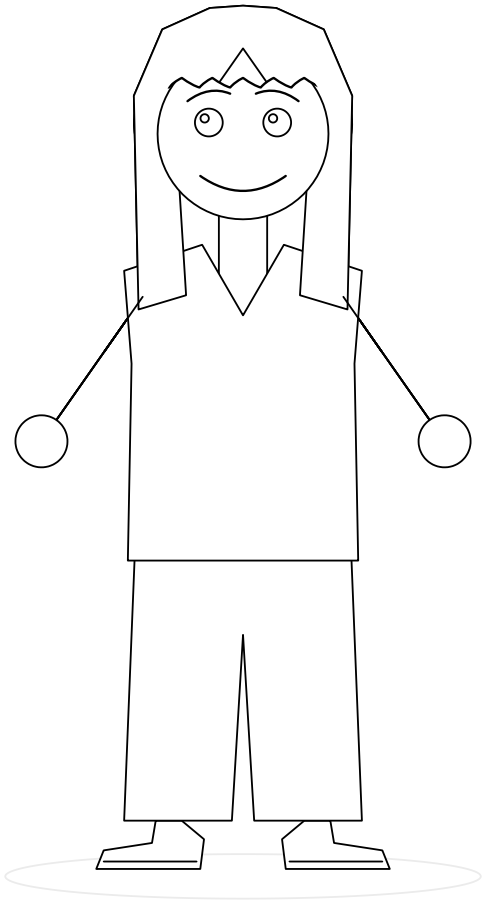
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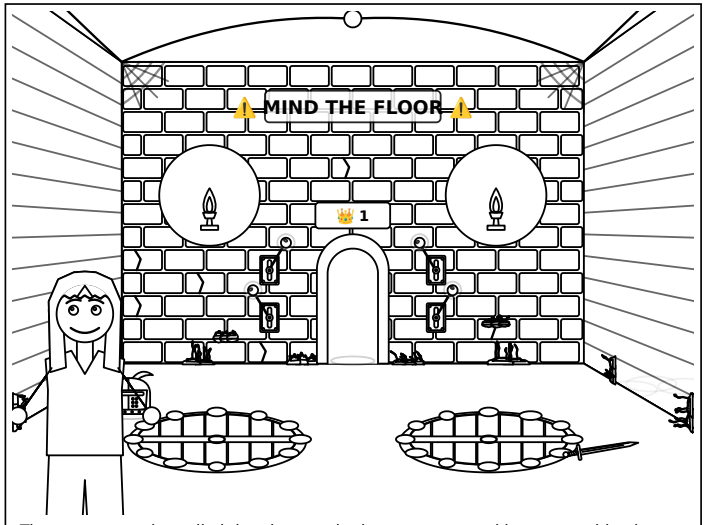


From Messed Up Dress Up. Color it in however you like!

KIDS' CHOICE GAMES PRESENTS

GAME SCRIPTS PLAYER'S GUIDE

for MESSED UP DRESS UP · the 📜 Scripting panel · first edition



The trap room, also called the pit room, in the game: two red levers, two blue levers, two pits. What each lever does is decided by a game script.

Matthew, 2026-10-24: “explaining the new game script feature, in the spirit of a 1980s or 1990s game manual, with screenshots ... we want to show what log events look like, and how to use them to ‘debug’ the game script”; “the report/manual for game scripts should show examples of erroneous scripts, and how to check the errors and fix them”; and “use this report to list the full feature set, to track it”.

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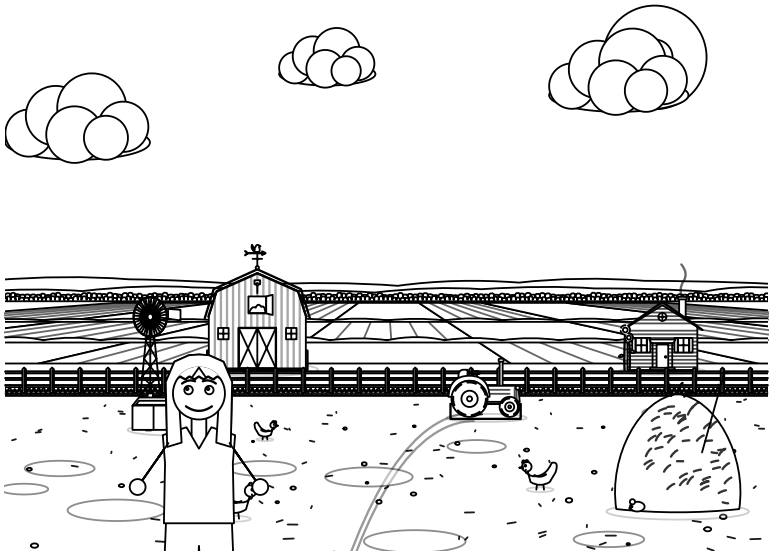
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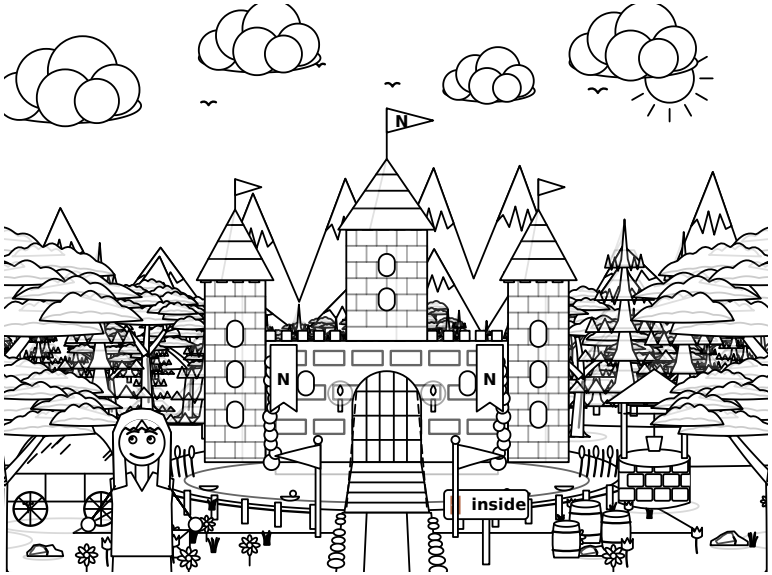
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★★★ COLOR ME: THE FARMYARD



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⋆⋆ COLOR ME: THE CASTLE



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1 WHAT ARE GAME SCRIPTS?

Some rooms in Messed Up Dress Up have *rules*. Pull a red lever in the trap room and a pit opens or shuts. Pull a blue lever and a boulder drops into a pit, or is lifted out. Pull the lever in a tree house and its trap door swings. Walk out of a square and the world decides where you arrive.

Every rule is a small program, a **game script**. The game hands it what it needs to know, the **globals** (which levers are up, which pits are open, which square of the world the friend is in), and an **event** ("the left red lever was pulled"). The script answers with **commands** ("flip the left lever; open pit 0"). The game carries them out, with the sounds and animations you know.

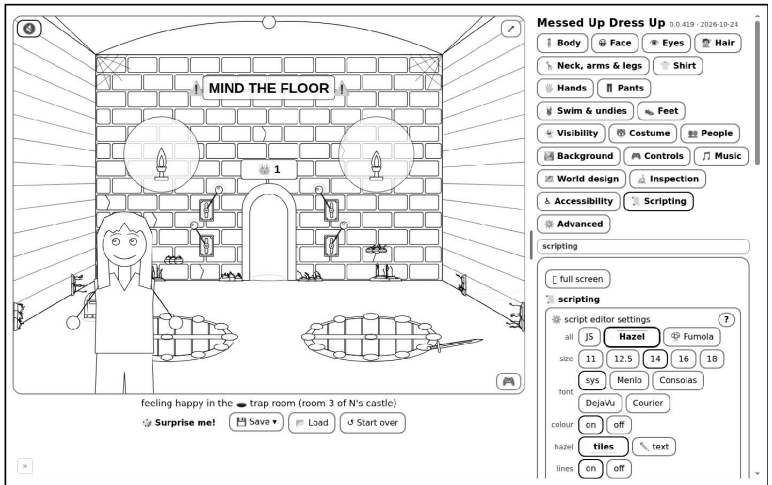
> ⋆ GOOD TO KNOW
>
> Each rule is written three times, in three languages, and all three give the same answers. The game checks this on every change, over 50,000 cases. You choose which version runs.

The three languages:

- **JS**: the game's own JavaScript, shown read-only, exactly as the game runs it.
- **Hazel**: a language with a type checker that reads your rule as you write it, and still runs a rule with mistakes in it.
- 🍄 **Fumola**: a language in the style of Motoko, running in the browser as WebAssembly.

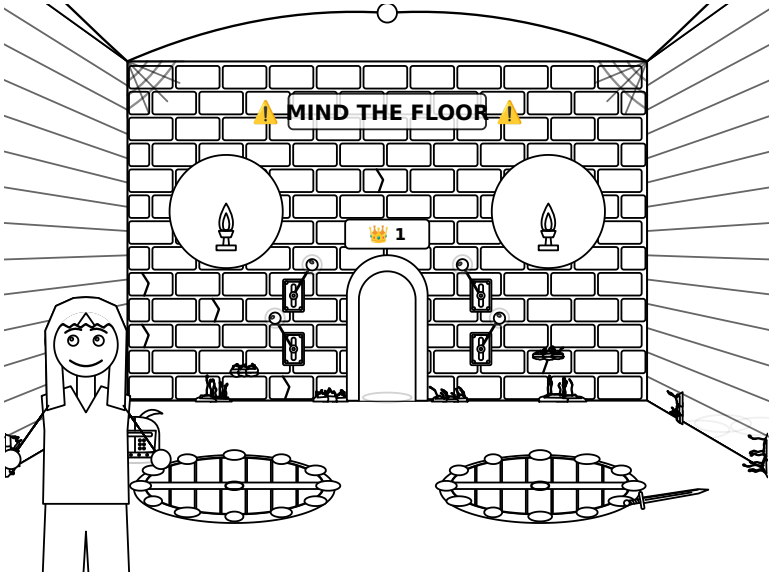
2 GETTING STARTED

1. Open the side panel and choose the 📜 **Scripting** tab.
2. At the top, in ⚙️ **script editor settings**, the **all** row picks one language for every room: (**JS**) (**Hazel**) (🍄 **Fumola**). Each room's own box has the same three chips, to choose room by room.
3. Walk into the trap room and pull a lever. The rule in the language you chose decides what happens.



The 📜 Scripting panel beside the game: the settings at the top, then 🪵 the event log, then a box for each room's rule and one for Common, the helpers every room can call.

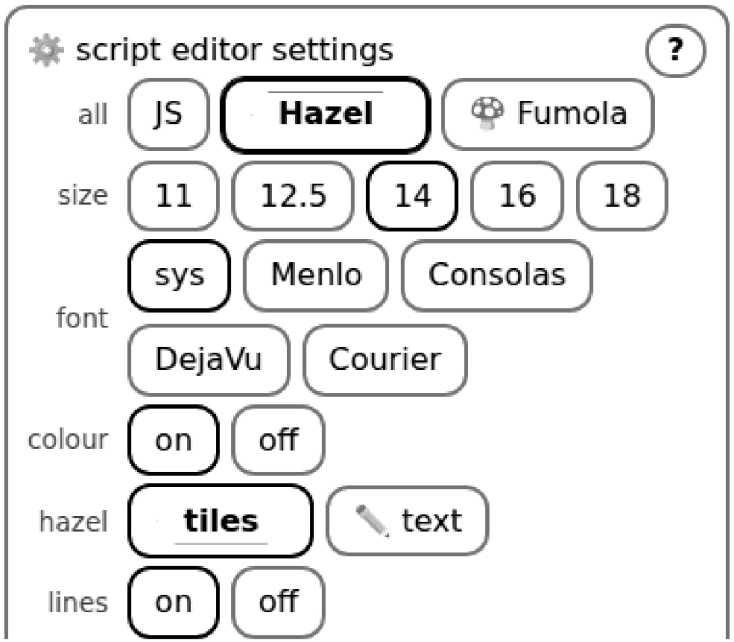
★ COLOR ME: THE TRAP ROOM



From Messed Up Dress Up. Color it in however you like!

3 THE SCRIPT PANEL

Settings

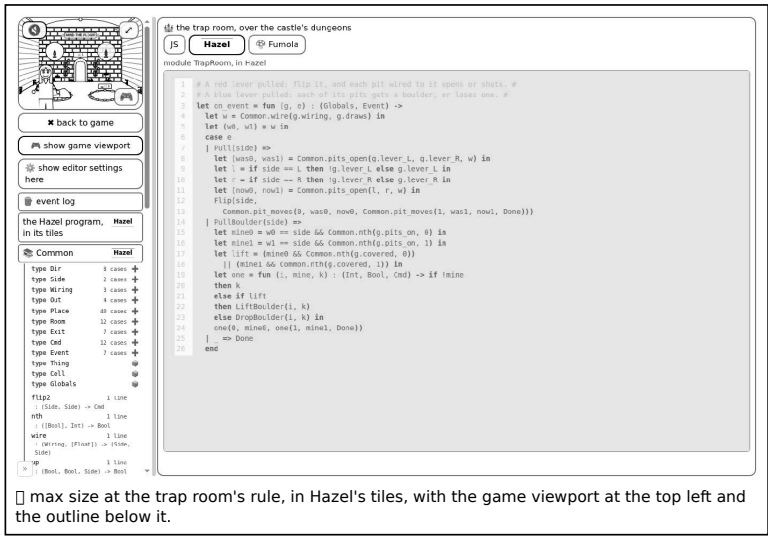


⚙ script editor settings: the language for every room; the code's size and font; colours on or off; Hazel as tiles or text; line numbers; the event log on or off, and how many calls it keeps; and the longest line before it is broken.

Max size and the outline

Every box has a ▯ **max size** button. It opens the box across the screen, with an **outline** on the left: every box, and in each its types (with their kinds and how many cases) and its functions (with their types, as Hazel works them out). Click a line in the outline and the box goes to that definition and selects it. Drag the bar between the two sides to make the outline wider or narrower.

Next to **✖ back to game**, the **🎮 show game viewport** chip puts the game itself at the top of the outline, so you can play while reading the rules and the log.



▯ max size at the trap room's rule, in Hazel's tiles, with the game viewport at the top left and the outline below it.

Hazel's tiles

Hazel boxes show the rule as Hazel's own **tiles**, the real Hazel editor, in the page's colours. Type in them and the game uses your change about half a second after you stop. Right-click a name for **Goto definition** (or press **F12**): it finds the definition even in another box, in Common, or among the types at the program's start. Prefer plain text? Choose **hazel: ✏️ text** in the settings.

13 ABOUT THIS GUIDE

Every picture is of **Messed Up Dress Up 0.0.419**, as released, and every quoted entry and message comes from the same run of `tools/checks/manual593.mjs` (kids-choice-games) on GitHub's computers: branch `diag-593`, the game at `24ede40`, run 40096766309, dark mode, 1440 × 900. The check sets each scene up, breaks the rules on purpose, and takes the picture; nothing was retouched. `drivers/build.py` draws this page from data/texts.json and data/features.json.

Related: Hazel reports, where the scripts' speed and the three-way checks are measured; hazelgrove/hazel #2711 (Hazel as a JS library); Adapton/fumola.

area	feature	status	where
event log	Three snapshots, pre event, post rule, post event: what the rule's answer (its Cmd) says to change, then what the game engine did beyond it, post event when the game says the event is over; an empty step a no change chip	DONE	592, 597
event log	Globals stored shared (hash-consed), so a long log stays small	DONE	592
errors	Hazel's type errors in the room's box, ⚠️ in the outline, a check entry in the log	DONE	594
errors	A Hazel rule with errors still runs, its answer in the log; the JS moves meanwhile	DONE	594
errors	A command the room does not know; a rule that stops: in the entry	DONE	594
errors	Fumola's type errors (Fumola does not check types yet)	NOT YET	—
errors	Error marks inside Fumola's boxes, at the line	NOT YET	589
measuring	🔬 the scripts' cost in ⚙️ Advanced: per event, per language, against JS	TO CHECK	568
measuring	Frame-rate standard per language in CI (55 fps): all pass	DONE	569
measuring	Big maps: the world's rule in Hazel is O(N) a call	NOT YET	540
correctness	CI: JS = Hazel = Fumola on every push, 32,761 + 20,649 comparisons	DONE	567
correctness	Hazel's library tests seeded from the game's rules (144 cases)	ON A BRANCH	hazel `js-library-591`

4 A WALK THROUGH THE PIT ROOM

The trap room has two pits and four levers. The two **red** levers open and shut the pits; which lever works which pit depends on the room's **wiring**: normal, reversed, or at random. The two **blue** levers drop a boulder into each pit the lever's side works, or lift the boulders out if one is there.

Here is the red lever's part of the rule, in Hazel:

```
| Pull(side) =>
  let (was0, was1) = Common.pits_open(g.lever_L, g.lever_R, w) in
  let l = if side == L then !g.lever_L else g.lever_L in
  let r = if side == R then !g.lever_R else g.lever_R in
  let (now0, now1) = Common.pits_open(l, r, w) in
  Flip(side, Common.pit_moves(0, was0, now0, Common.pit_moves(1, was1, now1, Done)))
```

Read it line by line: which pits are open now; the levers after this pull; which pits are open after it; then the answer, flip the lever that was pulled and move each pit whose state changed. `Common.pits_open` and `Common.pit_moves` are helpers in the Common box, shared by every room.

⋆ TRY THIS

Pull the left red lever, then look at 🪵 the event log: the newest entry says `lever_L: false → true`. Pull it again and it goes back.

5 WHAT A RULE SAYS: THE SHAPE OF Cmd

Every rule is one function, `on_event`. It takes two things, the **globals** `g` and the **event** `e`, and gives back one thing, a **Cmd**: what the rule wants the game to do. It changes nothing itself. It only answers, and the game carries the answer out.

```
# takes the globals and the event, gives back a Cmd #
let on_event = fun (g, e) : (Globals, Event) -> ...
```

A list of things to do

A Cmd is a list of commands, one after another. Each command's **last** part is the rest of the list, and the list ends with `Done`:

```
# do nothing #
Done
# flip the left lever #
Flip(L, Done)
# flip it, then open pit 0 #
Flip(L, SetPit(0, true, Done))
# say it, wait half a second, then flip #
Say("Ha!", Wait(500, Flip(L, Done)))
```

Read it from the outside in: the first command is the outermost one. The game does them in that order, the first command first.

Every command

command	where	what the game does	the field of the globals it sets
`Done`	every room	the end of the list	—
`Flip(side, rest)`	trap room	flip the red lever on that side	`lever_L` or `lever_R`
`SetPit(i, open, rest)`	trap room	swing pit *i*'s lid open or shut	none: a pit follows its lever
`DropBoulder(i, rest)`	trap room	drop a boulder into pit *i*	`covered[i]` becomes true
`LiftBoulder(i, rest)`	trap room	lift pit *i*'s boulder out	`covered[i]` becomes false
`SetHatch(n, shut, rest)`	tree houses	shut or open tree house *n*'s trap door	`hatch`

12 QUICK REFERENCE: EVERY FEATURE

The full feature set of the 📜 Scripting panel, and where each feature stands: 20 done, 7 done but not yet seen by Matthew, 3 on a branch, 3 not yet built. This table is kept up to date as the work goes on.

area	feature	status	where
panel	📜 Scripting tab: a box for each room with a rule, and 📚 Common for the helpers	DONE	482
panel	Three languages per room (JS, Hazel, 🍄 Fumola), and an **all** chip for every room	DONE	566
panel	JS shown read-only, as the game runs it	DONE	566
panel	Fumola rules with Motoko-style type annotations, from Hazel's types	DONE	577
settings	⚙️ size, font, colours, Hazel tiles or text, line numbers, wrap	DONE	580
settings	⚙️ the event log on or off, and keep 100 or all	DONE	592
editing	Syntax colours and line numbers in text boxes	DONE	581
editing	Long lines broken to the box and the wrap setting, live; widening gives them back	TO CHECK	578
tiles	Hazel's tiles in every Hazel box, editable, edits to the game	TO CHECK	578
tiles	Tiles in the page's theme (dark and high contrast), font, size and line numbers	TO CHECK	578
tiles	Goto definition (F12, right-click) across boxes, Common and the types	TO CHECK	586
tiles	Right-click menu opens downward, the frame grows to it	TO CHECK	578
□ view	Max size, with the outline of every box: types with kinds and cases, functions with types	DONE	577
□ view	Clicking the outline selects the definition (tiles, text or JS): 145 of 145 items checked	DONE	587
□ view	Draggable divider; settings shown on request	DONE	577
□ view	🎮 game viewport at the top of the outline; ✖ back to game	TO CHECK	—
□ view	The outline's Hazel types from Hazel itself (Hazel.outlineProgram)	ON A BRANCH	hazel `lib-outline-587`
□ view	The outline's Fumola definitions from Fumola itself (fumola_defs), exact ranges	ON A BRANCH	fumola `wasm-defs-589`
event log	🪵 every call from the game into a script, whichever language answers	DONE	592
event log	Entry: language, time, total and rule's own time, compile apart, event, globals before, with the answer applied, after the event	DONE	592
event log	What it changed; the rule's answer; globals side by side, changes marked, JSON coloured	DONE	592

field	for	where the game keeps it
`things`	Square	the square's levers and trap doors only, 8 fields each (at, uid, kind, on, works, does, open, boulder)
`rooms, exits`	Castle	castleOf(B).rooms, and each one's exits from ROOM_KINDS
`out, out_room`	Castle	the hall's way out setting (auto, out, none, or a room)
`at_col, at_row, cols, rows, cells`	World	state.world: where the friend is, the map's size, each square's col, row, kind and ways (not its things or links)

⚠ **NOT IN GLOBALS (YET)**

Where the friend stands in a room, what they wear, any room but the one the event is in, the castle's hall doors (390 settings), its cats, thrones and horses, the world's things and links to other worlds, the people, the clock, and the music. A rule that needs one of these has to wait for a field to be added. The game builds each room's slice in `SCRIPT_ACTS[kind].globals` (25-scripting.js), and the type `Globals` at the program's start lists the fields, so the two change together.

`OpenDoor(at, open, rest)`	any square	open or shut the placed trap door at *at*	that thing's `open`
`DropRock(at, down, rest)`	any square	drop or lift the rock over the trap door at *at*	that thing's `boulder`
`GoSquare(col, row, side, rest)`	the world	walk to that square, coming in from *side*	`at_col`, `at_row`
`GoRoom(r, rest)`	the castle	go to room *r* (0: out of the castle; below 0: nowhere)	none: the room is not in the globals
`Say(text, rest)`	every room	show a few words over the picture	none
`Wait(ms, rest)`	every room	wait *ms* milliseconds, then the rest	none

A room only knows its own commands. Give the trap room a `GoSquare` and the list stops there: the log line says ⚠ the room does not know it (chapter 8).

Building one: start with Done, wrap commands around it

Since each command holds the rest, you build a Cmd from the end. Many helpers take the rest as their last argument, called `k`, and either wrap a command around it or hand it back unchanged. `Common.pit_moves` is one:

```
# a pit that changed from was to now: SetPit, else nothing #
let pit_moves = fun (i, was, now, k) : (Int, Bool, Bool, Cmd) ->
  if was == now then k else SetPit(i, now, k)
```

So the red lever's answer in chapter 4, `Flip(side, Common.pit_moves(0, …, Common.pit_moves(1, …, Done)))`, is a flip followed by zero, one or two `SetPit`s, whichever pits changed. To add a command to any answer, wrap it around the rest: `Say("Watch out!", Flip(side, …))`.

★ **THE SAME IN 🍄 FUMOLA**

Fumola writes each command with a `#` in front and the same parts: `#Flip(side, #SetPit(0, true, #Done))`. The list's shape is the same, and so is its meaning.

Your answer in the log

Because a Cmd says what should change, the event log reads it as a change to the globals: each command sets its field, as in the table. That is the first step of "what it changed", **pre event ⟶ post rule**. Each change's field of the globals is a coloured chip of its own. The commands with no field of their own in the globals (`SetPit`, `Say`, `Wait`, `GoRoom`) sit beside the changes, with no field chip: a pit's lid follows its lever, so `SetPit` only agrees with the `Flip` that is a real change. Everything else the game does while carrying the event out, which no command asked for, is the second step, **post rule ⟶ post event** (chapter 6).

11 BEHIND THE SCENES: THE GAME'S STATE

The game keeps everything it knows in one object, `state`: 23 parts, about 82 KB written out as JSON (a long-played save). A script sees a small slice of it, **Globals**: 17 fields, the slice its room needs, built fresh for each call.

The game's state

part	bytes as JSON
`background`	47,733
`scripts`	19,123
`world`	8,713
`costume`	3,480
`body`	1,023
`face`	642
`access`	534
`hands`	206
`rightHand`	163
`hair`	146

The `background` is the world itself: 1,994 settings in 186 families, most of them per castle room (`castleHall` 390, `castlePit` 201, `castleCat` 192, `castleThrone` 180, `castleRoom` 79, `castleLever` 79, `castleBoulder` 79, `castleBones` 78, `castleHorse` 60, `castleOut` 39, `castleFar` 39, `castleBack` 39, ...). `world` is the map: 31 squares, each with its kind (one of 40), its ways, and its things (of 44 kinds); the castles have 12 kinds of room. The rest is the friend (face, body, clothes, costume), the scripts themselves, and the player's settings.

What a script sees: Globals

field	for	where the game keeps it
`lever_L, lever_R`	TrapRoom	the room's two red levers: castleLeverL_/R_ keys, one per room and castle (leverDown)
`wiring`	TrapRoom	castleLeverWire#: normal, reversed or random
`draws`	TrapRoom	two numbers from the room's seed (seeded(castleLeverSeed#)), for a random wiring: the rule has no randomness of its own
`pits_on, covered`	TrapRoom	trapState: which pits are open, which hold a boulder (castlePitOn#, castleBoulder...)
`hatch`	TreeRoom	the house's hatch shut (hatchShutN, hatchShutTop)

Doing: 4 of 9 kinds go through a script

the event	what it reads	who decides
A placed lever	the square's things: the lever's works, does, and each door's open and boulder	`Square · PullThing(i)`
The trap room's red lever	trapState: the wiring, the pits open	`TrapRoom · Pull(side)`
The trap room's blue lever	trapState: the wiring, the pits on, covered	`TrapRoom · PullBoulder(side)`
A tree room's or the tree top's hatch lever	hatchShutN / hatchShutTop	`TreeRoom · PullHatch(house)`
Sitting or lying down	the seats here (SEATS)	THE GAME'S JS
Climbing a ladder	the ladders here	THE GAME'S JS
Walking into a door to push it	the door's glow (ends at the door's own way)	THE GAME'S JS
Jumping, diving, swimming	the water's depth, the pits under the landing	THE GAME'S JS
Click to walk	the path planned round pits and solids	THE GAME'S JS

★ WHAT THIS MEANS

The scripts decide the levers and the trap room's pits, the dungeons' ladders up, and the world's arrows between squares. Everything else that moves the friend, including the castle's own doors, the tree houses, caves, tents, huts, pictures and passages, still goes where the game's JS sends it. Each of those could become a script the same way: a room, an event, and a command back.

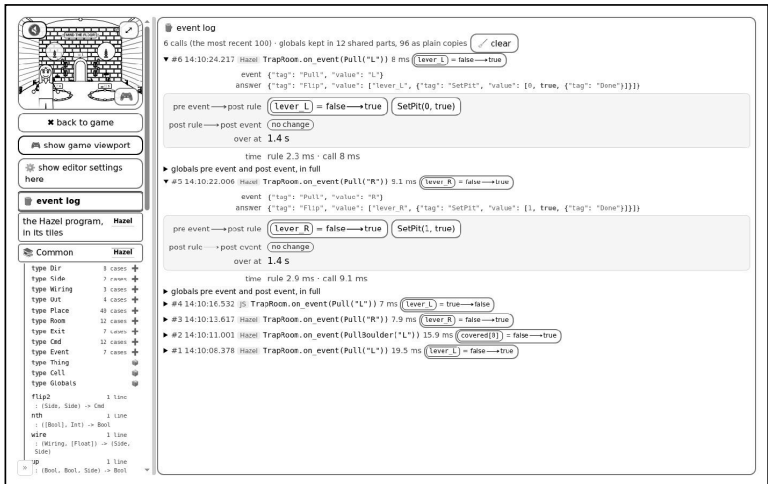
6 THE EVENT LOG

Every time the game calls into a script, whichever language answers, the call goes into the **event log**, newest first, up to the last 100 (or all of them: **keep: all**). A line says:

- its number and the time, to the millisecond;
- which language answered: JS, Hazel or Fumola;
- the call and its event, as in `TrapRoom.on_event(Pull("L"))`;
- how long it took in all (and how much of it was compiling the program, the first time);
- how much of the globals it changed.

Open a line to see the event, the rule's **answer** just under it, then, in the box, what changed, and, under one more fold, **the globals in full**, side by side, with every changed field marked.

Each call keeps **three snapshots** of the globals: **pre event**, as the rule gets them; **post rule**, the same with the rule's answer applied, each command setting its field (chapter 5); **post event**, once the game has finished carrying the event out. So “what it changed” comes in two steps. **pre event ⟶ post rule** is what the rule's answer says to change: for the red lever, the lever it flips; for a way out, the square it walks to. **post rule ⟶ post event** is what the game engine did beyond that, which no command asked for: a placed lever turning over, a boulder lying where it landed, and anything that came out otherwise than the answer said (a walk cut short shows the square changing back). For the game's own JS, which writes the globals itself, the first step is what its handler wrote. A step that changed nothing says so with a small **no change** chip. Under the two steps, *over at* says how long after the call the event was over, and *time* how long the rule and the whole call took. The changes are chips: a field, =, what it was, ⟶, what it is; the newest few are on the line itself too, to skim the log without opening it.



Playing and reading at once: the game viewport at the top left, and 🪵 the event log with the two newest calls opened. Each shows its event, what it changed (in the box), and the rule's answer.



The same entry with “globals pre event and post event, in full” opened: the snapshots side by side, scrolling together, the field the call changed marked on both sides.

The log of the run behind these pictures:

10 BEHIND THE SCENES: GAME EVENTS

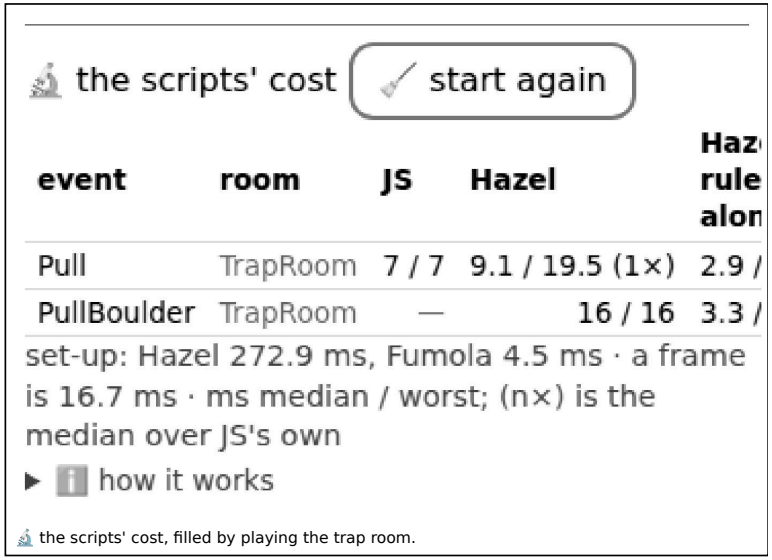
Scripts answer only some of what happens in the game. Every way of moving, every arrow, door, pit and ladder, ends in one place in the game's code, `enterScene`. It tries a passage, a world way, a rope bridge, a ladder, then asks the scripts (`scriptGo`), and otherwise takes the door's own destination, fixed when the scene was drawn. Here is every kind of game event, what the game reads to decide what happens next, and whether a script decides it today.

Moving: 4 of 16 kinds go through a script

the event	what decides where it leads	who decides
Arrow or edge-walk out of an outdoor square *(a way linked to another world is not scripted)*	worldTarget: the square's links (another world), else worldMeets, the neighbour in state.world.cells with a way back	`World · Way(d)`
Letting go of a sign board	signWays, then the same route as an arrow	`World · Way(d)`
Falling into a trap-room pit (walking on, landing a jump, a lid opening underneath)	pitAt; its room from the castle's dungeon1/dungeon2; only an open, uncovered pit	`Castle · FallPit(0 or 1)`
A dungeon's ladder up (its way out)	wayOutOf: auto is the trap room if there is one, else 0 or 1	`Castle · WayOut(n)`
Castle room doors, signs, arches and far-wall stairs *(only a ladder room's way out reaches a script)*	castleWays and roomExits: the castle's rooms, each hall's out, back, far and doors, ROOM_KINDS' exits	THE GAME'S JS
Toward-us arrows inside (living room, huts, tree top, tree room)	insideWays: the place's own back key (livingOut, treetopBack, treeBackN, …)	THE GAME'S JS
The castle gate	a fixed door: room 1	THE GAME'S JS
Tree-house doors, hatches, ladders, bridges, windows	houseLinks, treeWalks, bridgeOn; a shut hatch is no door	THE GAME'S JS
Caves and the waterfall	fixed doors	THE GAME'S JS
Campsite tents	fixed doors (data-tent)	THE GAME'S JS
Huts, the witch's house, the clearing, the living room's door	fixed doors	THE GAME'S JS
Pictures and windows (fly-in)	the picture's own view	THE GAME'S JS
The imagination map's pictures	one door per kind of place	THE GAME'S JS
Cave passages placed by the player	passageWalk: the passage's twin, in this world or another (worldById)	THE GAME'S JS
The back chip	the trip so far (trips)	THE GAME'S JS
Design-panel jumps (a place chosen, a world switched, a person switched)	the panel's choice	THE GAME'S JS

9 WHAT A SCRIPT COSTS 🔬

In the ⚙️ **Advanced** tab, under 🧪 **tests and timing**, 🔬 **the scripts' cost** shows, for every kind of event the scripts answer, how long it takes in each language: the whole event (from the game's call to the last command carried out), and for Hazel and Fumola the rule alone. It also shows each language's set-up time. A frame is 16.7 ms; a rule that takes longer than that can make the game stutter.



🔬 the scripts' cost, filled by playing the trap room.


```
#6 HAZEL  TrapRoom.on_event(Pull("L")) 13.9 ms · handler: nothing · game: nothing
#5 HAZEL  TrapRoom.on_event(Pull("R")) 17.8 ms · handler: nothing · game: nothing
#4 JS     TrapRoom.on_event(Pull("L")) 8.7 ms · handler: nothing · game: nothing
#3 HAZEL  TrapRoom.on_event(Pull("R")) 29.3 ms · handler: nothing · game: nothing
#2 HAZEL  TrapRoom.on_event(PullBoulder("L")) 24.2 ms · handler: nothing · game: nothing
#1 HAZEL  TrapRoom.on_event(Pull("L")) 35.7 ms · handler: nothing · game: nothing
```

⋆ WHEN IS AN EVENT OVER? THE GAME SAYS

A boulder takes over a second to fall, and a walk to the next square takes a few seconds; the game writes where the boulder is, or which square the friend is in, only when it lands or arrives. So the post event snapshot waits for the game to say the event is over. Everything the game starts while carrying out the event holds it open: a lever's handle turning, a lid or a boulder swinging, the friend walking through a doorway (until they have arrived in the next square), a script's `Wait`. When the last of them is done, the post event snapshot is taken, however long that took, and the line says how long. While the event is still going, the line says *the event still going…*. Two events at once (a second lever pulled before the first one's lid has shut) each wait for their own animations; the first says the second's changes may be mixed into its own. An event still going after 15 seconds, a walk cut short, say, is snapshotted then, with a ⚠️.

⋆ A HUNDRED COPIES FOR THE PRICE OF ONE

Each entry keeps the whole globals three times: pre event, post rule and post event. Most of it is the same from one call to the next, so the log stores each distinct part once and shares it. Six calls of the trap room keep their globals in about 8 shared parts, where plain copies would need 96. The line at the top of the log shows both numbers.

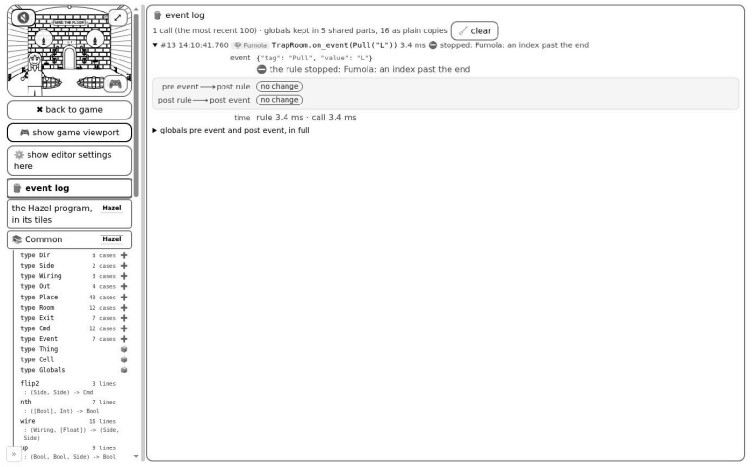
7 DEBUGGING WITH THE LOG

When a lever does something you didn't expect, work through it like this:

1. **Do it once.** Pull the lever a single time, so the newest entry is the one you care about.
2. **Which language answered?** If it says **JS** where you expected Hazel or Fumola, your rule didn't answer. Look for ⚠️ or ⛔ on the same line (chapter 8).
3. **What came in?** Open the entry and read the **event** and the globals **before**. Was the lever really up? Was the wiring what you thought?
4. **What did the rule say? The rule's answer** is exactly what it returned: `Flip(L, SetPit(0, true, Done))`, as data.
5. **What changed?** If the answer is right but **what it changed** isn't, the game carried a command out differently than you meant. If the answer itself is wrong, the mistake is in the rule.
6. **Compare with JS.** Switch that room to (JS), pull the lever again, and compare the two entries side by side.

⚠ WHAT YOU SEE

The entry says ⛔ **stopped: Fumola: an index past the end.** Nothing the rule meant to do happened, and the lever stays where it was.



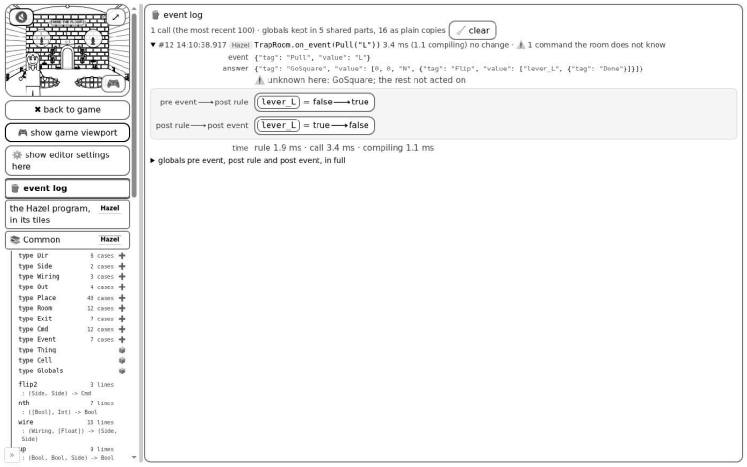
A Fumola rule that stops: the entry and its message.

★ HOW TO FIX IT

Find the line the message names, and check the list's length before reading from it, or read with a pattern (`switch`) that covers the empty case.

⚠ WHAT YOU SEE

The entry says ⚠️ **1 command the room does not know**, and inside: *the room does not know GoSquare: the commands from there on were not acted on*. The rule's answer shows the whole list it returned.



A command the trap room doesn't know: the entry, its answer, and the warning.

★ HOW TO FIX IT

Use only the room's own commands. The rule's answer shows where the list went wrong; everything after the unknown command was skipped too.

7.4 A rule that stops (Fumola)

Some mistakes only show up when the rule runs. In Fumola, reading past the end of a list stops the rule:

```
public func on_event(g : Common.Globals, e : Common.Event) : Common.Cmd { let z = [1, 2][5];
```


§ TROUBLESHOOTING: BROKEN SCRIPTS

Four ways a script goes wrong, what each one looks like, and how to fix it. Every example was broken on purpose, in the run behind this guide.

7.1 A type error (Hazel)

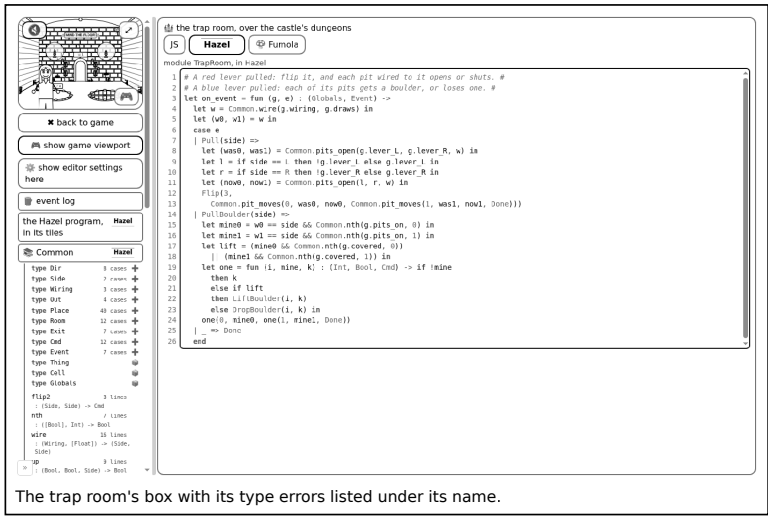
Hazel reads the whole program before anything runs. Change the red lever's answer from `Flip(side, …)` to `Flip(3, …)`: a lever is a `Side` (`L` or `R`), not a number.

⚠ WHAT YOU SEE

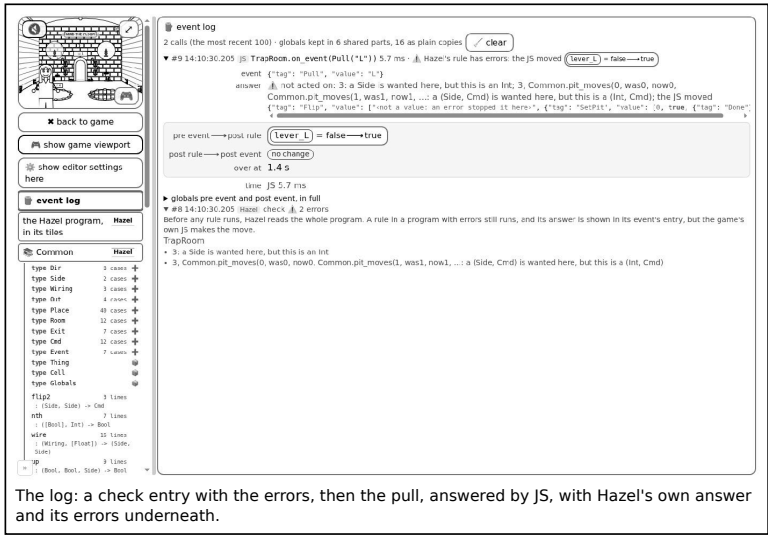
The room's box lists its errors under its name; the ▯ outline shows ⚠️ and a count beside the room; and the event log gets a **check** entry, before any lever is pulled:

```
3: a Side is wanted here, but this is an Int
3, Common.pit_moves(0, was0, now0, Common.pit_moves(1, was1, now1, …: a (Side, Cmd) is
wanted here, but this is a (Int, Cmd)
```

The rule still **runs**: Hazel runs a program with errors as far as it can. Its answer goes in the entry, with `‹not a value›` where the error stopped it. But the game's own JS moves the lever, so the game keeps working while you fix it.



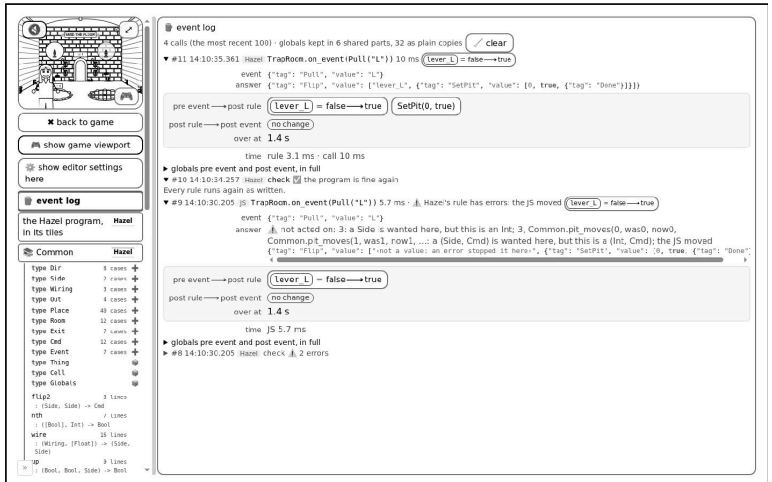
The trap room's box with its type errors listed under its name.



The log: a check entry with the errors, then the pull, answered by JS, with Hazel's own answer and its errors underneath.

★ HOW TO FIX IT

Read the message: "*3: a Side is wanted here, but this is an Int*". Put back a `Side` (here, `side`), and the next check entry says ✅ **the program is fine again.**



Fixed: the check entry says the program is fine again, and the next pull is Hazel's own.

7.2 A hole to fill (Hazel)

Leave part of a rule unwritten, a `?` or an `if` without its `else`, and Hazel counts it: "*1 hole to fill*", or "*1 bracket or keyword without its partner*". It appears just like a type error: in the box, in the outline, and in a check entry. The game's JS moves until the rule is finished.

7.3 A command the room doesn't know

Every room carries out only its own commands. The trap room knows `Flip`, `SetPit`, `DropBoulder` and `LiftBoulder`; it doesn't know `GoSquare`, which belongs to the world. This rule type-checks, since `GoSquare` is a real command, but the room can't carry it out:

```
let on_event = fun (g, e) : (Globals, Event) -> GoSquare(0, 0, N, Flip(L, Done))
```