GAT 261

User Experience Design II

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- Tues/Weds 2pm-4:30pm

DigiPen INSTITUTE OF TECHNOLOGY

Game Feel Metrics I

- ❑ Overview of Game Feel Metrics
- ❑ Input Metrics

PLEASE SILENCE
ALL ELECTRONIC DEVICES

THANK YOU

GAME FEEL METRICS

Measuring Game Feel

Game Feel Metrics

Game feel metrics allow us to measure and analyze the experience of a game. There are two main classifications of game feel metrics:

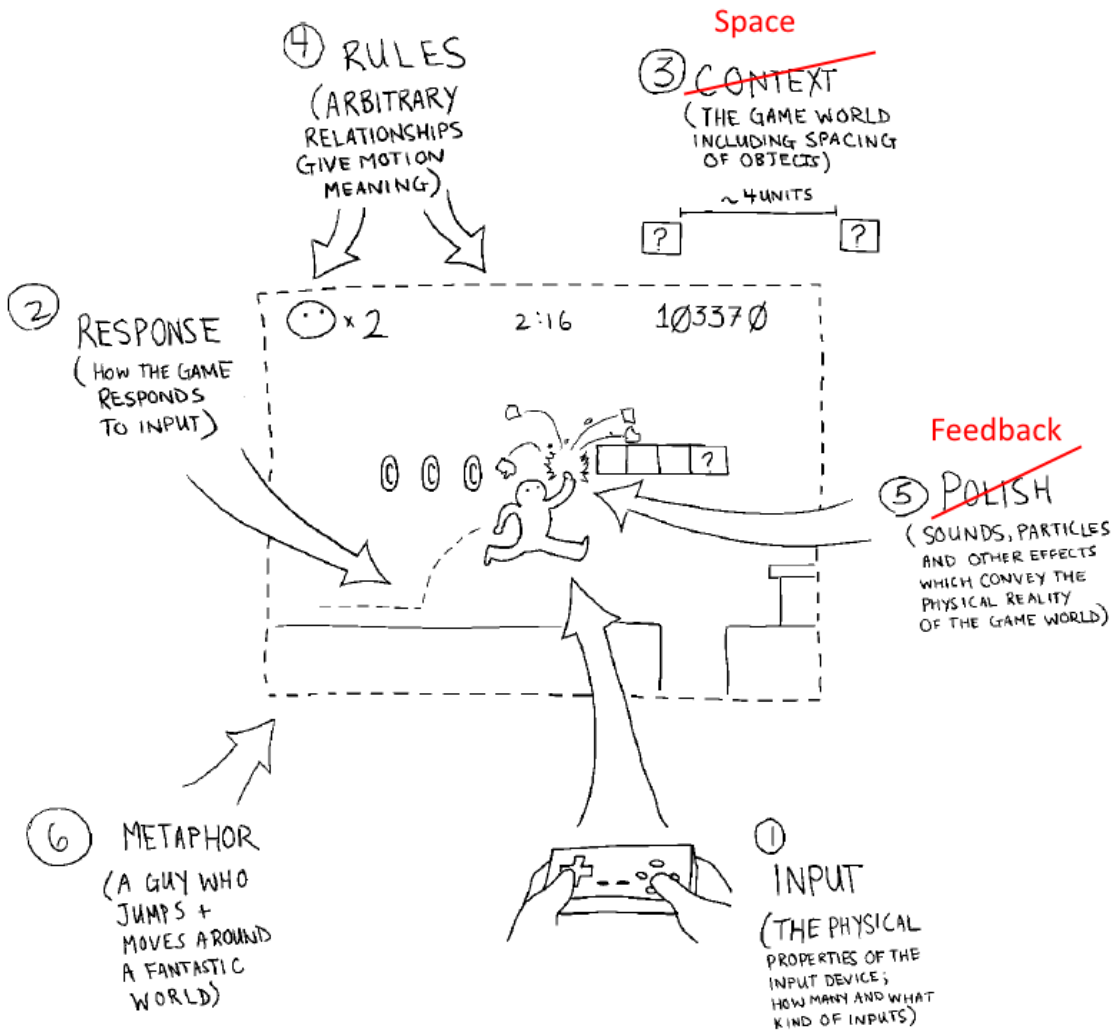
- Soft Metrics
  - These are often difficult to measure, but incorporate things like fun, laughter, player responsiveness/emotion, and requests for more play.
  - These can be reached through video and facial analysis of players, but often incorporate a general nebulous sense of player experience. Assessing these are an important design skill.
- Hard Metrics
  - Hard metrics are a more sophisticated, data-driven method of measuring player experience, such as response time, input stream, etc.
  - Hard metrics are not inherently “better”, just more measurable!

Metrics Categories

Hard metrics can help us identify the things a designer can actually change, which are the "computer's" side of the interaction experience, but some of these metrics (such as metaphor) are softer.

- Input
  - The physical construction of the device through which player intent is expressed.
- Response
  - How the system processes, modulates, and responds to player input.
- Space (Context)
  - The effect of simulated space on game feel and how that gives meaning to the controls
- Feedback (Polish)
  - Effects that artificially enhance impression of a unique physical reality in the game.
- Metaphor
  - How the game's representation and treatment change player expectations about the behavior, movement, and interactions of game objects.
- Rules (Mechanics and Goals)
  - How arbitrary relationships between abstracted variables in the game change player perception of game objects, define challenges, and modify sensations of control

Game Feel Metrics



INPUT METRICS

Assessing Input

Assessing Input

Input device analysis can be assessed at three levels:

- Micro Level
  - Assessing the individual input controls on a device.
- Macro Level
  - Examining the total possibility space of the input device as a whole.
- Tactile Level
  - How the industrial design and construction of the input device affects the virtual feel of game objects controlled with it.

MICRO INPUT METRICS

Assessing Individual Control Functions

Categorizing Input

- All forms of input have the potential for motion:
  - Button or key can be pressed
  - Trigger can be pulled
  - Thumbstick can be pulled away from center
  - Mouse can be slid
  - Hand/body can be moved (Kinect)
- Input can be further categorized by continuity:
  - Discrete: Input is individual, momentary signals (key press, mouse click, controller button) that is on or off.
  - Continuous: Input is a continuous stream of data (joystick, mouse, steering wheel, analog stick.

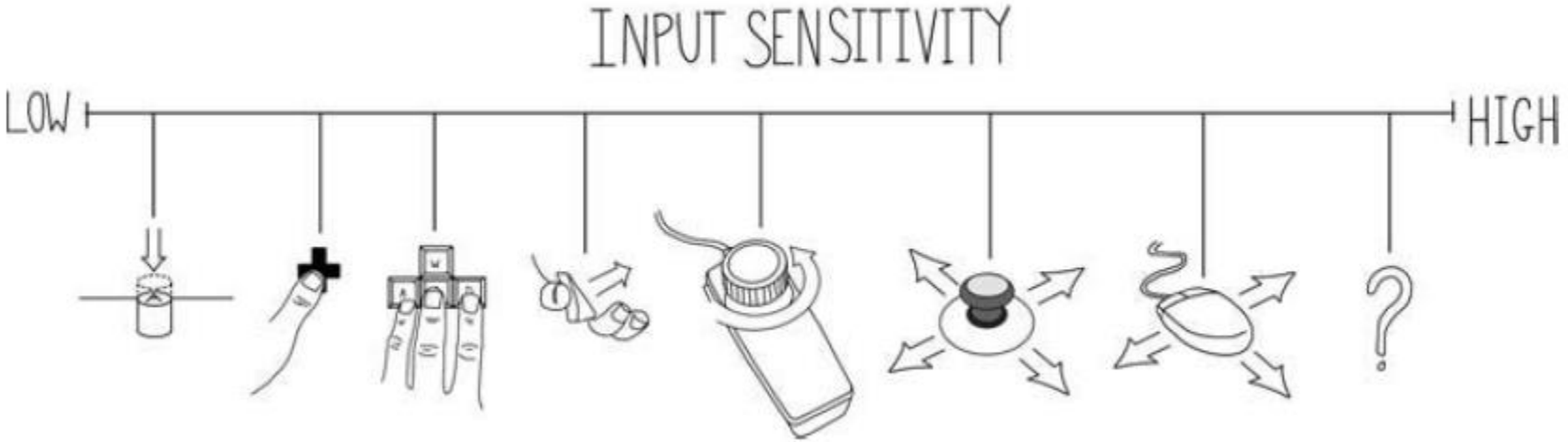
Categorizing Continuous Input

Further, continuous input can be categorized as follows:

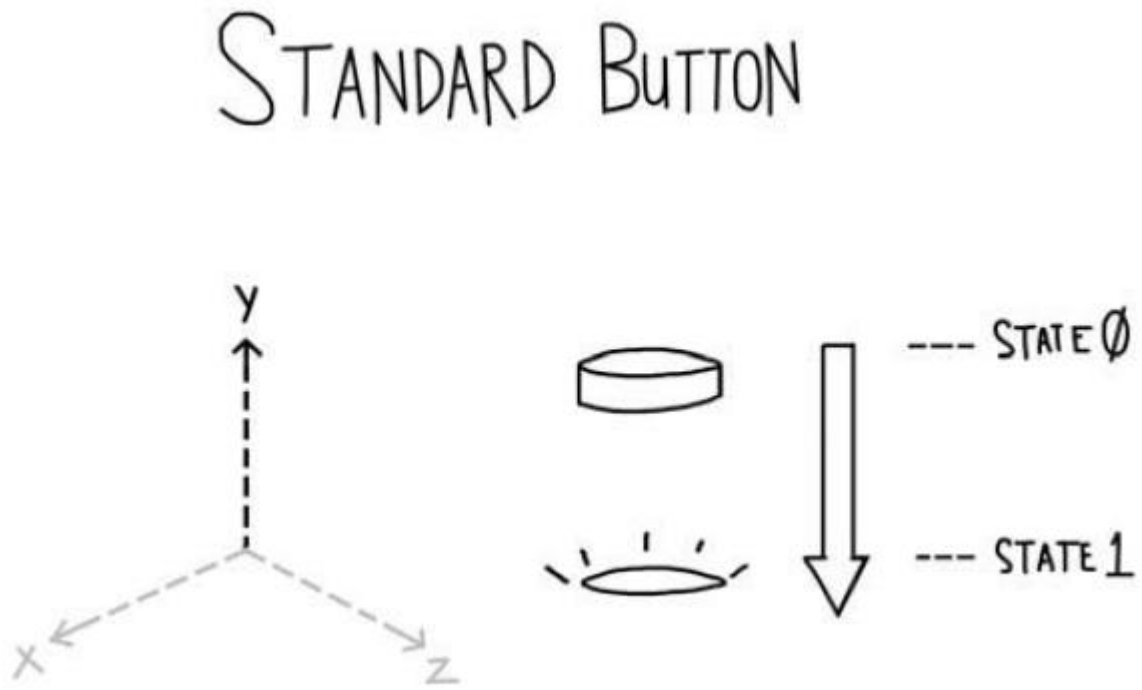
- Type of Motion
  - Linear vs. rotation (mouse is linear, steering wheel/paddle wheel is rotation)
- Dimensions of Motion
  - Mouse/thumbstick measures motion in two dimensions, trigger measures motion in one, Wiimote/Kinect measures in three
- Boundaries on Motion
  - Joystick motion is bounded by physical casing, mouse is unbounded, buttons/triggers are bounded
- Direct vs. Indirect Input
  - Mouse is indirect via a cursor, stylus/touch is direct
- Type of Sensitivity
  - Position vs. Force (mouse measures changes in position, while a joystick measures force applied against spring resistance)
- Sensitivity
  - Number of different states the input exists in (button has two, triggers roughly four practically speaking, mouse unlimited)
- Signal Format
  - Format of the signals each input sends to the game and how they change over time.

Sensitivity

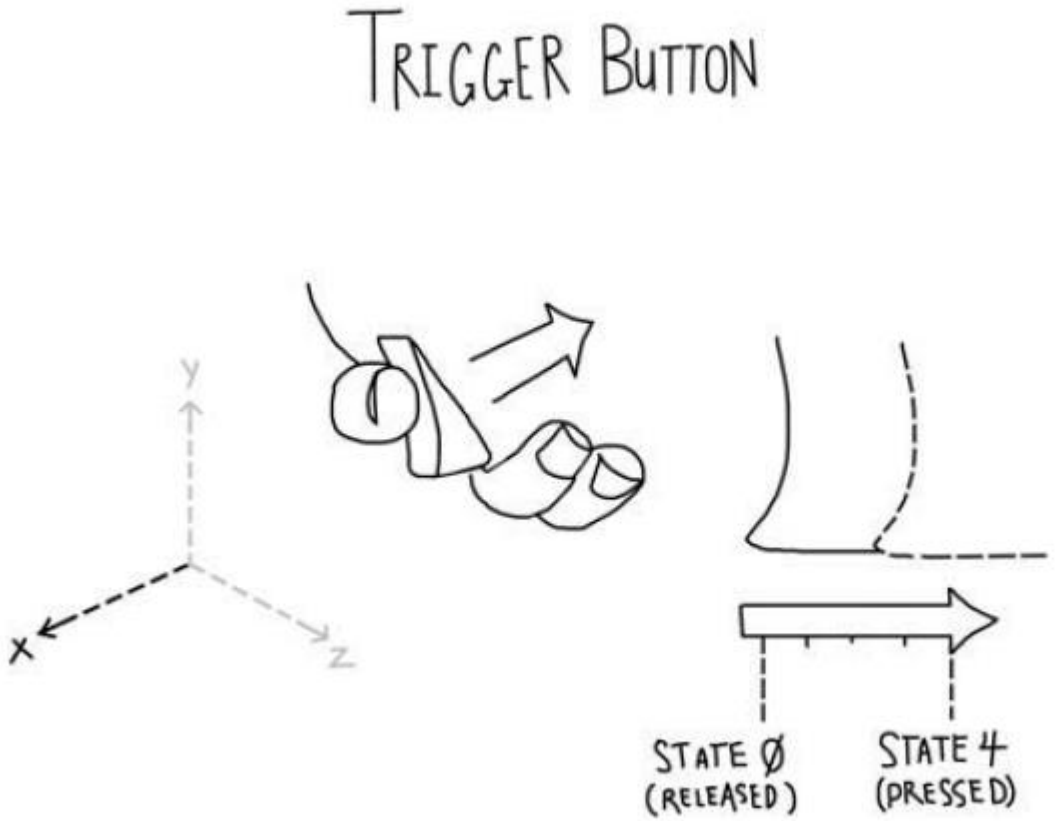
- Sensitivity is really a soft metric. While it is possible to calculate the total number of possible physical states (two for a button, four for a trigger, ~1.9 million for a mouse in 1600x1200 resolution), that doesn't really capture the sensation of using these inputs.



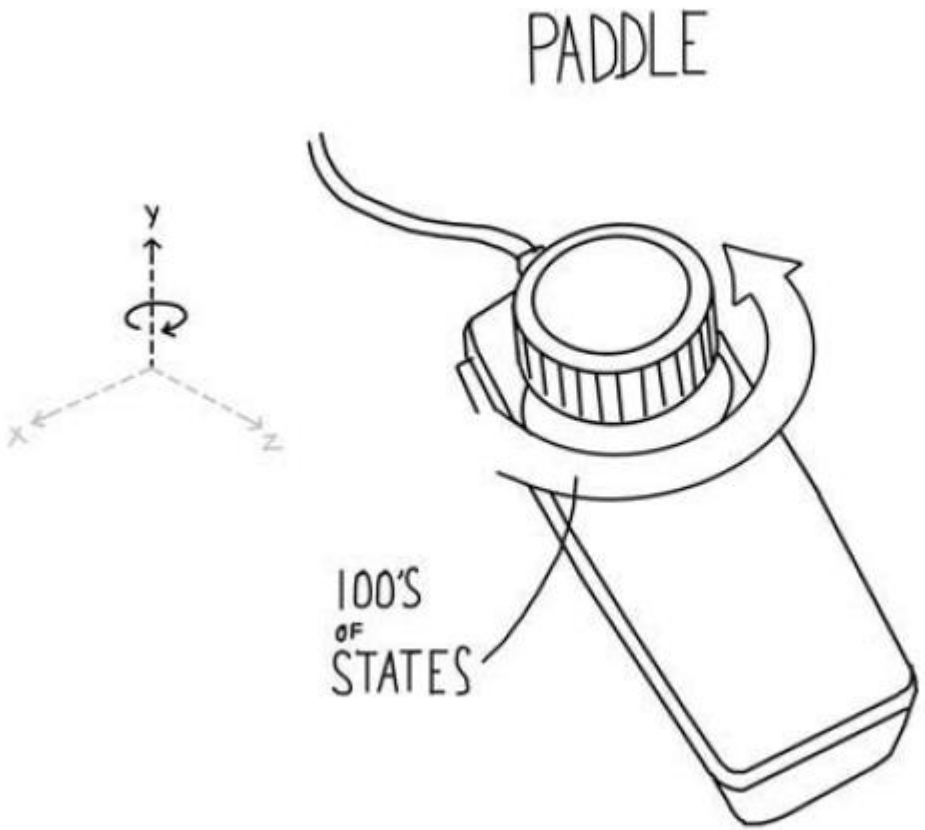
Standard Button



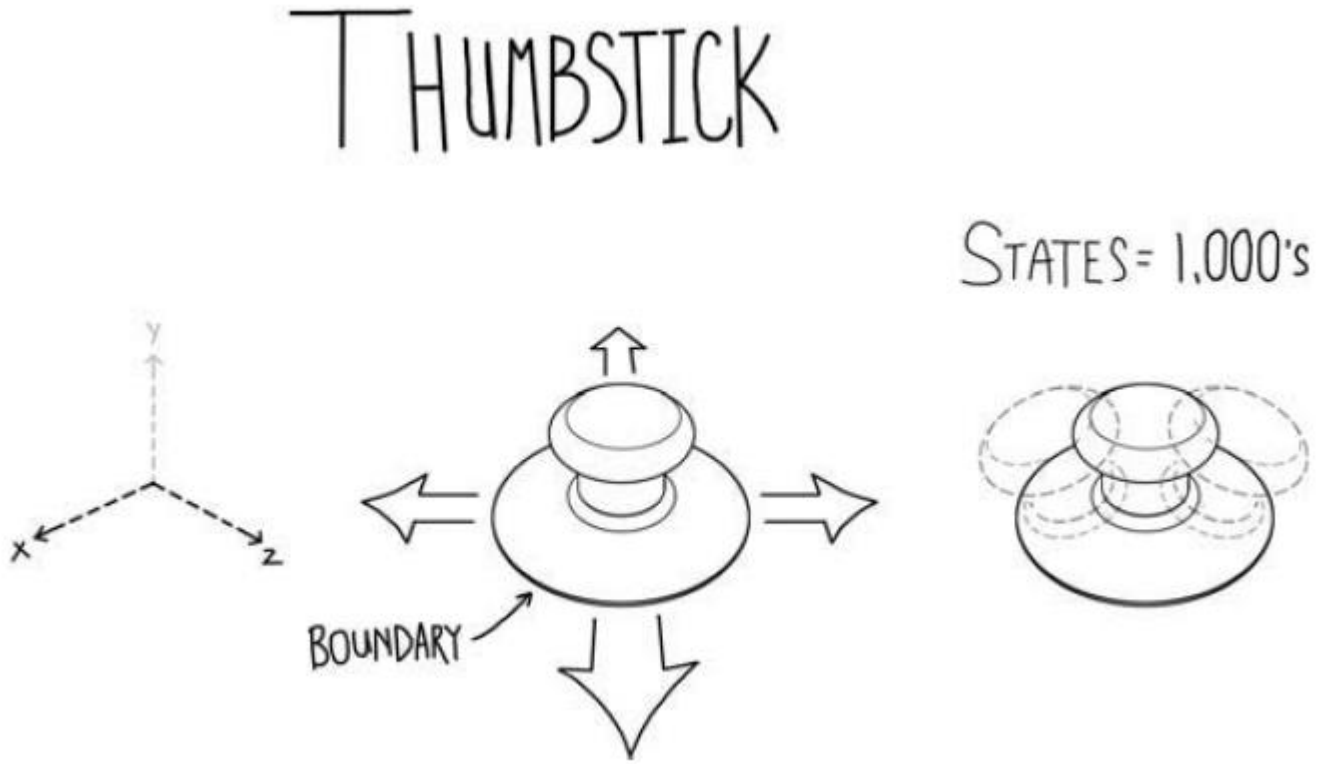
Trigger



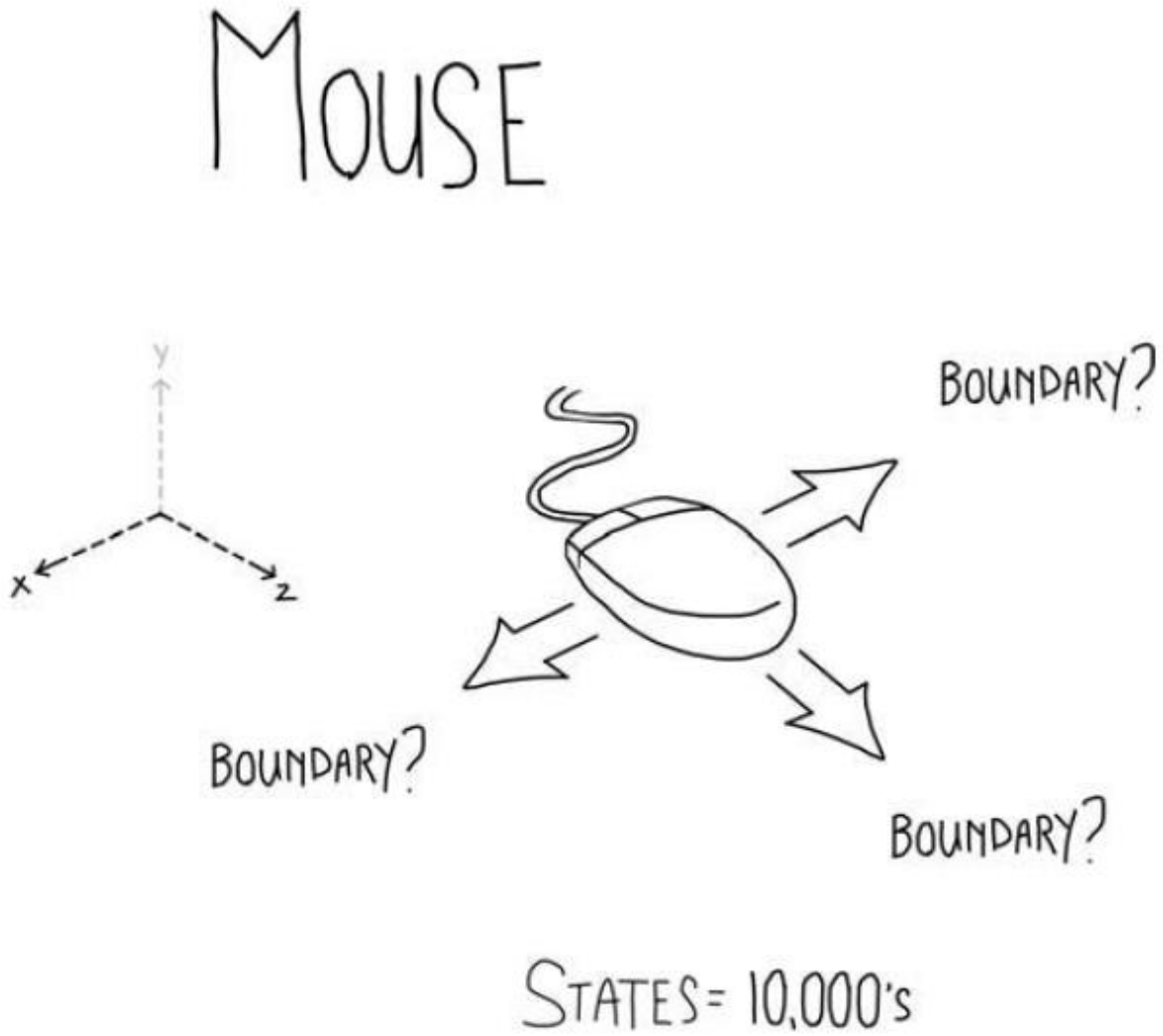
Paddle



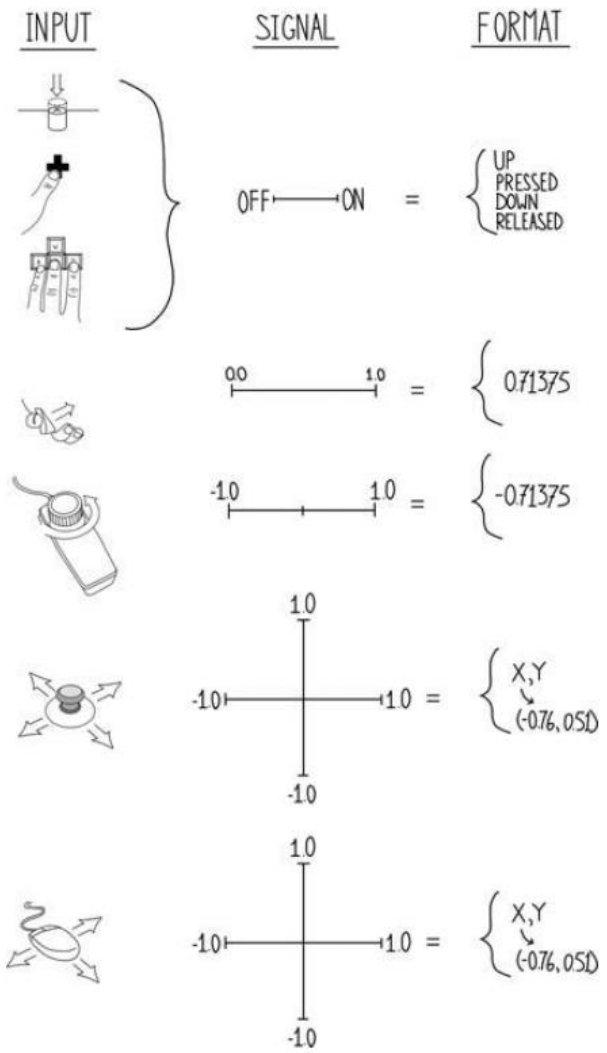
Thumbstick



Mouse

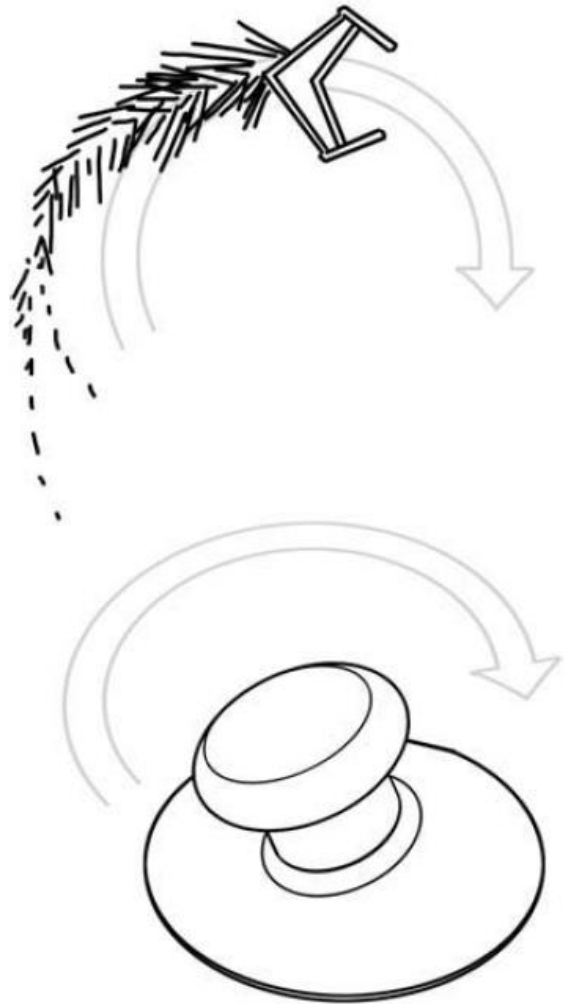


Signal Format



Boundaries

- Boundaries are important to take note of because they reduce the overall sensitivity of the input to a particular range.
- Boundaries can also play an important role in defining the types of controlled in-game motions that are best suited to the input.



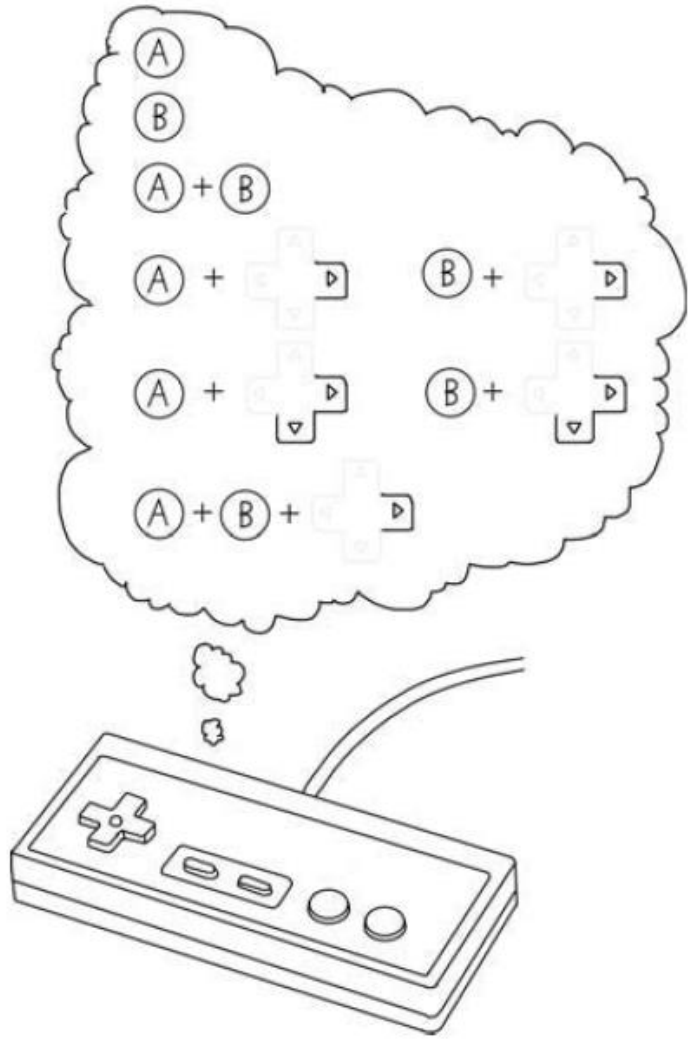
Geometry Wars: Retro Evolved

MACRO & TACTILE INPUT METRICS

Assessing the Whole

Macro Level

- The combination of controls on an input device combine to create an expressive potential greater than the sum of their parts.
- Simple buttons can combine to form a larger, more sensitive input space.
- Note that some controls can be mutually exclusive: consider the D-pad!



Tactile Level

The physical feel of the device's industrial design can change the game feel. Games played with a good-feeling controller feel better!

Factors that go into the tactile feel of input device include:

- Weight
  - Heavier devices (up to a point) are perceived to be higher quality, whereas lighter devices are perceived as flimsy or cheap.
- Materials
  - The visual appearance and texture can change the associations of quality. Xbox controller feels more natural with the smooth but slightly porous feel, whereas the Wiimote and PlayStation controllers feel more like plastic. We associate wood with luxury and plastic with cheap.
- Button Quality
  - The mechanical spring resistance of buttons, triggers, and sticks can have a significant impact on the game feel.
- Audio Aesthetics
  - The materials used can have a sub-conscious effect on the perceived quality of a game due to squeaky thumbsticks or "clacky" triggers.
- Ergonomics
  - The physical layout of the controls can have a huge impact on how pleasurable a game is to play, especially over time.

HANDS ON WITH CONTROLLERS

Activity


See You Next Class