



Creating a “Physical” Character

Richard Meredith



Our First TWO Original Games!

TARSIE
STUDIOS



TARSIE
STUDIOS



Little
NIGHTMARES

LAUNCH TRAILER

CHILDHOOD FEARS



Little Nightmares

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Small (ish) Project

- 20 developers
- 18 months production

Player Character (Six)

- 1 coder / 1 animator
- Tech art, audio, design support
- A lot of autonomy in the team

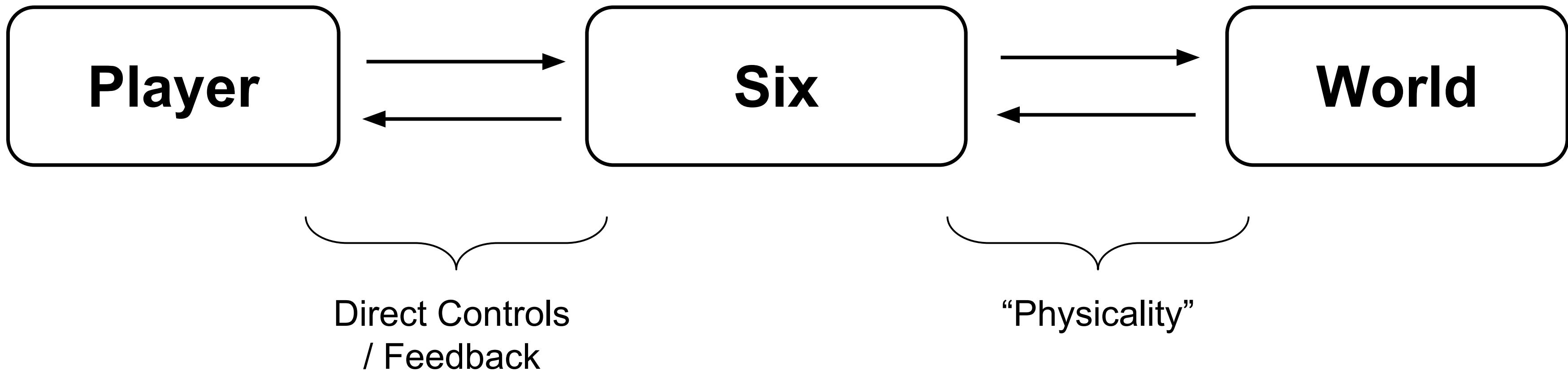


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Main Character Vision

Connecting the Player to the World

- Focus on the “feel”
- Empathy through mechanics







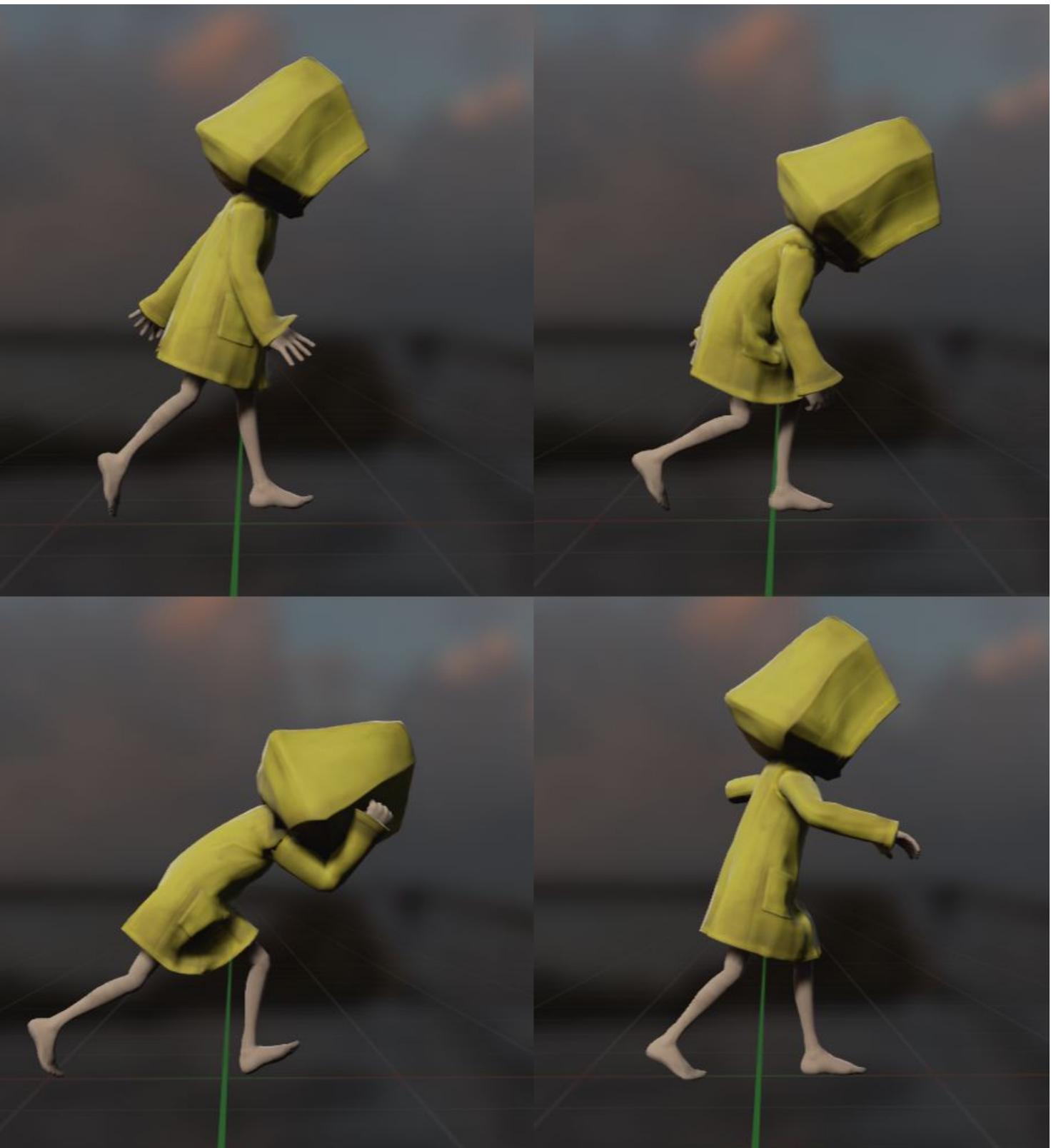
Reacting to the World

Adding Variety

- Easiest way to add character reaction
- Requires a lot of animation

Example: Walking around

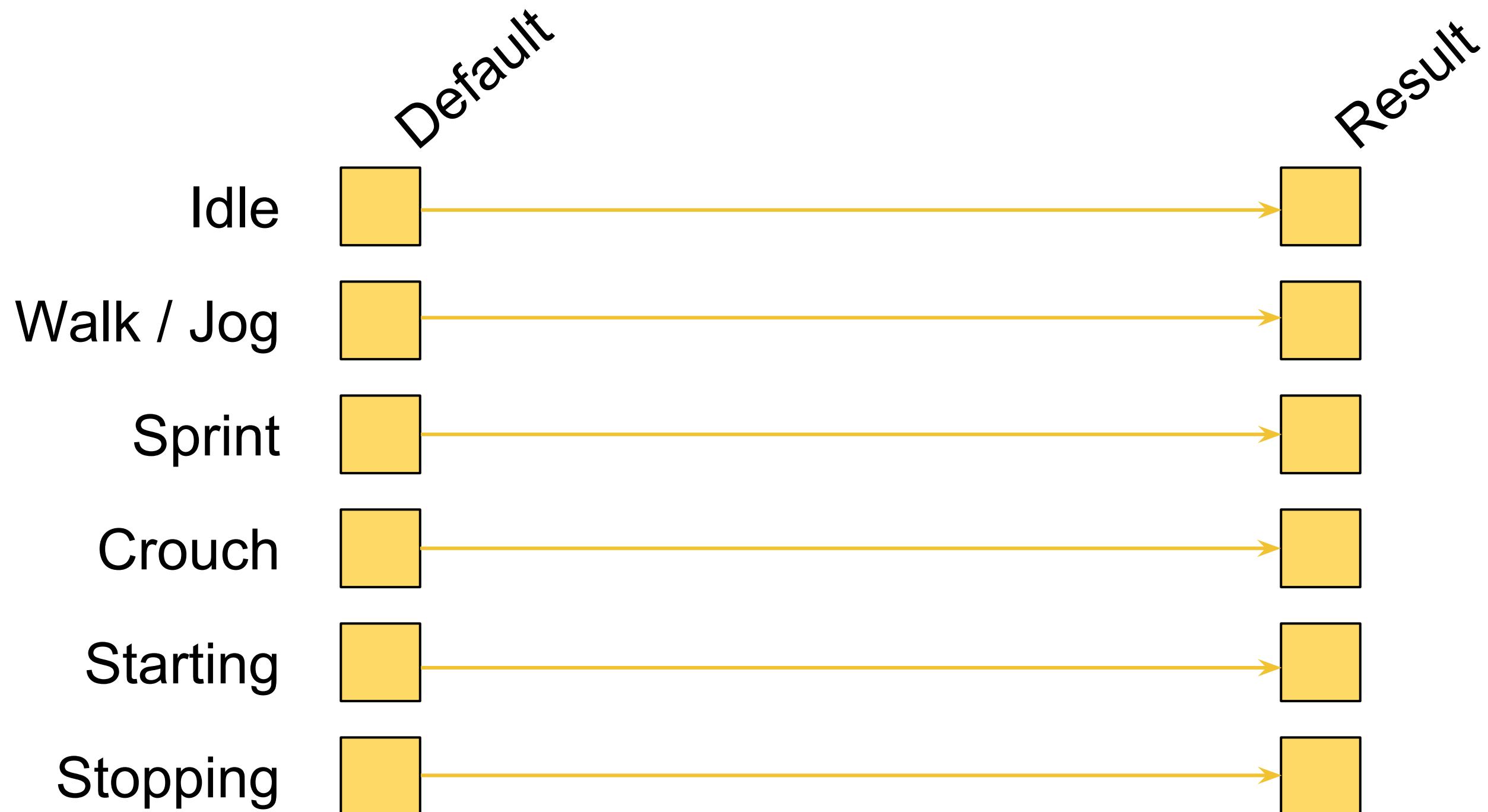
- Over 20 styles of locomotion
- System-based approach



Reacting to the World

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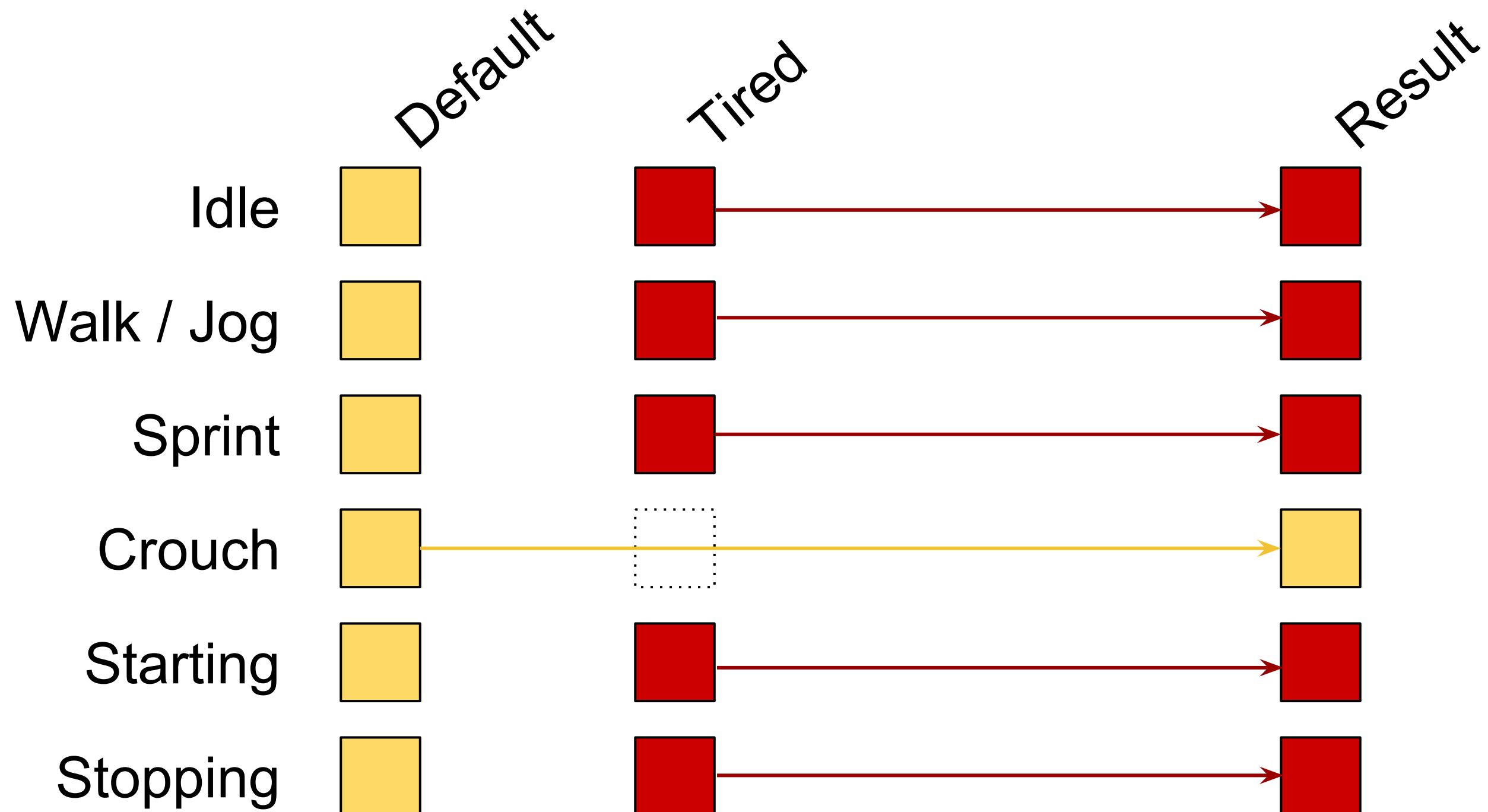
Locomotion Animation Overrides



Reacting to the World

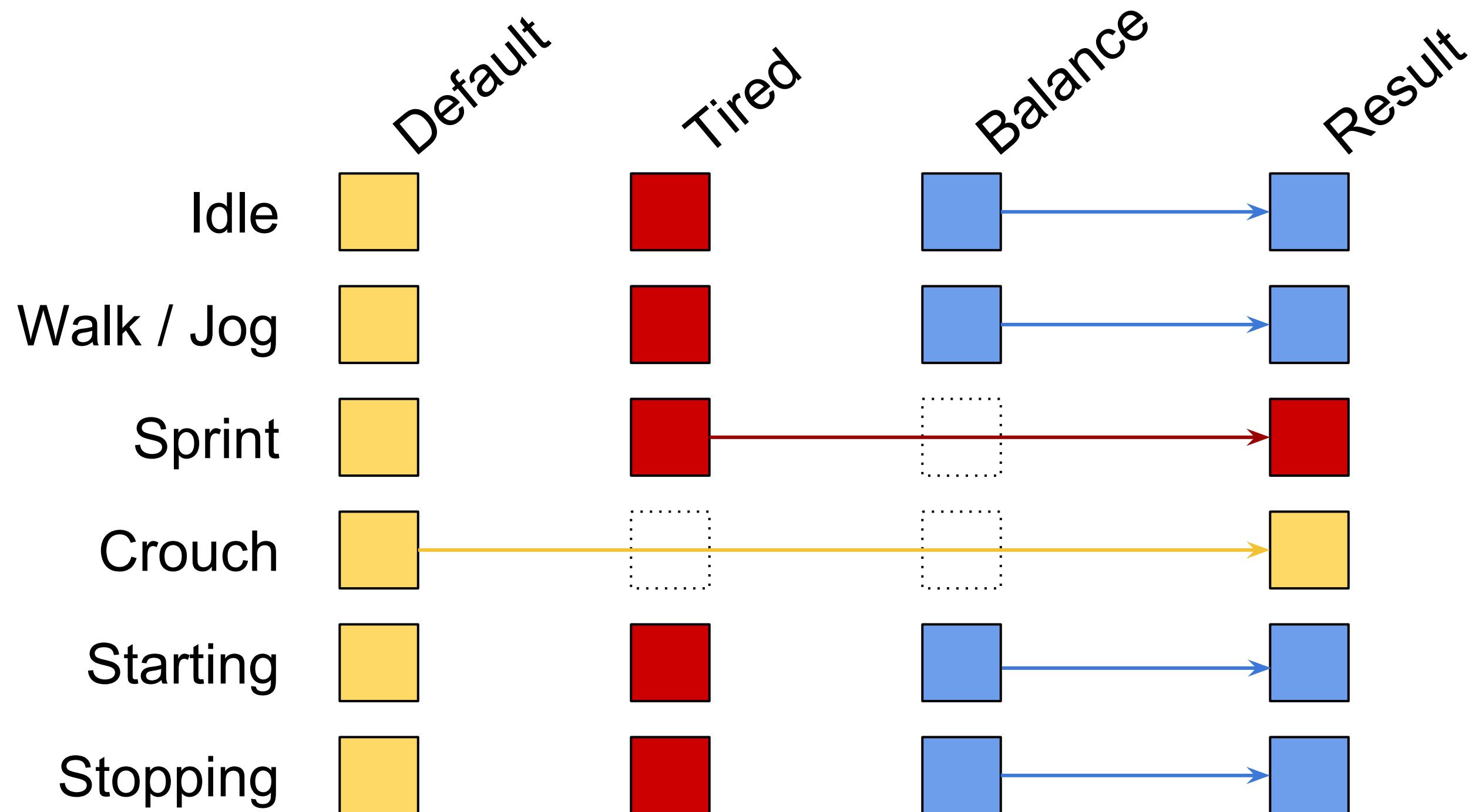
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Locomotion Animation Overrides



Reacting to the World

Locomotion Animation Overrides



Reacting to the World

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Responding to Environment

Re-use the locomotion system!

- Stumbling
- Walk through shards
- Carrying







Without stumble



Reacting to the World

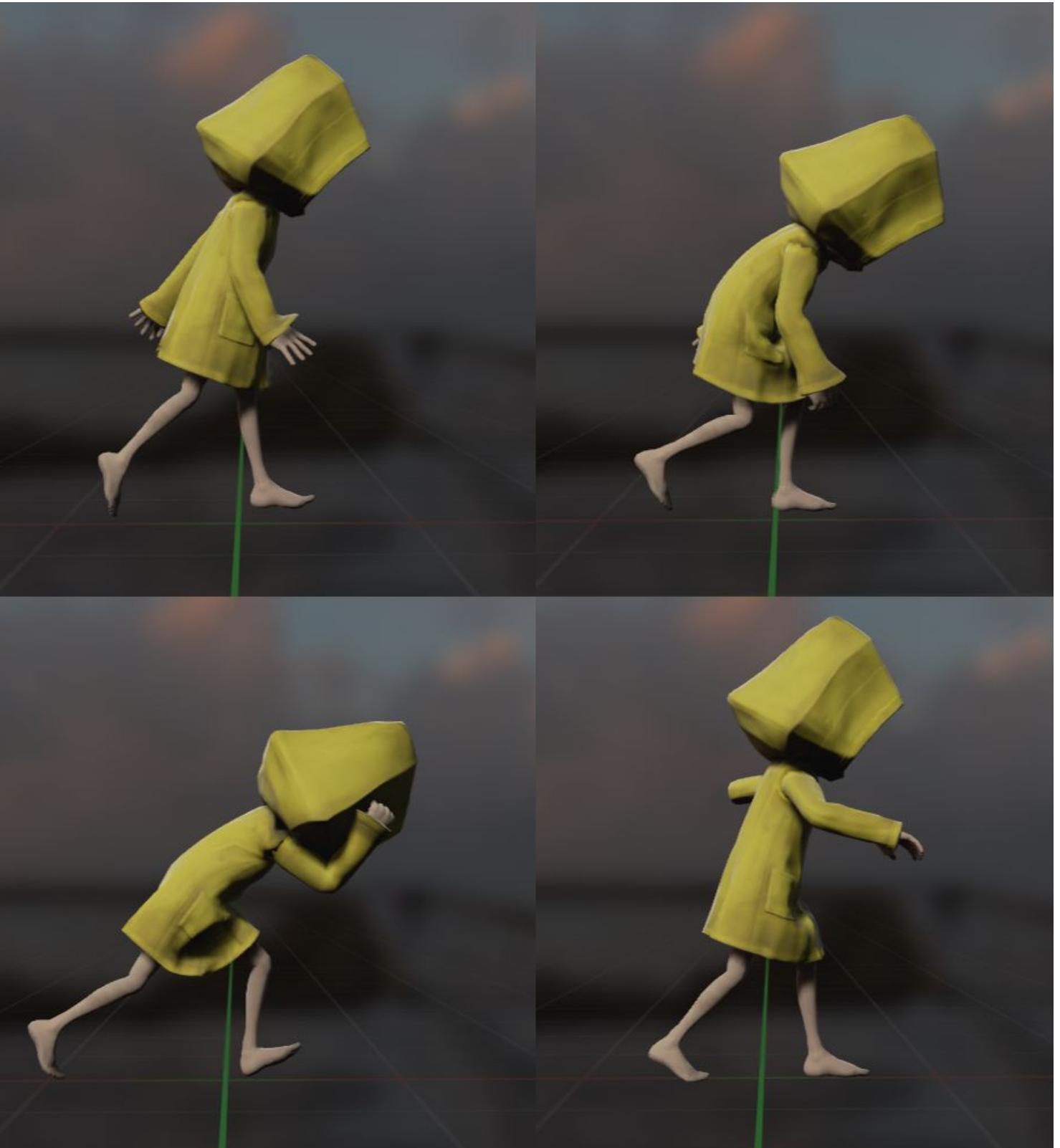
System / Data - Driven Animation

Pros

- Reuse code paths
- Polish much later into development
- Reduce interdependencies

Cons

- Requires initial set-up
- Restrictive
- Fine-tuning is much harder



Inverse Kinematics

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What is IK?

Real-time solving of joint angles

- Modifies existing animations
- React to changes in the environment

IK in Little Nightmares

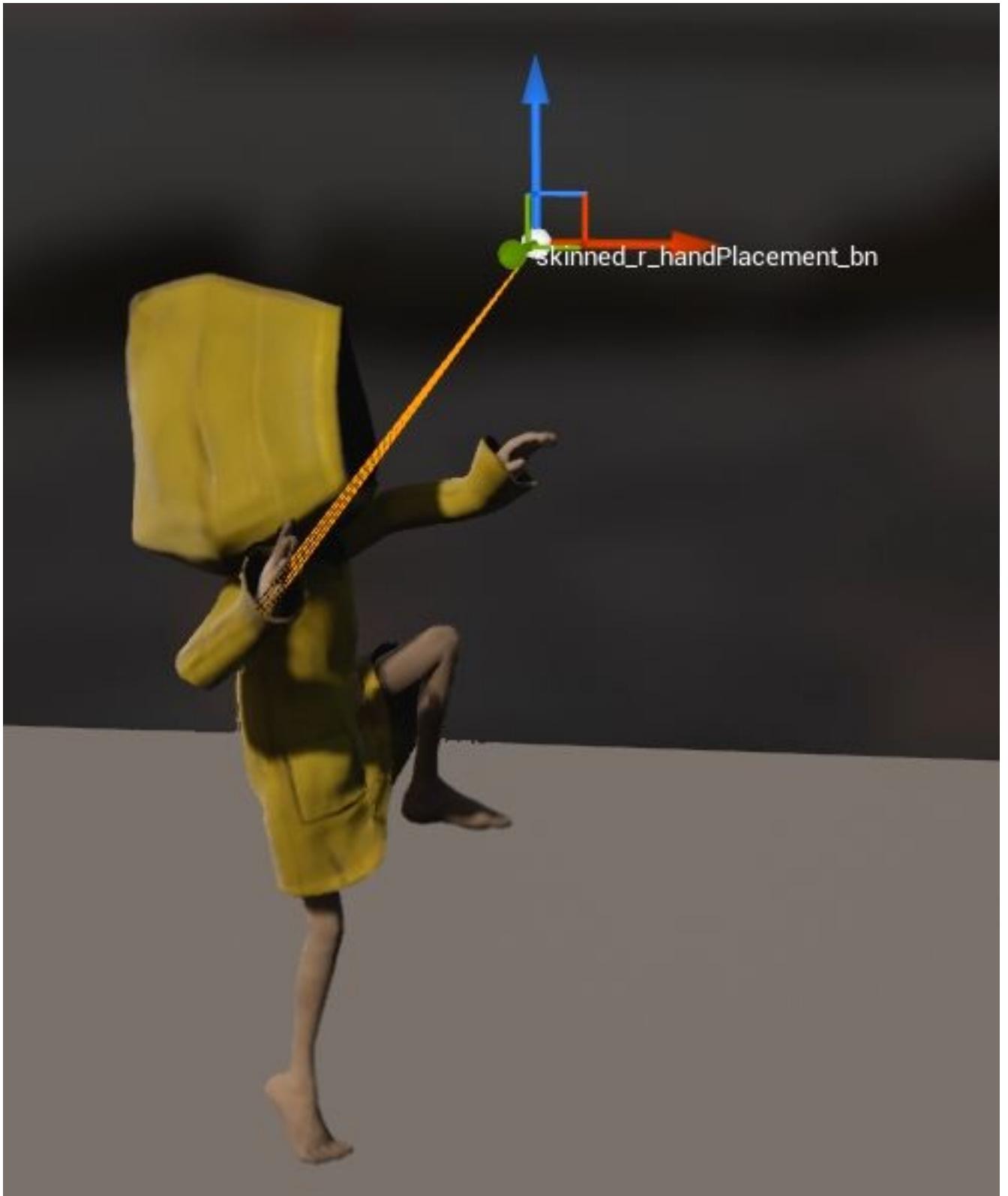
- IKinema - Full body solver
- Foot placement
- Grabbing objects of different sizes



Inverse Kinematics

Auxiliary Bones

- Additional bones on each hand / foot
- Used as IK targets



Inverse Kinematics

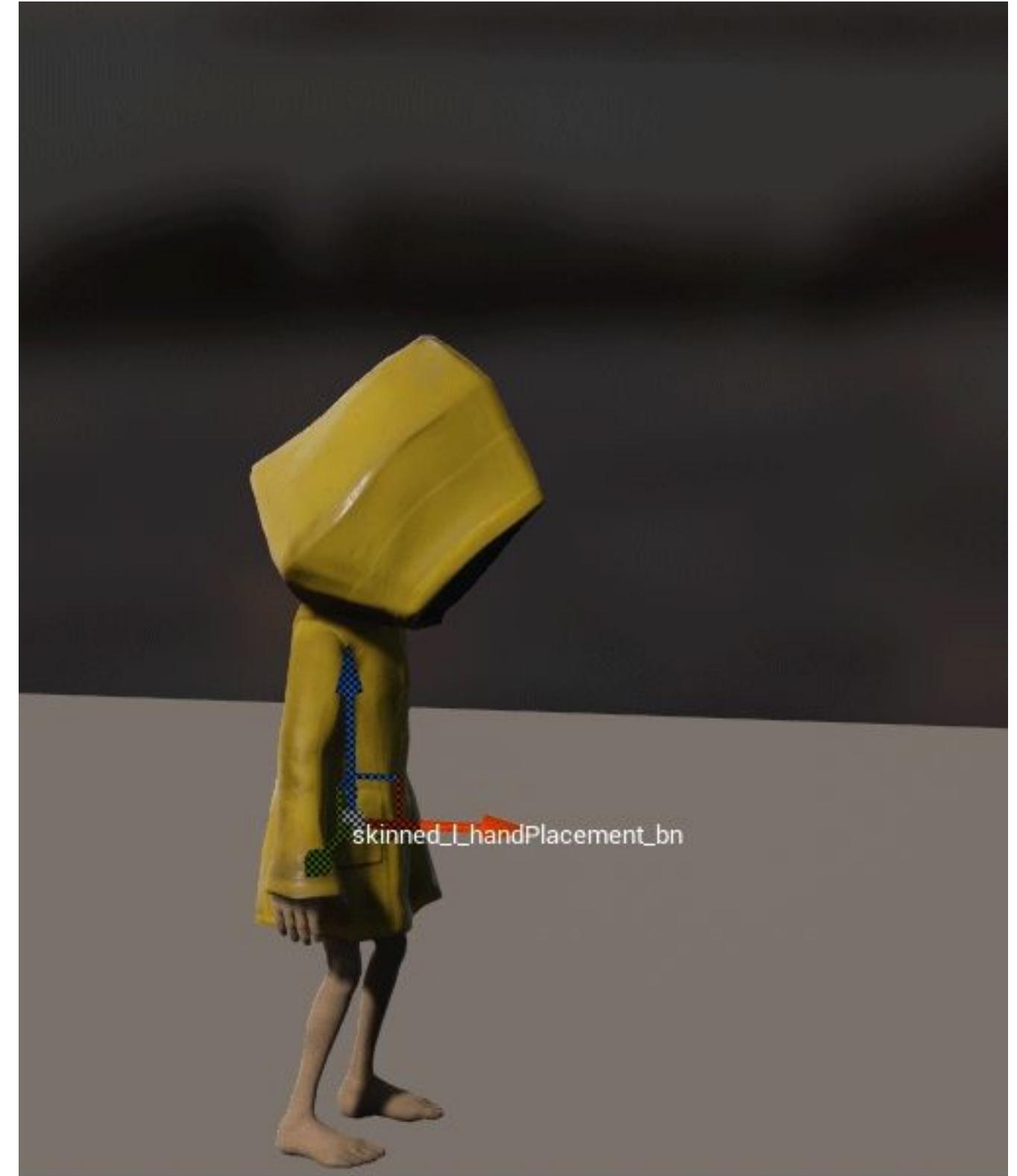
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Auxiliary Bones

- Additional bones on each hand / foot
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Animation Metadata

- Curves drive IK influence
- Root Motion
- Positional “fixup”

















Inverse Kinematics

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Avoiding IK

- Looking at points of interest
- Pressing against walls
- Using layered / additive blending





Inverse Kinematics

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Learnings

- Full body IK gives great results
- Takes a lot of tuning
- Cannot replace animations
- Always reduce the IK workload
- Some things better without



Reactions in the World

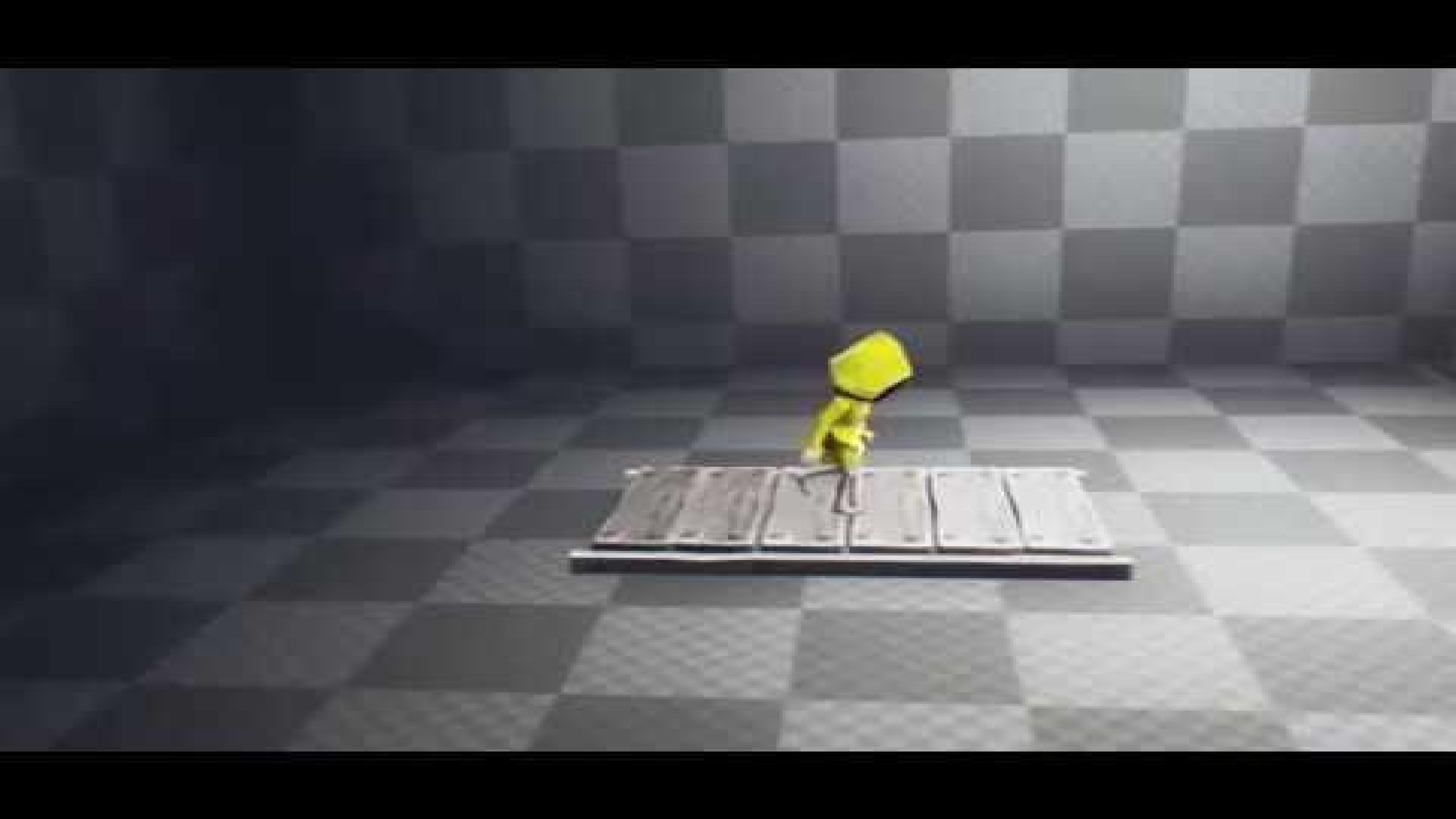
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Custom Reactions

Tools-based Approach

- Provide generic tools
- Art / design can craft content









Reactions in the World

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Custom Reactions

Tools-based Approach

- Provide generic tools
- Art / design can craft content

*If tools aren't easy-to-use,
people won't use them!*



Audio is Essential

- Hugely underestimated
- Variety in audio adds physicality
- Things *look* better with audio



Audio Process for Six

- No audio in gameplay code
- Events + APIs for sound designers
- Give audio designers control
- Use coders for more complex systems



Creating a “Physical” Character

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Summary

- Fake it - focus on the *feel*
- Dynamics and variation
- Reactions between character & world
- All the details add up
- Systems + crafted content



Want to Know More?

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Tarsier Booth @ NGC

- Play Little Nightmares & Statik
- LN also at the Epic Booth

Little Nightmares AI Talk

- Hilda Lidén – AI Designer
- Friday 10:30 in Reykjavík



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