

Automate, Streamline, Win!
Creating custom workflows
for content heavy games

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Out of Bounds



GAME DEVELOPERS CONFERENCE™ EUROPE
CONGRESS-CENTRUM OST KOELNMESSE · COLOGNE, GERMANY
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THE
ADVENTURES
OF
"Bertram
Fiddle"



RUMPUS!

Systems driven games are like a stew



Content driven games are like mosaics



...and missing pieces stand out much more!



Tons of assets!

1227(ish) lines of dialogue

2899 sprites

603 animations

39 scenes

1608 audio files

53 characters

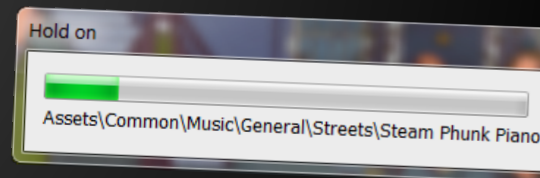
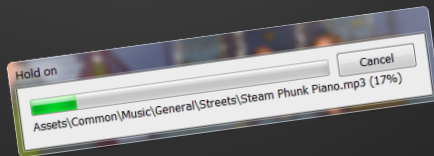
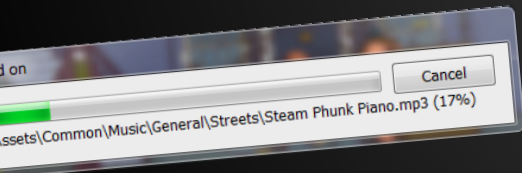
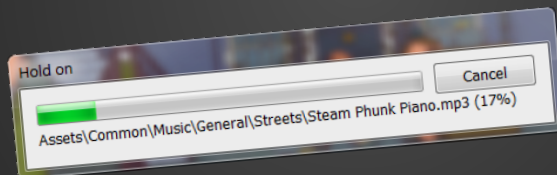
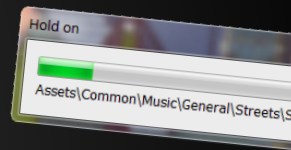
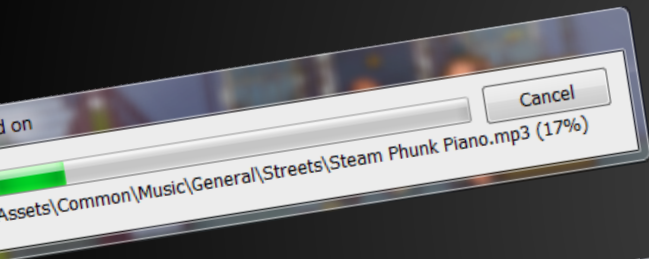
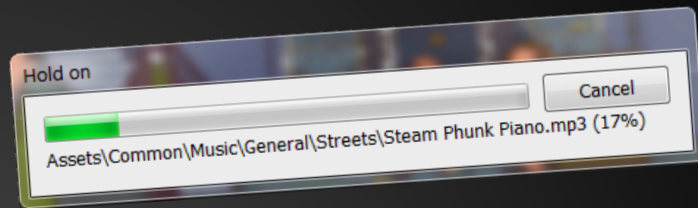
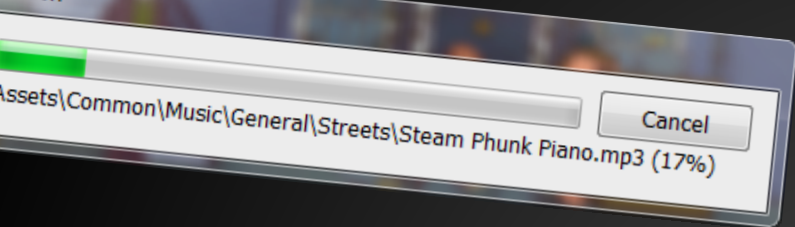
Principle #1

Automate - Brain waves are precious
so don't waste them

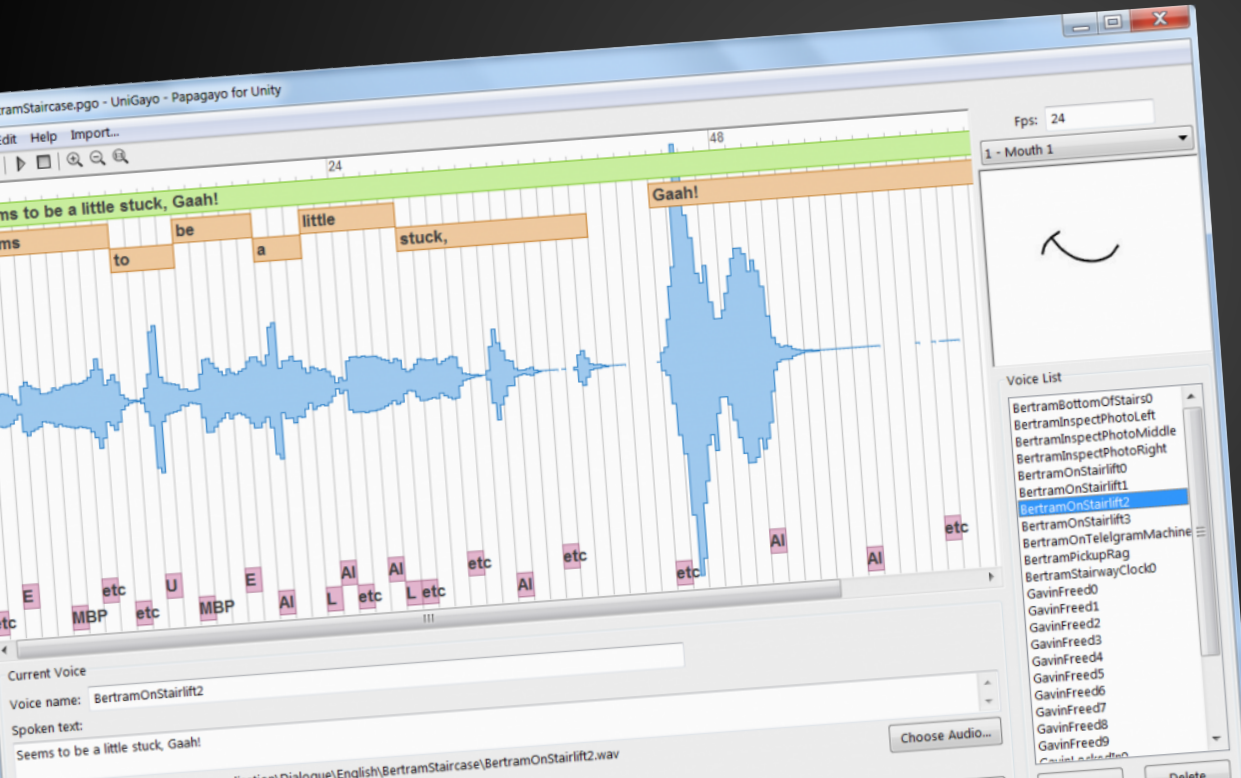
brain... waves?



Unity Asset Importing



UniGayo - Semi Automatic Lipsyncing



RavishamStaircase.pgo - UniGayo - Papagayo for Unity

File Edit Help Import...

Look out Mir. Fiddle

Look out Mir. Fiddle

U etc O MBP etc FV etc L

Current Voice

Voice name: InspectHole1

Spoken text:

Look out Mir. Fiddle

Audio path: ...1\Assets\Common\Localisation\Dialogue\English\RavishamStaircase\InspectHole1.wav

Choose Audio...

Phonetic breakdown:

English Breakdown MOHO All Export...

Fps: 24

1 - Mouth 1

Voice List

- ParrotAfterChestOpen1
- ParrotInAttic0
- ParrotInAttic1
- PickupBridgePicture
- PickupFootstool
- UseGavinPushBertram
- UseGavinVinePuzzle
- UseOarOnHole
- UseVineFail
- UseVineSuccess0
- InspectHole1

New Delete

Papagayo Stopped

Automation used to locate missing work

1. What dialogue is still missing in the game?
2. What subtitles are too long to fit on the screen?
3. What lines have yet to be lipsynced?
4. What dialogue have we yet to use in the game?
5. Fix configuration bugs in puzzles

In short, it should not be work to figure out what work is left.

Principle #2

If it can't be automated
make the workflow a breeze!



Our workflow



Story &
Puzzles



Illustration &
Animation



Music, SFX &
Voice acting





Lipsyncing &
Timing

A story = sequence of events



Storyline Tool

Inspector



Script

Sprite To Animate

Clip To Play

Finish Imemdiatly

Duration

Loop

PlayAnimationStoryEvent

ClockSprite (SpriteAnimator)

UseClockStill

☒

0.5


☐

Story Chain

Current Chain: GettingUpFromBed


Reload Chains

22

 PlaySound : SteepOutOfBed


X

23

 Delay : 1.4 seconds


X

24

 SetSpriteState : disable BertramGettingOutOfBed


X

25

 SetInteractiveCharacter : NightgownBertram


X

26

 ChangeInputState : Enable


X

27

 TeleportCharacter : NightgownBertram to (1.7, -1.7)


X

28

 IF InteractionCondition : UseCurtains


X

29

 Dialogue : Bertram "BertramDarkness"


X

30

 Hint : Activate HintShowInteractions


X

31

 AllInteractionsHighlighted : No Description


X

32

 InteractionClickState : UseCurtains - clickable


X

33

 InteractionClickState : DummyUseCurtains - unclickable


X

34

 Hint : Deactivate HintShowInteractions


X

35

 InteractionClickState : UseCurtains - unclickable

X

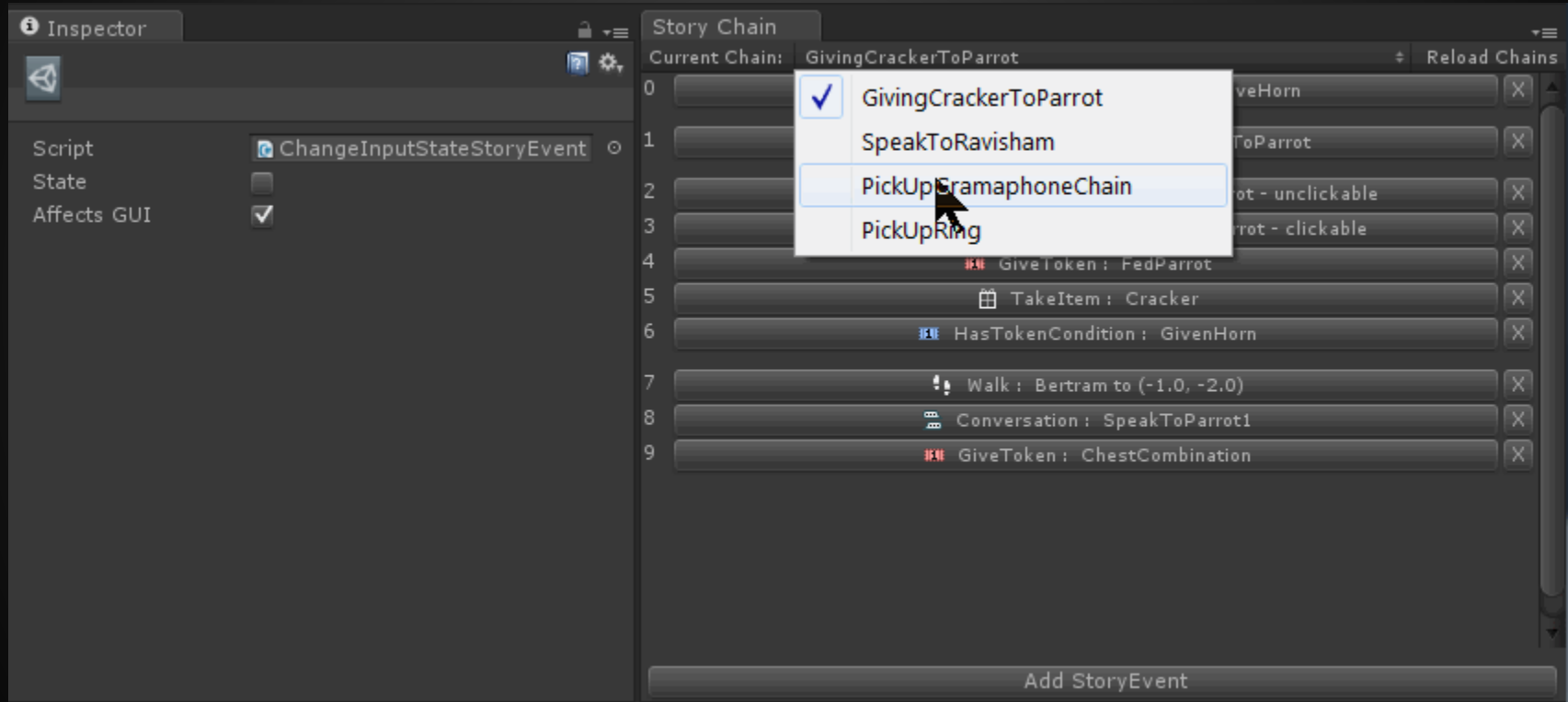
36

 TeleportCharacter : NightgownBertram to (5.9, -1.7)

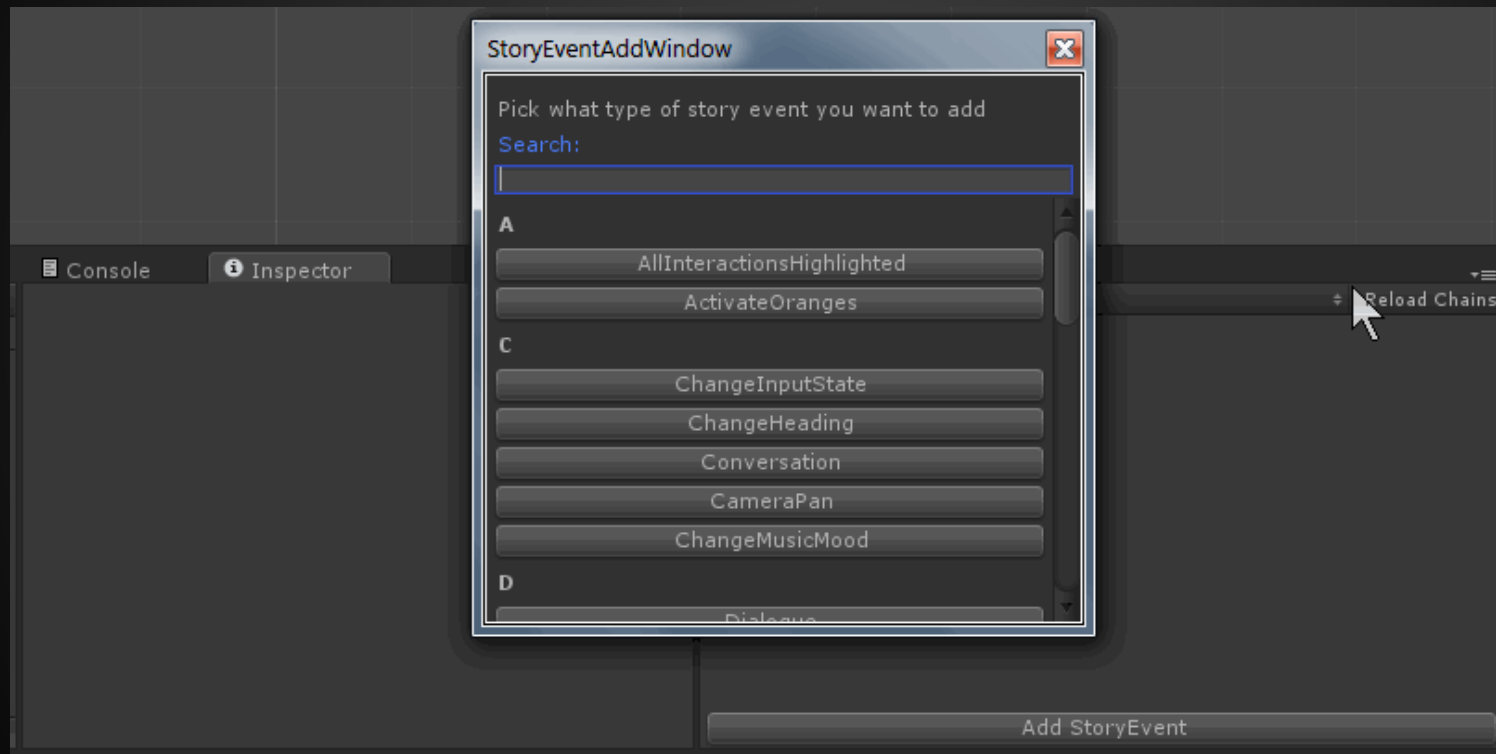
X

Add StoryEvent

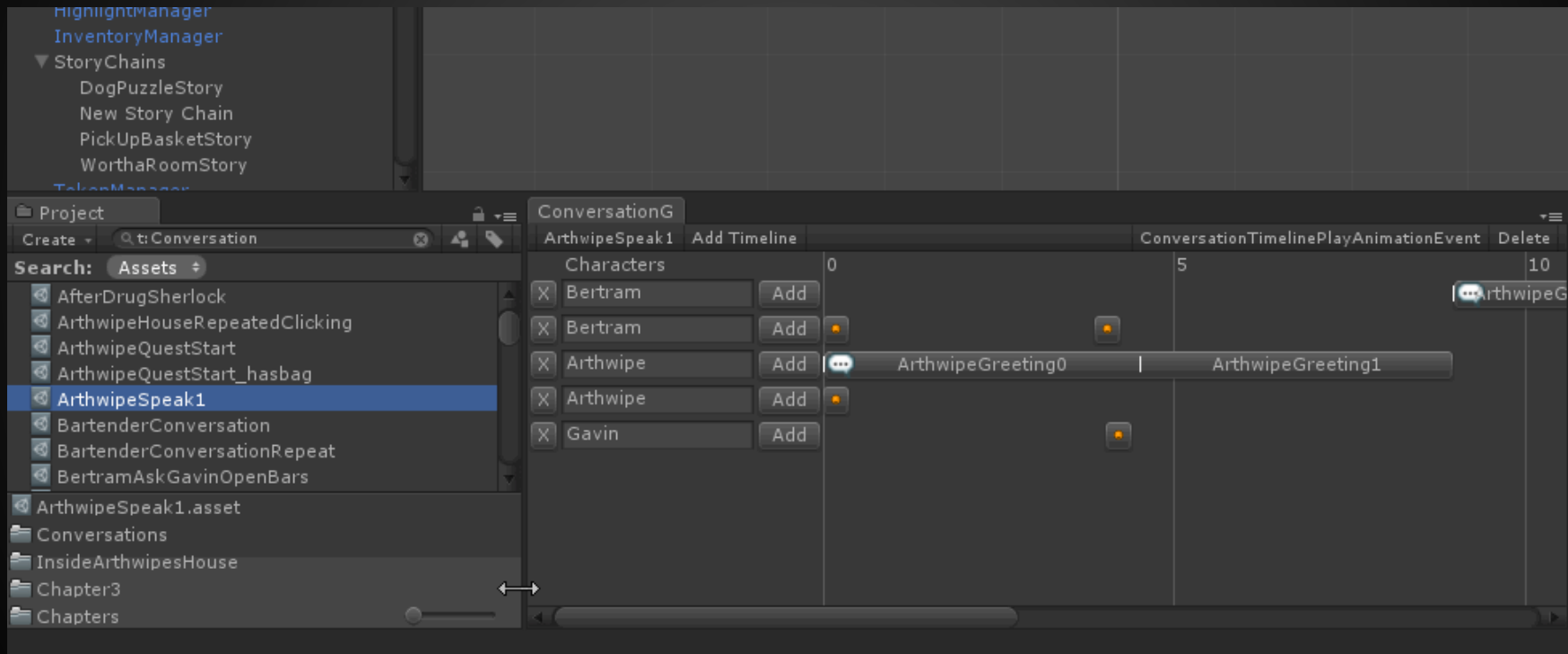
Storyline Tool



Storyline Tool



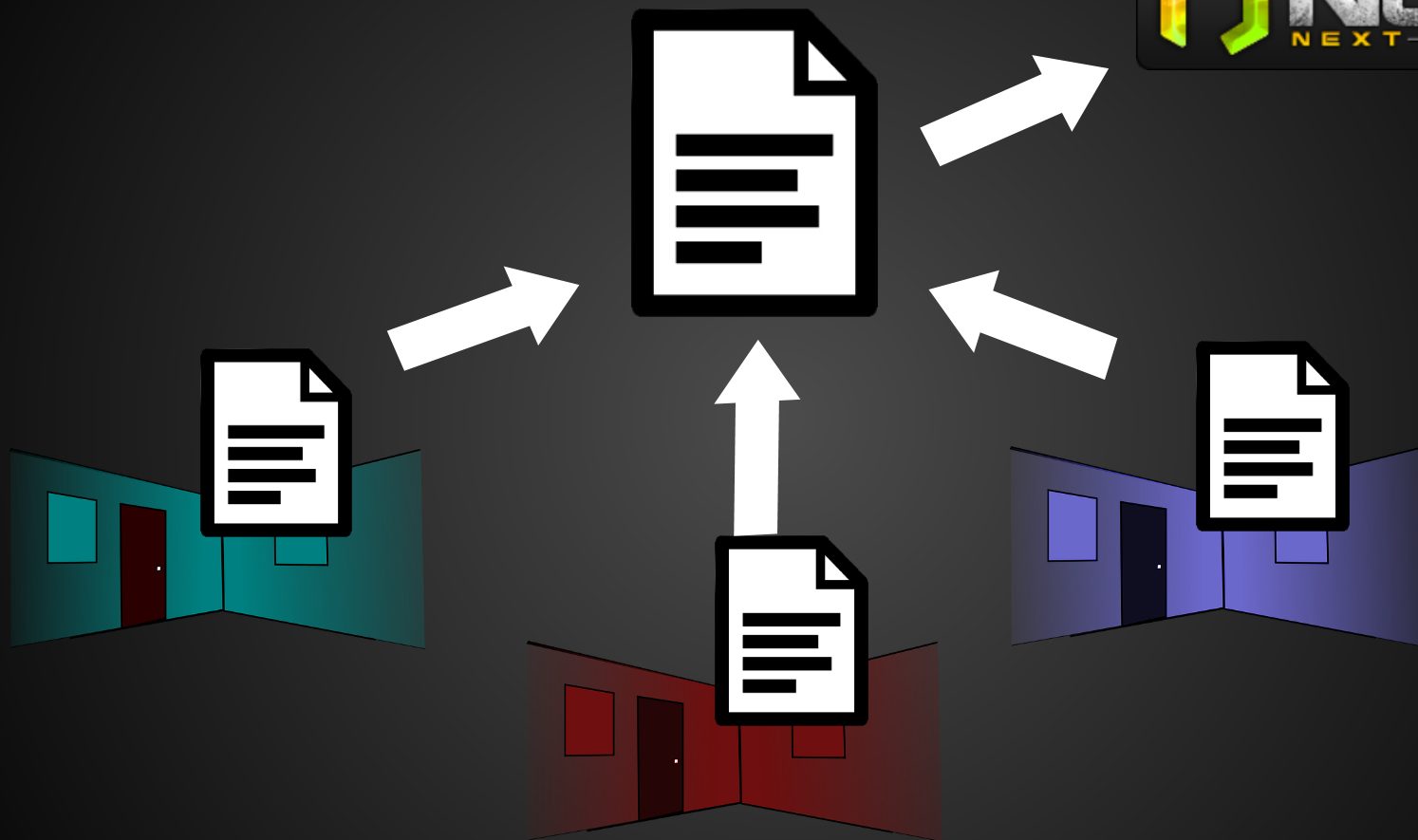
Cutscene Tool



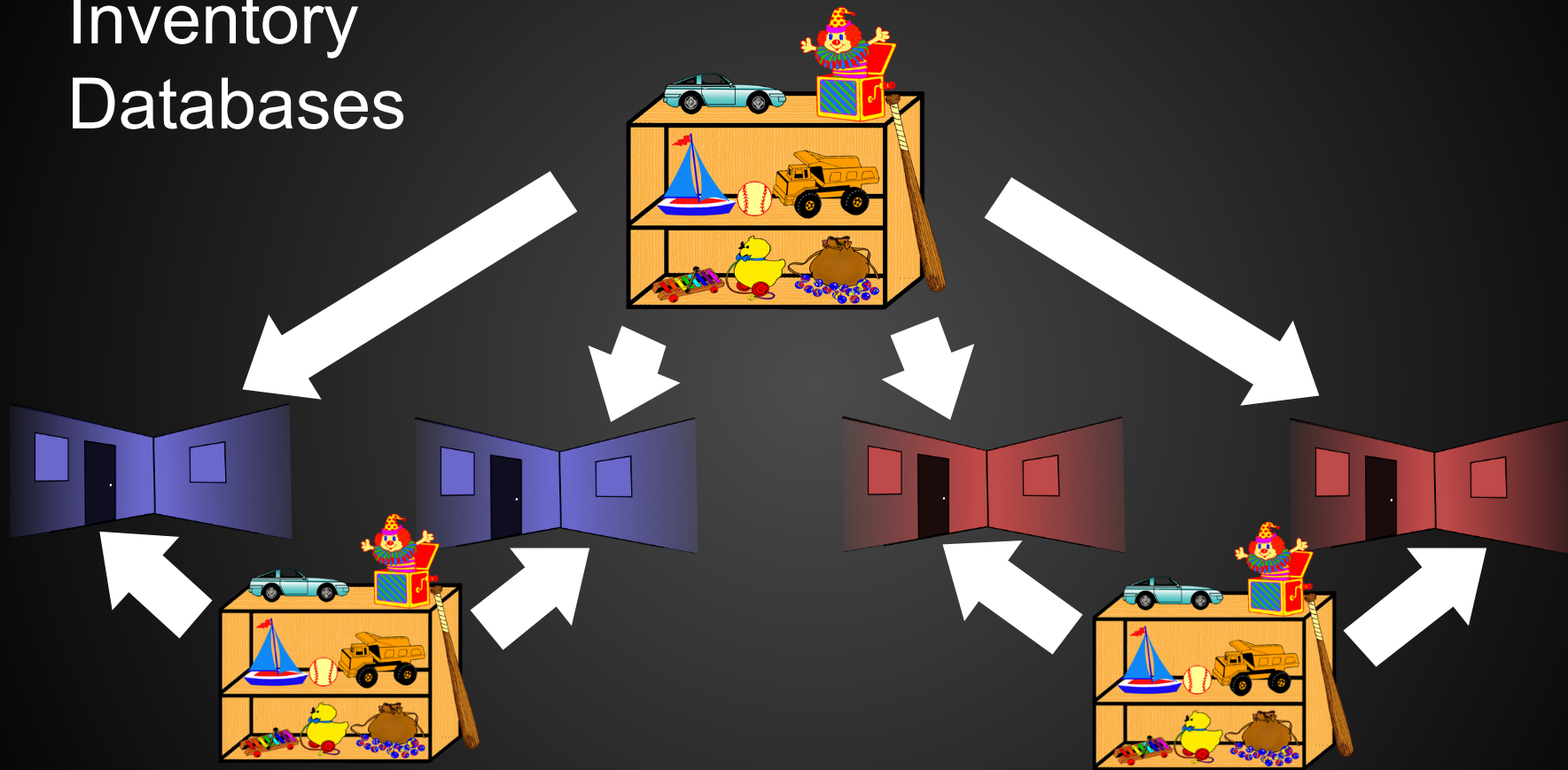


Principle #3

Structure your files around the workflow that best suits your team



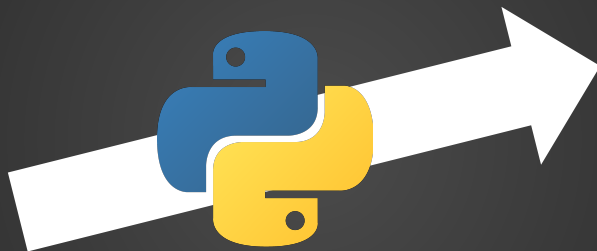
Inventory Databases



Importing external files



Dropbox



Python
scripts



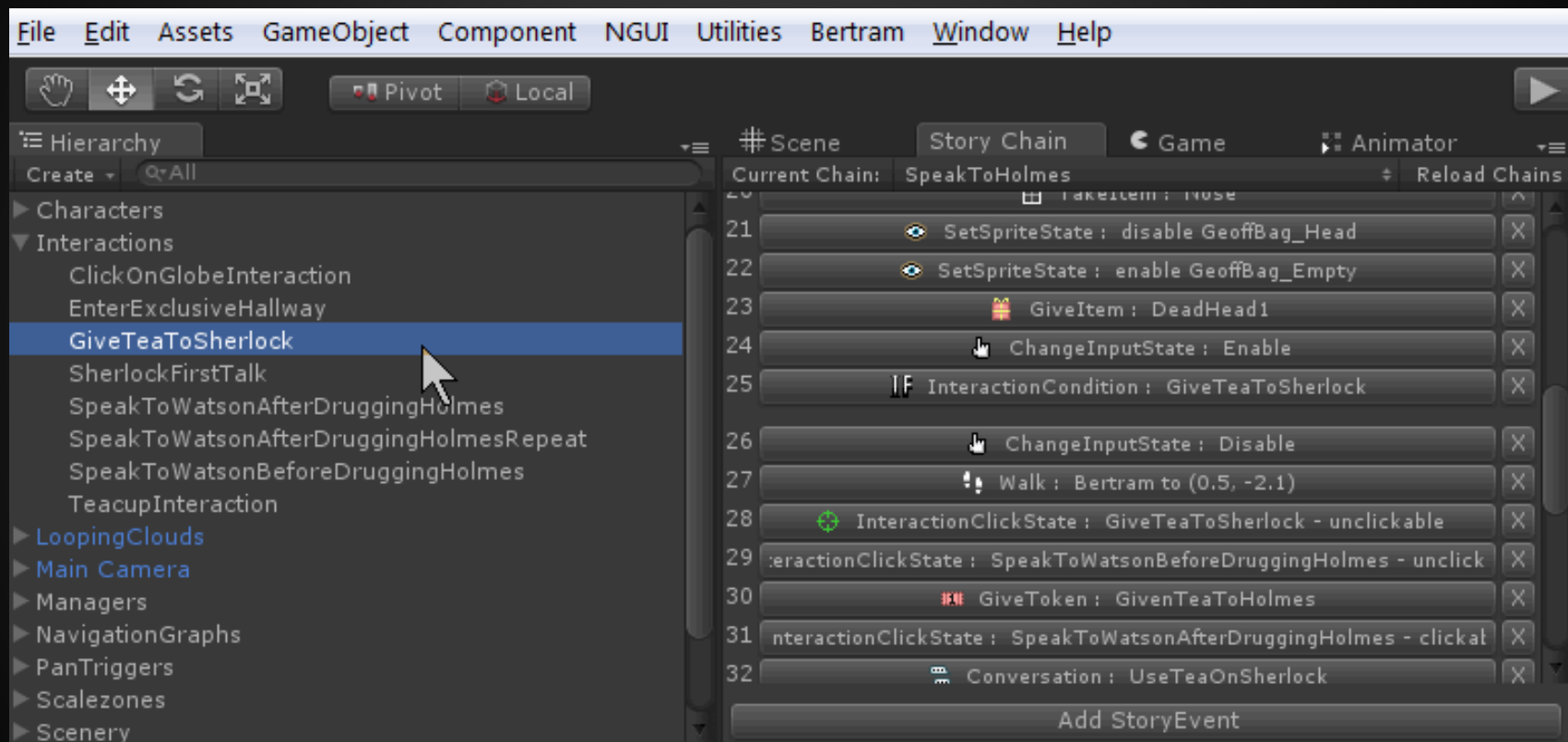
Git
repository

Principle #4

Great games are built on a ton of mistakes - create tools that let you find them fast!



Visualise errors



Visualise the state of the game



The image displays a game engine interface. On the left is a 2D game scene featuring a character named Bertram standing on a wooden balcony. The room has green patterned wallpaper, a doorway, and three framed pictures. A red chair is on the balcony. A mouse cursor points at the chair. On the right is a vertical list of 16 events, each with a number, an icon, a description, and a close button (X). Event 2 is highlighted in green. At the bottom is a 'Fast Forward' button.

Event Number	Event Description
0	InteractionClickState : WalkUpstairs - unclickable
1	InteractionClickState : WalkDownStairs - unclickable
2	IF InteractionCondition : UseStairlift
3	ChangeInputState : Disable
4	Walk : Bertram to (2.9, -0.3)
5	ChangeHeading : Bertram - W
6	Delay : 0.1 seconds
7	Dialogue : Bertram "BertramOnStairlift0"
8	Delay : 0.5 seconds
9	SetSpriteState : enable BertramOnStairlift
10	PlayAnimation : StairliftMoving StairliftFalling
11	TeleportCharacter : Bertram to (6.6, -4.3)
12	PlayAnimation : BertramOnStairlift BertramGettingOnStai
13	PlaySound : LiftSound
14	Delay : 1 seconds
15	CameraPan : No Description

Fast Forward

Be able to change the speed of time



Fast Forwarding

Free Aspect Maximize on Play Stats Gizmos

Current Chain: PickupBasketStory Reload Chains

0 InteractionCondition : PickupBasketInteraction

1 ChangeInputState : Disable

2 Walk : Bertram to (-0.7, -2.0)

3 ChangeHeading : Bertram - W

4 yCharacterAnimation : Bertram BertramPickingU

5 Delay : 1 seconds

6 SetSpriteState : disable dog_basket

7 Delay : 1.2 seconds

8 GiveItem : DogBasket

9 Dialogue : Bertram "OnPickingDogBasketUp"

10 ictionClickState : PickupBasketInteraction - unc

11 ChangeInputState : Enable

Fast Forward



The screenshot displays a game engine interface. On the left, a cartoon scene depicts two men in a room with red patterned wallpaper. One man, wearing a green jacket and a bow tie, stands next to a bookshelf. The other man, wearing a brown suit and a bow tie, stands next to a door. A small dog is sitting on a chair. On the right, a 'Current Chain' panel lists 12 events for the 'PickupBasketStory' chain. The events are numbered 0 to 11. Event 0 is 'InteractionCondition : PickupBasketInteraction'. Event 1 is 'ChangeInputState : Disable'. Event 2 is 'Walk : Bertram to (-0.7, -2.0)'. Event 3 is 'ChangeHeading : Bertram - W'. Event 4 is 'yCharacterAnimation : Bertram BertramPickingU'. Event 5 is 'Delay : 1 seconds'. Event 6 is 'SetSpriteState : disable dog_basket'. Event 7 is 'Delay : 1.2 seconds'. Event 8 is 'GiveItem : DogBasket'. Event 9 is 'Dialogue : Bertram "OnPickingDogBasketUp"'. Event 10 is 'ictionClickState : PickupBasketInteraction - unc'. Event 11 is 'ChangeInputState : Enable'. A 'Fast Forward' button is located at the bottom right of the interface.

Principle #5

Tools & workflow won't fix everything



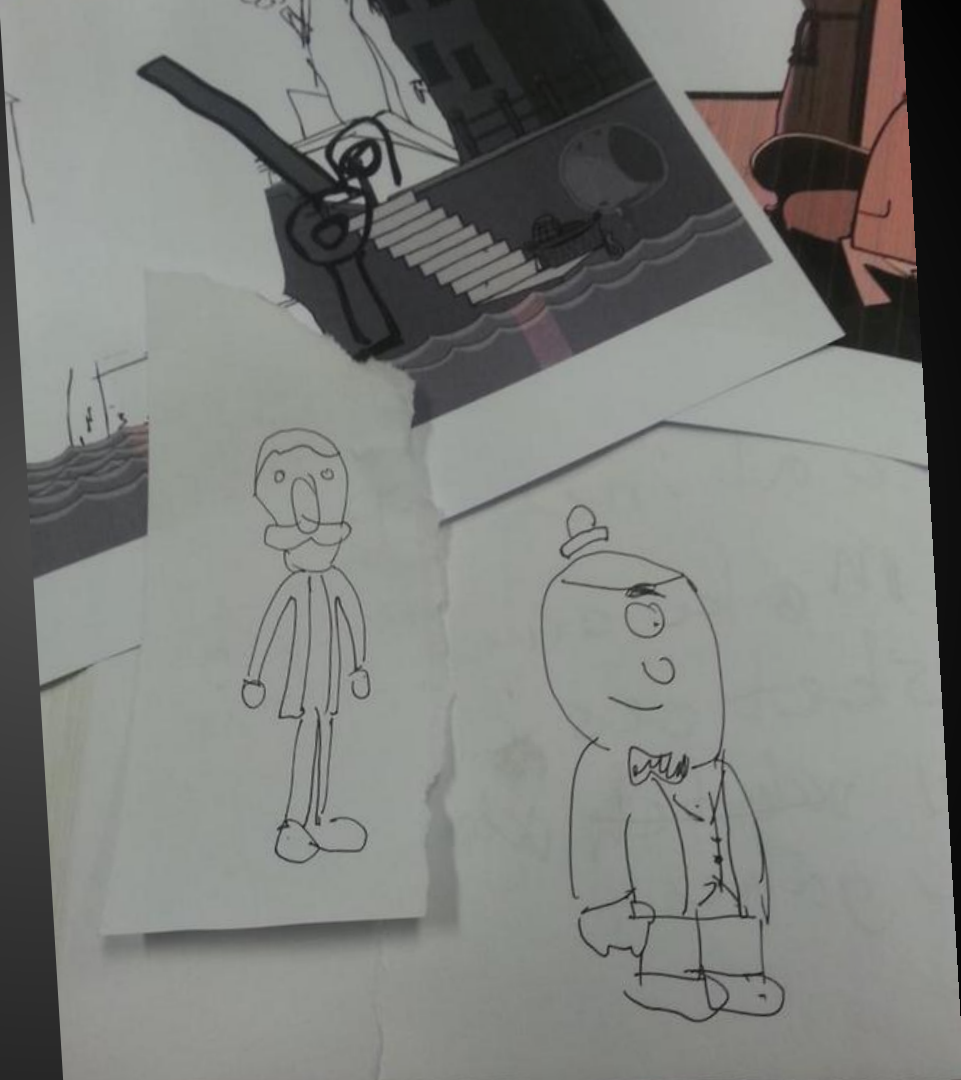
Gavin, when did we decide to cut this from the game?!?

Design Documents: What...`

- happens when you enter the scene?
- can you interact with?
- puzzles?
- scenes can you go to?
- items do you pick up?

Paper Prototyping

Fast, flexible
and cheap



Start with placeholder Assets



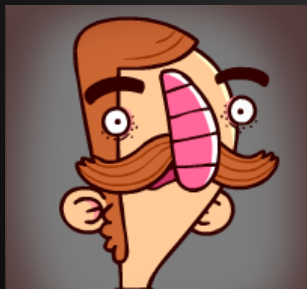
Wrapping up

1. Automate everything that can be automated
2. Make your workflow juicy and effortless
3. Organize your files so it makes sense for you team
4. Make it easy to spot mistakes
5. Remember that technology don't solve everything

Thank you!



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Deleted *Slides* ~~**Scenes**~~

The future!

How will we make games 10 years from
now?

Collaborative realtime editing

Public Pad

Read-only Version Pad Options Import/Export Saved revisions Time Slider Home

B *I* U ~~S~~

100%

1 **Game Mechanics**

2 • moving left and right

3 • jump

4 • Collect coins

5 • eat mushroom to gain the ability to take extra hit (what if you also get bigger to show it?)

6

7 **Visuals**

8 • Player character is a plumber

9 • Coins hidden in boxes

10

Mario

Toad

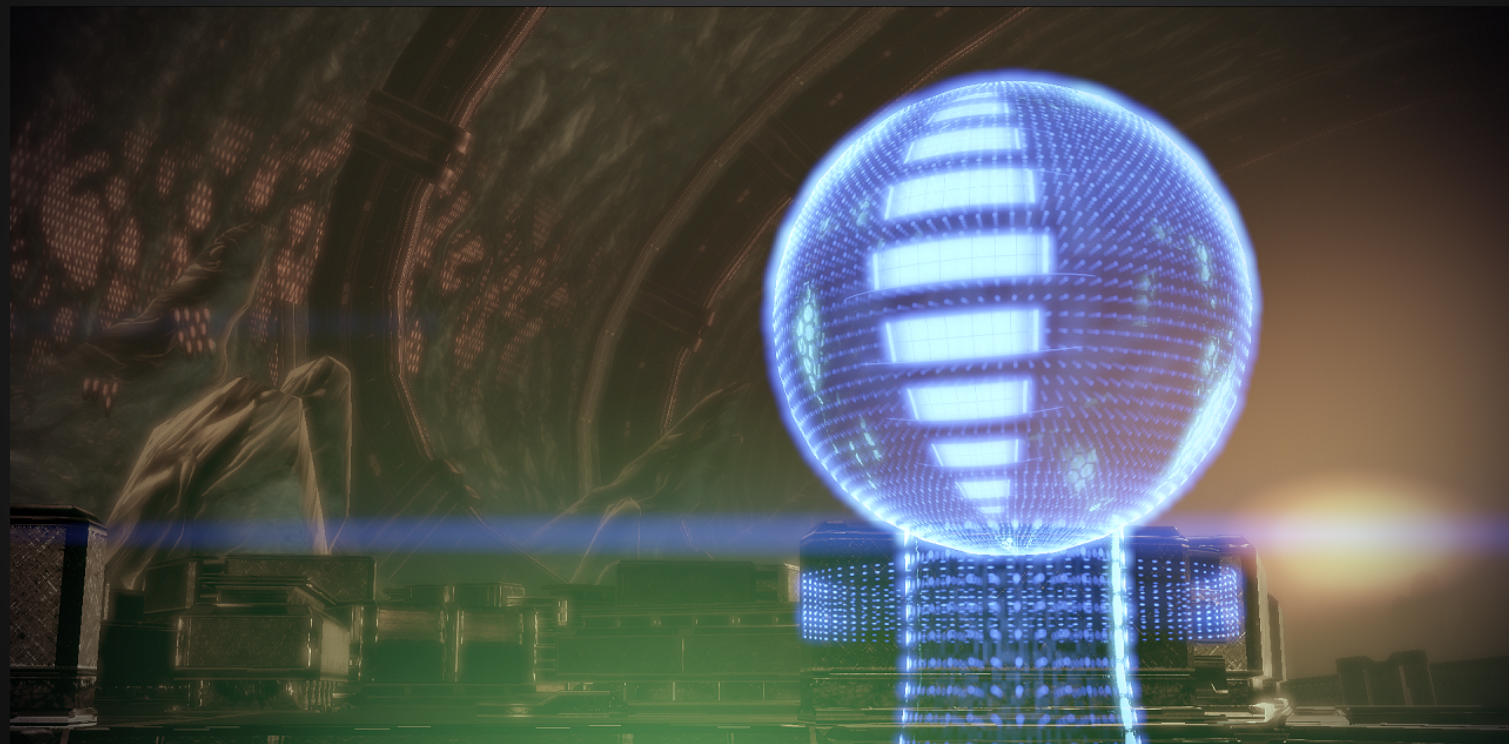
Share this pad

January 24, 2015

Mario: Hey would it not be totally awesome if the princess is just like in this castle? 20:37

Toad: would it not make the game too short? 20:37

AI assisted development



Automatic Audio Normalization with sox

```
$ sox track1.wav track1-processed.flac remix - norm -3 highpass 22  
gain -3 rate 48k norm -3 dither  
  
Input File      : 'track1.wav'  
Channels        : 2  
Sample Rate     : 44100  
Precision       : 16-bit  
Duration        : 00:02:54.97 = 7716324 samples = 13123 CDDA sectors  
Sample Encoding : 16-bit Signed Integer PCM  
Endian Type     : little  
  
Output File     : 'track1-processed.flac'  
Channels        : 1  
Sample Rate     : 48000  
Precision       : 16-bit  
Duration        : 00:02:54.97 = 8398720 samples ~ 13123 CDDA sectors  
Sample Encoding : 16-bit FLAC  
  
sox: effects chain: input      44100Hz 2 channels 16 bits (multi)  
sox: effects chain: remix     44100Hz 2 channels 16 bits (multi)  
sox: effects chain: norm      44100Hz 1 channels 16 bits  
sox: effects chain: highpass  44100Hz 1 channels 16 bits  
sox: effects chain: gain      44100Hz 1 channels 16 bits (multi)  
sox: effects chain: rate      44100Hz 1 channels 16 bits  
sox: effects chain: norm      48000Hz 1 channels 16 bits  
sox: effects chain: dither    48000Hz 1 channels 16 bits  
sox: effects chain: output    48000Hz 1 channels 16 bits (multi)  
  
$ play *.ogg  
  
01 - Summer's Cauldron.ogg:  
  
Encoding: Vorbis  
Channels: 2 @ 16-bit   Track: 01 of 15  
Samplerate: 44100Hz    Album: Skylarking  
Album gain: -7.8dB     Artist: XTC  
Duration: 00:03:19.99  Title: Summer's Cauldron  
  
In:20.8% 00:00:41.61 [00:02:38.38] Out:1.84M [  ===|===  ] Clip:0
```