world models,
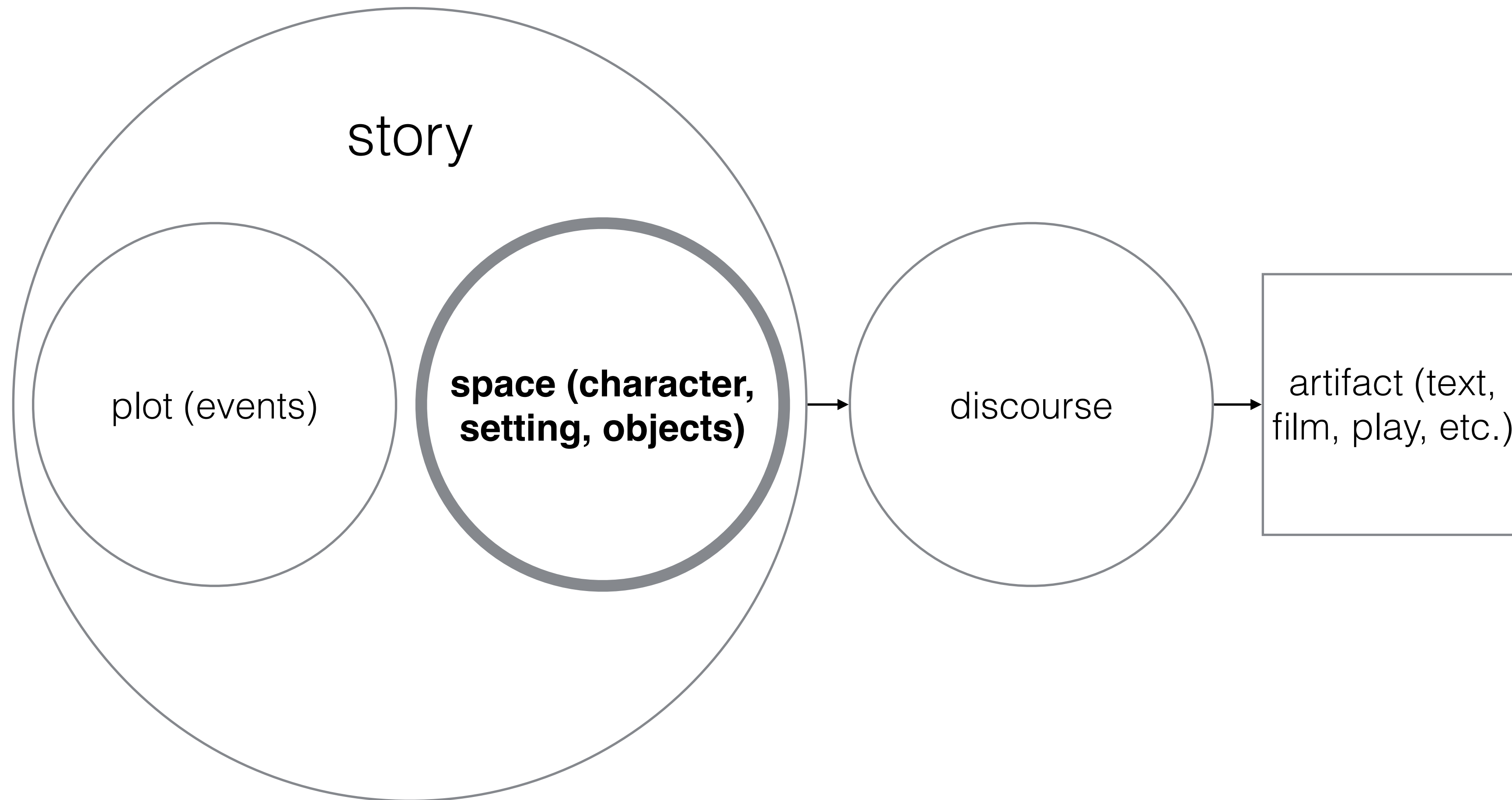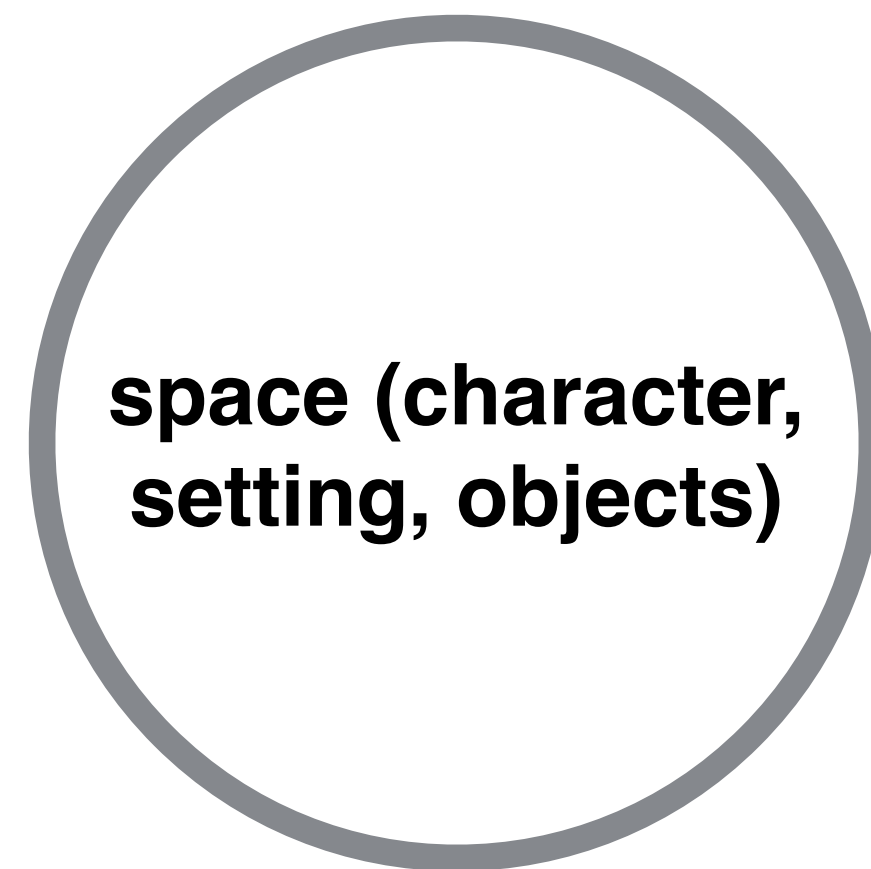# or: speculative ontology for fun and profit

Allison Parrish

our adorable structuralist model of narrative
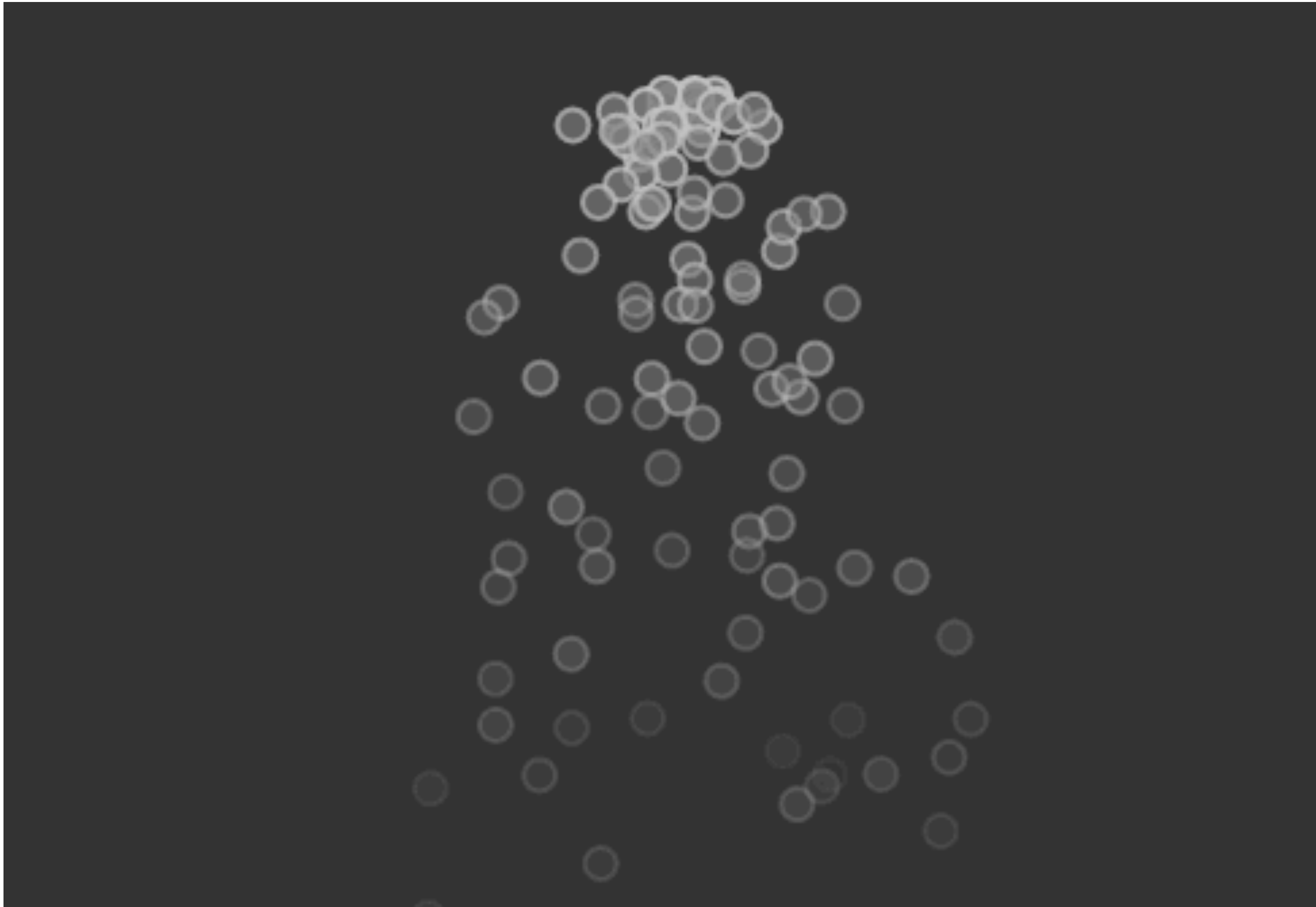
space (character, setting, objects)

how do we computationally model this part?

components of a world model

- what kinds of things are there in the world?

- what properties do those things have?

- what happens to those things over time?

- how do those things interact with each other?

- what actions can agents take on those objects?

```javascript
let system;

function setup() {
  createCanvas(720, 400);
  system = new
ParticleSystem(createVector(width / 2,
50));
}

function draw() {
  background(51);
  system.addParticle();
  system.run();
}

// A simple Particle class
let Particle = function(position) {
  this.acceleration = createVector(0,
0.05);
  this.velocity =
createVector(random(-1, 1), random(-1,
0));
  this.position = position.copy();
  this.lifespan = 255;
};

Particle.prototype.run = function() {
  this.update();
  this.display();
};

// Method to update position
Particle.prototype.update = function(){
  this.velocity.add(this.acceleration);
  this.position.add(this.velocity);
  this.lifespan -= 2;
};
```

```javascript
// Method to display
Particle.prototype.display = function() {
  stroke(200, this.lifespan);
  strokeWeight(2);
  fill(127, this.lifespan);
  ellipse(this.position.x, this.position.y,
12, 12);
};

// Is the particle still useful?
Particle.prototype.isDead = function(){
  return this.lifespan < 0;
};

let ParticleSystem = function(position) {
  this.origin = position.copy();
  this.particles = [];
};

ParticleSystem.prototype.addParticle =
function() {
  this.particles.push(new
Particle(this.origin));
};

ParticleSystem.prototype.run =
function() {
  for (let i = this.particles.length-1; i >=
0; i--) {
    let p = this.particles[i];
    p.run();
    if (p.isDead()) {
      this.particles.splice(i, 1);
    }
  }
};
```

Orteil's *Nested*

(possibly?) more narrative-specific forms of world models

- places: how are physical spaces represented? (connected rooms? continuous space?)

- objects: size, shape, weight, etc.

- people: personality, height, weight, clothing, etc.

- actions that the "player" can take (or that other agents can take, like NPCs)

In your belongings, you find a pair of crystal spectacles. You decide to put them on.

```
<<set $wearing_spectacles to 1>>
```

⋮

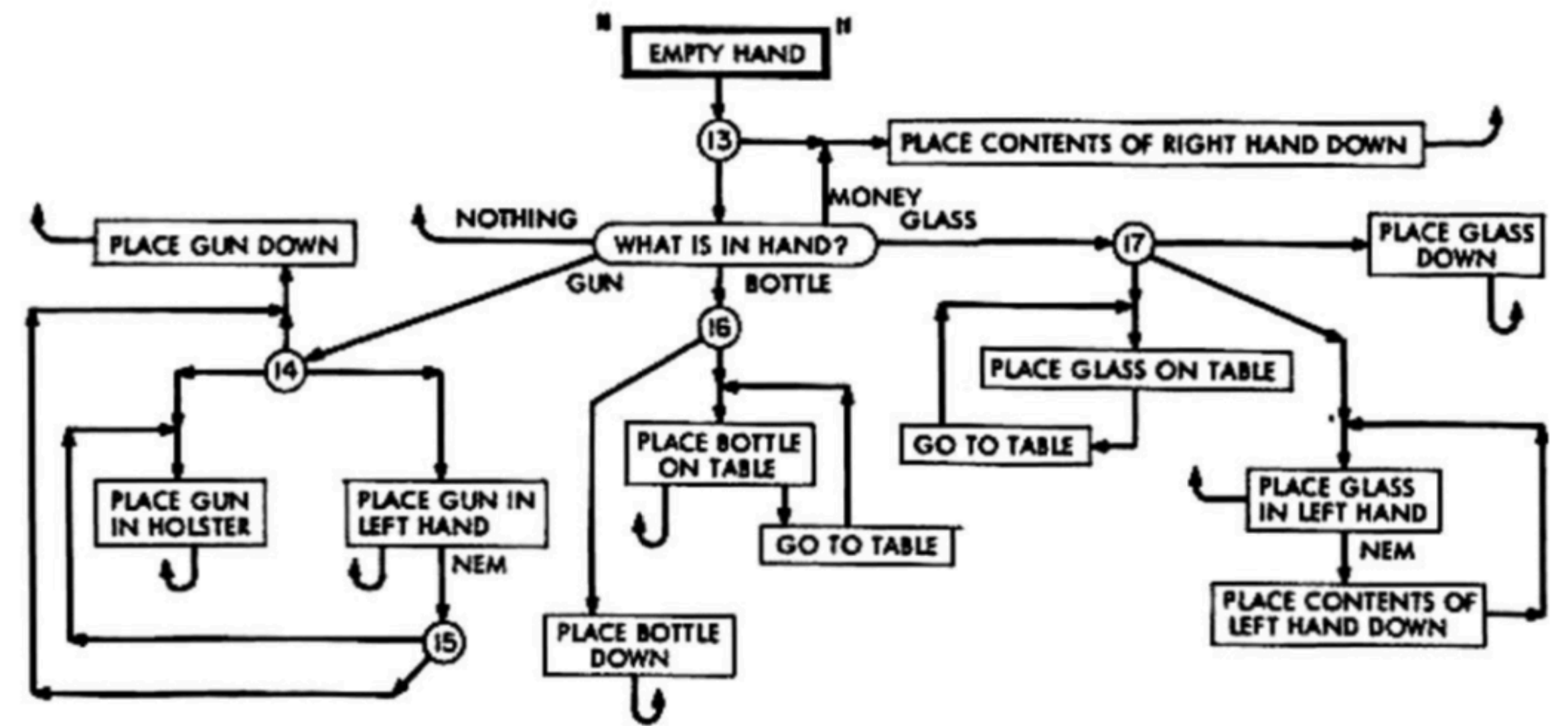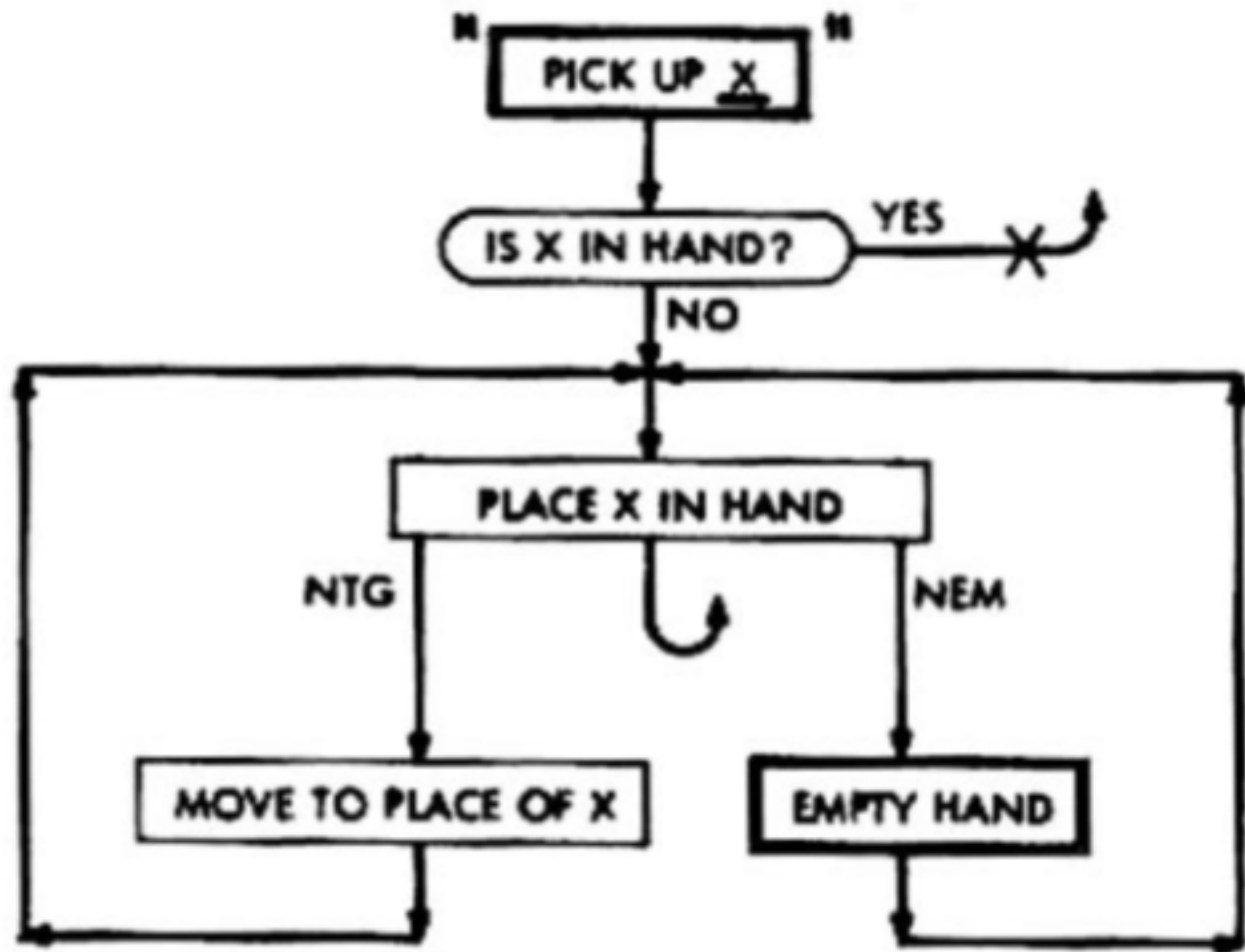You are in a forest clearing.

```
<<if $wearing_spectacles>>
```
Because you are wearing the crystal spectacles, you see a [[cat]] here, its whiskers silvered by the moonlight.
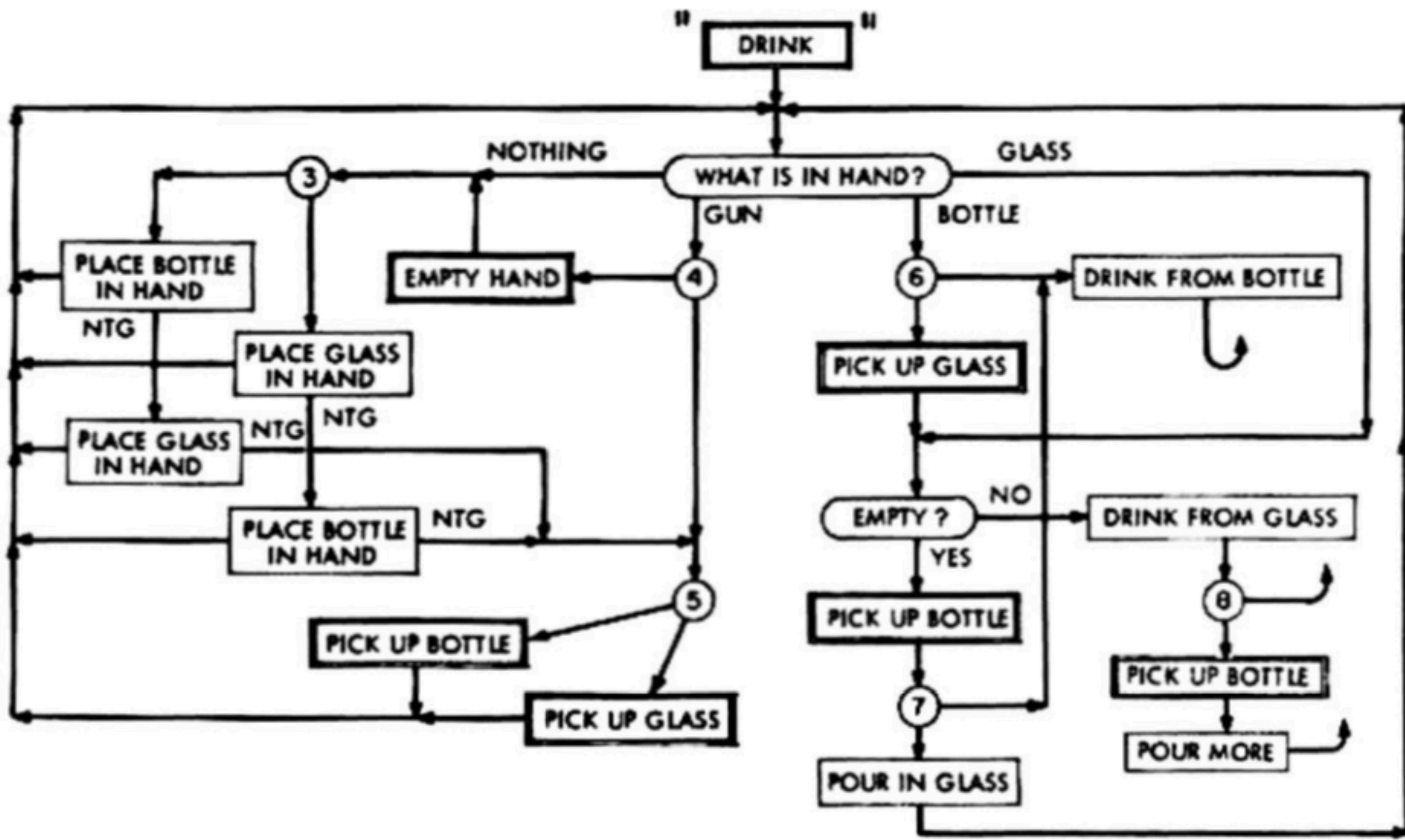```
<<endif>>
```

SAGA II (1960)

Ryan, James. *Curating Simulated Storyworlds*. 2018.

"DRINK"

WHAT IS IN HAND?

NOTHING — ③ — PLACE BOTTLE IN HAND — NTG — PLACE GLASS IN HAND — NTG

GLASS

GUN — ④ — EMPTY HAND

BOTTLE — ⑥ — DRINK FROM BOTTLE

PLACE GLASS IN HAND — NTG — PLACE BOTTLE IN HAND — NTG

PICK UP GLASS

⑤ — PICK UP BOTTLE — PICK UP GLASS

EMPTY ? — NO — DRINK FROM GLASS

YES — PICK UP BOTTLE — ⑦ — POUR IN GLASS
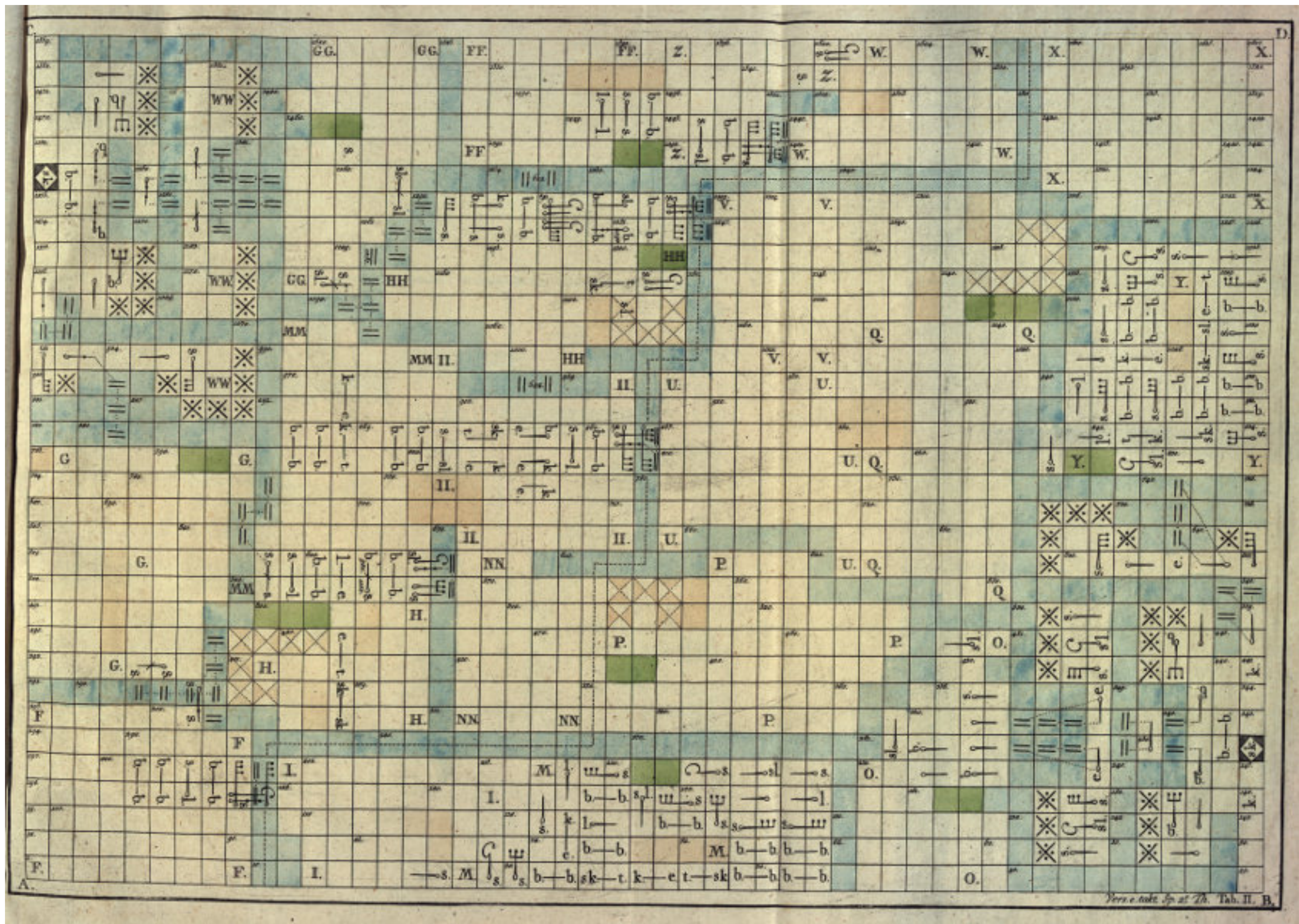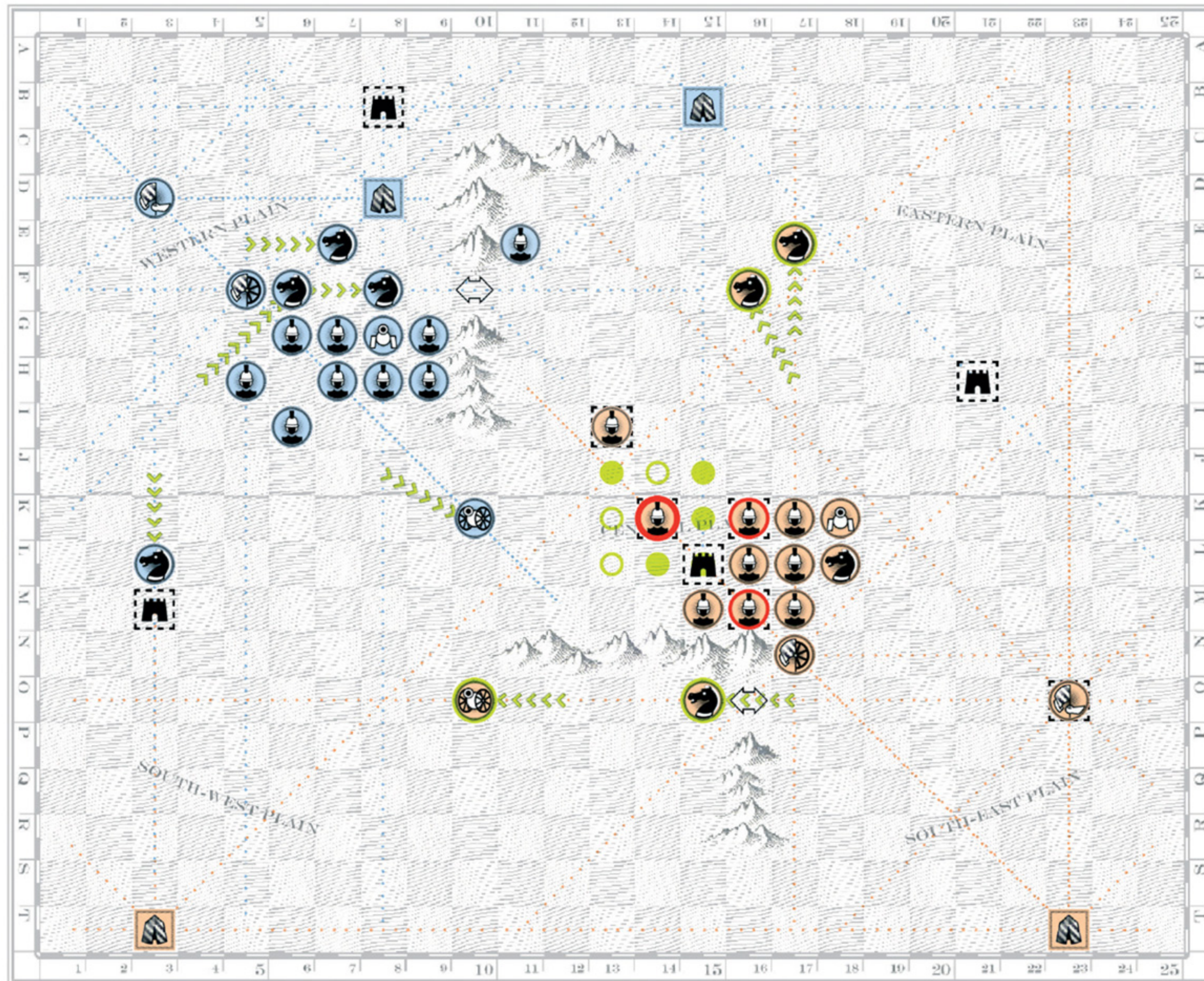
⑧ — PICK UP BOTTLE — POUR MORE

Saga #1. (The gun is in the right hand; the money is in the left hand; the glass is on the table; the bottle is on the table; the holster is on the robber; the sheriffs gun is in the sheriffs right hand; the sheriffs holster is on the sheriff.)

ROBBER: (The robber is at the window.) Go to door; open door; go thru door; close door; go to corner; put money down at corner; go to table; put gun on table; sit and fidget; sit at table; pick up glass with right hand (empty); put glass on table; pick up bottle with right hand; pour; put bottle on table; pick up glass with right hand; take a drink from glass; put glass on table; pick up bottle with right hand; sit...
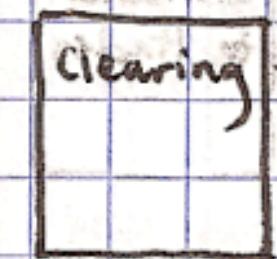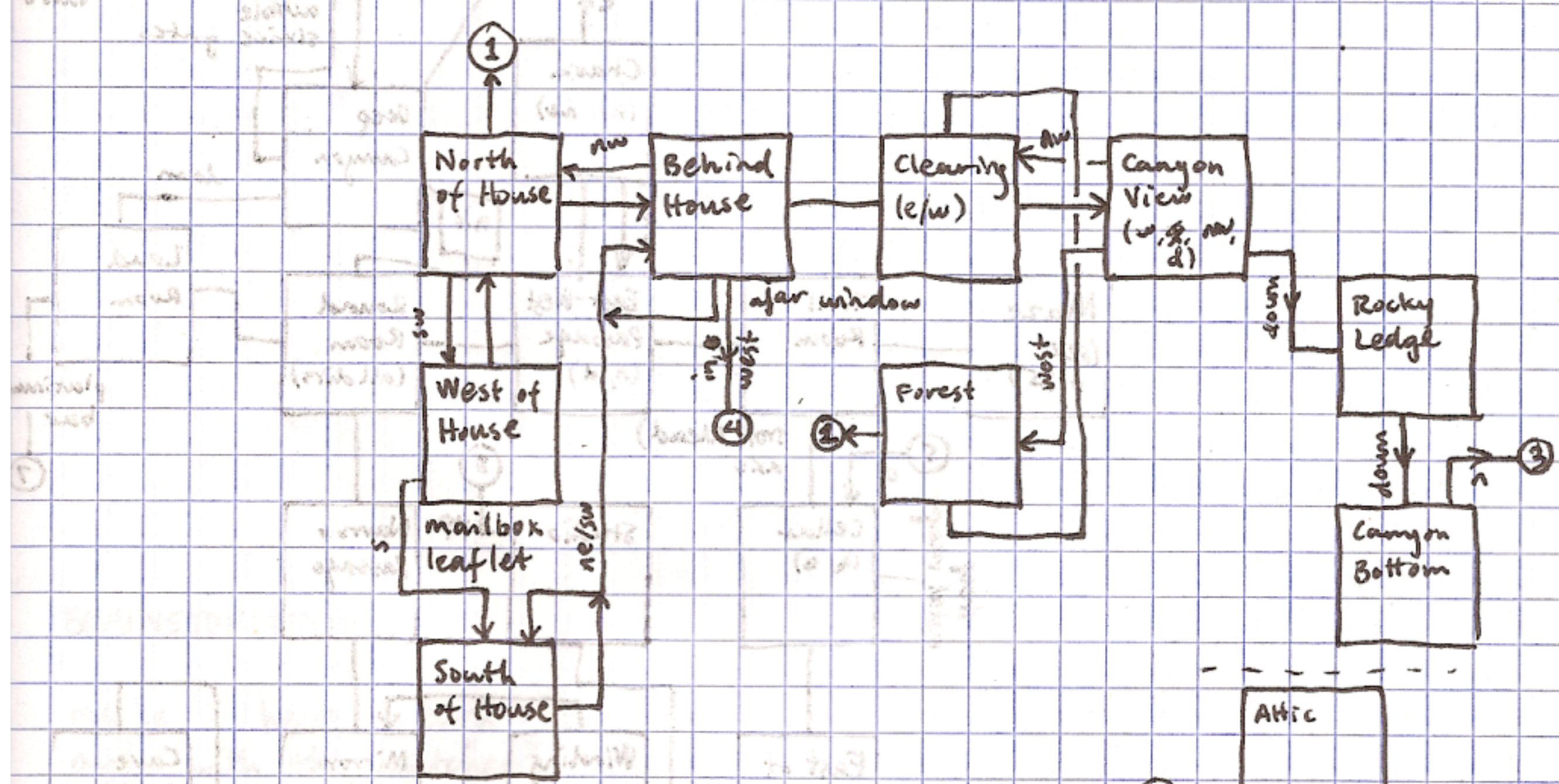
# space in war games, d&d, interactive fiction, muds

https://en.wikipedia.org/wiki/Wargame#/media/File:Hellwig_1780_wargame_board.jpg
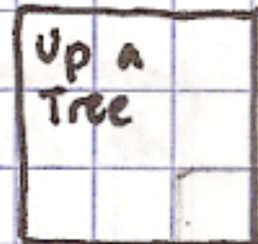
Map diagram (hand-drawn on graph paper). Labeled rooms and connections:

- ① (top)
- **North of House** — nw → **Behind House** — **Clearing (e/w)** — nw → **Canyon View (sw, e, nw, d)**
- **West of House**
- **Forest**
- ④   ② (Forest, west)
- *ajar window*
- *mailbox leaflet* / ne/sw
- **South of House**
- **Rocky Ledge** — down — ③
- **Canyon Bottom** / down
- **Attic** — *rope, knife* — w/d
- **Living Room** — **Kitchen** — east / out — ④
- *case sword lantern rug* / down → ⑤
- *sack water* — ⑧
- **Clearing** — *pile of leaves,* / *grating*
- **Up a Tree** — *nest egg*
- **Forest Path** — *up* — ②
- *tree* — ①
- **End of Rainbow** — ③

19
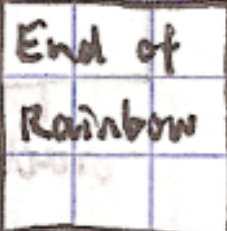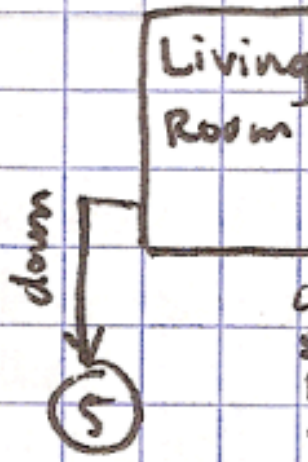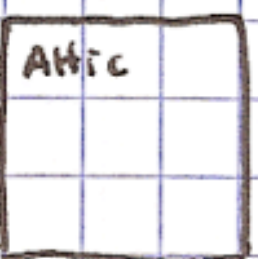
items and inventories

| | | | | | |
|---|---|---|---|---|---|
| **Flask or Tankard** Adventuring Gear | 2 cp | 1 lb | | Container | + |
| **Flute** Tool | 2 gp | 1 lb | | Instrument | + |
| **Forgery Kit** Tool | 15 gp | 5 lbs | | Deception, Utility | + |
| **Galley** Vehicle (Water) | 30000 gp | -- | | Speed 4 mph | + |
| **Garnet** Gemstone | 100 gp | -- | | | + |
| **Glaive** Martial Melee Weapon | 20 gp | 6 lbs | Slashing | Combat, Control, Damage | – |

Proficiency with a glaive allows you to add your proficiency bonus to the attack roll for any attack you make with it.

| Name | Cost | Damage | Weight | Properties |
|---|---|---|---|---|
| Glaive | 20 gp | 1d10 slashing | 6 lbs | Heavy, Reach, Two-Handed |

Reconnaissance de dette

Objets
Dialogues
Documents
Rapports
Carte

Retour
Déductions
Conclusions
Echelle de temps
3ème personne

https://commons.wikimedia.org/wiki/File:SH5_-_Inventaire.png

# Fallout 3



E) Take
Coffee Pot

WG 1.0 VAL 1

ITEMS   Wg 112/260  HP 470/470  DR 85  Caps 792

Jet (39)                                          Use A
Med-X (22)                                        Drop X
Rad-X (40)                                        Repair Y
□ RadAway (51)                                    Hot Key RB
Stealth Boy (5)
Stimpak (107)

WG -- VAL 20

EFFECTS                                    Rads -111

Weapons — Apparel — Aid — Misc — Ammo

*Gone Home*

# narrative functions of items

- resources for other mechanics (i.e., ammo for guns)

- "key" items (e.g., an object that you give to an NPC, or literally a "key" that opens a door), which unlock content or advance narratives

- set dressing objects (no mechanical purpose but serve narrative through visual design or associated textual descriptions)

# interactive fiction