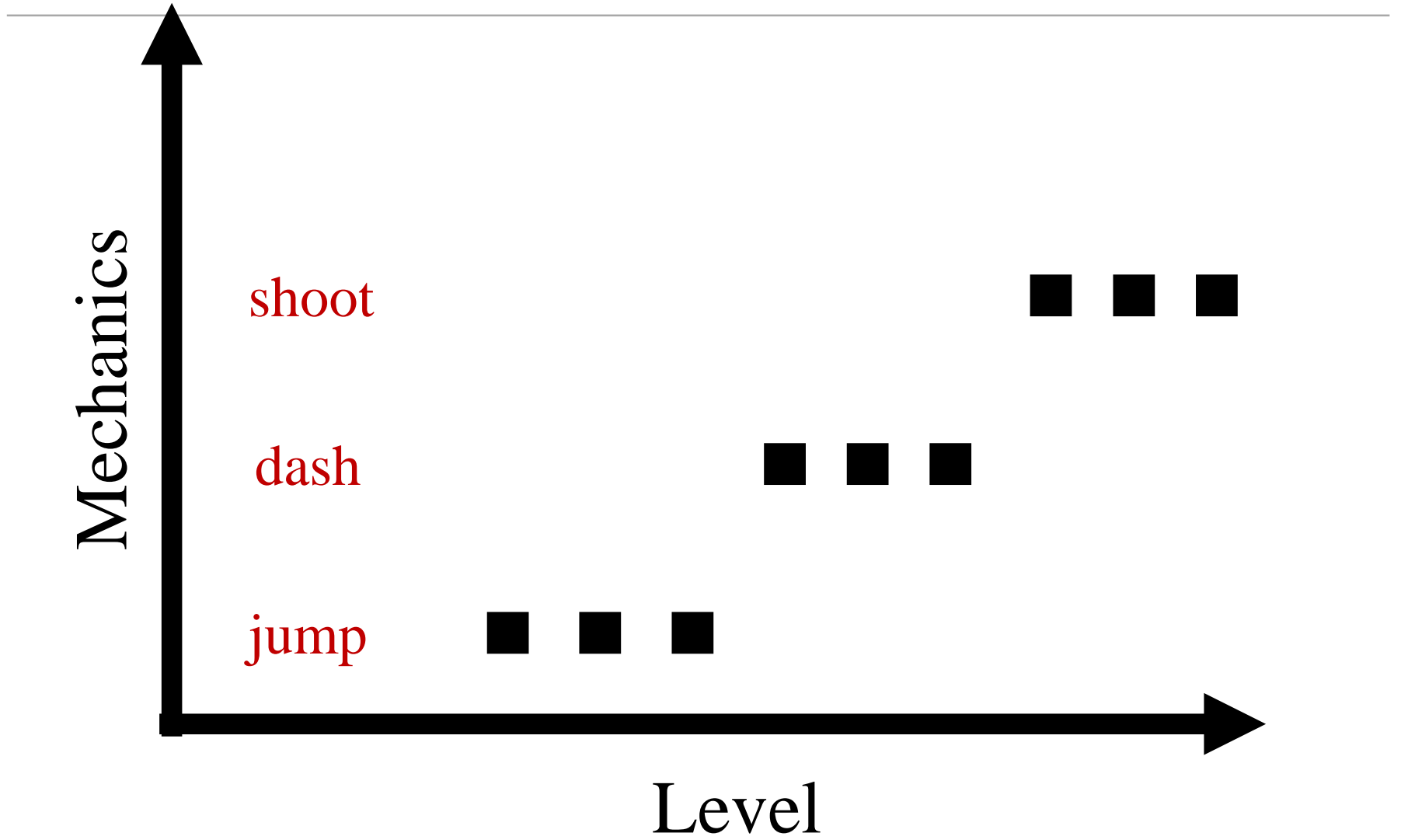
**B** = dash

**A B**

**vs.**

**A A A B**





# Recombination

---

- How often to combine mechanics with other mechanics?

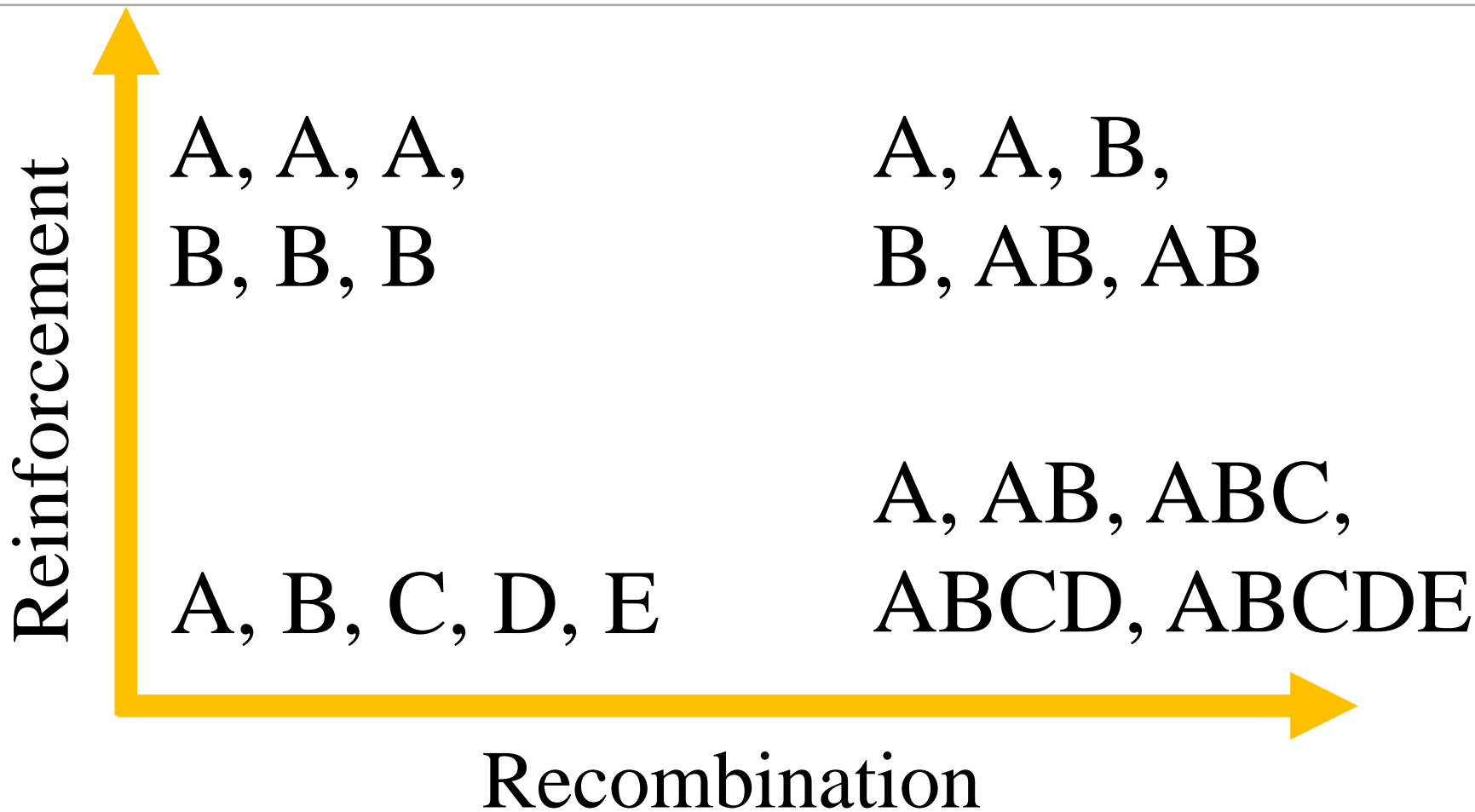
## Actions:

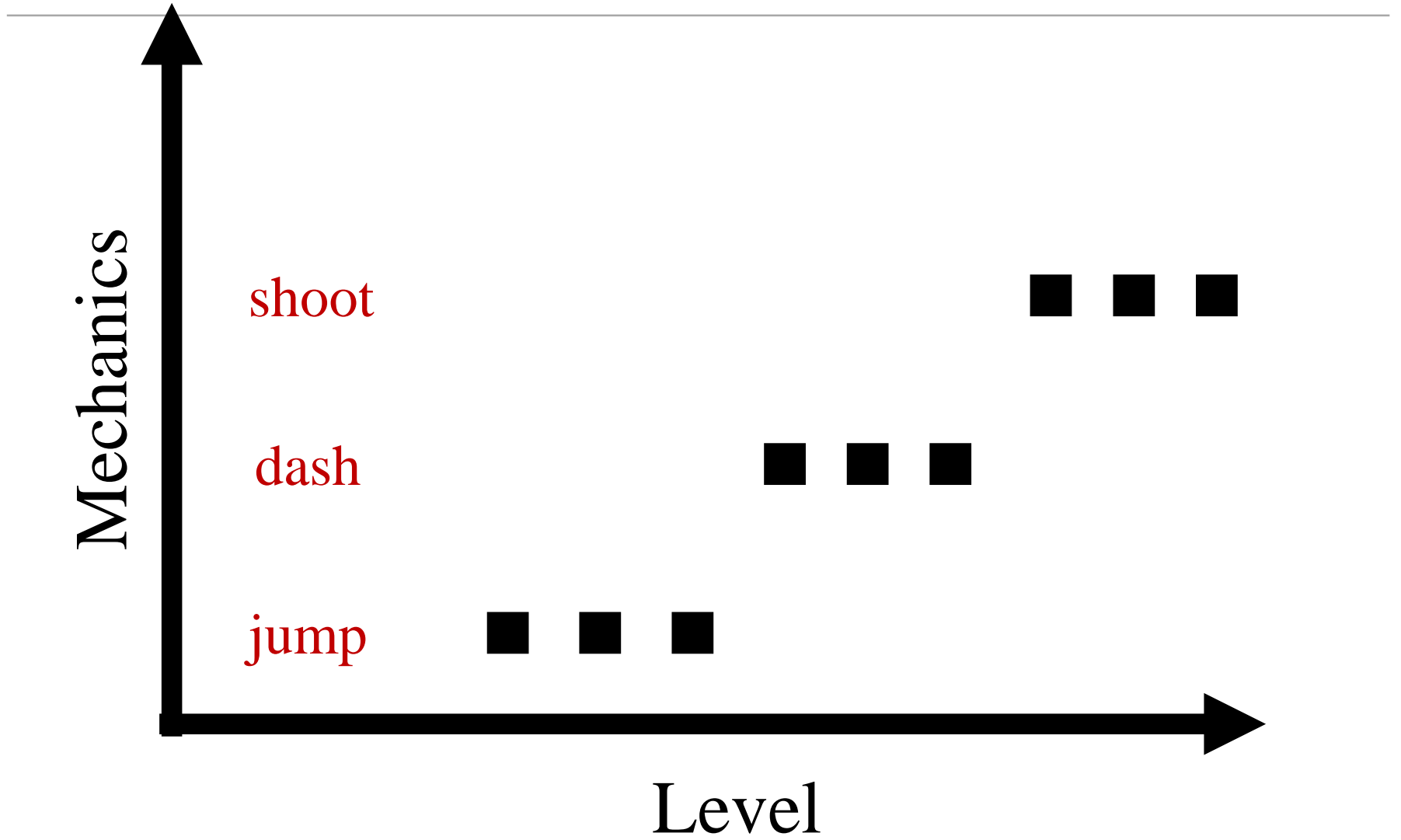
**A** = jump

**B** = dash

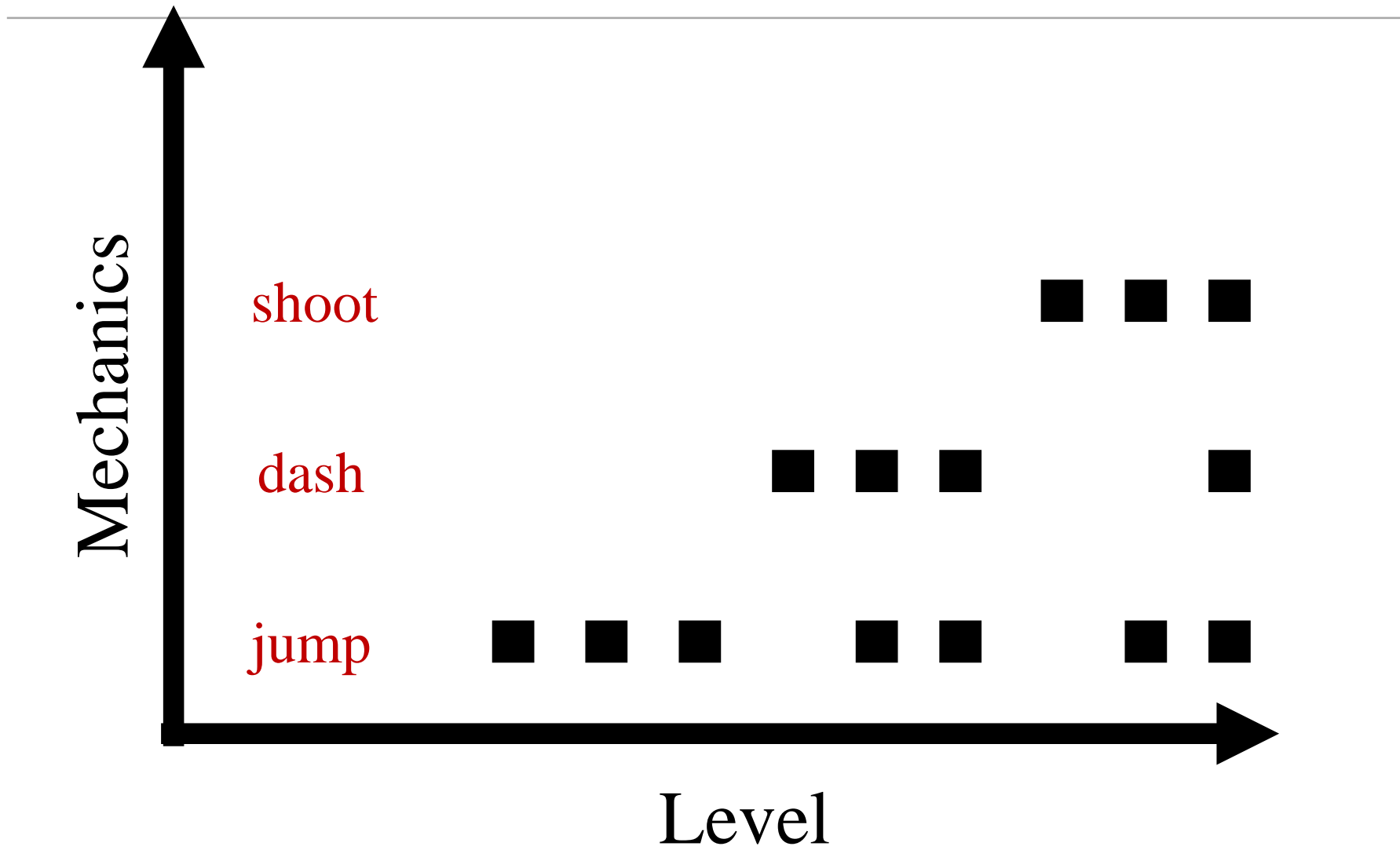
**C** = shoot fireball

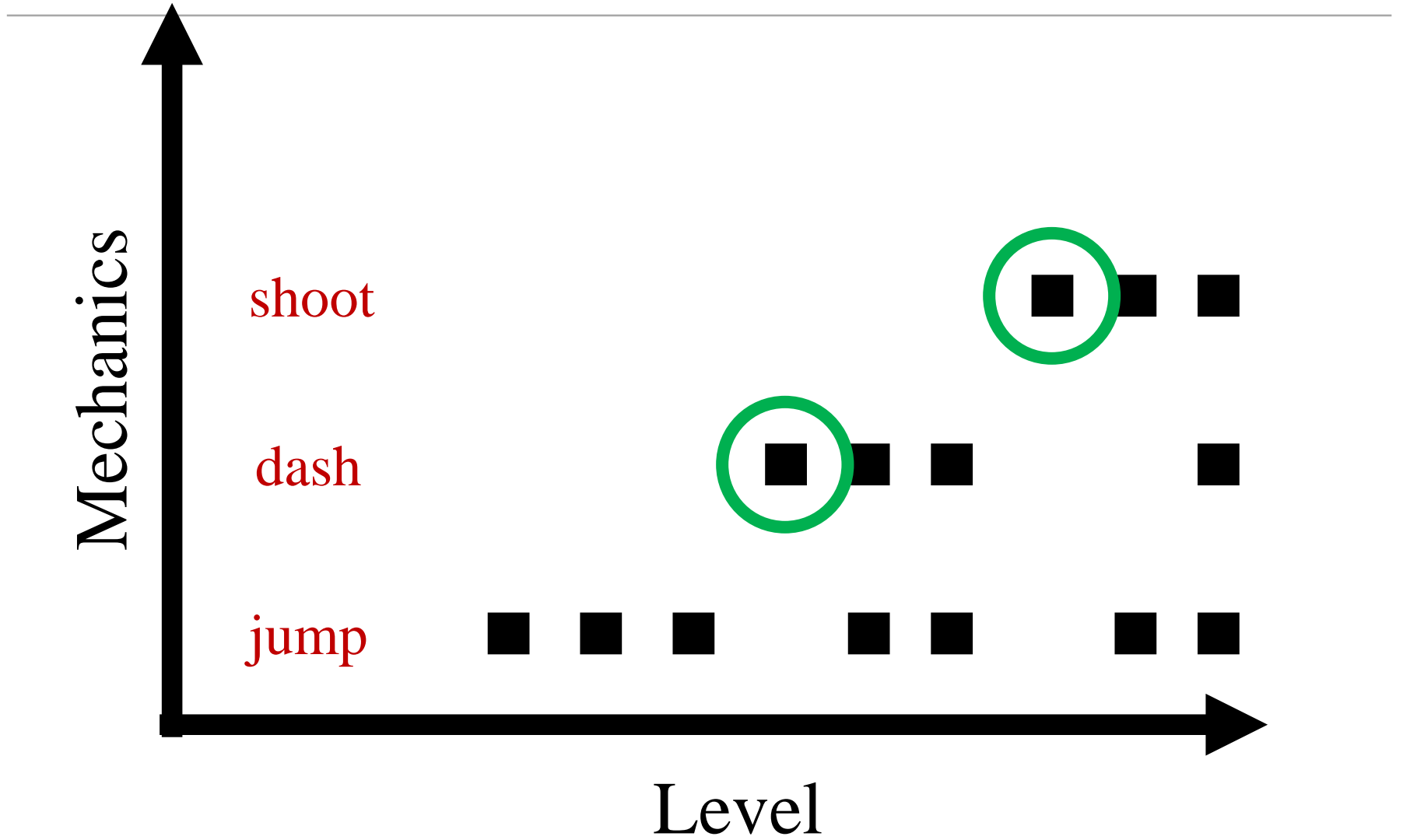
**A B C** vs. **A AB ABC**









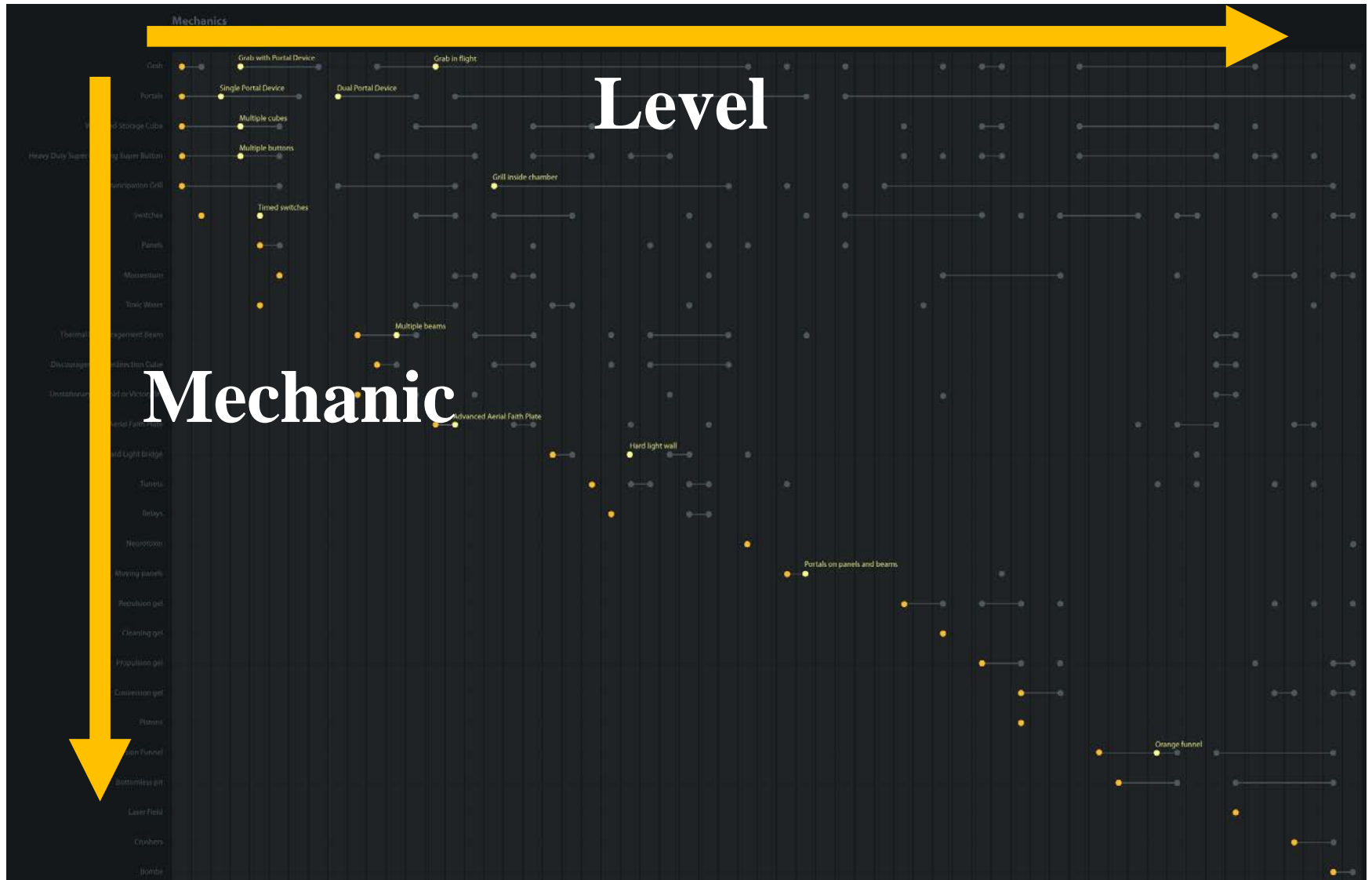


# “The Pit” in Braid

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# Portal 2 Mechanics



# Mechanics

● Introduction

● Variation



New Mechanics

Recombination

# Robot Unicorn Attack



# Robot Unicorn Attack Progression

---

## Mechanics:

**A** = jump

**B** = dash

**A A A B A A B**

**High reinforcement, low recombination**

# Hello Worlds

---

## Mechanics:

**A** = move      **B** = two worlds      **C** = close world











# Hello Worlds

---

## Mechanics:

**A** = move      **B** = two worlds      **C** = close world

**A**

**AB**

**AB**

**ABC**

**ABC**

**Moderate reinforcement, high recombination**

# Starcraft



# Starcraft

---

A AB ABC ABCD

**Low reinforcement, high recombination**

A B C D

A A A A

# What's the best?

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- No correct answer
- Some reinforcement but not too much
- Some recombination but not too much

# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns

# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns

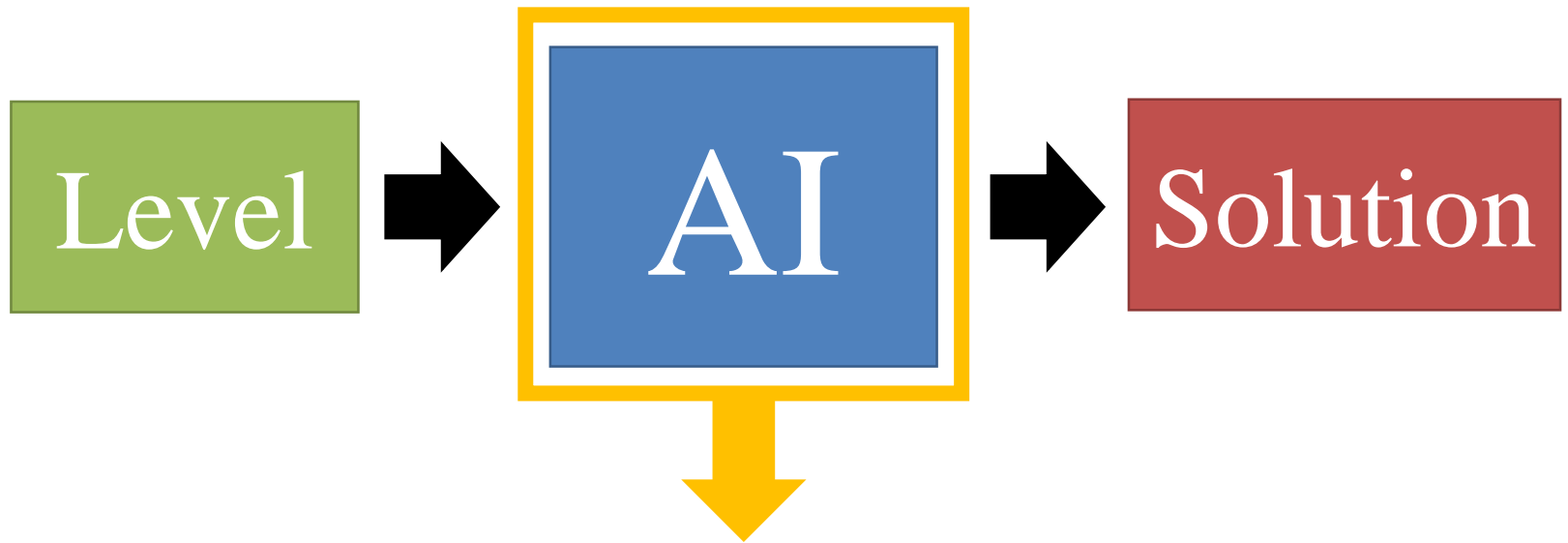
# Sid Meier

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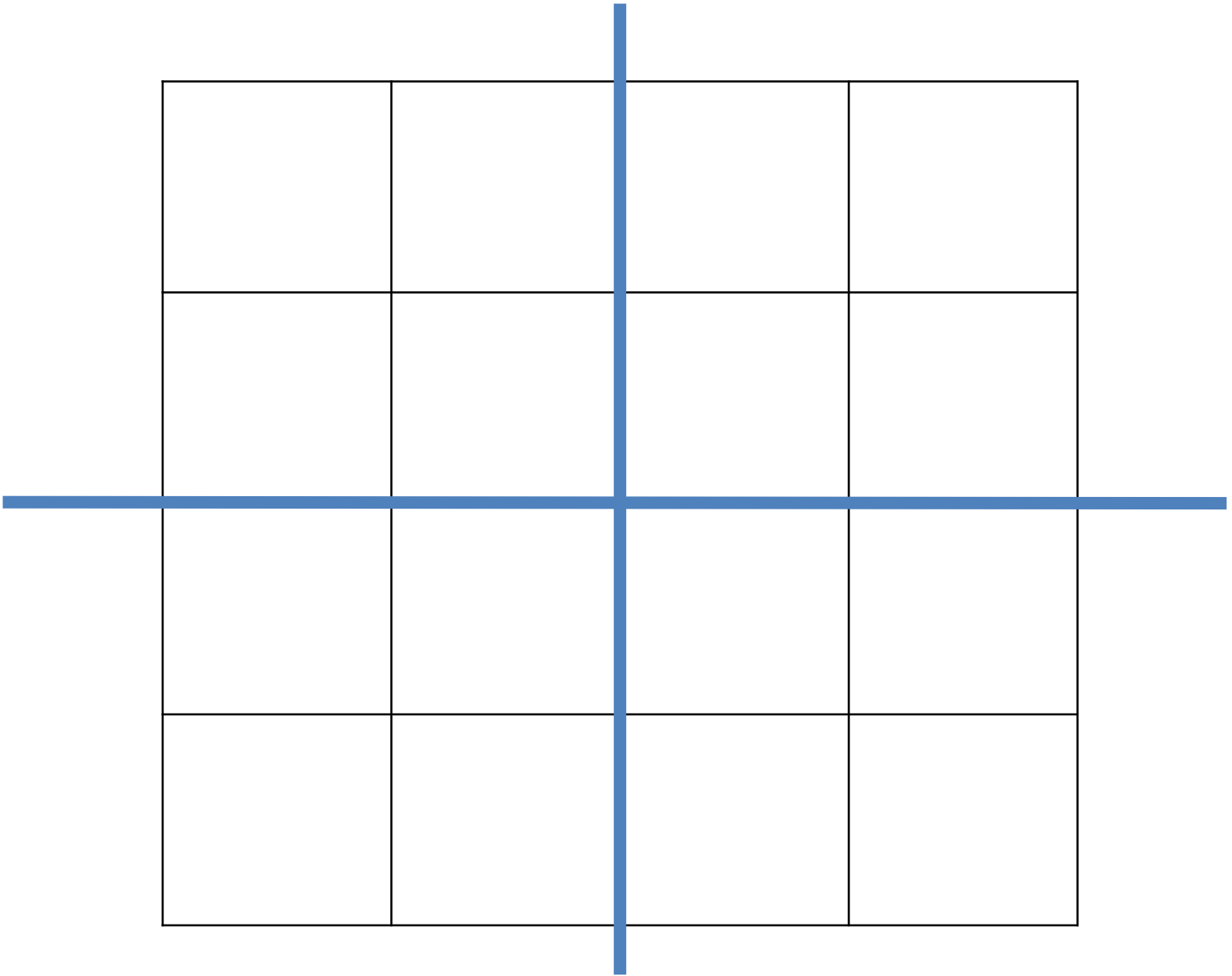



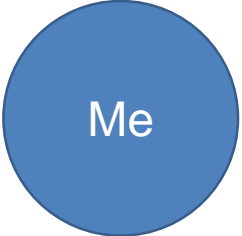
a series of  
*interesting decisions*



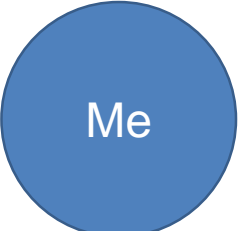
(GDC 2012)

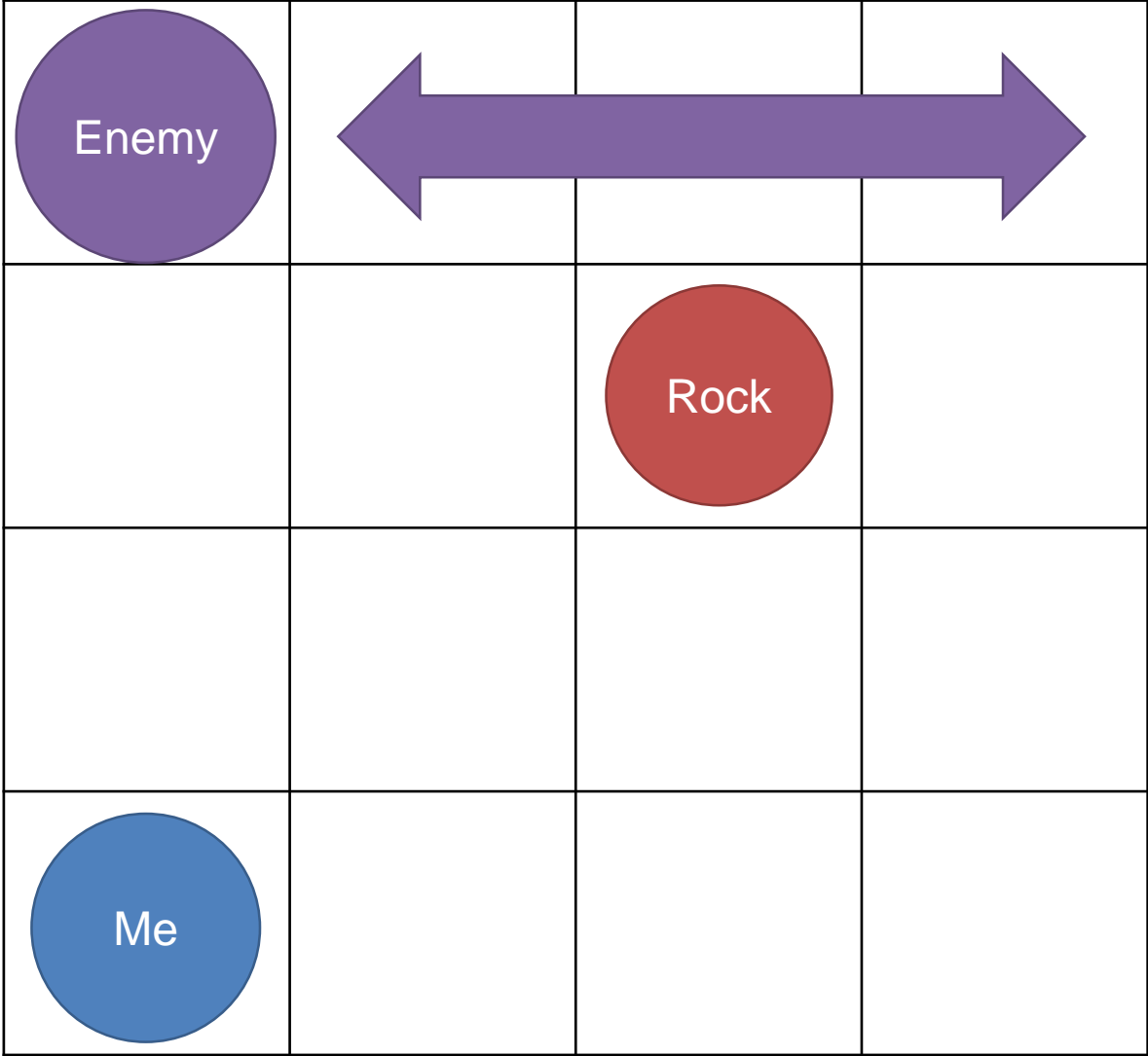


Complexity Analysis



 Rock			
		 Rock	
 Me			



# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns

# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns

# Design Patterns

---

- Conventions of your genre

# Arena

---



# Stronghold

---



# Sniper spot

---



# Choke point

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# What are the design patterns for:

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- Tower defense?
- Puzzle platformers?

# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns

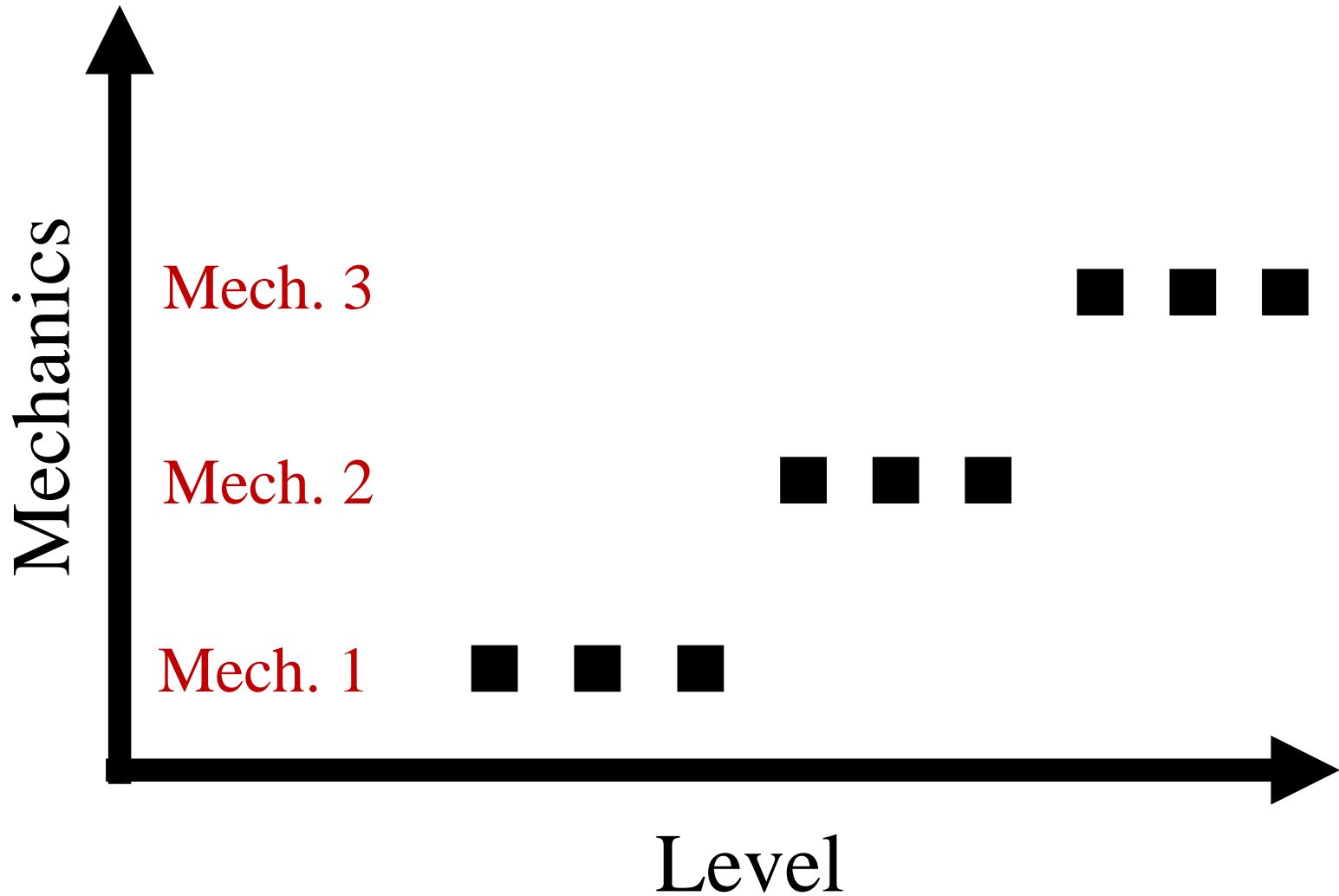
# Level design techniques

---

- Progress through mechanics
- Progress through decisions
- Use design patterns

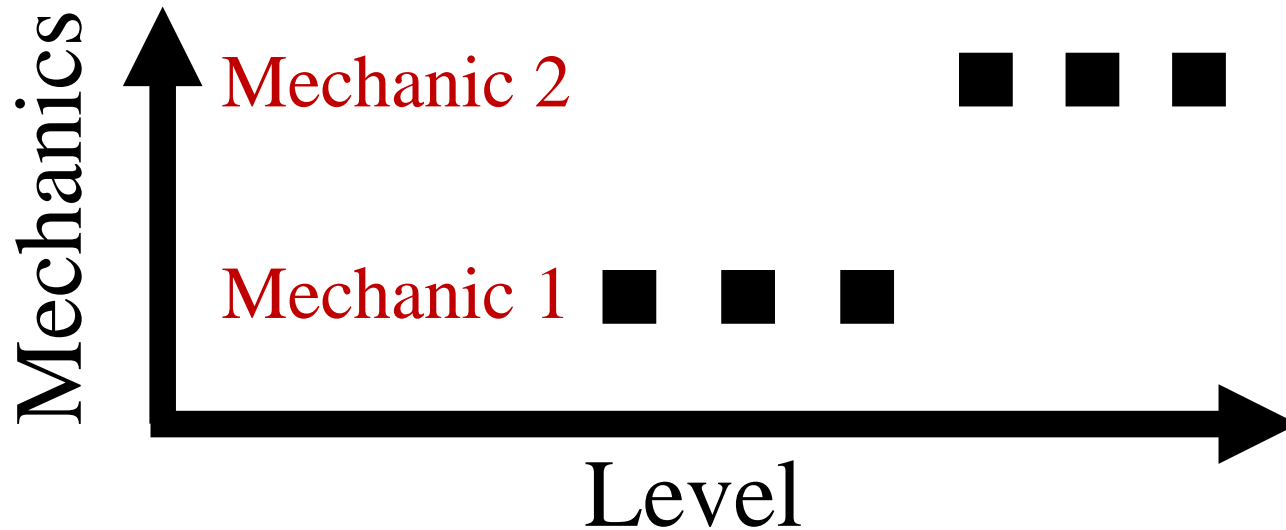
# Group activity #1: Play Thermo

---



# Group activity #2: design your levels

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Step 1. Make this chart for your game

Step 2. Design a level that *reinforces* a mechanic

Step 3. Design a level that *combines* two mechanics

Step 4. Show to group behind / in front of you