GDC

Remastering “Day of the Tentacle” and “Grim Fandango”

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Mark Cooke | mark_cooke | CEO | Shiny Shoe

About Oliver

About Mark

STAR WARS
JEDI KNIGHT
DARK FORCES II
OFFWORLD
GRIM FANDANGO
FULL THROTTLE
REMASTERED
GRIM FANDANGO
Remastered
PS3
Shadows of the
DAMNED
HELL TRIP
PlayStation.2
MARVEL NEMESIS
RISE OF THE IMPERFECTS
EA
RESISTANCE
BURNING SKIES
Only On PlayStation
Day of the Tentacle
Remastered
ARCADE
ZOMBIE
APOCALYPSE
KONAMI
PS3
PlayStation Move
PLAYSTATION MOVE
HEROES
MECHKNIGHT
CHRONICLES
KNIGHTFALL
XBOX 360
LIVE
CONAN
THQ
VAMPIRE
THE MASQUERADE
REDEMPTION
ACTIVISION
The Banner Saga
The Banner Saga 2
WAR COMMANDER
ROGUE
ASSAULT

Philosophy of the Remasters

- True to artistic intent
- Improve fidelity
- Modernize delicately
- Fix original bugs
- Extras

Giant Bomb's 2016 Game of the Year Awards: Day Three

by Giant Bomb Staff on December 28, 2016

Share:

It's a day of remasters, fake computers, pleasant surprises, that just need to stop.

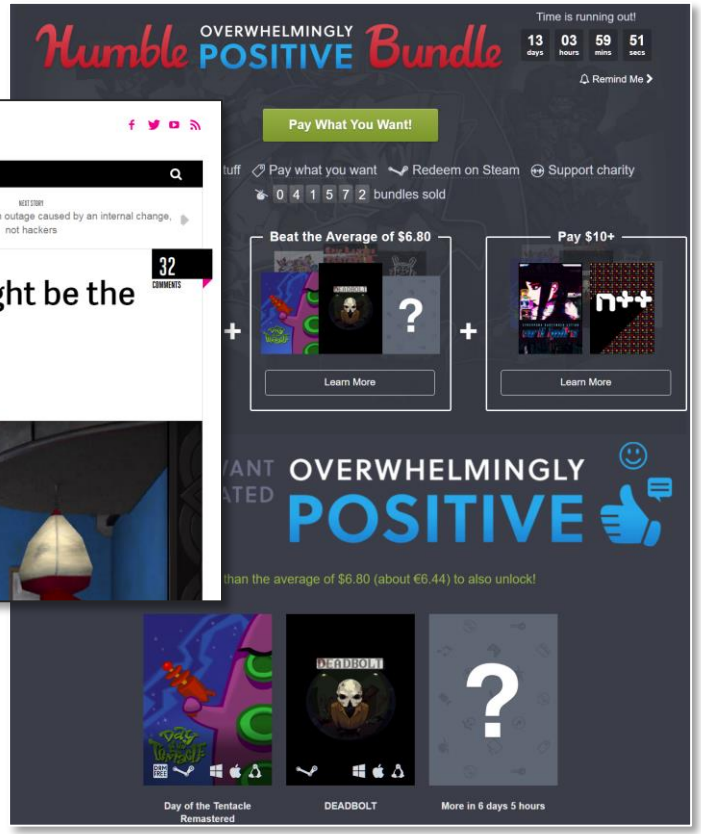
Watch the Day Three Deliberations here:

2016 gave us remasters of old games, computers that were made to look old, industry tre
were things of the past, and an old name that suddenly feels fresher than ever.

Best Remaster

Day of the Tentacle Remastered

In a year dominated by "remasters" that consisted of minor graphical touch-ups to games that it feels like we just got through playing, Day of the Tentacle Remastered stands out as a loving and actually necessary restoration of a revered old classic. This is a game from an era when 256-color VGA graphics and digital speech were only starting to become the norm, so needless to say, the original production values don't hold up particularly well these days. Also, people *love* Day of the



1993

Day of the Tentacle Remastered

2016

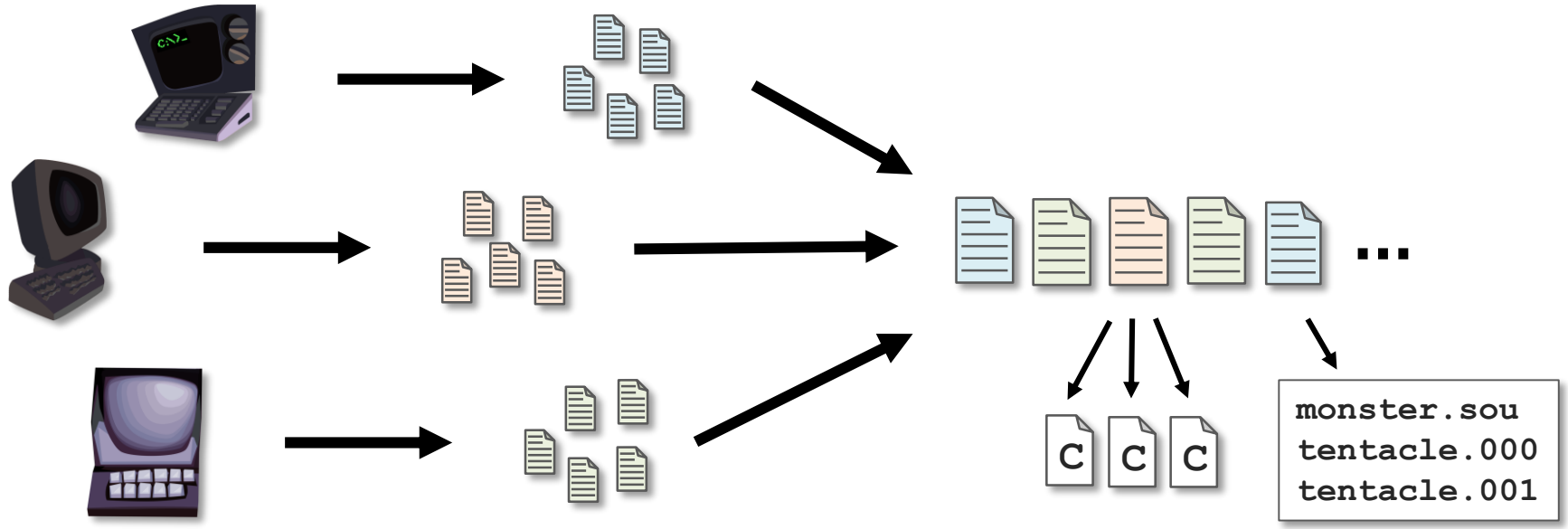
Day of the Tentacle

Photo by James Spafford

Game archeology

Photos by Greg Rice

Game archeology – File discovery

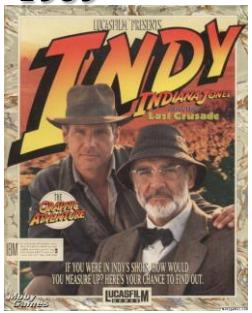


Powered by SCUMM™

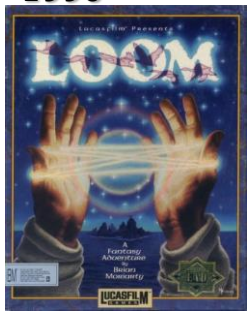
1987

1988

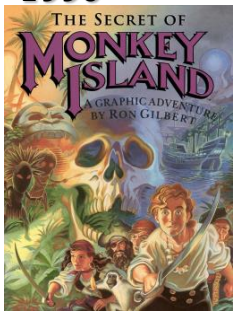
1989



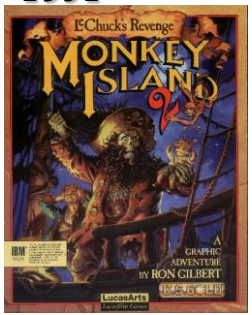
1990



1990

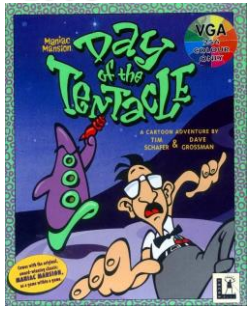


1991

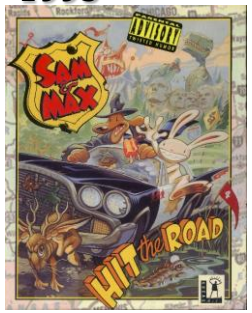


1992

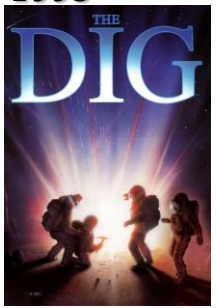
1993



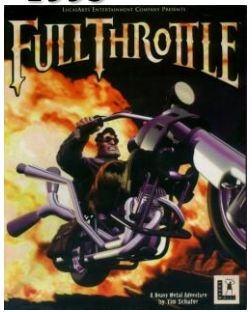
1993



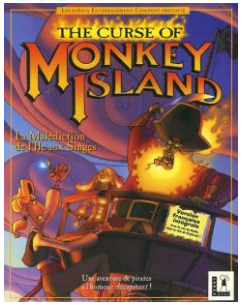
1995



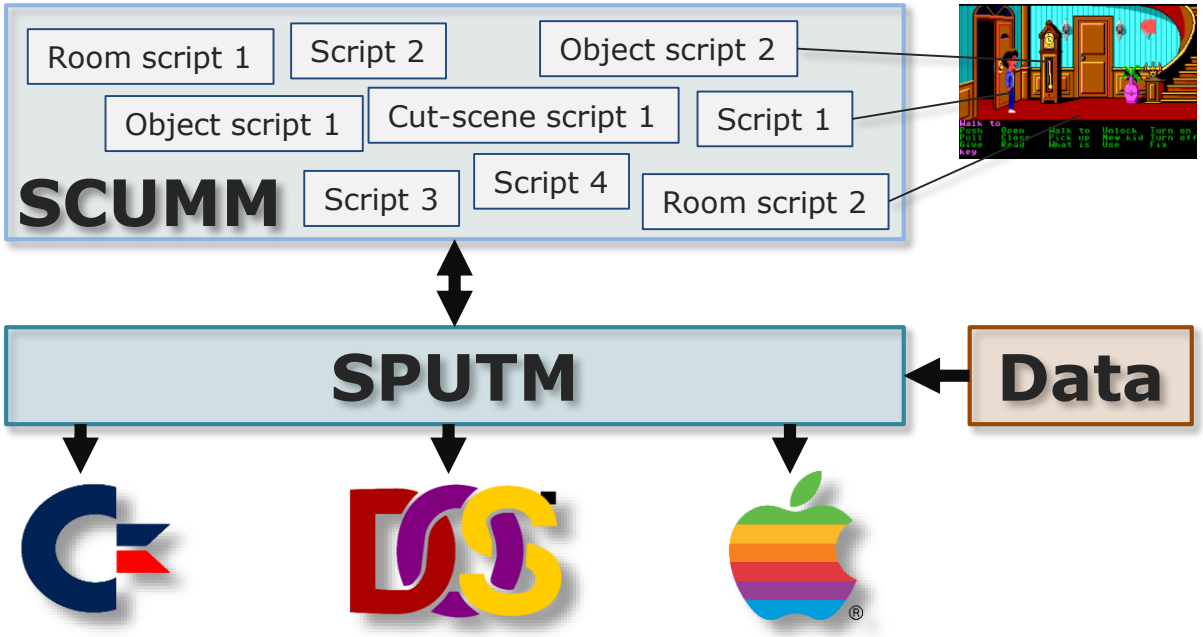
1995

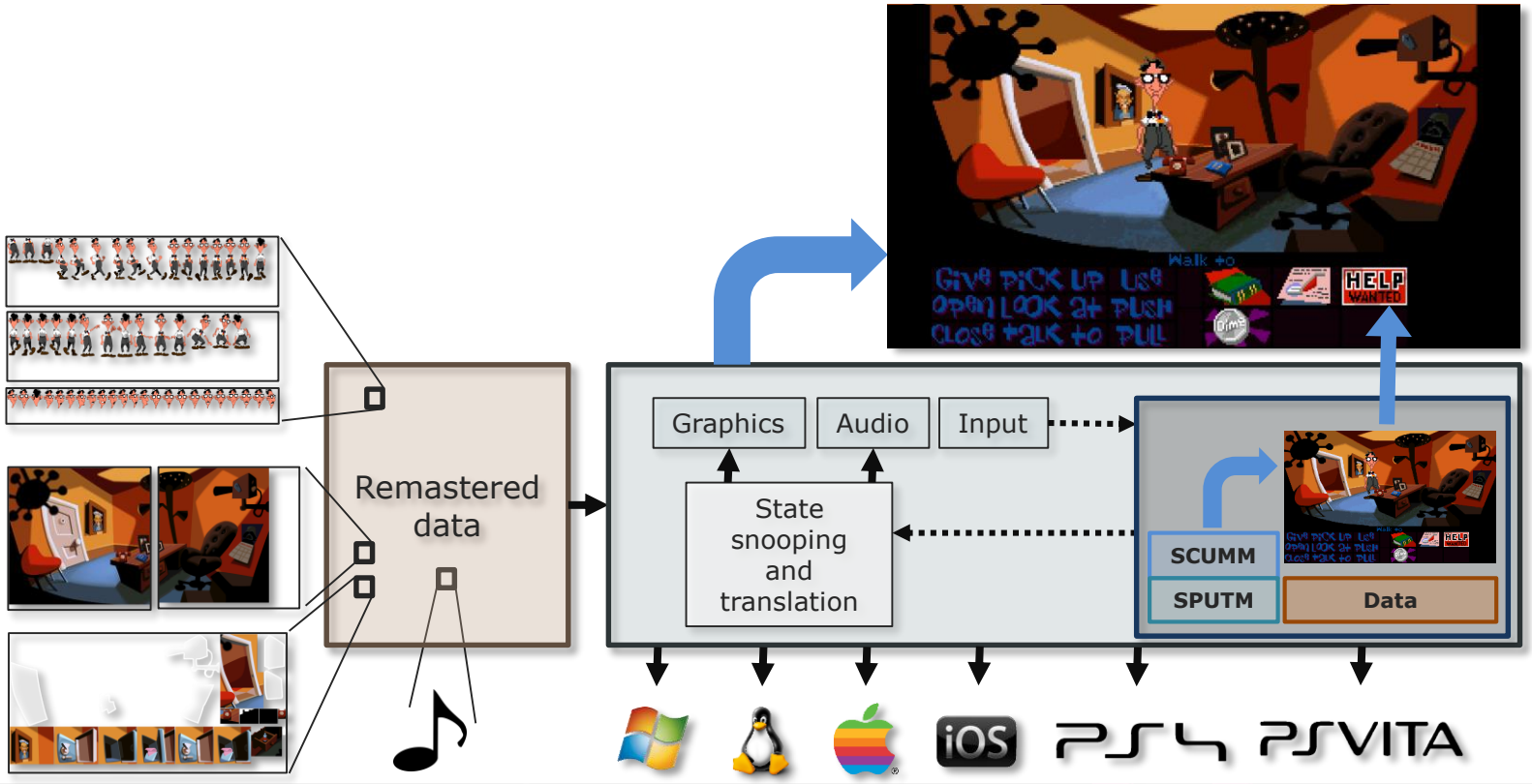


1997



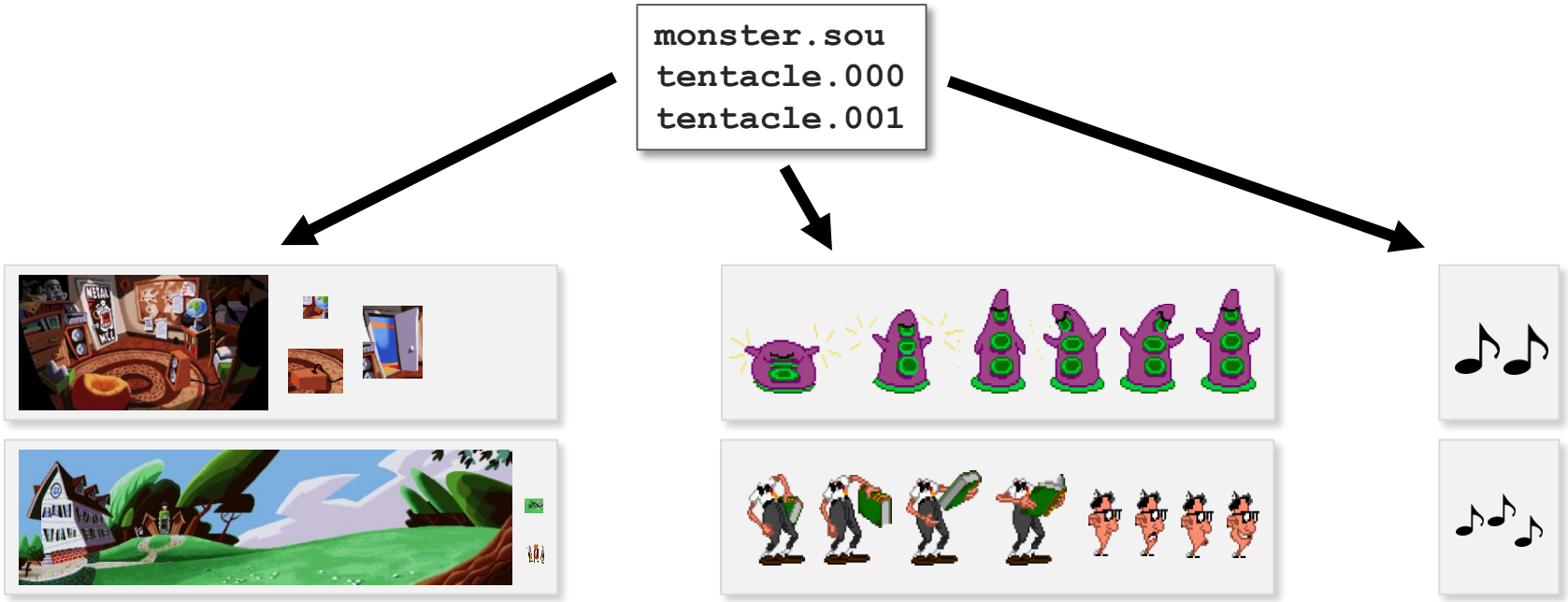
SCUMM™ engine architecture




Remastered data
Graphics
Audio
Input
State snooping and translation
SCUMM
SPUTM
Data
iOS
PS4
PSVITA

EARTH

Content extraction

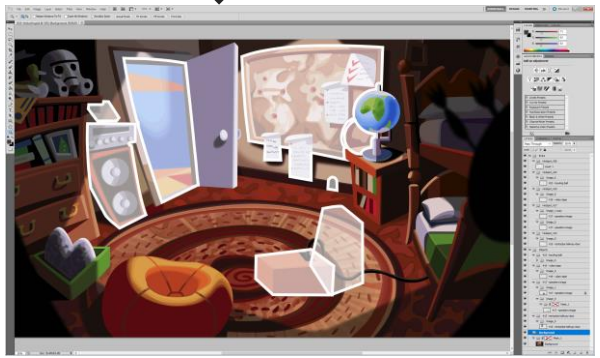


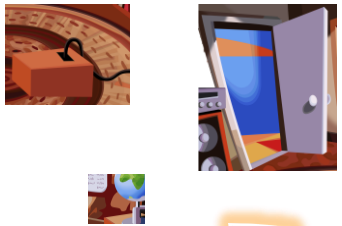
Classic

Remastered

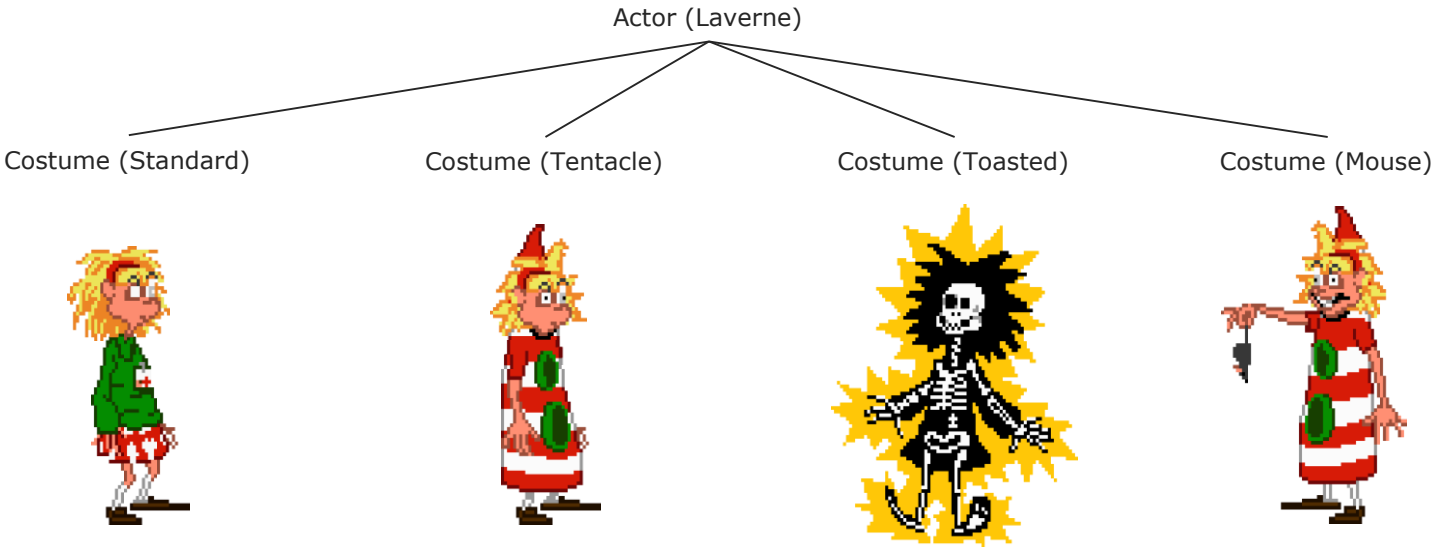
METAL

METAL

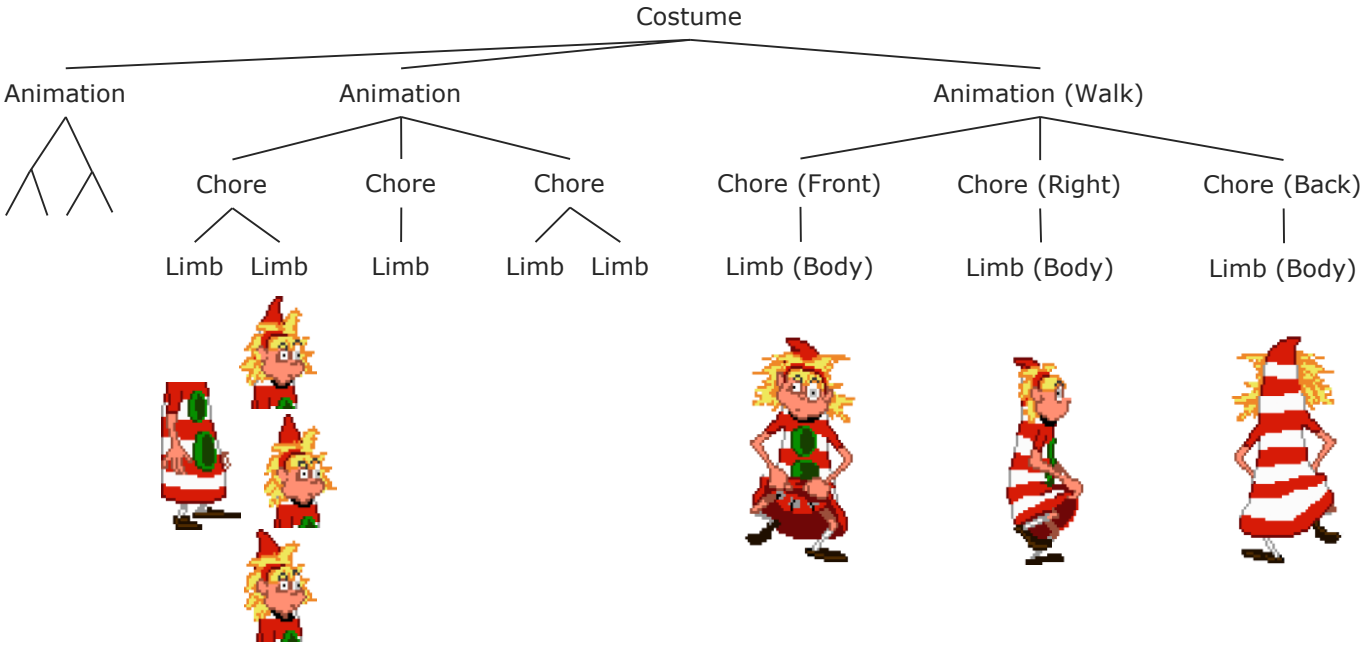


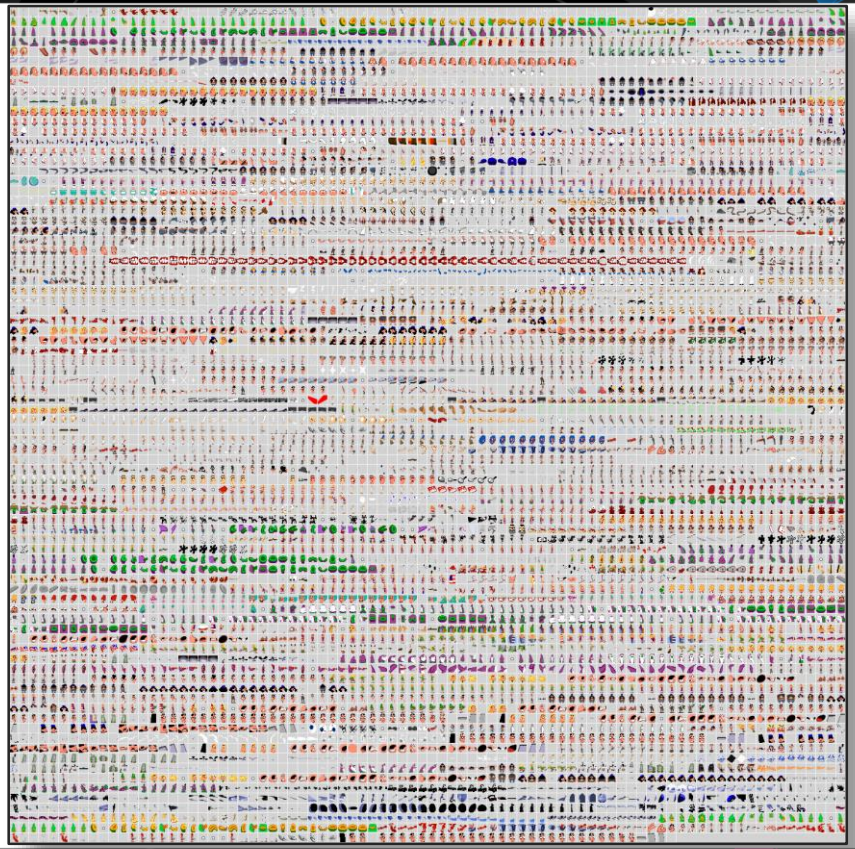


Animation data layout



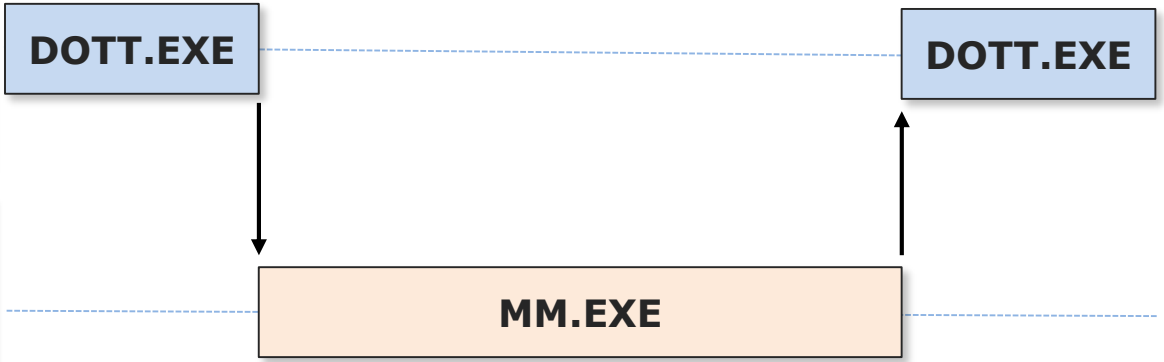
Animation data layout





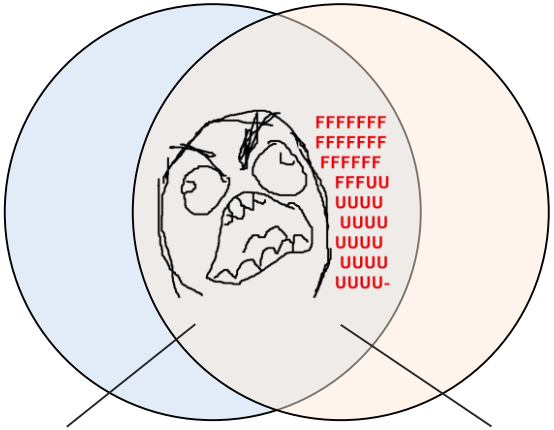
Walk to
Push Open Walk to Unlock Turn on
Pull Close Pick up New kid Turn off
Give Read What is Use Fix
key

Adding Maniac Mansion (original)



Adding Maniac Mansion (remaster)

SCUMM v6 SCUMM v1

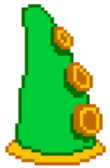


DrawRoom() ~~DrawRoom()~~ → mm_DrawRoom()

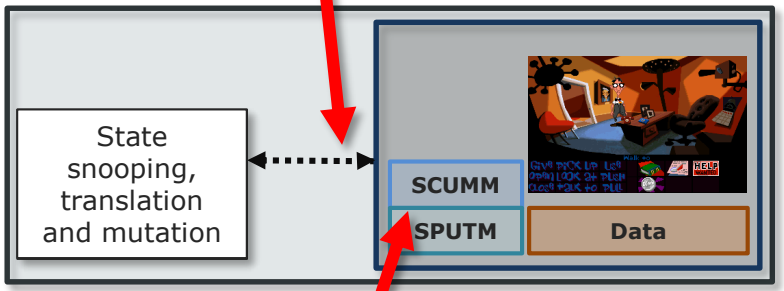
Modifying the classic game

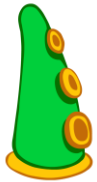
Example: Teeth blocker

State mutation



Classic bugs





Remastered-only issues

Example: Bird pop in/out

Byte-code patching

Without Fix

With Fix

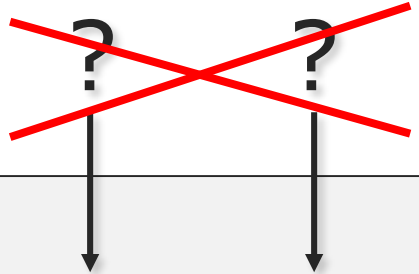
State mutation: Teeth

```
if (proximity teeth grating < 12) {
    …
    teeth-caught is true
    walk teeth to in-grate-spot
    wait-for-actor teeth
    …
    class-of chattering-teeth is TOUCHABLE
    …
}
```

Without Fix

With Fix

Byte-code patching: Birds

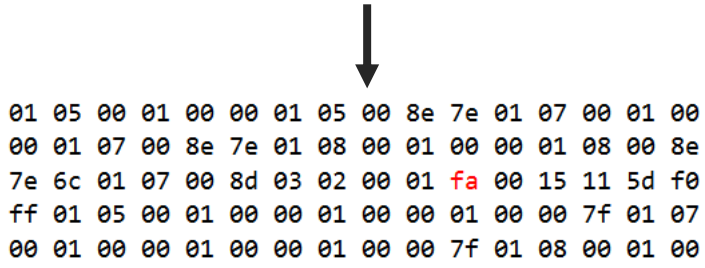



```
script fly-by {
    …
    break-until ((actor-x bird-2) < (camera-x - 175))
    put-actor bird-2 in-the-void
    …
}
```

Byte-code patching: Birds

Hex Quiz!

```
01 05 00 01 00 00 01 05 00 8e 7e 01 07 00 01 00
00 01 07 00 8e 7e 01 08 00 01 00 00 01 08 00 8e
7e 6c 01 07 00 8d 03 02 00 01 af 00 15 11 5d f0
ff 01 05 00 01 00 00 01 00 00 01 00 00 7f 01 07
00 01 00 00 01 00 00 01 00 00 7f 01 08 00 01 00
```



```
01 05 00 01 00 00 01 05 00 8e 7e 01 07 00 01 00
00 01 07 00 8e 7e 01 08 00 01 00 00 01 08 00 8e
7e 6c 01 07 00 8d 03 02 00 01 fa 00 15 11 5d f0
ff 01 05 00 01 00 00 01 00 00 01 00 00 7f 01 07
00 01 00 00 01 00 00 01 00 00 7f 01 08 00 01 00
```

A whole new dimension!

GRIM
FANDANGO
Remastered

Classic Tech – GrimE Engine

Core

Render | Memory | Audio

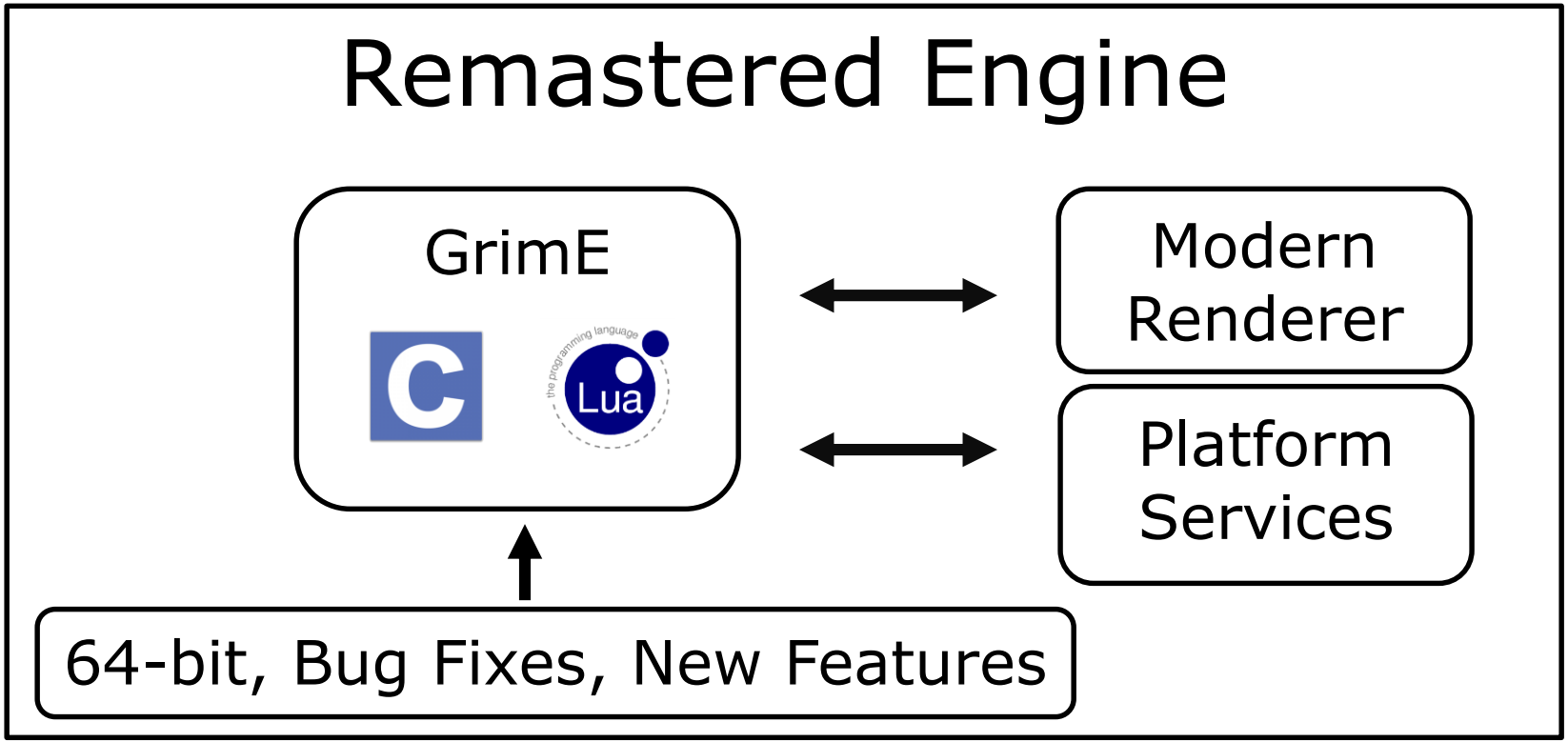
Animation | Navigation

Resources | FMV | C

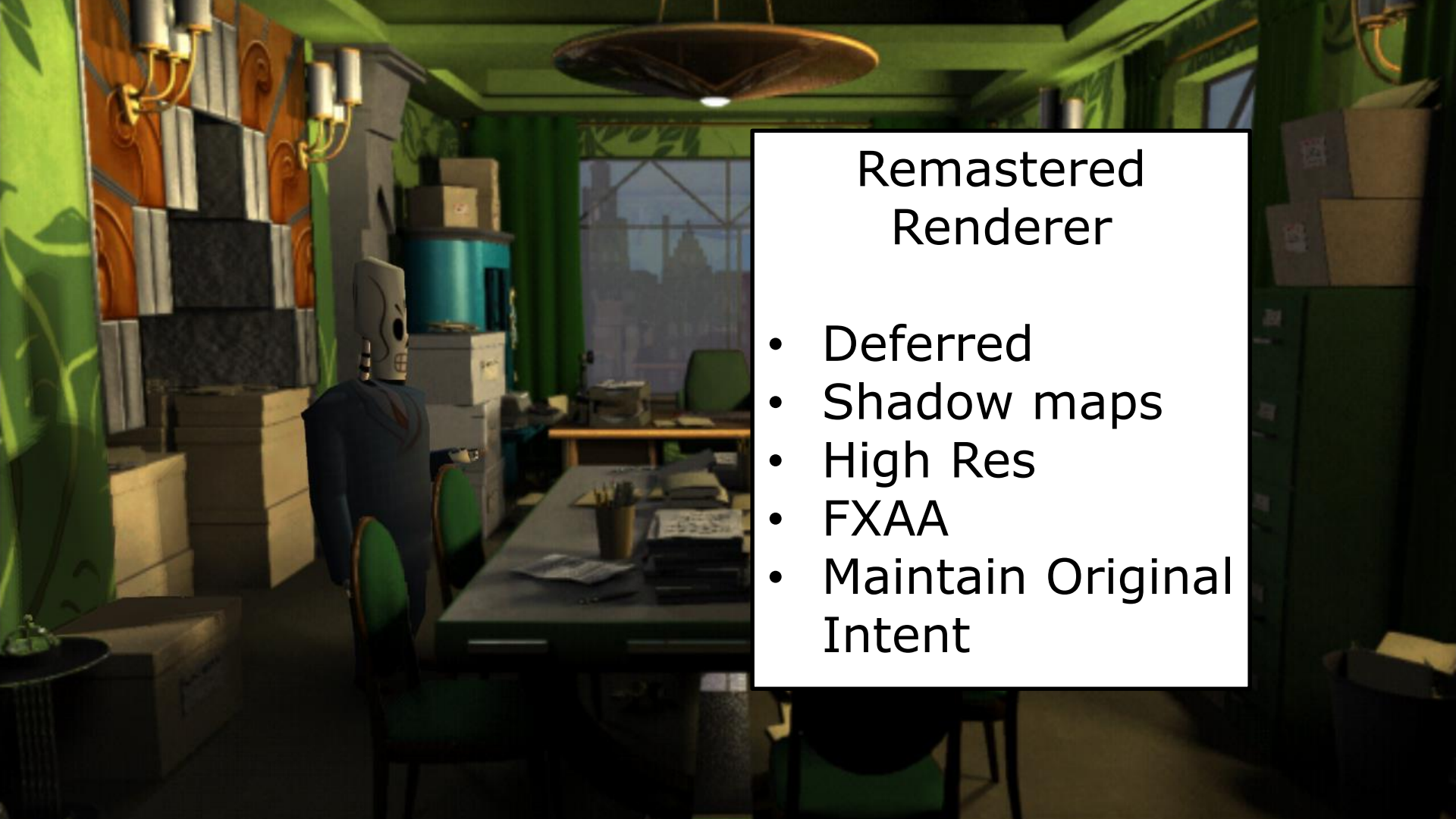
Script

~~SCUMM~~ | Lua

Remastered Engine



Remastered

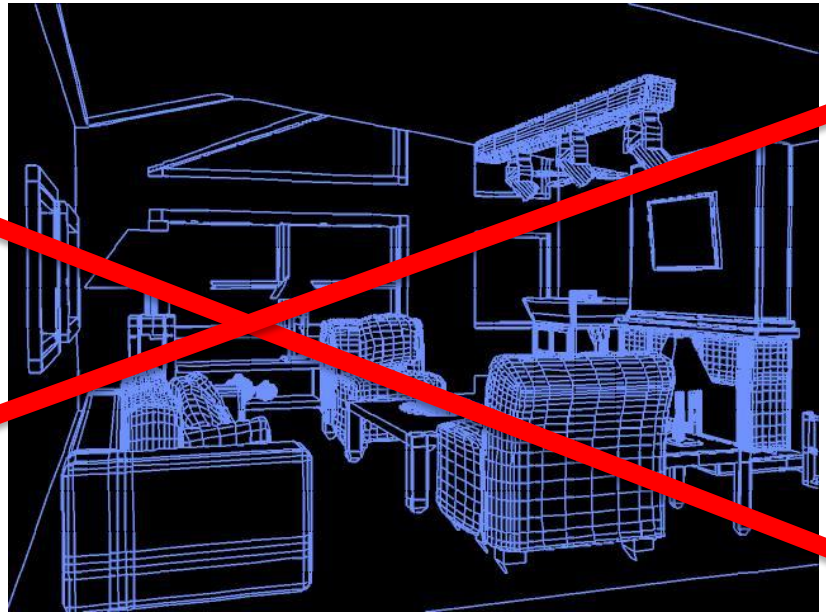


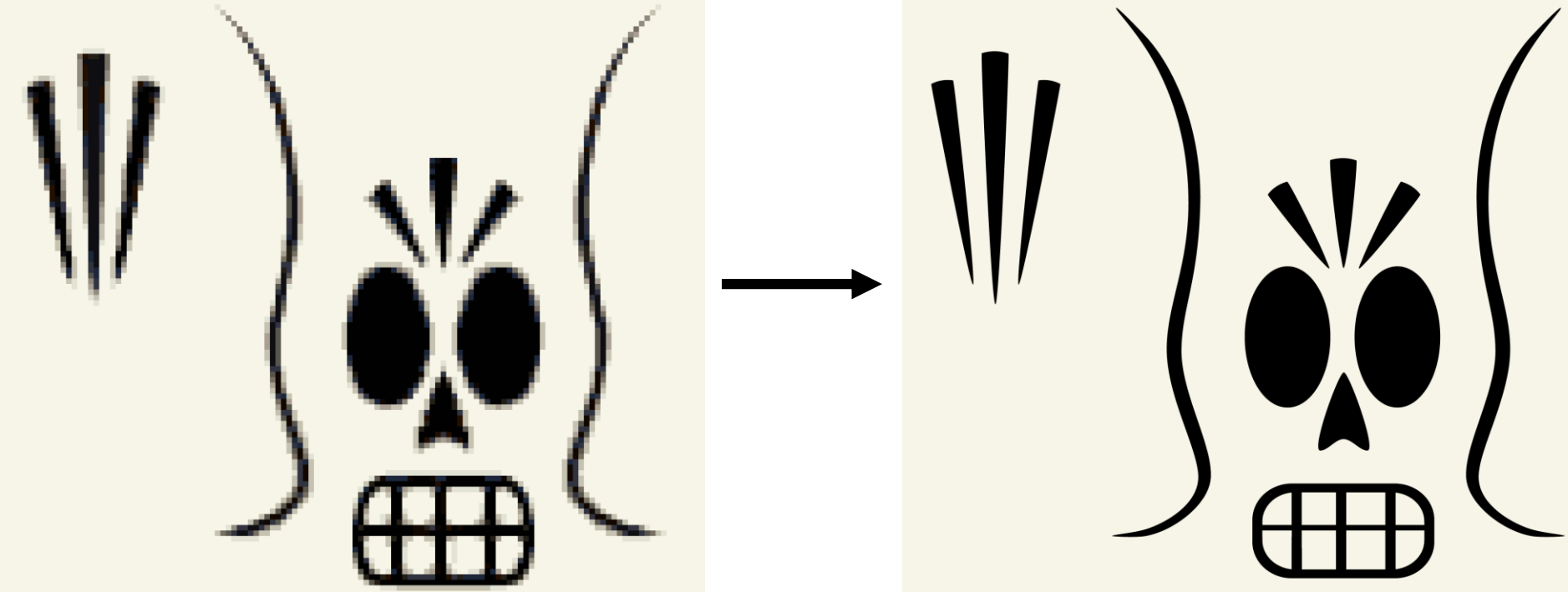
Remastered Renderer

- Deferred
- Shadow maps
- High Res
- FXAA
- Maintain Original Intent

Immediate Roadblock - Archives

SOFTIMAGE®



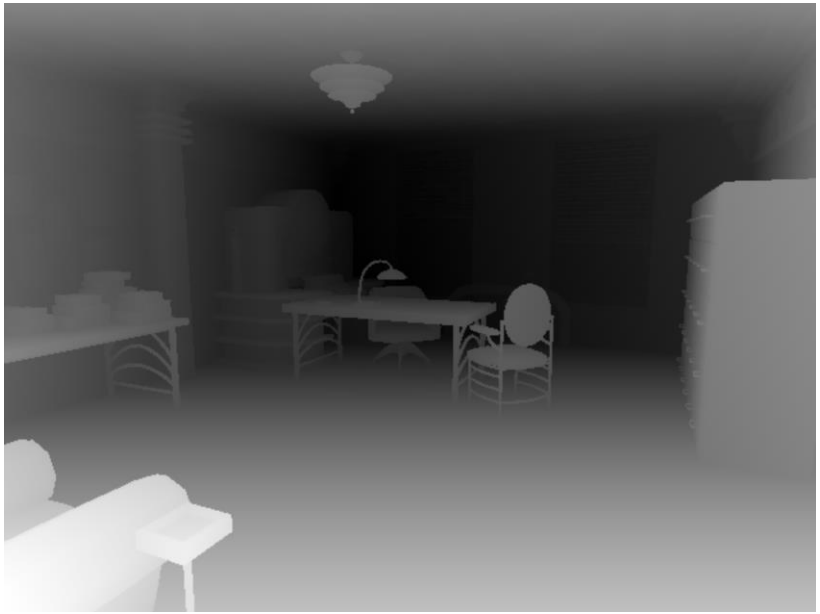


Posted February 1, 2015

Did they seriously write "GOLO" on the released version?

YES. SORRY!

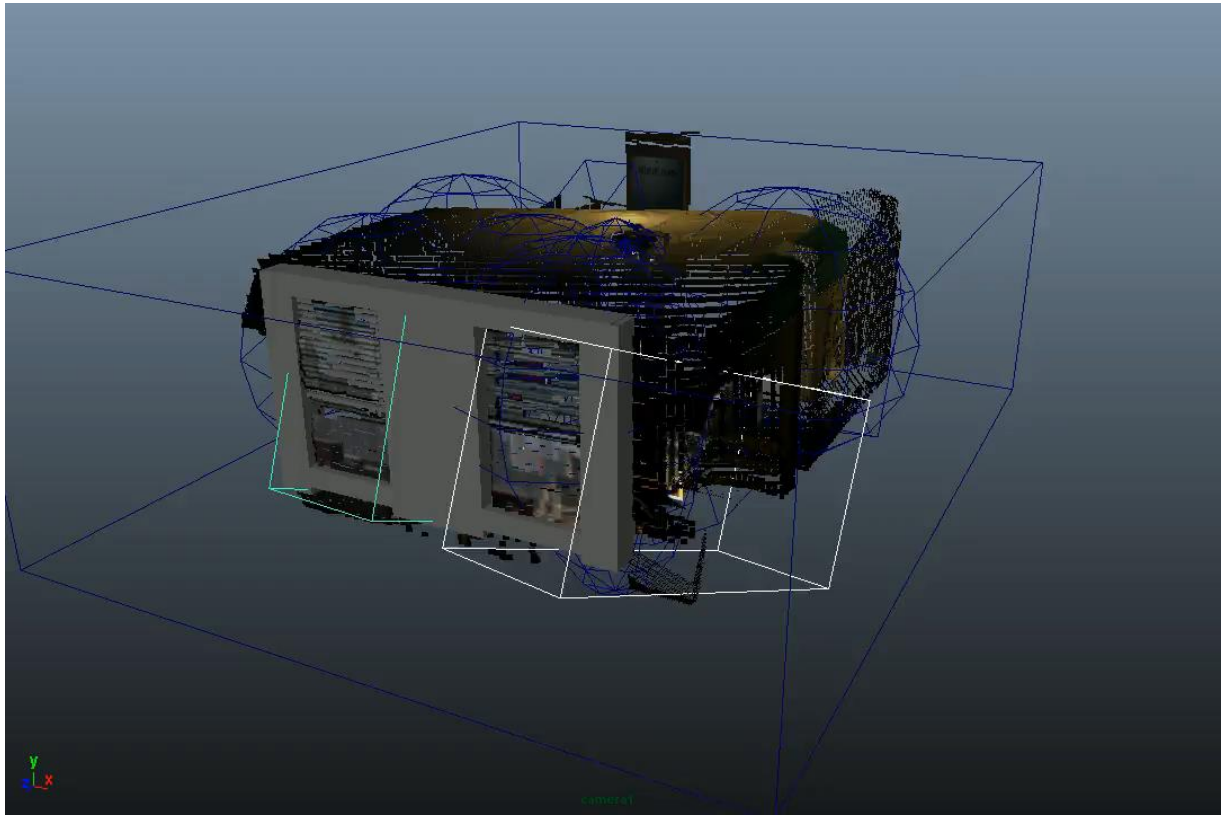
Remastered Lighting Pipeline



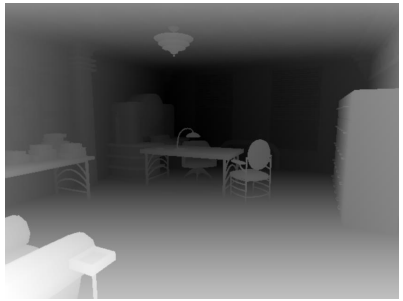
Light Volumes

- Directional (within box/cylinder)
- Point
- Spot
- Gradient

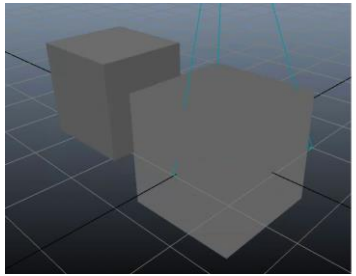
Light Animation



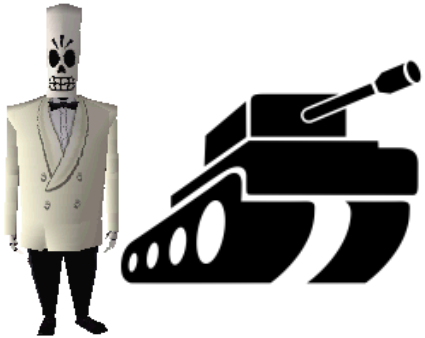
Interpolated depth

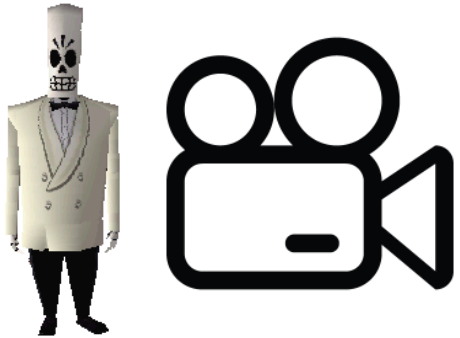


Light blockers



Original Control Schemes





```
function TombRaiderControl( id, bDown )
function MarioStyleControl( id, bDown )
```

Mouse and Touch Controls

Verb Skull

Special Cases

Classic Bug Fix: Missing Dialogue

dlg_domino.lua

```
-- # Avoid loading this file twice.
CheckFirstTime(
        'dlg_domino.lua')
```

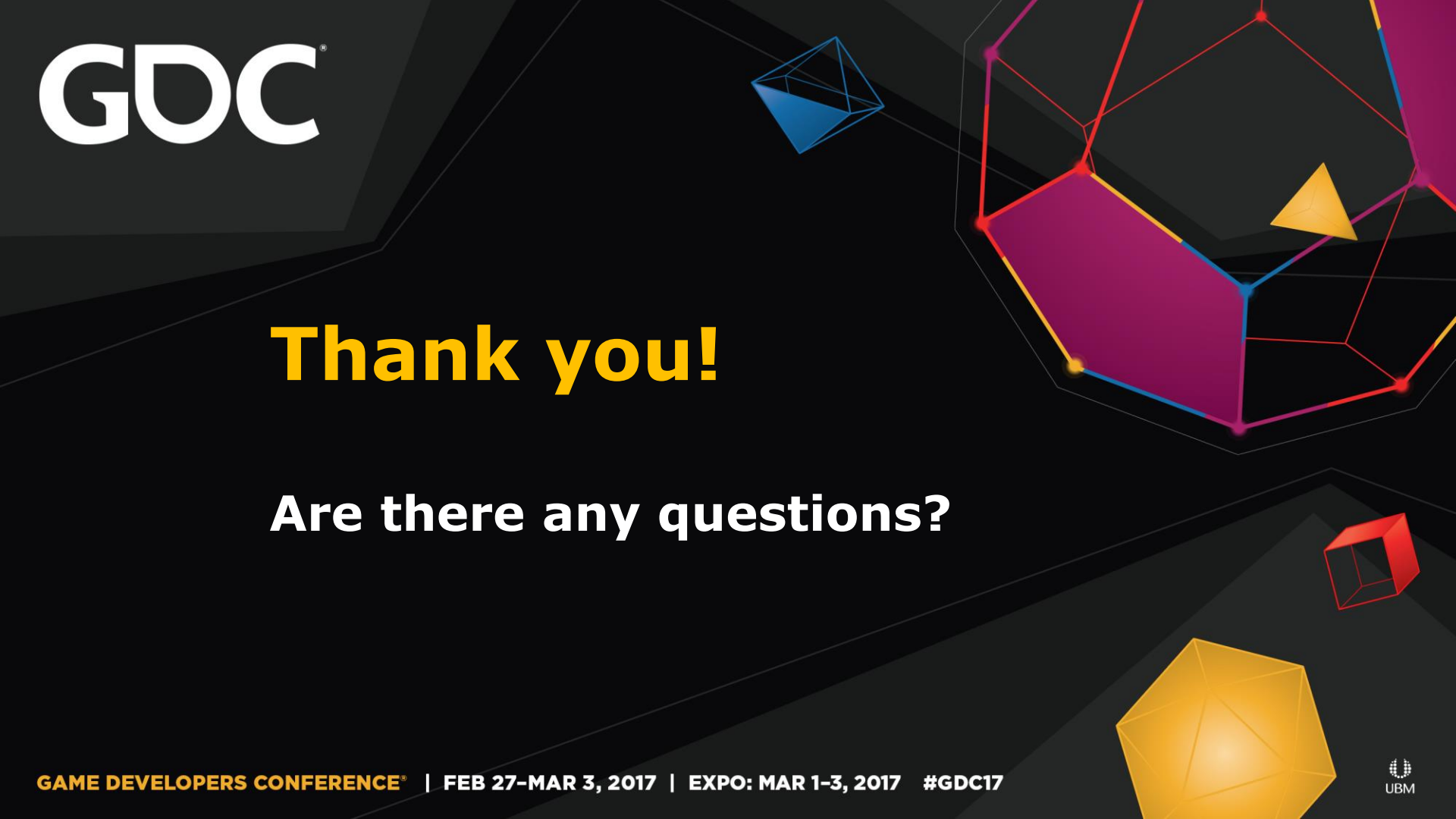
dlg_dom2.lua

```
-- # Avoid loading this file twice.
CheckFirstTime(
        'dlg_domino.lua')
```

Thanks Go To

- Sony
- Disney
- Lucasfilm
- Tim Schafer
- Bret Mogilefsky

- Classic Game Teams
- Remastered Game Teams
  - Double Fine
  - Shiny Shoe
  - Super Genius
- 2 Player Productions


GDC
Thank you!
Are there any questions?
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UBM