

50.033

Foundations of
Game Design
and Development

GAME MECHANICS

8 core game mechanics

WHAT WE HAVE LEARNED SO FAR

- **Introduction:** history, current trends, 100 rules of game mechanics
 - Informal ‘must-have’ rules according to popular beliefs, as an introduction to the course
 - Goal: to learn how to design a game
- The ‘**what**’: formal elements, rules, *game mechanics*(today), game genres (tomorrow)
 - Basic stuff about *what makes up a game*
 - Characteristics of game rules
 - Types of games

DEFINITION

- Game mechanics is the **action of play (procedure)** of the game
- It is the **product of game rules and procedures** combined
- It describes:
 1. The goal of the game
 2. How players can and cannot achieve it
 3. What happens when they try
- Other *linear* forms of entertainment: movies, books, shows do not require mechanics

DEFINITION

- After you chose a set of mechanics for your gameplay you have to:
 - **Choose technology** that supports them
 - **Add aesthetics** to emphasize them to the players
 - **Create a story** that allows the game mechanics to make sense to the players

CORE GAME MECHANICS

● **Reflex**

- Tests how fast you react after certain cues
- Timing of the cues are unpredictable
- E.g: street fighter, tekken



CORE GAME MECHANICS



● Timing

- Got to do with rhythm keeping
- Timing of the cues are predictable
- E.g: Super Hexagon, Rock Band

CORE GAME MECHANICS

- **Precision & accuracy**

- Has to be exact and well-aimed
- E.g: FPS games (especially snipers), dart games, archery, also combos in most games



CORE GAME MECHANICS



● Measurement

- Mental calculations about basic **kinematics**, such as to predict jump distance, swing distance, rotational force, and inertia.
- Usually apparent when navigation through the game environment is a big part of the gameplay
- E.g: Mario Bros, Assassin's creed (sometimes made easy)



CORE GAME MECHANICS



● **Tactical choice**

- Deciding actions that need to be **immediately** taken during dilemmatic or difficult situations, in order to reap as much *instant* benefit as possible
- Weighs **short-term** pros and cons
- E.g: most action/war/stealth games (Tom Clancy's Splinter Cell, Metal Gear Solid, Battlefield, Call of Duty, L4D)

CORE GAME MECHANICS

● Strategy

- Planning a few steps ahead to maximise future benefit
- Weighs long term pros and cons



- E.g: Tower Defense, Minecraft

CORE GAME MECHANICS



● Management

- Controlling resources or people is key to achieve the goal during gameplay (administrative acts)
- Games with management mechanics play with parameters
- E.g: Football game, Restaurant Empire, Hotel Giant, Roller Coaster Tycoon

CORE GAME MECHANICS

● Puzzles

- Pure thinking game
- Games that can be resolved mentally
- E.g: Tetris, Portal,
Cut the Rope

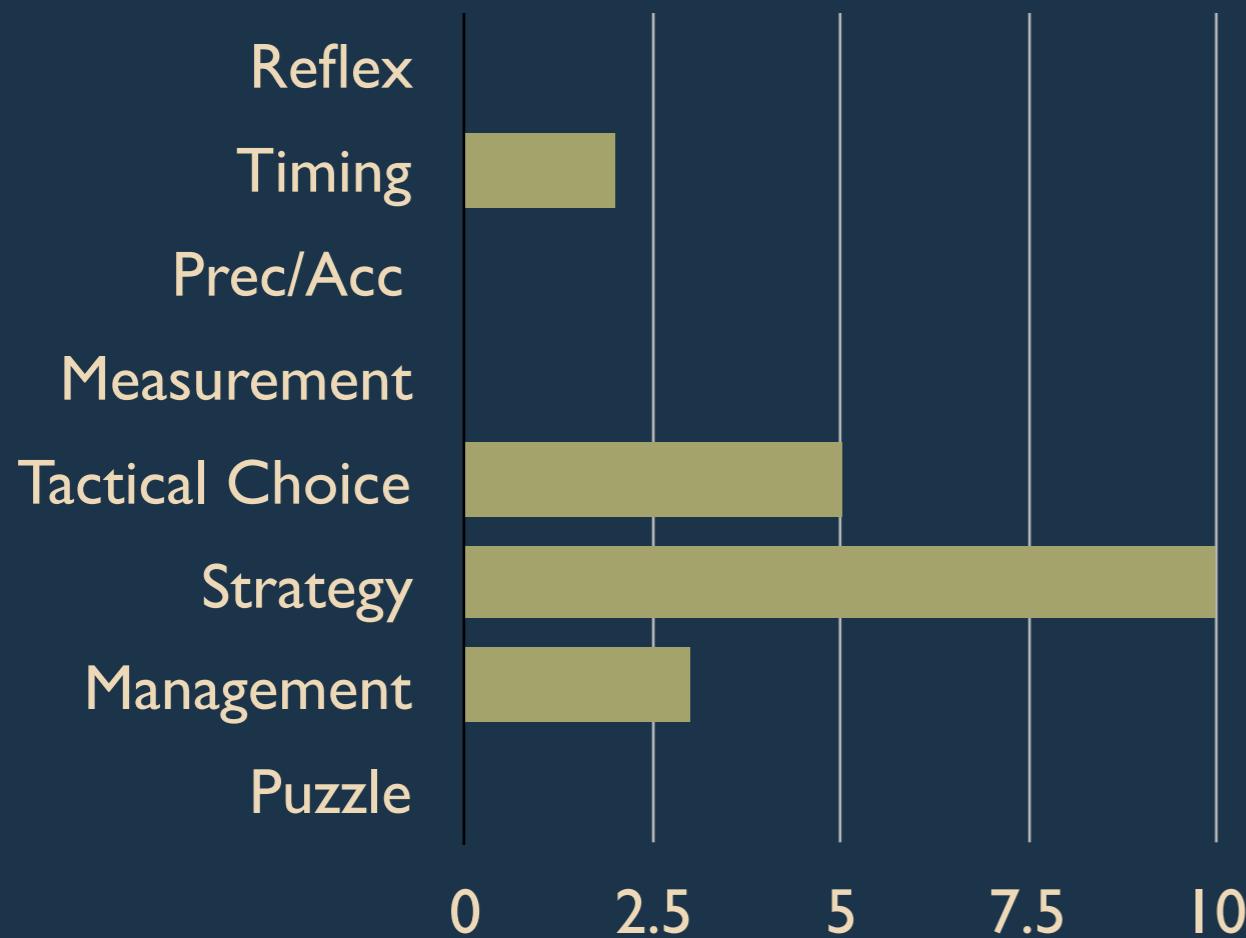


CORE GAME MECHANICS

- Reflex
- Timing
- Precision & Accuracy
- Measurement
- Tactical Choice
- Strategy
- Management
- Puzzle

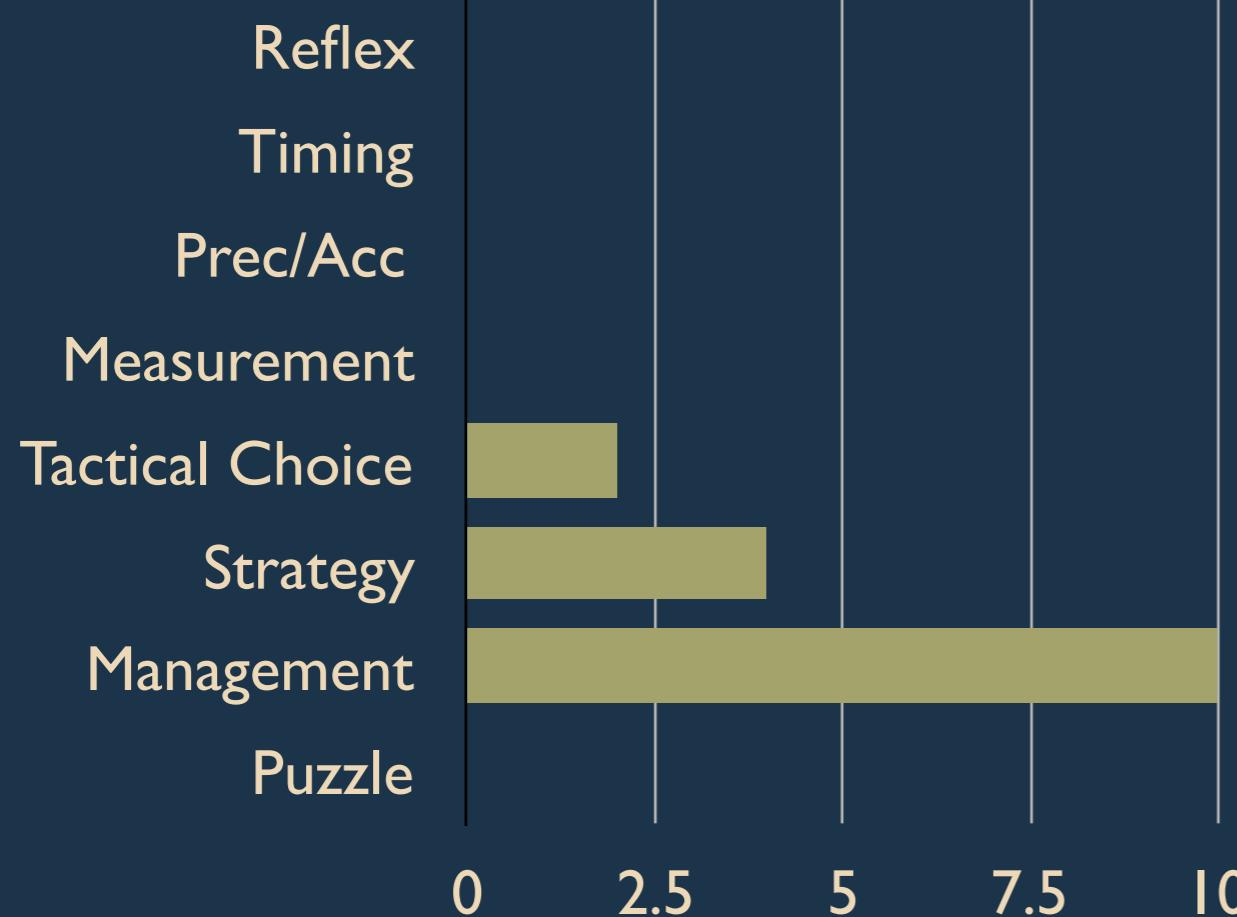
EXAMPLES

- Overcooked



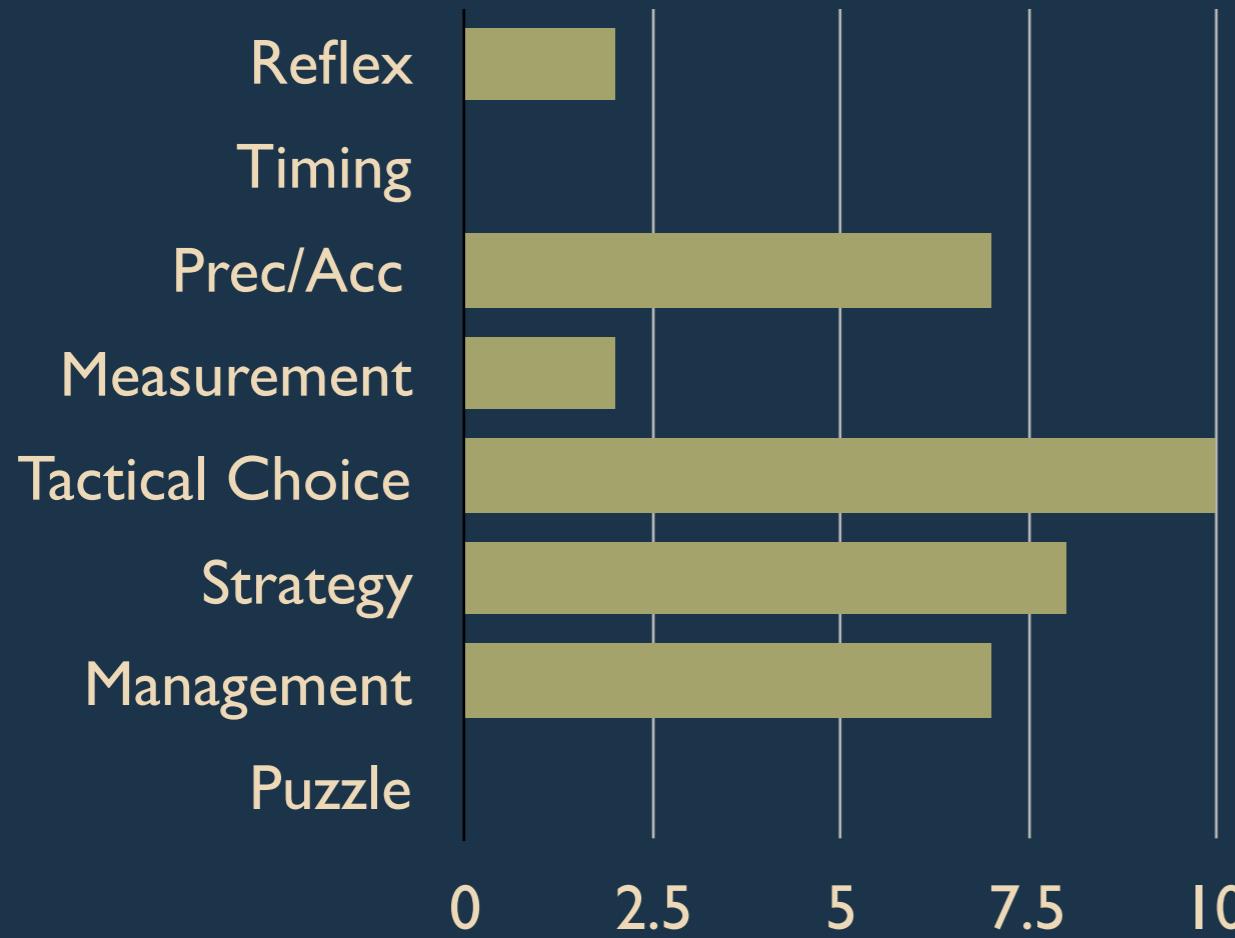
EXAMPLES

- Harvest Moon



EXAMPLES

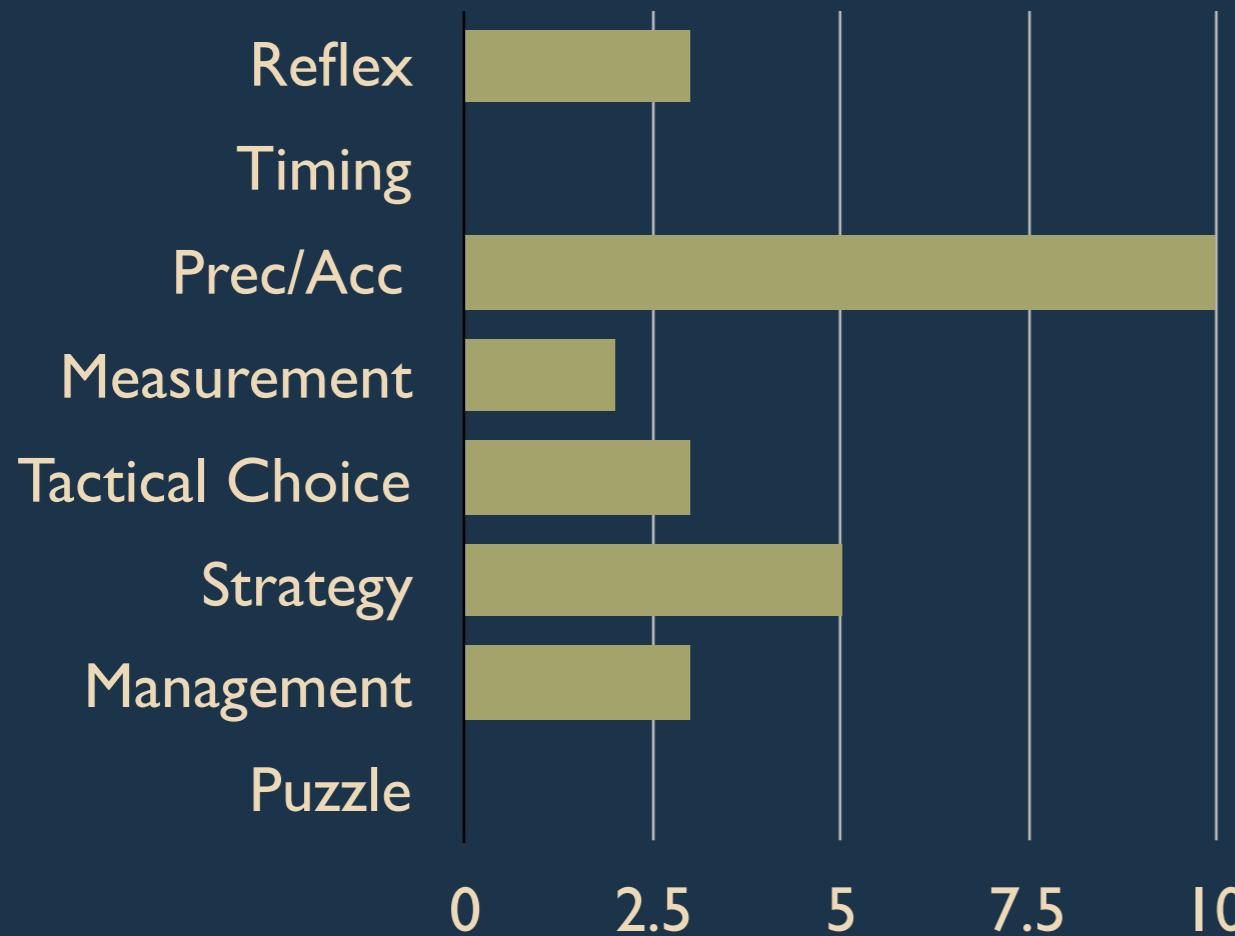
- DotA



EXAMPLES

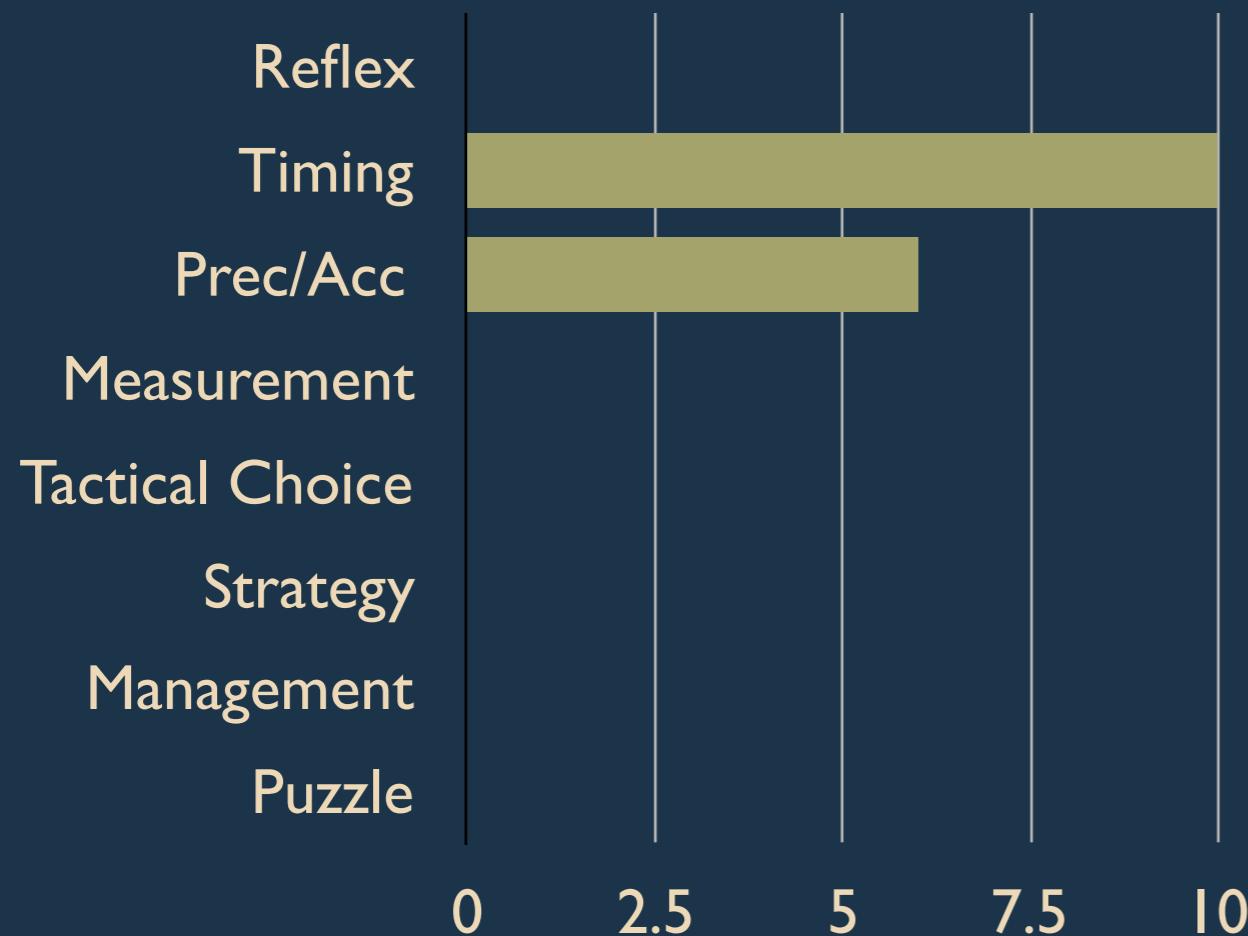


- Counter Strike



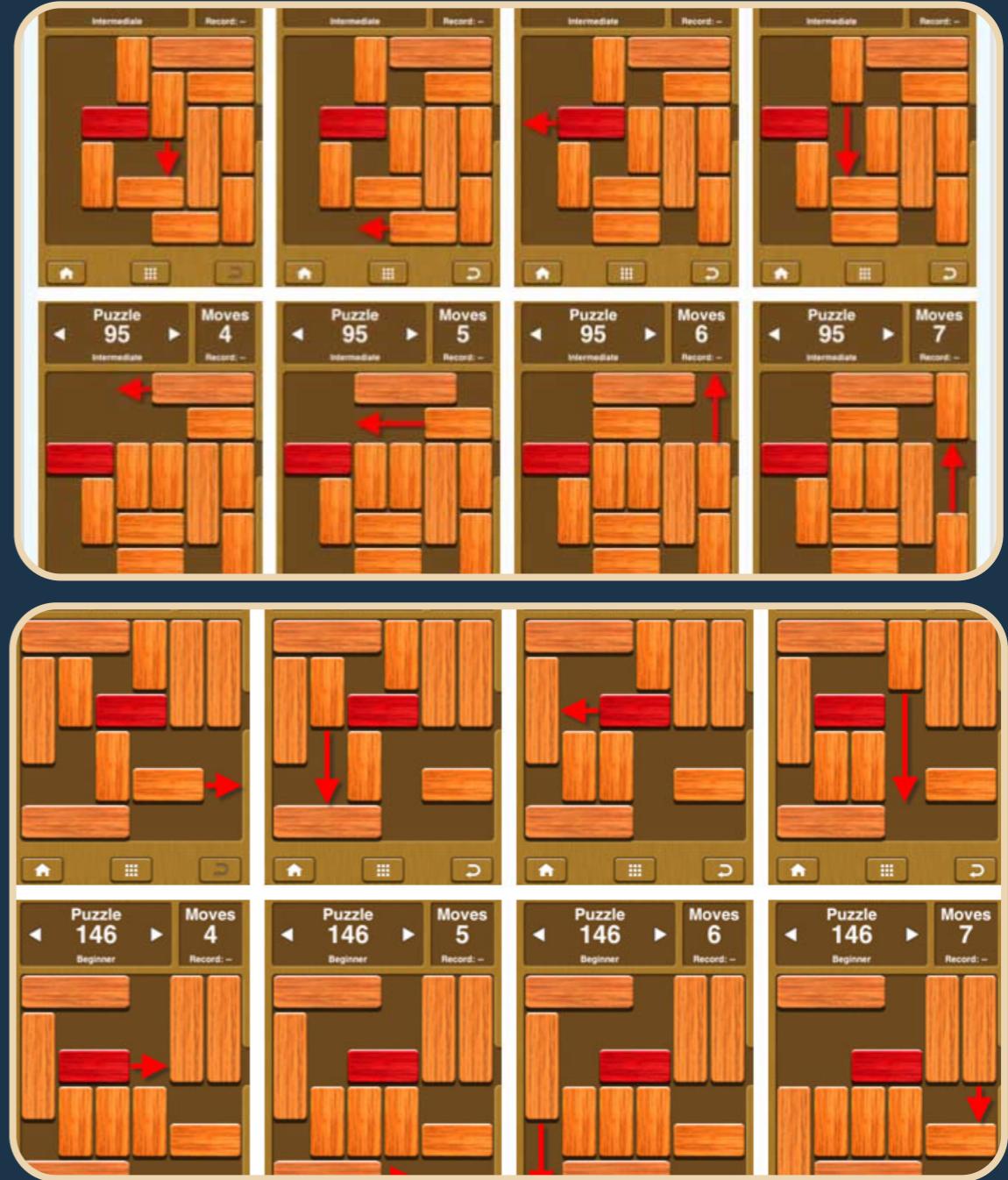
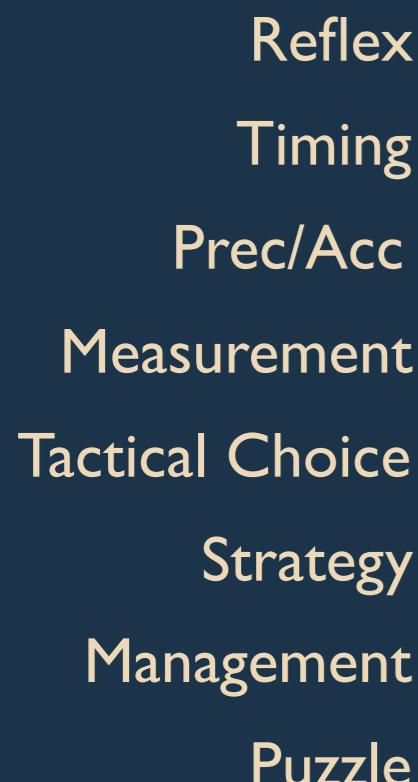
EXAMPLES

- Just Dance



EXAMPLES

- Unblock Me

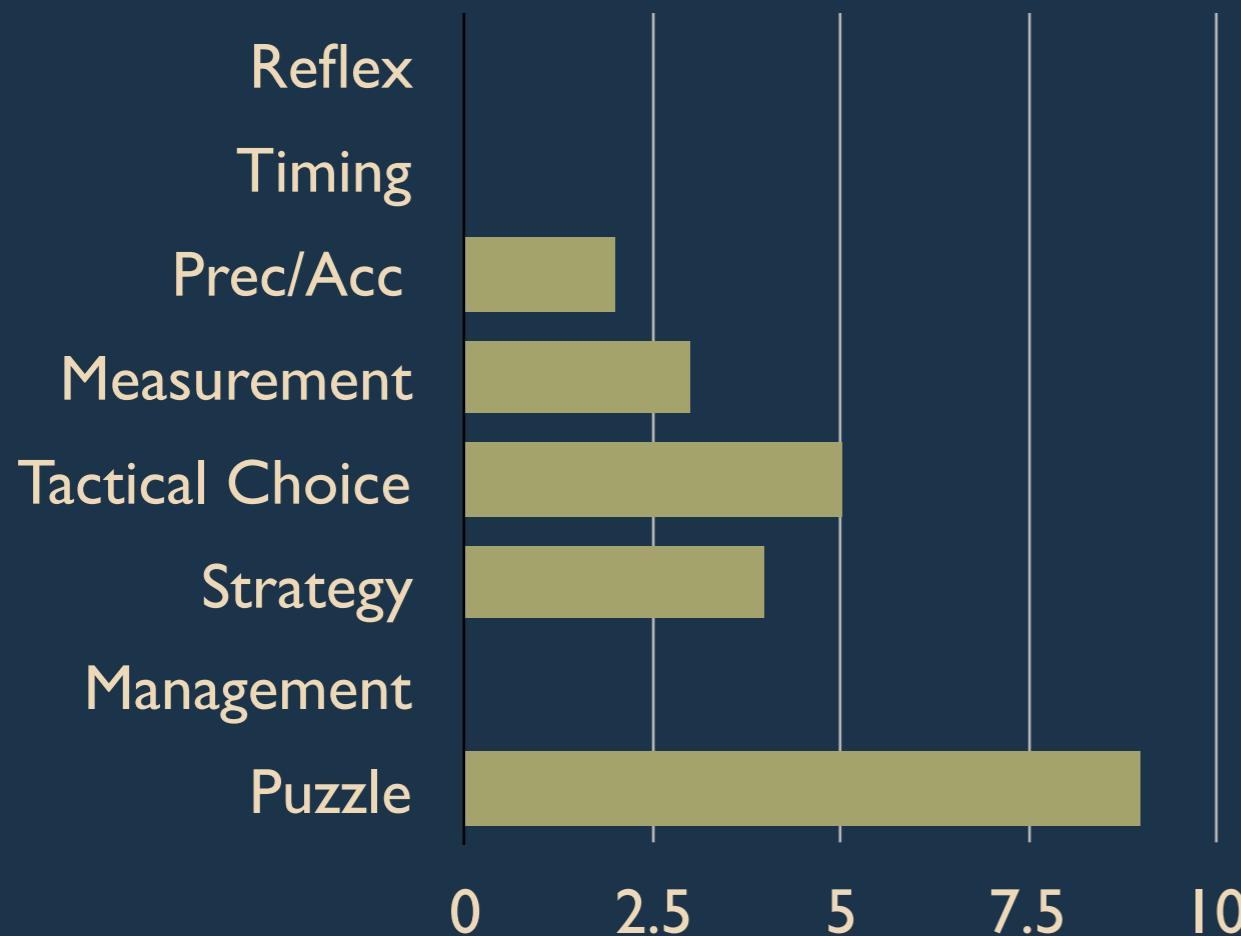


Unblock Me

EXAMPLES



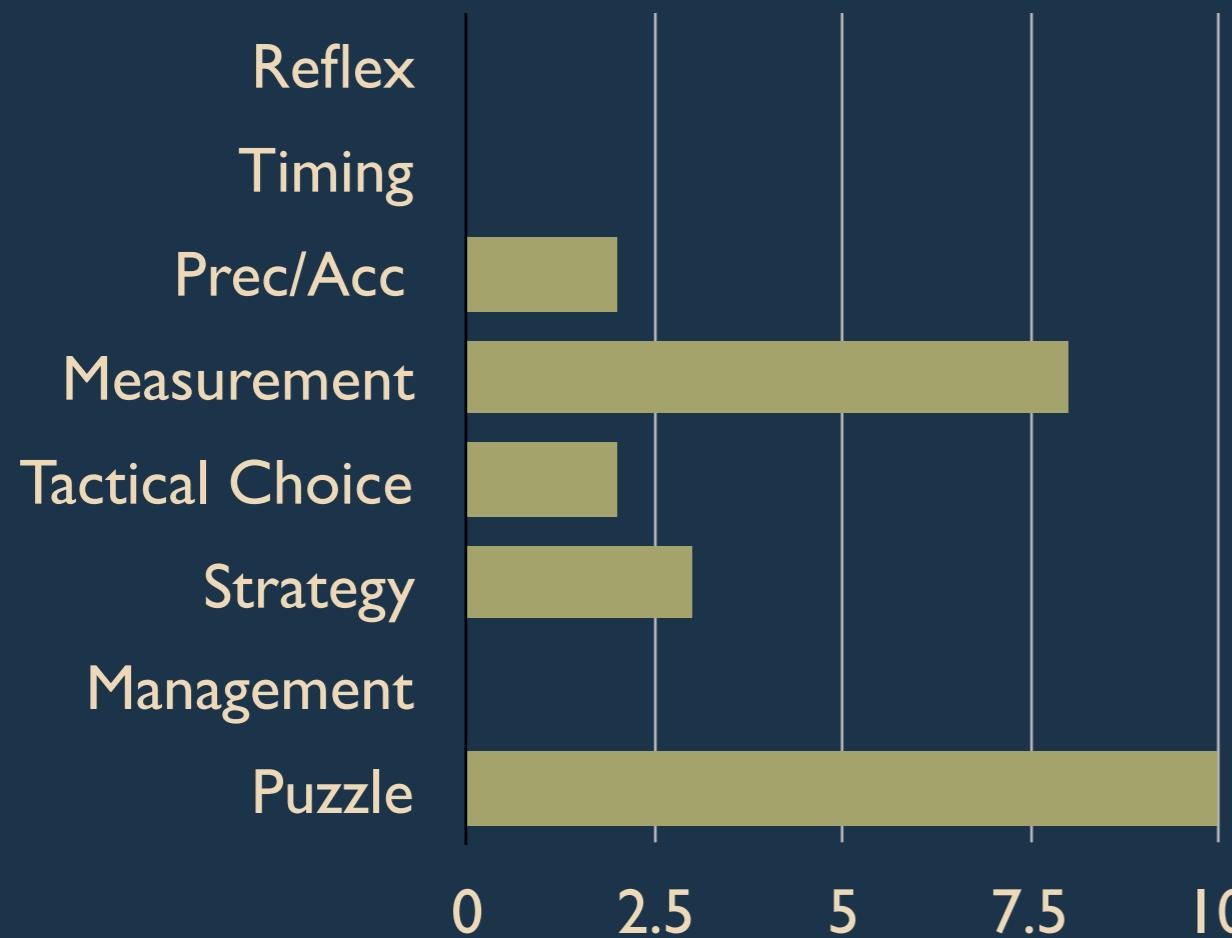
- Prince of Persia



EXAMPLES



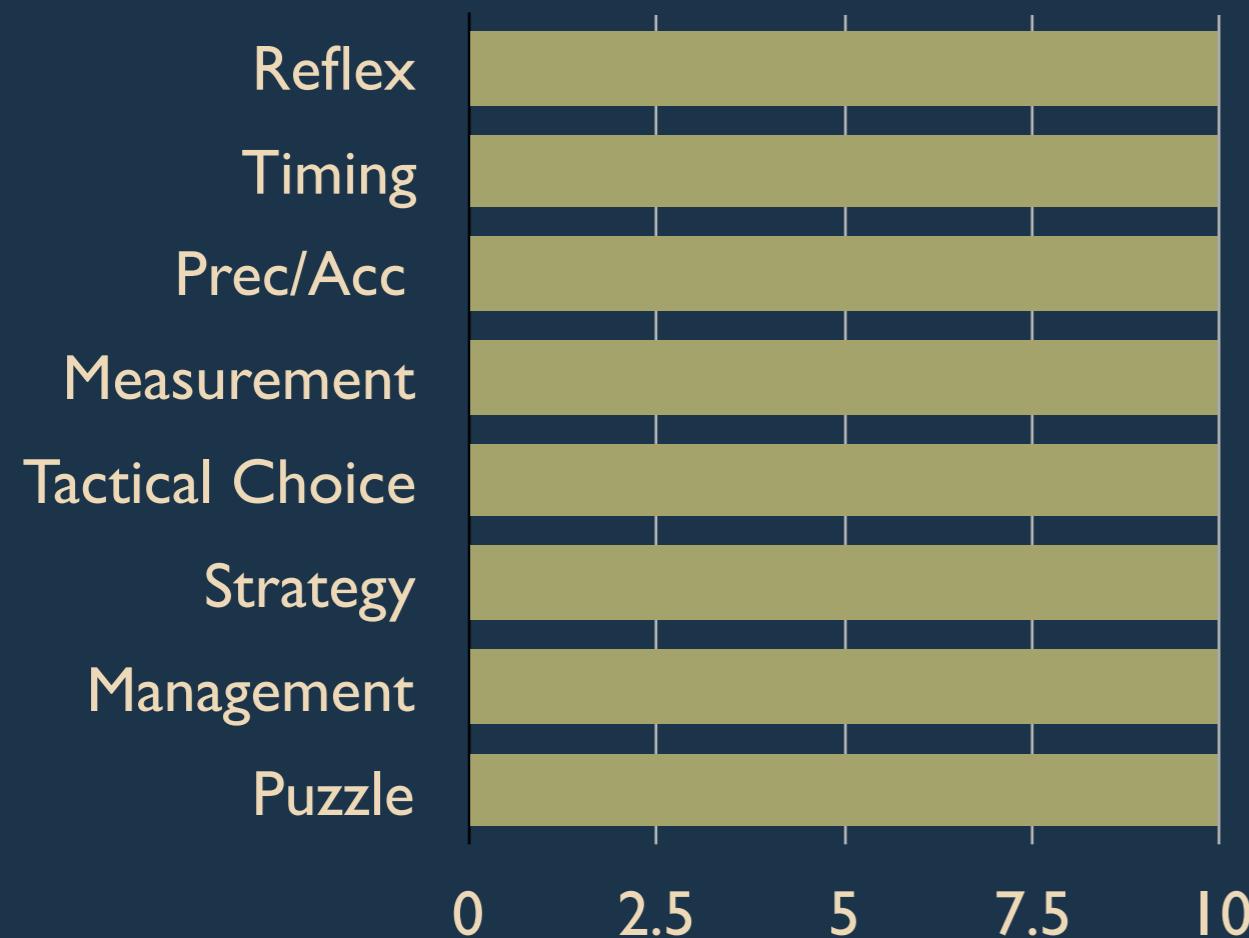
- Portal



DESIGN PRINCIPLE

- The more core mechanics your game has, the more difficult it is to play
- Most games have **one** dominant core mechanics
- *Tips: Focus on one core mechanics when you start designing a game. Afterwards, gather examples from games with similar core mechanics. Think about which aspects can be improved or modified, or use them as sources for inspiration*

DESIGN PRINCIPLE



- It is **impossible** to enjoy and complete a game like this
- Recall: rule#1 fight player fatigue

SUMMARY

- Definition of game mechanics
- Core game mechanics
- Examples
- Design principle of game mechanics