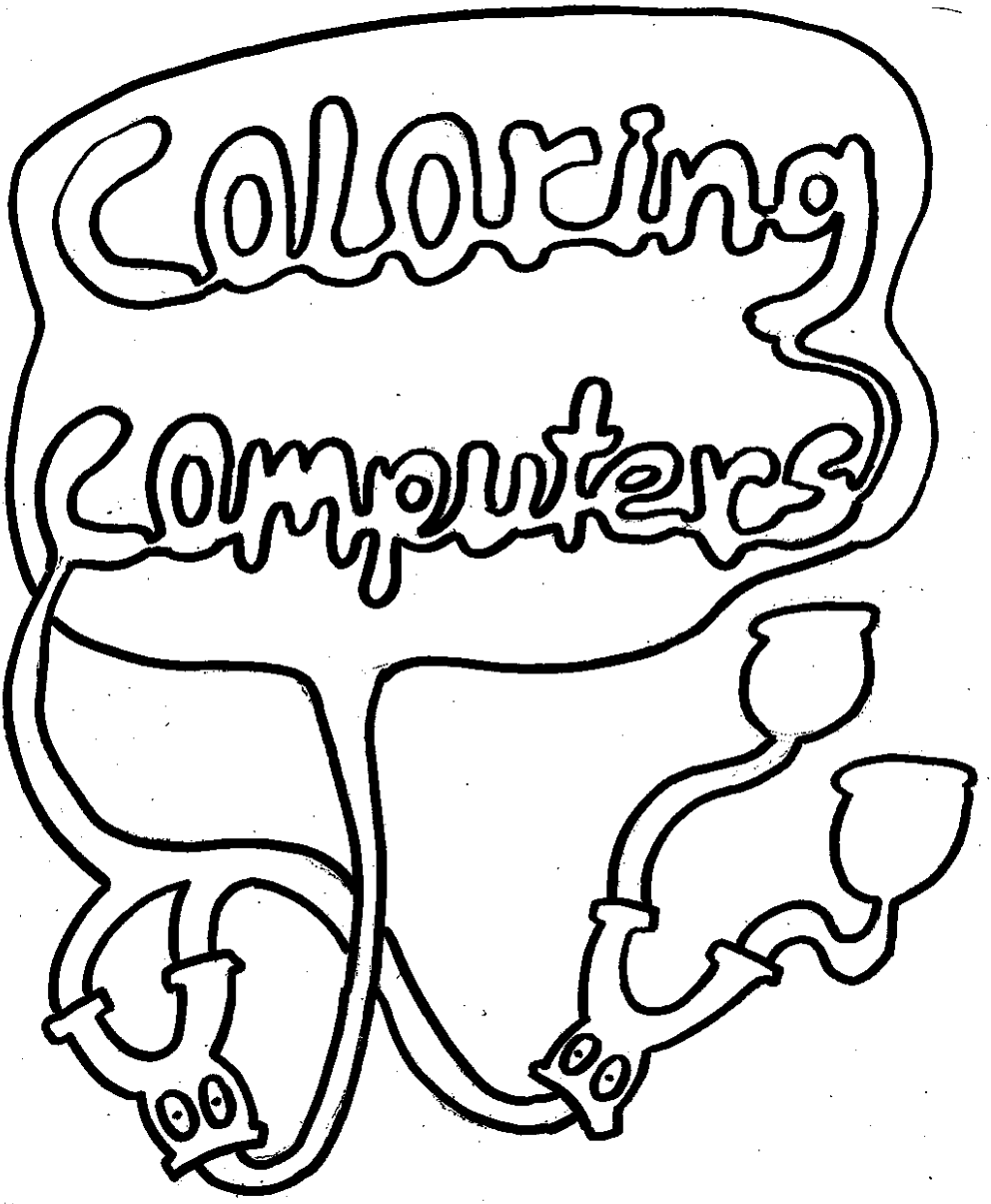

Colouring
Computers

~ introduction ~

this booklet contains several non-electronic, single-purpose, handmade, artisanal, coloring, digital computers.

they compute when you collaborate with them by following the rules of play.

the booklet contains three series of computers computers that compare, computers that count, and computers that play.

before each series there's a description of what they do and what you can do with them.

the idea is to expose the inner workings of these digital computers and to help reveal how they can perform complex operations with a combination of simple components.

i hope you enjoy this digital time!

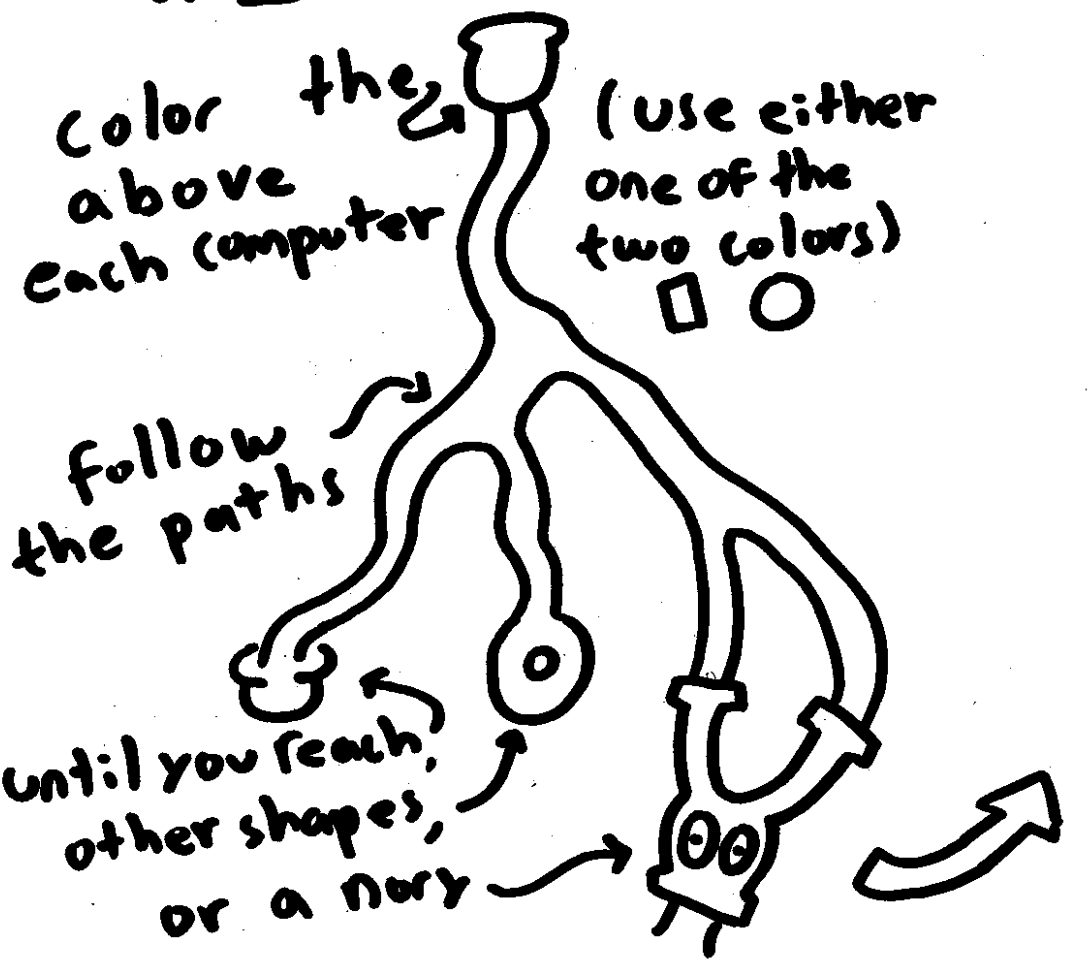
-pepepépepe

table of contents

rules of play

choose two colors!

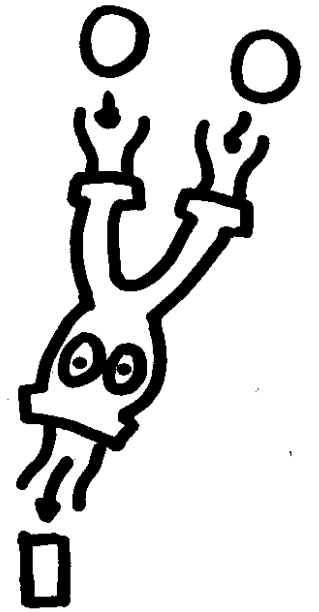
a □ color and a ○ color



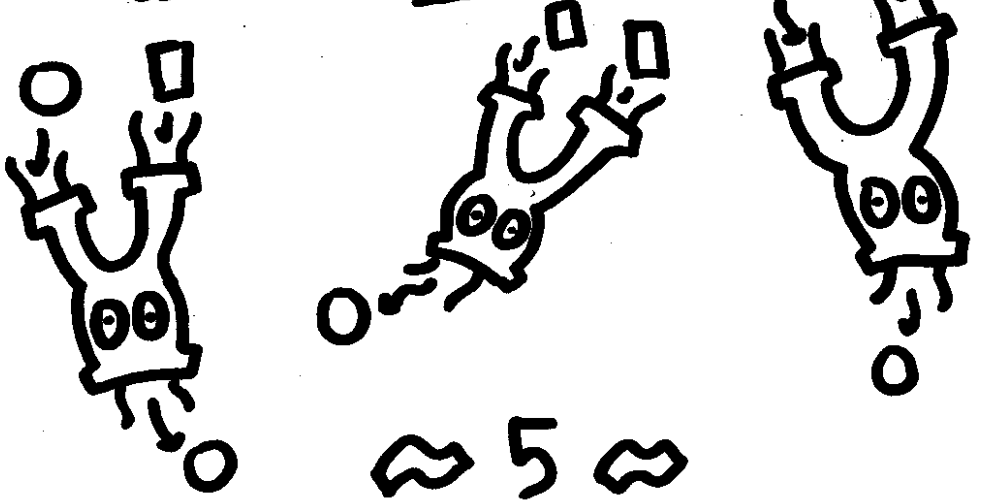
Follow the nory rule!

the color coming out will be □

only when both colors coming in are ○



in any other case the color coming out will be ○



Computers that compare

in the next few pages there are two types of computer:

Computer  is designed to answer if the colors in its  are **the same or not**

it answers with one color in 

computer  decodes the answer from computer translating it from a color  to a highlighted

YES or NO

what you can do

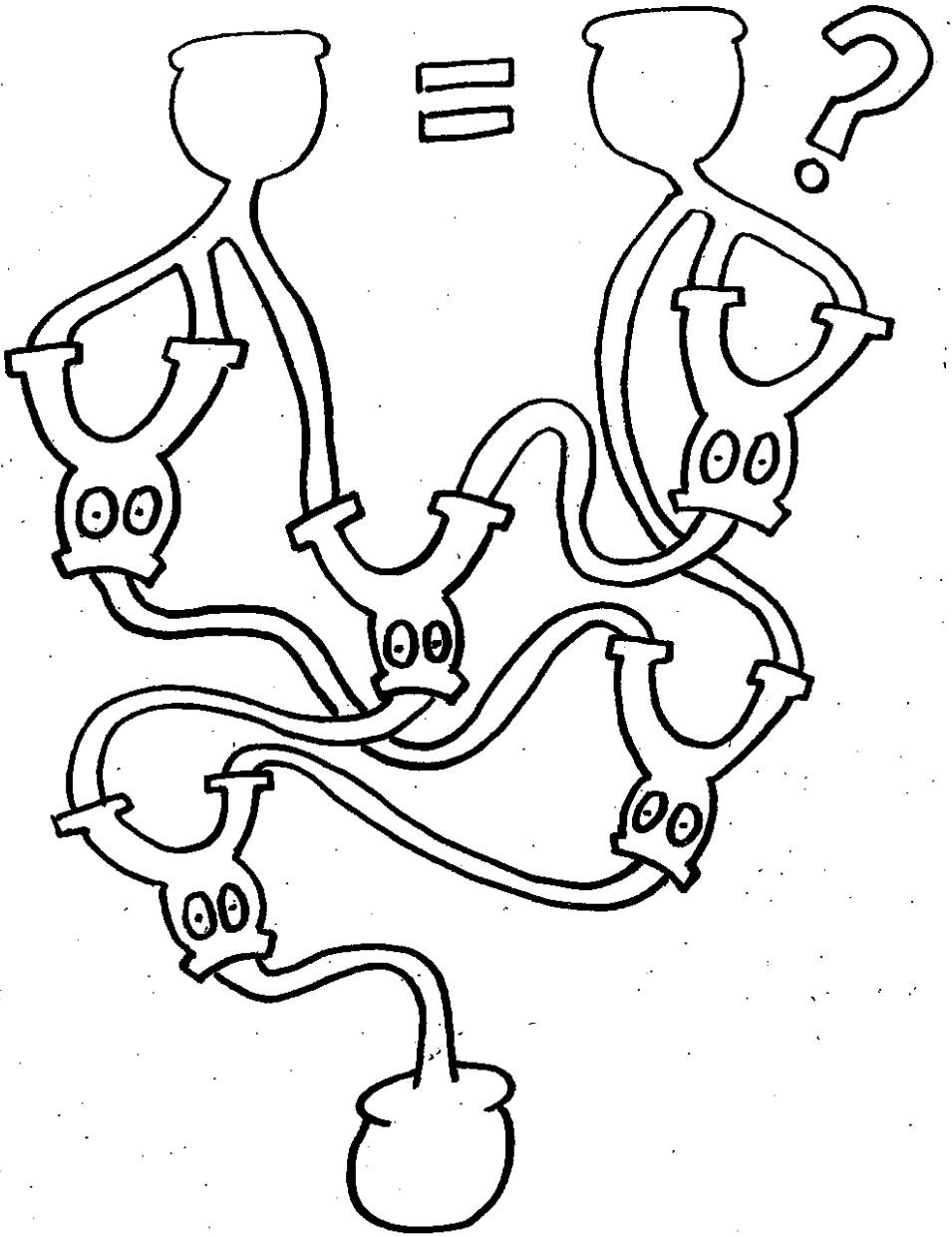
test if the computers do what I say they do!
(answer if the colors in are the same)

for each pair of &  computers

- try a different combination of colors in the  of computer 
- copy the result to computer 

and see if the answer makes sense!

Computer



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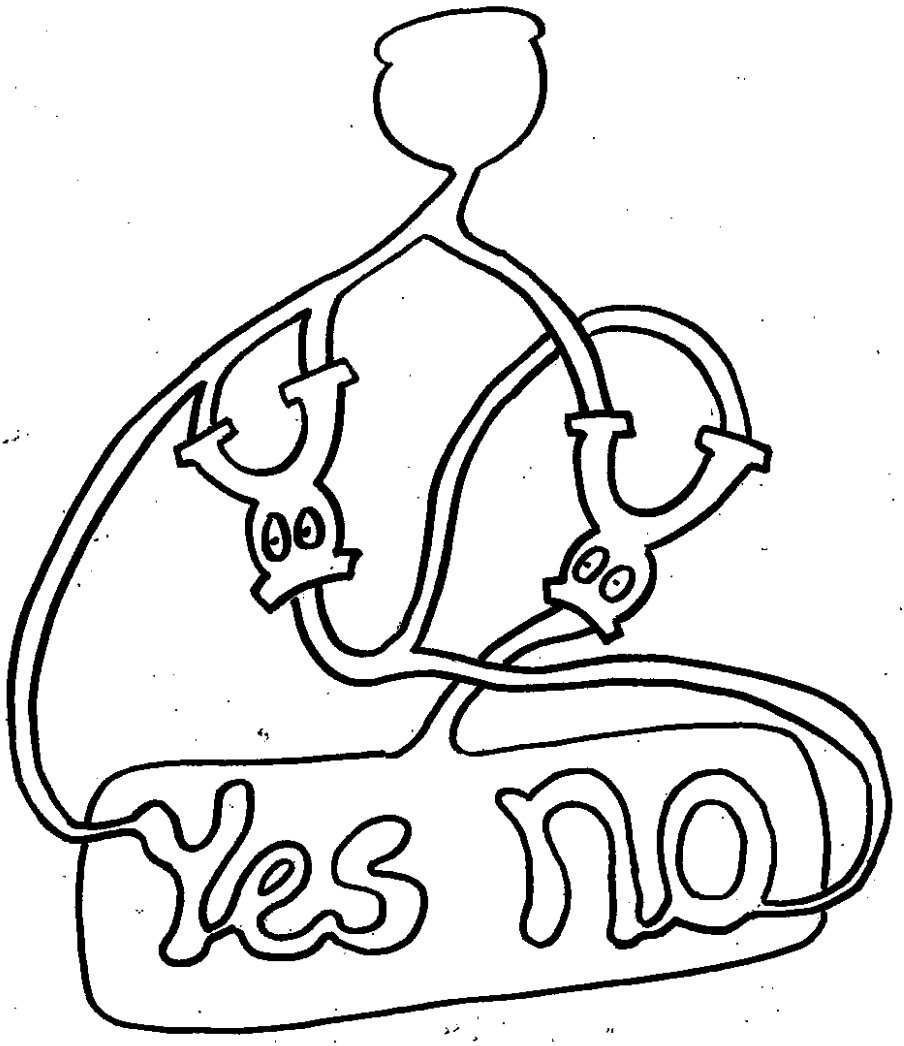
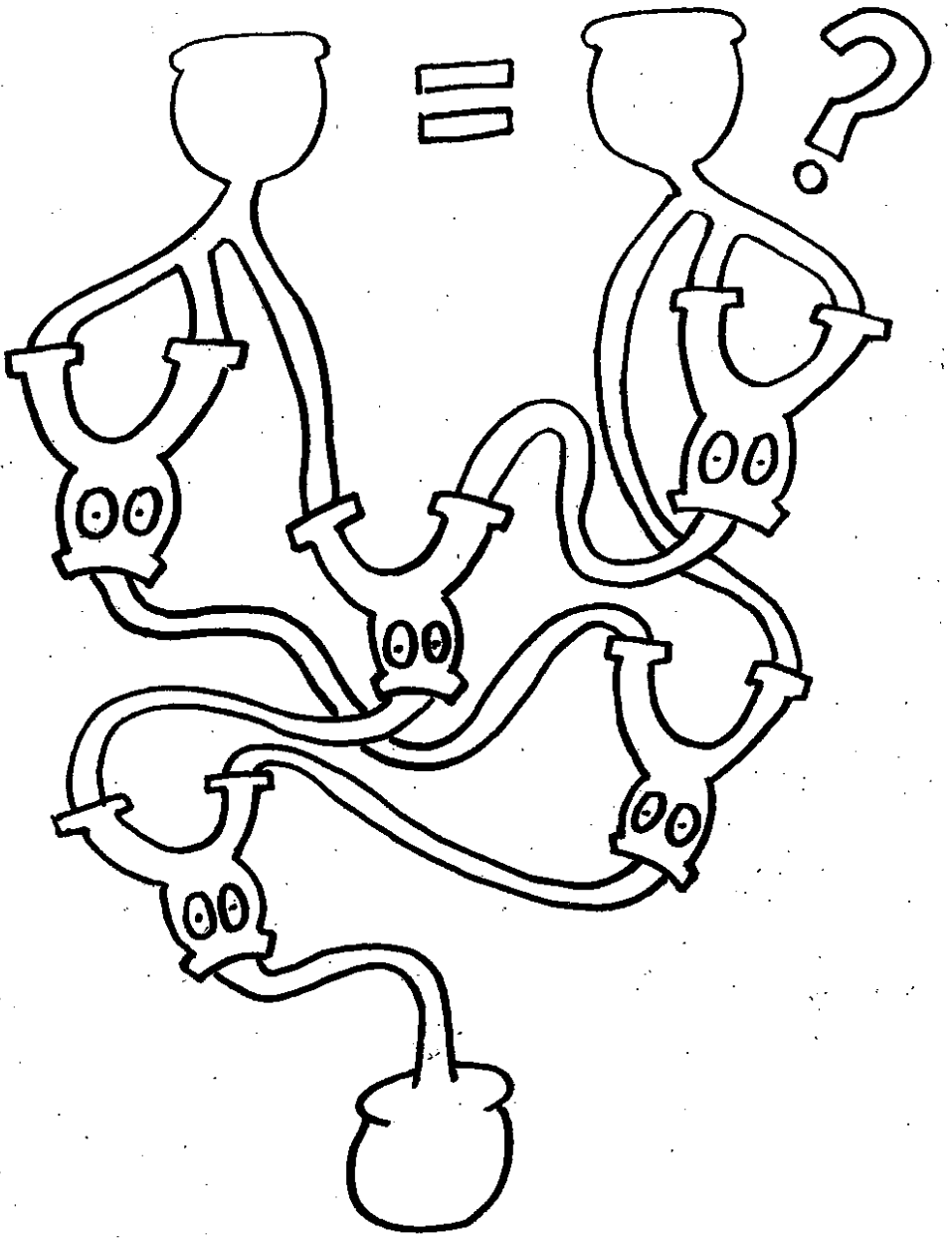
computer



Computer



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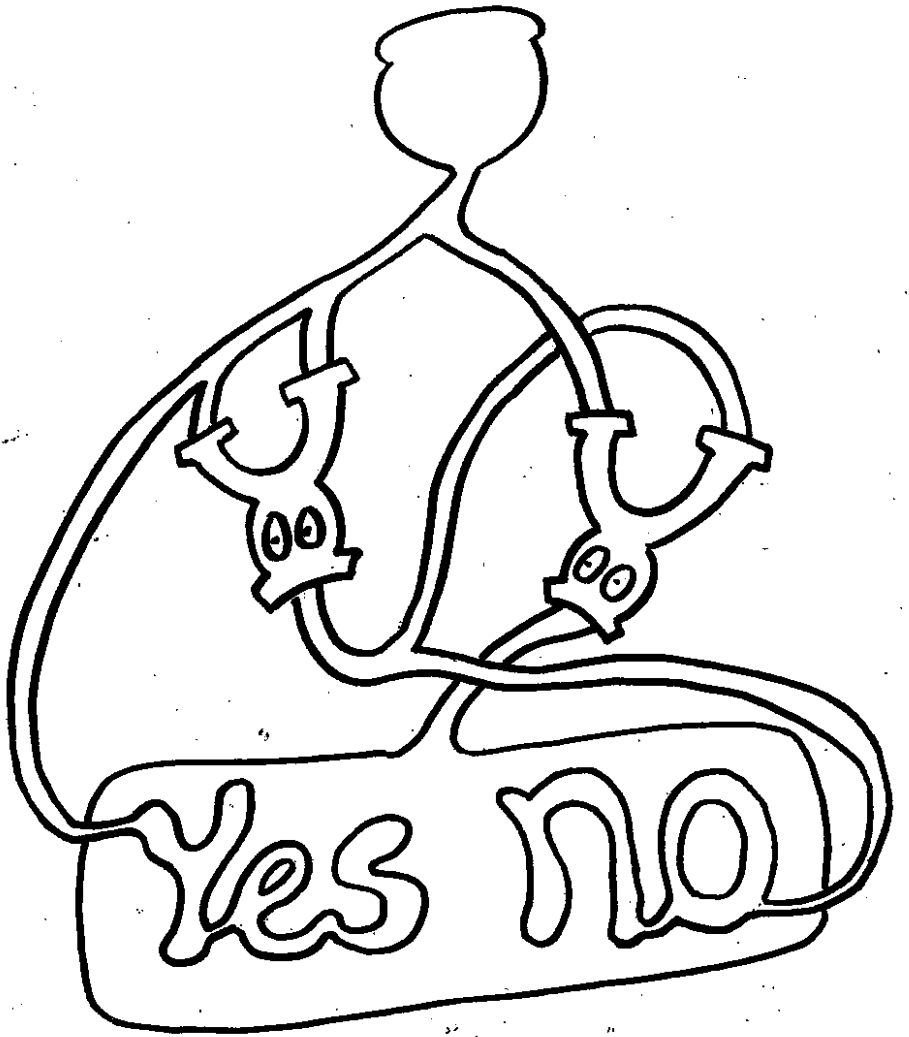
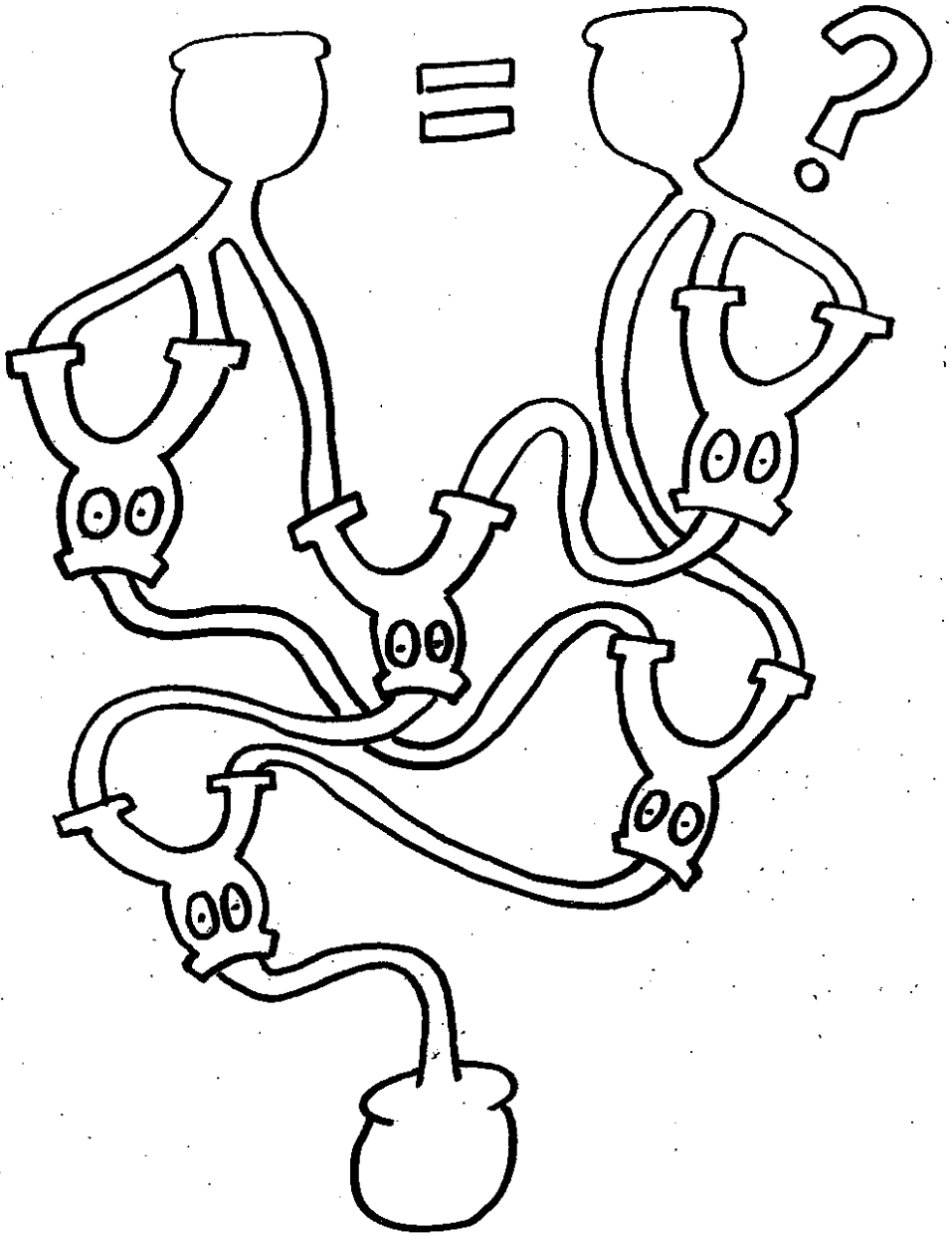
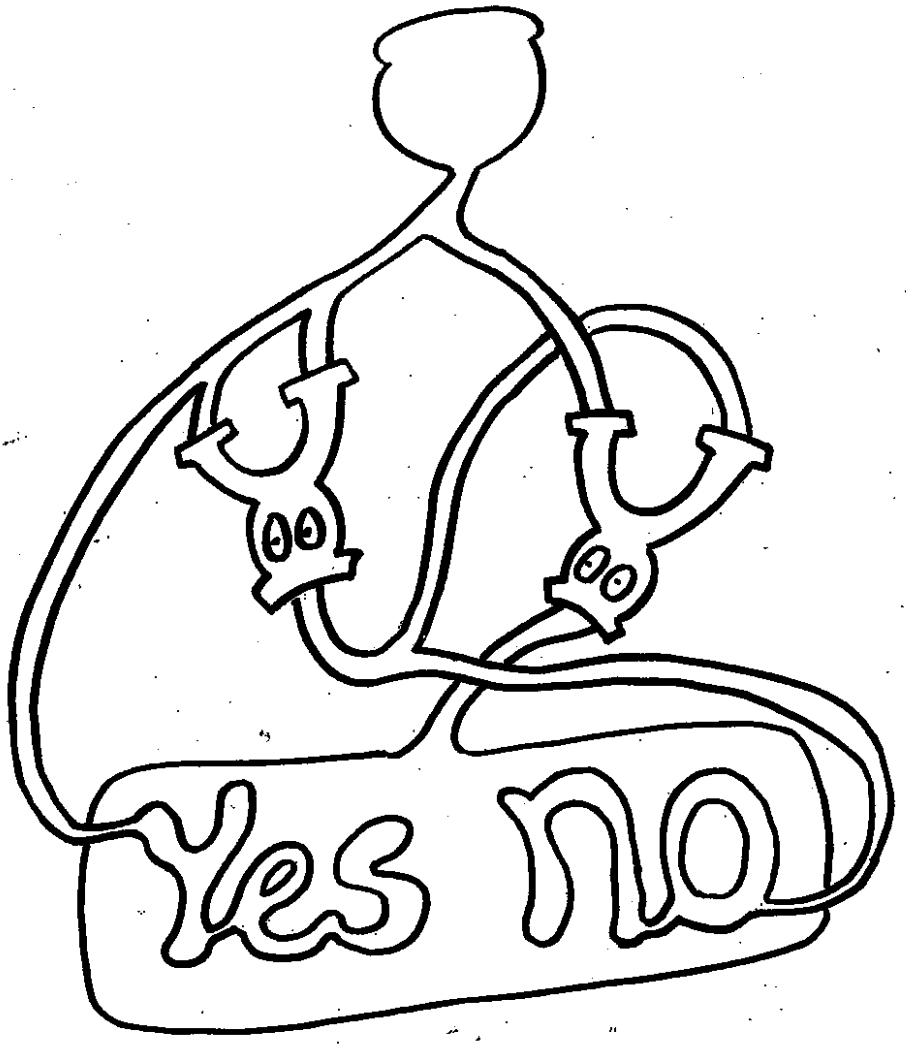

Yes no




Yes no

Computers that count

the following computers work with a pair of  that represent numbers (according to an arbitrary system)

computer  takes the colors in its  and highlights the numeral they represent 

computer  takes the colors in its  and calculates the colors that correspond to the next number 

computer  is like  but constructs the numeral in a seven segment display 
(so retro!)

what you can do

start with any combination of colors in the of computer and see to which number they correspond

copy the two colors (same order) from computer to to get the colors of the next number

but is it the next number? use another to find out!

you can then keep chaining them...

use computer to decode the same sequence of numbers or to see if you figured out the system number

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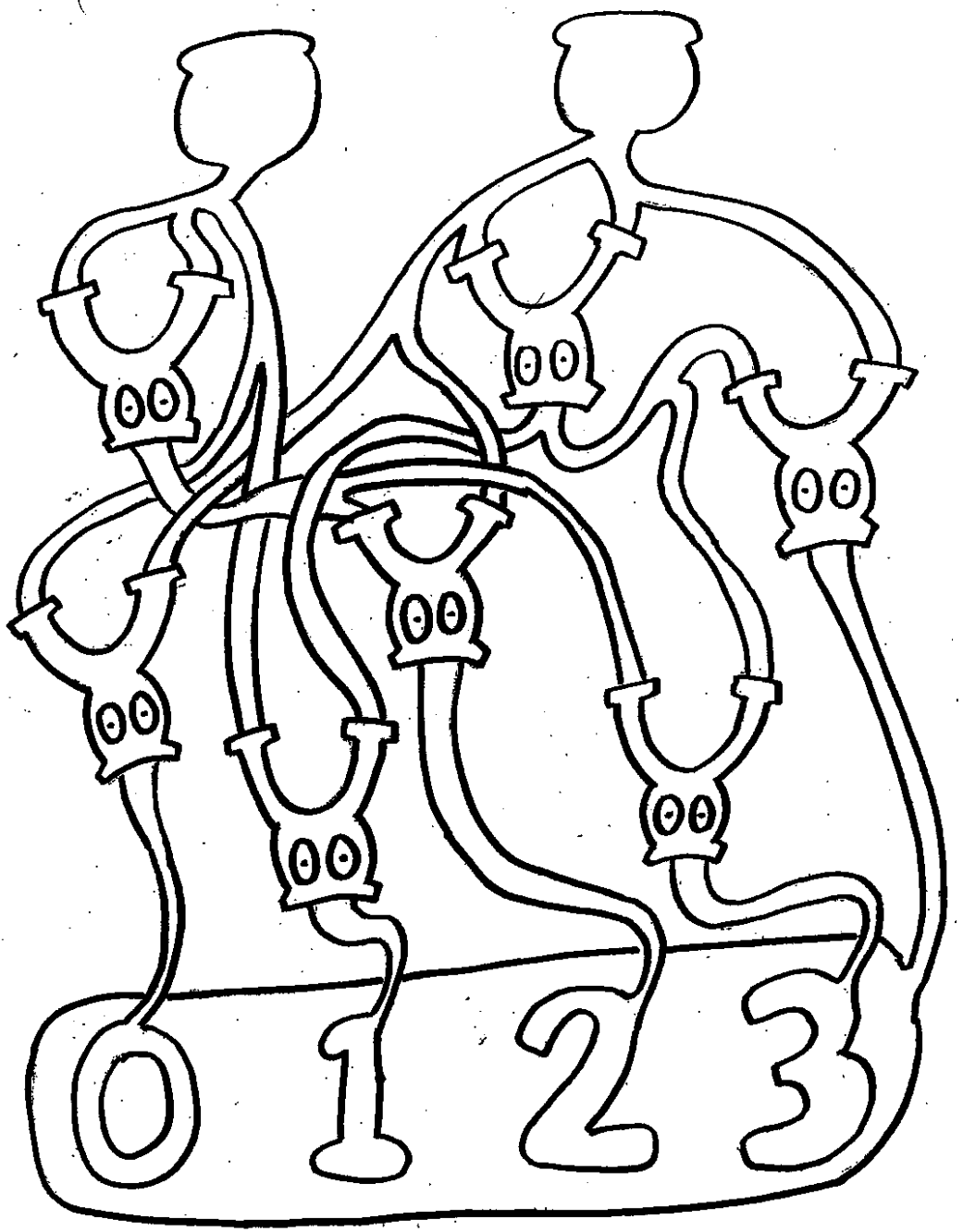
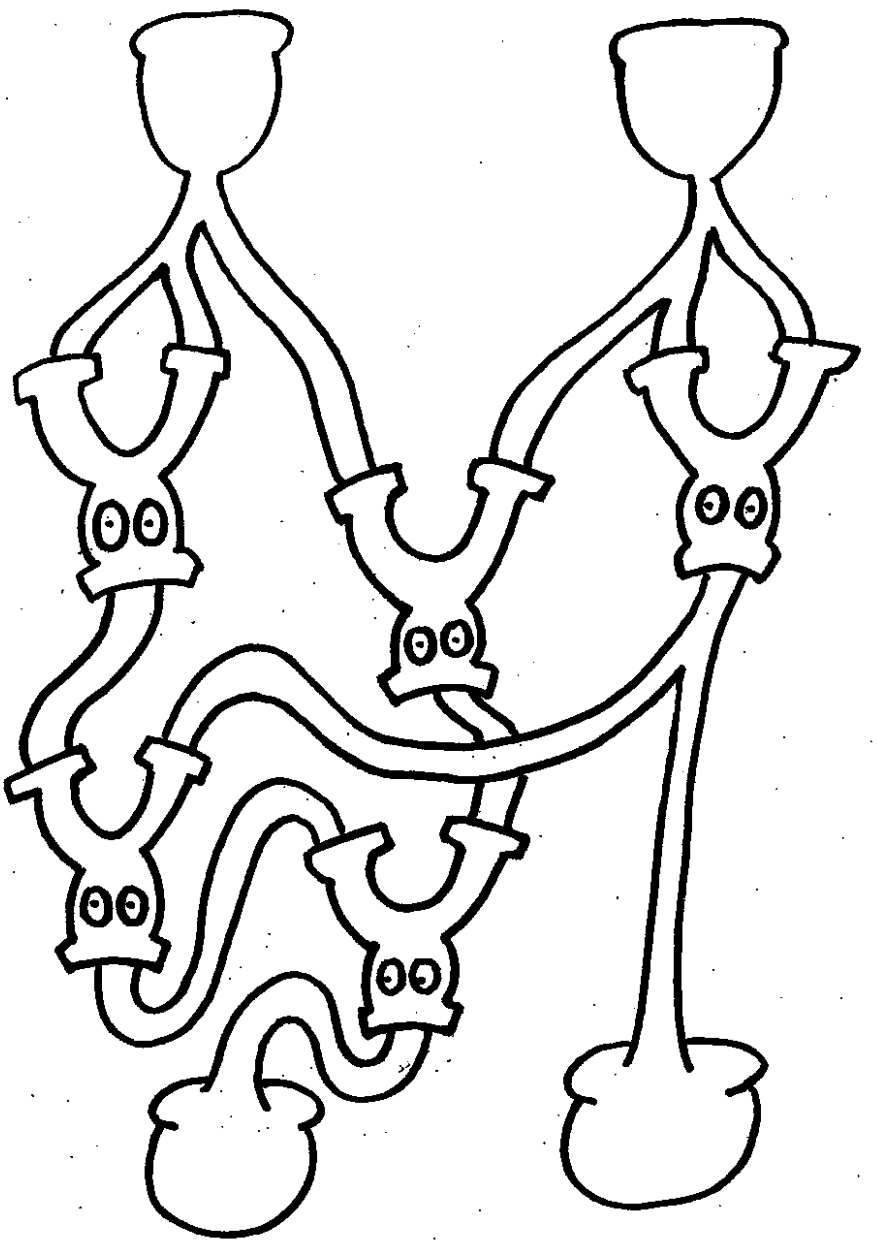
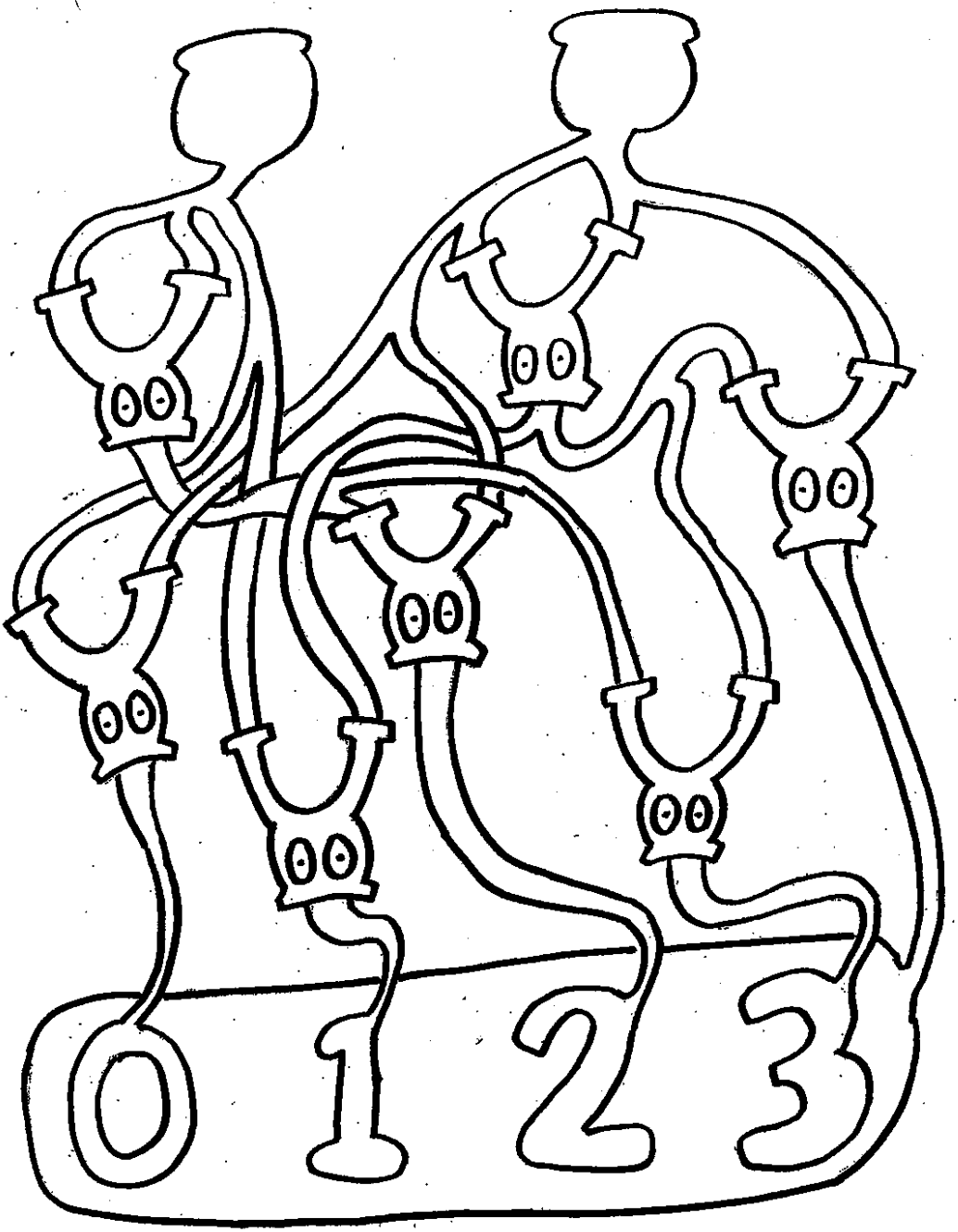
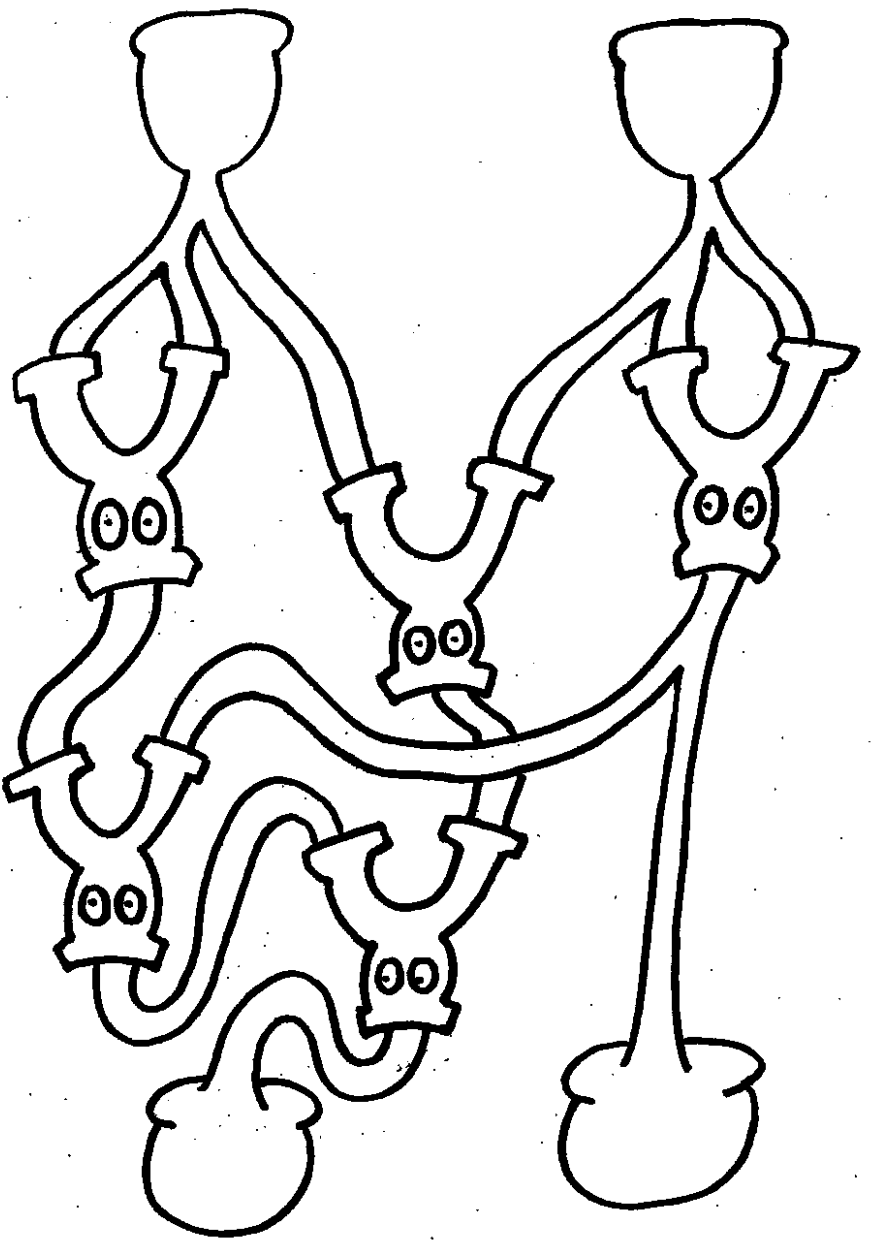

0 1 2 3

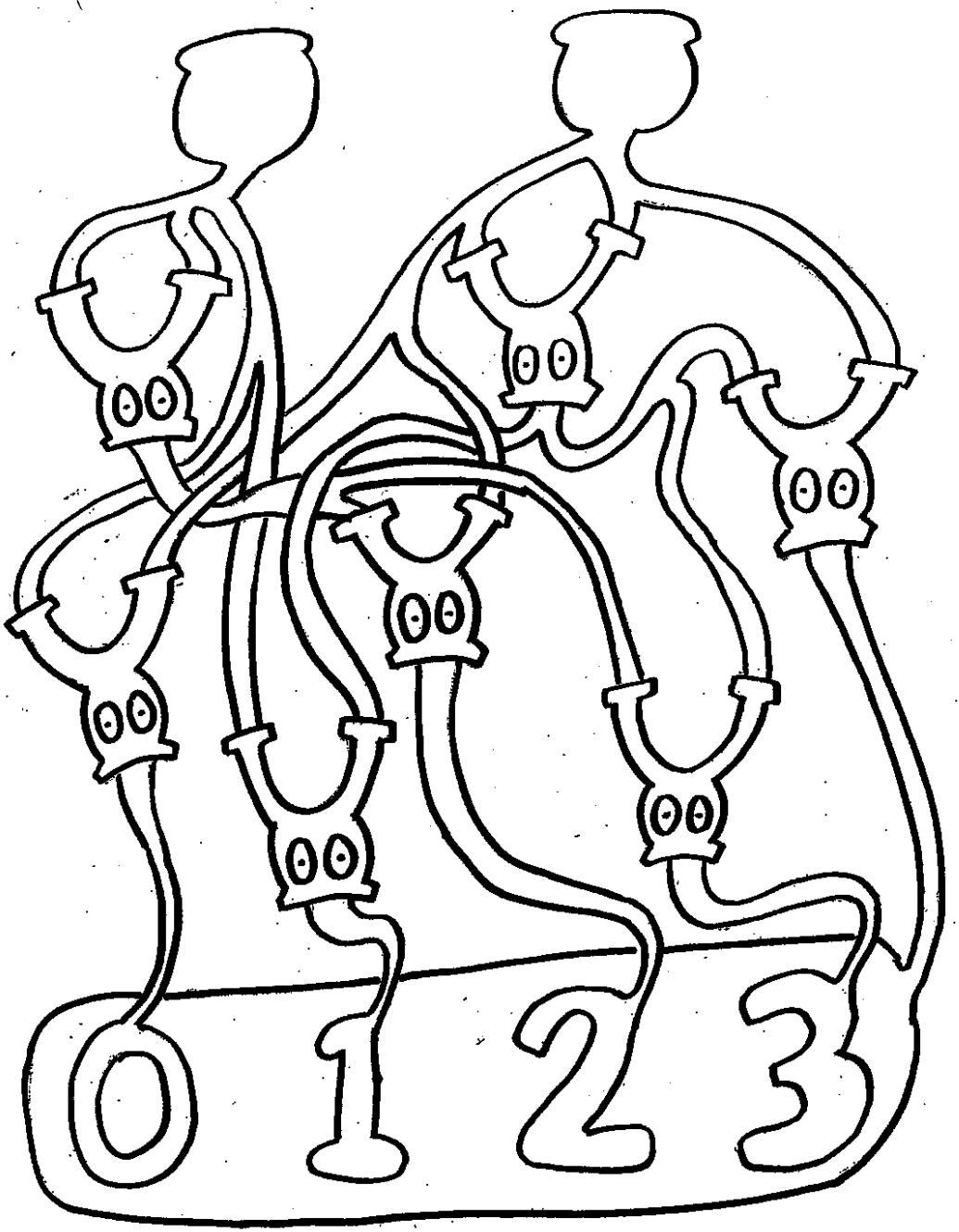


computer





computer 88



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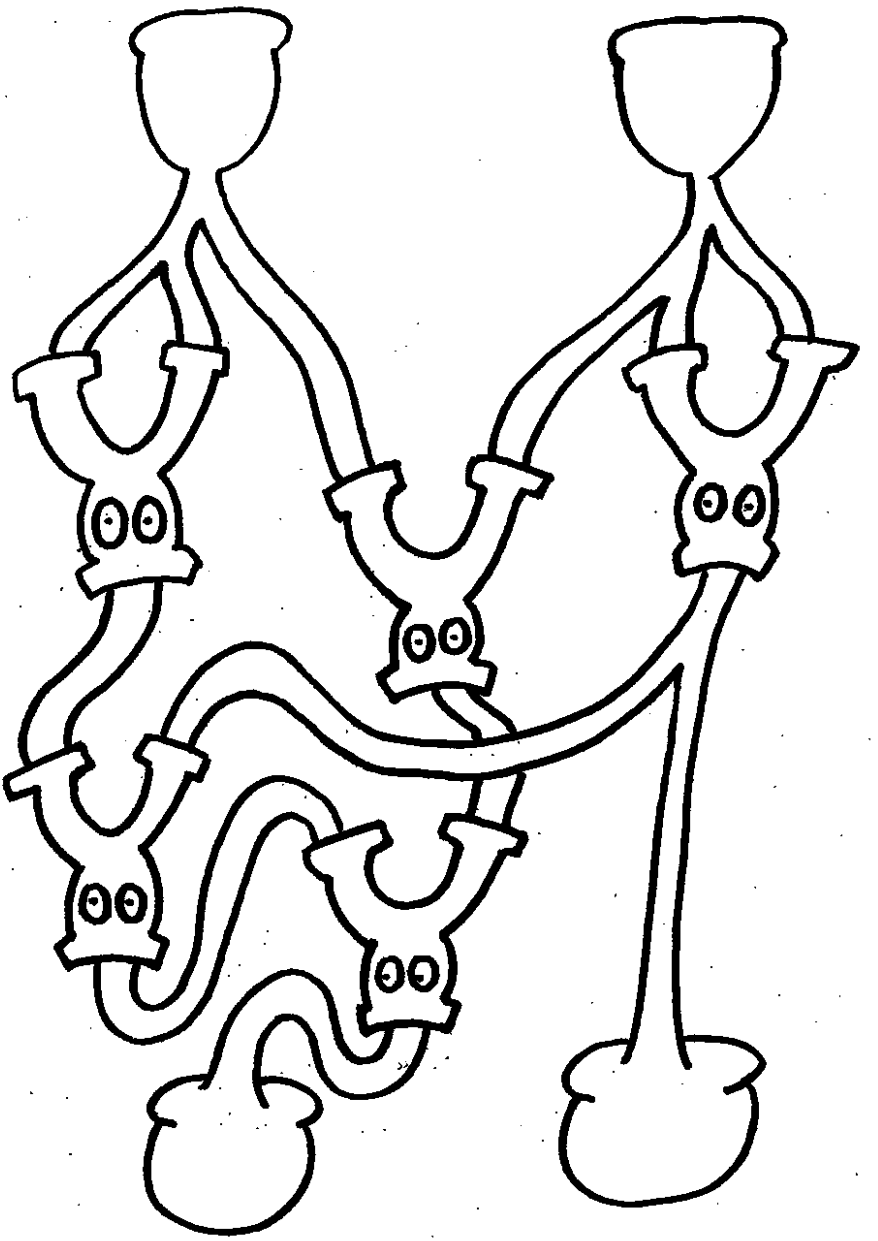

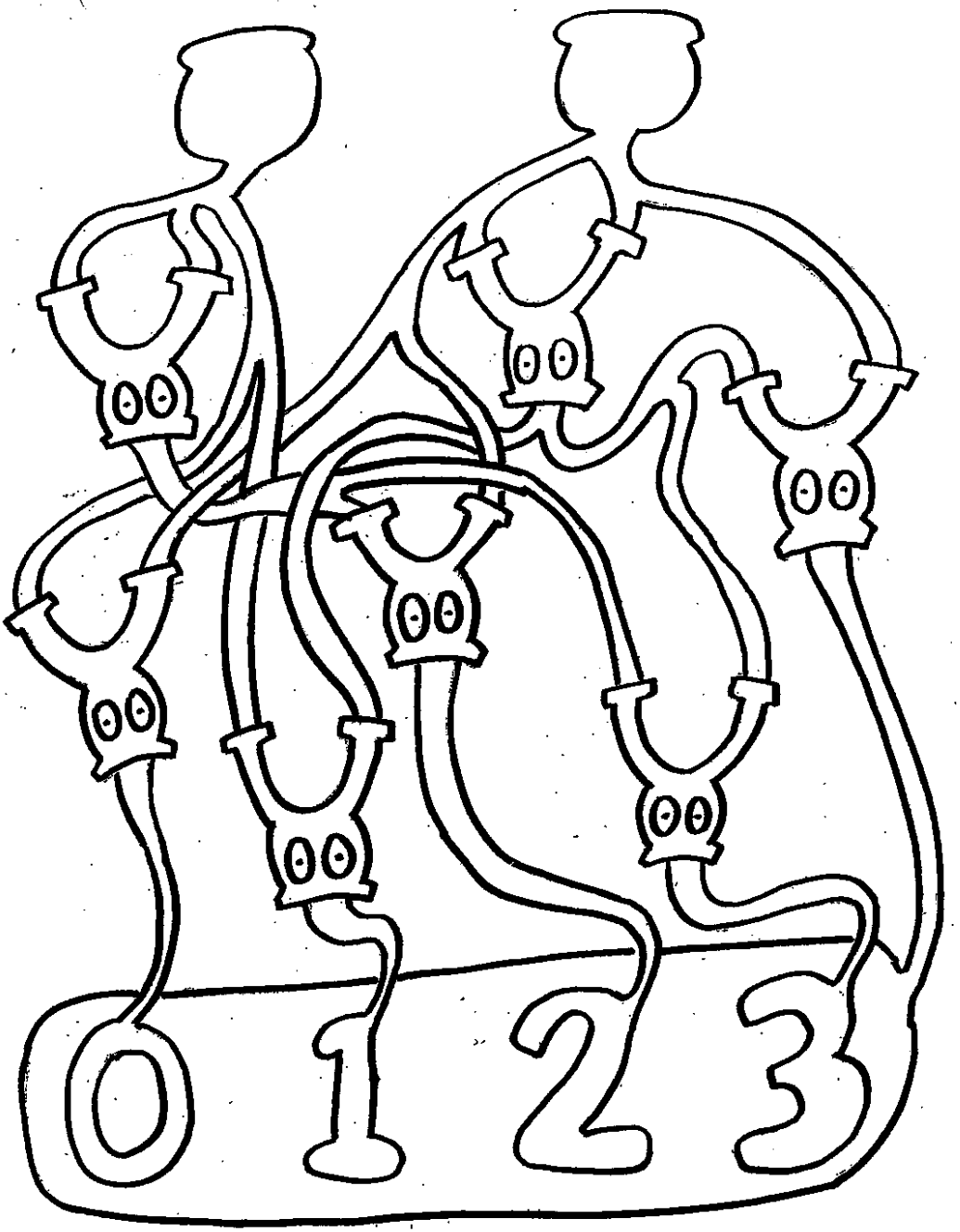
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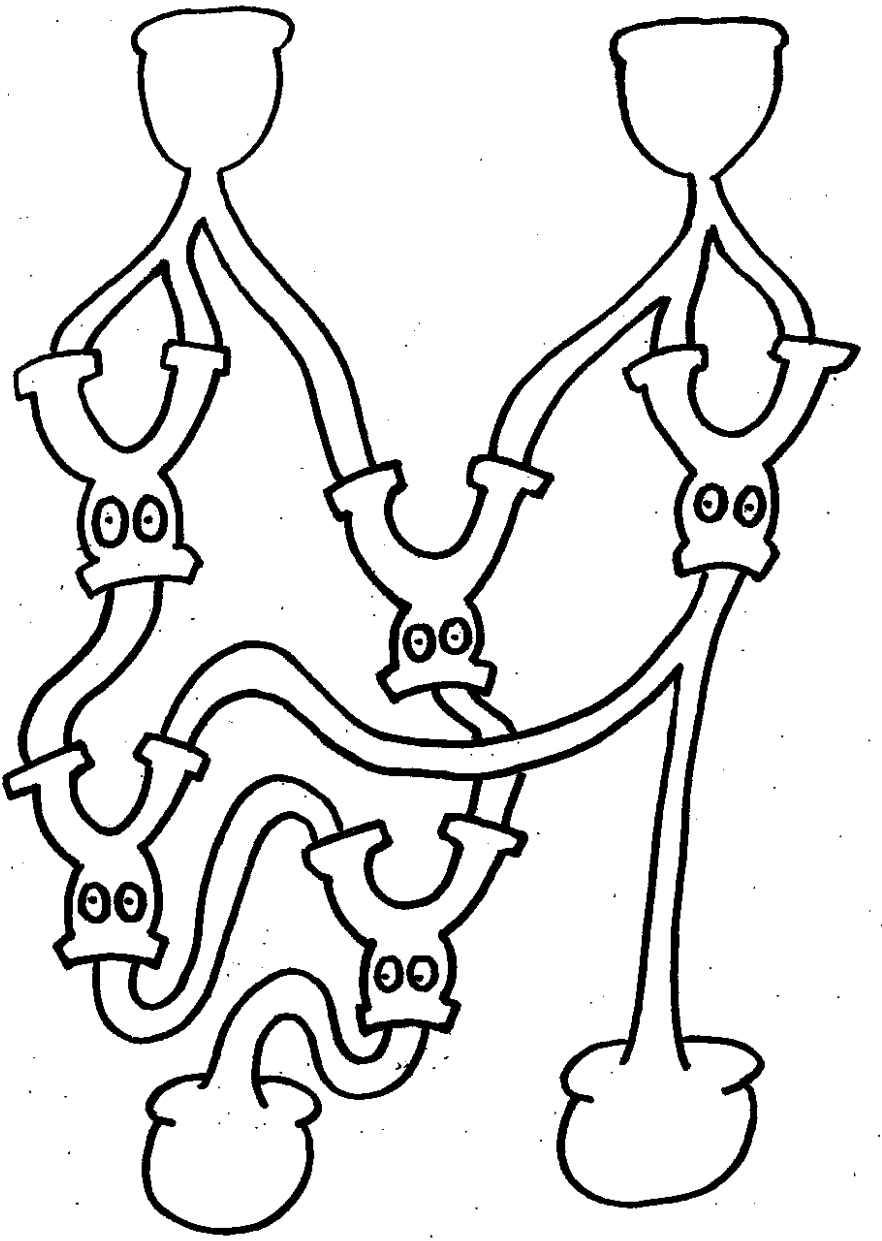
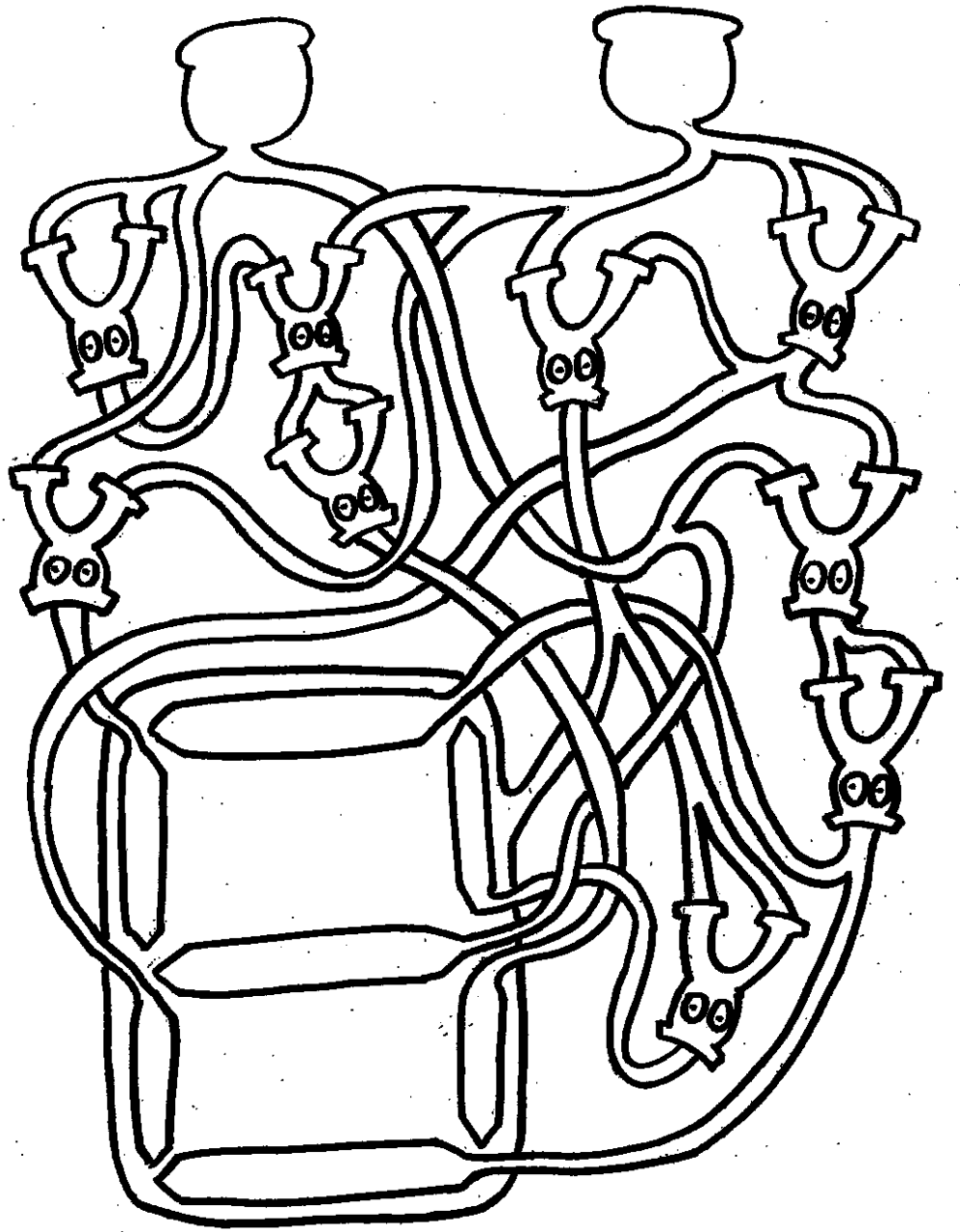
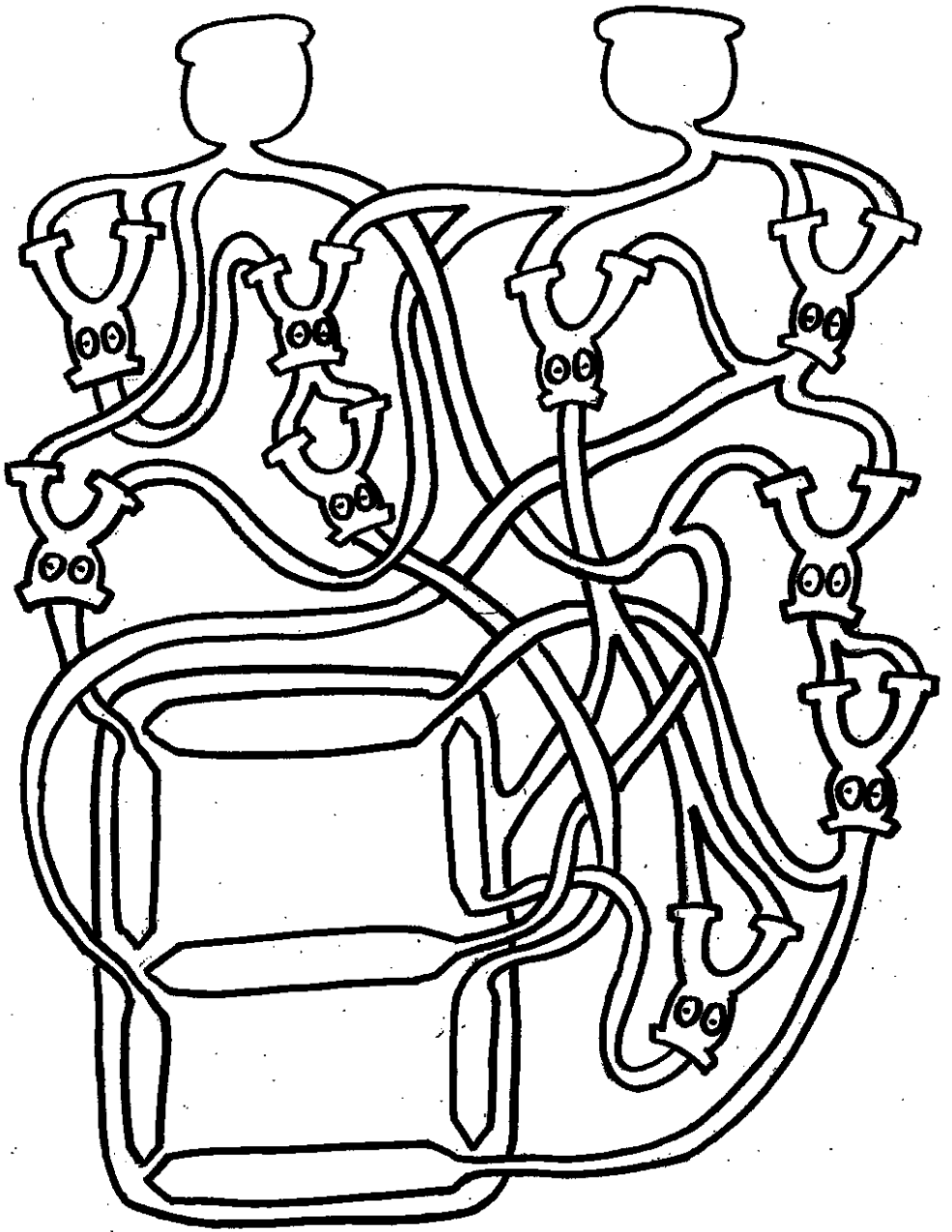
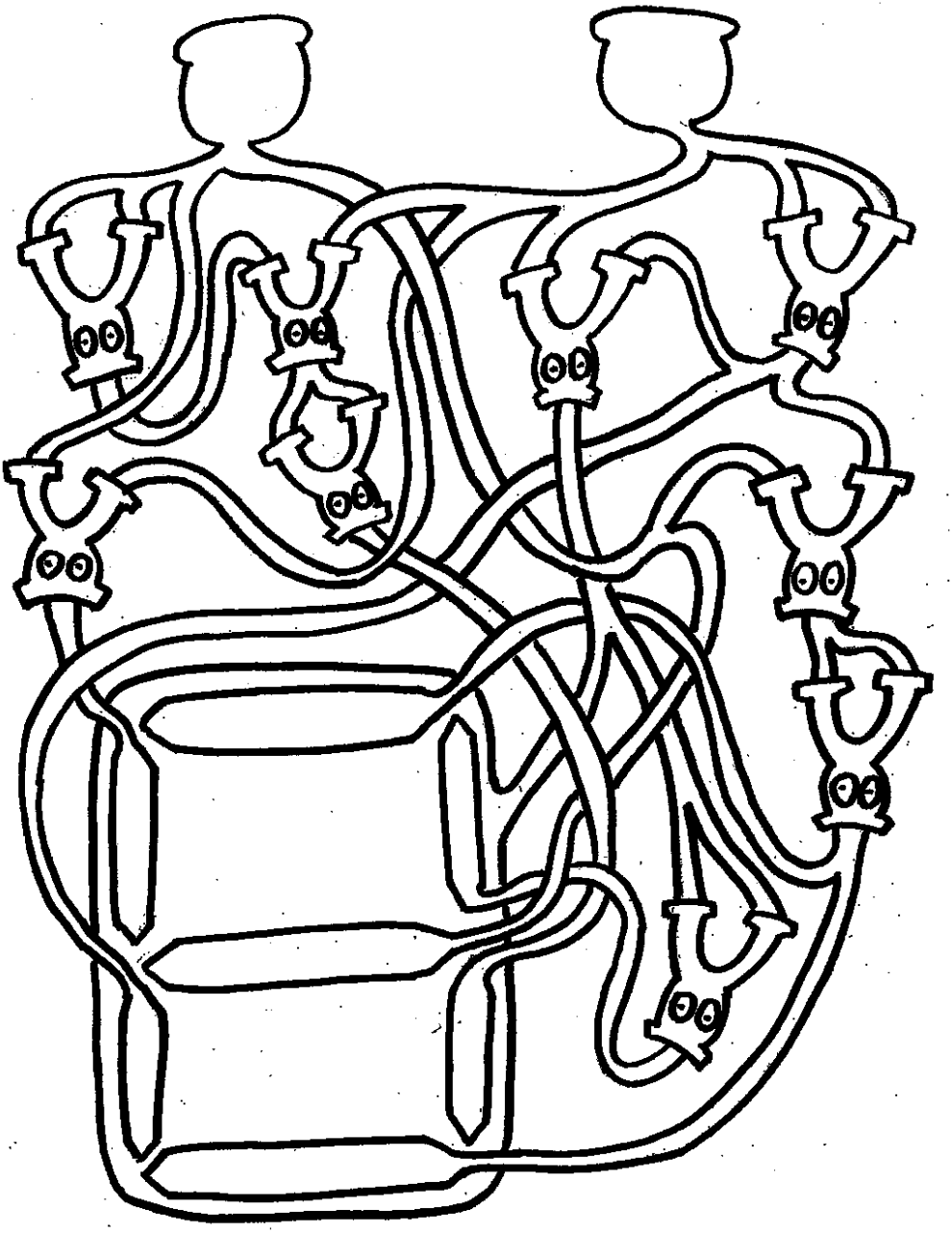
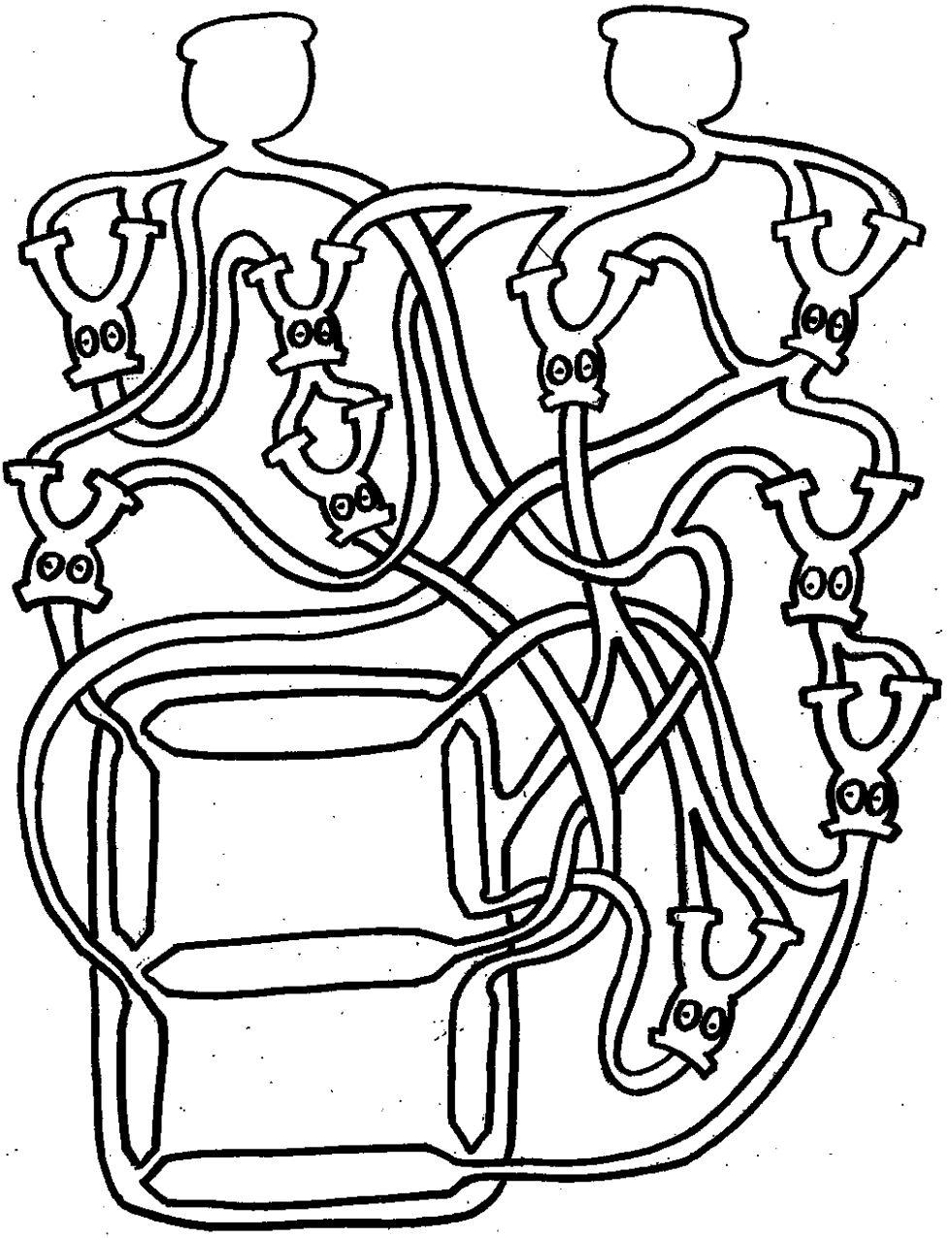


Computer







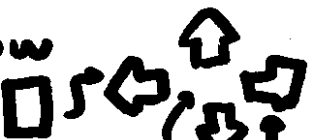


Computers that play

these computers work with  that represent the position of a  inside a  . you can move it with a gamepad 

computer  takes the colors in  and highlights one of the  in the 

computer  takes the colors in  and the state of the  to calculate a new pair of colors 

to activate an arrow color it with  and color the others with 

what you can do

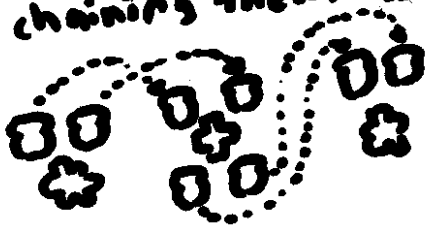
start with any combination of colors in the of computer to get the initial position of the

copy the two colors (same order) from computer to

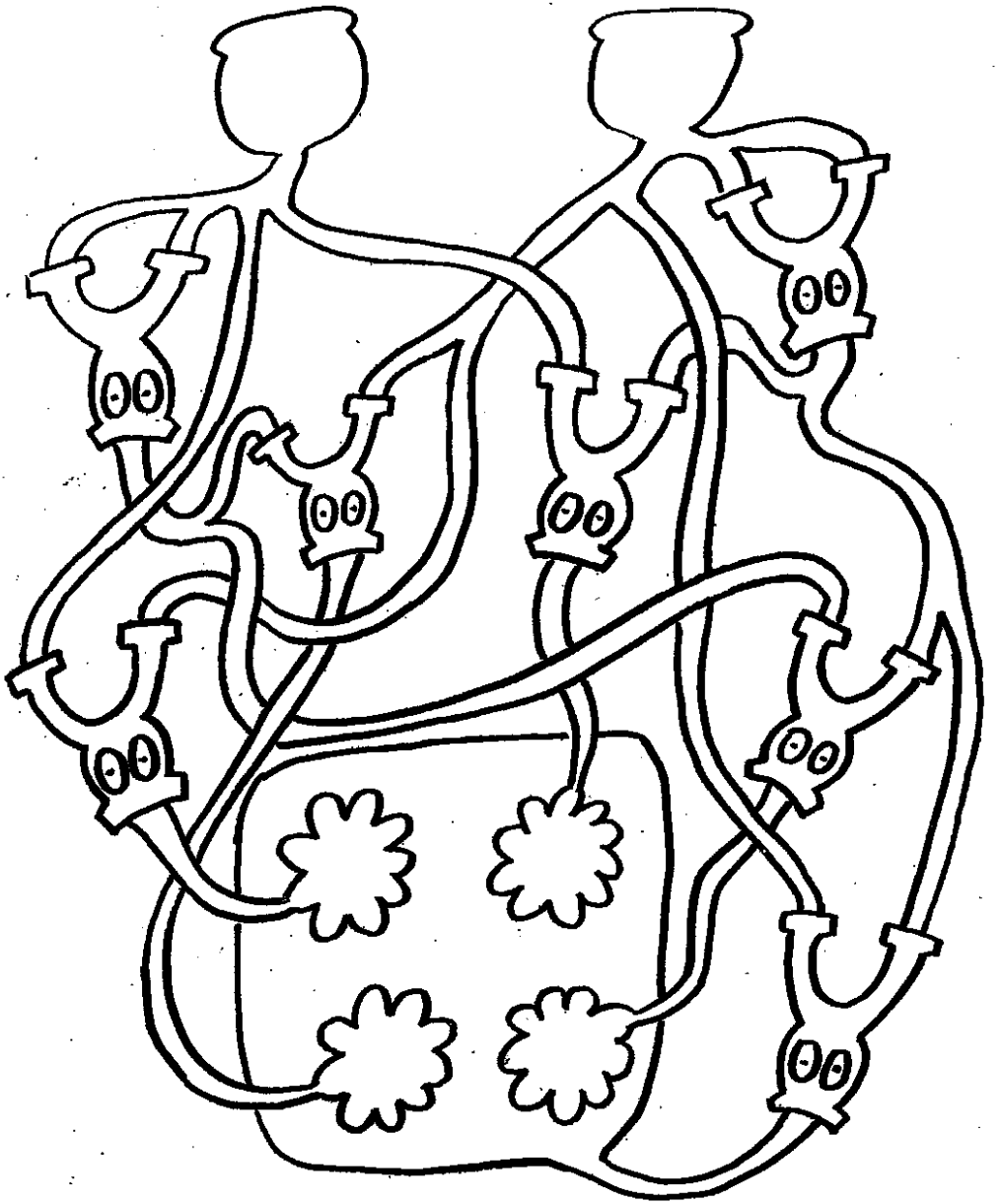
and activate at least one arrow to get a possibly new combination of colors

copy these colors to a new computer to see the updated position of the

keep chaining them and moving the around!



Computer



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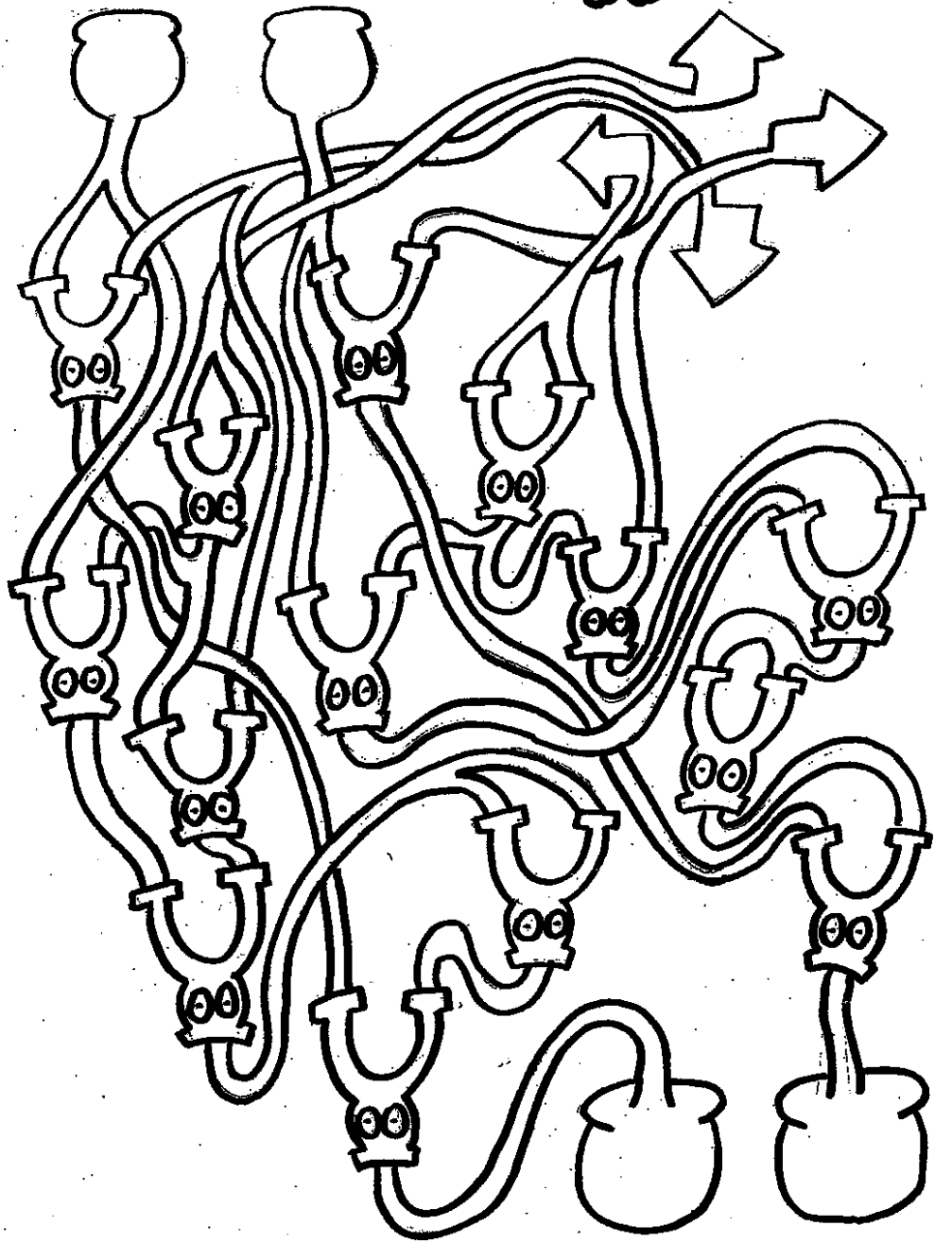

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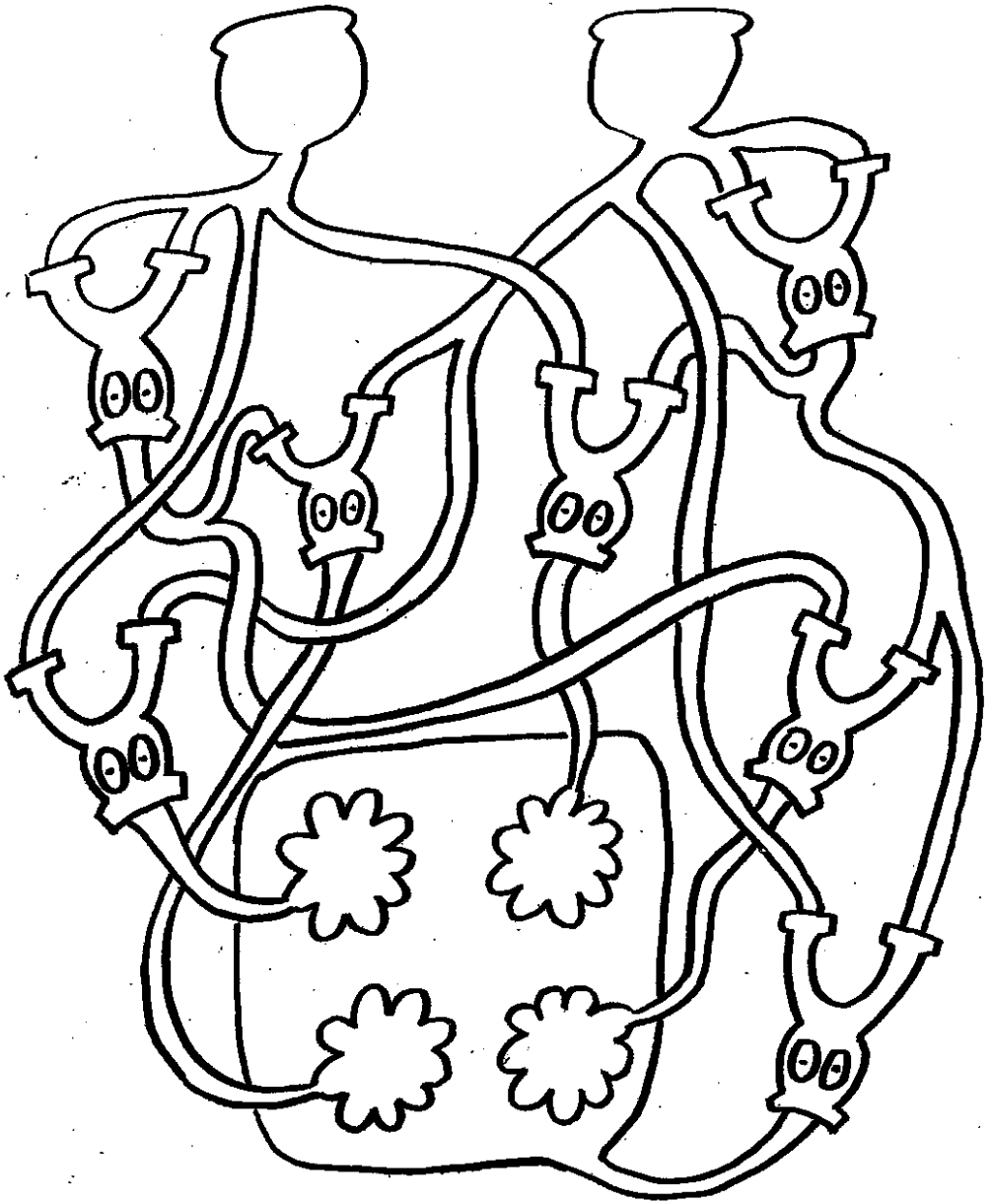

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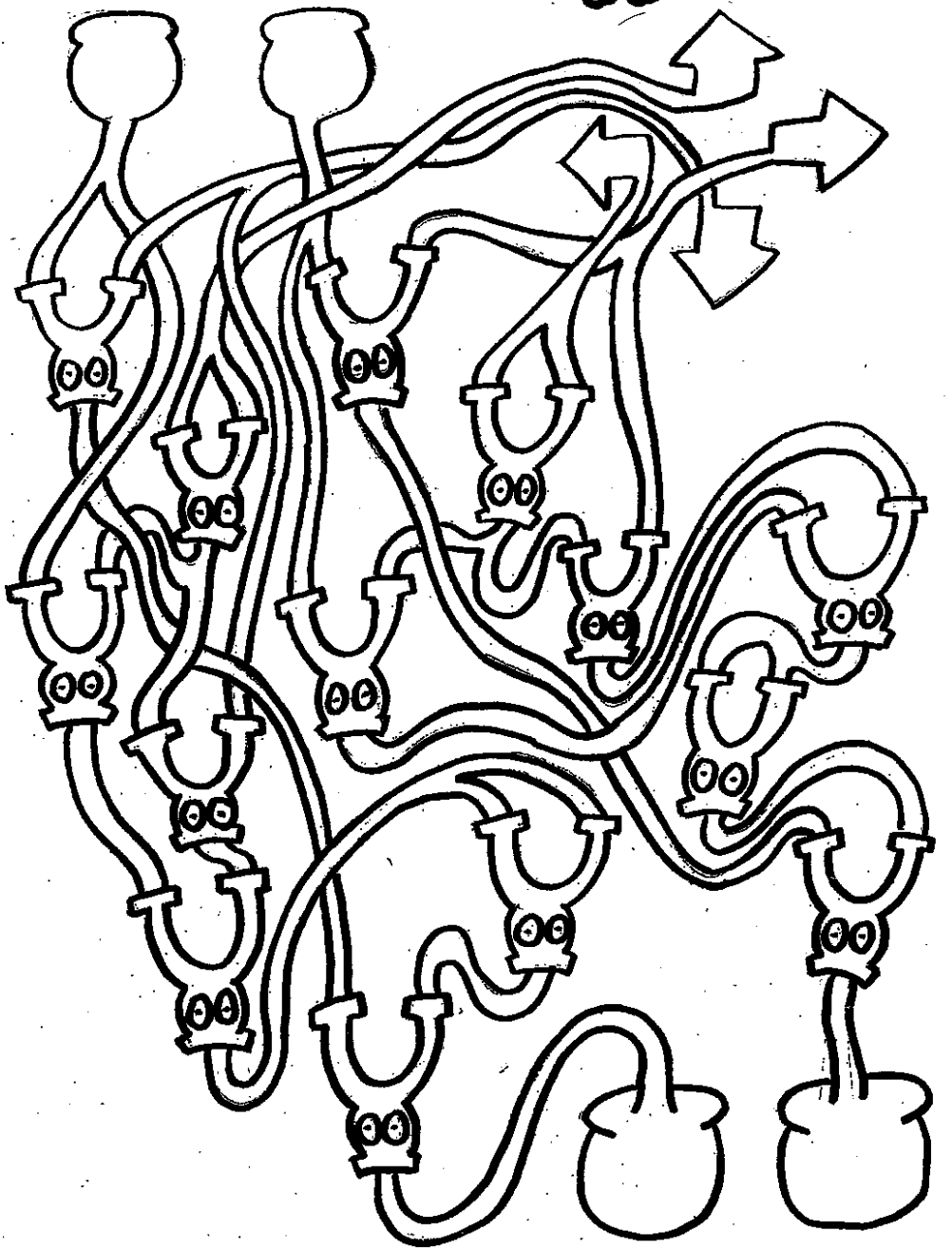

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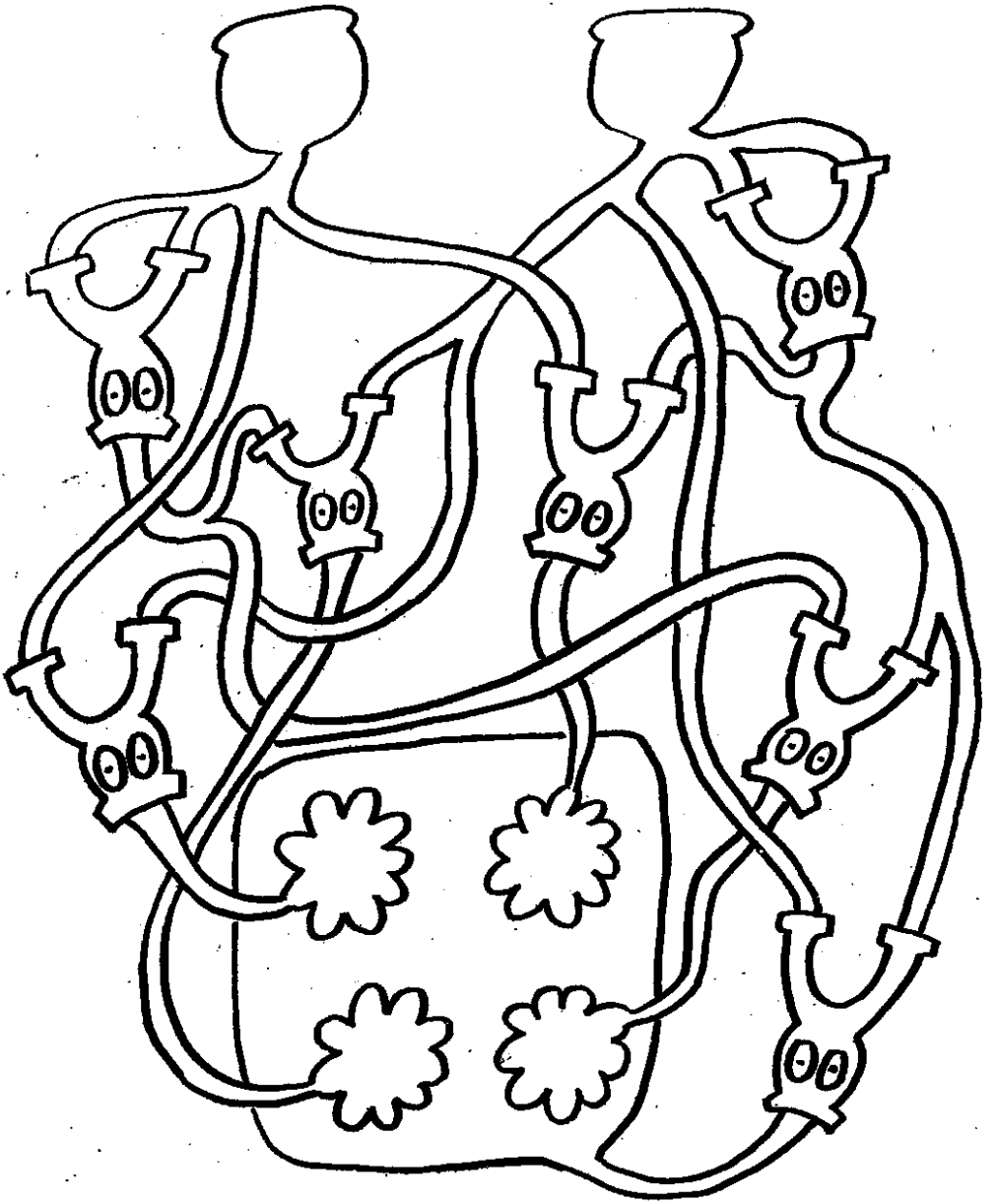

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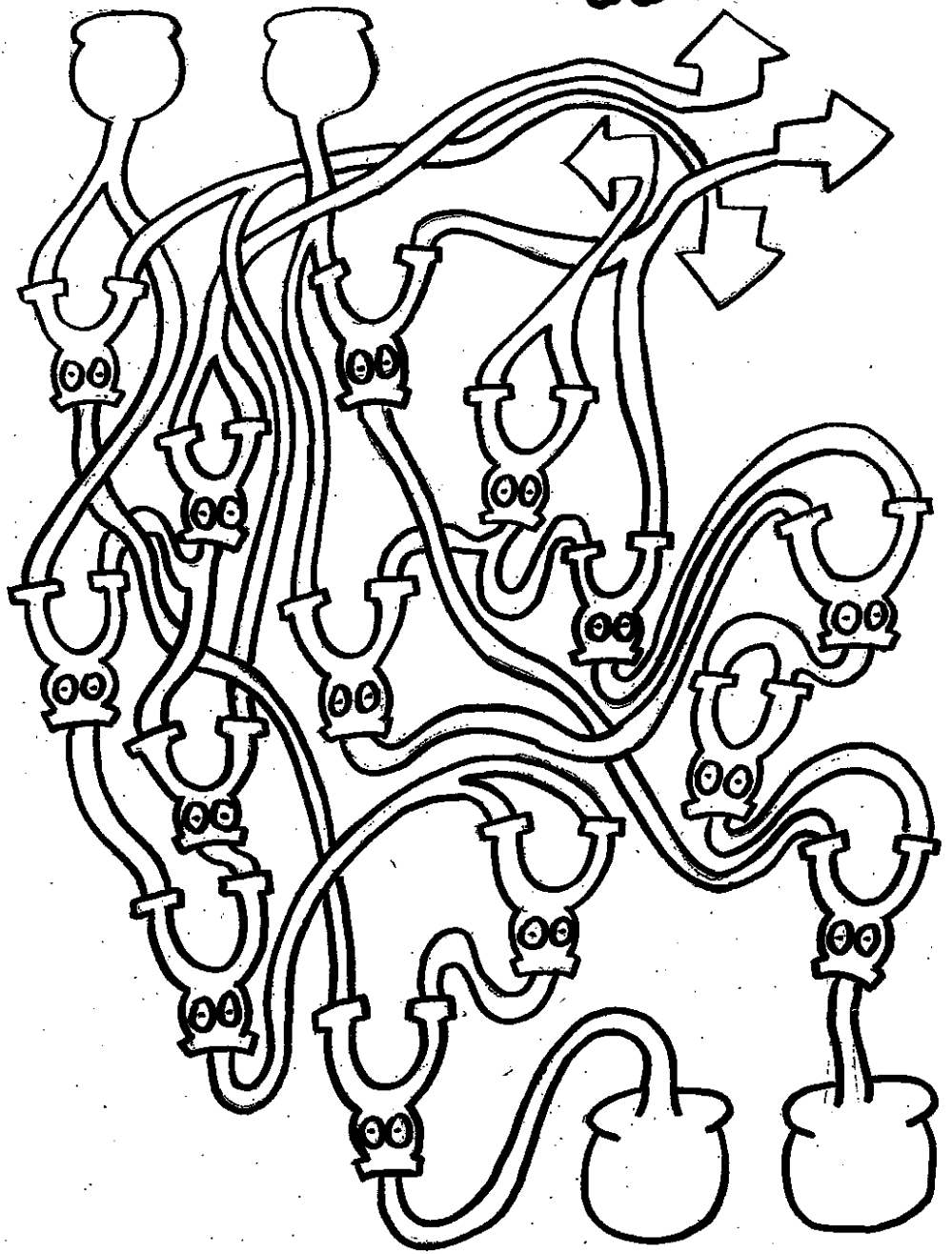

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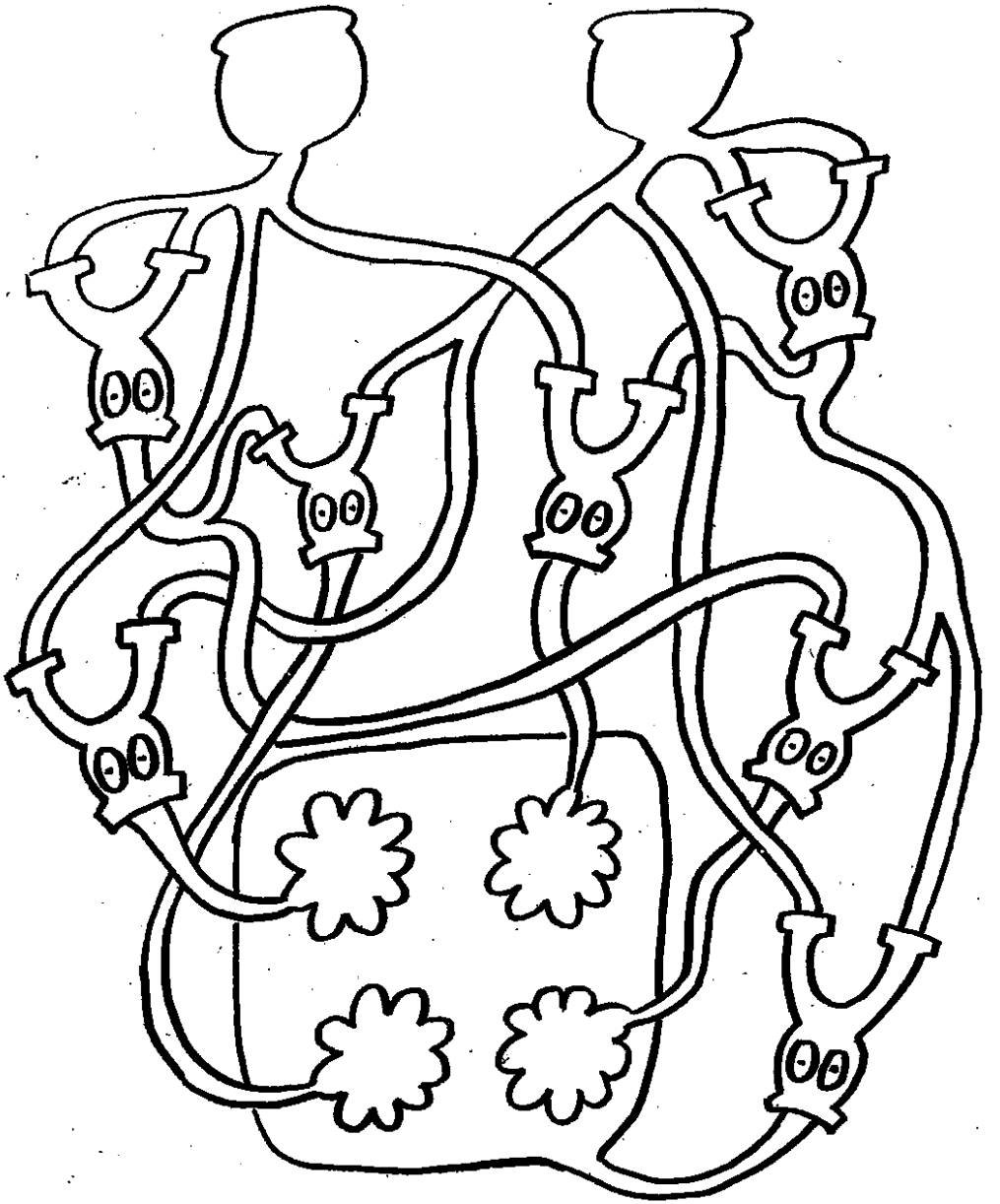
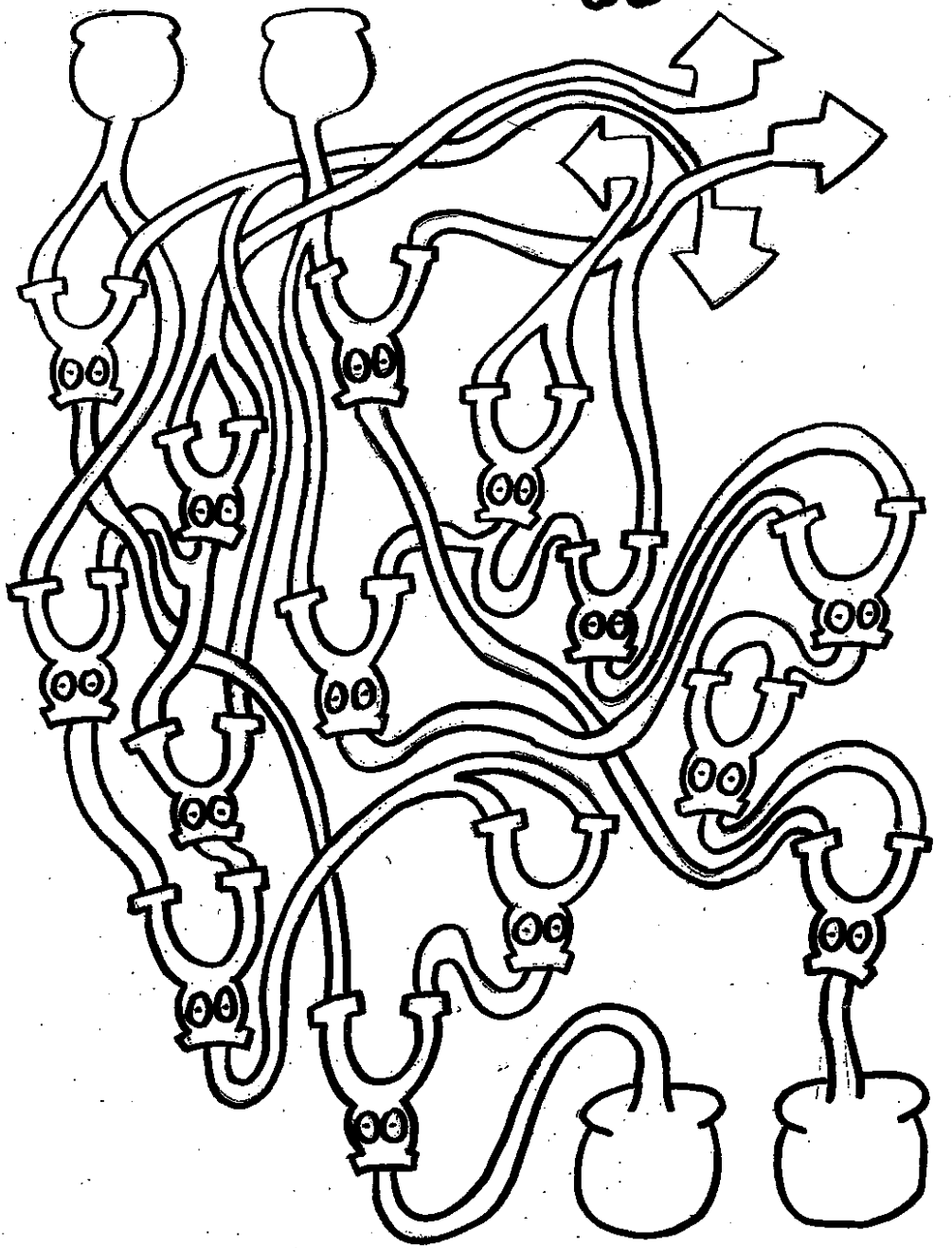


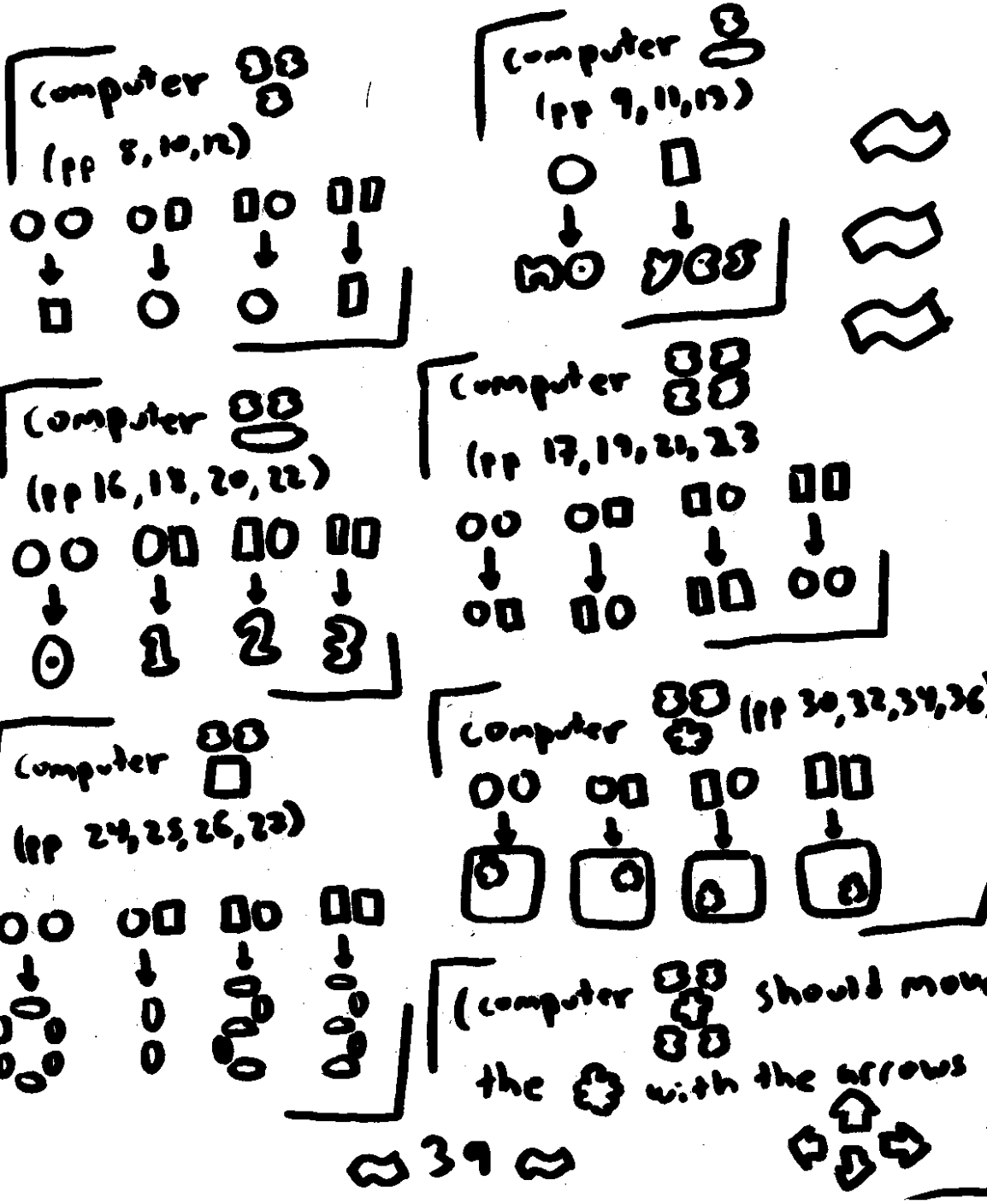
Computer



afterword

hopefully you enjoyed collaborating with these coloring computers! from a technical standpoint, and in case you want to know more of how they work, they are all nor-based logic circuits, similar to several logic systems that exist within electronic computers. they were designed by using truth tables, karnaugh maps, and maxterms expansion. the numeric representation is binary. from a social, political and environmental perspective these computers are an exploration of computation without electricity and semiconductors, an attempt to reinvent digital systems away from efficiency and productivity, and a hopeful prototype to expose the inner workings of computers.

key of results



coloring computers

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https://pepepepepe.eccs.world/coloring computers

Contact: pepepepepe@eccs.world

9hb2t500