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The Burden of Proof

Narrative Deduction Mechanics for Detective Games

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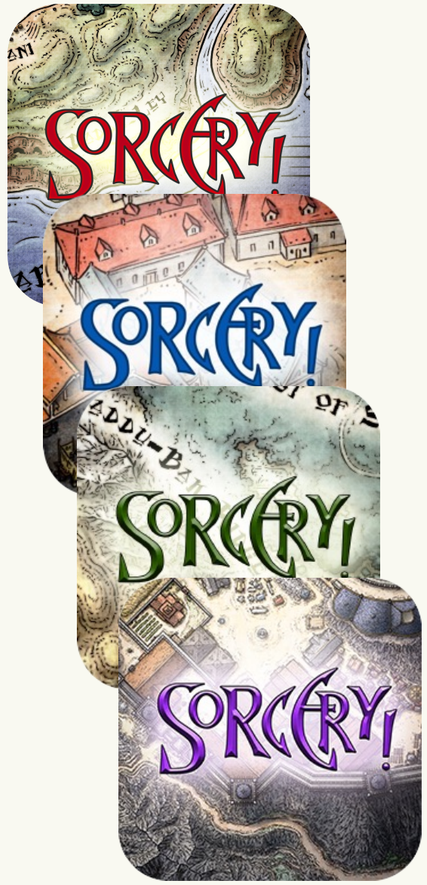
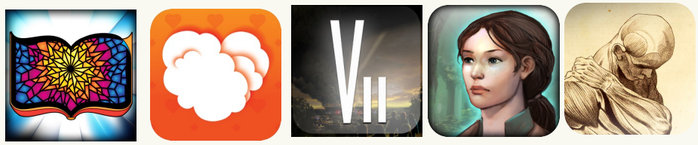
#GDC22

inkle



HEAVEN'S VAULT

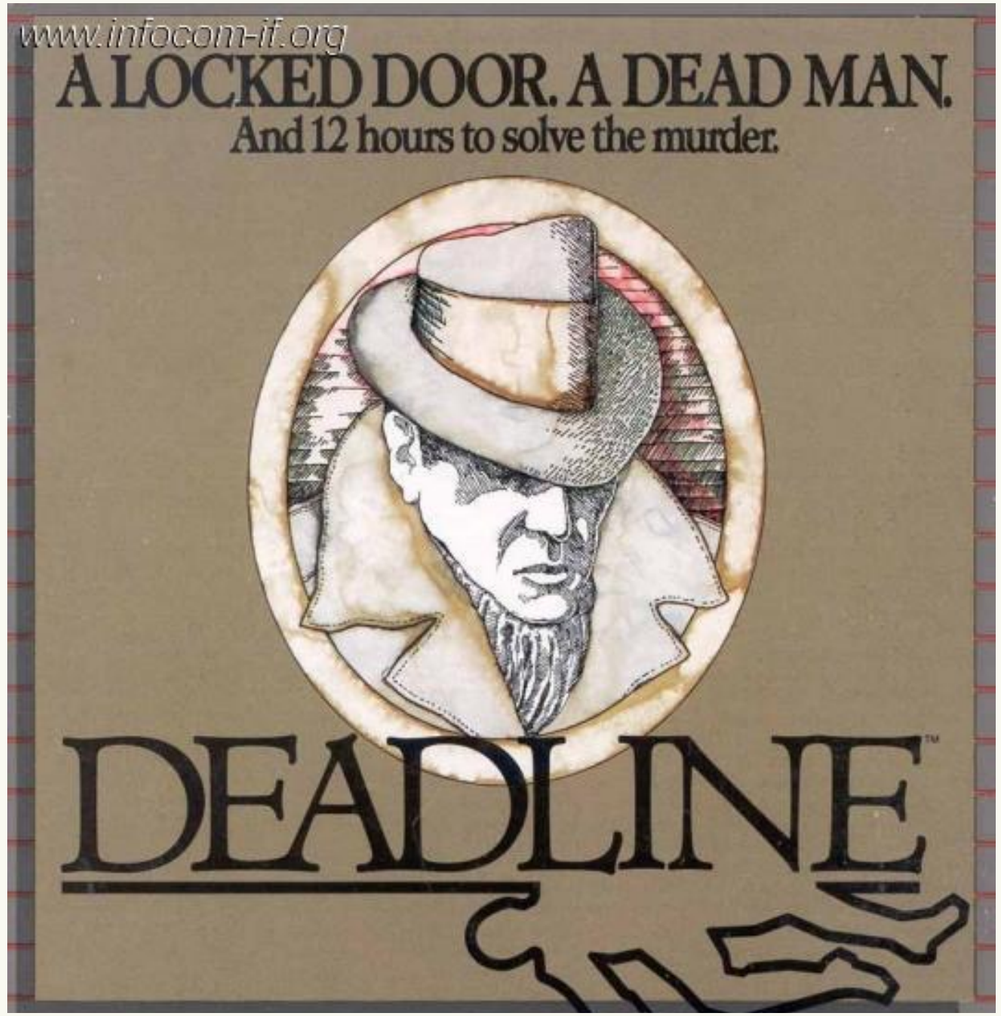


SMOKING ROOM
08:41
The facts are these.

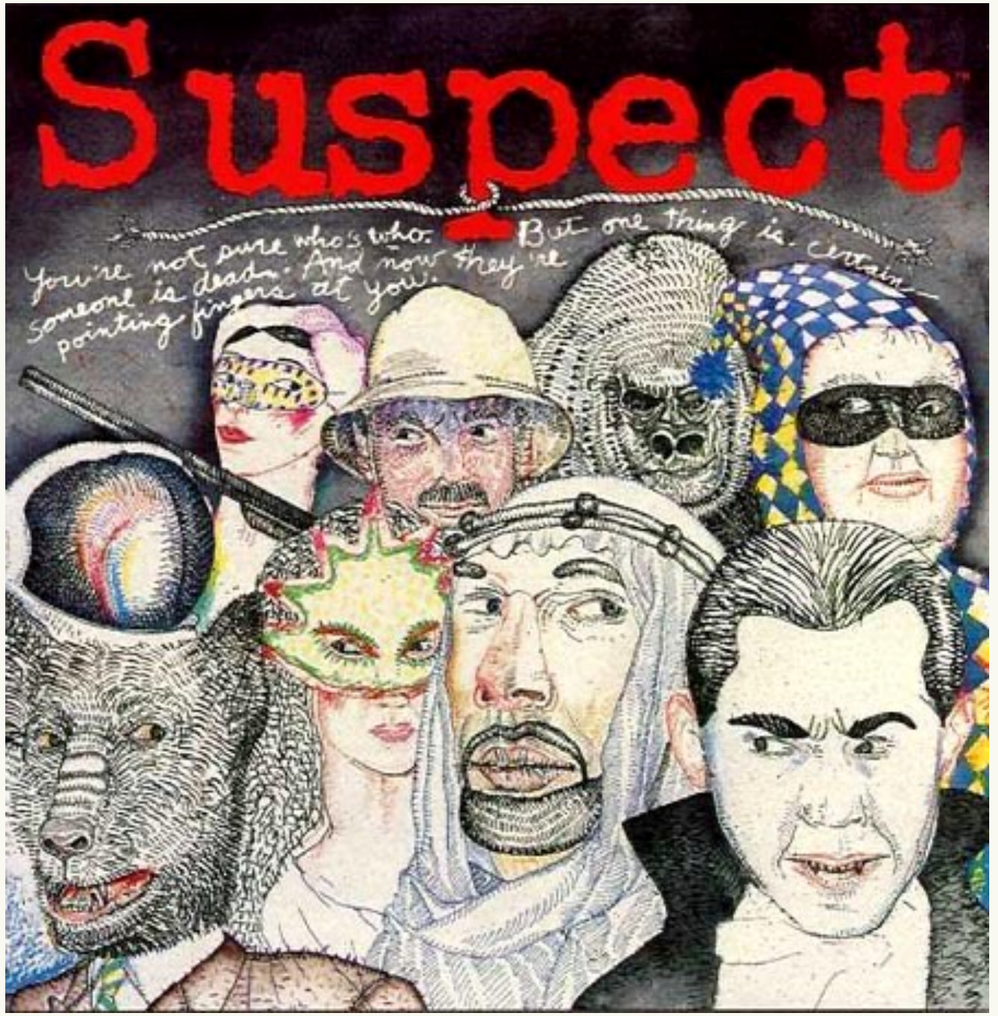
THE RESTAURANT
09:23

SMOKING ROOM
11:40

OVERBOARD!



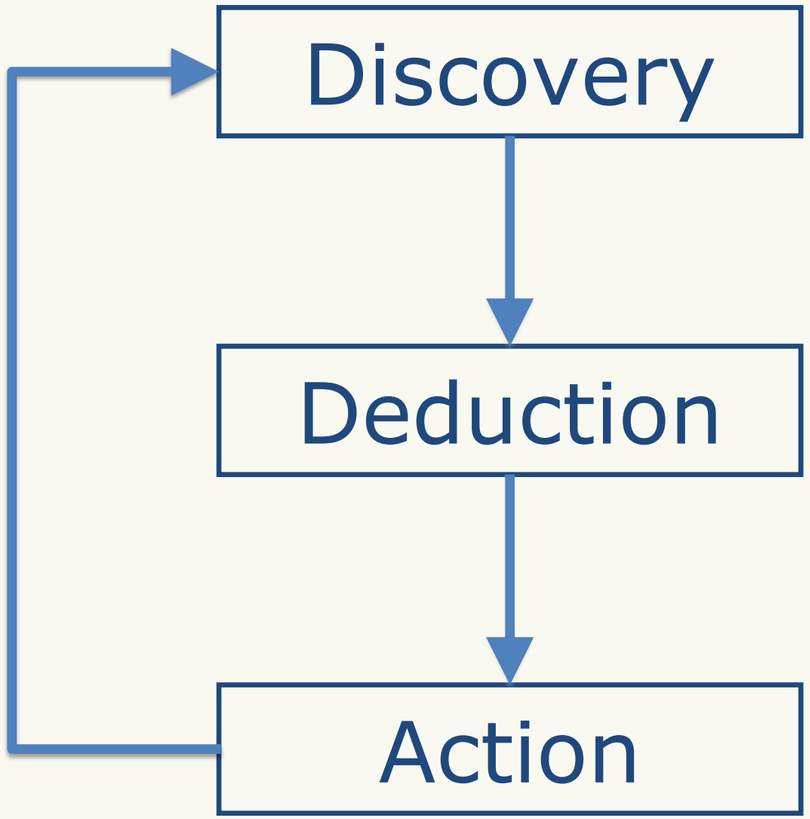
Marc Blank, 1982



Dave Lebling, 1984

Detective Games

The Detective Gameloop

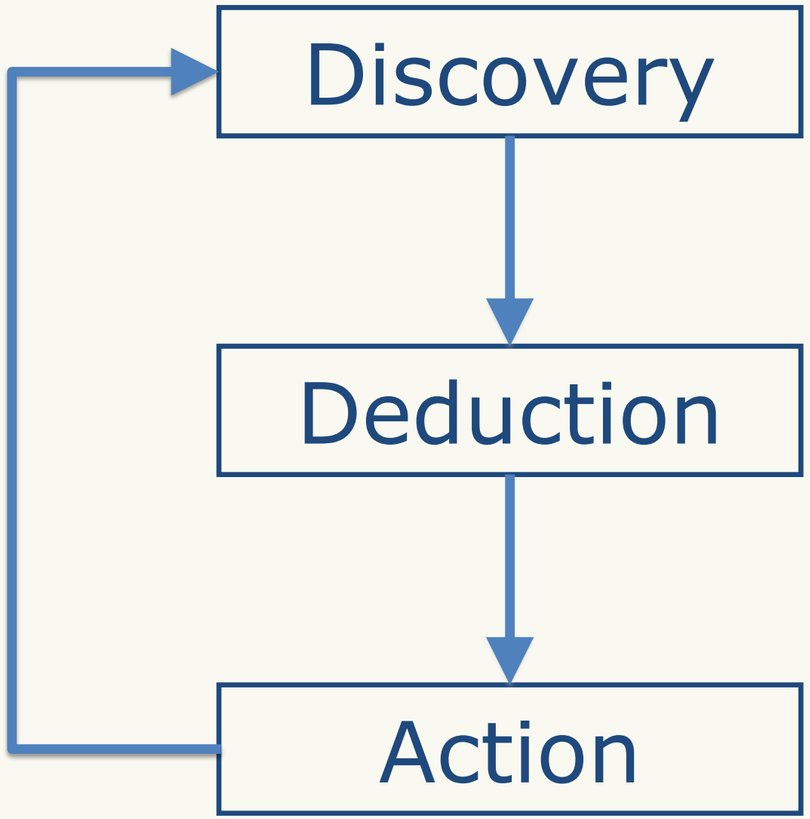


Find out a thing

Think about the thing

Prove you thought about the thing

The Detective Gameloop

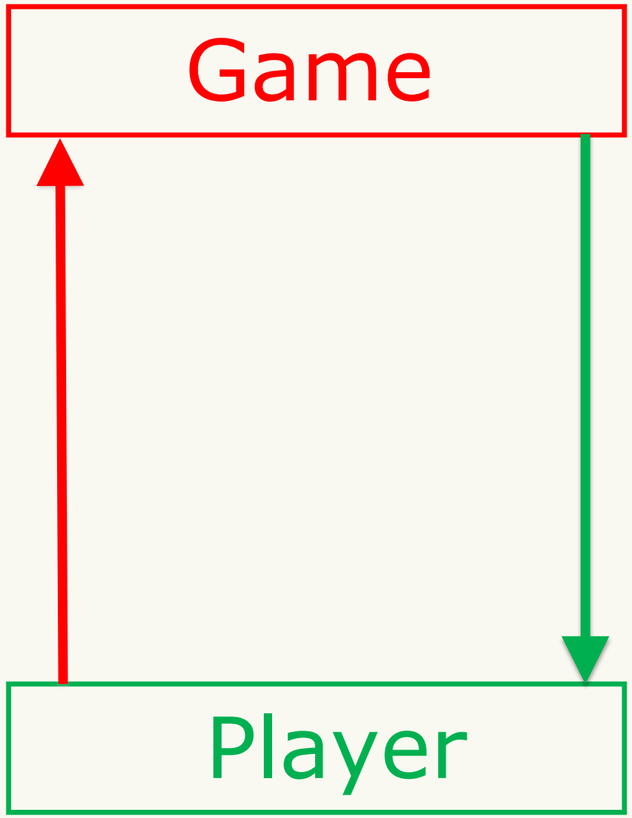


You’re missing an earring

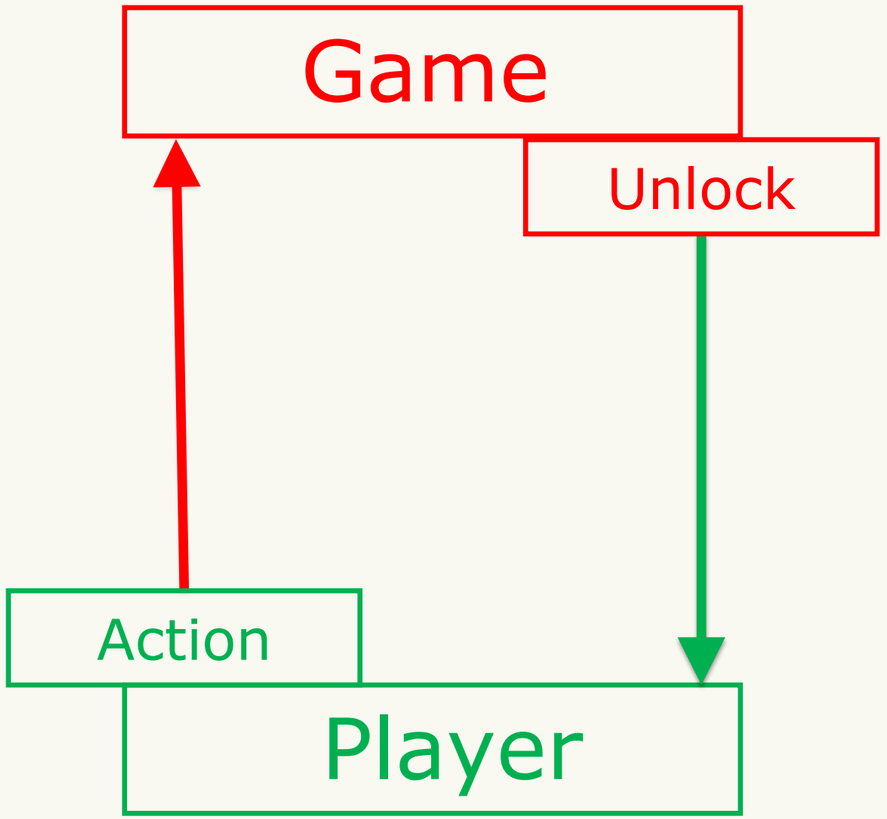
It might be on the upper deck

Go to the upper deck

The Detective Gameloop



The Detective Gameloop



Expression requires verbs

- Verbs determine what deductions the game can *allow*
- *More expressive* verbs => *more interesting* deductions

You may be wondering why I have gathered you all here today…

6	8		4		3		5	
4		2		5		3	6	8
5	9	3	6	7	8			4
	1	7	2	8	6	9	4	5
8		9	5		4	2		7
2	5	4	3	9	7	8	1	
7			8	3	1	5	9	2
9	3	5		6		4		1
	2		9		5		7	3

In any meaningful sense this Sudoku is already complete…

… thus all valid Sudokus are already complete…

… thus Sudoku is unnecessary QED

The Solve

… so you see the monkey was in fact the butler in a mask; and the mysterious bell was the sound of the microwave which had been moved to the upstairs bedroom and hidden behind the grandfather clock…

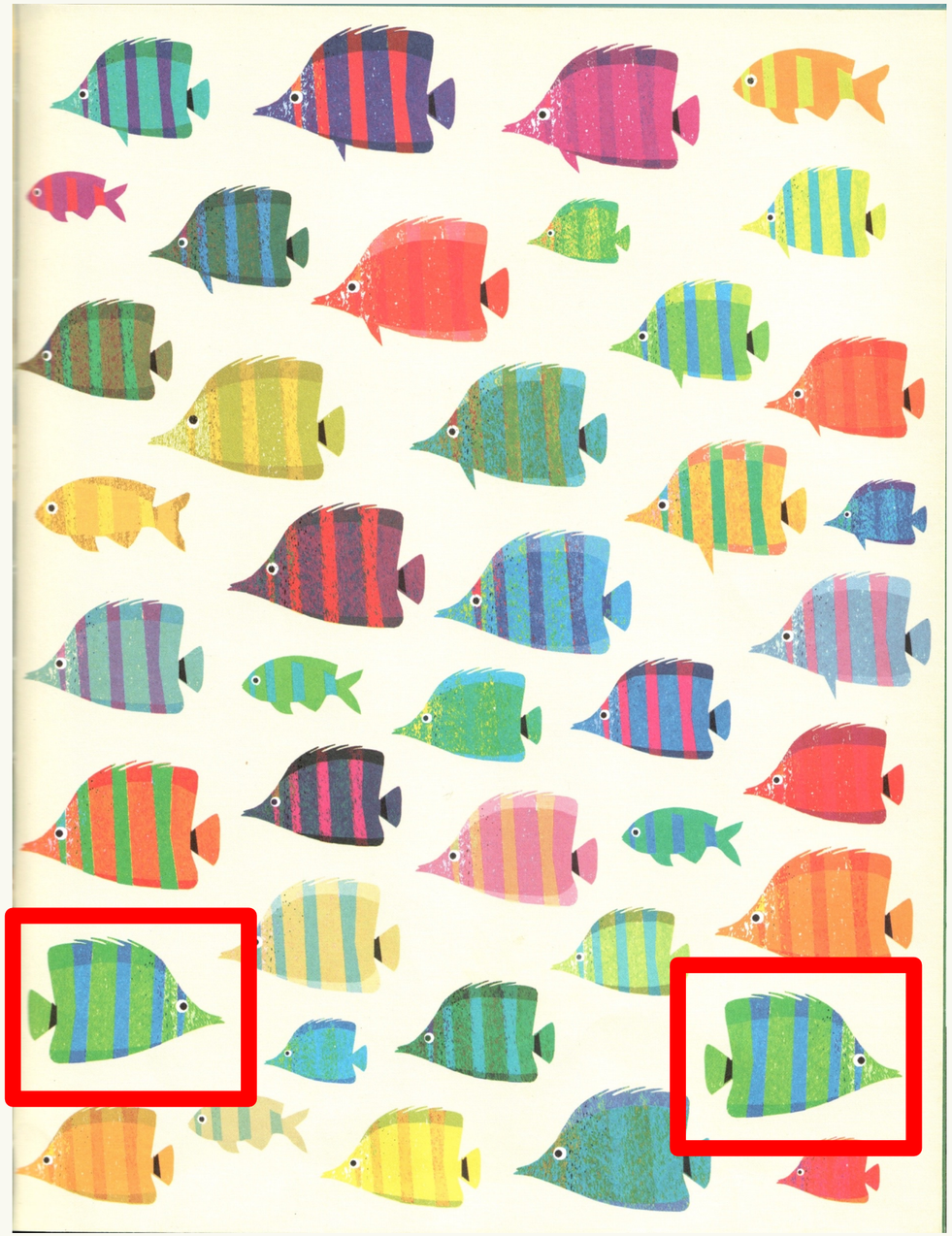
Deduction mechanics

- Fact 1 + Fact 2 => exciting new Fact 3!
- Problem 1: You actually have to “have” Fact 1 and Fact 2
- Problem 2: Fact 3 may well be obvious and not exciting
- Problem 3: You also have Facts 4 through Facts 156

“Where’s the Pair?”

- Britta Teckentrup

- This is a book for toddlers
- It’s unexpectedly difficult!



“Where’s the Pair?”

- Britta Teckentrup

- This is a book for toddlers
- It’s unexpectedly difficult!
- … even when the right answer is *the two fish pointing the wrong way*

Deduction mechanics

More issues!

- **Cluttered**: lots of *stuff* on-screen, but not much *input*!
- **Grows in complexity:** every deduction means *even more facts*
- **Truth is inherently broad:** there's never one path to a fact
- **Hard to write:** where does one fact end and another begin?

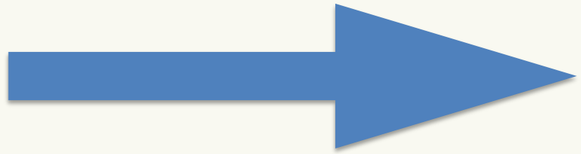
Non!

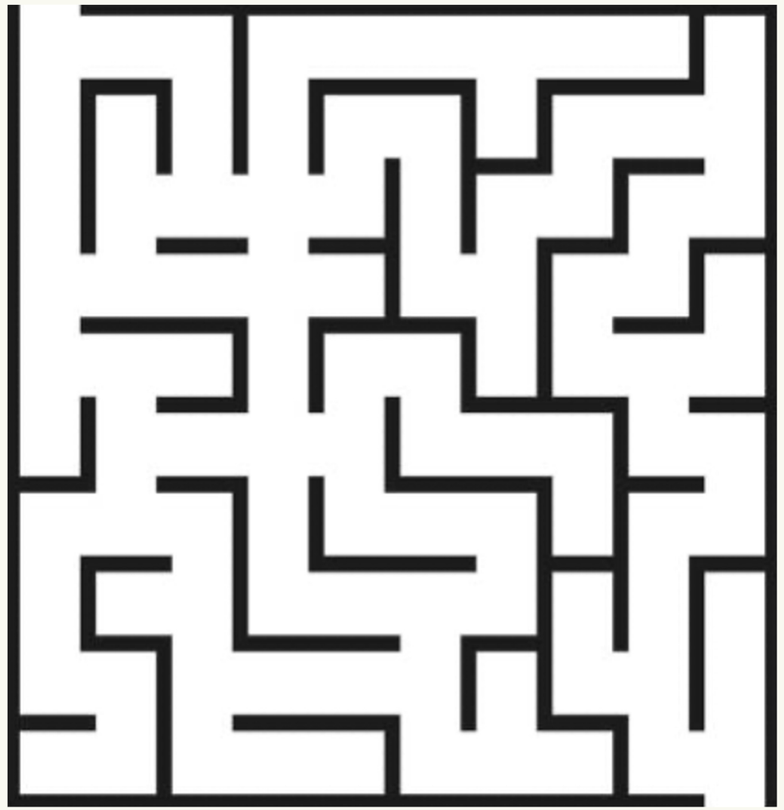
The Big Solve

Goals:

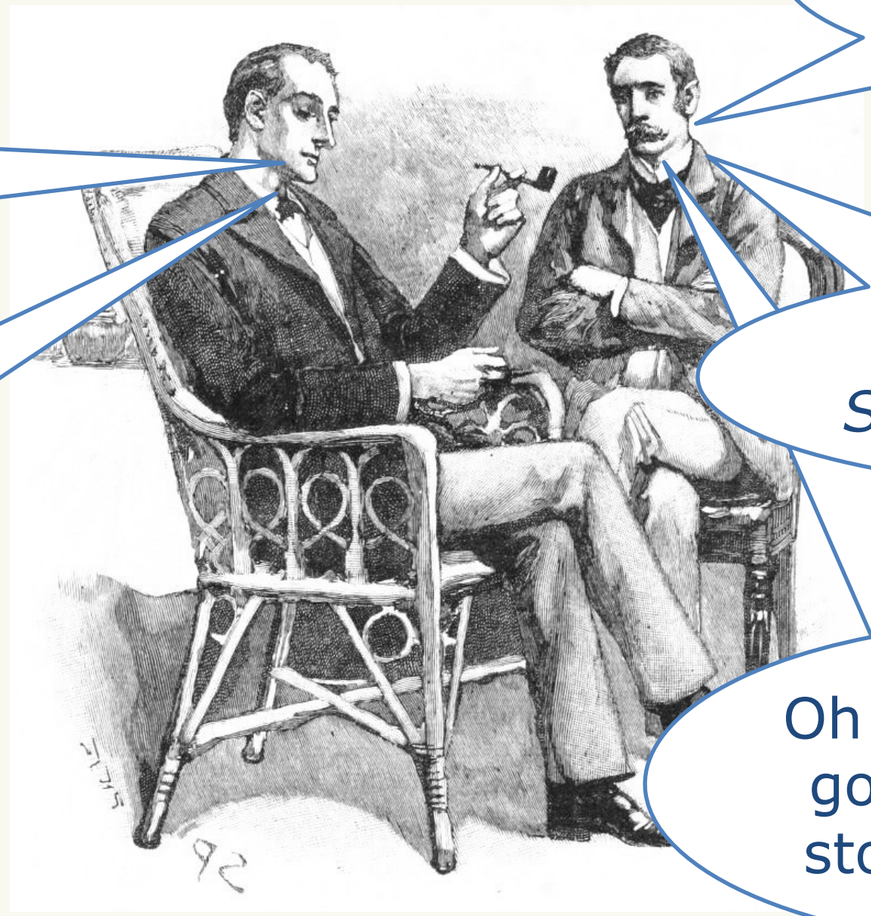
- Combines facts from the game *and* ideas from the real world
- **Curated input system** so you're not overwhelmed
- **Easy to express ideas**, not too abstract
- **Balanced:** doesn't highlight or hide correct answers
- **Easy to write and embellish:** to encourage multiple paths

The Big Solve





The Big Solve



So I think a monkey did it…

Seriously, Watson, don’t be such a muppet

Have you read *The Sign of Four* though?

That was NOT a MONKEY it was a PYGMY

Oh god oh god oh god stop talking stop talking now

BLOODY VERBS

BLOODY UI

unless…?

80 DAYS

"We all saw the unpleasant manner of Madame Shu's death. But none of us heard it. I began to wonder; how could that be?"

"It was no doubt, sadly, rather brief," General Peters said.

"That was exactly my conclusion."

"That is not the important point."

"We all saw the unpleasant manner of Madame Shu's death. But none of us heard it. I began to wonder; how could that be?"

"It was no doubt, sadly, rather brief," General Peters said.

"That is not the important point," I replied.

"The killer covered her mouth," Monsieur Fogg said.

"And," I agreed, "was hence strong."

I shook my head

"We all saw the unpleasant manner of Madame Shu's death. But none of us heard it. I began to wonder; how could that be?"

"It was no doubt, sadly, rather brief," General Peters said.

"That is not the important point," I replied.

"The killer covered her mouth," Monsieur Fogg said.

I shook my head. "It is simpler than that," I declared. "We did not hear her scream because

... she did not scream."

... there was another, louder noise that covered it."

... she was not surprised by the blow."

"We all saw the unpleasant manner of Madame Shu's death. But none of us heard it. I began to wonder; how could that be?"

"It was no doubt, sadly, rather brief," General Peters said.

"That is not the important point," I replied.

"The killer covered her mouth," Monsieur Fogg said.

I shook my head. "It is simpler than that," I declared. "We did not hear her scream because

... there was another, louder noise that covered it."

General Peters sat up sharply.

"The whistling!" he declared. "From the engine!"

The captain turned to him with a frown. "It's true that when the boat rights itself, it makes a squeal. But it's only for a moment. Not enough to cover a scream. Not enough time for someone to be attacked!"

"What if the boat listed further?"

"Unless it was perfectly timed."

Y
SMOKING ROOM
08:35
The facts are these.
Mr Villensey is nowhere to be found!
And the last person to see him was you, Mrs Villensey!
"You can't prove anything."
"He was with Clarissa last night!"
"Have you checked the bar?"

Overboard! game phases

Player

Player destroys and fakes evidence to *set up* the accusation

High agency, low impact

Game

The accusation scene begins

Player

Player argues and lies to *tilt* the accusation scene

Low agency, high impact

Game

An ending is reached

Accusation scene implementation

- Top-down process (inspired by ink's weave syntax)
- One topic at a time. (A topic is whatever we say it is)
- Important things first, details later
  - Killer blows dealt first

    e.g. "Someone saw you kill someone else" -> GAME OVER

Accusation scene implementation

- A topic / piece of evidence is:
  - introduced
  - discussed by the group, including Veronica
  - concluded with an “accepted outcome”
  - “Outcomes” accumulate against a particular culprit

TOPIC

“Malcolm is missing”

DISCUSSION

“Veronica claimed he was with her last night.”

“Steward saw the bed hadn’t been slept in.”

OUTCOME

“Veronica lied.”

Accusation scene implementation

- Topics are introduced wherever sensible
  - But each one only discussed once
- Topic discussions teach players what was relevant
- The system isn't rigid
  - An outcome can recontextualize a previous outcome

TOPIC

"Clarissa and Malcolm's affair"

DISCUSSION

"Veronica knew and felt ashamed."

OUTCOME

"Veronica's lie was justified."

Accusation scene implementation

- Finally, an NPC weighs the outcomes
  - … and the player can no longer change anything!

Accusation scene implementation

Veronica
3 “guilty outcomes”

Clarissa
1 “guilty outcome”

“Veronica is guilty!”

Accusation scene implementation

Veronica
0 “guilty outcomes”

Clarissa
3 “guilty outcome”

“Clarissa is guilty!”

Accusation scene implementation

Veronica
1 “guilty outcomes”

Clarissa
1 “guilty outcome”

“Probably suicide.”

= no clear culprit

The player is the **detective** but not the **judge**

Notes

- Feels like quite a natural design?
- Overboard! is replay-to-win
  - But the design doesn’t *require* this
- Doesn’t have to be dialogue
  - Though dialogue is a natural approach
- The “right path” can be very broad!
  - (We don’t know how many ways Overboard! can be won)

~~Deduction~~ Construction

Thanks for listening!

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