Perfecting Workflows
tool development to empower designers

Linda Kruse
the Good Evil GmbH

GAME DEVELOPERS CONFERENCE
MARCH 18–22, 2019 | #GDC19

THE GOOD EVIL

Linda Kruse
CEO & Game-Designer
the Good Evil GmbH

linda@thegoodevil.com
@ldacruz_

game

Vice Chairwoman of the Board
game – the German Games
Industry Association

Best practices

EvilSystem

Best practices

- flexible & maintainable system
- enable efficient workflow + teamwork
- independent of specific game mechanics + support content

we

We create games to make the world a better place!

2013

3 People

educational games

mobile / web
console / desktop

sustainable business model

2019

6+ People

educational games

mobile / web
console / desktop

sustainable business model

Deutsche Welle

GOETHE-INSTITUT

Carl Duisberg

Landeszentrale
für politische Bildung
Nordrhein-Westfalen

THE GOOD EVIL

Loewe

BELTZ & Gelberg

BASTEI LÜBBE

WILA Bonn

DZNE
Deutsches Zentrum für
Neurodegenerative Erkrankungen
in der Helmholtz-Gemeinschaft

heute SHOW

hmb

Innocence in danger

NDR

KÖLNISCHES STADTMUSEUM

IW MEDIEN

Dr. Hans Riegel-Stiftung

Stiftung Lesen

WDR

rbb FERNSEHEN

RTL

Some of our clients.

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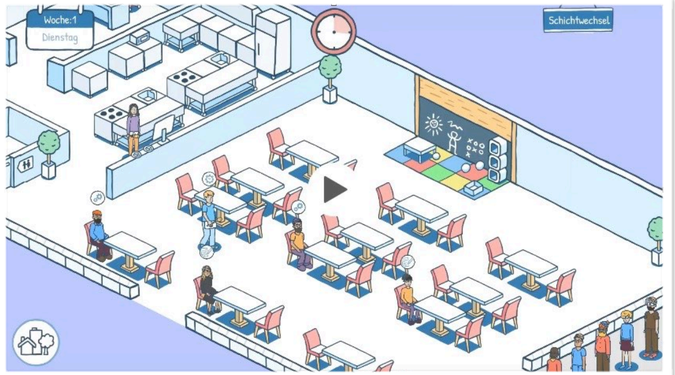

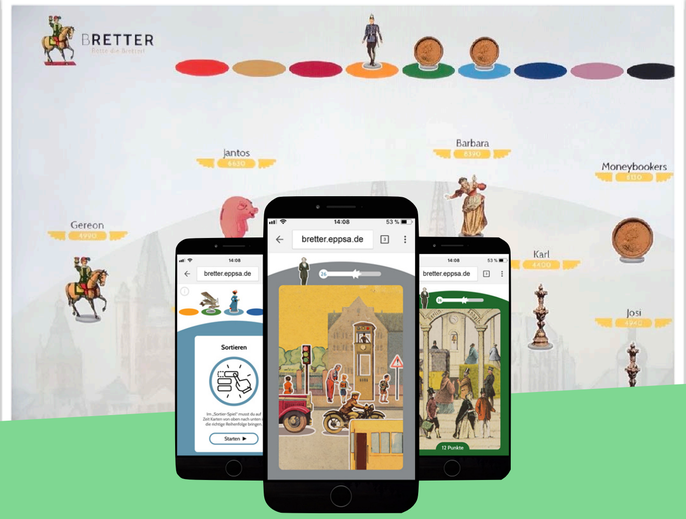

Some of our games.

why

THE GOOD EVIL

Available on the App Store

ANDROID APP ON Google play

Comenius EduMedia Siegel 2018

DEUTSCHER ENTWICKLERPREIS 2014

BESTE KINDER APPS

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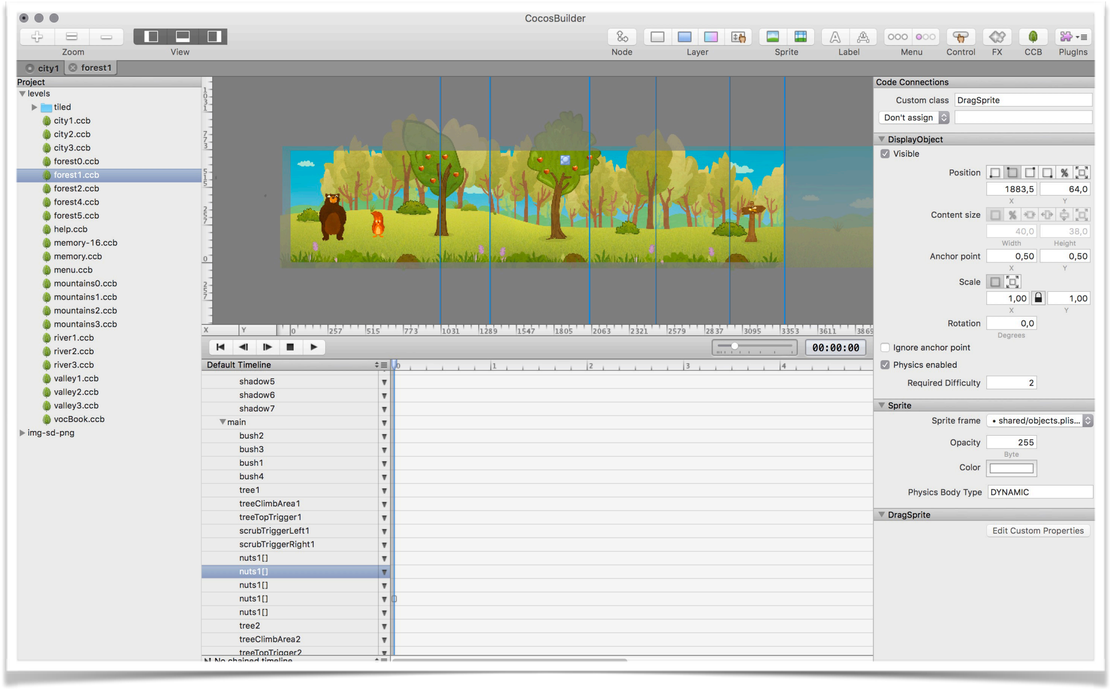
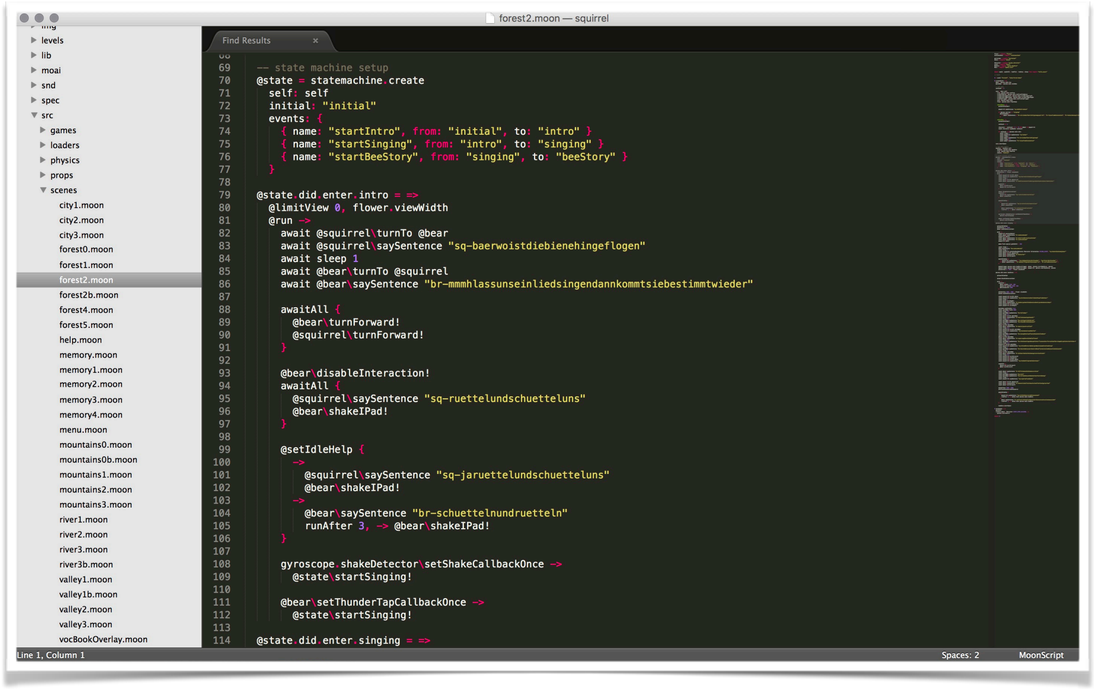




THE GOOD EVIL

artist

creates assets
+ animations

programmer

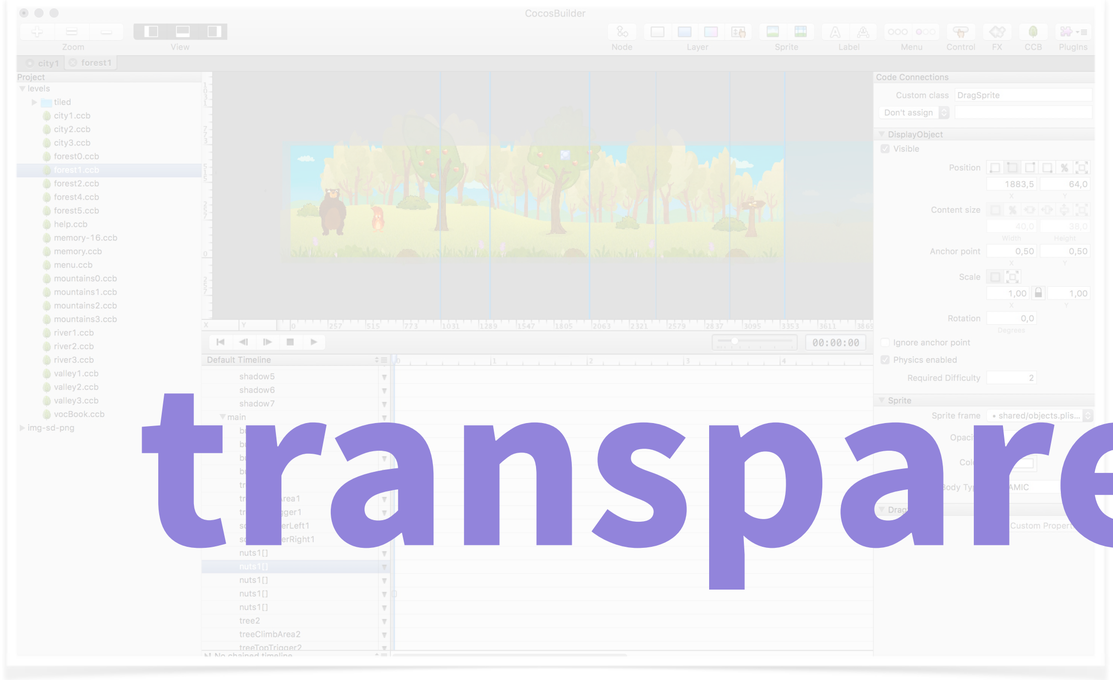
creates core functions,
scripting gameplay,
feedback, UI

game designer

rebuilds levels,
asset setup, scripting,
writes dialogues

make build

testing



transparent logic

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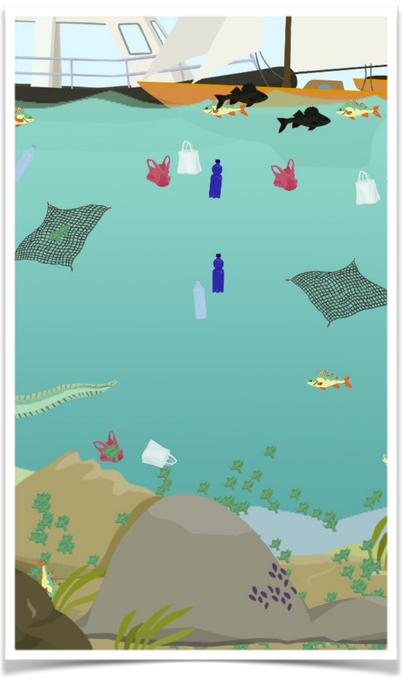
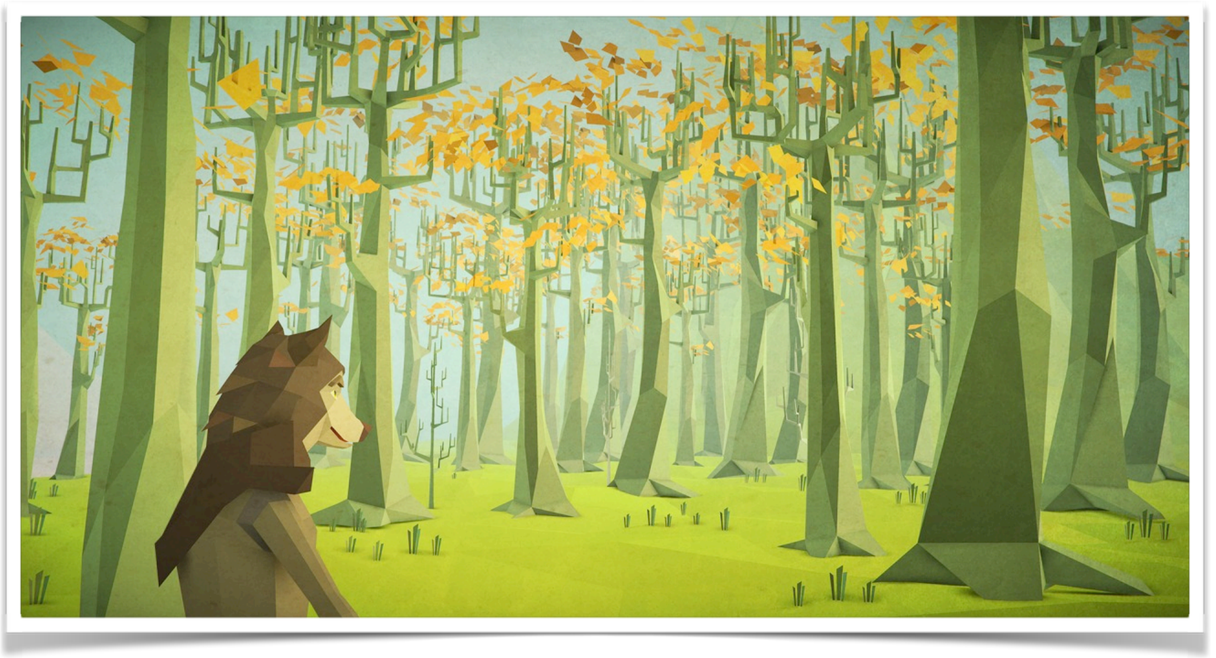
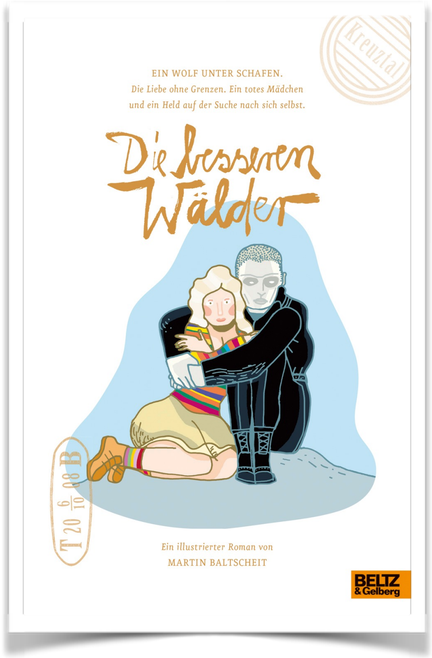


Problems of 3rd party tools (Unity):

- build for „beginners“
- no unified file management
- tedious setup (content!)





Problems of 3rd party tools:

- only for „standard mechanics“
- dependent on support / hard to maintain
- conflicts between tools

Can we optimize our workflow ?

Workflow analysis

Customer Journey with team:

* Are there any repetitive tasks? Can they be automated?
* What steals our creative time?
* Defining „overlapping tasks“ (between departments).
* What applications are we using? Are they working?
* What are the teams most „hated“ tasks?

how

design considerations

EvilSystem

EvilSystem design considerations

designers

- **represent full workflow** (design / art / code / qa)
- **power/access for game designers** (content / logic)
- **dialogue handling** (branching / localisation)

EvilSystem design considerations

coders

- **maintainable & independent** (Unity / 3rd party tools)
- **flexible** (features / mechanics / iterations)
- **unified file management** (one place)

EvilSystem design considerations

important

- **read- & writeable logic** (~~source code~~)
- **independent of specific mechanics**

designers

I can change
everything
on my own!

coders

One accessible place!

important

Love to reuse for future projects!

how

implementation

EvilSystem

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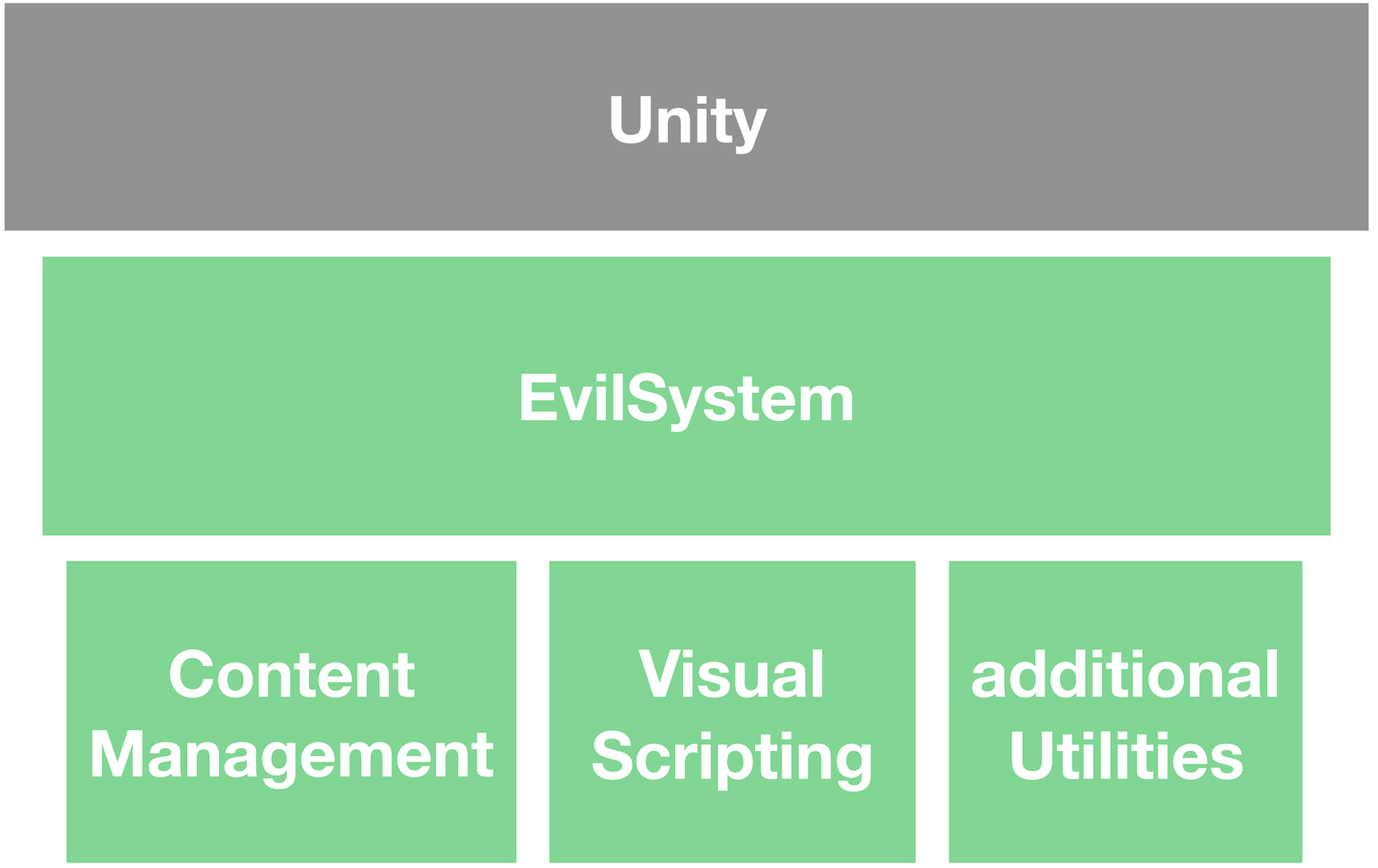
Unity
EvilSystem
Content Management
Visual Scripting
additional Utilities

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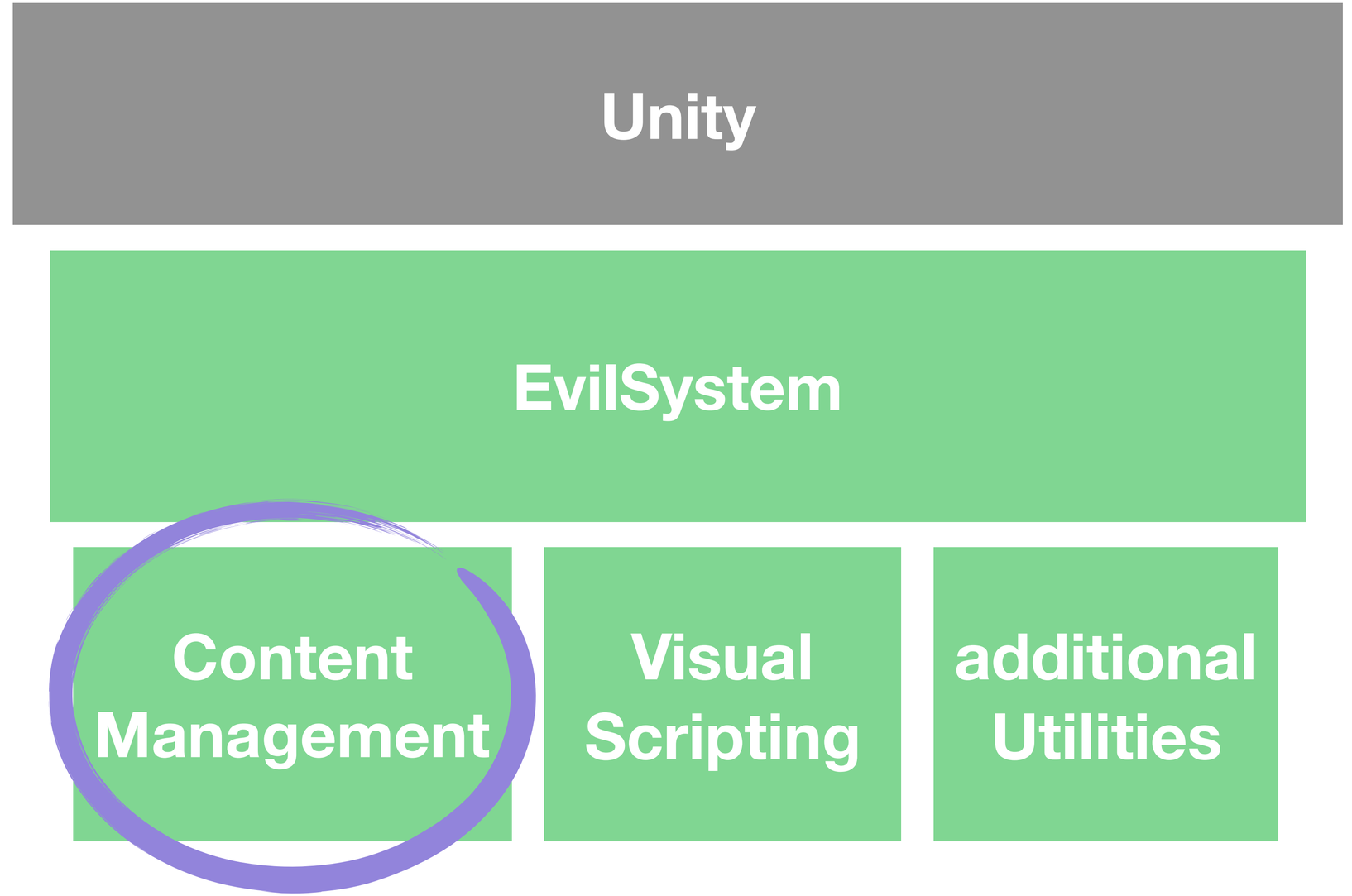
EvilSystem

tech


Unity
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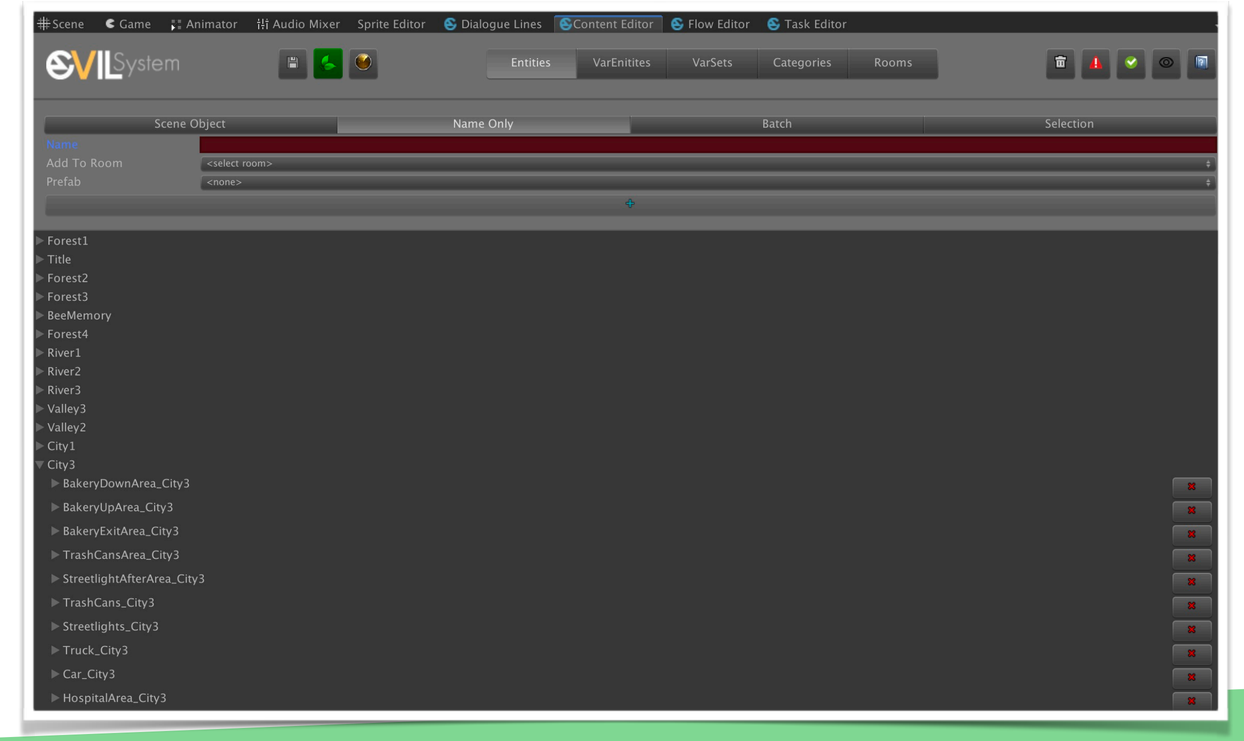
Content Management
Visual Scripting
additional Utilities

Content Management

- **content model** saves entities as
  „abstract entity contents“

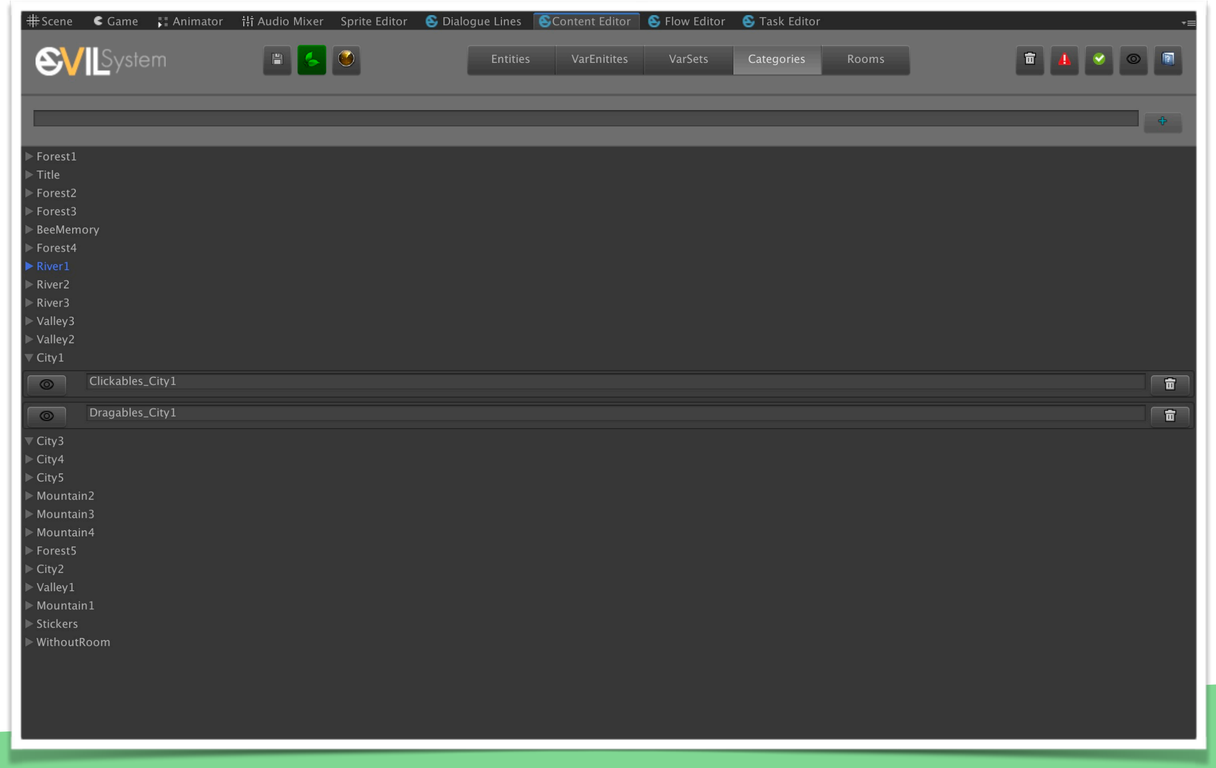
- **entities** can receive
  - **string, integer** or **bool variables**
  - **GameObjects** on **runtime**
  - different **„states“** use **„behaviors“**
    (e.g. door open or door closed)



Content Management

- **entities** can be added to **categories**

- **entities** manage
  - **scene representation**
    (e.g. rooms & closeups)
  - **UI elements**



A flexible & maintainable system!

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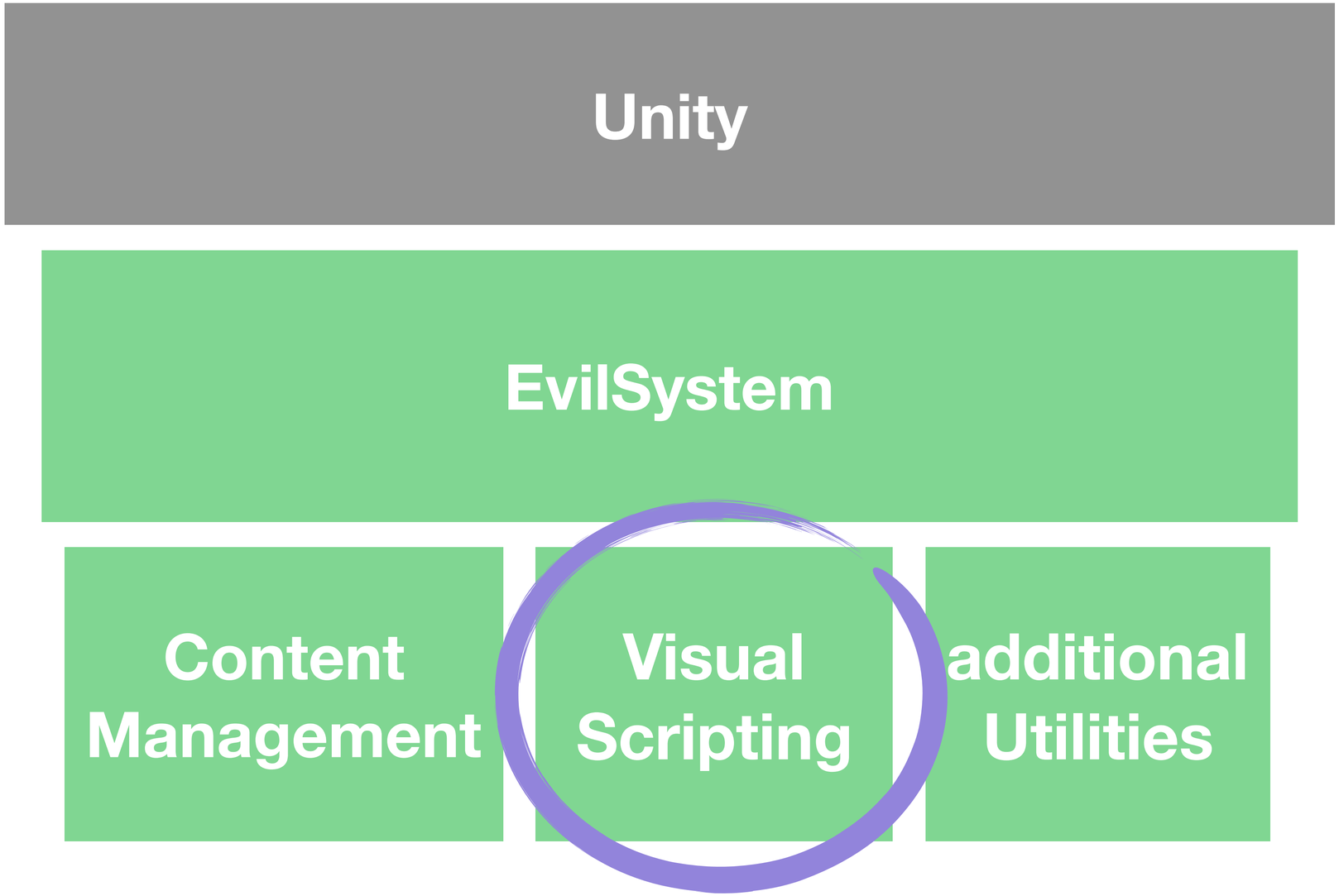
EvilSystem designers

- **2,5D adventure**
- gameplay driven
- multiplatform
- ~sequential levels
- dialogues (voice!)
- puzzles

Squirrel & Bear: Europe (in development)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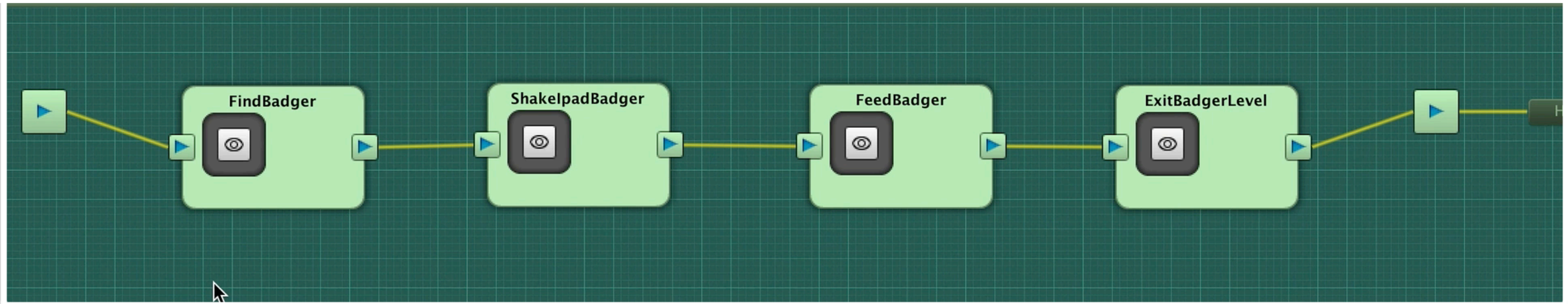
Visual Scripting

node editor defines **game flow**

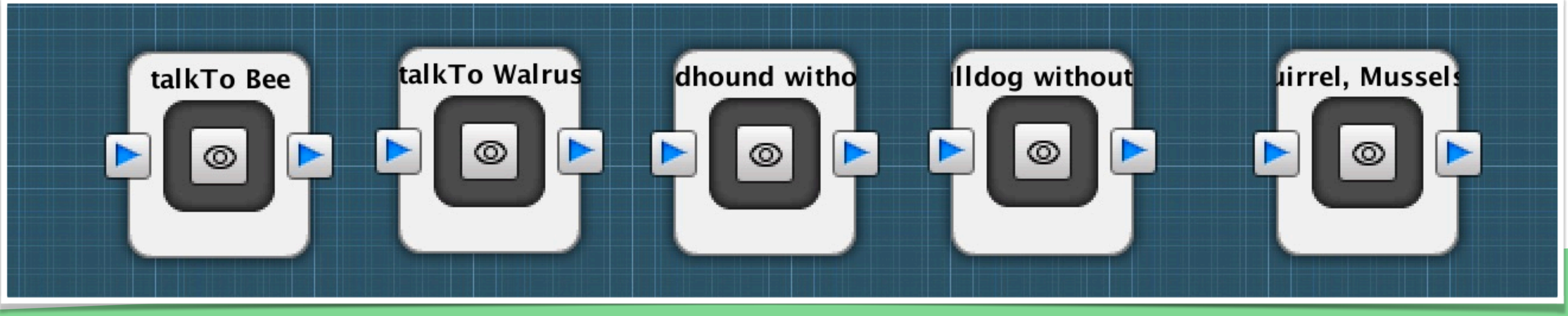
- **game flow** follows **one node** after the other on runtime
- nodes follow **hierarchy** of **nested elements** (**!**lower level)



Visual Scripting

game flow

- calls **tasks** / **UI elements**
- reacts to **GameEvents** / **conditions**



Setup

#1

Flow Editor

(logic setup / game design)

Task Editor

#2

Scene Editor

(visual setup / level design)

Setup

#1

Flow Editor

(logic setup / game design)

Task Editor

#2

Scene Editor

(visual setup / level design)

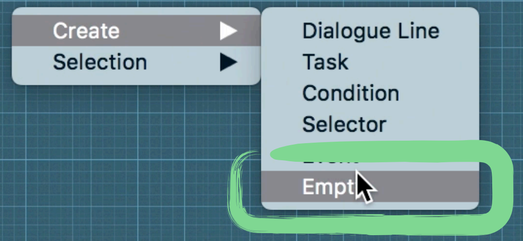
Bruges

Position	Story	Task	Animal	Learning	Have to	Can do
1	SQB arrive outside of Bruges with plane. Plane can slide on screen first, then SQB can walk in (if easier).	SQ to set task: find Bee (follow pollen dust).	SQ+B	How does Landscape outside Bruges look like	x	
5	SQ loves climbing up towers, churches and other things.	• SQ: Follow pollen dust • SQ: climb up to find bee. • Find hidden facts about Belfry (and his bell).	SQ, Bee	Hidden Facts (1,2)	x	x
6	SQ found bee. Translation Bee, Happy to see SQB (Bee savers). Happy to help. Wants to fly into SQ ear, but its too small. Need to fly into B ear. Bee flies down. SQ has to follow.	SQ: Tap bee to talk.	SQ+B, Bee	Bee can only translate through Bear.	x	

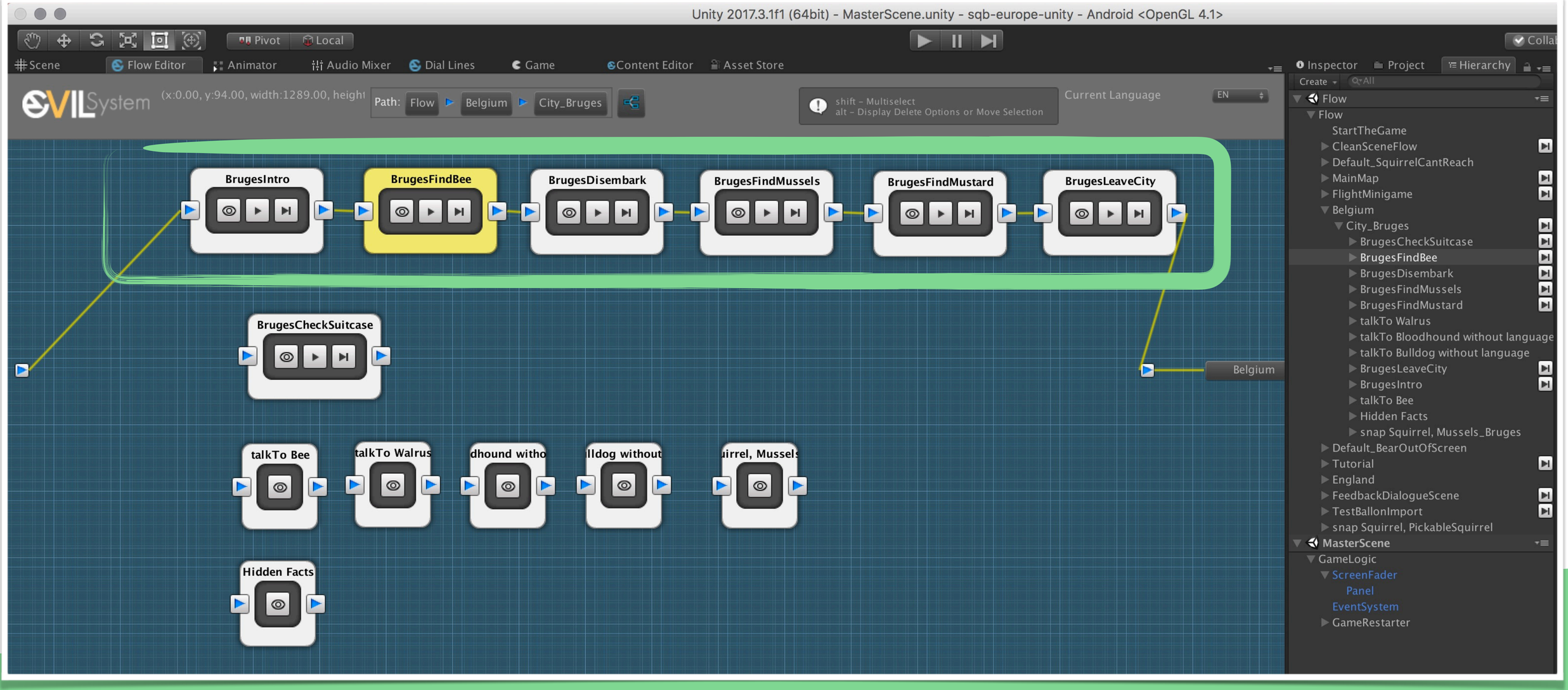
- **create** new flow element „**FindBee**“ for Bruges scene
- trigger dialogue when **Squirrel „talks to“ Bee** (click on Bee)
- **only Squirrel** can **reach** Bee
  - If **Squirrel** can **reach Bee** start dialogue
    else trigger **help dialogue** of Squirrel

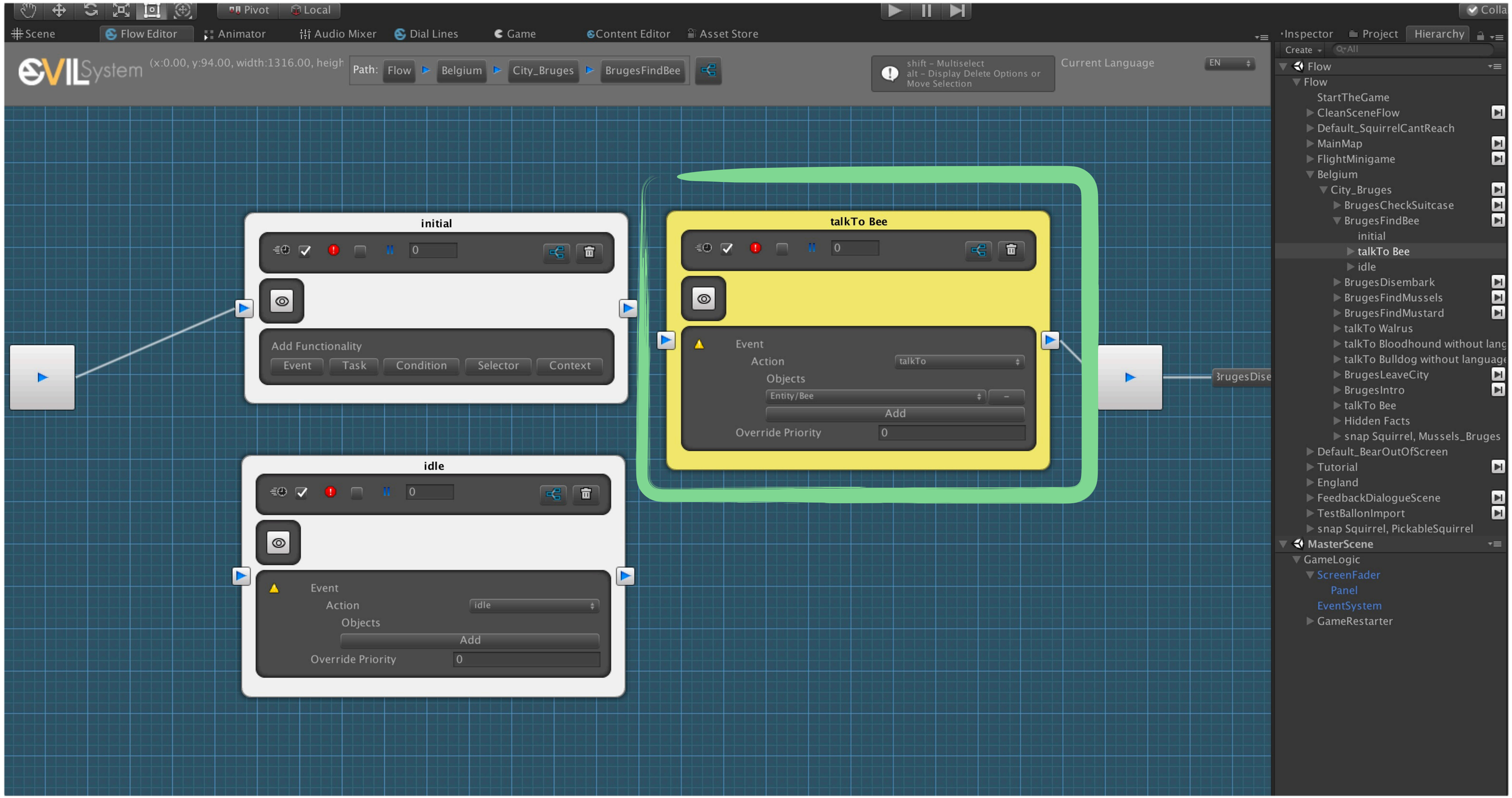
Flow Editor

(logic setup / game design)



Flow Editor (logic setup)


Unity 2017.3.1f1 (64bit) - MasterScene.unity - sqb-europe-unity - Android <OpenGL 4.1>
Pivot
Local
Scene
Flow Editor
Animator
Audio Mixer
Dial Lines
Game
Content Editor
Asset Store
Inspector
Project
Hierarchy
Create
EVILSystem
(x:0.00, y:94.00, width:1289.00, height
Path:
Flow
Belgium
City_Bruges
shift – Multiselect
alt – Display Delete Options or Move Selection
Current Language
EN
BrugesIntro
BrugesFindBee
BrugesDisembark
BrugesFindMussels
BrugesFindMustard
BrugesLeaveCity
BrugesCheckSuitcase
Belgium
talkTo Bee
talkTo Walrus
dhound witho
lldog without
irrel, Mussels
Hidden Facts
Flow
Flow
StartTheGame
CleanSceneFlow
Default_SquirrelCantReach
MainMap
FlightMinigame
Belgium
City_Bruges
BrugesCheckSuitcase
BrugesFindBee
BrugesDisembark
BrugesFindMussels
BrugesFindMustard
talkTo Walrus
talkTo Bloodhound without language
talkTo Bulldog without language
BrugesLeaveCity
BrugesIntro
talkTo Bee
Hidden Facts
snap Squirrel, Mussels_Bruges
Default_BearOutOfScreen
Tutorial
England
FeedbackDialogueScene
TestBallonImport
snap Squirrel, PickableSquirrel
MasterScene
GameLogic
ScreenFader
Panel
EventSystem
GameRestarter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(x:0.00, y:94.00, width:1316.00, heigh
Path:
Flow
Belgium
City_Bruges
BrugesFindBee
shift – Multiselect
alt – Display Delete Options or
Move Selection
Current Language
EN
initial
Add Functionality
Event
Task
Condition
Selector
Context
talkTo Bee
Event
Action
talkTo
Objects
Entity/Bee
Add
Override Priority
idle
Event
Action
idle
Objects
Add
Override Priority
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Flow
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- ~~**create** new flow element „**FindBee**“ for Bruges scene~~
- ~~trigger dialogue when **Squirrel „talks to“ Bee** (click on Bee)~~
- **only Squirrel** can **reach** Bee
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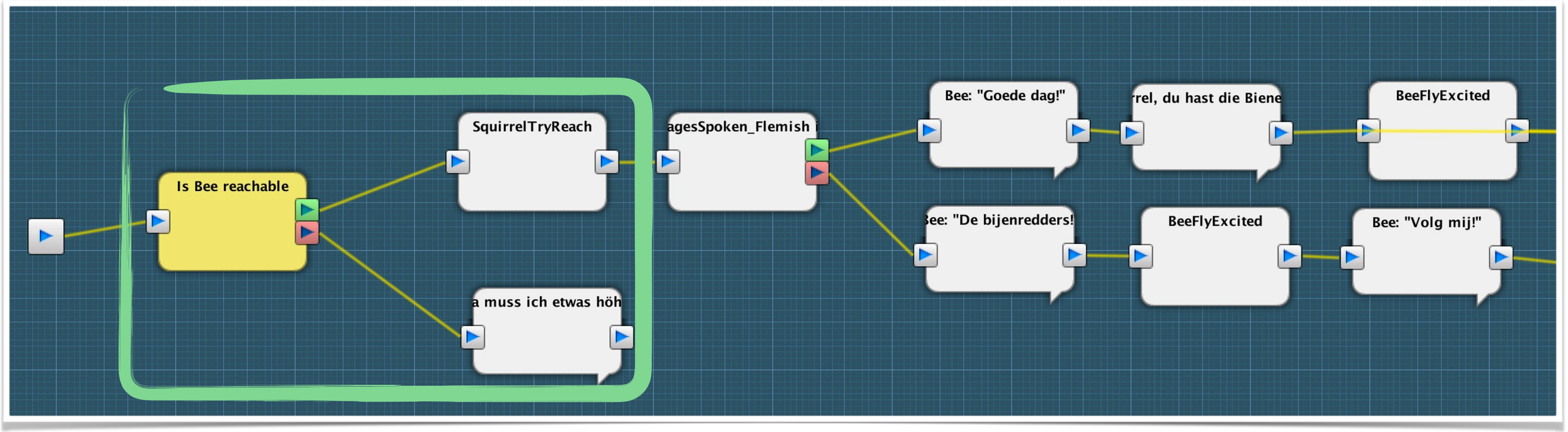
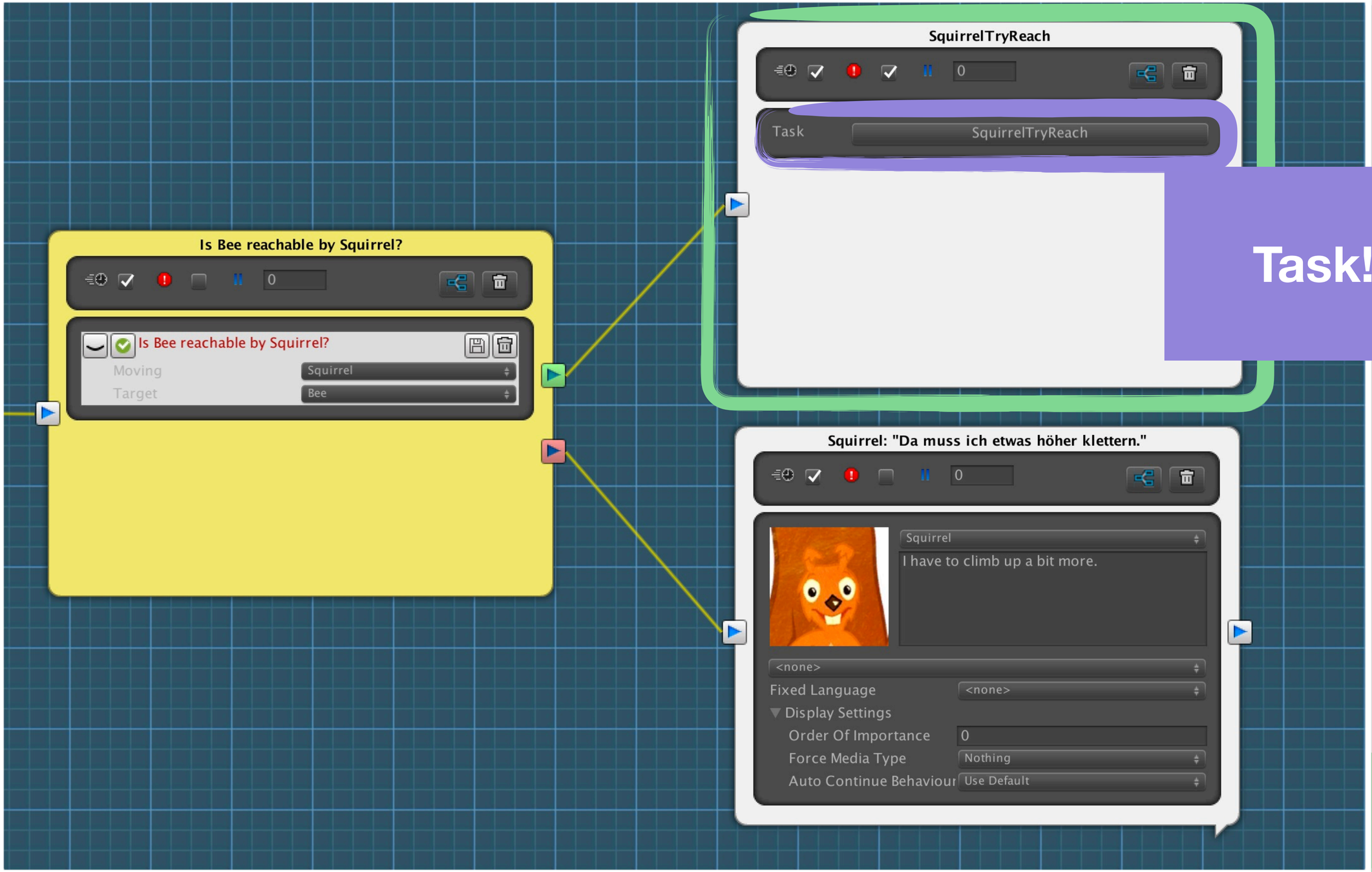
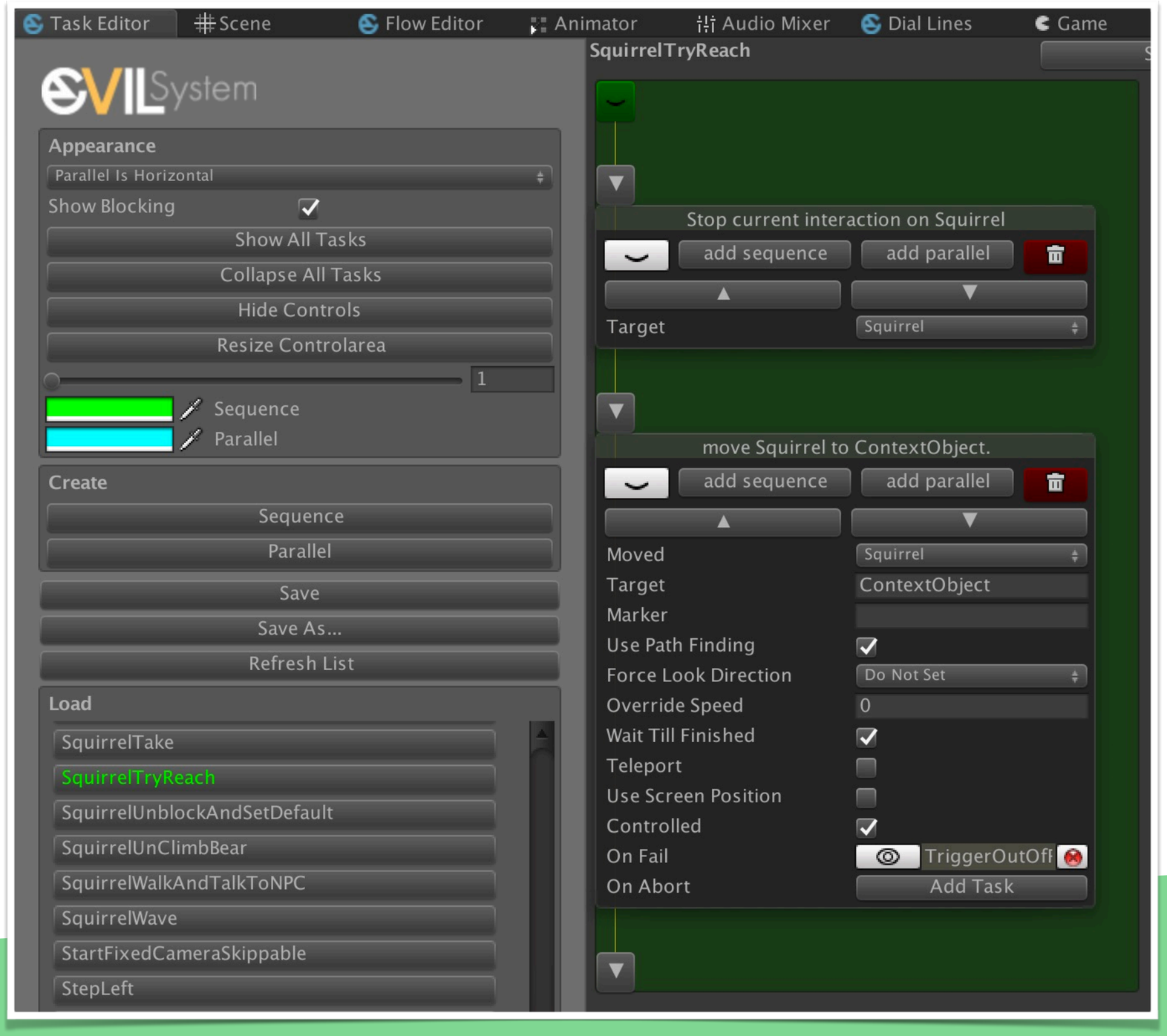


Flow Editor • Conditions


SquirrelTryReach
0
Task
SquirrelTryReach
Is Bee reachable by Squirrel?
0
Is Bee reachable by Squirrel?
Moving
Squirrel
Target
Bee
Squirrel: "Da muss ich etwas höher klettern."
0
Squirrel
I have to climb up a bit more.
<none>
Fixed Language
<none>
Display Settings
Order Of Importance
0
Force Media Type
Nothing
Auto Continue Behaviour
Use Default

Task!

Task Editor


Task Editor
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Game
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Appearance
Parallel Is Horizontal
Show Blocking
Show All Tasks
Collapse All Tasks
Hide Controls
Resize Controlarea
1
Sequence
Parallel
Create
Sequence
Parallel
Save
Save As...
Refresh List
Load
SquirrelTake
SquirrelTryReach
SquirrelUnblockAndSetDefault
SquirrelUnClimbBear
SquirrelWalkAndTalkToNPC
SquirrelWave
StartFixedCameraSkippable
StepLeft
SquirrelTryReach
Stop current interaction on Squirrel
add sequence
add parallel
Target
Squirrel
move Squirrel to ContextObject.
add sequence
add parallel
Moved
Squirrel
Target
ContextObject
Marker
Use Path Finding
Force Look Direction
Do Not Set
Override Speed
0
Wait Till Finished
Teleport
Use Screen Position
Controlled
On Fail
TriggerOutOff
On Abort
Add Task

Bruges

- ~~**create** new flow element **FindBee for Bruges**~~
- ~~trigger dialogue when **Squirrel „talks to“ Bee** (click on Bee)~~
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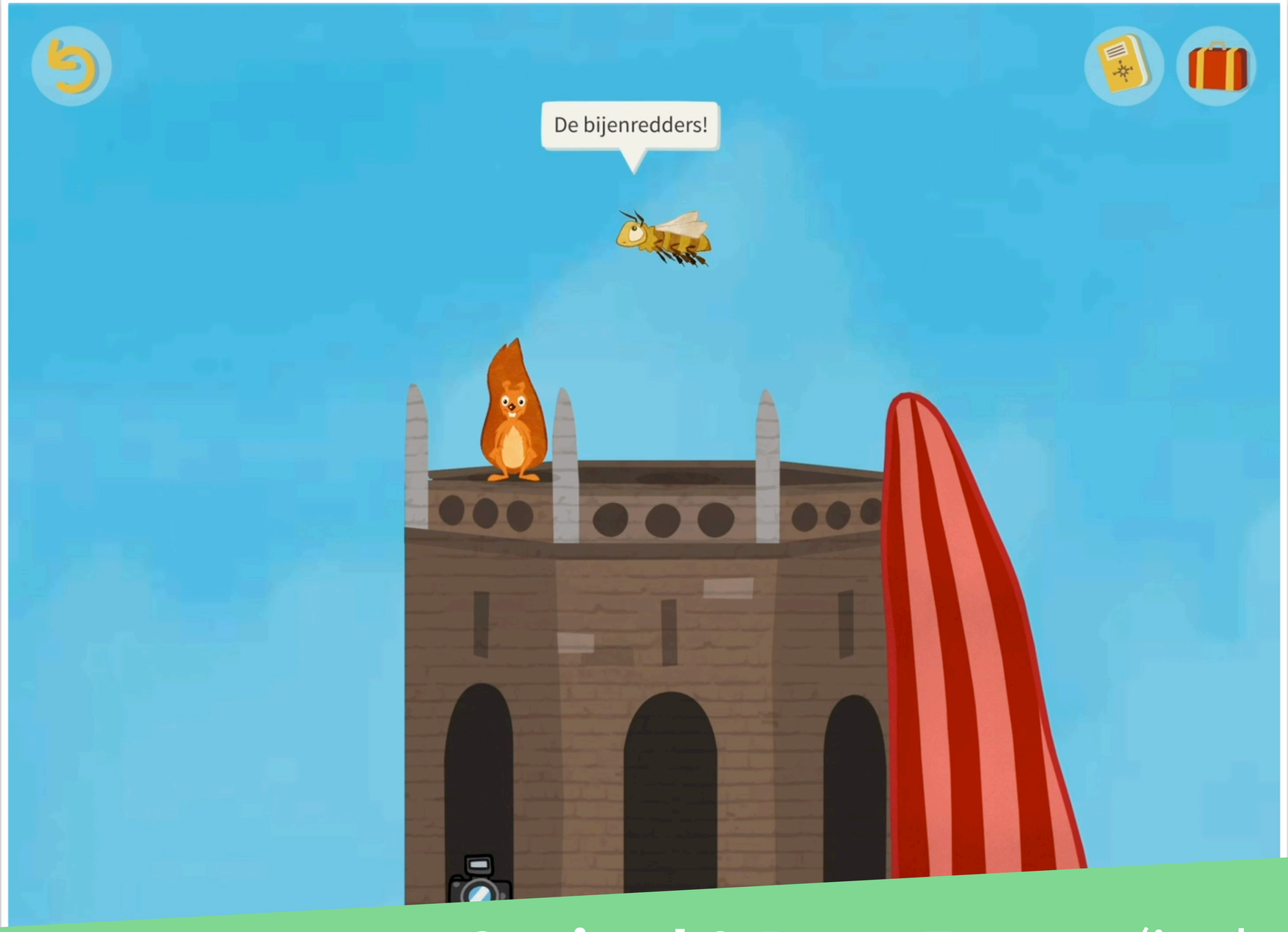

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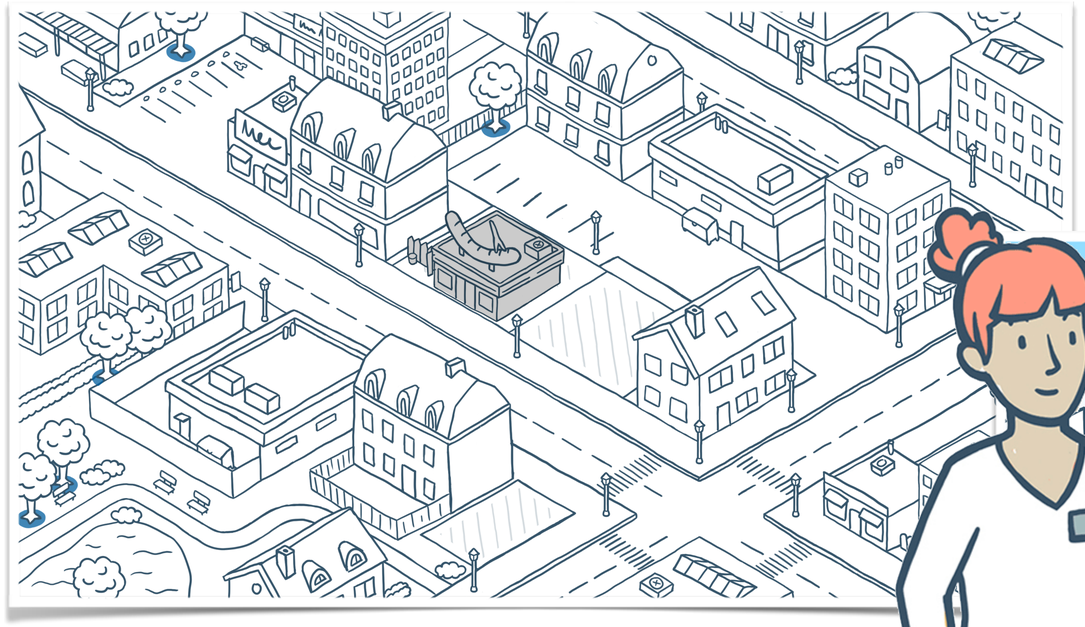
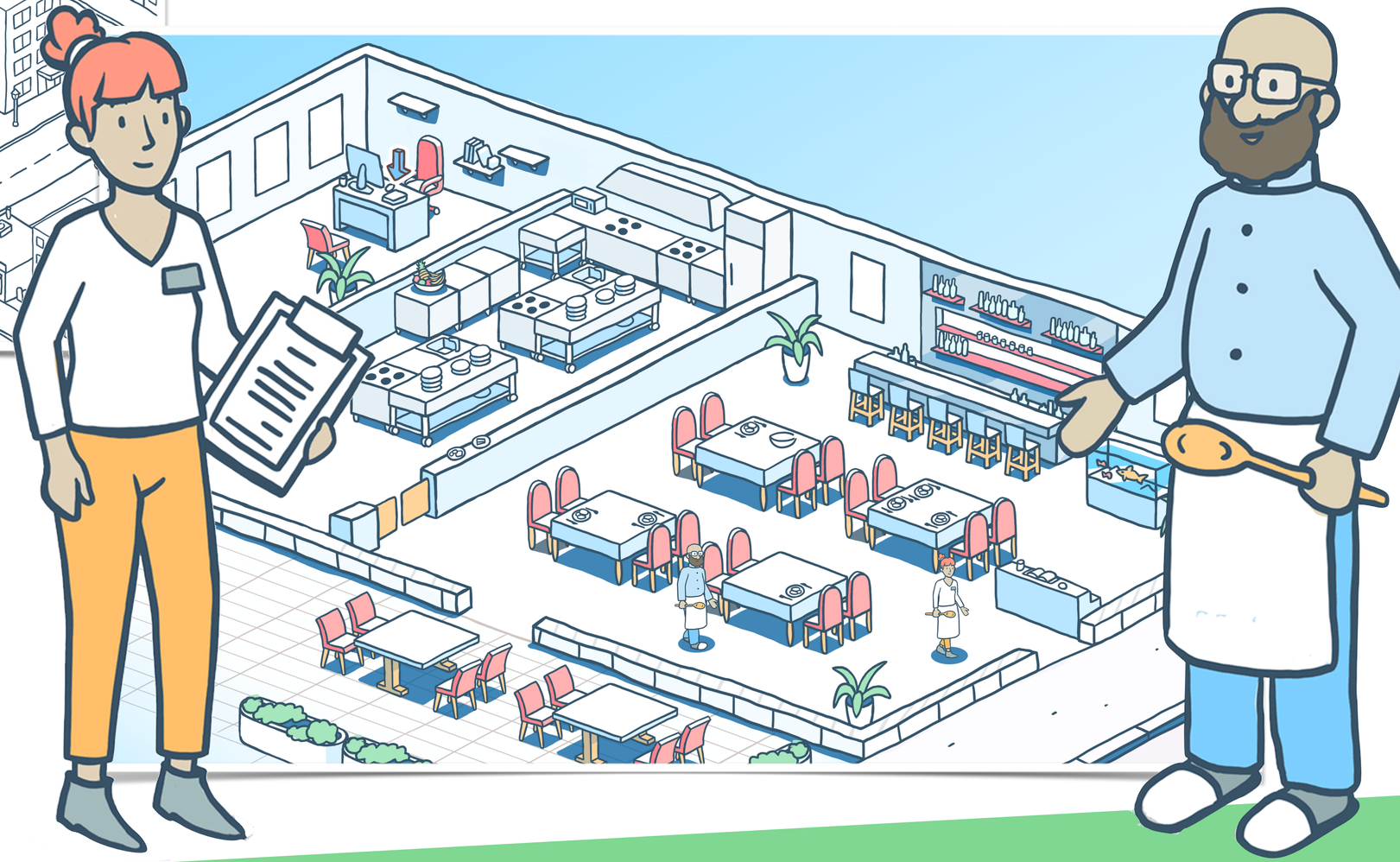
Squirrel & Bear: Europe (in development)

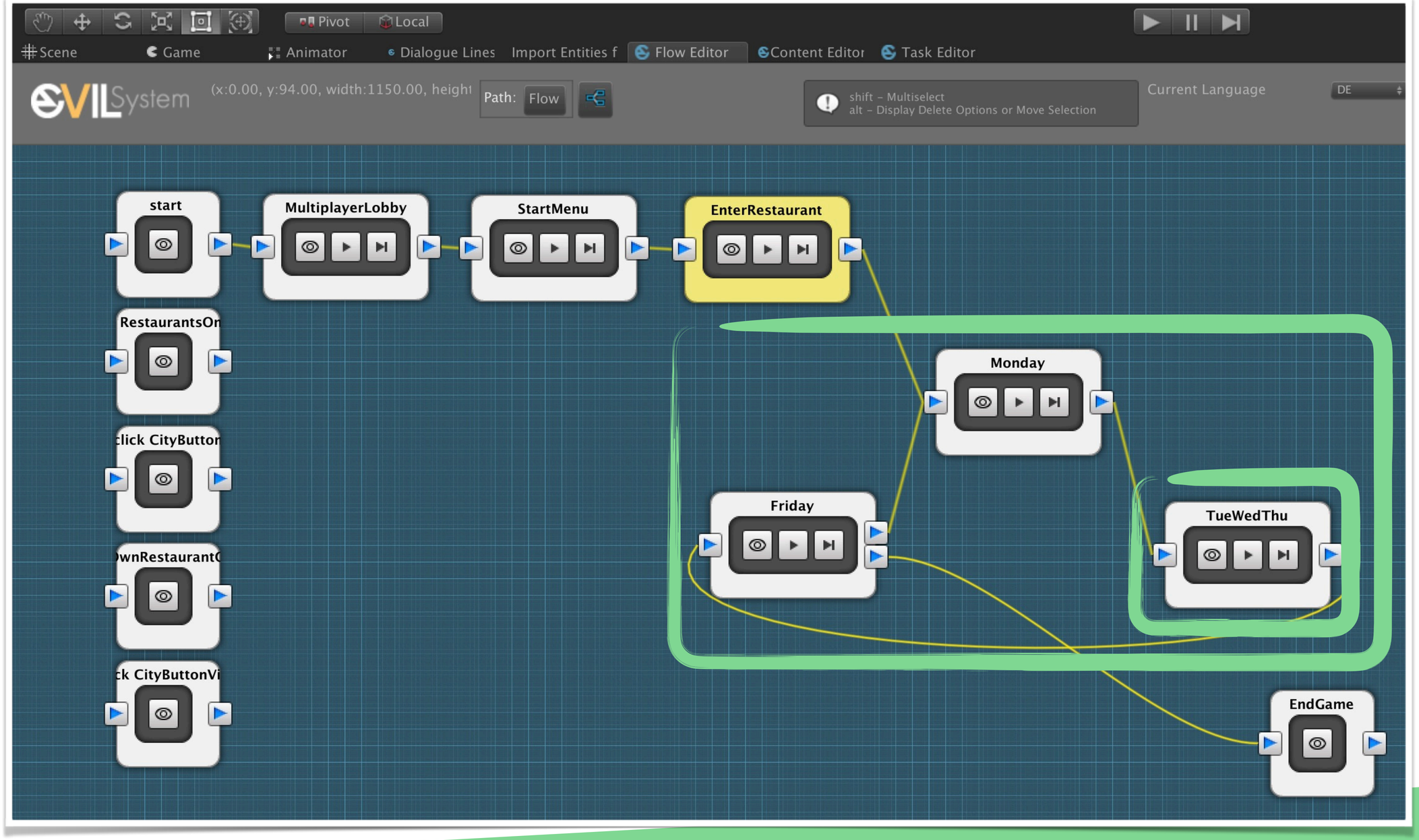
Readable setup
of games flow
& its logic!





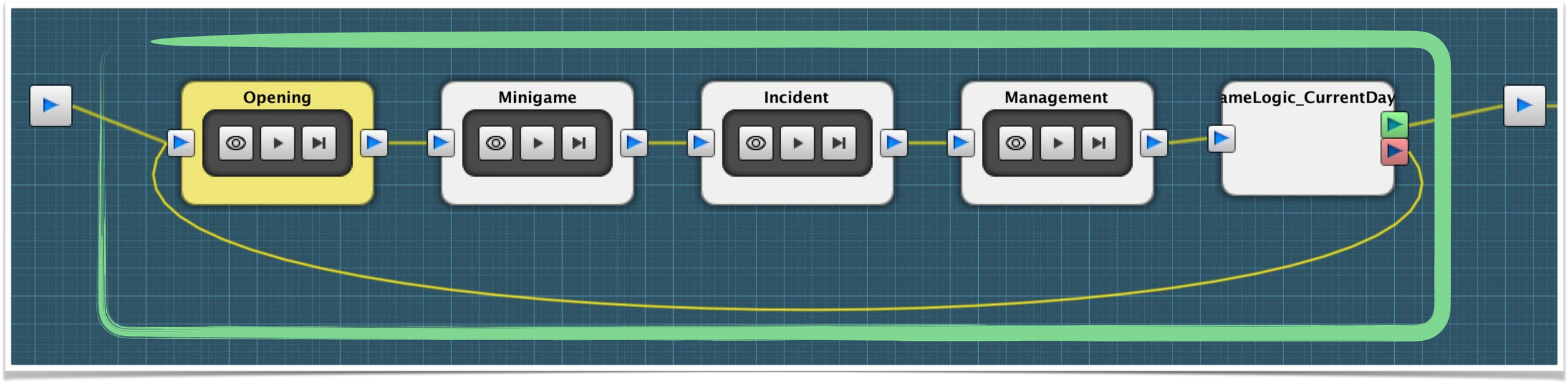
- **isometric game**
- restaurant simulation
- multiplayer
- gameplay driven
- math heavy

Simkult • Restaurant Simulation

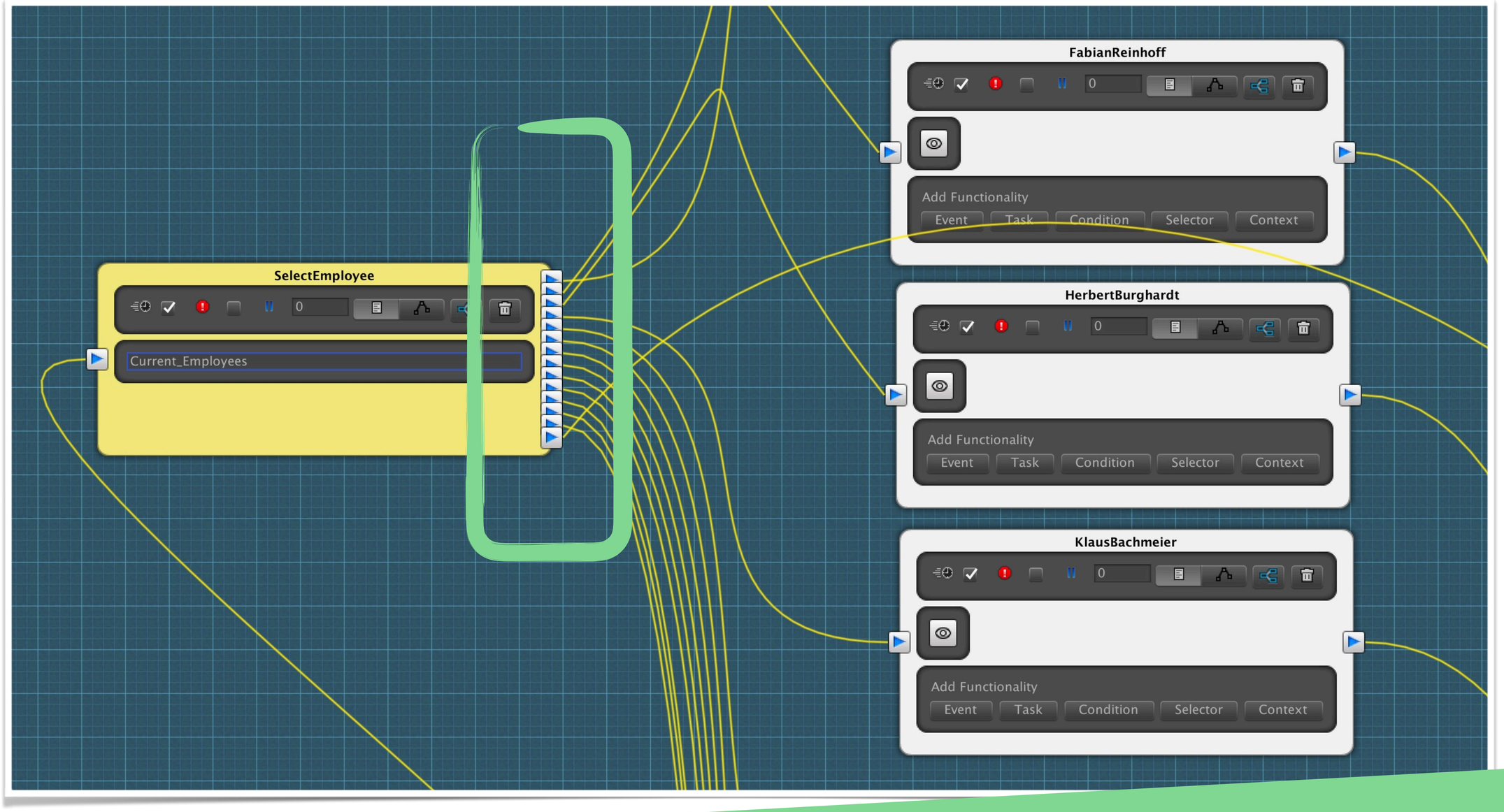


THE GOOD EVIL

EvilSystem flow editor • game logic & loop



EvilSystem flow editor • core game loop



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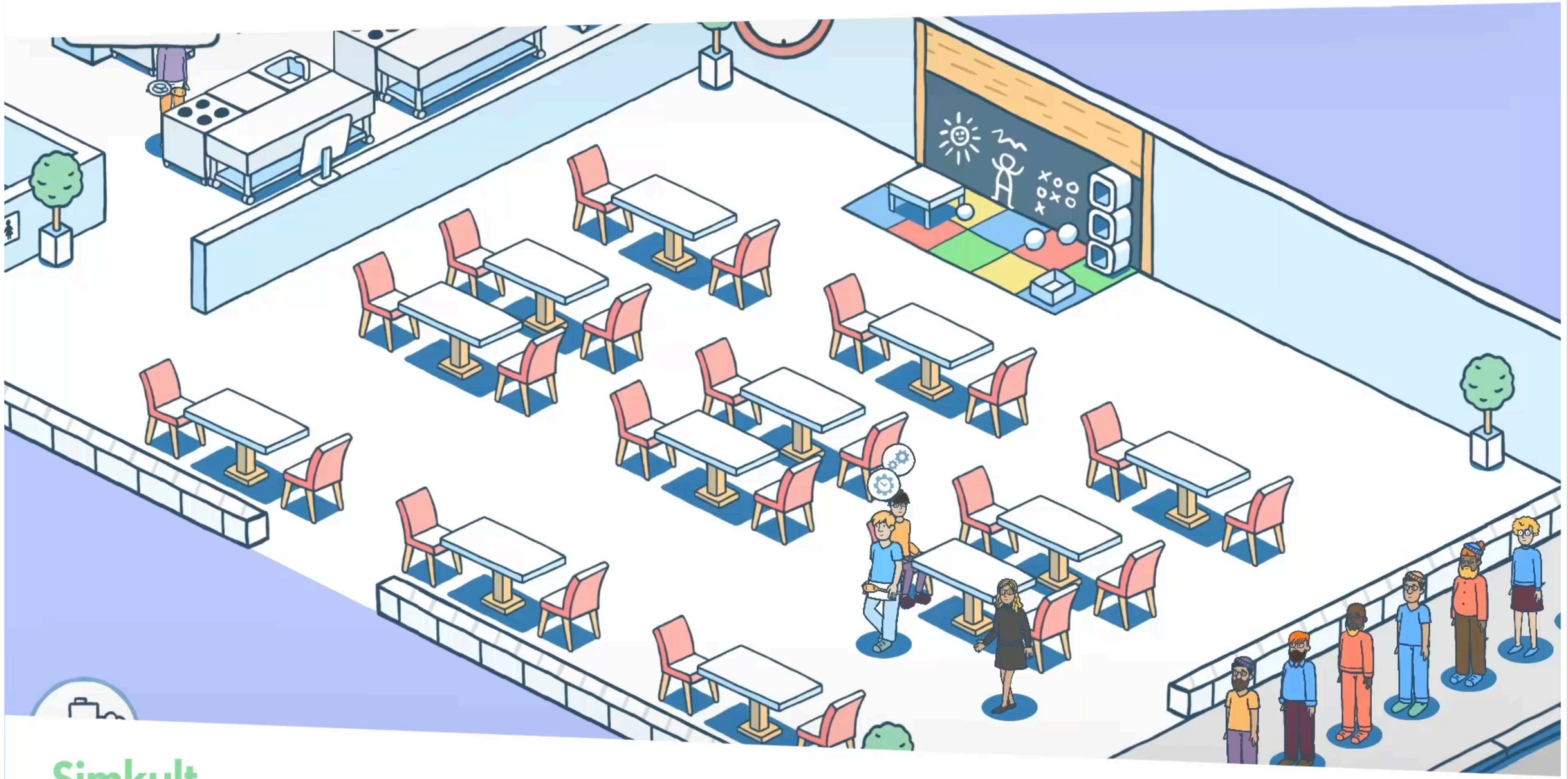


Simkult

Serious Game zur Teamentwicklung im Unternehmen. Mit TU Dresden für IAG.

iOS / Android / PC / Mac

Independent of specific game mechanics!

Setup

#1 **Flow Editor**

(logic setup / game design)

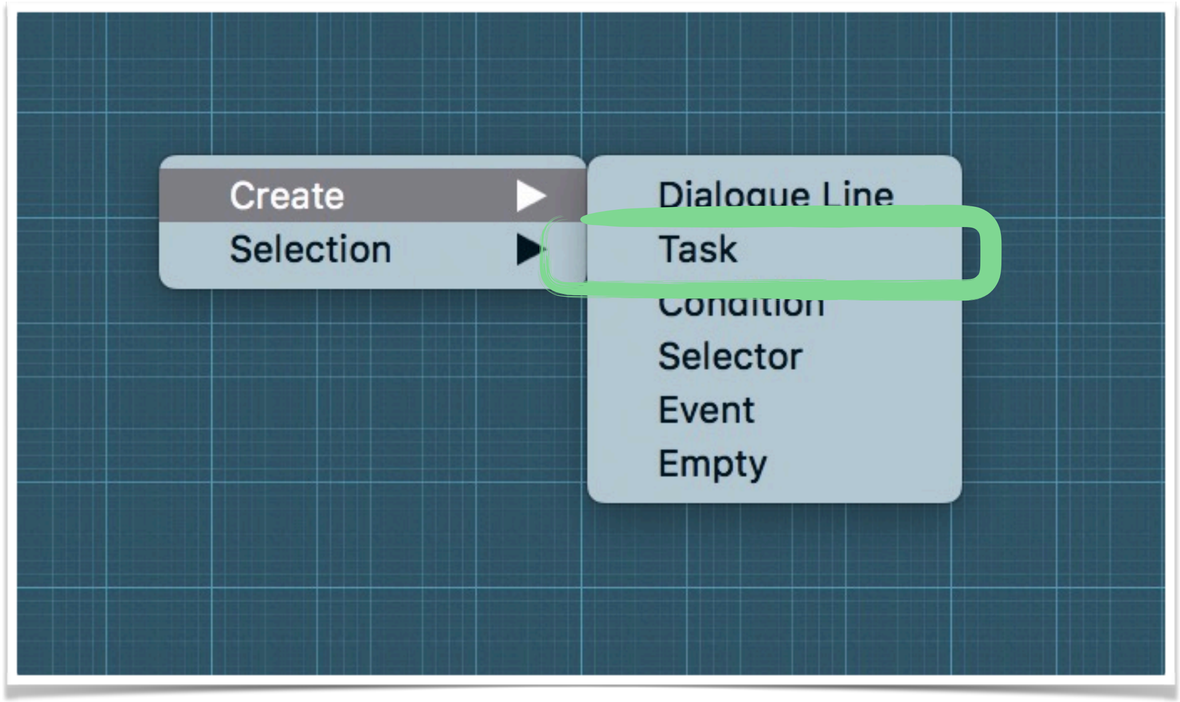
Task Editor

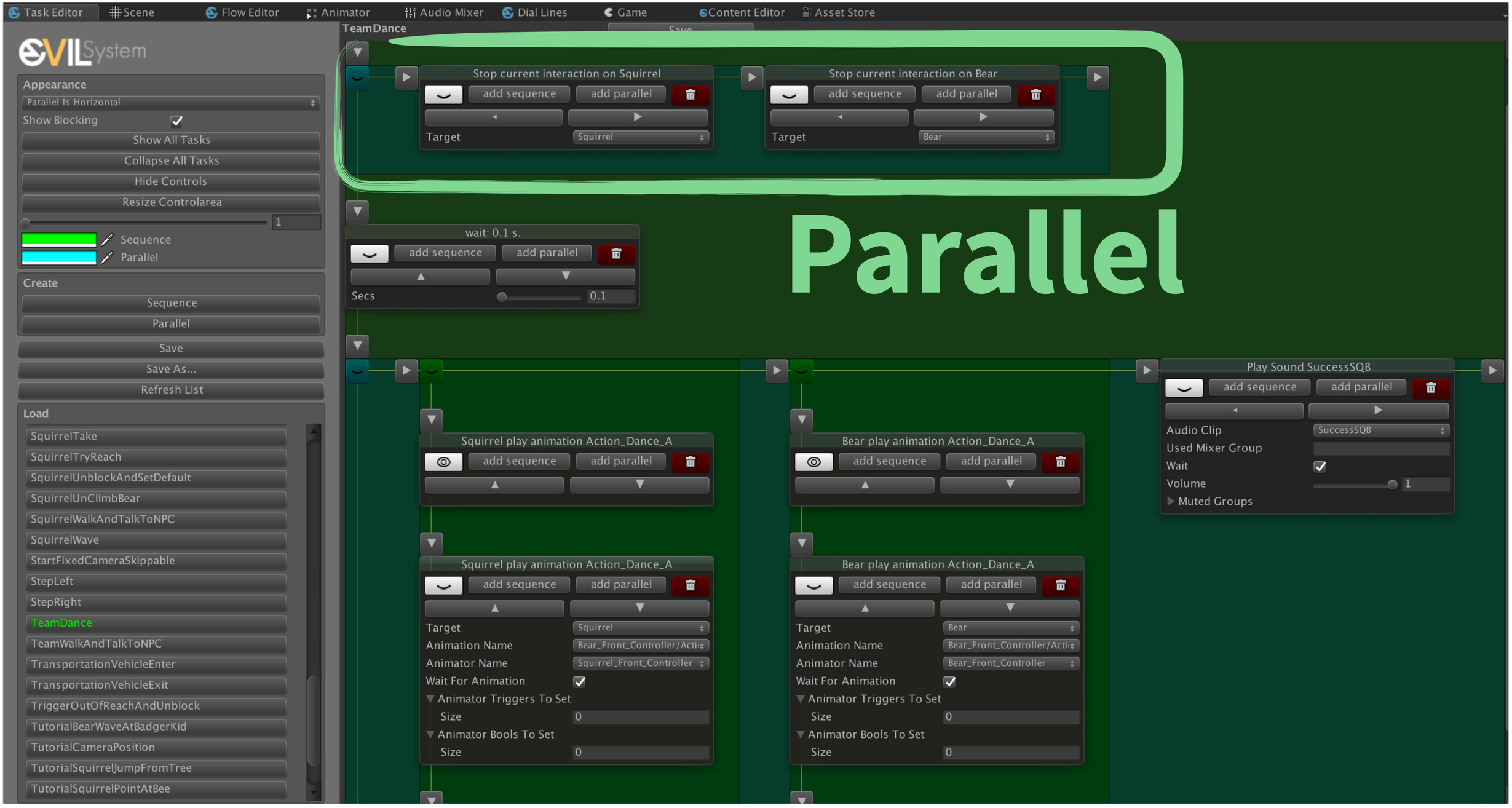
#2 **Scene Editor**

(visual setup / level design)

Task Editor

(cut sequences/ recurring tasks)

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SquirrelTryReach
SquirrelUnblockAndSetDefault
SquirrelUnClimbBear
SquirrelWalkAndTalkToNPC
SquirrelWave
StartFixedCameraSkippable
StepLeft
StepRight
TeamDance
TeamWalkAndTalkToNPC
TransportationVehicleEnter
TransportationVehicleExit
TriggerOutOfReachAndUnblock
TutorialBearWaveAtBadgerKid
TutorialCameraPosition
TutorialSquirrelJumpFromTree
TutorialSquirrelPointAtBee
TeamDance
Save
Stop current interaction on Squirrel
add sequence
add parallel
Target
Squirrel
Stop current interaction on Bear
add sequence
add parallel
Target
Bear
Parallel
wait: 0.1 s.
add sequence
add parallel
Secs
0.1
Squirrel play animation Action_Dance_A
add sequence
add parallel
Squirrel play animation Action_Dance_A
add sequence
add parallel
Target
Squirrel
Animation Name
Bear_Front_Controller/Acti
Animator Name
Squirrel_Front_Controller
Wait For Animation
Animator Triggers To Set
Size
0
Animator Bools To Set
Size
0
Bear play animation Action_Dance_A
add sequence
add parallel
Bear play animation Action_Dance_A
add sequence
add parallel
Target
Bear
Animation Name
Bear_Front_Controller/Acti
Animator Name
Bear_Front_Controller
Wait For Animation
Animator Triggers To Set
Size
0
Animator Bools To Set
Size
0
Play Sound SuccessSQB
add sequence
add parallel
Audio Clip
SuccessSQB
Used Mixer Group
Wait
Volume
1
Muted Groups

Task Editor
Scene
Flow Editor
Animator
Asset Store
EVILSystem
Appearance
Parallel Is Horizontal
Show Blocking
Show All Tasks
Collapse All Tasks
Hide Controls
Resize Controlarea
Sequence
Parallel
Create
Sequence
Parallel
Save
Save As...
Refresh List
Load
SquirrelTake
SquirrelTryReach
SquirrelUnblockAndSetDefault
SquirrelUnClimbBear
SquirrelWalkAndTalkToNPC
SquirrelWave
StartFixedCameraSkippable
StepLeft
StepRight
TeamDance
TeamWalkAndTalkToNPC
TransportationVehicleEnter
TransportationVehicleExit
TriggerOutOfReachAndUnblock
TutorialBearWaveAtBadgerKid
TutorialCameraPosition
TutorialSquirrelJumpFromTree
TutorialSquirrelPointAtBee
TeamDance
Save
Stop current interaction on Squirrel
add sequence
add parallel
Target
Squirrel
Stop current interaction on Bear
Target
Bear
wait: 0.1 s.
Secs
0.1
Squirrel play animation Action_Dance_A
Target
Animation Name
Bear_Front_Controller/Acti
Animator Name
Squirrel_Front_Controller
Wait For Animation
Animator Triggers To Set
Size
0
Animator Bools To Set
Bear play animation Action_Dance_A
Bear_Front_Controller
Play Sound SuccessSQB
Audio Clip
SuccessSQB
Used Mixer Group
Wait
Volume
1
Muted Groups
Sequencial

Setup

#1 **Flow Editor**

(logic setup / game desig

Task Edit

#2 **Scene Editor**

(visual setup / level design)

Available on the App Store

ANDROID APP ON Google play

PC/MAC

- **point & click adventure**
- research project
- educational game
- multiplatform
- content heavy

Serena Supergreen and the broken blade

Setup

#1

Flow Editor

(logic setup / game design)

Task Editor

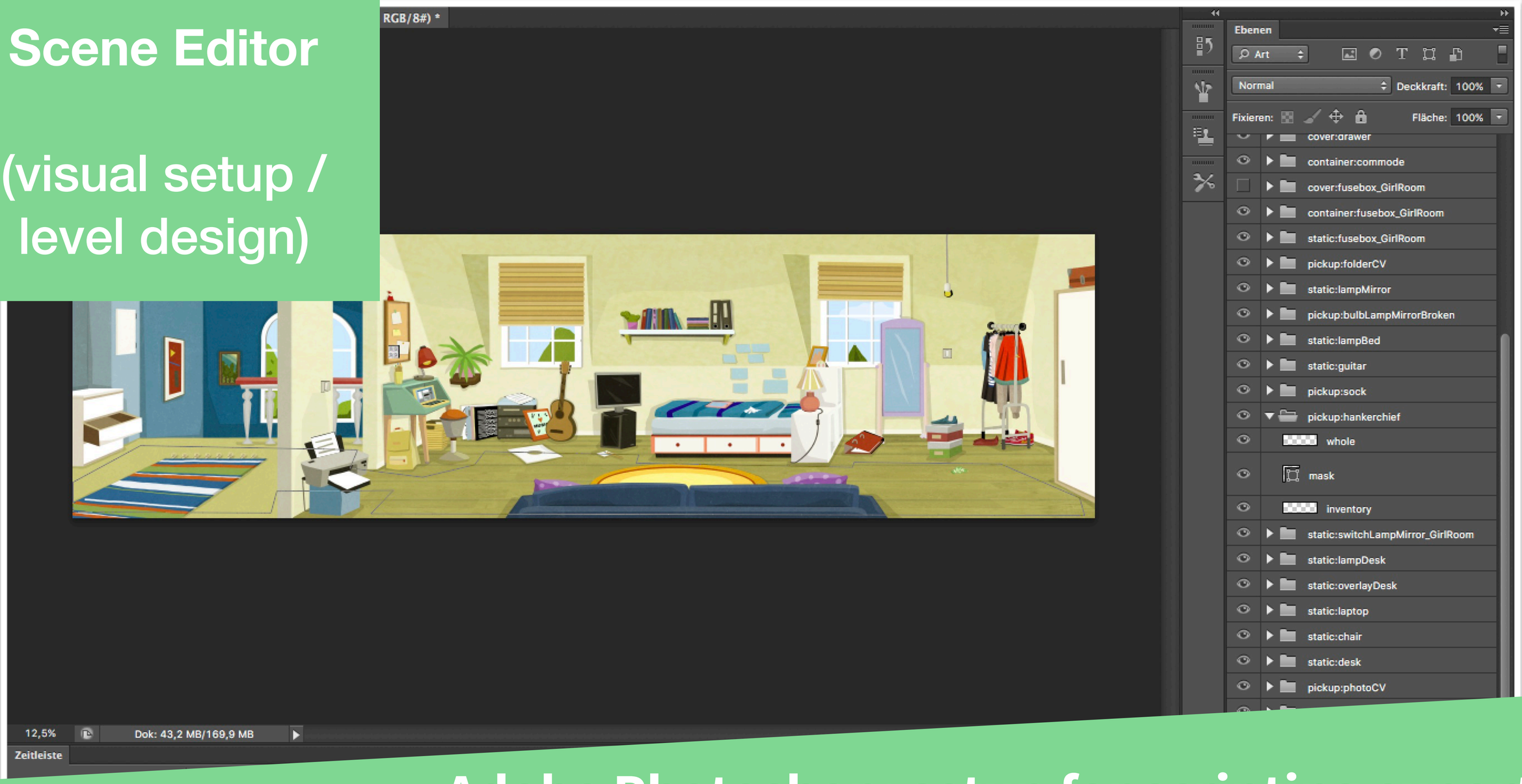
#2

Scene Editor

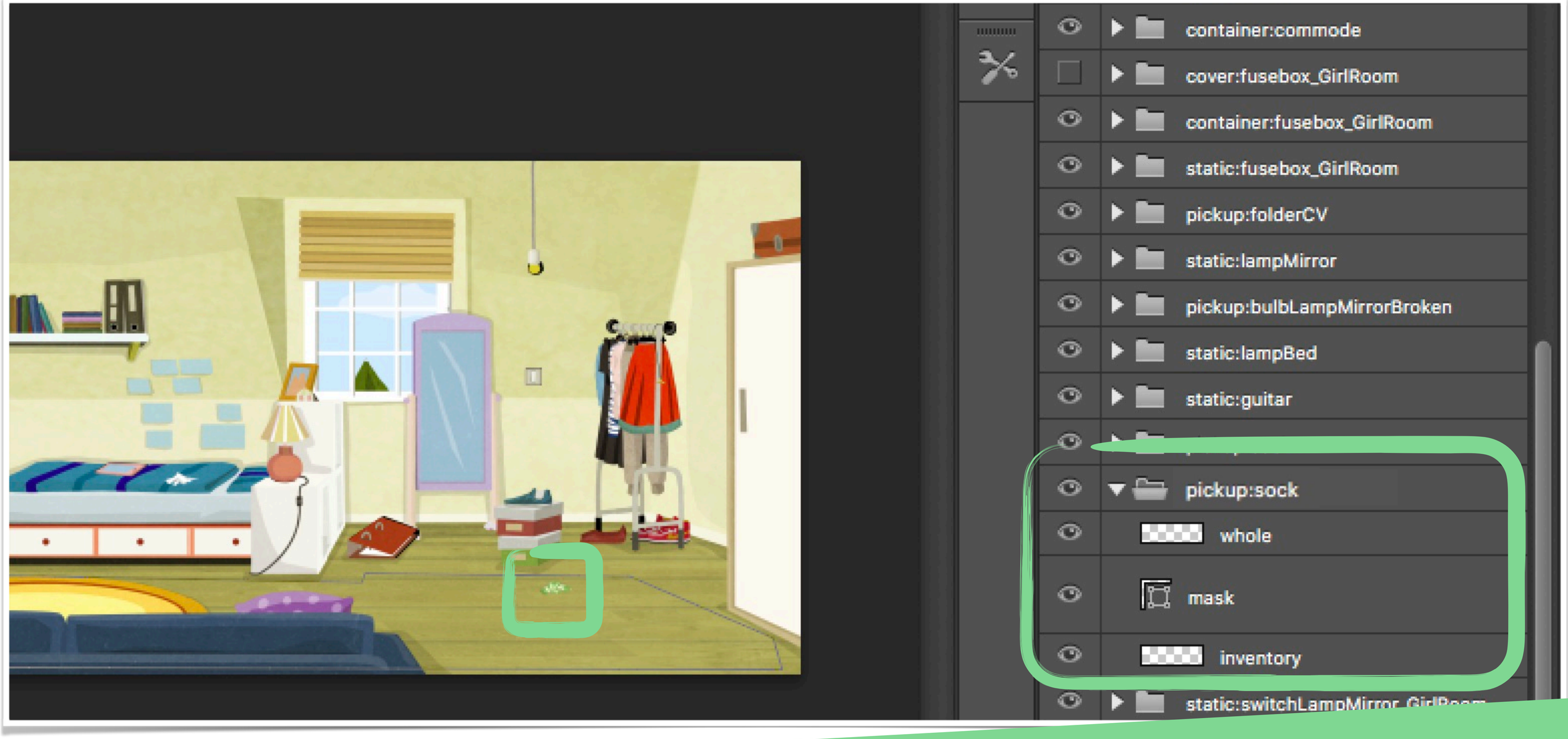
(visual setup / level design)

Scene Editor

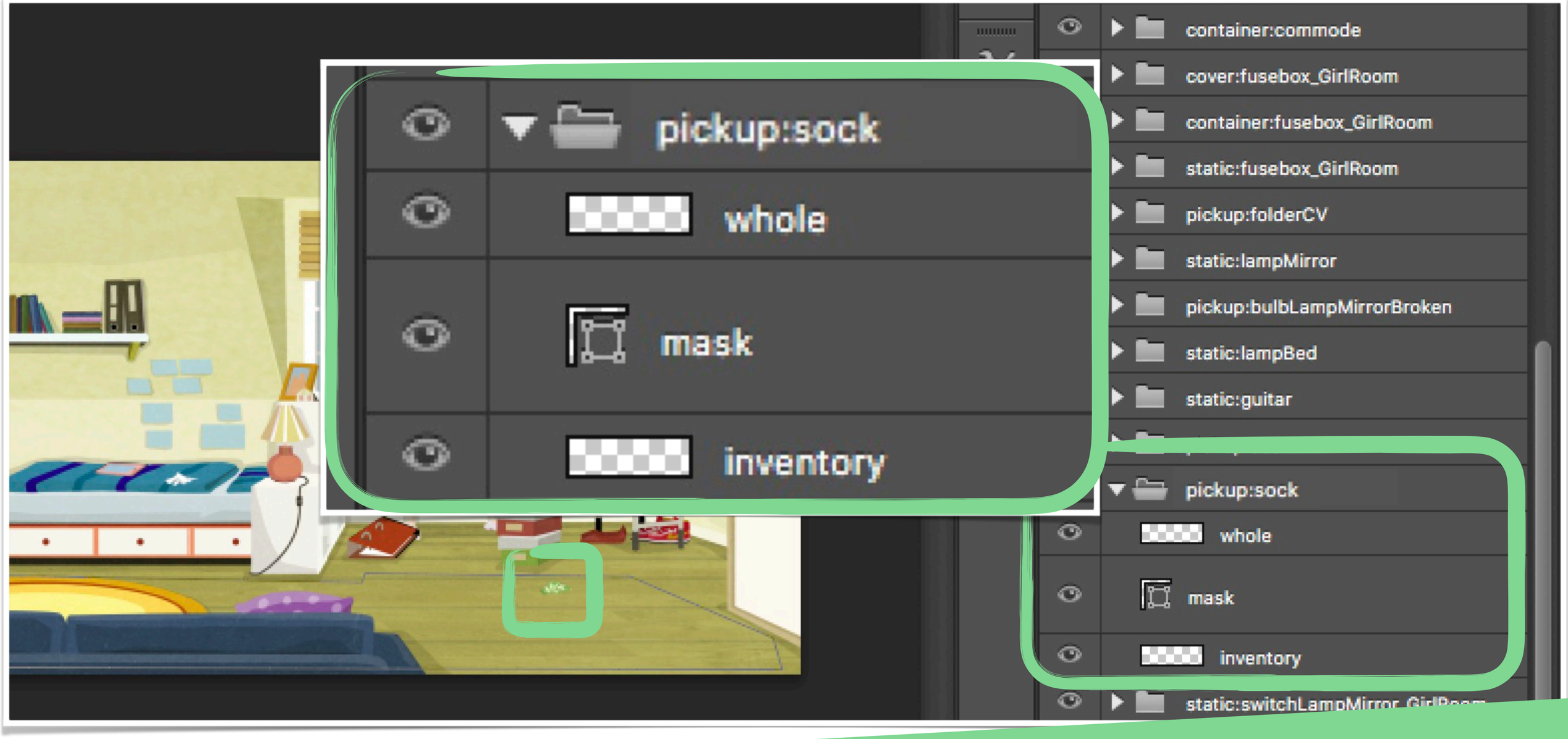
(visual setup / level design)



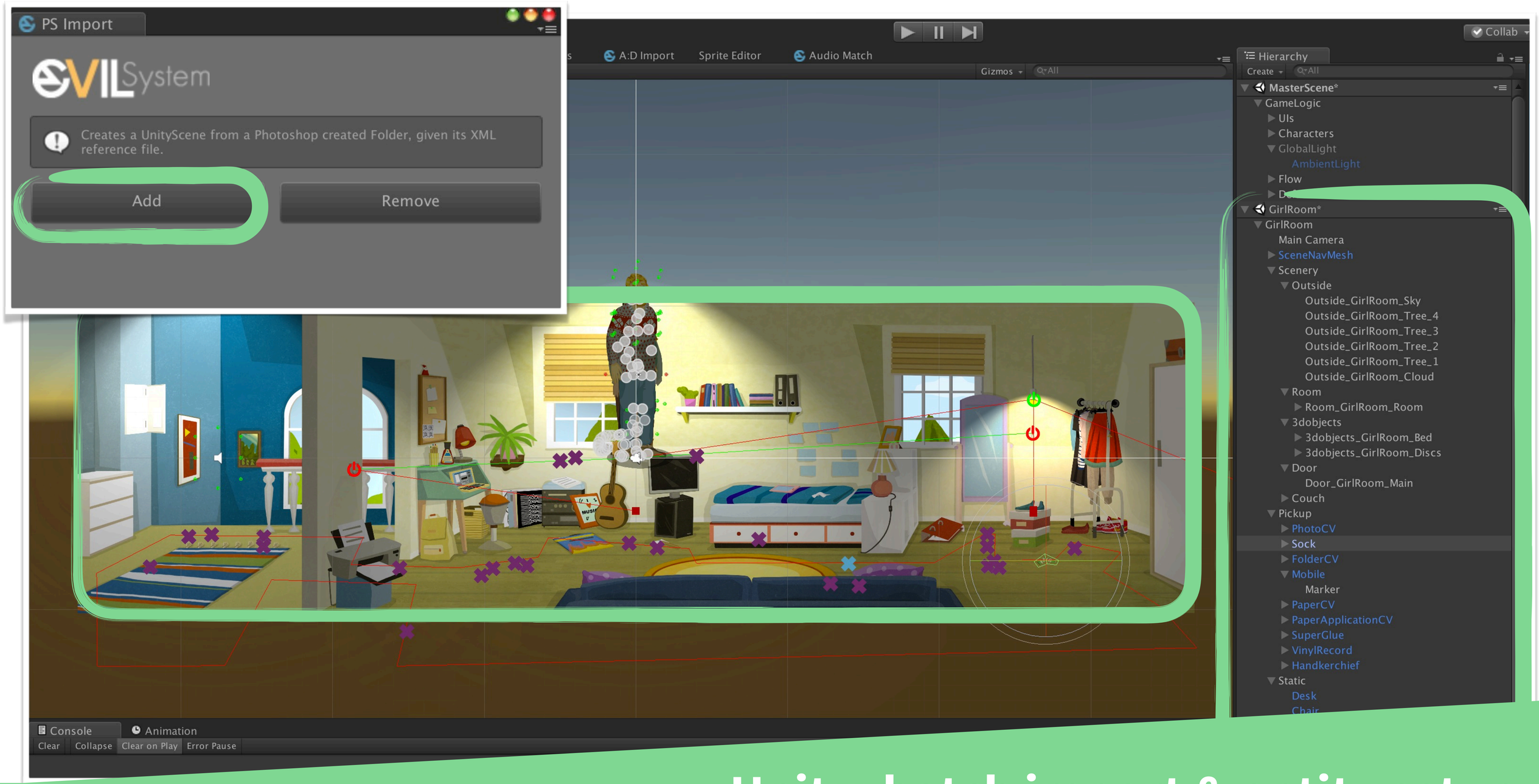
Adobe Photoshop: setup for scripting export



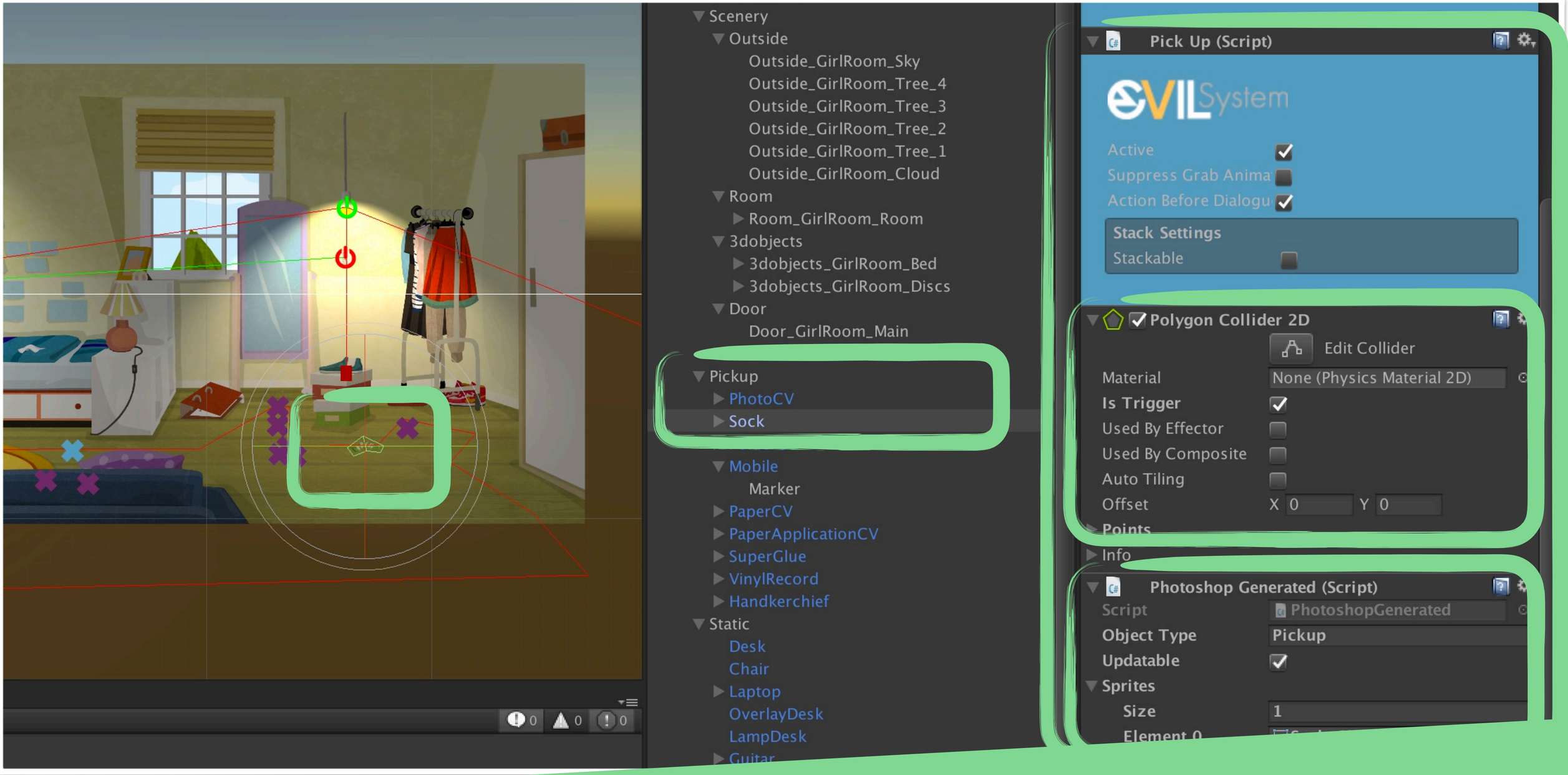
Adobe Photoshop: layer setup for batch export



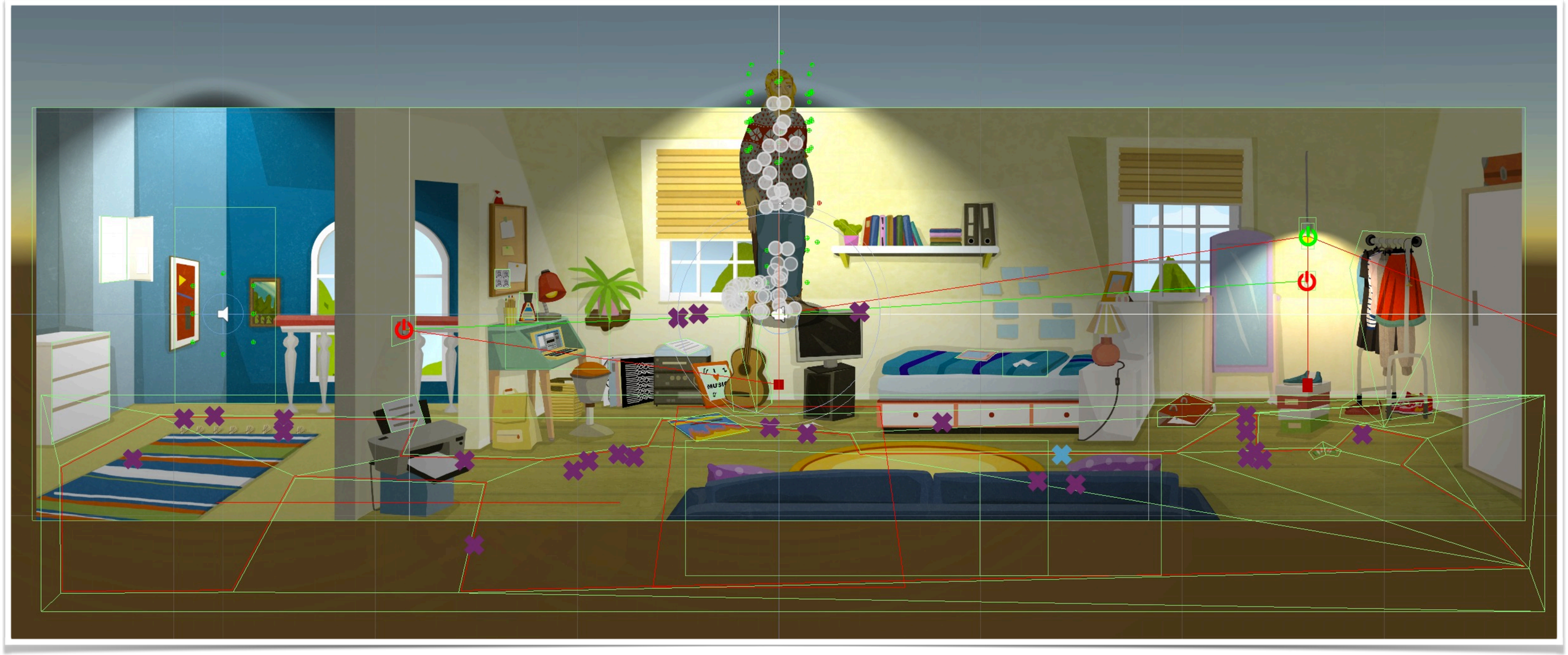
Adobe Photoshop: layer setup for batch export



Unity: batch import & entity setup



batch created pickable object „Sock“



batch created depth markers, colliders & nav mesh

Level setup through batch processing!

Setup

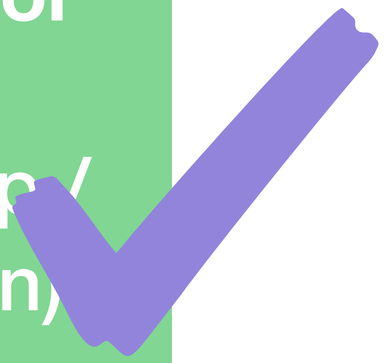
#1 **Flow Editor**

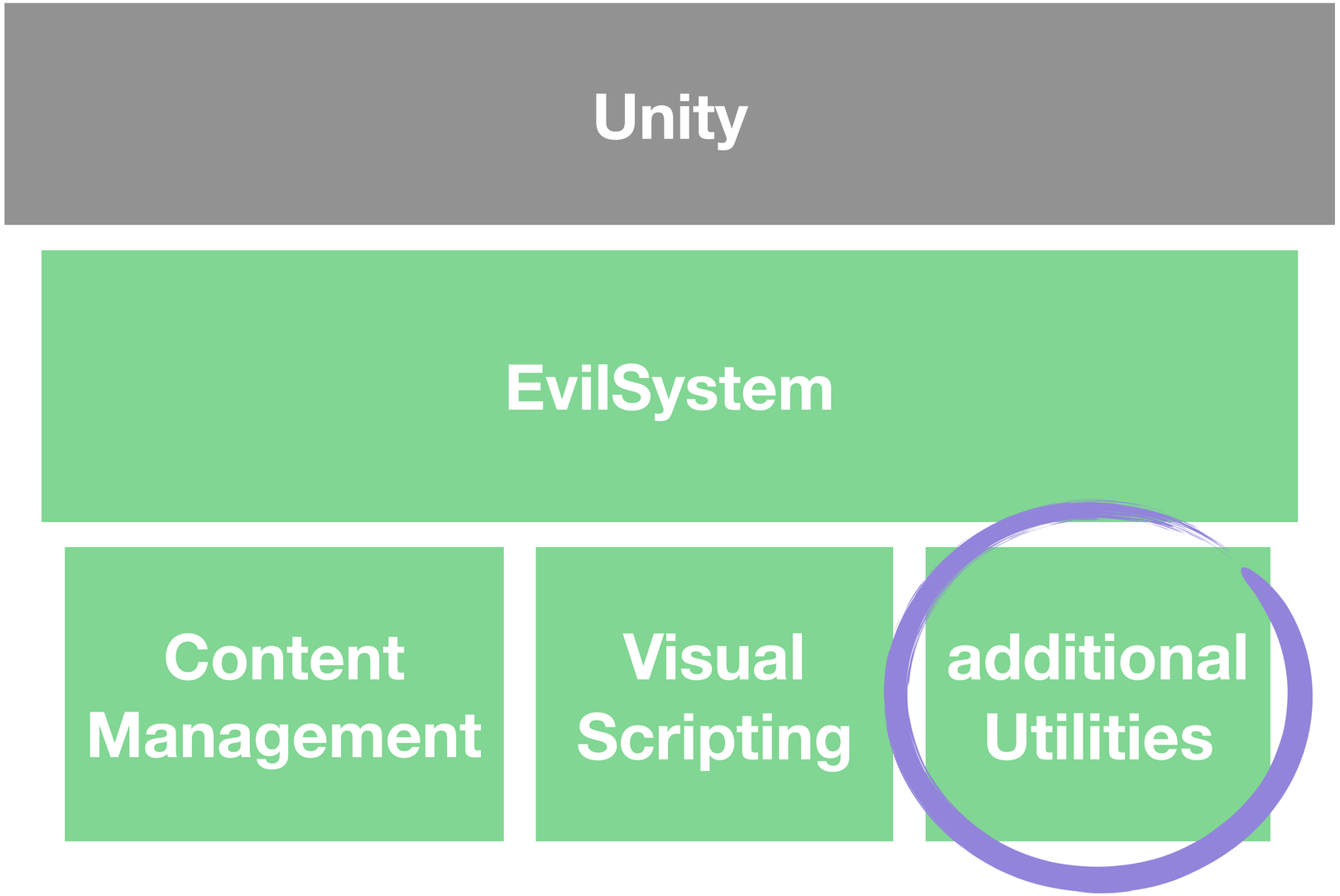
(logic setup / game desig

Task Edit

#2 **Scene Editor**

(visual setup / level design)




Unity
EvilSystem
Content Management
Visual Scripting
additional Utilities

Utilities: Setup

- create **initial setup**
- **.csv import/export**
- various **logs** / **debug helper** / monkey testing

Utilities: Dialogue

- import/export of **dialogue database**
- batch fetch **UI element texts**
- generate **debug voiceover audio**
- **word modification editor**
- **RichText** & **Emoji** markup specifier in dialogues

Dialogue Import

Copy & Paste

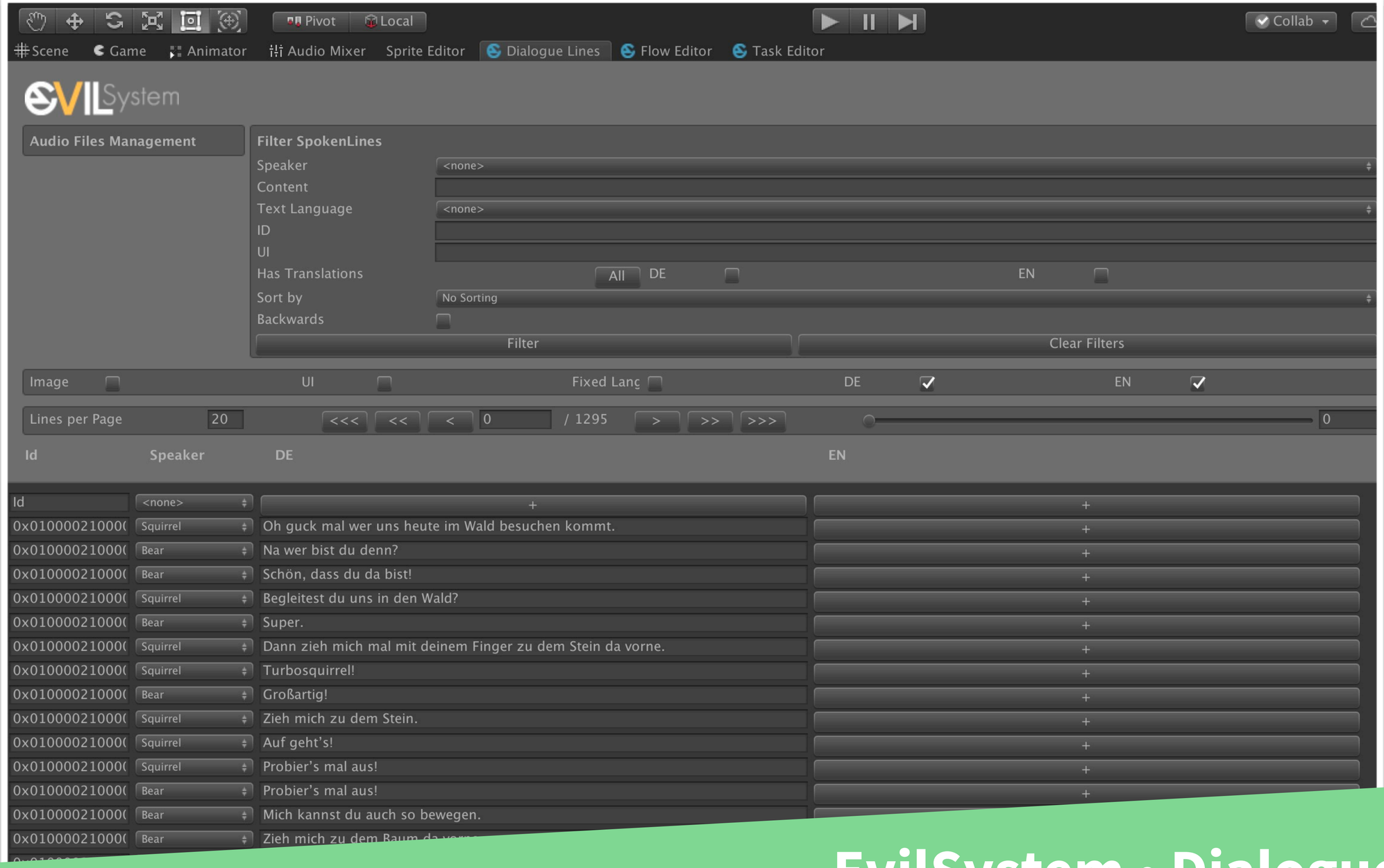
```
# initial
  Bear: In welchem Land wir wohl sind?
  Squirrel: Auf jeden Fall sind hier viele Leute auf der Straße!
  Bear: Und warm ist es hier! Uff.
  Squirrel: Lass uns Wasser trinken, Bär!

# findBee
  Bear: Squirrel, wo müssen wir hin?
  Squirrel: Die Biene finden. *POINT TO*
  Bear: Ich folge dir!

## idle
  Squirrel: Die Biene ist weit oben. *POINT TO*
  Bear: Wir müssen die Biene finden!

# pickObject
  Squirrel: <Objektname>. Dankeschön!
  Condition
```

text editor dialogue • import with C&P



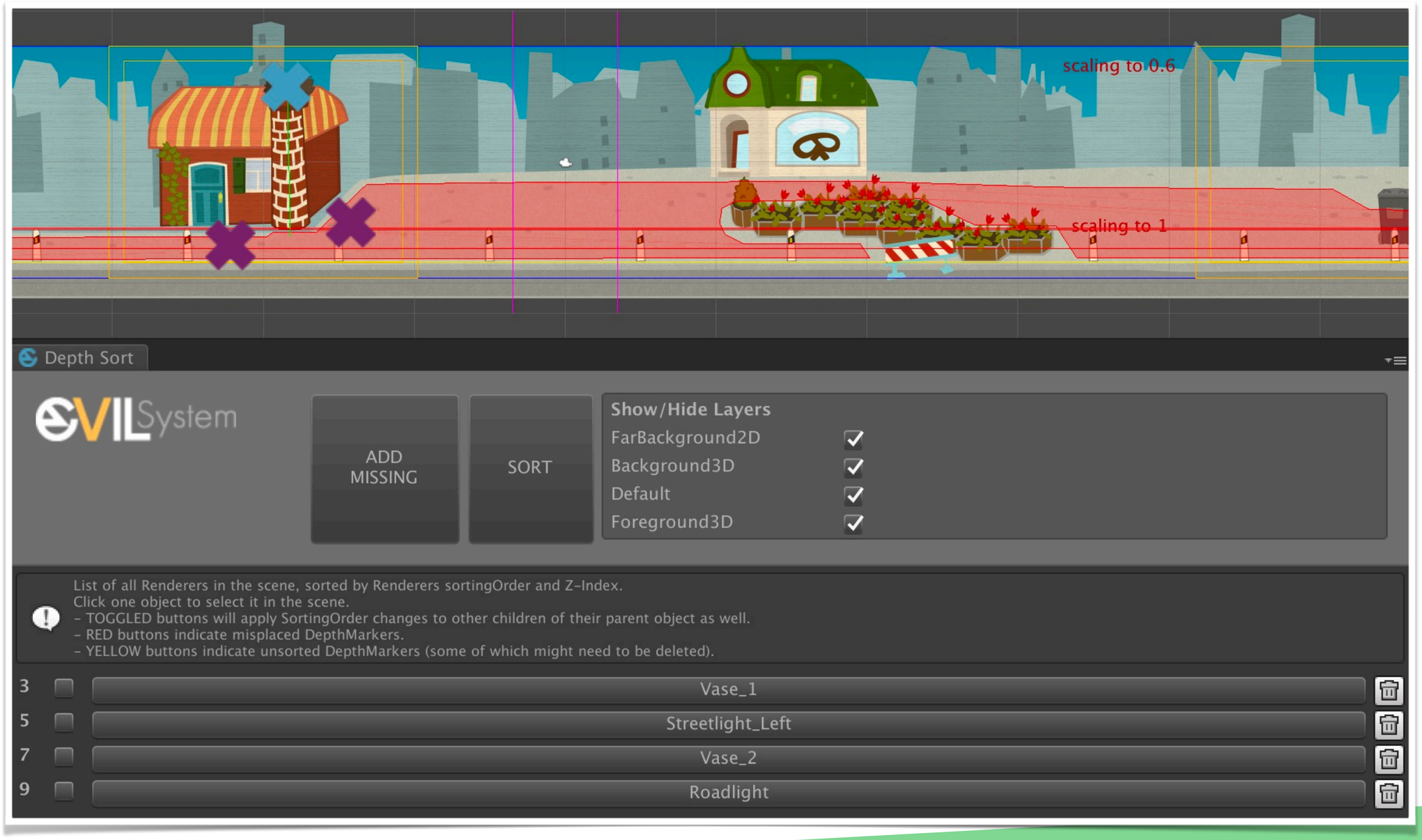
EvilSystem • Dialogue Database

BackButton	Zurück
Jump_To_Quest	Springe zu Quest
Load_Slot	Lade Spiel von Slot
LoadingScreen	LADE...
New	Neu
New_Game_On_Slot	Starte Spiel auf Slot
No	Nein
Overwrite_Slot	Überschreibe Slot
Pause_Quit_Button	Zurück zum Menü
Pause_Resume_Button	Weiter spielen
Pause_Save_Button	Speichern
Pause_Settings_Back_Button	Zurück
Pause_Settings_Button	Einstellungen
Pause_Settings_Dubbing_Slider	Stimmen
Pause_Settings_Music_Slider	Musik
Pause_Settings_SFX_Slider	SFX
Settings_Dubbing	

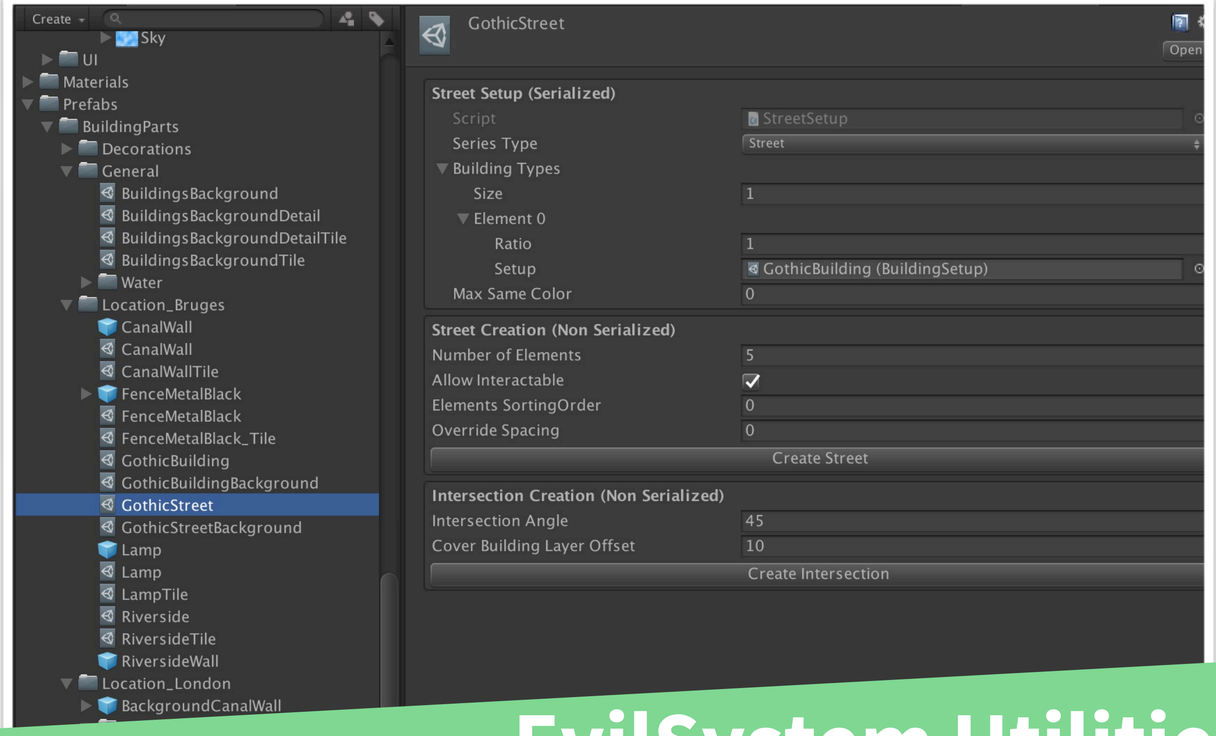
EvilSystem Utilities • batch fetch UI text to .csv

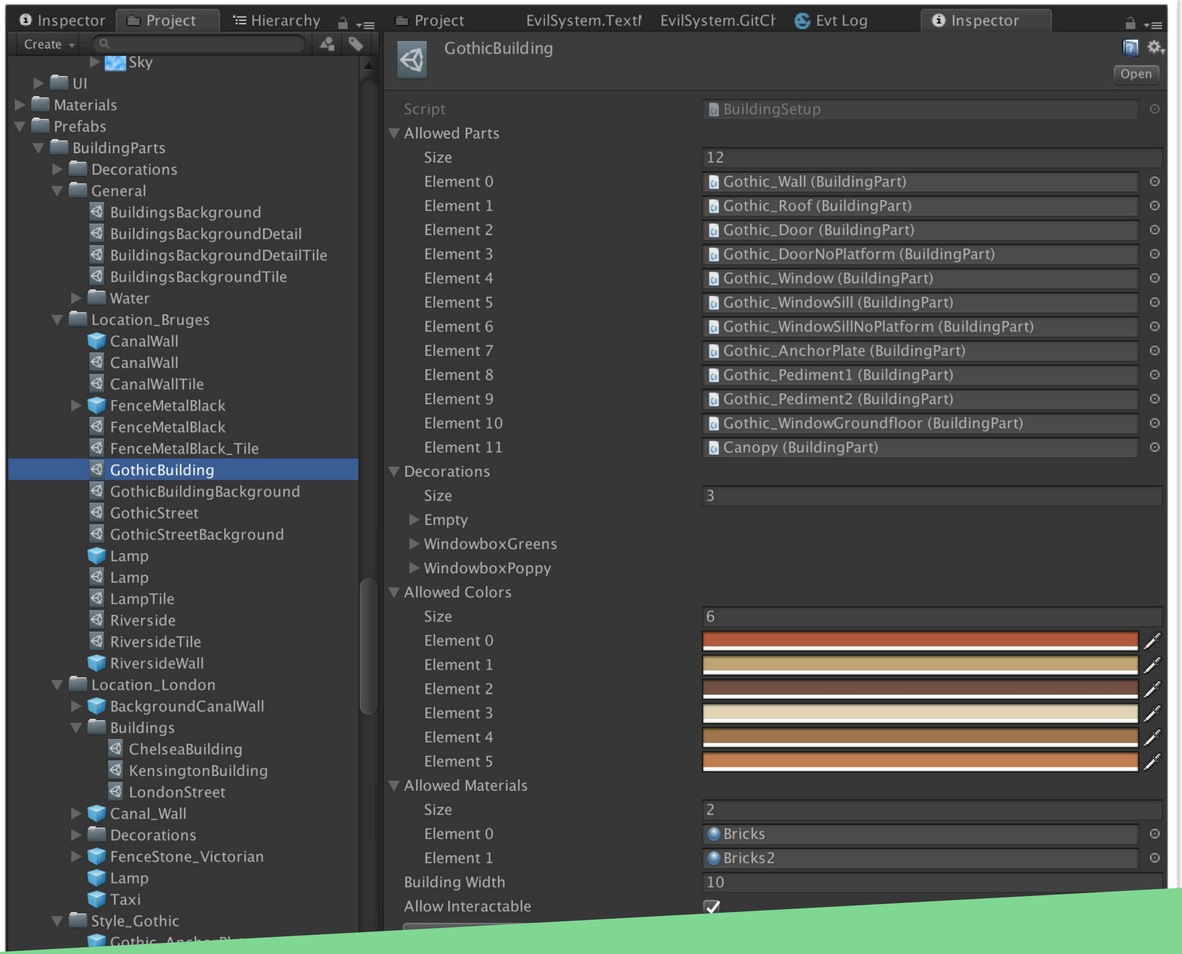
Utilities: Art

- Adobe **Photoshop & Illustrator** import/update
- **Spine2D** import + setup
- batch **2D** depth sorting
- batch create random **level elements**



EvilSystem Utilities • 2D batch depth sorting

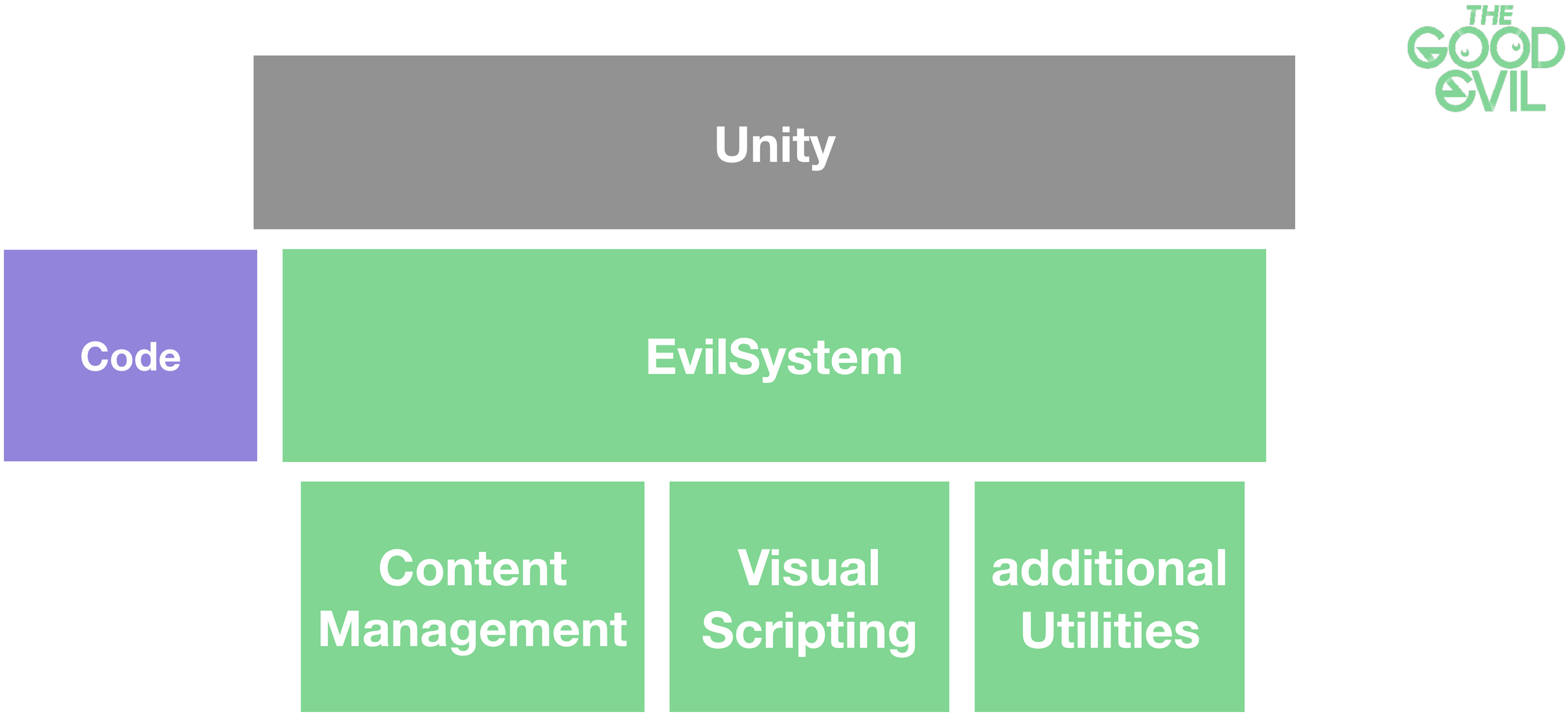




EvilSystem Utilities • random level asset generation

Leave repetitive tasks for the machine.

EvilSystem workflow


Unity
Code
EvilSystem
Content Management
Visual Scripting
additional Utilities

Artist

Photoshop OR Illustrator
2D art assets + characters: pixel or vector
(individual layers, naming guidelines,
placement, functions, parallax effect)

export script
(asset name, function, file size,
position, category, collider,
pivot)

export script
(asset name,
position, rotation)

Spine 2D
(rig, animate)

Tech Art or
Game Design

Unity
(create new scene e.g.„room“
+ import with 1 click)

Game Designer

Text Editor
write dialogues, trigger animations or „tasks“, add pauses, do branching

EvilSystem Task Editor
(add reoccurring tasks both parallel and sequential)

EvilSystem Entities
(setup entities, if not created through import, use .csv to import, or batch selection)

EvilSystem Flow Editor

(import with 1 click into game logic, call tasks, modify entities)

(create game logic both linear or multilinear)

Build,
Test,
Ship

QA

In a nut shell…

What we love!

flexible & maintainable system

One accessible place!

enable efficient workflow + teamwork

I can change
EVERYTHING
on my own!

independent of specific game mechanics

Love to reuse for future projects!

bonus

Boost creativity within the design process.

Junior Tool Devs

Start use your tools early!

* It will break. It hurts. It takes time.
* Iterate: Don’t rewrite, refactor!
* Create a **feature test project.**
* Analyse, review, priorities tool!
* guidelines / git / good docs

questions?

answers!

thegoodevil.com

thank you

Linda Kruse
CEO & Game-Designer
the Good Evil GmbH

linda@thegoodevil.com
@ldacruz_

the Good Evil GmbH
Gilbachstraße 22
50672 Cologne

+49 221 16 89 42 49
www.thegoodevil.com