

PCGG. Final Presentation

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Portfolio / mountains

Conference Paper

PDF Available

Evolution of L-systems for compact virtual landscape generation.

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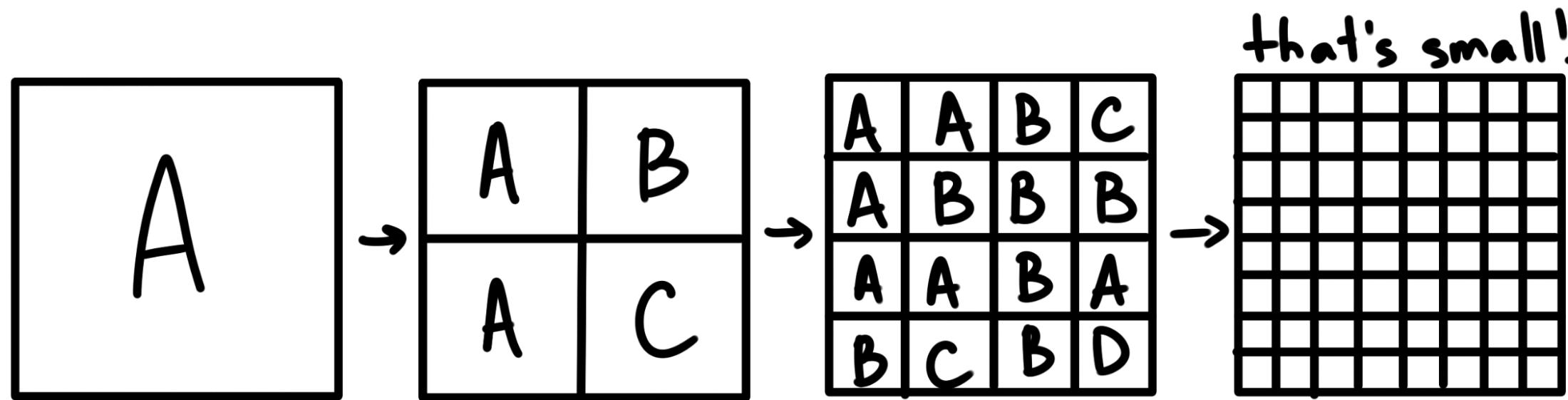
What are LSystems?

An L-system is a type of formal grammar. An L-system consists of:

- an alphabet of symbols
- macros
- an initial string of symbols - axiom - from which to begin construction
- a mechanism for translating generated strings into geometric structures



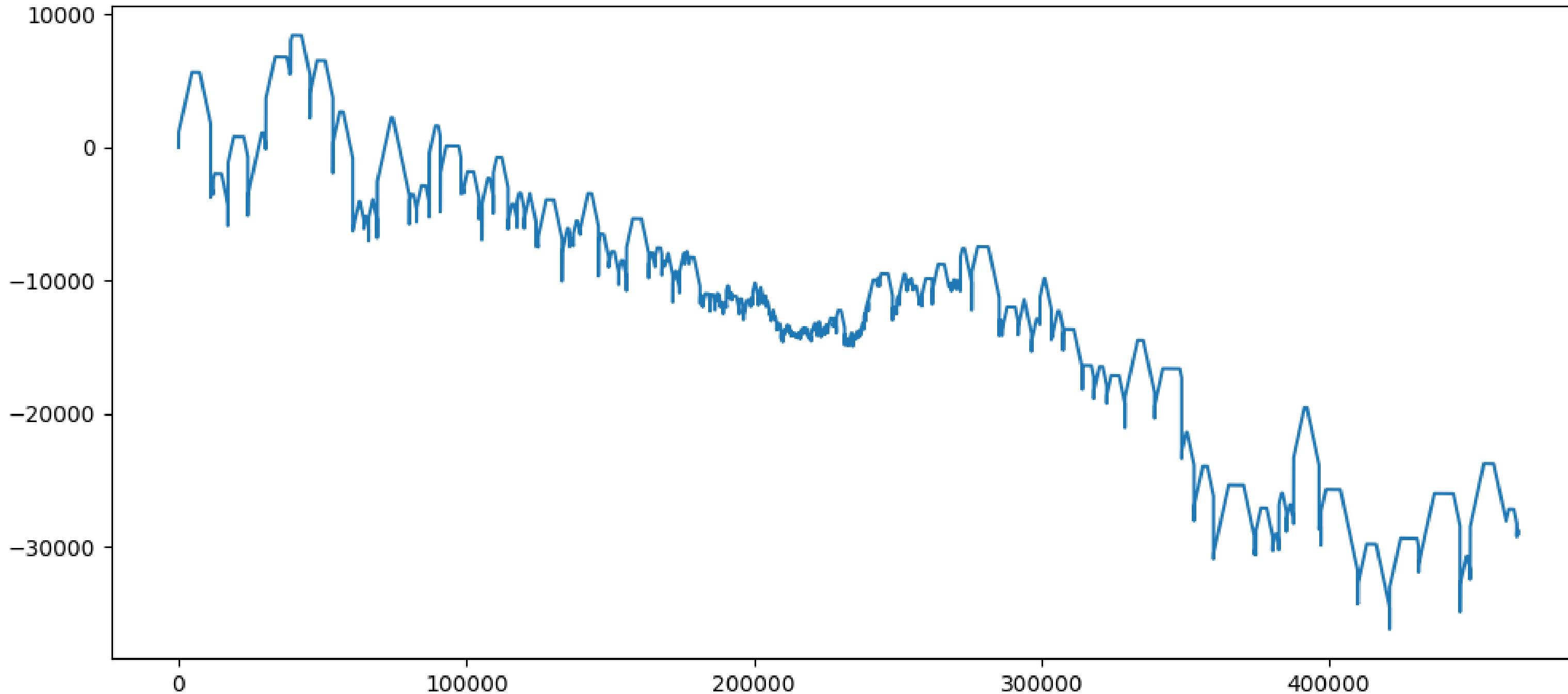
L-System for 3D



TYPE:
HILL

	A	B	C	D	E
+4 = A	.1	.075	.3	.2	.2
+2 = B	.275	.2	.1	.1	.4
0 = C	.35	.45	.3	.3	.35
-2 = D	.275	.2	.1	.1	.05
-4 = E	.1	.075	.2	.1	.0

My midterm results



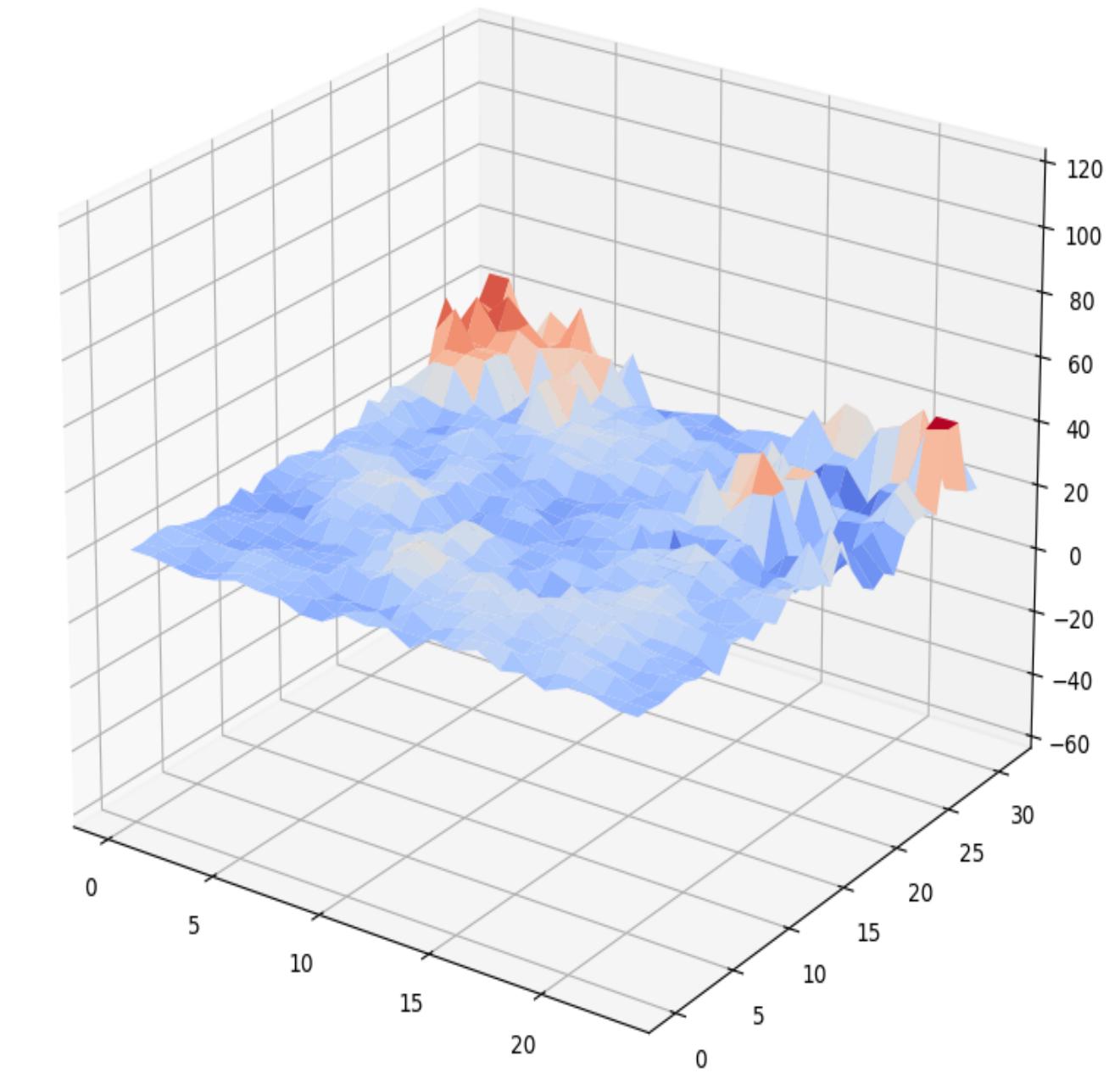
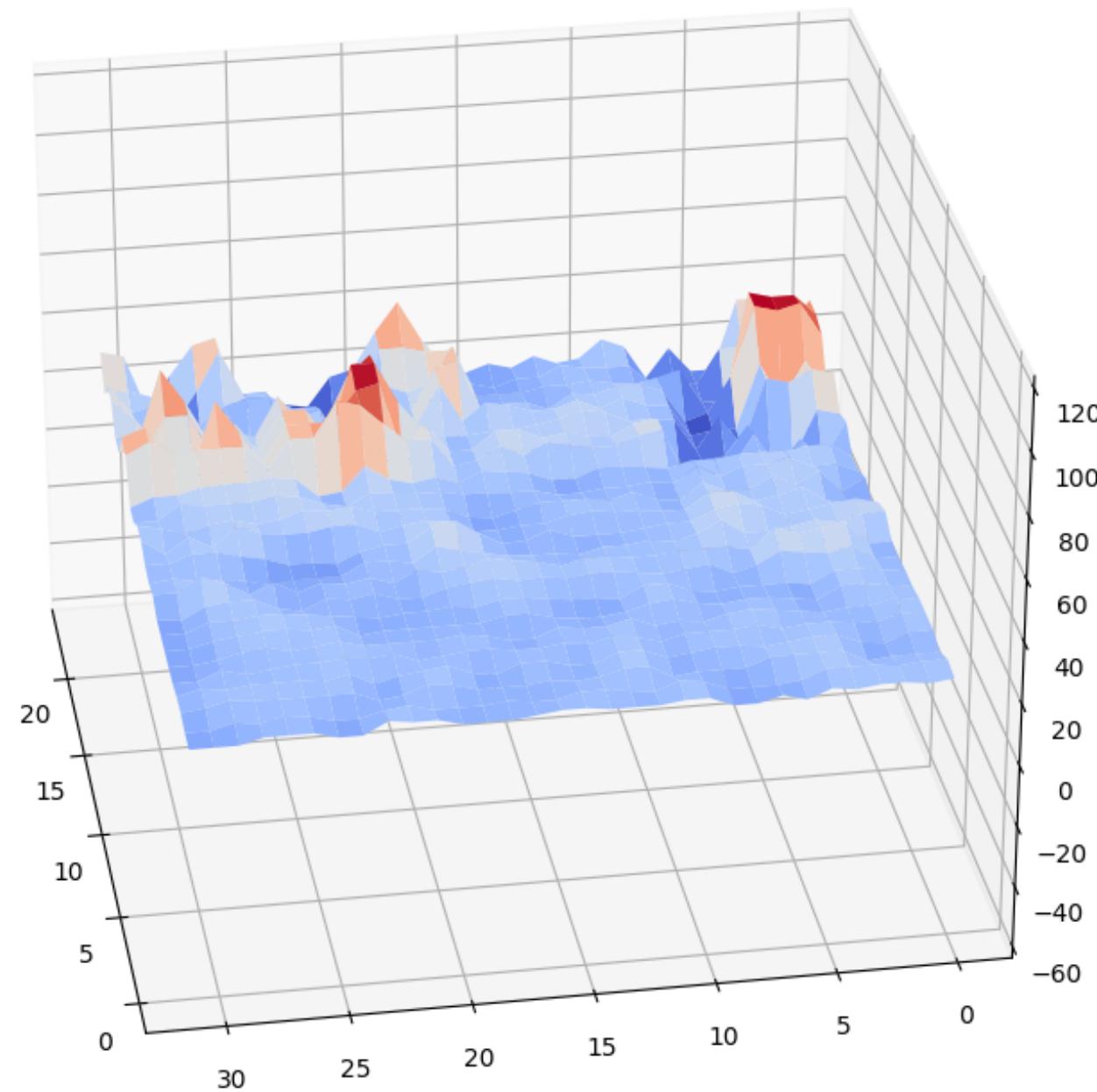
And now!

Type: Calm 16x16

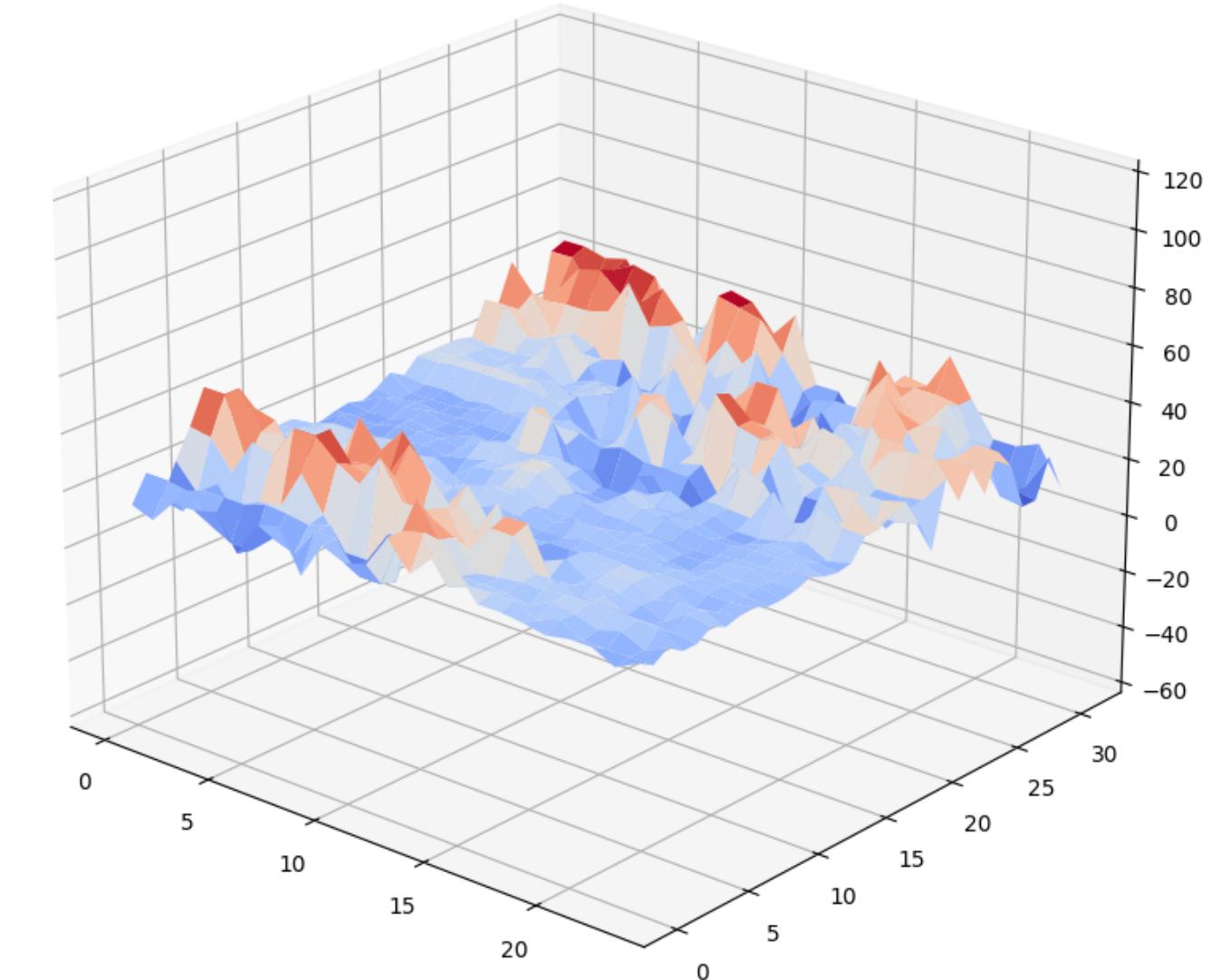
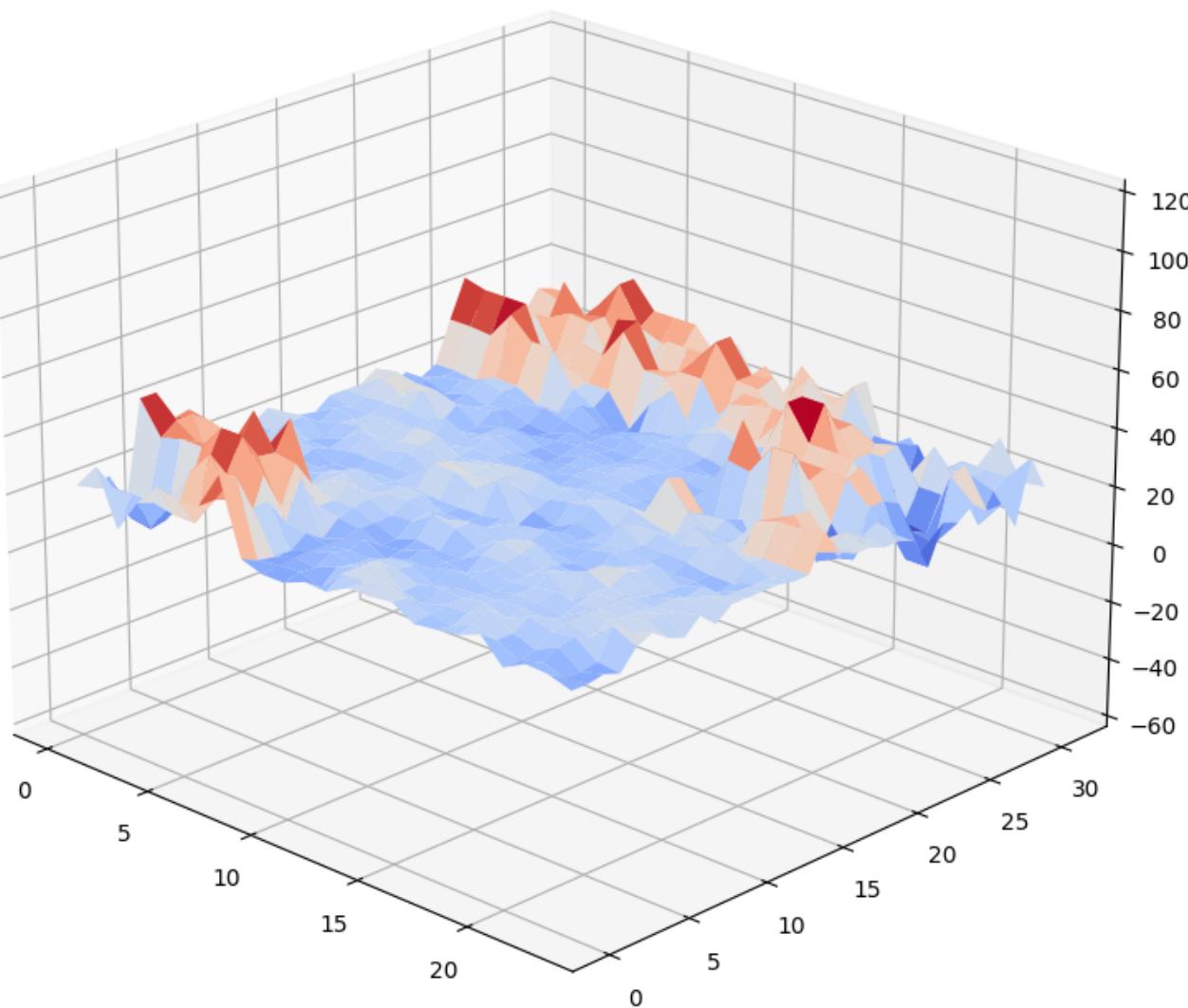
Type: Hill 16x16

Type: Steep 16x16

Several connected tiles (4x4 field, 8x8 tiles)



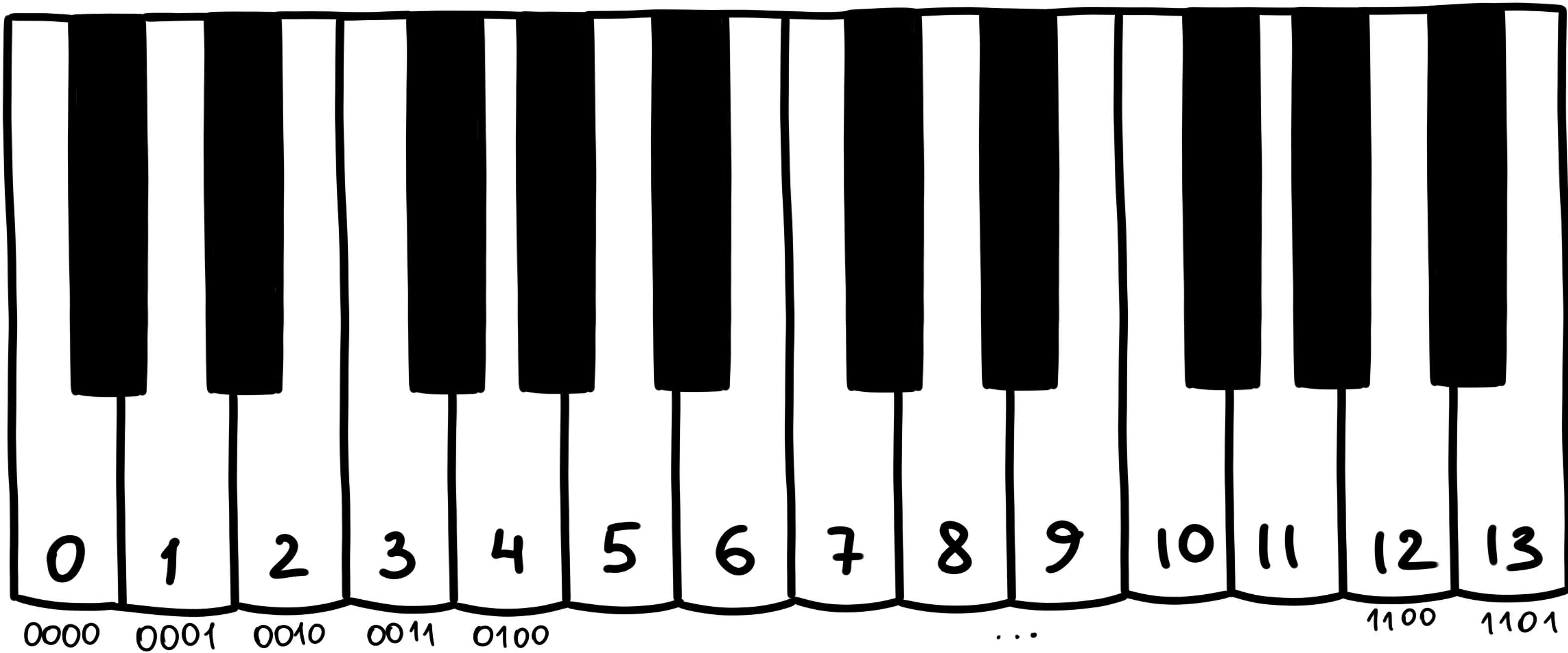
Several connected tiles (4x4 field, 8x8 tiles)



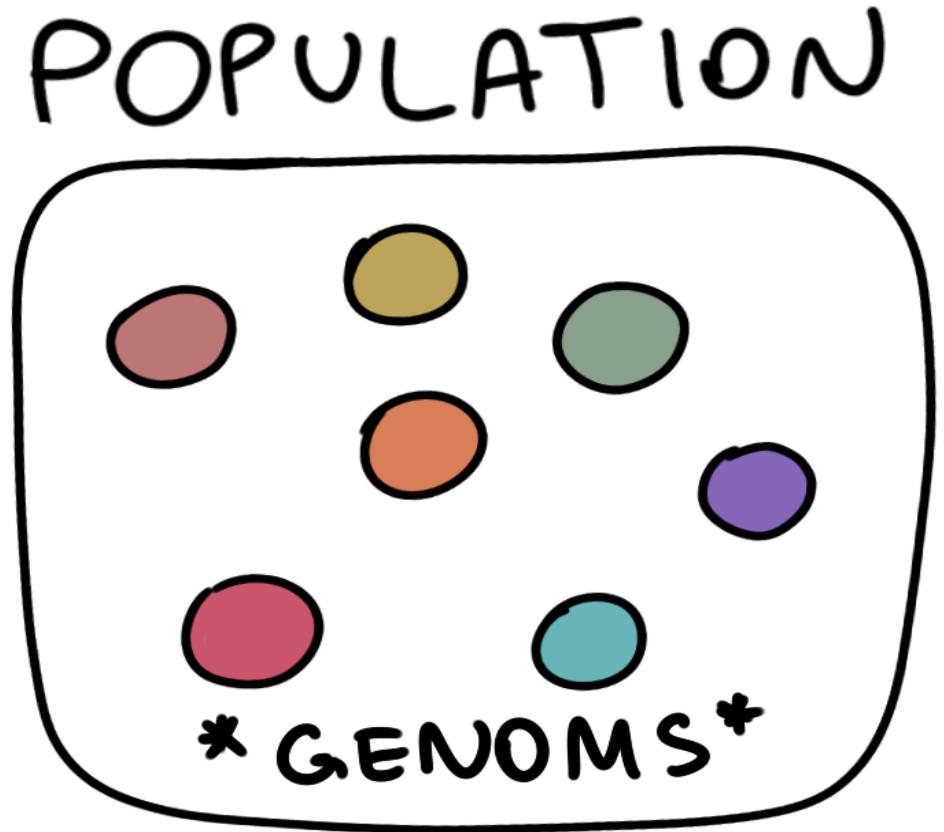
Metrics

- tiles are connected with each other
- *calm* is flatter than *hill*
- *hill* is flatter than *steep*
- the fact that there are square tiles is not so obvious

Porfolio / Music



1 note = 4 bits

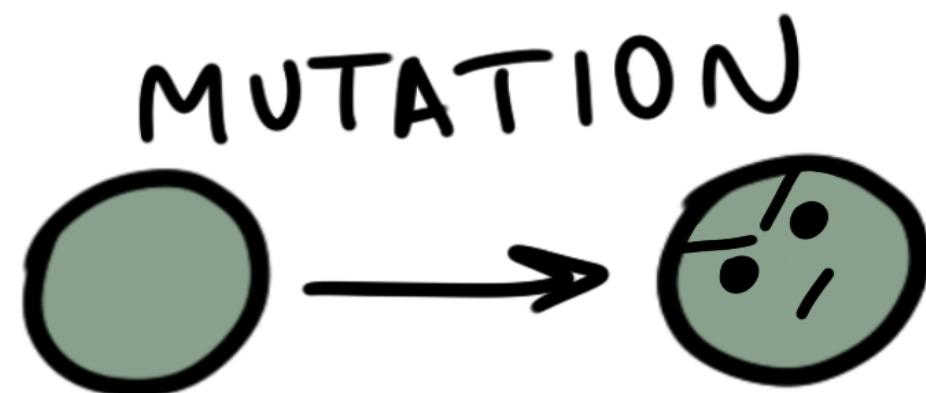


$\bullet = [\text{bar}_1, \text{bar}_2, \text{bar}_3]$

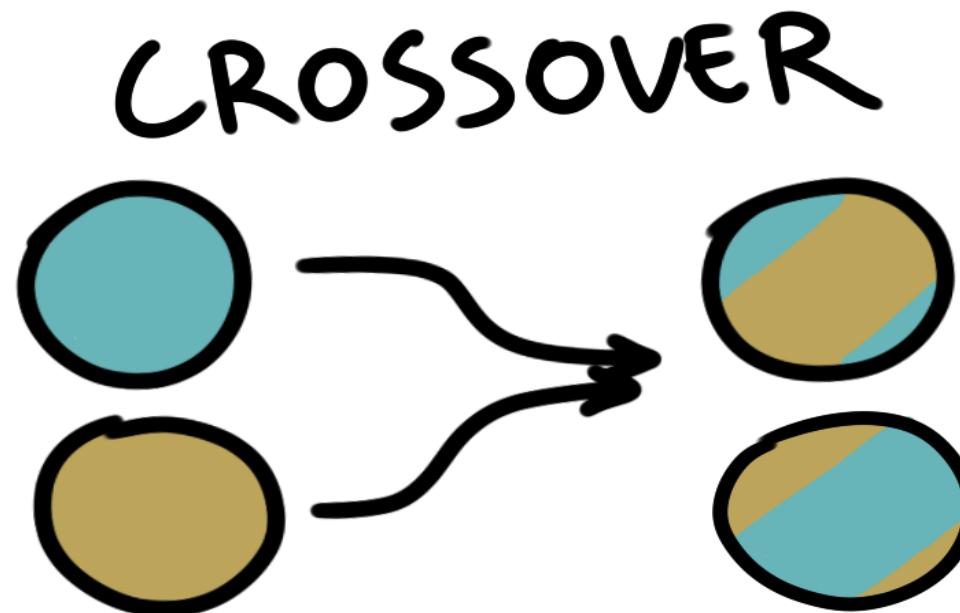
$\downarrow \quad \downarrow \quad \downarrow$
 $[\text{J J J J}] \quad \dots \quad \dots$

\downarrow

$[1, 4, 5, 15]$



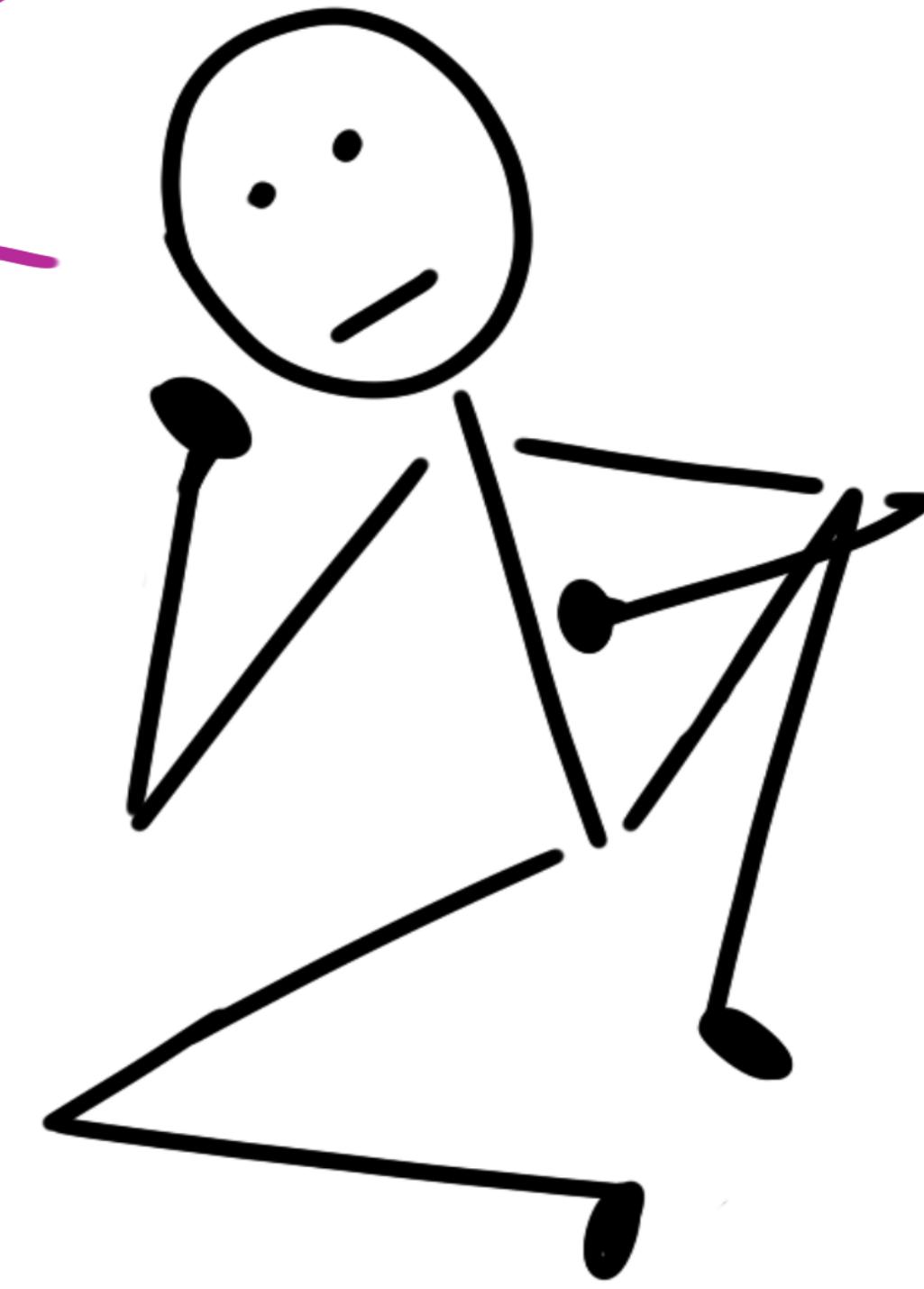
$[1, \underline{4}, 5, 15] \rightarrow [1, \underline{\underline{15}}, 5, 15]$



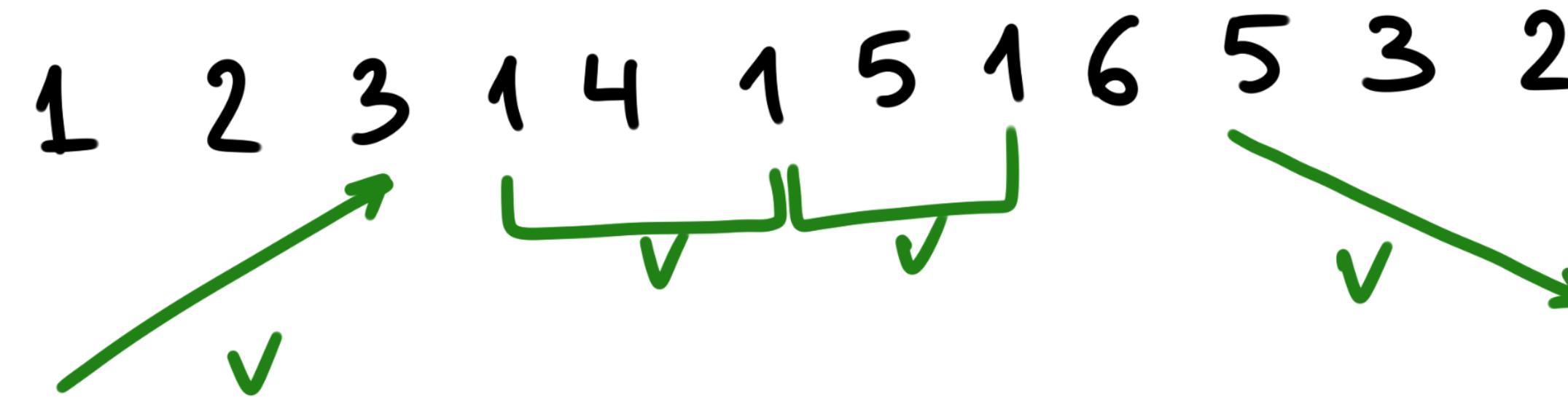
$[1, \underline{4}, \underline{5}, \underline{15}] \xrightarrow{\text{Crossover}} [1, \underline{\underline{4}}, \underline{\underline{5}}, \underline{\underline{15}}]$

$[1, \underline{\underline{2}}, \underline{\underline{0}}, \underline{\underline{13}}] \xrightarrow{\text{Crossover}} [1, \underline{\underline{2}}, \underline{\underline{0}}, \underline{\underline{15}}]$

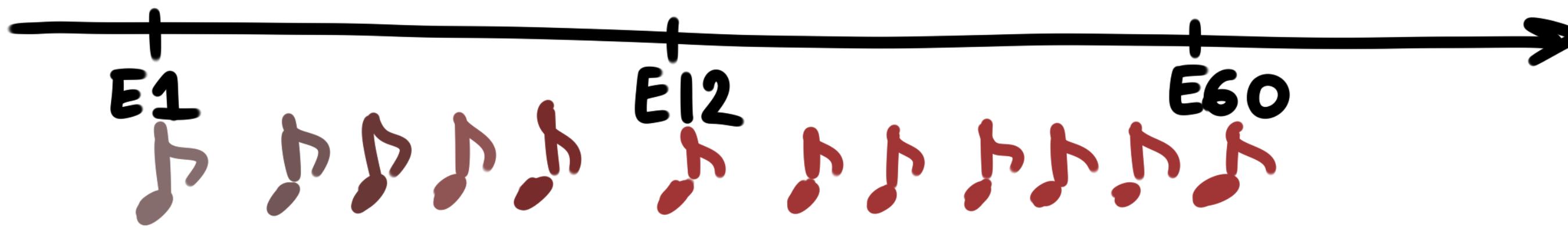
**FITNESS
FUNCTION**



FITNESS:



REALITY

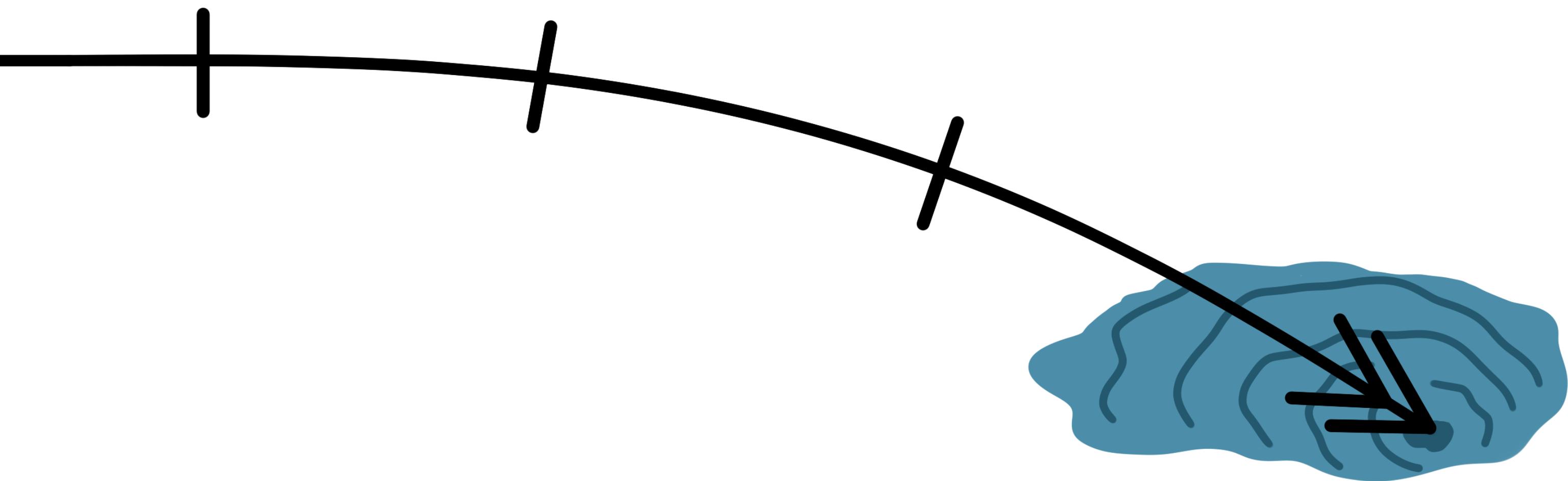


The problem: it doesn't evolve

```
88000 [66, 66, 66, 66, 66, 66, 66, 66, 63, 35, 34, 27, 3, -4, -11, -16, -17]
89000 [66, 66, 66, 66, 66, 66, 66, 66, 35, 33, 32, 28, -4, -16, -17, -18, -24]
90000 [66, 66, 66, 66, 66, 66, 66, 66, 46, 27, 26, 2, -5, -11, -16, -17]
91000 [66, 66, 66, 66, 66, 66, 66, 66, 42, 30, 19, 18, -11, -12, -12, -23, -24]
92000 [66, 66, 66, 66, 66, 66, 66, 66, 40, 38, 21, 3, -3, -4, -16, -17]
93000 [66, 66, 66, 66, 66, 66, 66, 66, 48, 30, 23, 20, 3, -9, -16, -18, -23]
```

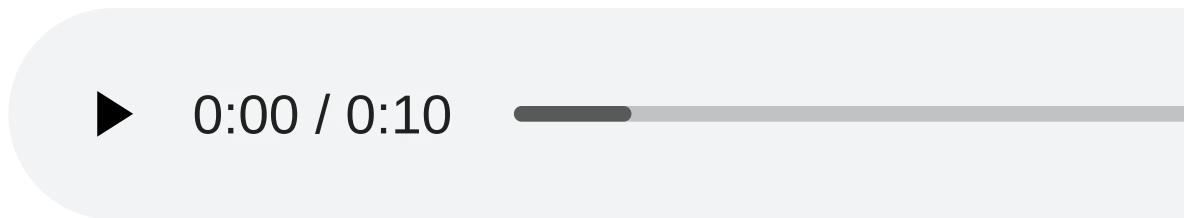
My question from the midterm: What is next?

1. try to actually go through several populations
2. friendly user-interface
3. introduce chords
4. get the final melody a melody

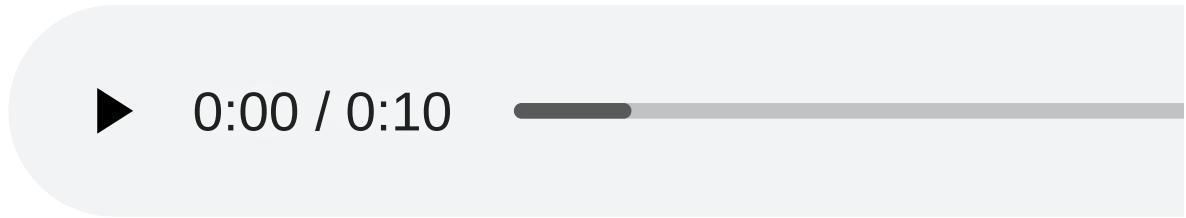


Initial VS Last Epoch

Generation 0



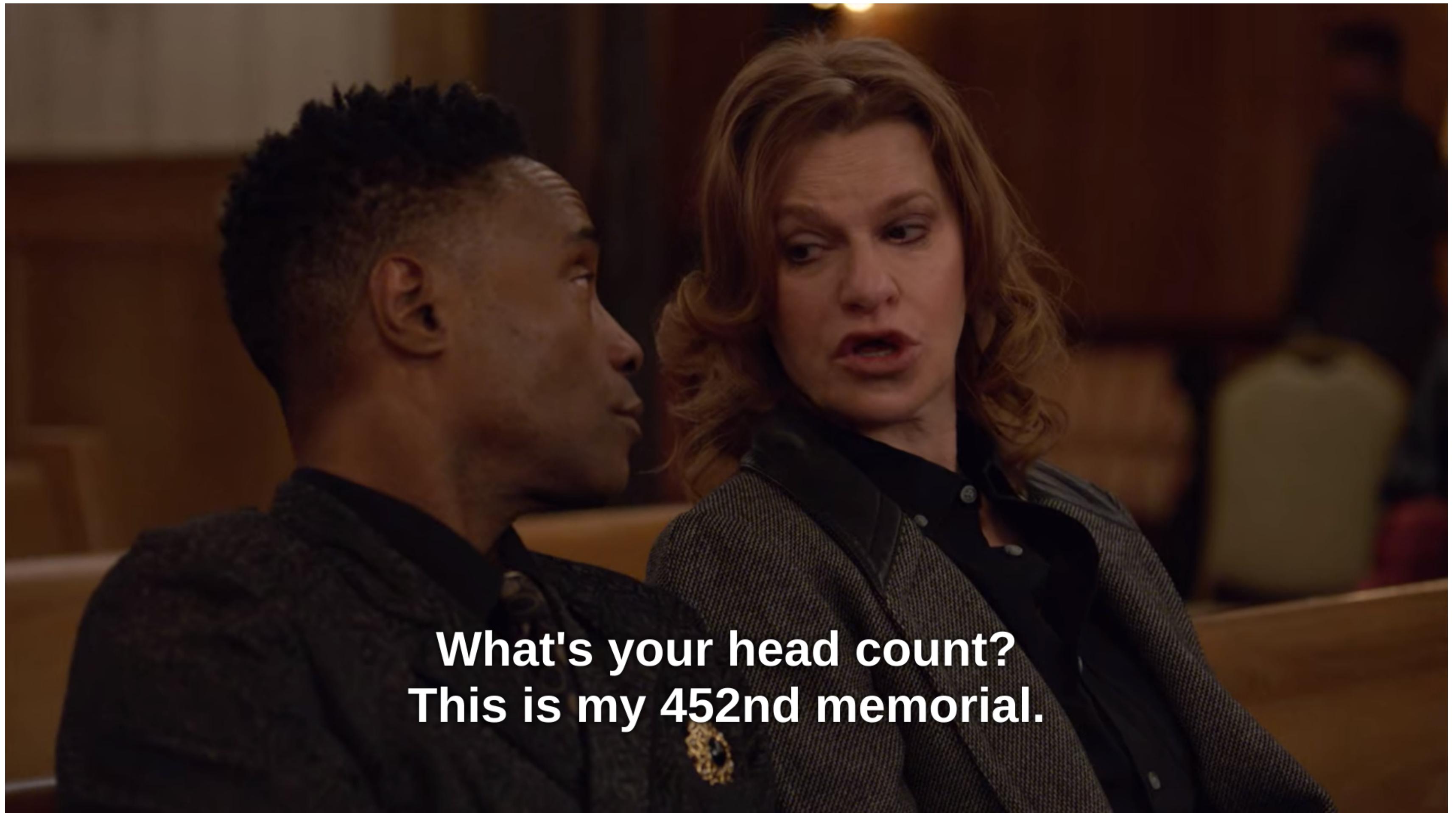
16 notes per bar, 2 bars, 4 bits per note, 15 initial genomes, 100k epochs



Metrics

- repeatedness of a melody
- going up at the beginning, going down at the end

THE PROJECT



What's your head count?
This is my 452nd memorial.



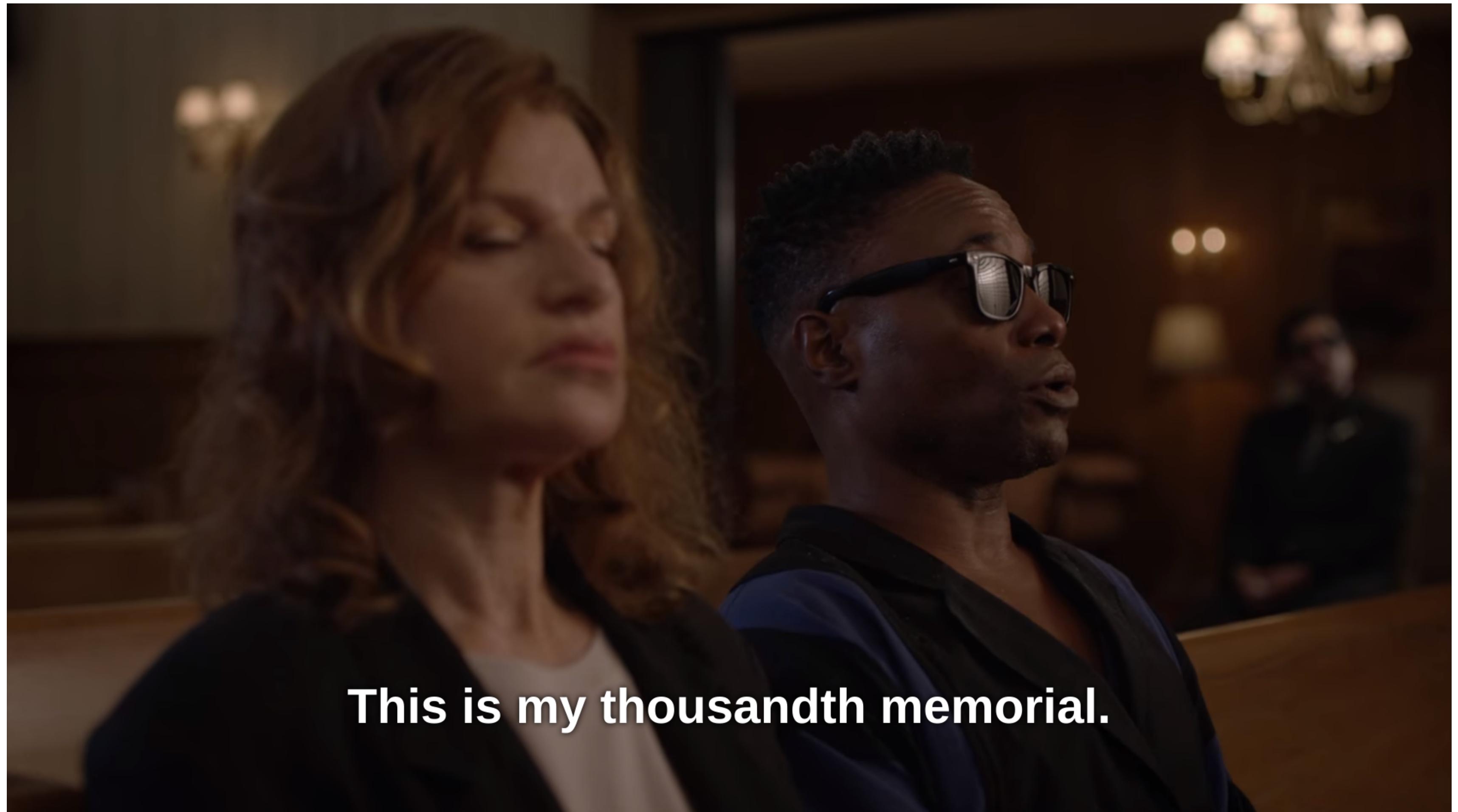
Two hundred and ten.



**First one to get to a thousand
gets a free toaster.**



A FEW
MOMENTS LATER



This is my thousandth memorial.



I was picking up my toaster.



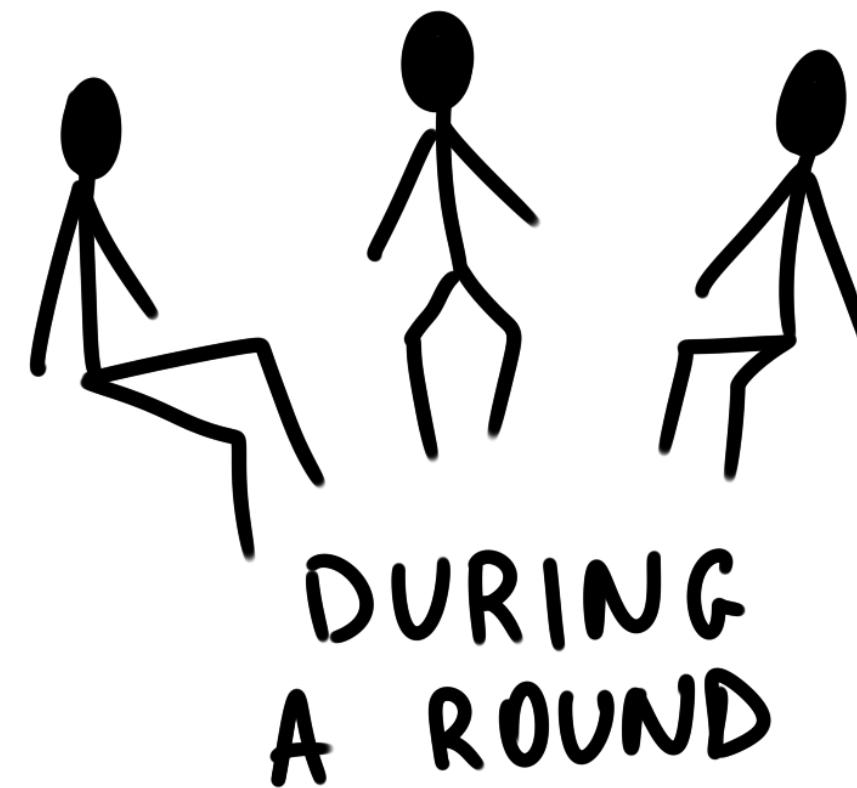
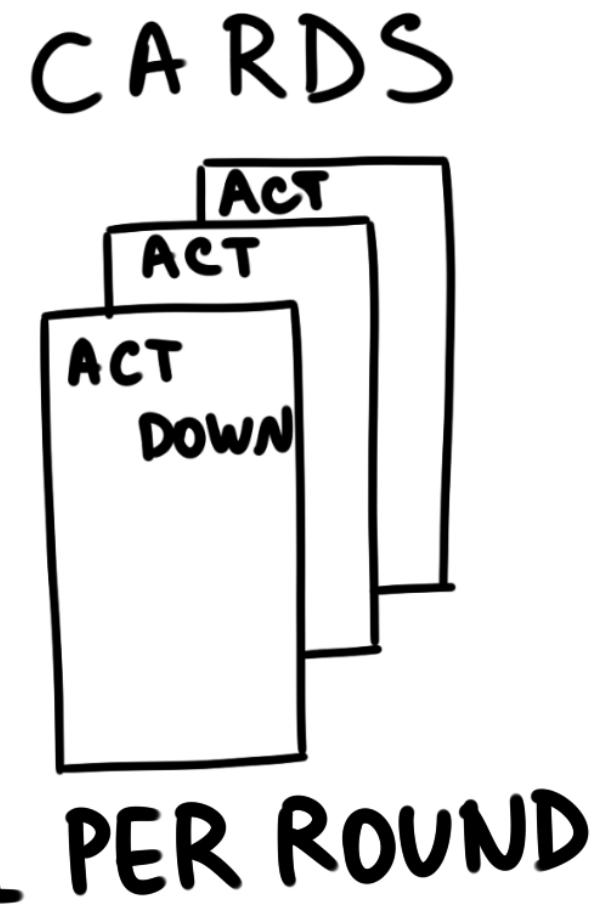






So, the game...

	STATUS	# OF PPL
RICH PPL	 A horizontal bar divided into two equal black segments by a white center. A red bracket below it spans the width of the bar.	 A horizontal bar divided into two equal black segments by a white center. The right segment is labeled "max#" above it.
ACT UP	 A horizontal bar divided into two equal black segments by a white center. A red bracket below it spans the width of the bar.	 A horizontal bar divided into two equal black segments by a white center. The right segment is labeled "max#" above it.
T-COMMUNITY	 A horizontal bar divided into two equal black segments by a white center. A red bracket below it spans the width of the bar.	 A horizontal bar divided into two equal black segments by a white center. The right segment is labeled "max#" above it.
GOVERNMENT	 A horizontal bar divided into two equal black segments by a white center. A red bracket below it spans the width of the bar.	 A horizontal bar divided into two equal black segments by a white center. The right segment is labeled "max#" above it.
MEDIA	 A horizontal bar divided into two equal black segments by a white center. A red bracket below it spans the width of the bar.	 A horizontal bar divided into two equal black segments by a white center. The right segment is labeled "max#" above it.



Dice

- rolled once every 2-4 rounds (an adjustable rule)
- can be rolled more often for gay people and less often for non-gay people

Discussion

- each group is given a limited time for a discussion
- one group can speak only once during a round (an adjustable rule)
- if an action card is targeted at a particular group, other groups can still react

Game Master or Mistress

They can

- change the dice rule but not remove it completely
- choose a set of cards to play
- configure the initial status bars
- limit discussion time

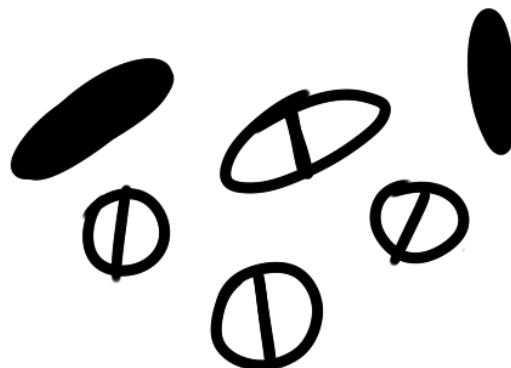
They must

- resolve arguments
- update the status bars and number of people per group bars

Cards

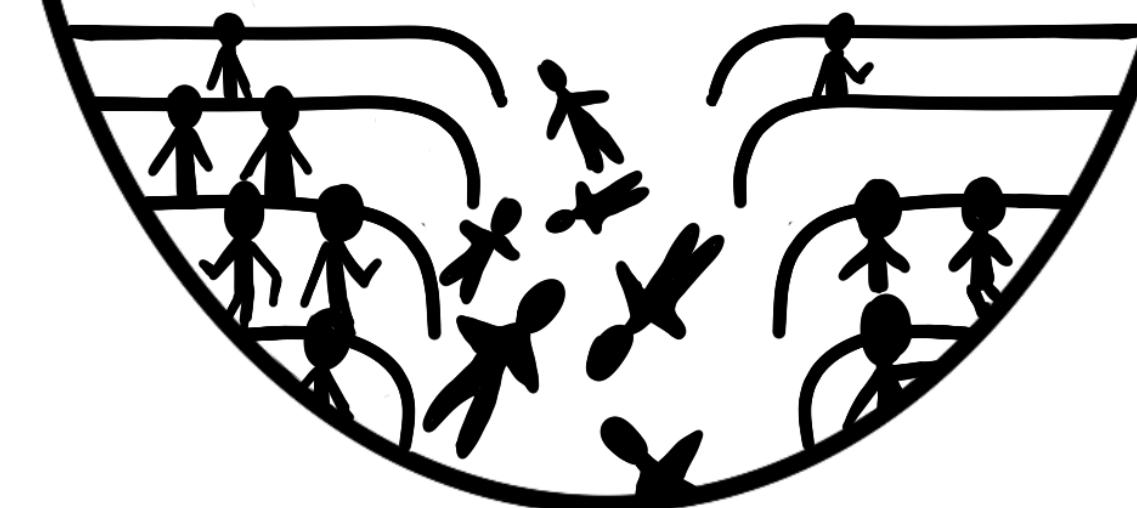
A2T
RELEASE
10.000 \$

1987



STOP
THE
CHURCH

1989



"Vogue"
by Madonna
1990 ♥



Other possible cards

1. New gay bar opened! Nevertheless, they do not let HIV-positive and transgender people in.

- ACT UP can choose to protest or let it be
- T-Community can stand up for themselves or choose not to
- Journalists can choose to write about it or not

2. Cosmopolitan magazine published an interview with a doctor and claims that women cannot get HIV.

- Women from ACT UP and outside of ACT UP can choose to protest or let it be

3. ACT UP is running out of money, they need to organize a fund raising

- ACT UP can organize a fund raising event
- Rich people can choose to support them or not

Other possible cards

4. Police came to the ball and arrested some people
 - T-Community can try and raise money to bail them out
5. Government decided to bury first HIV-positive on Hard Island under seven feet of dirt instead of usual three.

Hm, who wins?

Whoever doesn't die or has the highest score by the end of the game

Metrics

- it's history-based
- simulation of dying
- at least one of you got interested