

# Accessibility in Games

CSSE-4900 Game Design, Development, and Tools

Nonika Reingold

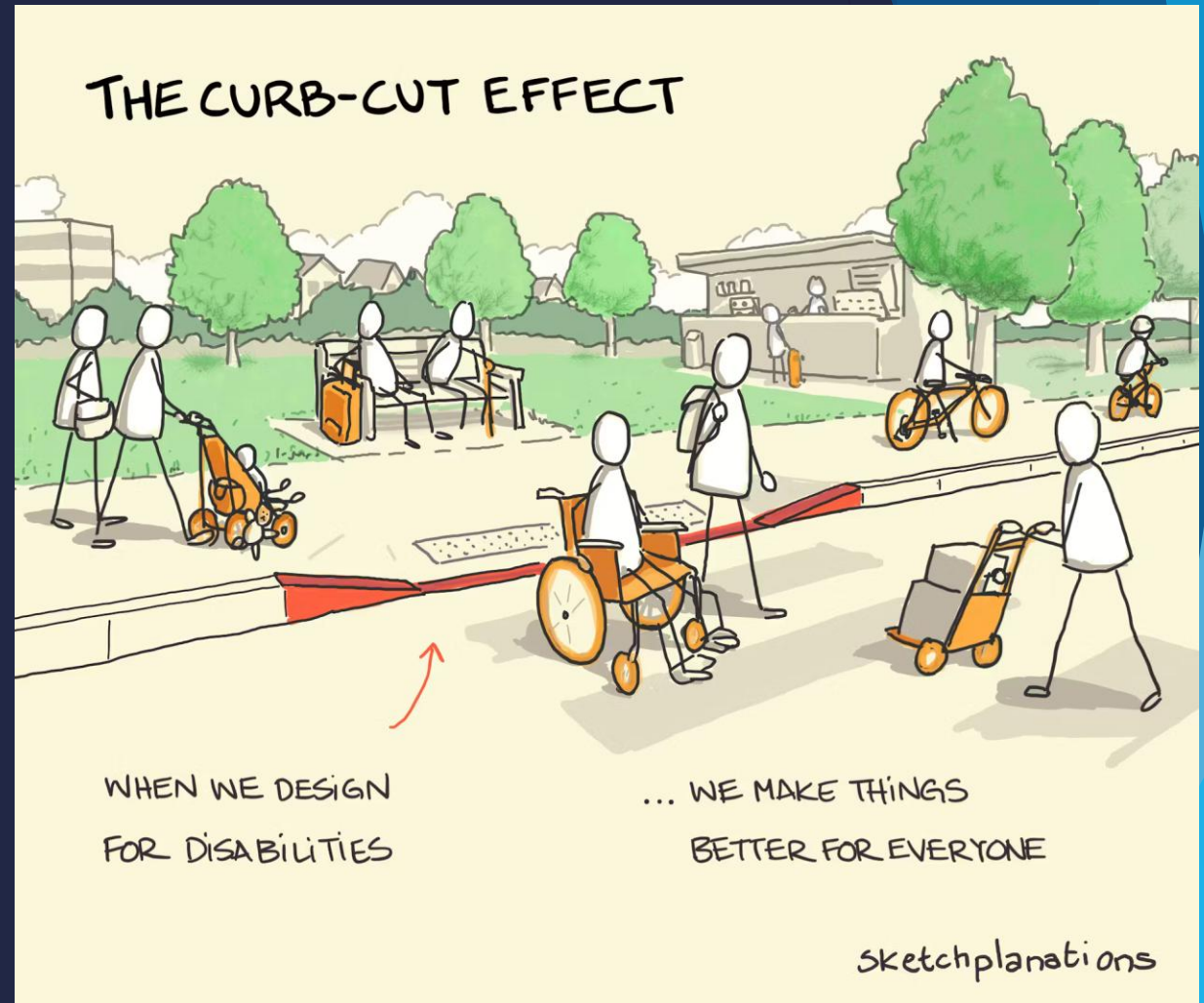
# What is accessibility?

- ▶ Accessible: easily used or accessed by people with disabilities : adapted for use by people with disabilities - Merriam-Webster
- ▶ Examples of real-life accessibility accommodations include:
  - ▶ Wheelchair ramps and dips in sidewalks
  - ▶ Elevators
  - ▶ Closed captions/subtitles
  - ▶ Accessible bathroom stalls



# The Curb Cut Effect

- ▶ Benefits of curb cuts:
  - ▶ Wheelchair users
  - ▶ Parents with strollers
  - ▶ Bike riders
  - ▶ Skateboarders
  - ▶ Rollerskaters
  - ▶ Delivery workers
  - ▶ Basically... everyone!



# Accessibility Resources

- ▶ [Game Accessibility Guidelines](#)
- ▶ [Accessible Player Experiences \(APX\)](#)
- ▶ [Can I Play That \(CIPT\)](#)
- ▶ [Able Gamers](#)
  - ▶ Nothing that the others don't already have

# Game Accessibility Guidelines

- ▶ The best resource for practical application
- ▶ Has the most content, divided into “guidelines”
- ▶ Each guideline focuses on one specific accommodation
  - ▶ Describes some disabilities that benefit from the accommodation
  - ▶ Outline different solutions that might work, depending on your game
  - ▶ Best practice examples
  - ▶ More information (websites, videos, etc. to learn more about the disability)
  - ▶ Resources and tools to help you implement the accommodation(s)
  - ▶ Include some quotes from gamers about the feature
- ▶ Guidelines are sorted by implementation difficulty
  - ▶ Basic category → there’s no excuse!

# Accessible Player Experiences (APX)

- ▶ Made by Accessible.Games, funded by Able Gamers charity
- ▶ Resources are more broad, and less specific/detailed than Game Accessibility Guidelines
  - ▶ Useful for quick understanding
- ▶ Divided into Access Patterns and Challenge Patterns
- ▶ Each pattern focuses on a broad “problem”
  - ▶ Design problem
  - ▶ Design solution
  - ▶ APX “Design Drivers” - the disabilities (or general contexts) where the problem appears
  - ▶ 1 sentence descriptions for each

# Can I Play That (CIPT)

- ▶ Accessibility Reference Guides
  - ▶ General overviews on each type of accessibility
    - ▶ Grouped into “Colour-Blindness”, “Blind and Low-Vision”, “Cognitive”, etc.
  - ▶ General tips for accommodating the variety of challenges that arise from the disabilities
- ▶ Accessibility Reviews
  - ▶ Each article analyzes a specific game
  - ▶ At a glance: rating out of 10, pros and cons list
  - ▶ In-depth analysis with examples

# Comparing the resources

- ▶ Suppose we want to accommodate colour blindness
- ▶ What does each website provide?
- ▶ APX
  - ▶ [Distinguish this from that](#)
- ▶ CIPT
  - ▶ [Color blindness accessibility guide](#)
- ▶ Game Design Guidelines
  - ▶ [Ensure no essential information is conveyed by a colour alone](#)



# The Basics

## ► Four most common complaints

1. Remapping controls
2. Text size
3. Colour blindness
4. Subtitle presentation

# Text Size and Font Choices

- ▶ Use an easily readable default font size
- ▶ Use simple/clear text formatting
- ▶ Who this helps:
  - ▶ Gamers who are blind or low-vision
  - ▶ Mobile gamers with small screens
  - ▶ Gamers with a TV setup
  - ▶ Gamers with dyslexia
- ▶ Guidelines...

# Text Size and Font Choices - Guidelines

- ▶ Minimum 28pt font (Amazon TV guideline) or minimum 46px font = 34.5pt font
- ▶ Use a clear sans-serif font with distinct letter shapes (b, d, p, q) [dyslexia]
- ▶ High contrast between text and background
  - ▶ Recommended: plain background
- ▶ Avoid big blocks of text if possible
- ▶ For blocks of text:
  - ▶ Avoid ALL CAPS
  - ▶ 1.5 line spacing
  - ▶ Around 70 characters per line

# Subtitle Presentation

- ▶ If any subtitles/captions are used, present them in a clear, easy to read way
- ▶ Who this helps:
  - ▶ Same as Text Size!
- ▶ Guidelines:
  - ▶ Very similar to Text Size, but...
  - ▶ Minimum 46px font = 34.5pt font
  - ▶ Text is on a solid or semi-opaque background (letterbox)
    - ▶ Recommended: text outline or shadow to make the text stand out
    - ▶ Not really necessary if you use a letterbox
  - ▶ No more than 40 characters per line
  - ▶ Two lines per subtitle (sometimes three, in special cases)

# Colour Blindness

- ▶ Ensure no essential information is conveyed by a fixed colour alone
- ▶ Colour blindness is more common than you may think
  - ▶ 8-10% of males have a colorblindness making both green and red look a brownish colour
- ▶ There are various other forms of colour blindness affecting other colours
- ▶ Thus, we cannot rely on colours alone to distinguish objects in our game
  - ▶ Colour should be a backup indicator instead whenever possible
  - ▶ Text, symbols, shapes, etc. can be a primary indicator of what items are
- ▶ If symbols are not an option, allow for customizing and tweaking the colours of the game
  - ▶ Outline colours of characters in competitive games for instance

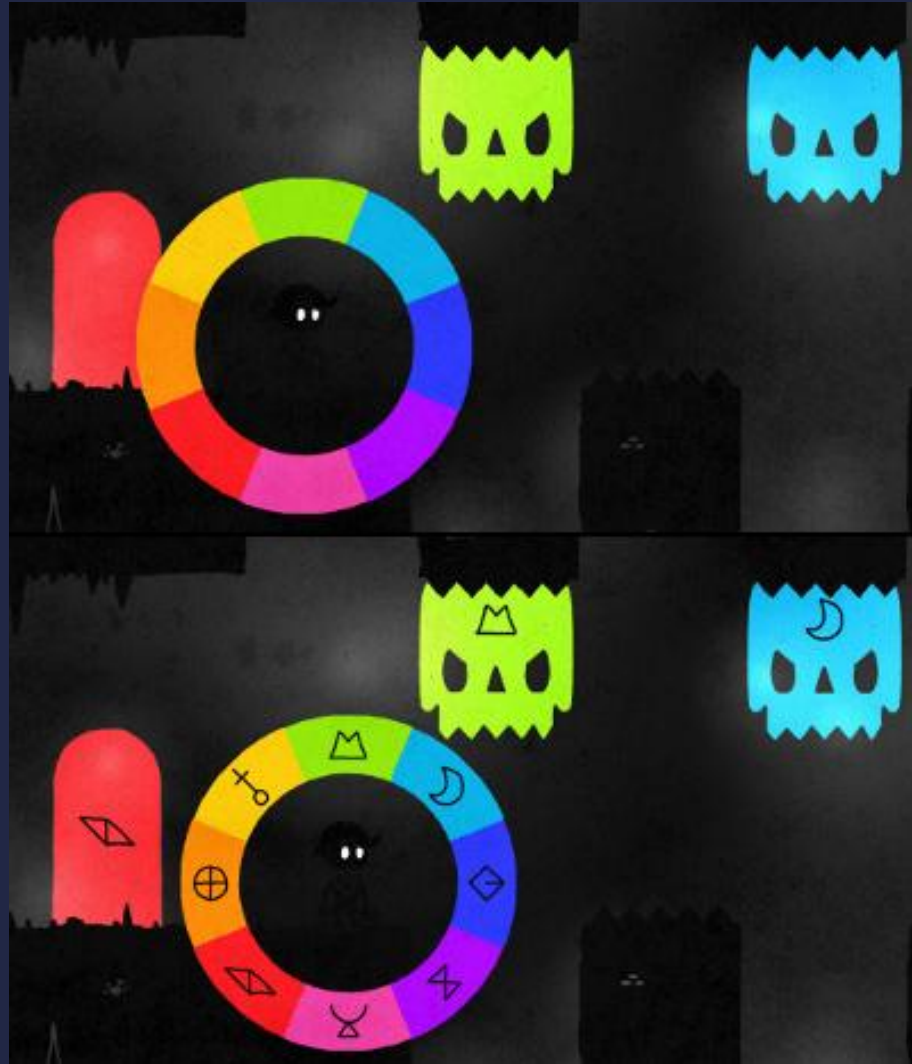
# Colour Blindness



# Colour Blindness



# Colour Blindness





# Colour Blindness



# Colour Blindness



# Colour Blindness





# Colour Blindness



# Colour Blindness



# Input Remapping

- ▶ [Allow controls to be remapped/reconfigured](#)
- ▶ Many physical problems, whether permanent or temporary, can impact how people can play games
- ▶ Even if you don't have a physical disability, you may just want to play with a different control scheme
- ▶ Unity's Input System is already great at providing remapping capabilities, so there is no excuse as a Unity developer to not have it in any games you fully release for production!
  - ▶ [YouTube tutorial on a way to do this](#)

# Input Remapping

**WIRELESS CONTROLLER**

HORIZONTAL SENSITIVITY

VERTICAL SENSITIVITY

INVERT LOOK

VIBRATION

**RETICLE**

BLOOM

TYPE

COLOR

**MOVEMENT**

TOGGLE CROUCH

JUMP

**WEAPONS & ABILITIES**

ABILITY 1

ABILITY 2

ALL HEROES

PHARAH

REAPER

REINHARDT

ROADHOG

SOLDIER: 76

SYMMETRA

TORBJÖRN

TRACER

TO UNBIND

L1

R1

# Recap

- ▶ Everyone should be able to enjoy playing games
- ▶ While we may not be able to make every feature perfect for every person, we should aim to be as accessible as possible for as many people as possible
- ▶ Sometimes, you can only change things so much depending on the type of game
  - ▶ For instance, in a competitive shooter, color changing can only go so far such as character outlines
    - ▶ If you allow making enemy players super bright and dulling out the background, this will simply be abused for competitive advantages