# **Blockchains**
# and its applications

Quentin Bramas

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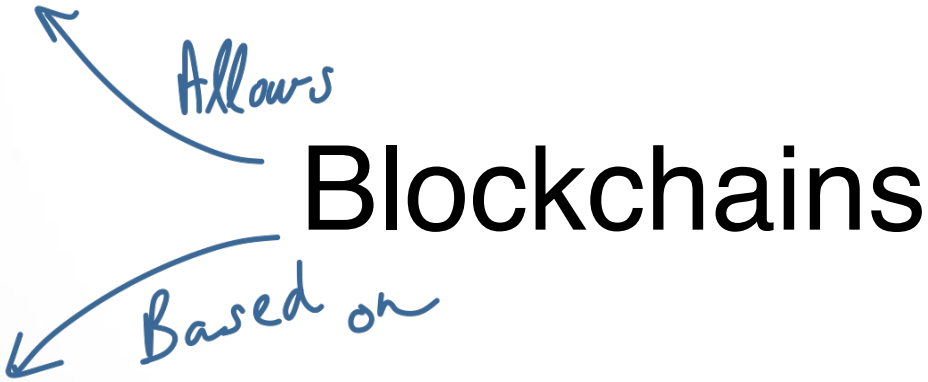
ICUBE Laboratory
University of Strasbourg

# Blockchains

# Blockchains


- Distributed Systems
- Zero Knowledge Proof

- Decentralized Democracy
- Crypto kitties
- Ensuring Documents Validity

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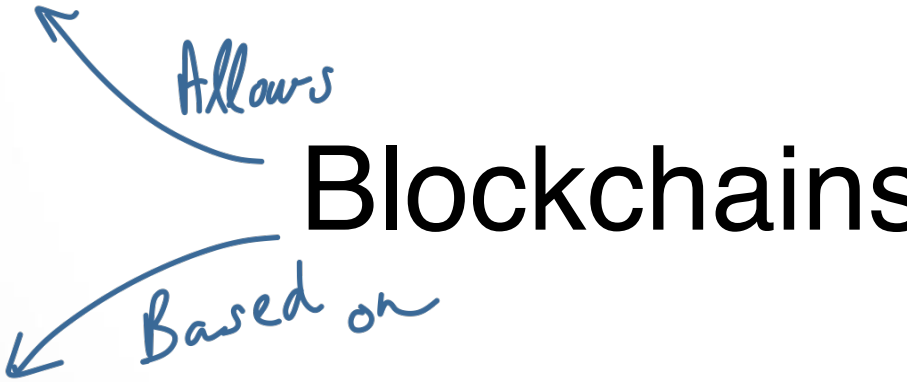


- Distributed Systems
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# Distributed systems

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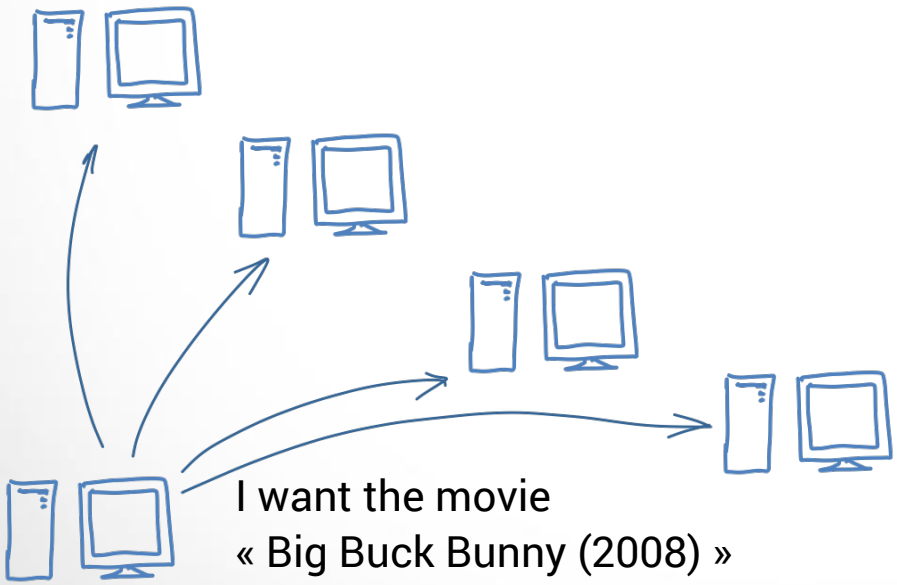

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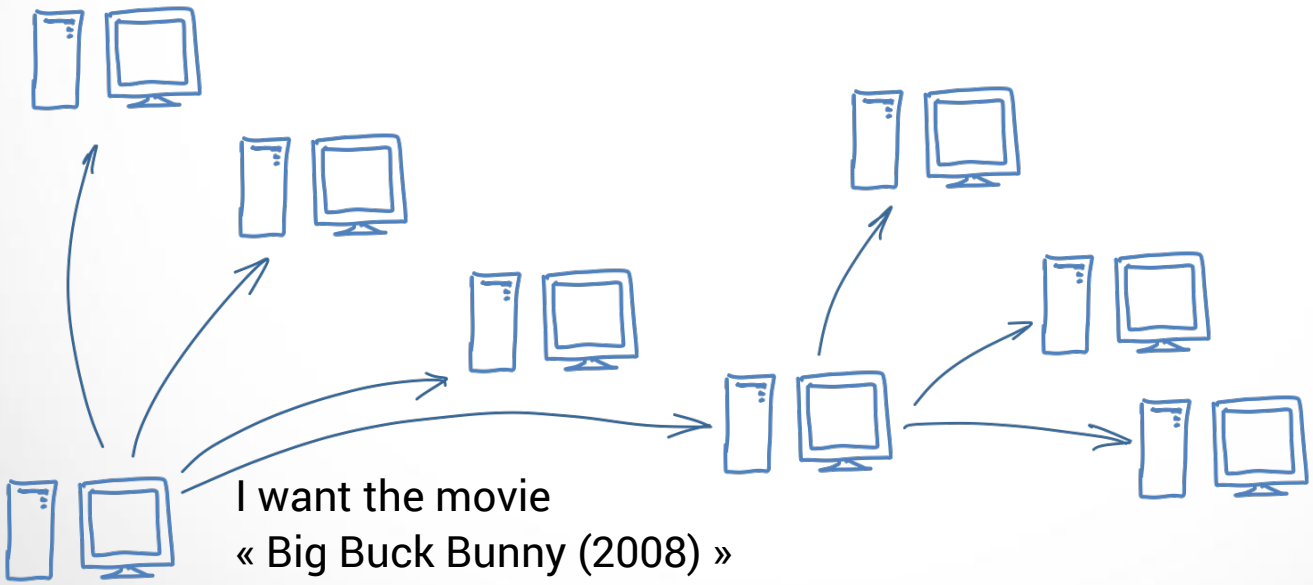

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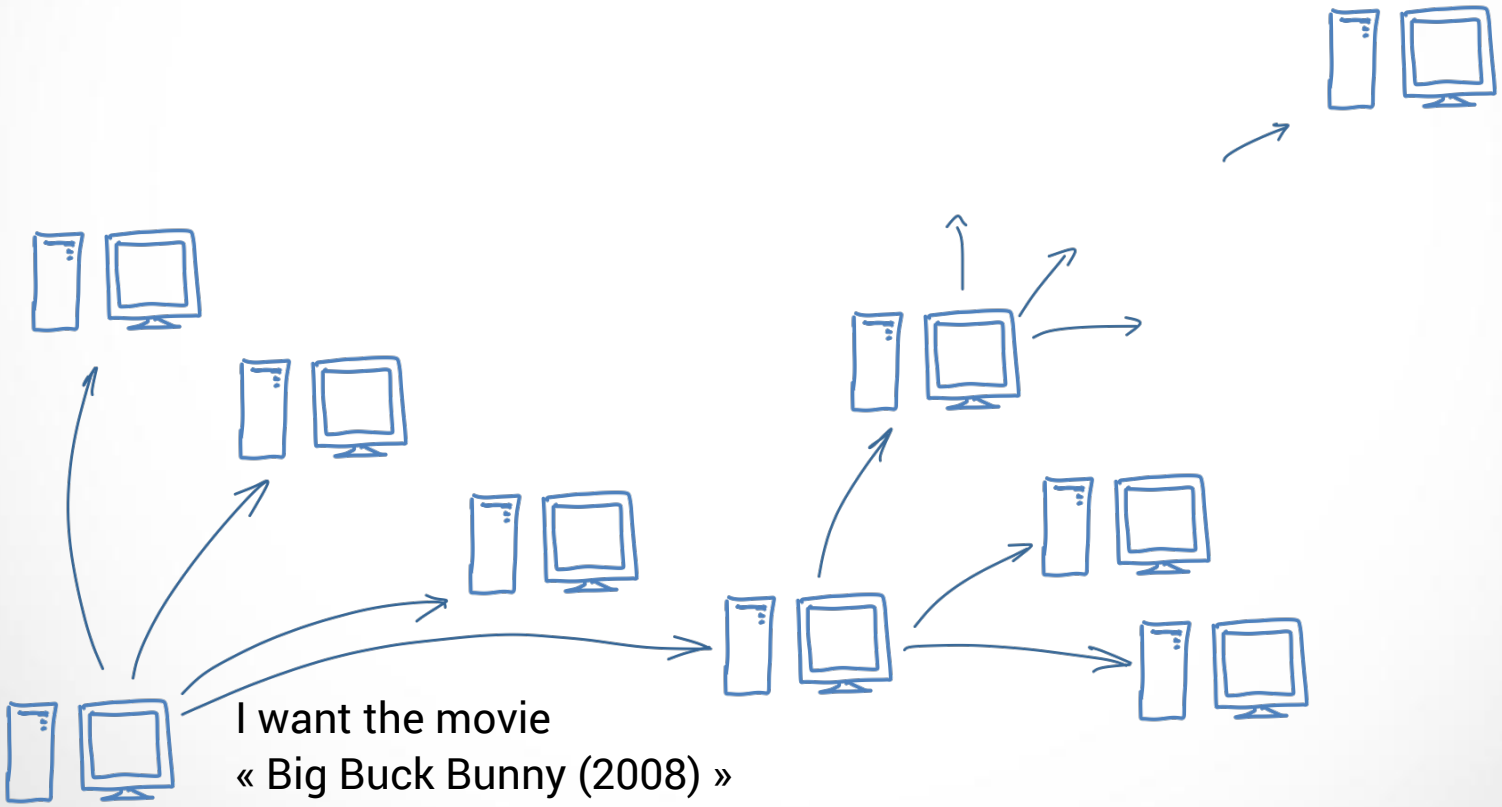

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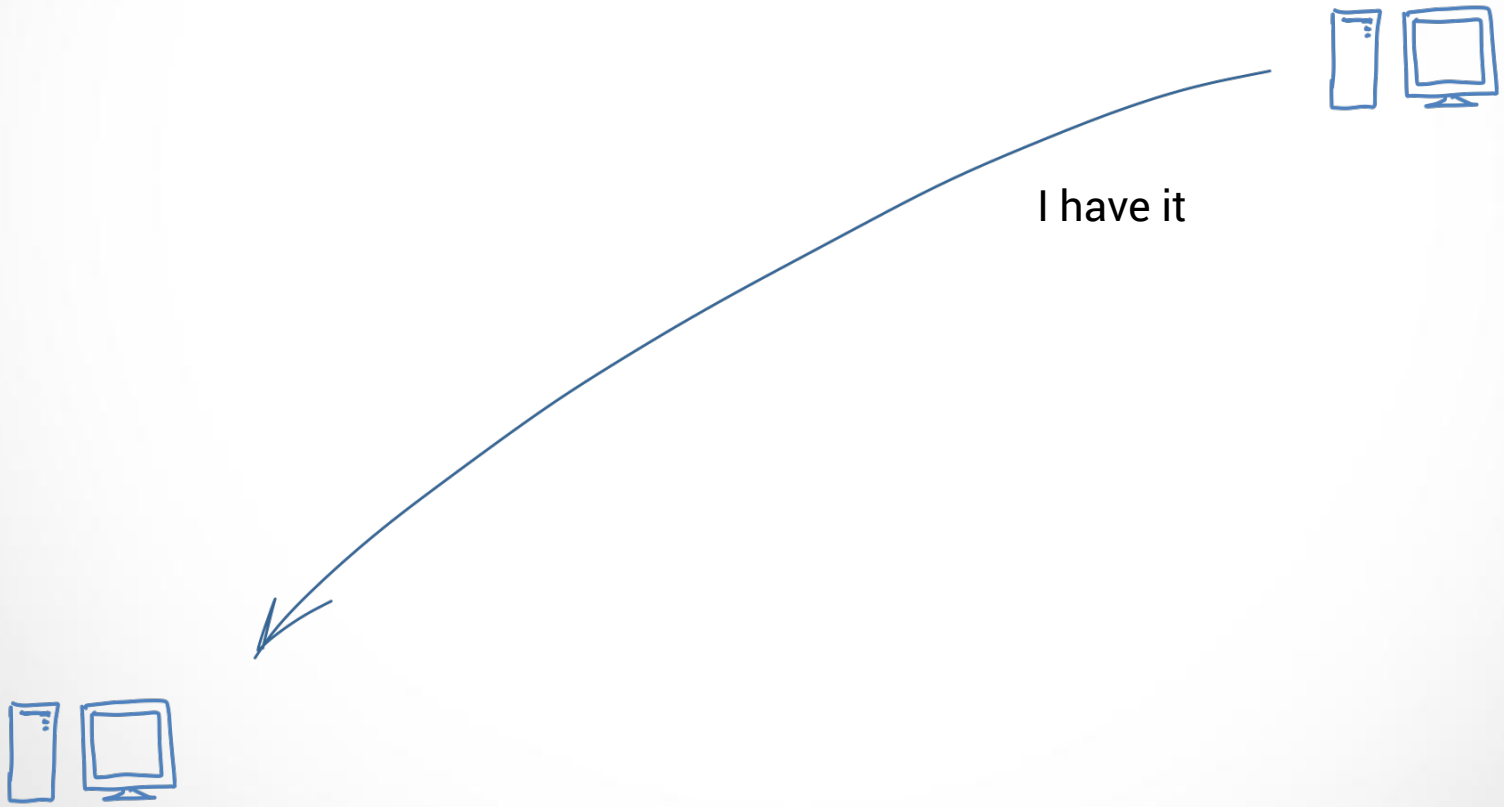

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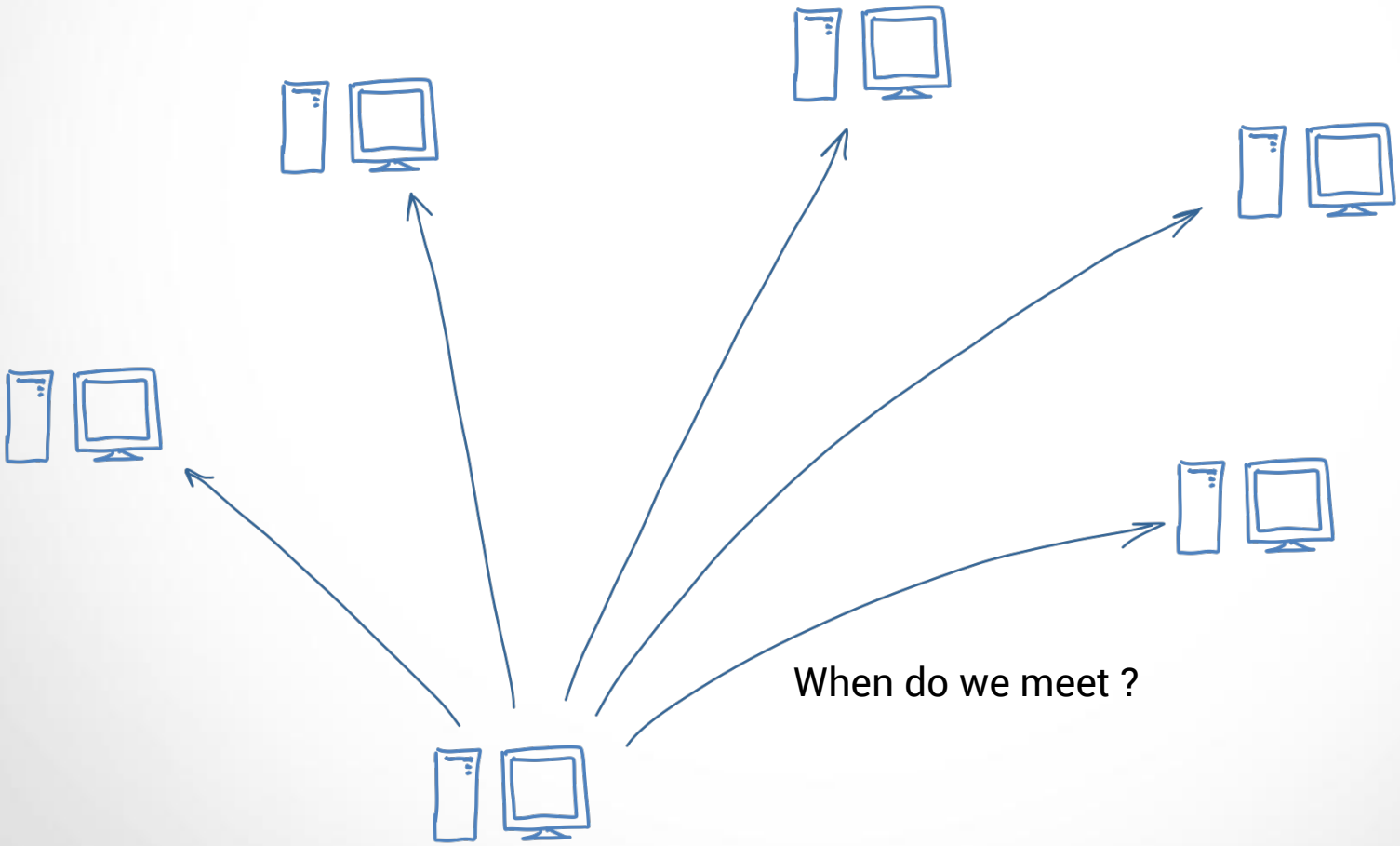

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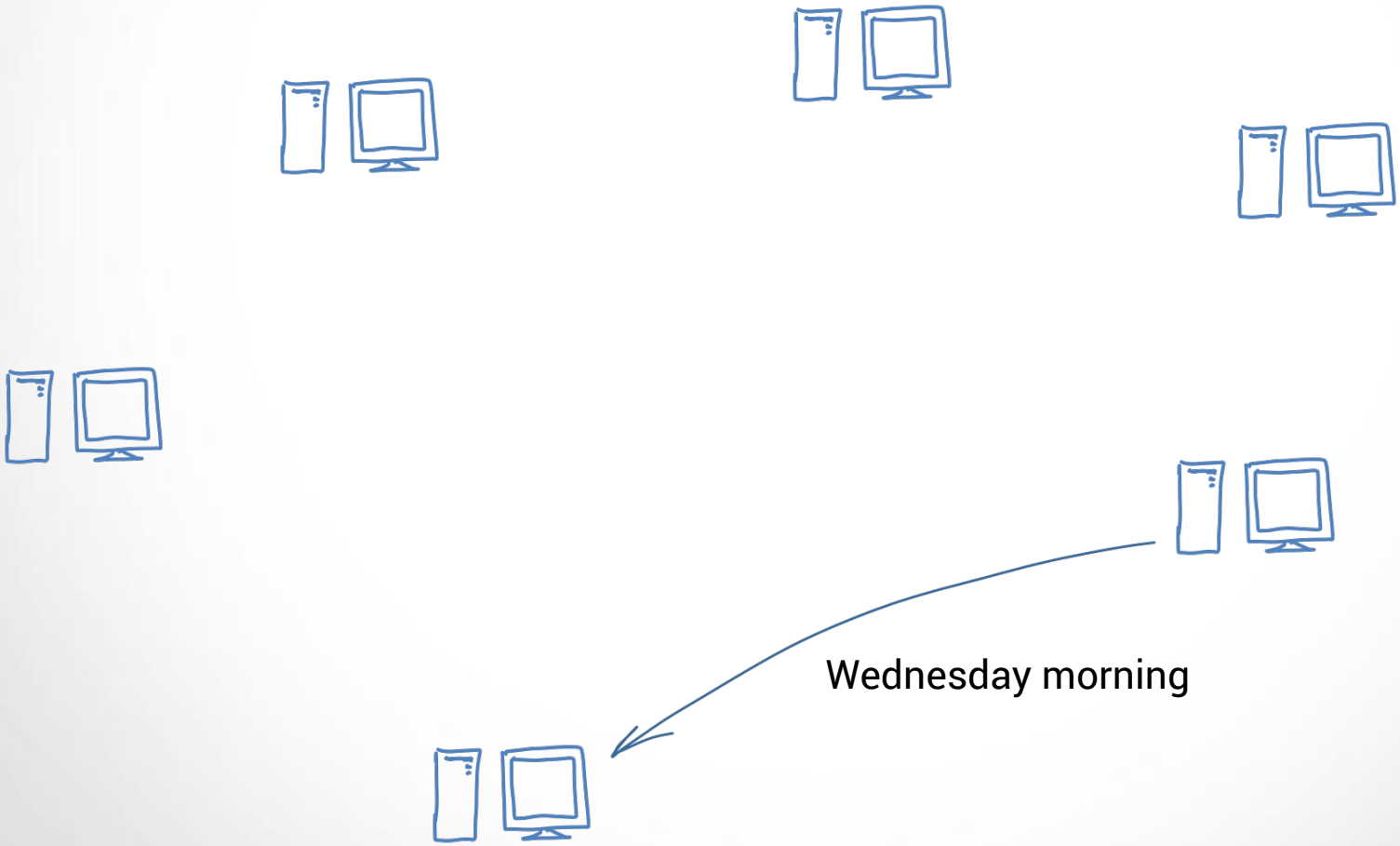

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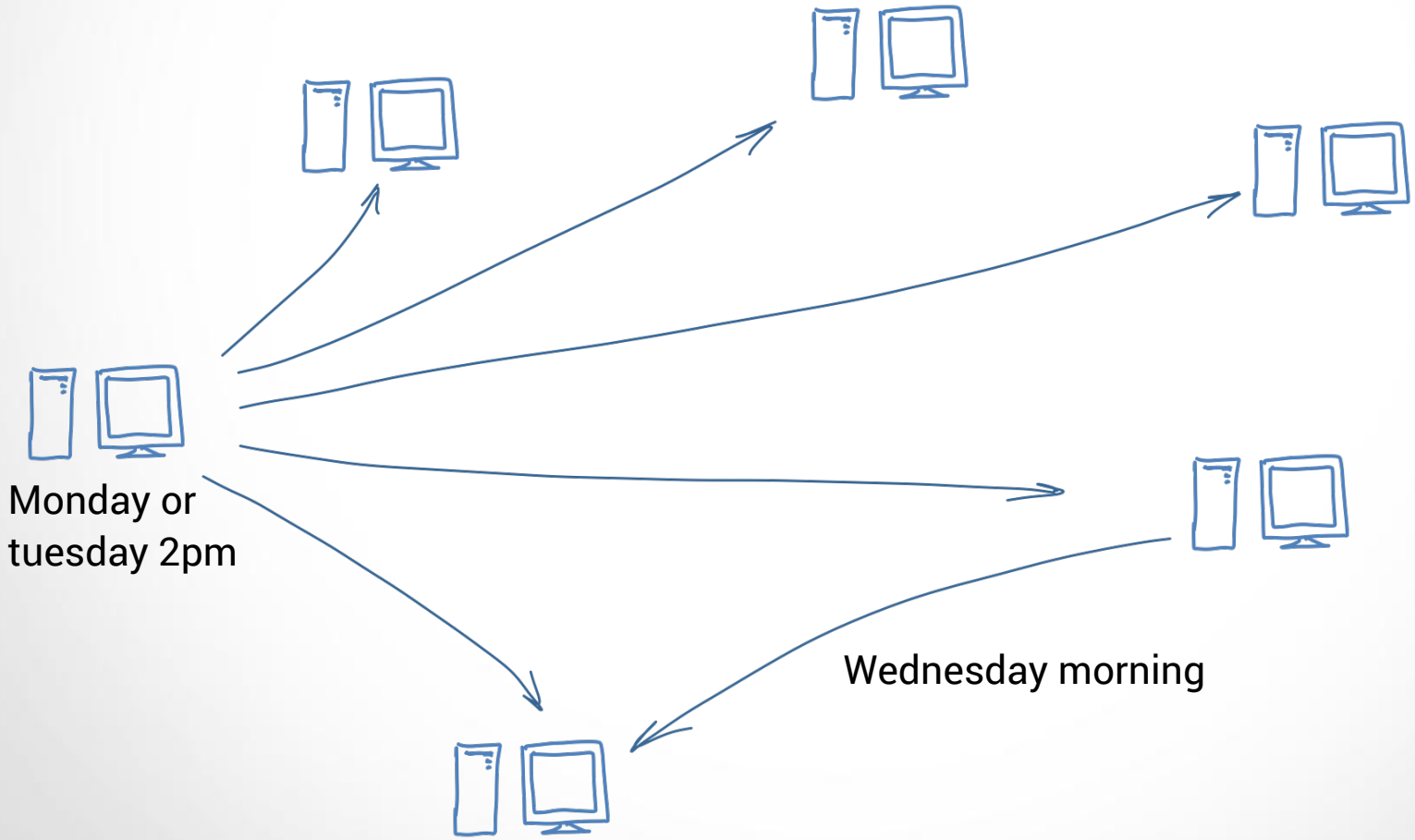

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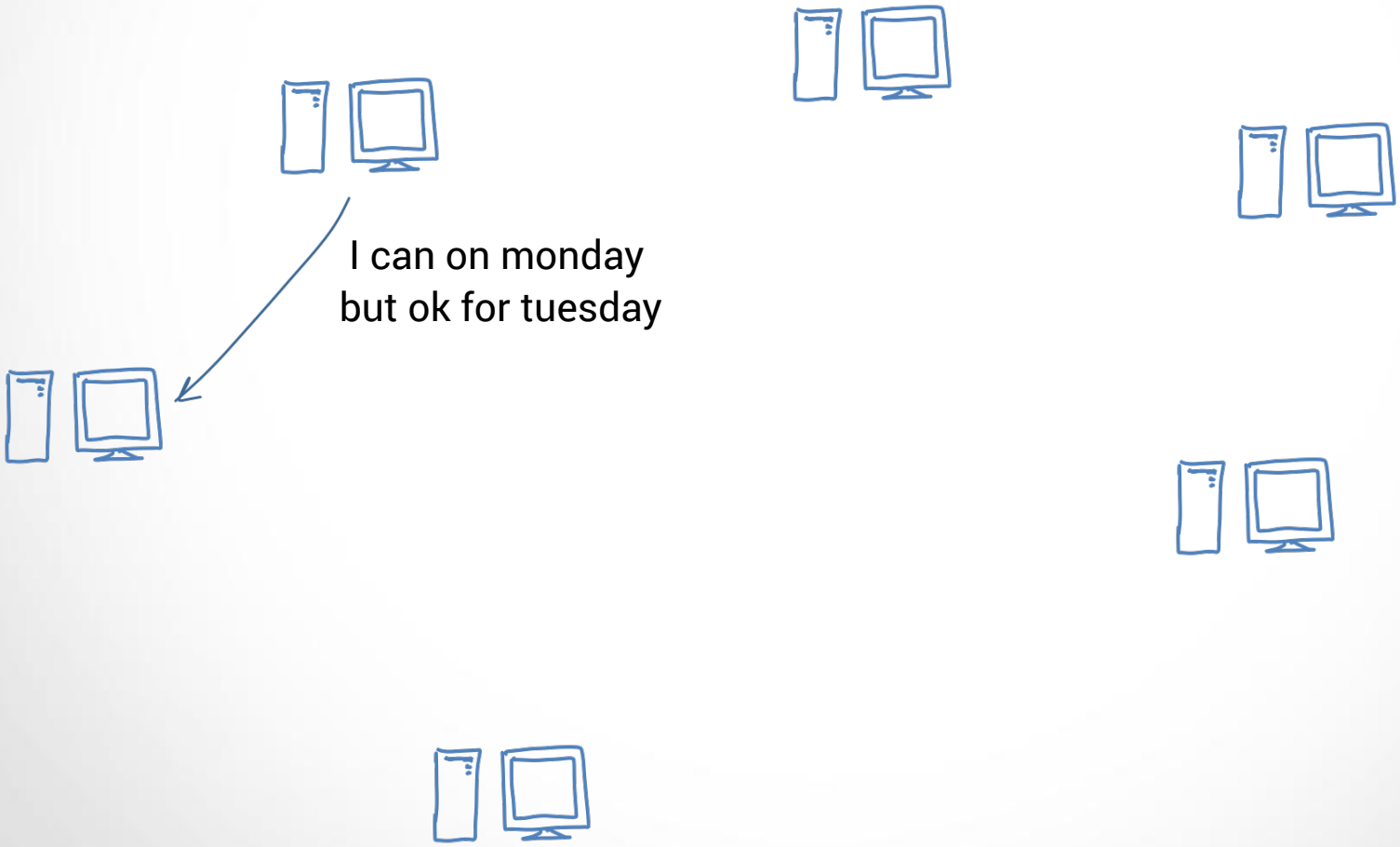

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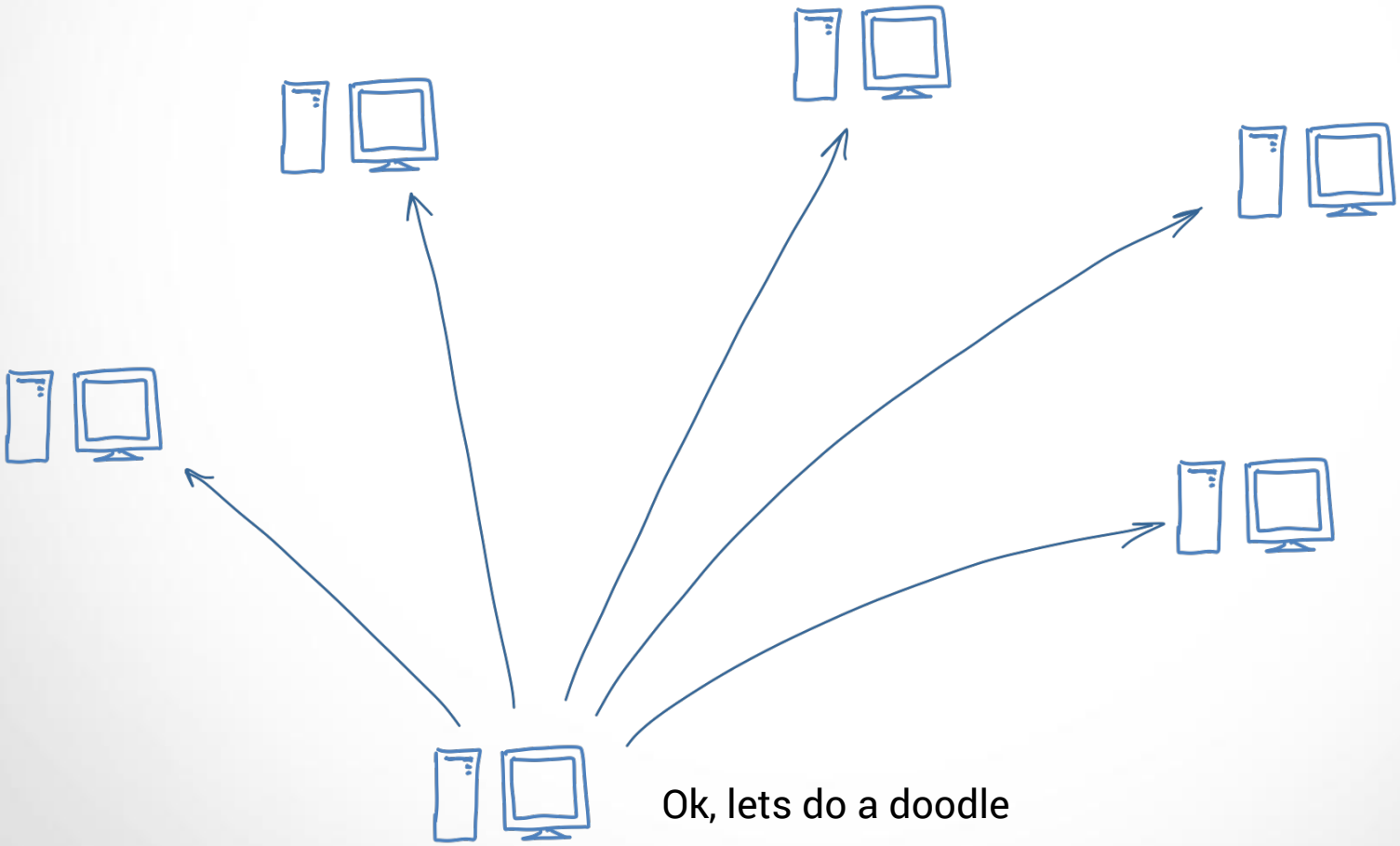

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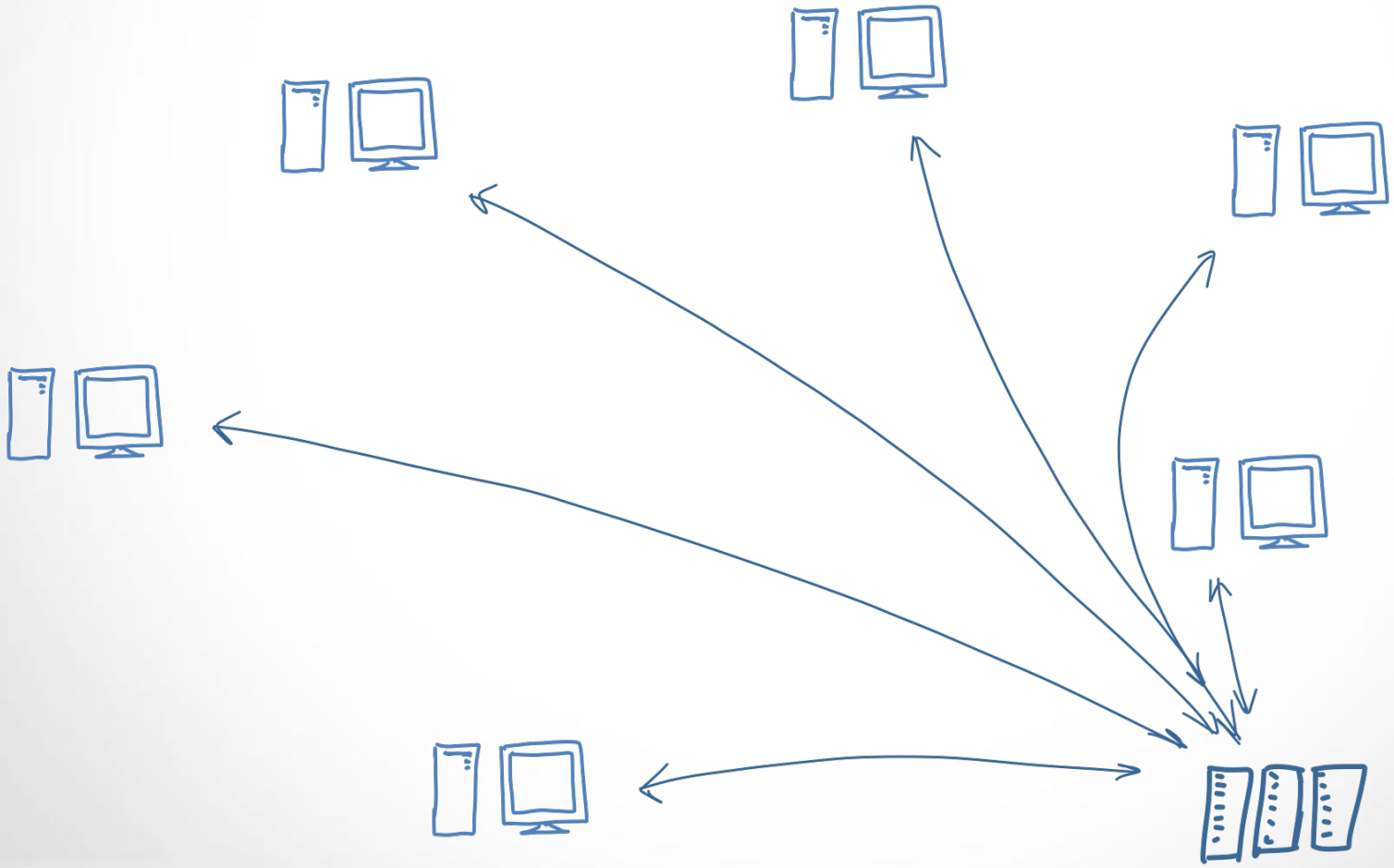

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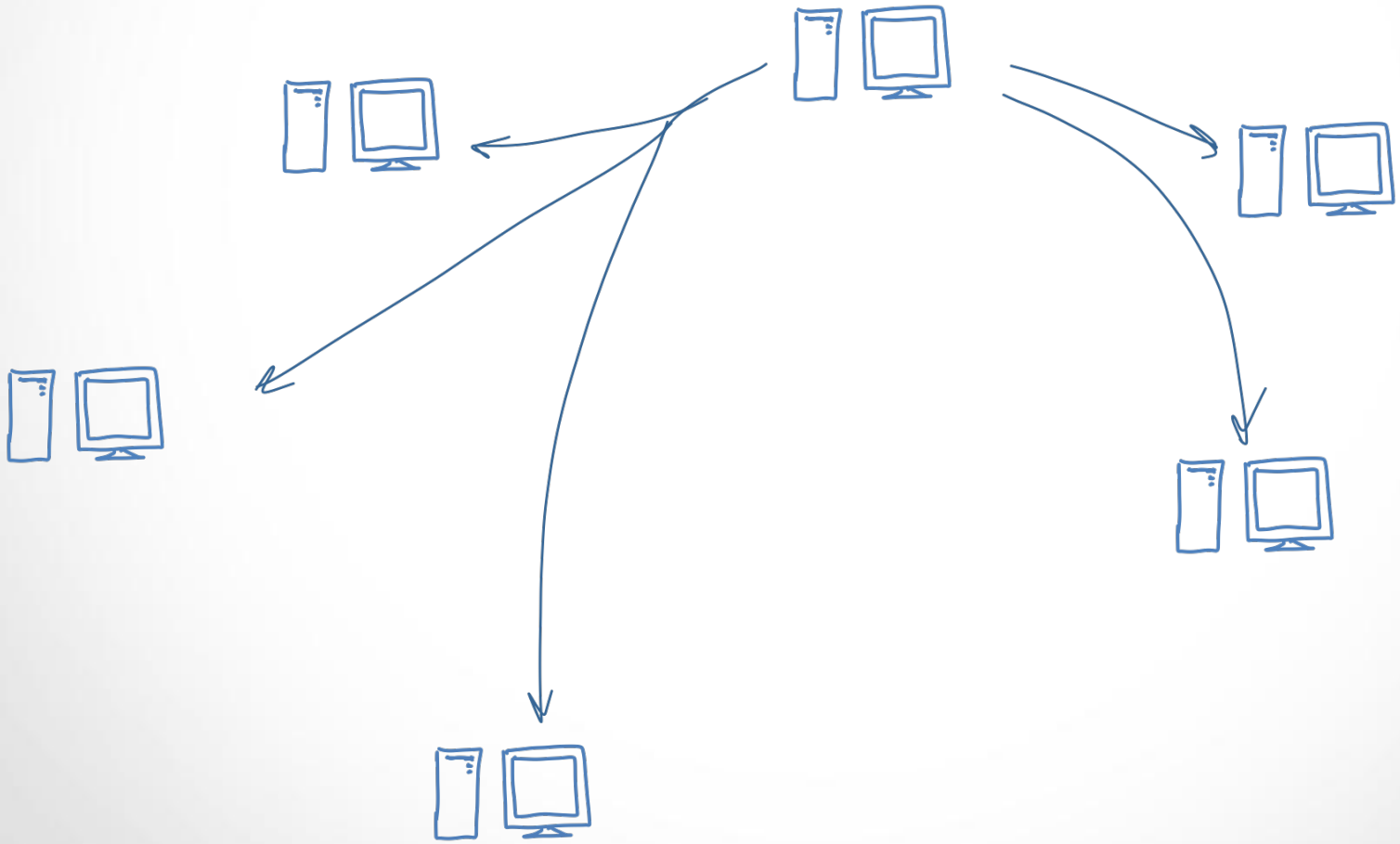

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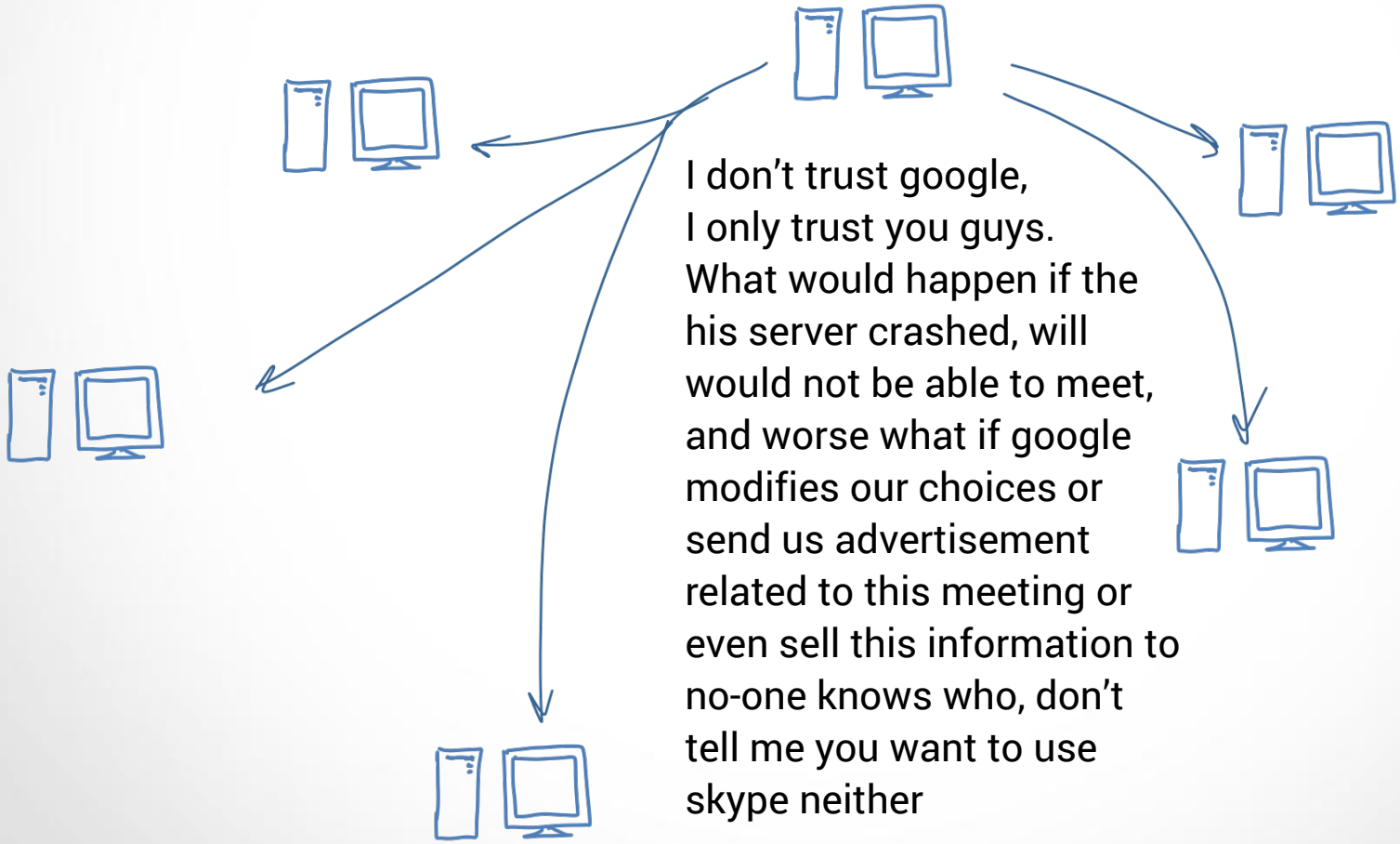

I don't trust google,
I only trust you guys.
What would happen if the his server crashed, will would not be able to meet, and worse what if google modifies our choices or send us advertisement related to this meeting or even sell this information to no-one knows who, don't tell me you want to use skype neither

# Distributed systems





But we have to

# Distributed systems

**Leslie Lamport** @LeslieLamport · 28 May 87

A distributed system is one in which the failure of a computer you didn't even know existed can render your own computer unusable.

252 280 2,3 k

Afficher cette discussion

# Distributed systems

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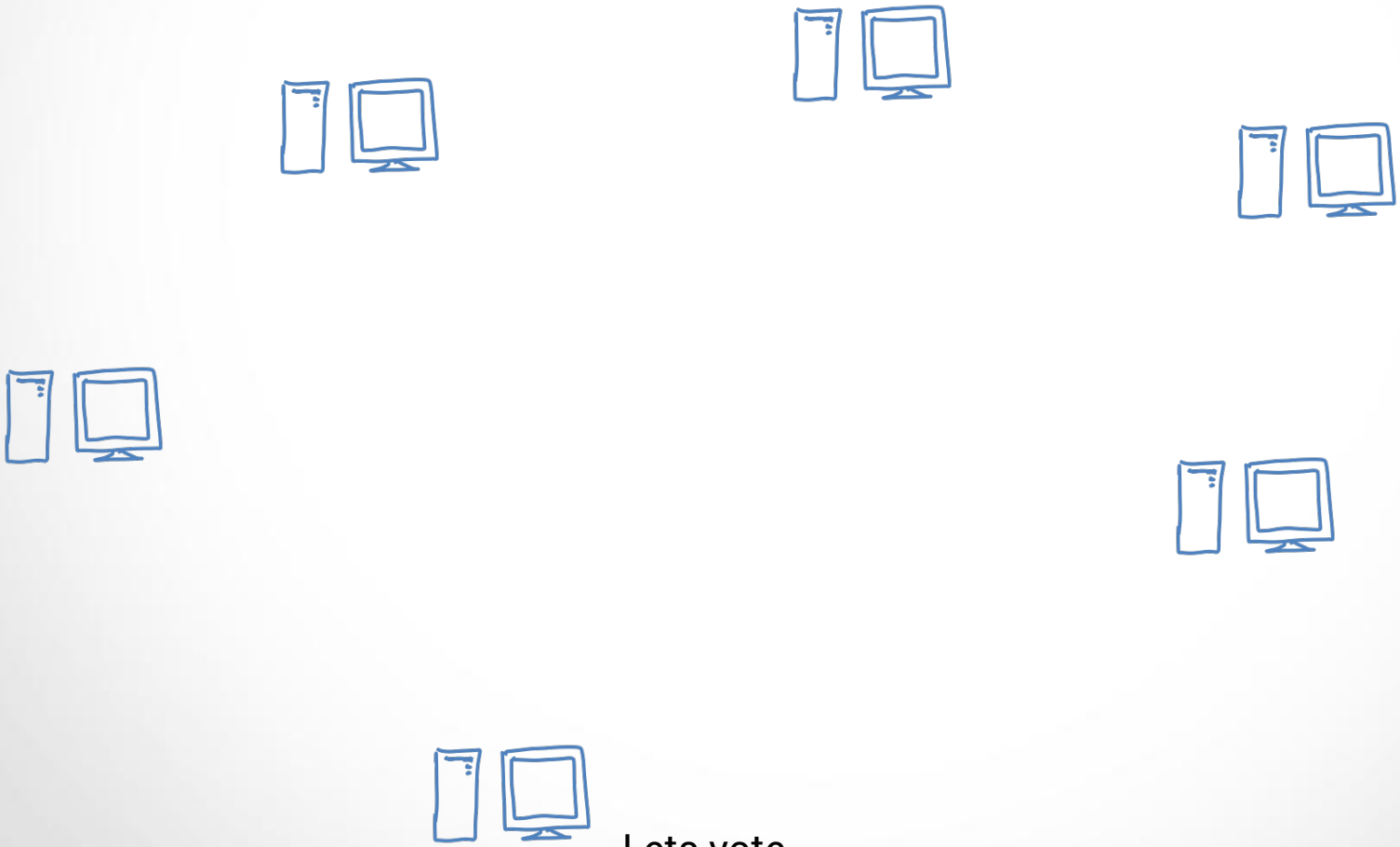

# Distributed systems

Yes

Yes

Yes

Yes

No 

Yes

Lets vote

# Distributed systems

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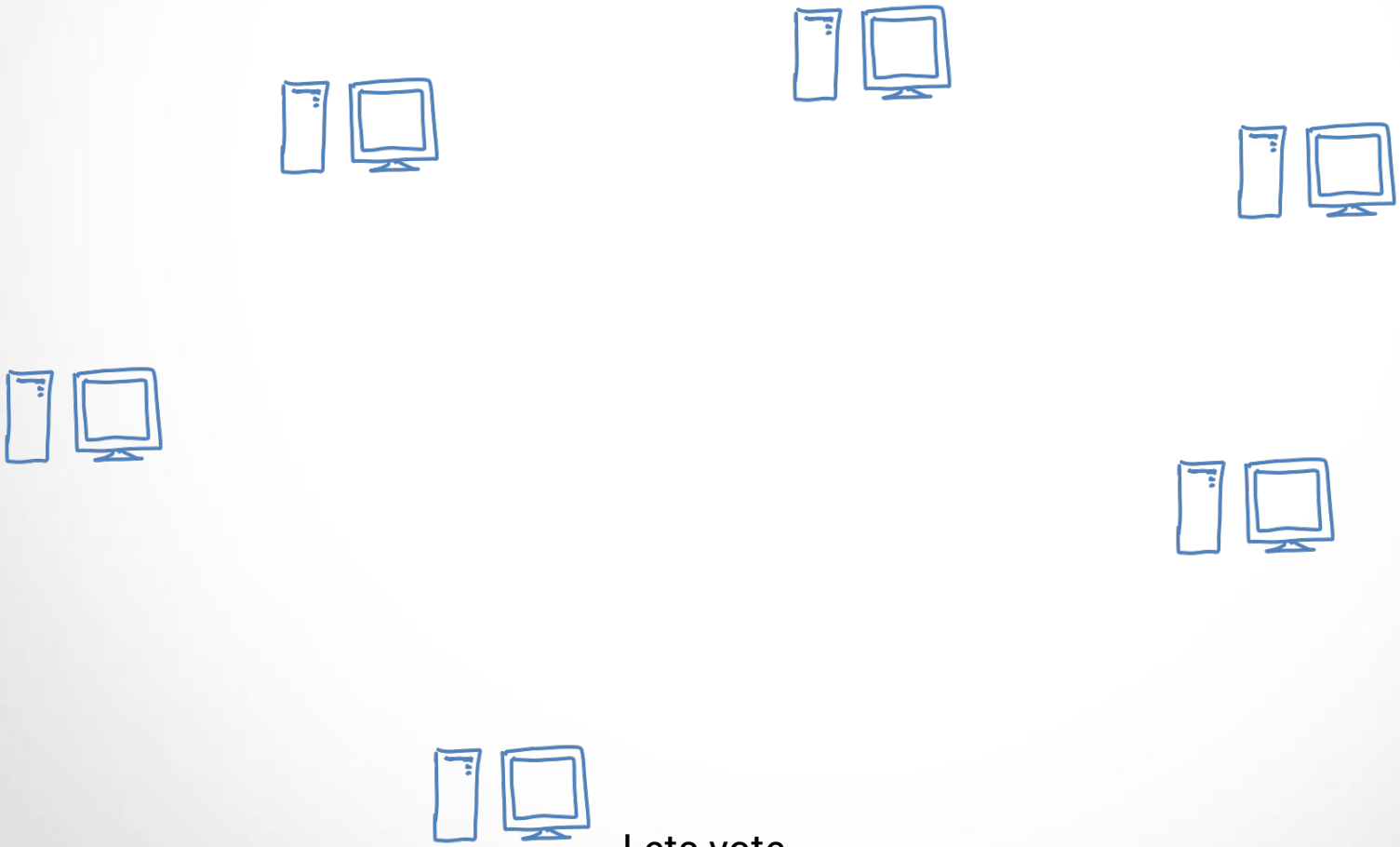

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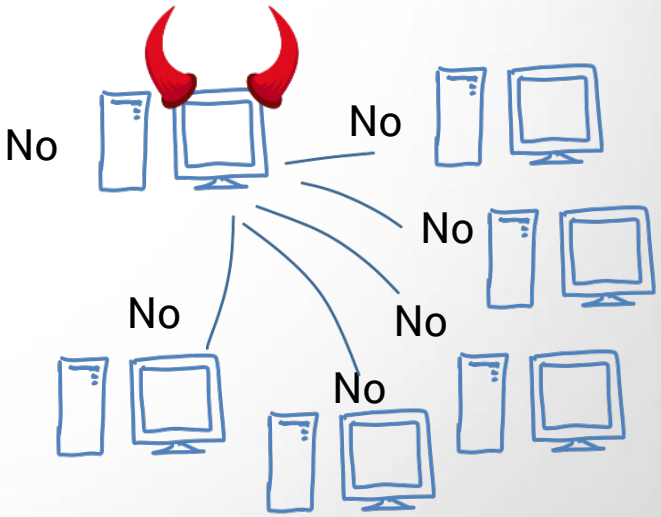


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# Distributed systems

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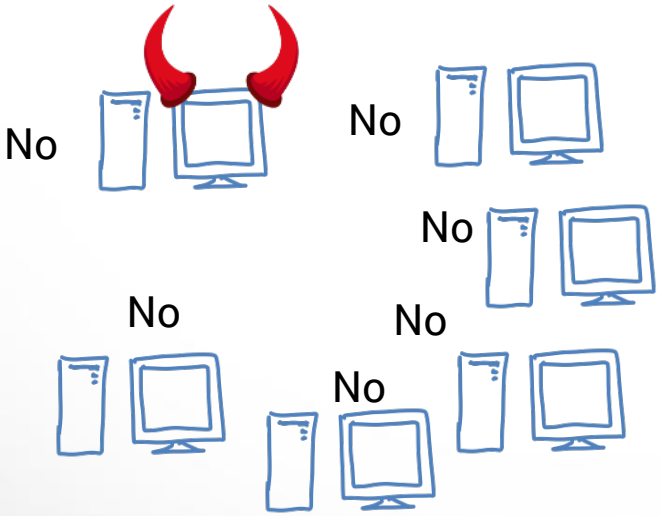
One can fake a large number of computers




vote

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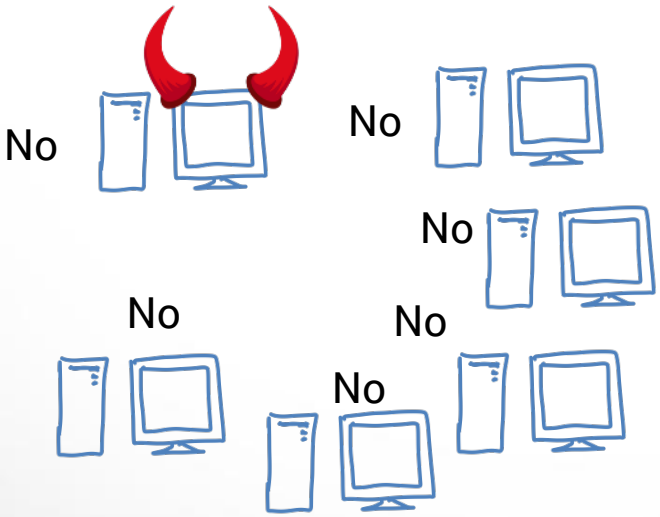


One cannot fake the computing power, using Proof of Work

vote

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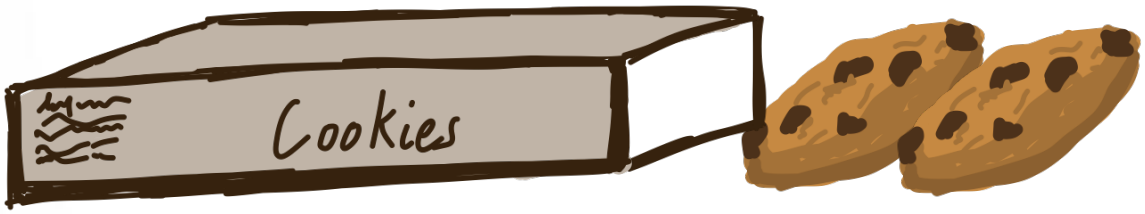


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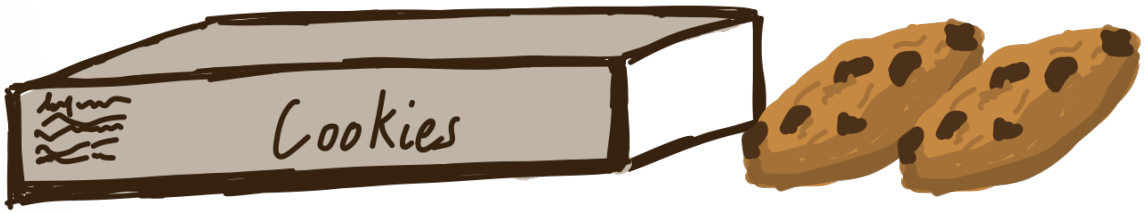


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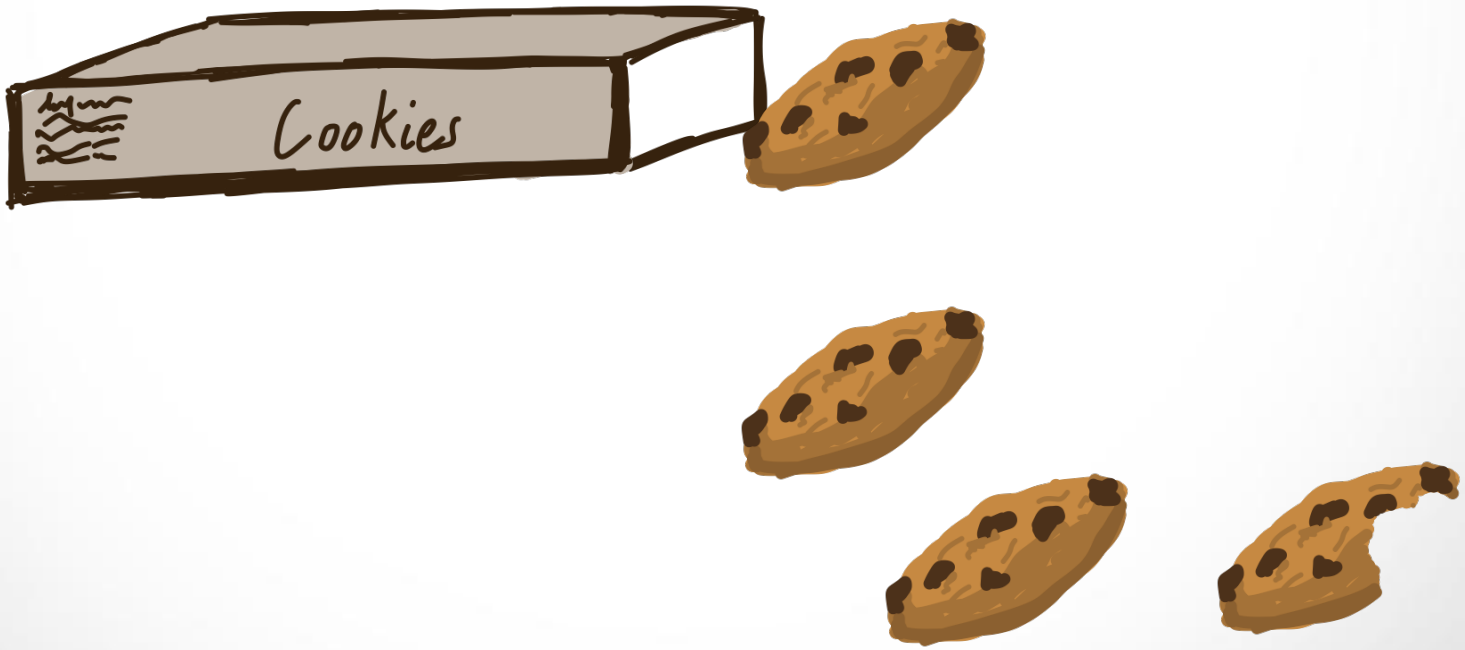

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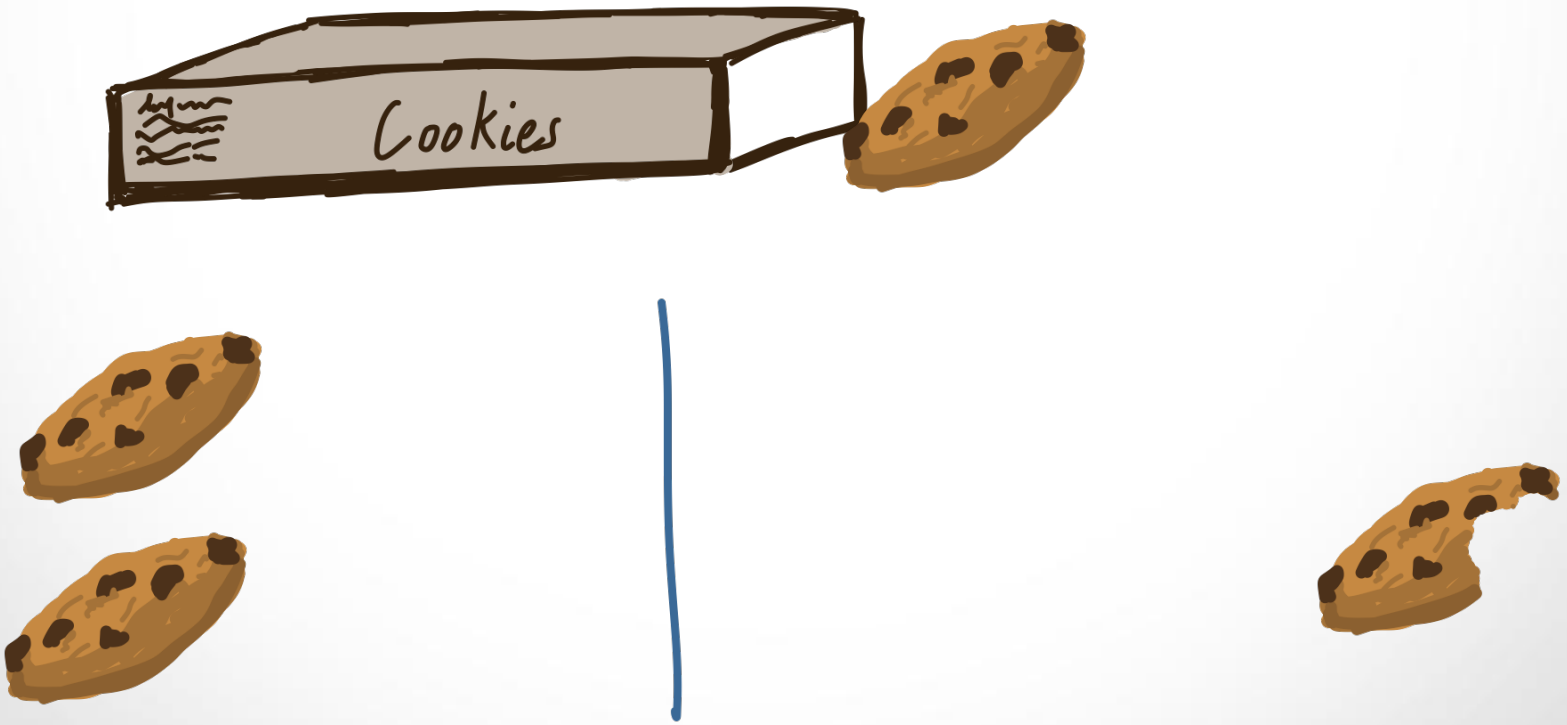

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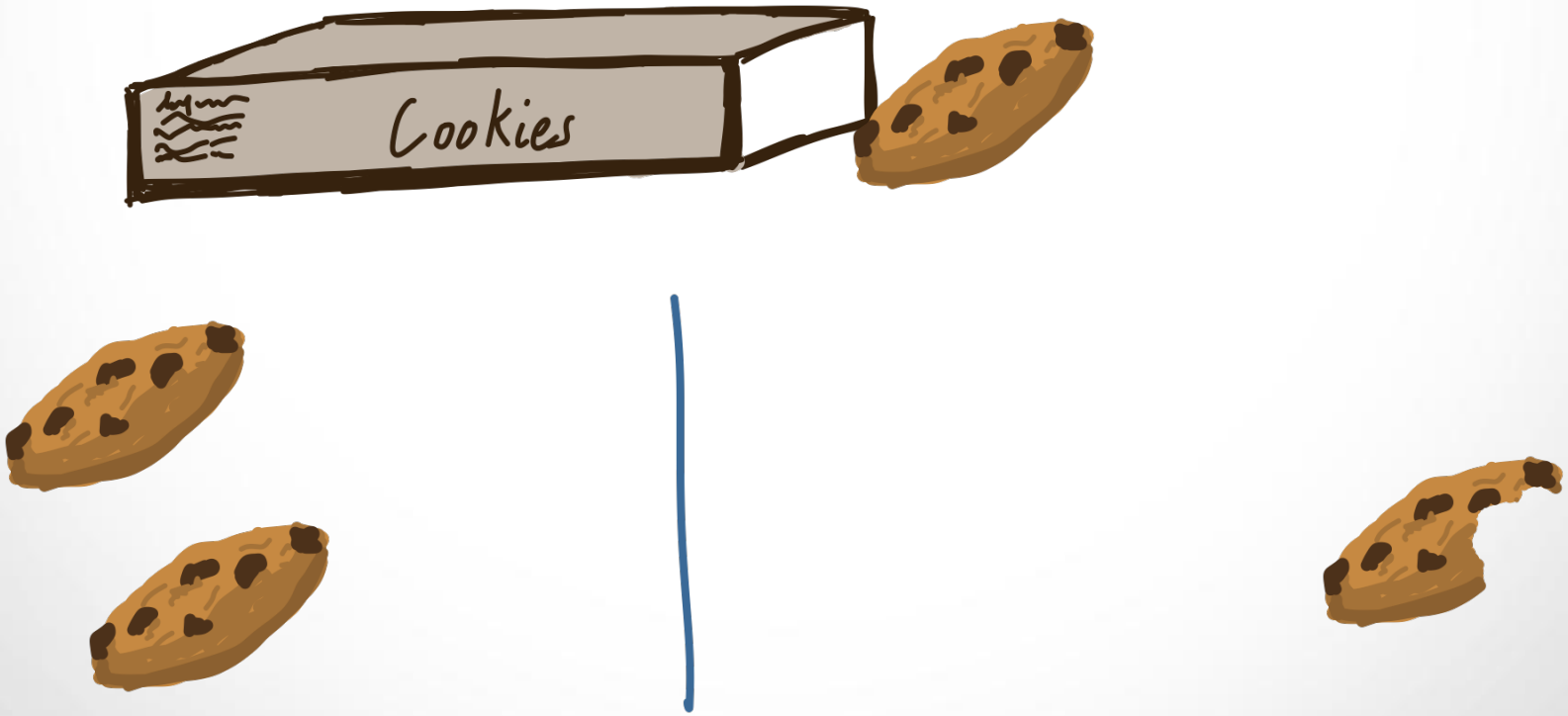

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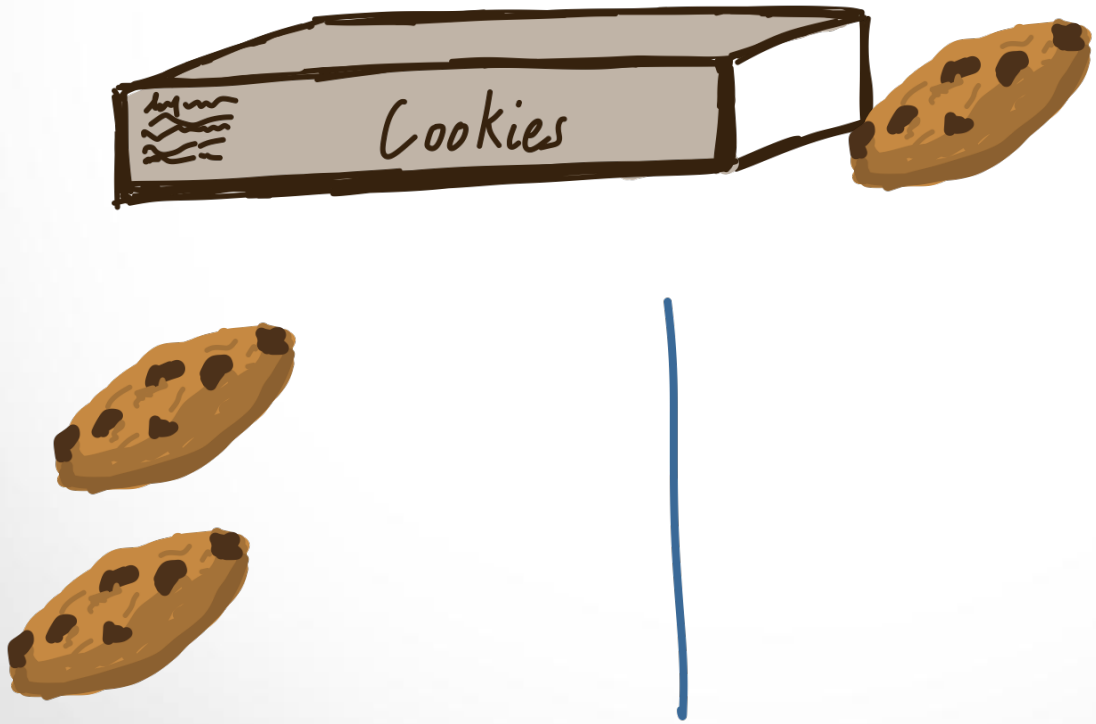

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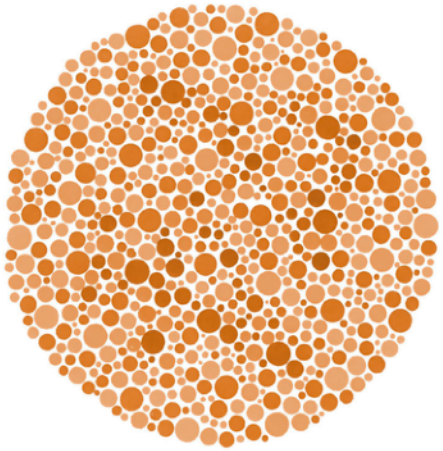

How do color blind people know they are different

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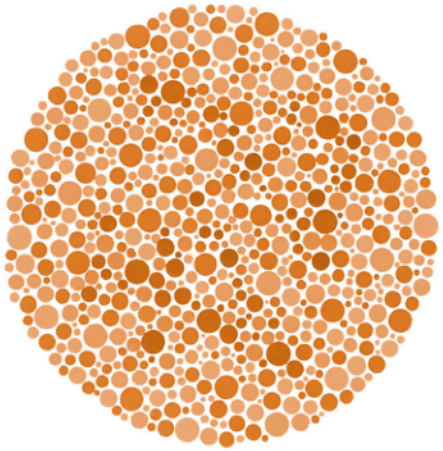

How do color blind people know they are different

And that its not just a prank ?

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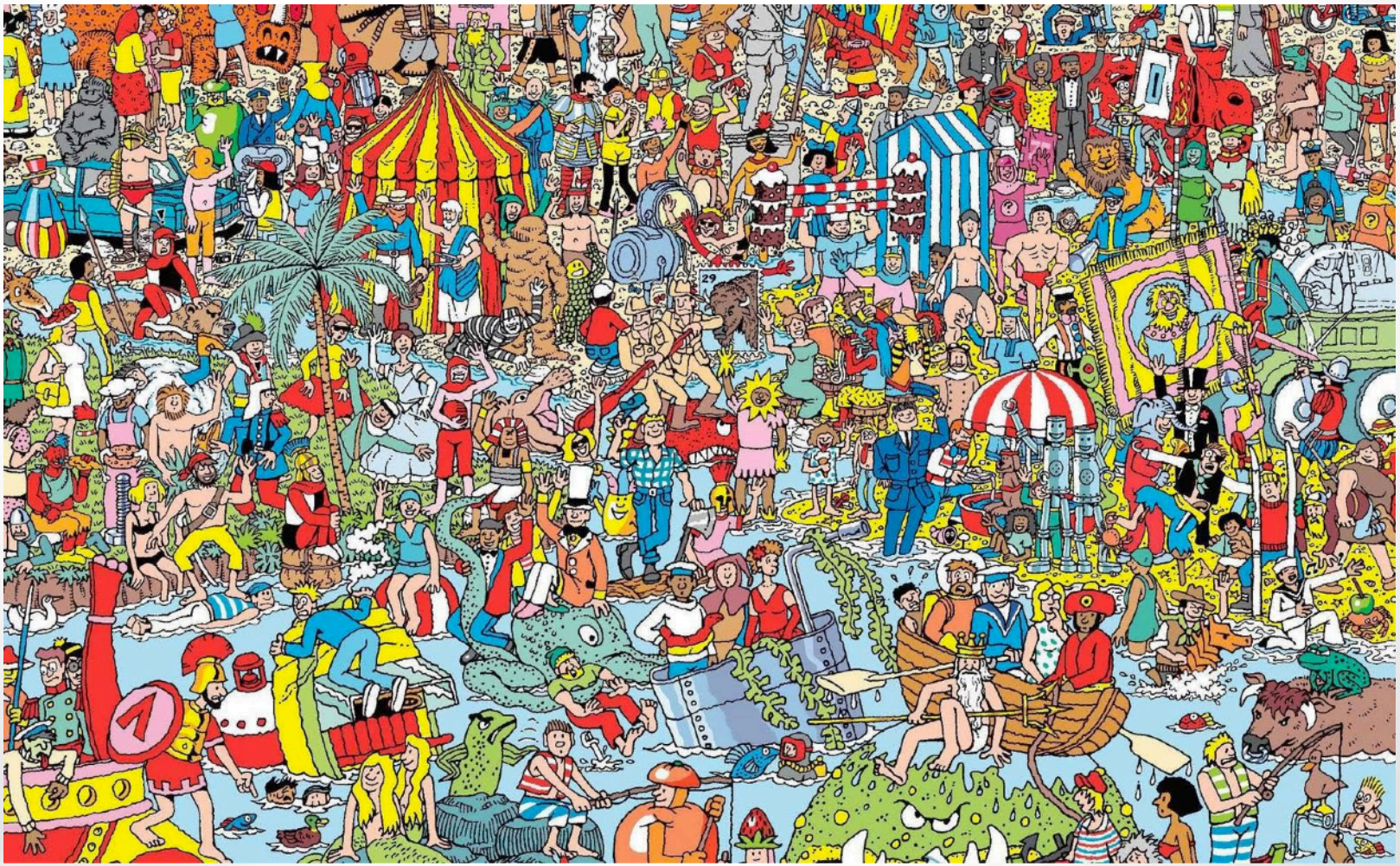

# Zero Proof Knowledge

Naor, M., Naor, Y., & Reingold, O. (1999, March). Applied kid cryptography or how to convince your children you are not cheating. In Eurocrypt'94

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What if I don’t want to show them the address ?

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What if I don’t want to show them the address ?

There are ways to prove it without revealing anything

- Decentralized Democracy
- Crypto kitties
- Ensuring Documents Validity

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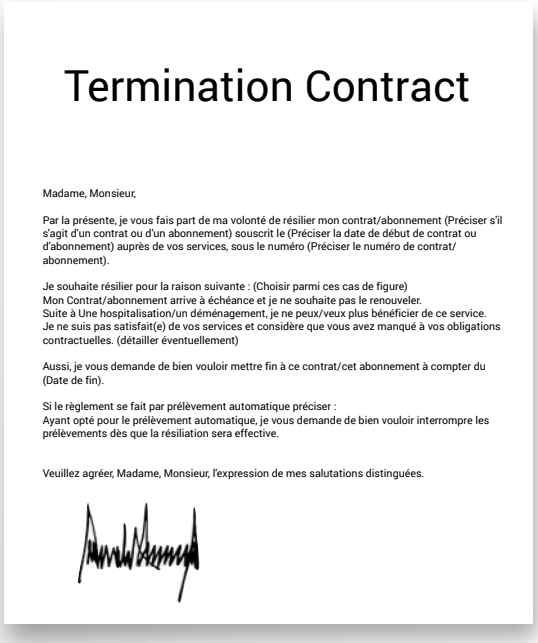

## Termination Contract

Madame, Monsieur,

Par la présente, je vous fais part de ma volonté de résilier mon contrat/abonnement (Préciser s'il s'agit d'un contrat ou d'un abonnement) souscrit le (Préciser la date de début de contrat ou d'abonnement) auprès de vos services, sous le numéro (Préciser le numéro de contrat/ abonnement).

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Aussi, je vous demande de bien vouloir mettre fin à ce contrat/cet abonnement à compter du (Date de fin).

Si le règlement se fait par prélèvement automatique préciser :
Ayant opté pour le prélèvement automatique, je vous demande de bien vouloir interrompre les prélèvements dès que la résiliation sera effective.

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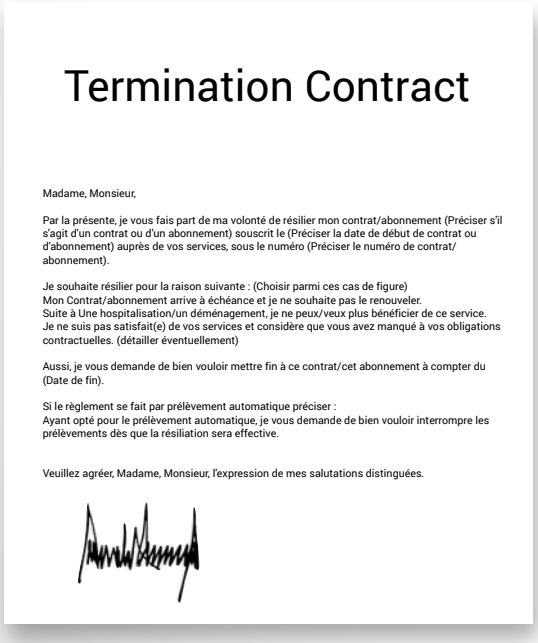

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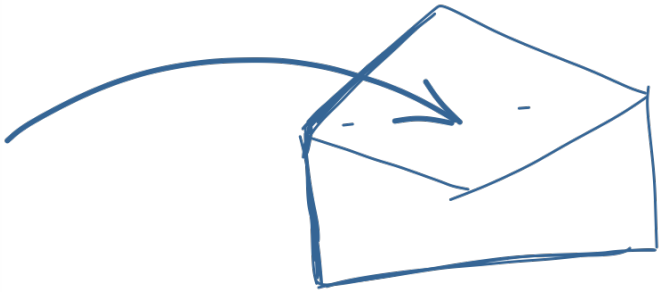

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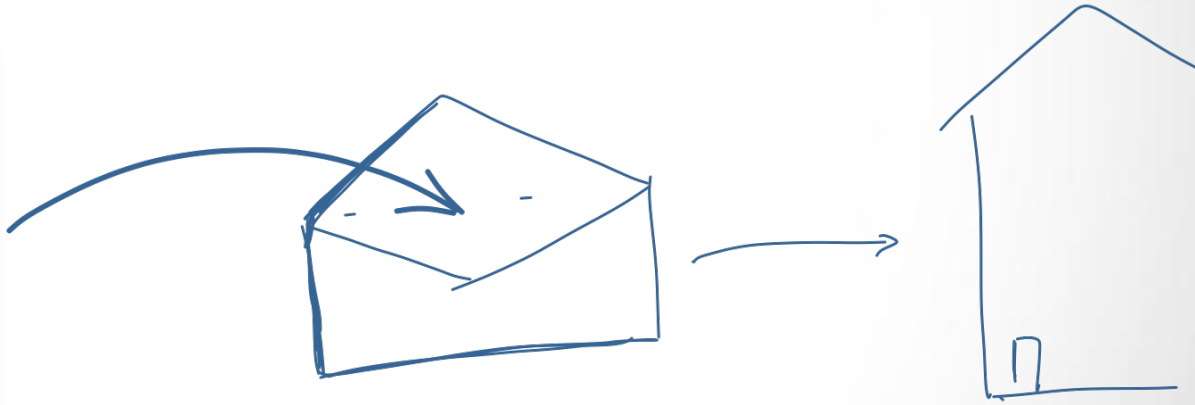

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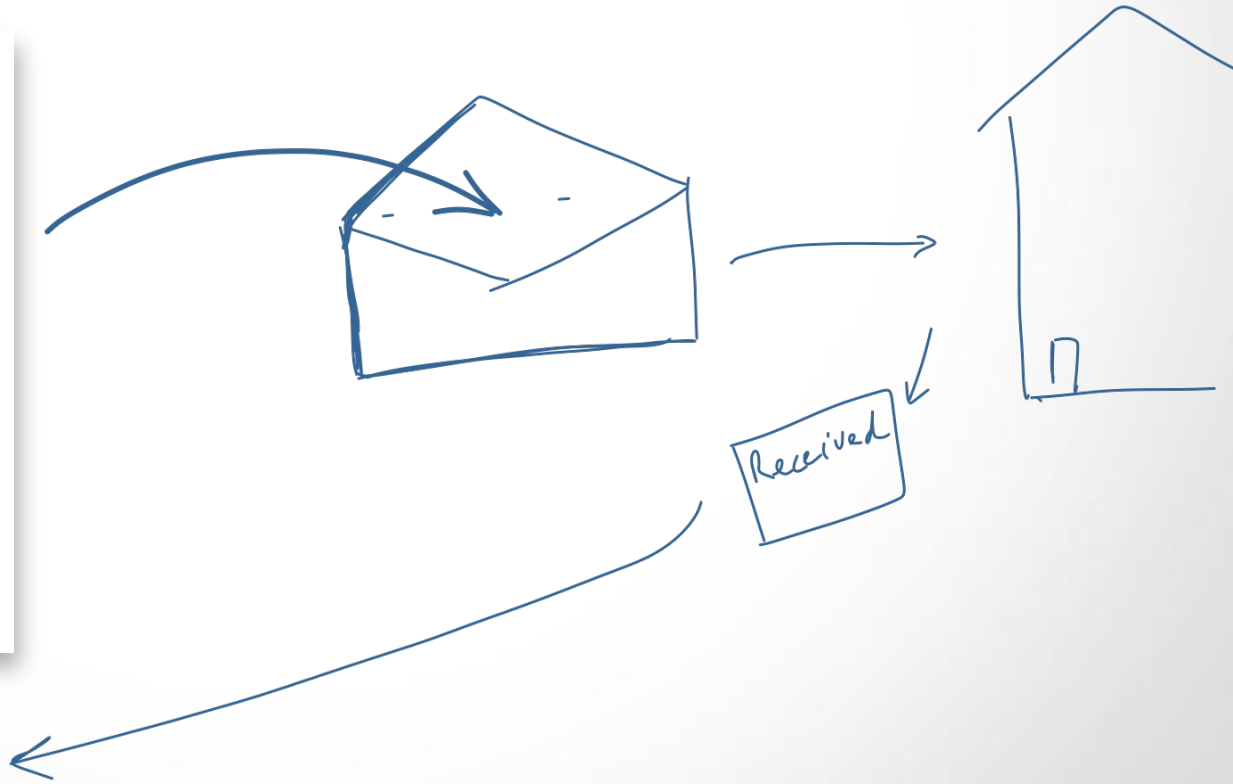

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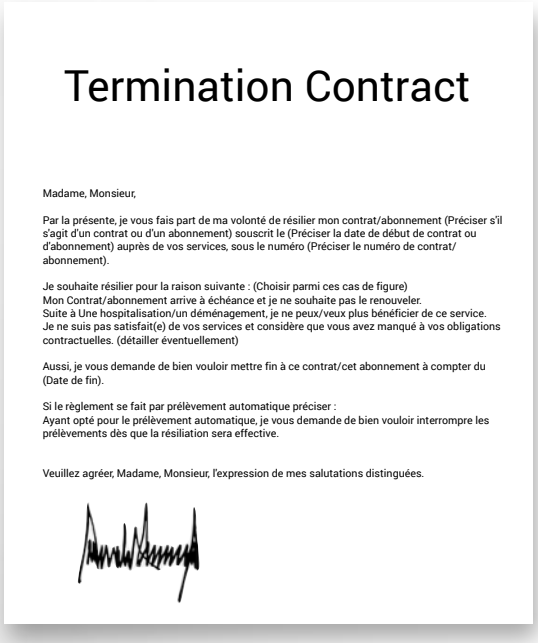

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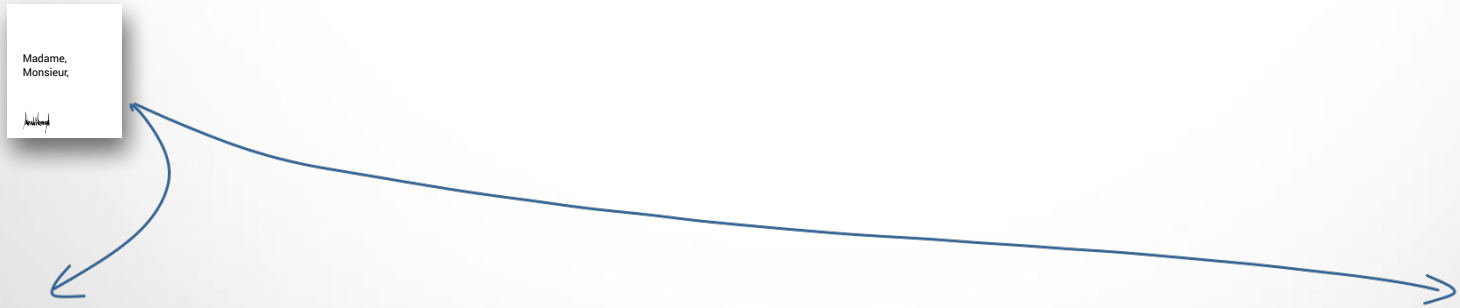

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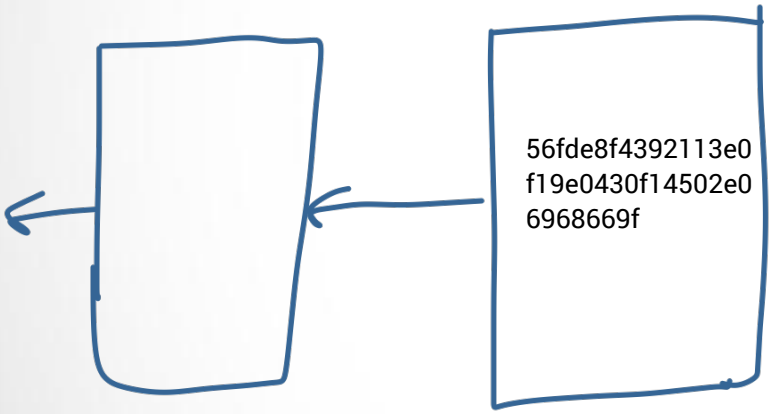


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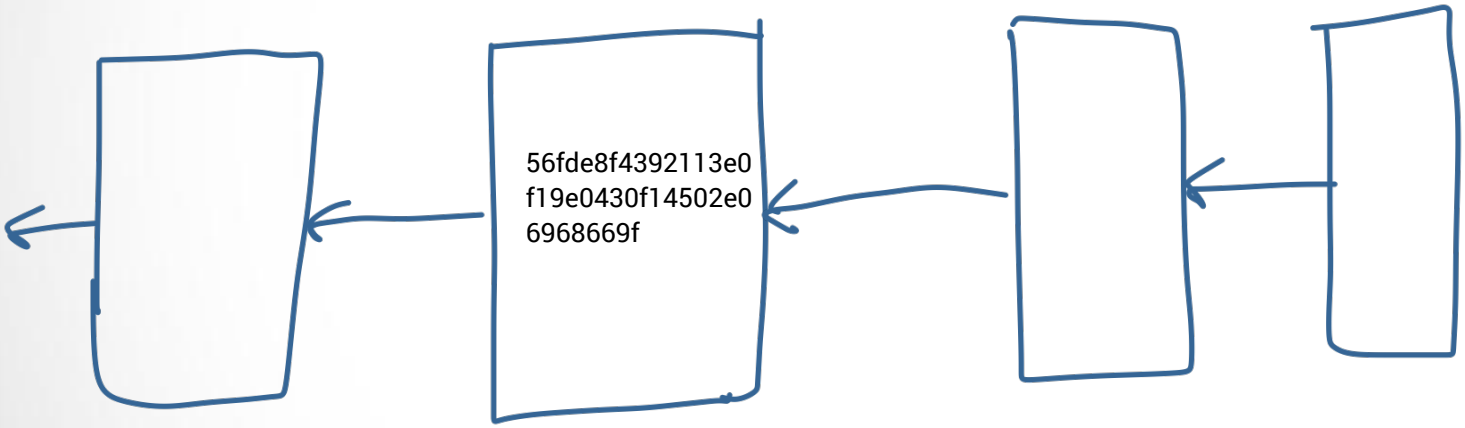


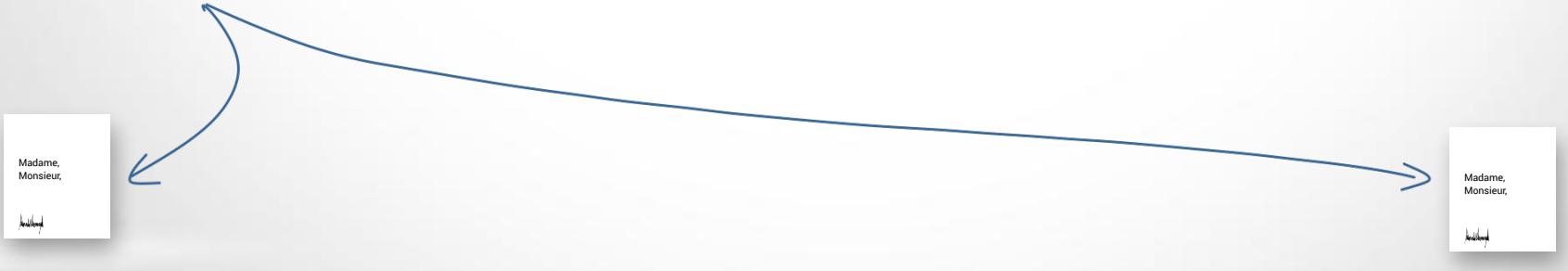

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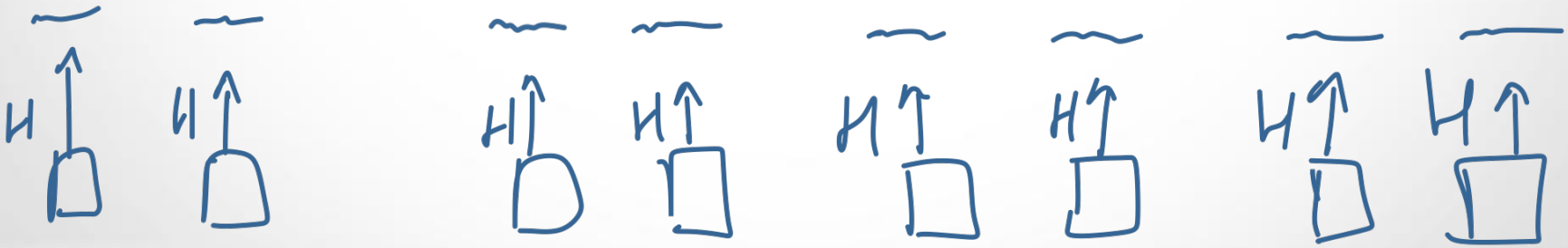

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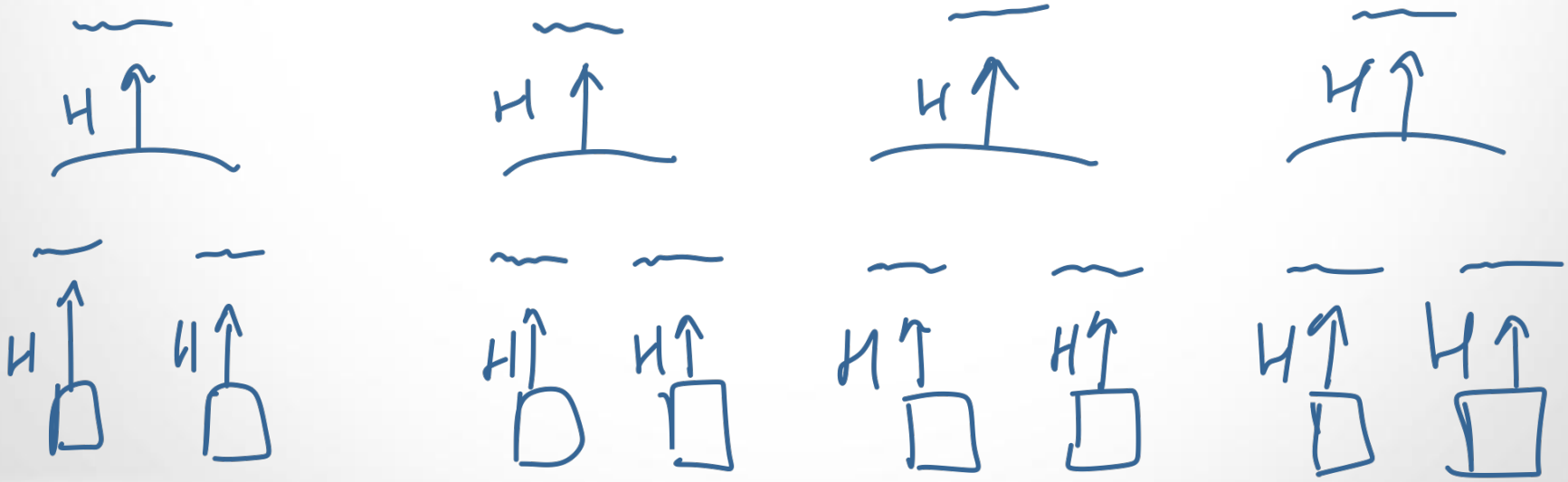

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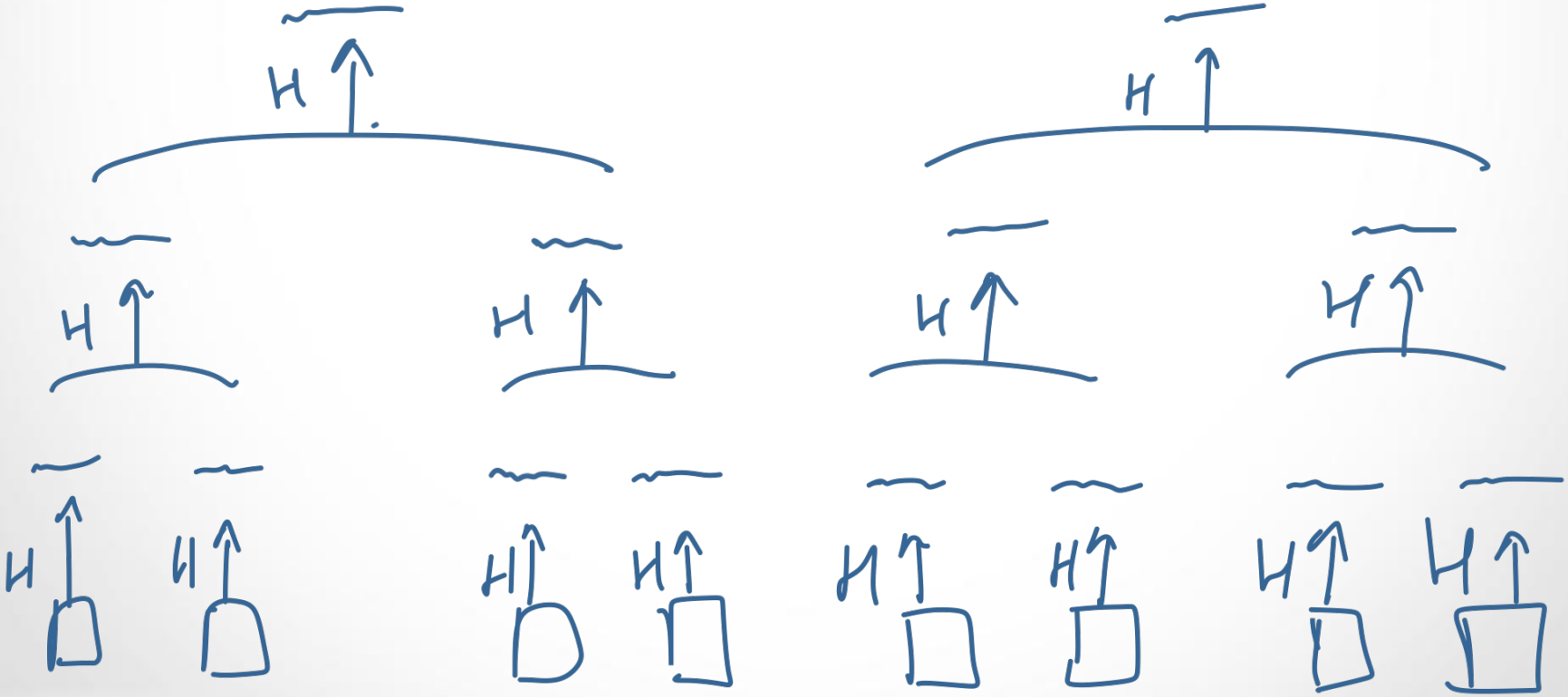

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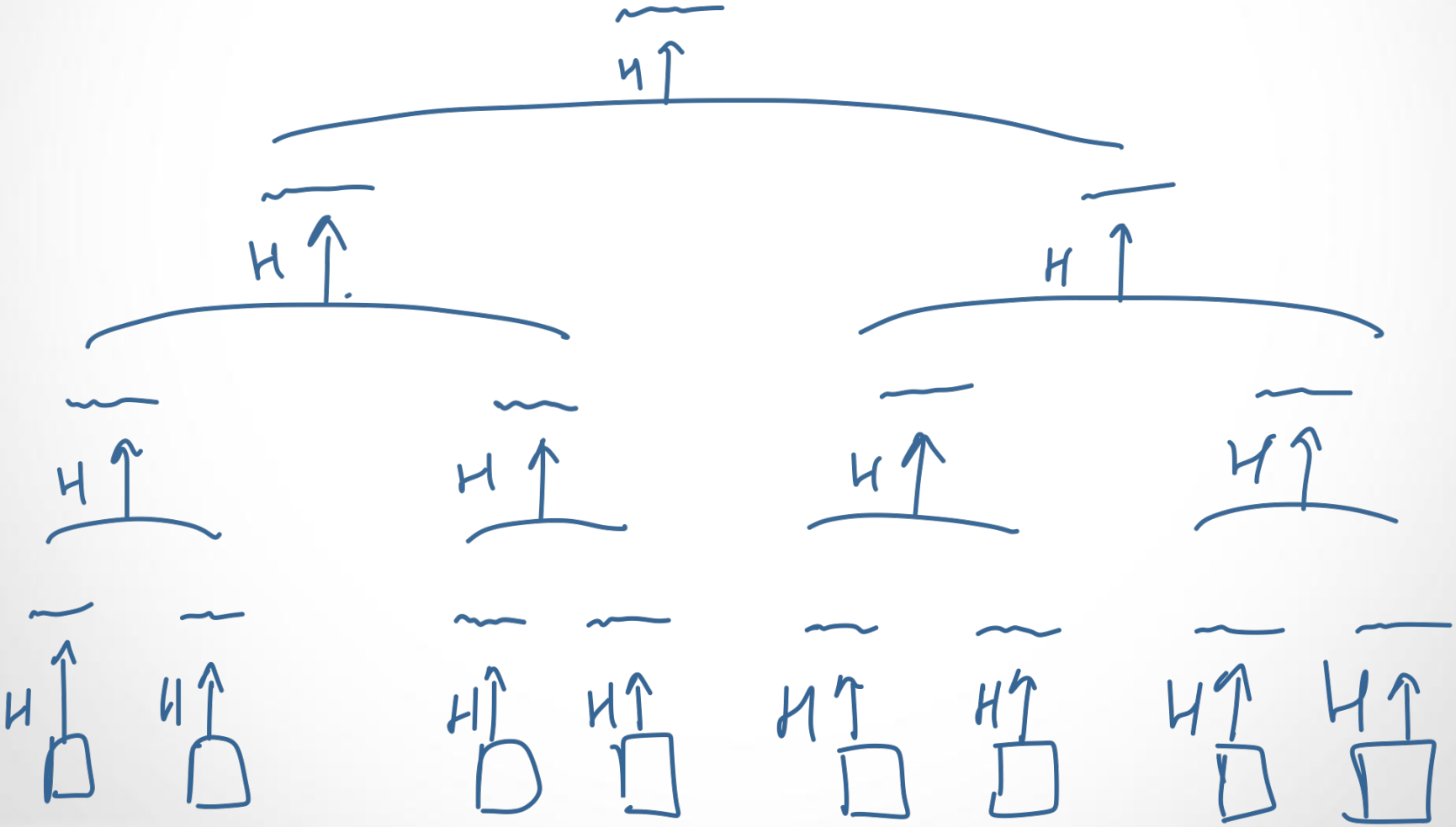

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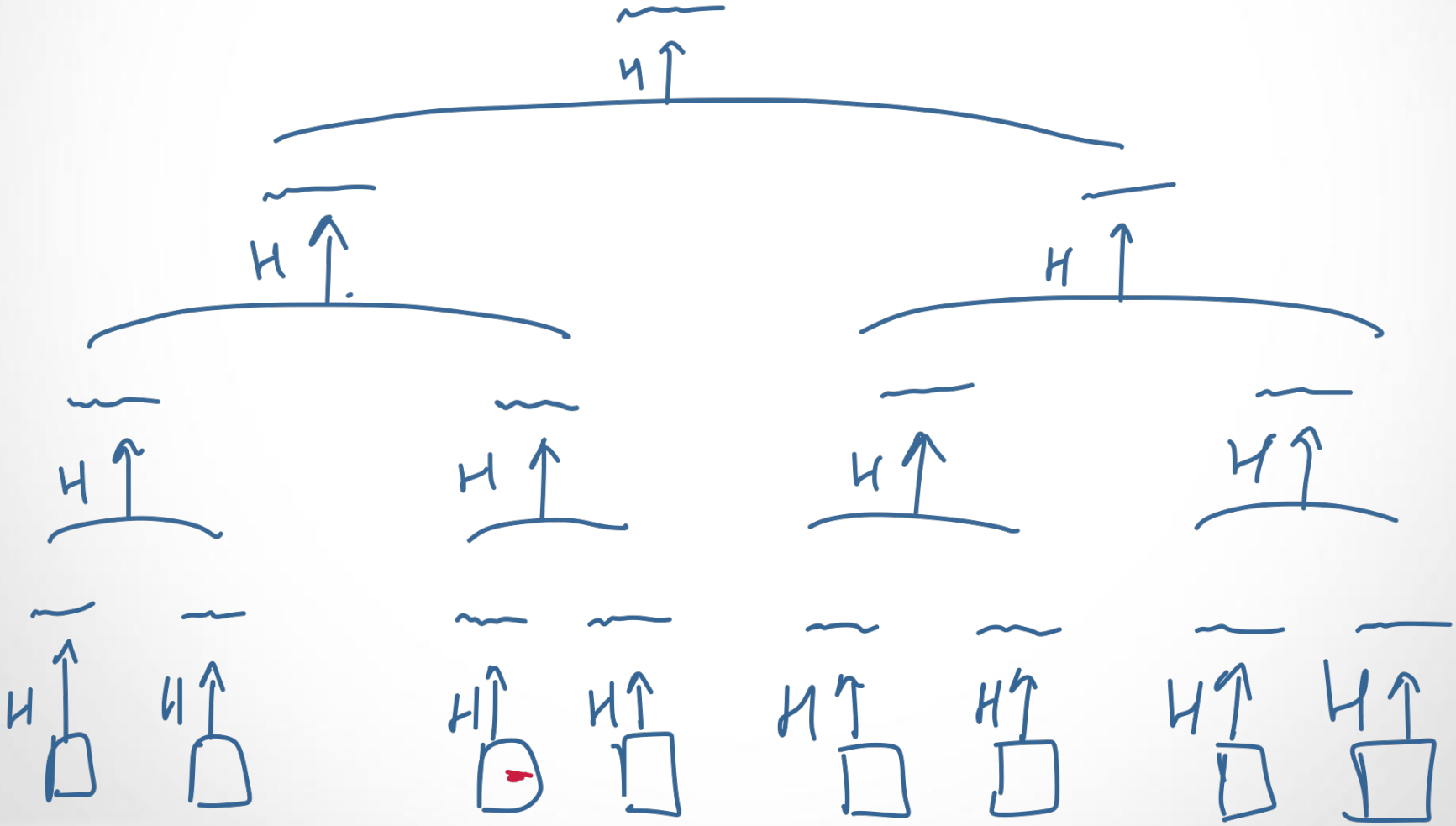

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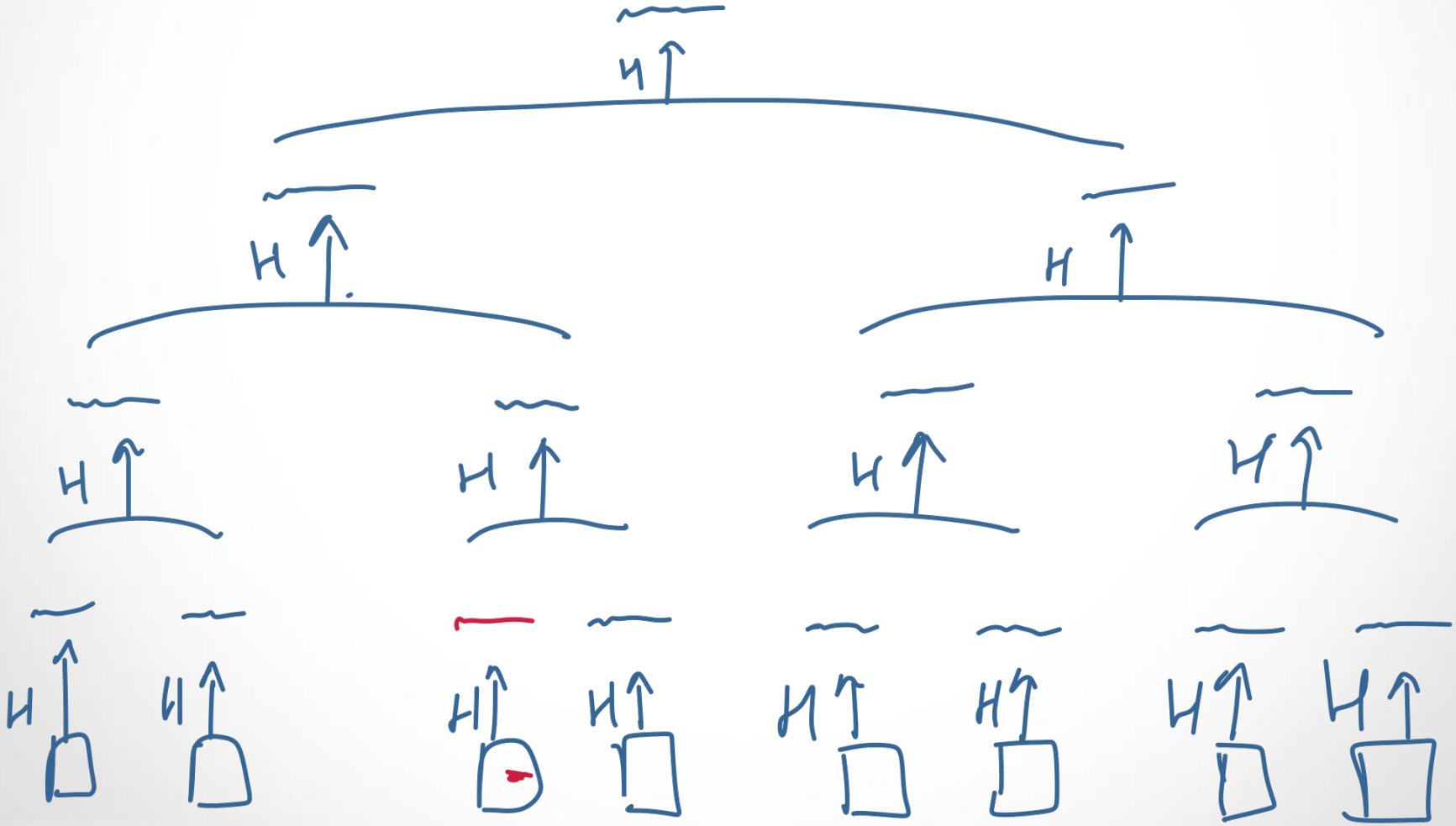

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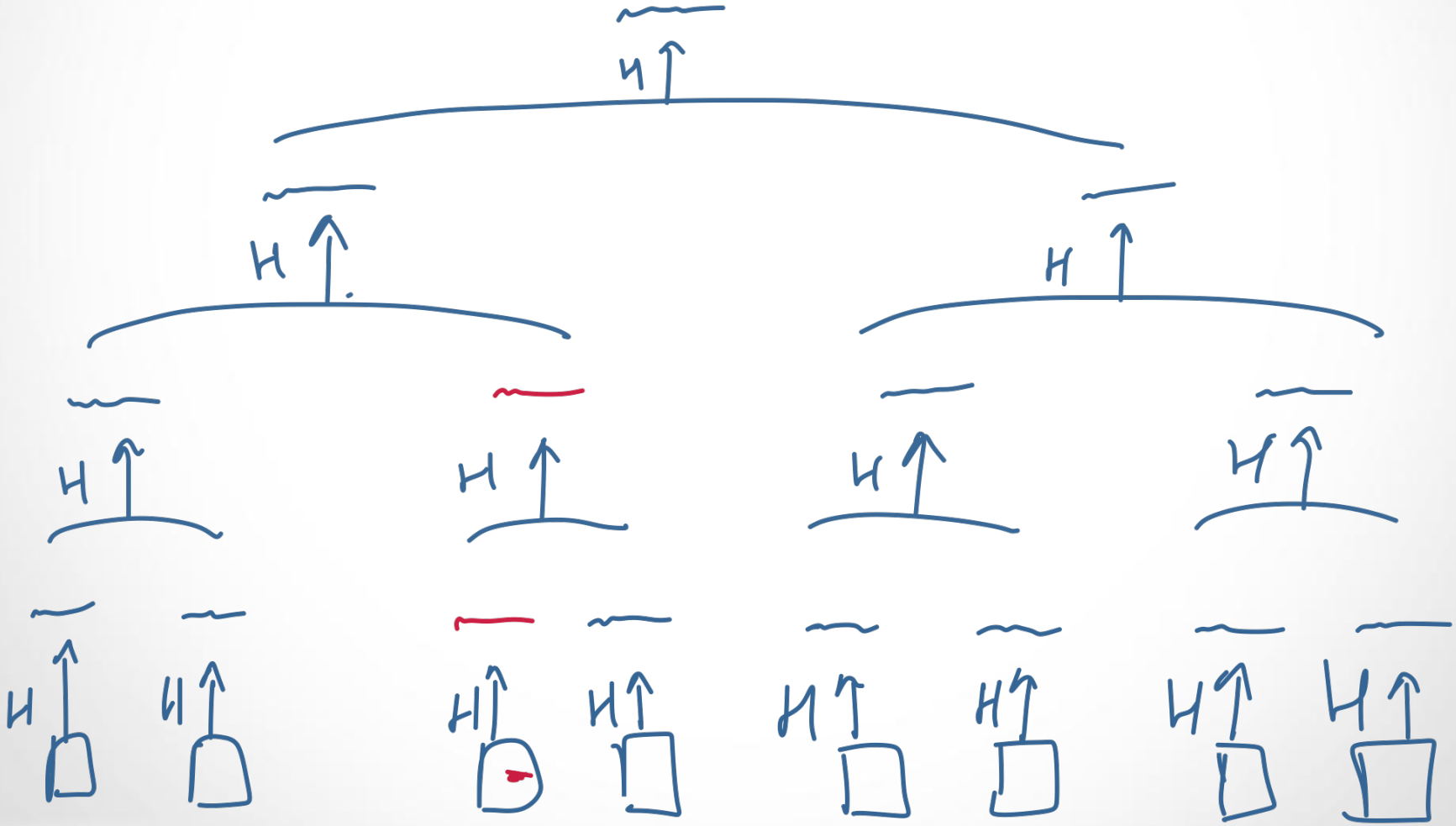

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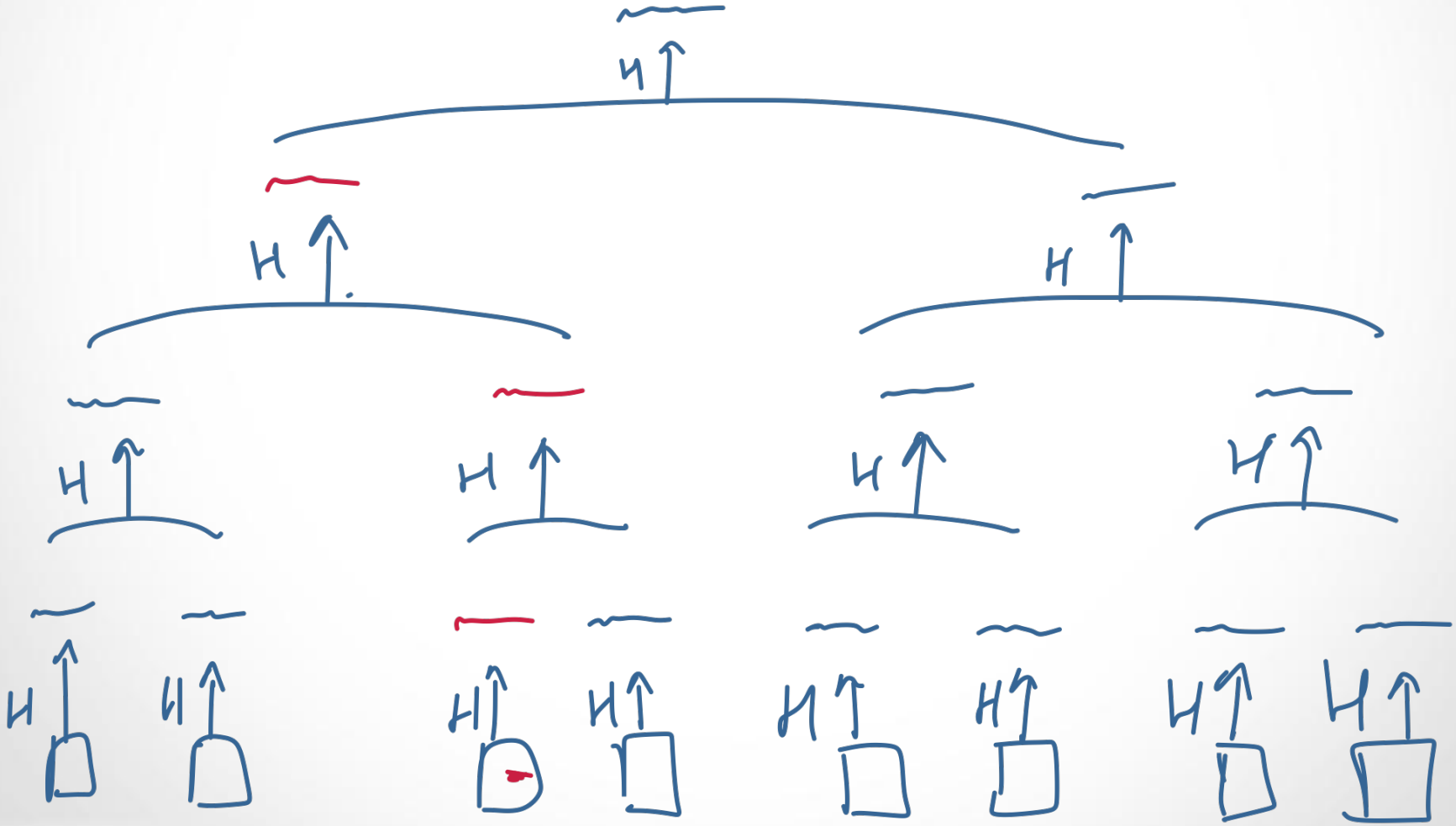

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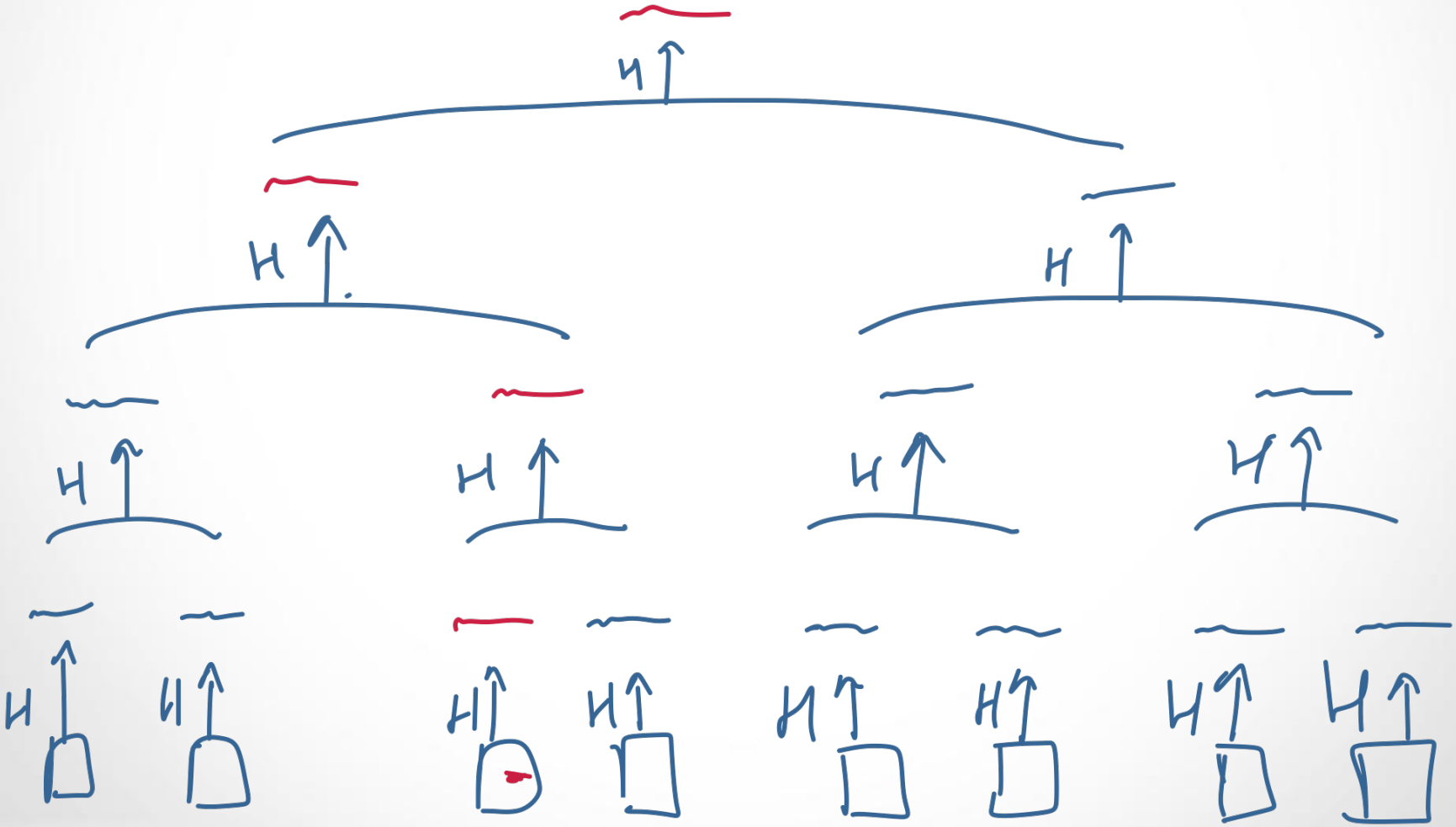

# Ensuring Documents Validity

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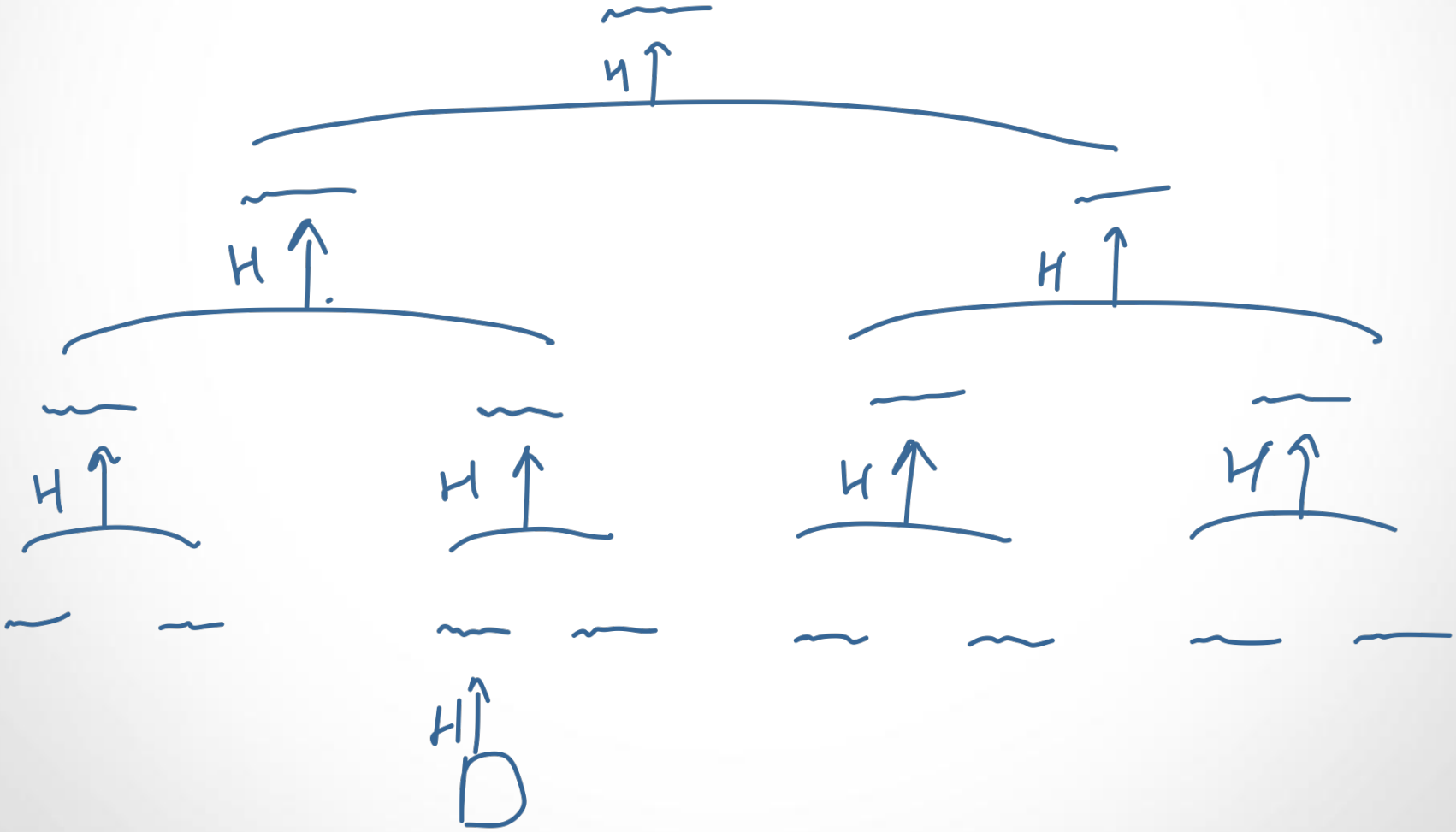

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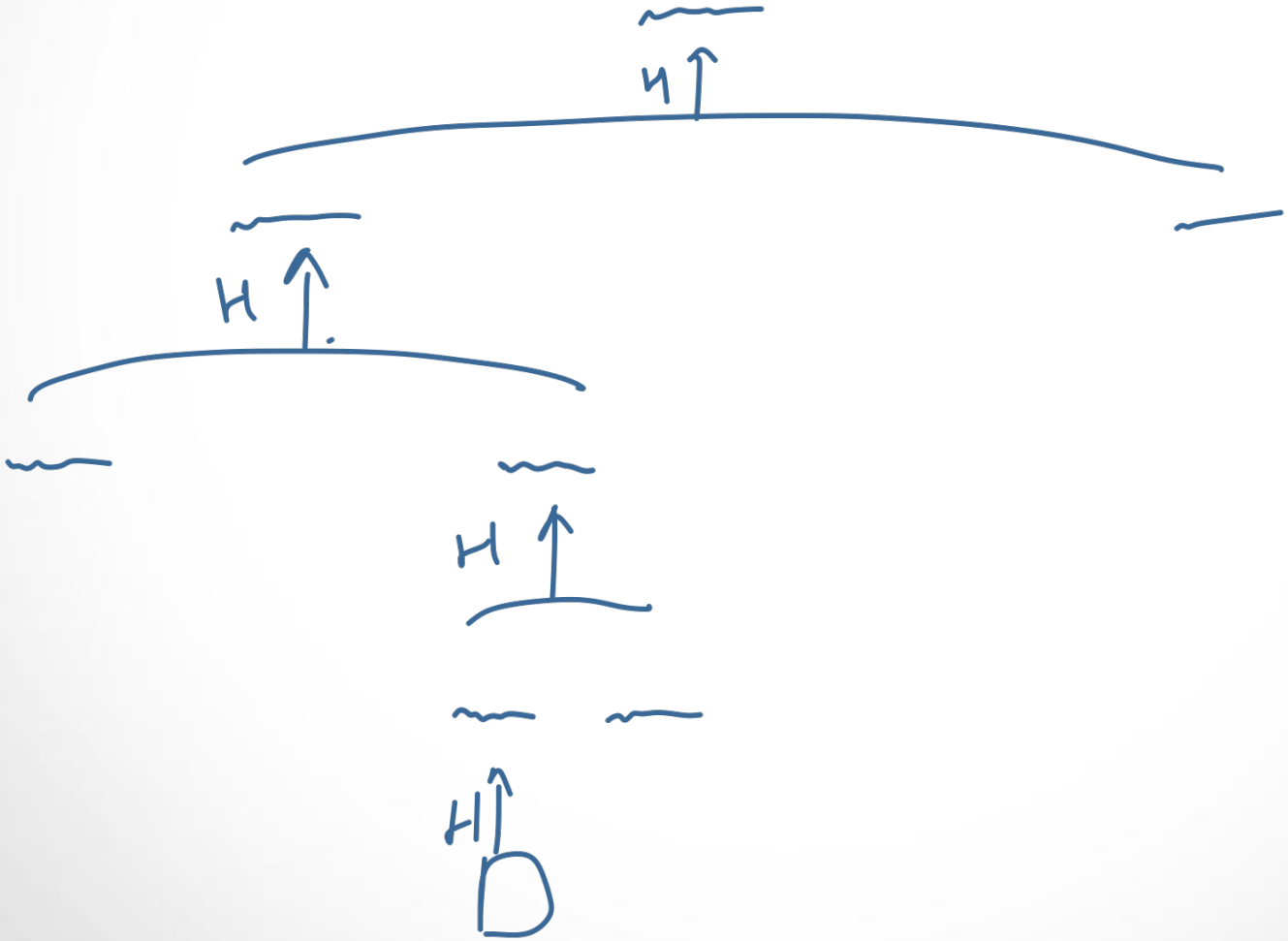

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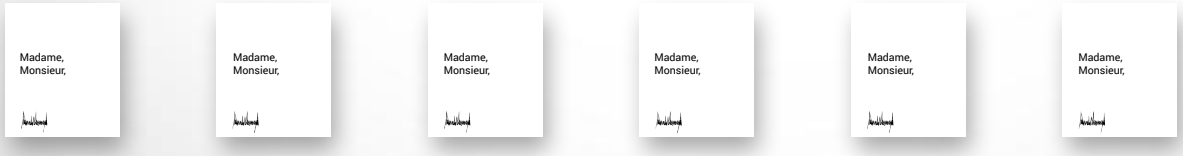

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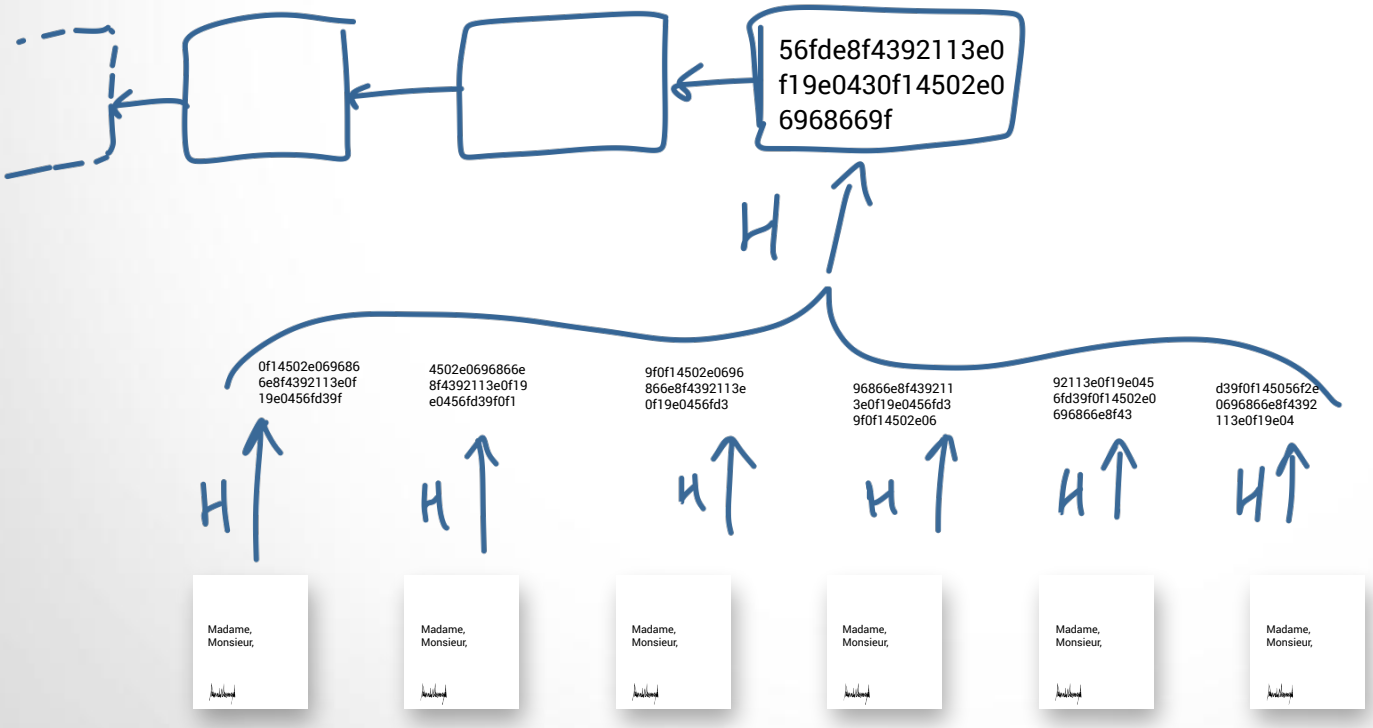

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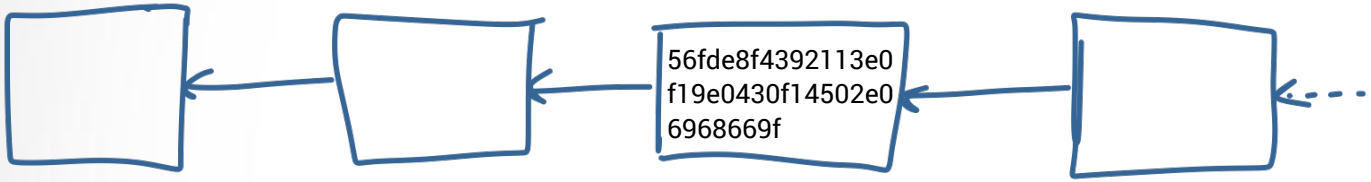


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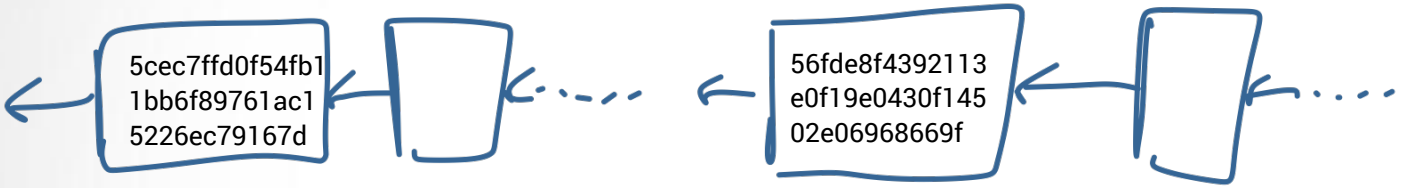
# Ensuring Documents Validity




| | |
|---|---|
| First Name: | d6b8e48afb2534b213e391cab43016505747a234 |
| Last Name: | fa39bdc32115035effac9cdb73eff395ffcd40b2 |
| Father: | 5cec7ffd0f54fb11bb6f89761ac15226ec79167d |
| Mother: | 98654643491feb0f5d56ad17af3d19a32133cfa2 |
| Place of Birth: | b7e52024f8bffe251fa6b7011447c437361a6ba8 |
| Birthdate: | a9823f275d898fd8dcc83e72602311ebcdf6718f |

- Decentralized Democracy
- Crypto kitties
- Ensuring Documents Validity

# Blockchains

- Distributed Systems
- Zero Knowledge Proof

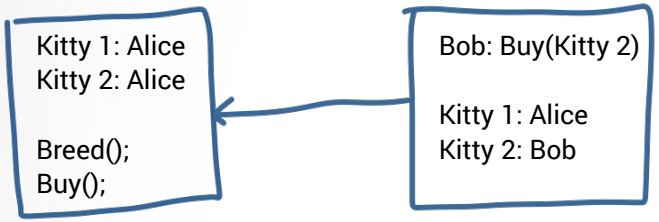
# Crypto Kitties

# Crypto Kitties

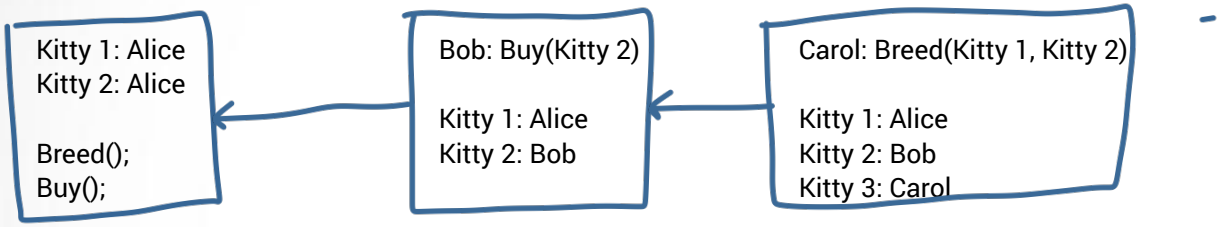
Kitty 1: Alice
Kitty 2: Alice

Breed();
Buy();

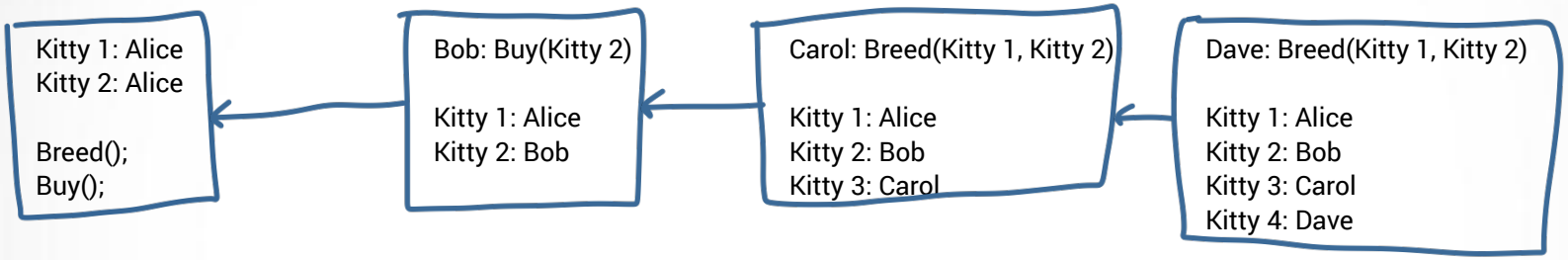
# Crypto Kitties

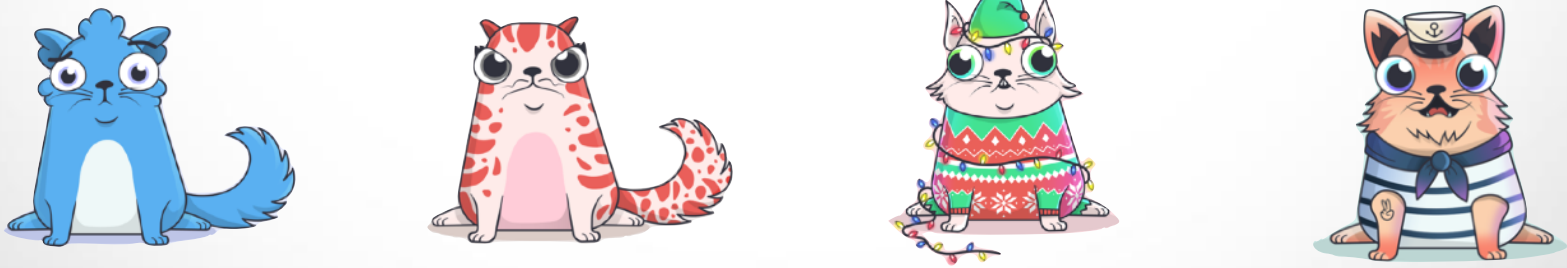



# Crypto Kitties




# Crypto Kitties



# Supply Chain

Alice Ent.

Bob Ent.

Carol Ent.

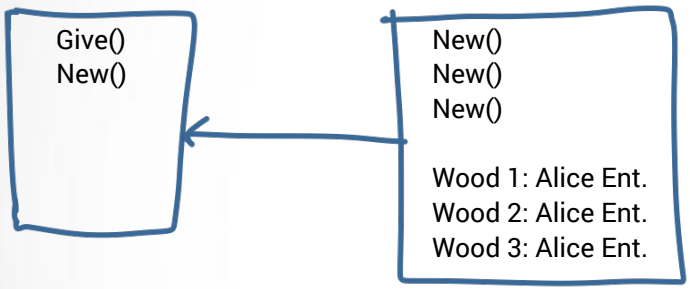
# Supply Chain


Alice Ent.

Bob Ent.

Carol Ent.

# Supply Chain

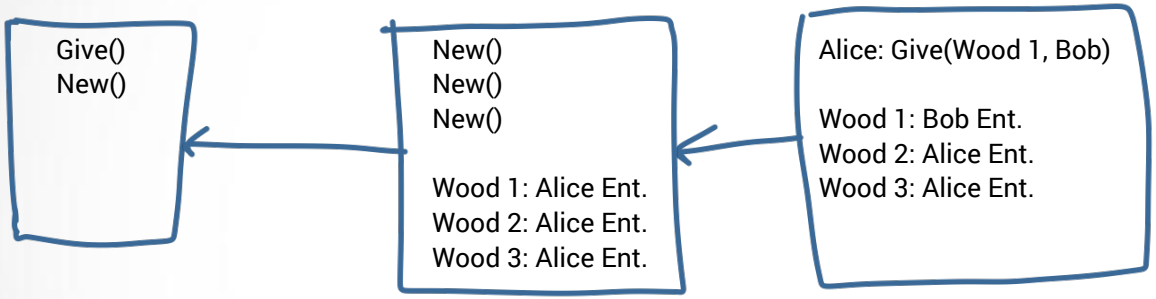



Alice Ent.

Bob Ent.

Carol Ent.

# Supply Chain

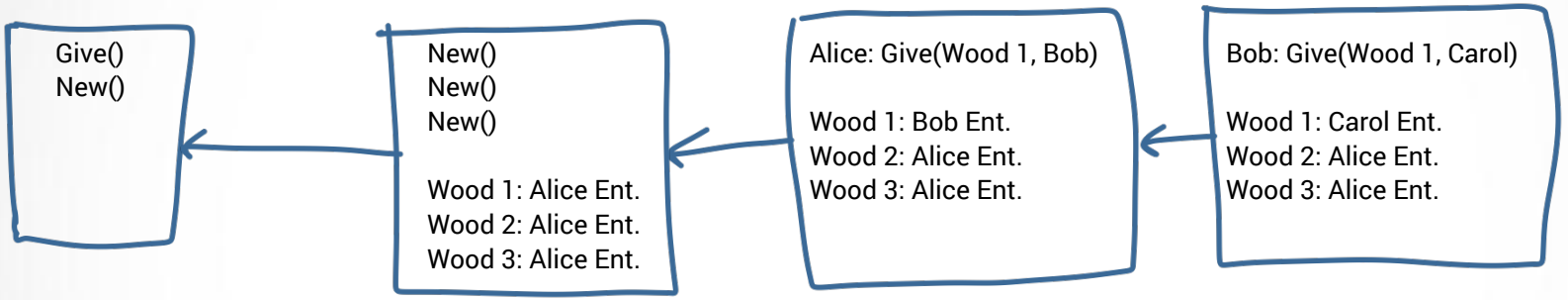



Alice Ent.

Bob Ent.

Carol Ent.

# Supply Chain




Alice Ent.

Bob Ent.

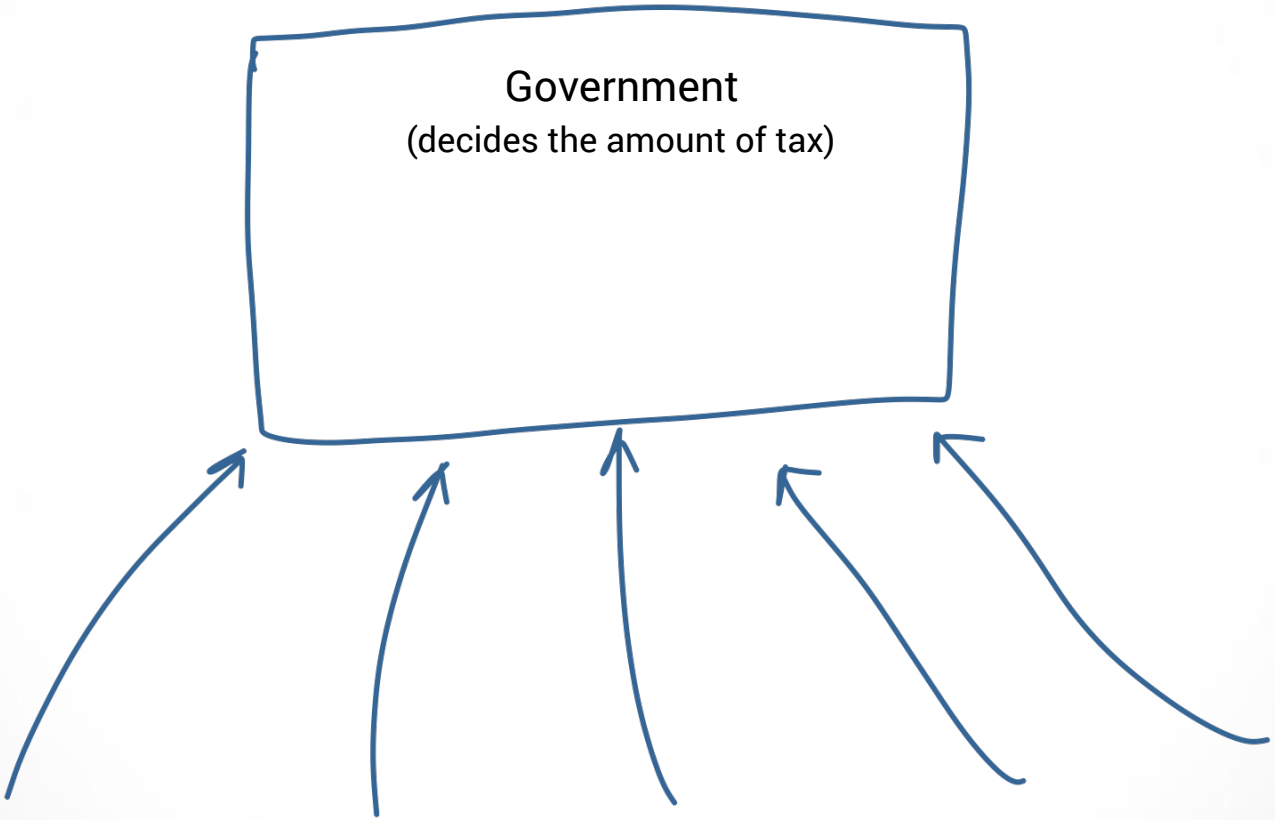
Carol Ent.

- Decentralized Democracy
- Crypto kitties
- Ensuring Documents Validity

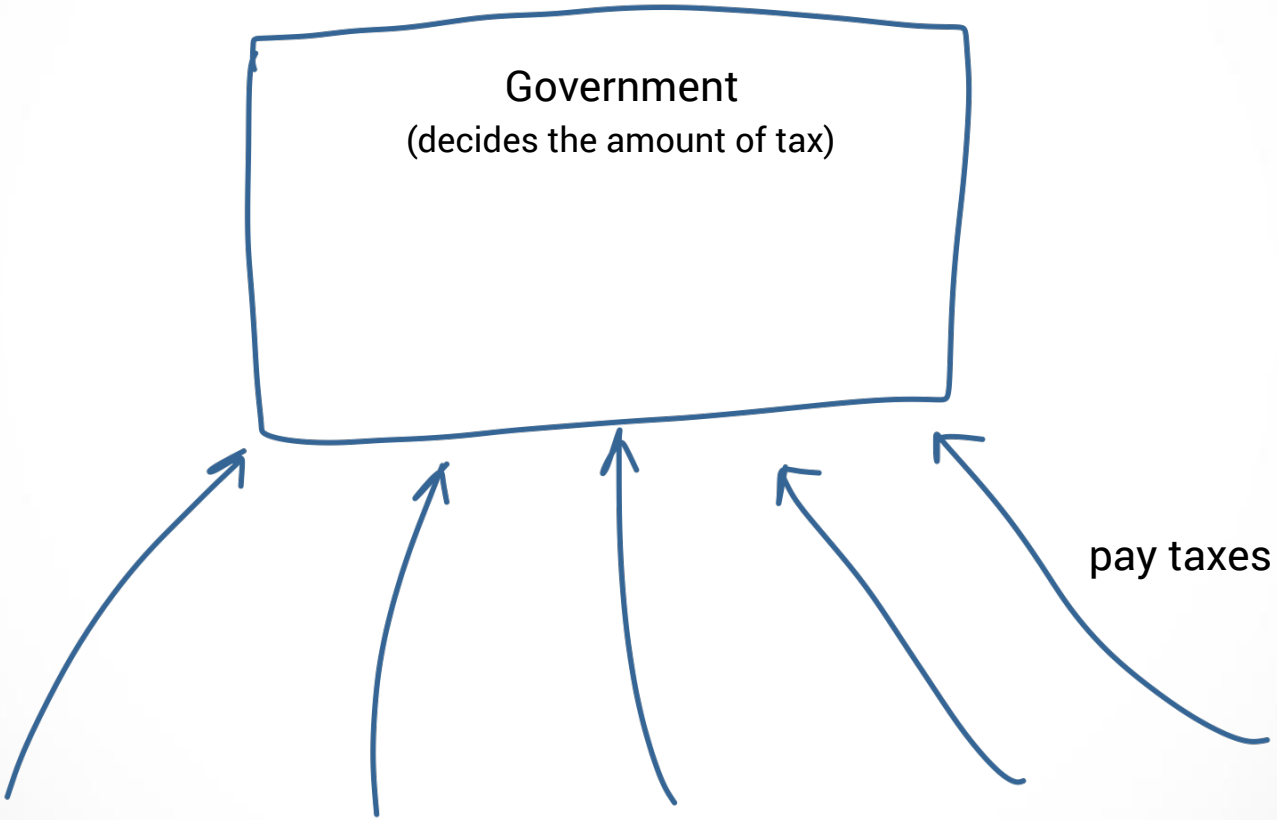
# Blockchains

- Distributed Systems
- Zero Knowledge Proof

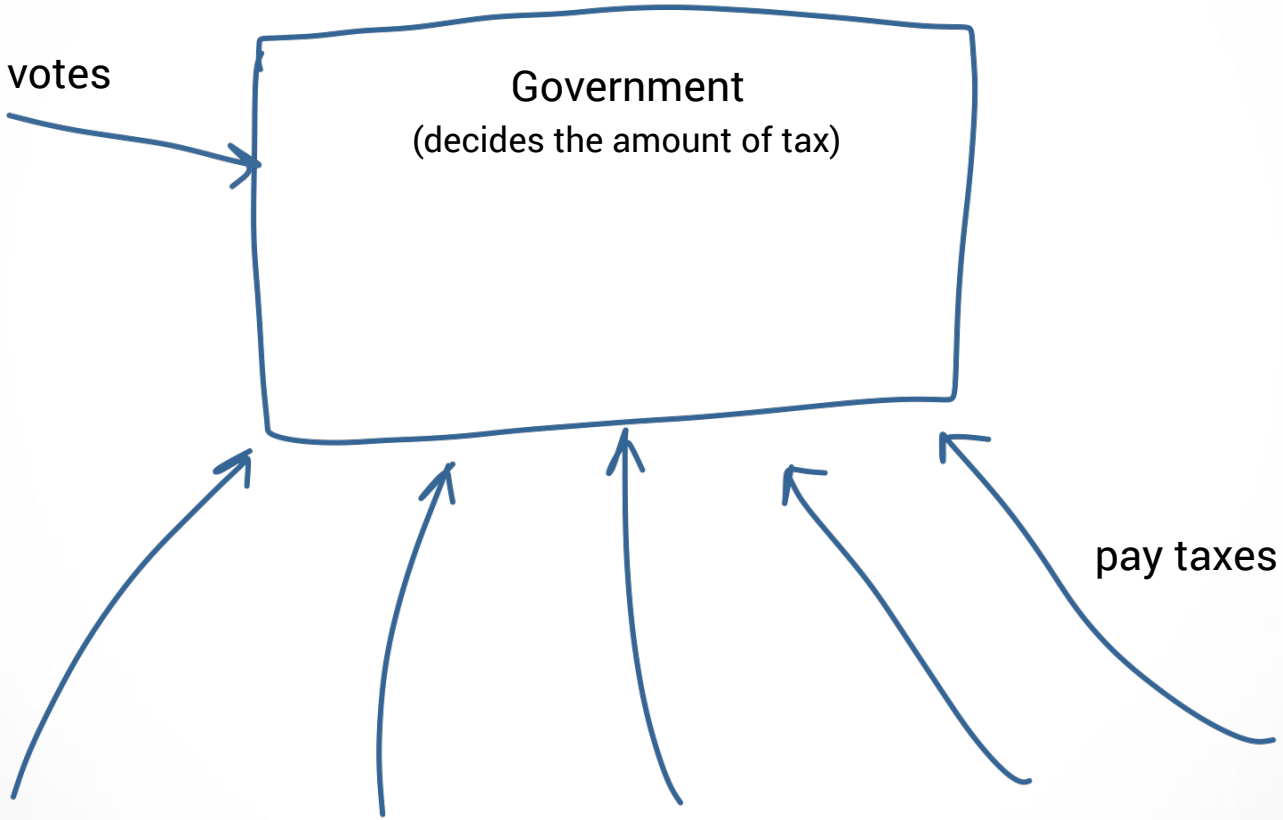
# Governance



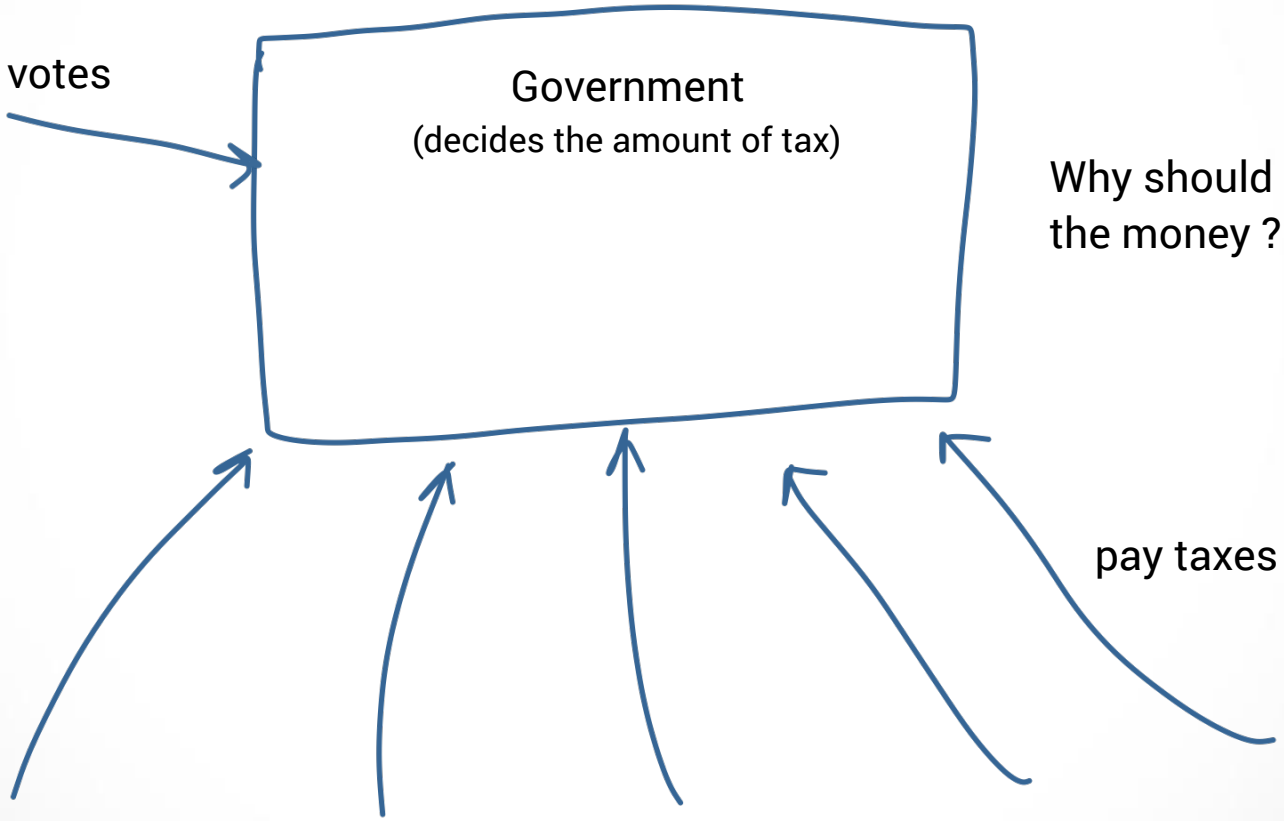
# Governance



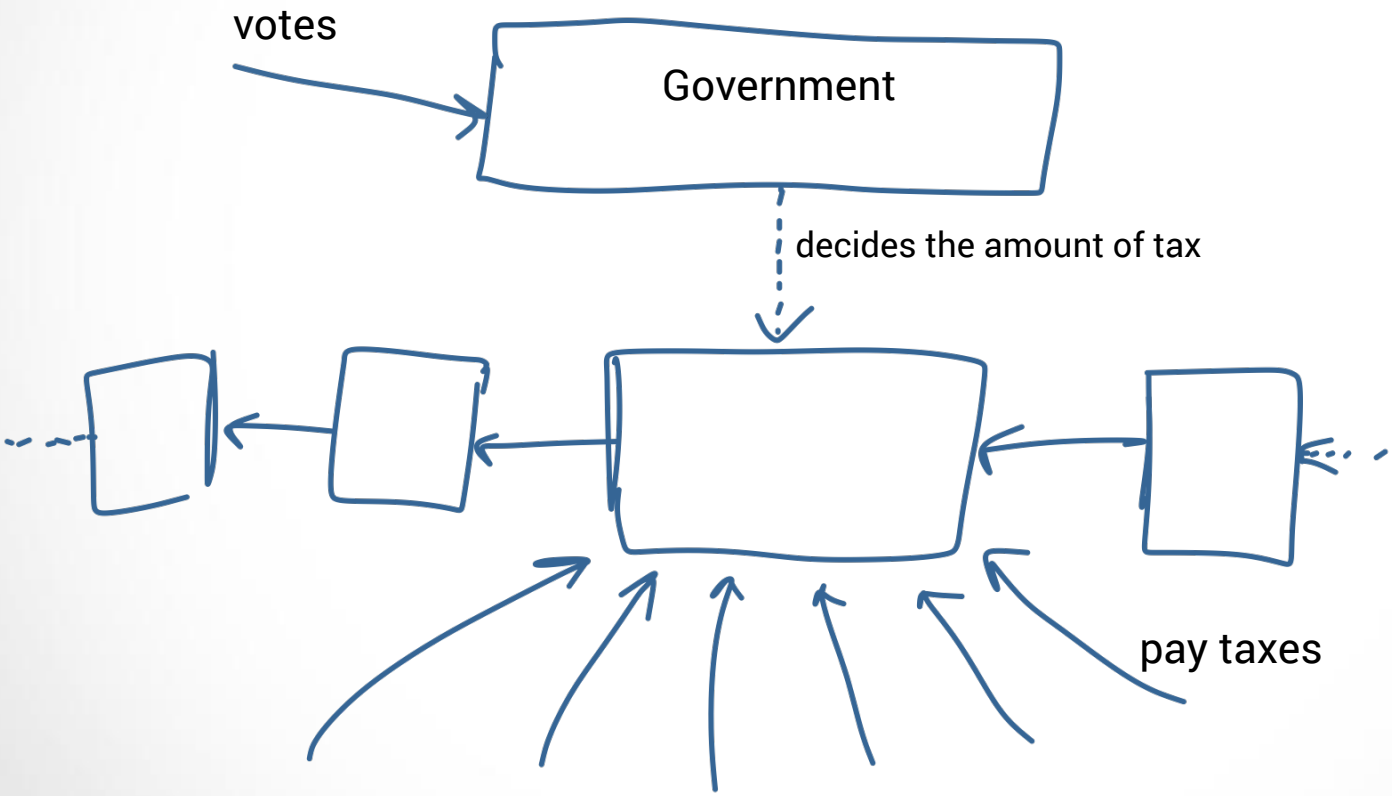
# Governance



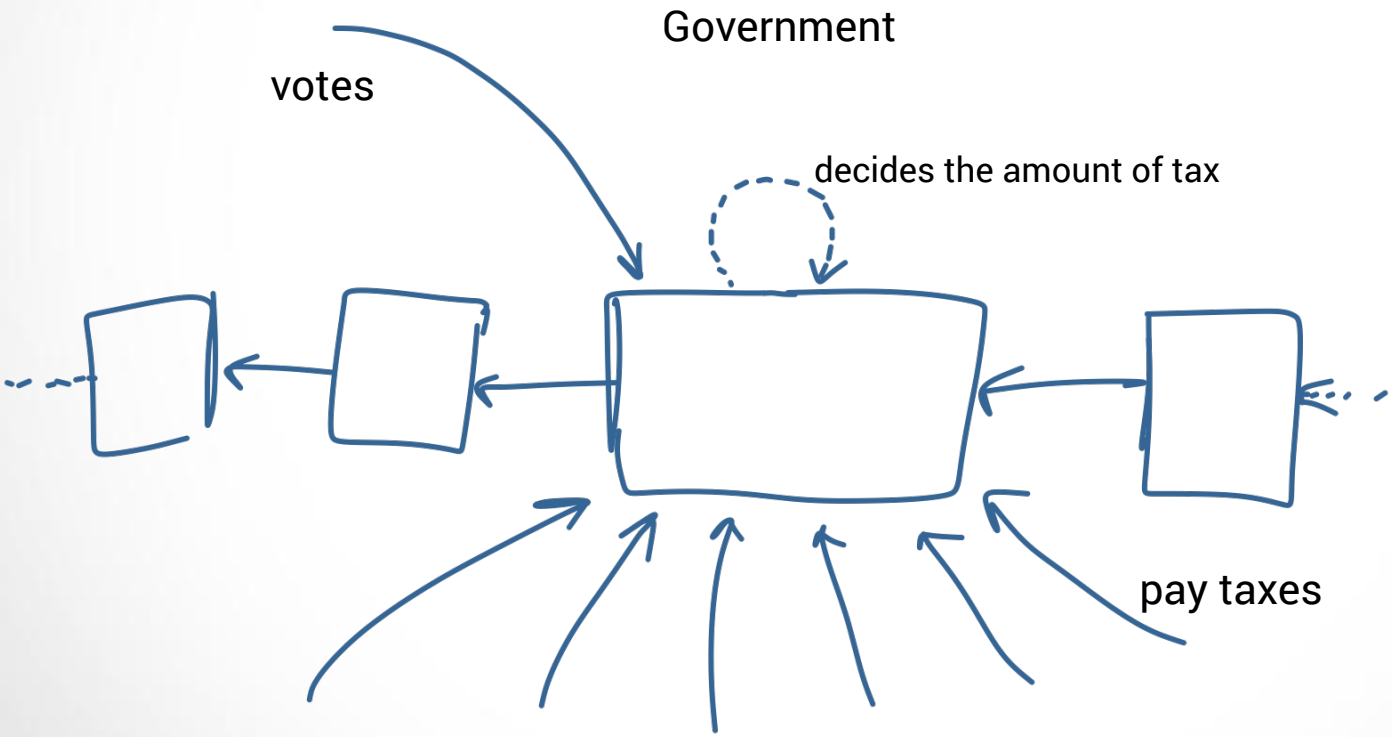
# Governance


votes
Government
(decides the amount of tax)
Why should it keep all the money ?
pay taxes

# Governance



# Governance



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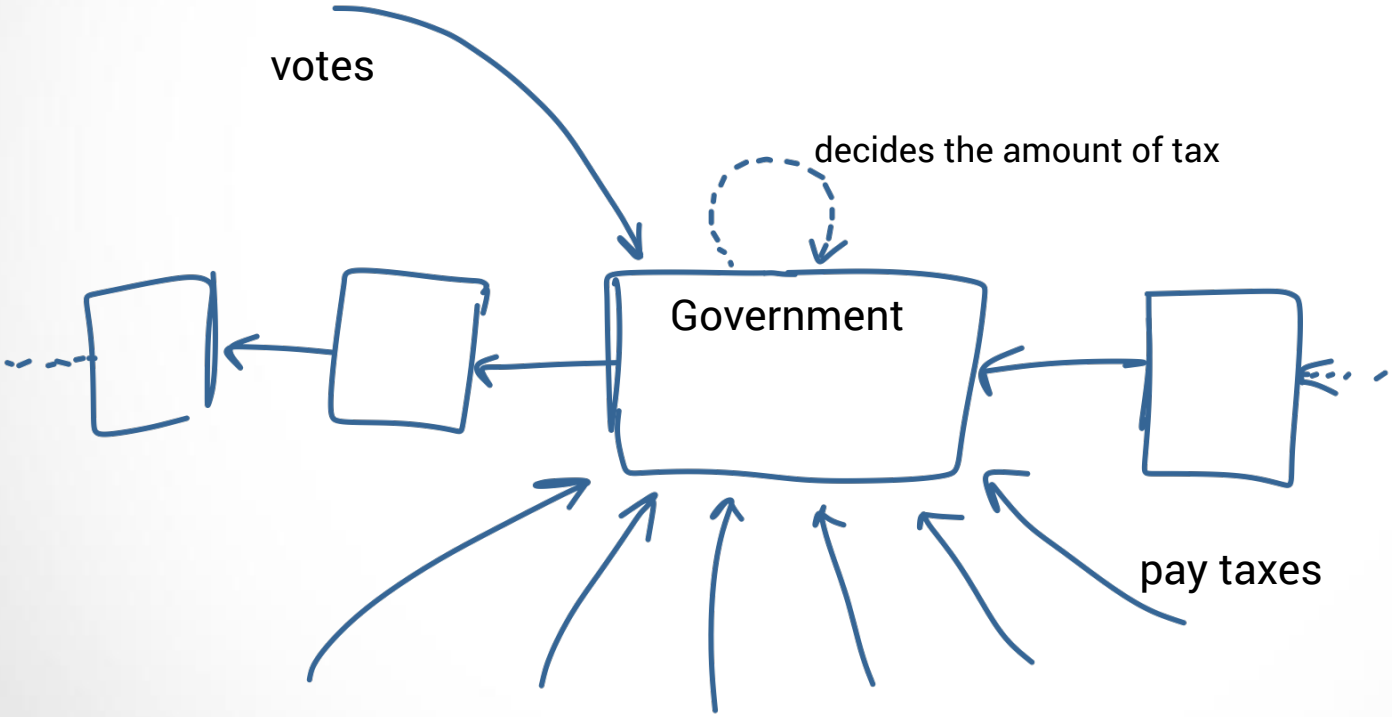
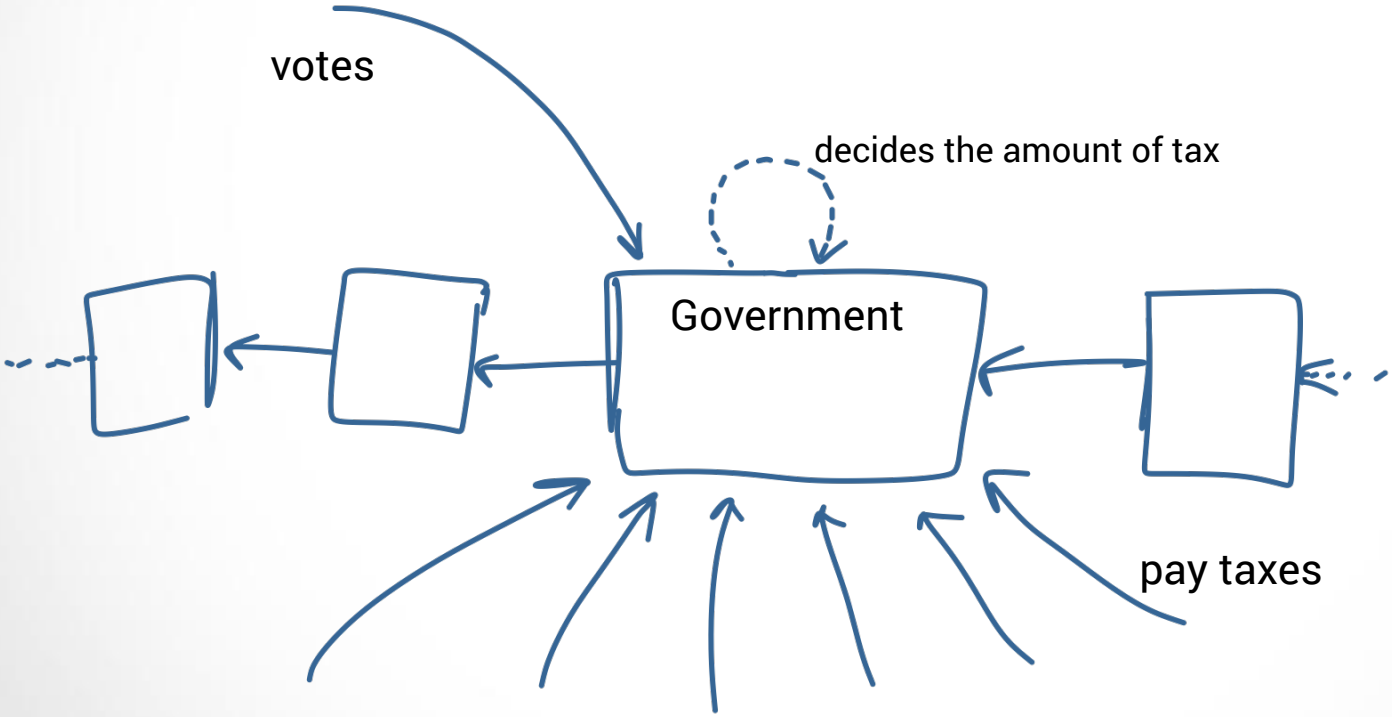


# Governance




« On the Blockchain nobody knows you're a fridge » — Richard G Brown

# Governance

DASH Budget Proposal Vote Tracker

The total number of Masternodes is 4788.
The current USD value of Dash is $187.20.
Next budget payments will occur in 17 days.
*(2018-10-02 09:27:20, block 947112)*
Voting deadline will occur in 14 days.

Total Allocated Budget: 1,067.00 DASH ($199,742.40).
Total Available Budget: 6,176.72 DASH ($1,156,281.55).
17.27%

Donations: XsBX3wnE34X9iwnE5aN9Fy2XtRsRwRSmoF

## Current Proposals (All Proposals)

| Title (listed by priority) | Owner | Payment # | Yes | No | Abstain | Net Votes* | % of Vote | Monthly Amount | Total Budget Requested | Actual Budget Allocated | History |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Cannabis Genomic Blockchain on DASH and CannMed 2018 Partnership** 2018-10-12 17:49:21 (Details \| Comments [57]) | KevinMcKernan | 10/10 | 1,072 | 127 | 70 | 945 | **20%** | 10.00 ($1,872.00) | 10.00 | 10.00 | Graph |
| **Dash Nation on Discord Renewal (Expanding To Other Forums)** 2018-10-15 05:23:10 (Details \| Comments [94]) | TaoOfSatoshi | 5/5 | 1,049 | 151 | 9 | 898 | **19%** | 21.00 ($3,931.20) | 31.00 | 31.00 | Graph |
| **Dash Force September - December** 2018-12-15 02:41:08 (Details \| Comments [51]) | Mastermined | 2/4 | 924 | 87 | 10 | 837 | **17%** | 195.00 ($36,504.00) | 226.00 | 226.00 | |
| **DASH TEXT - SMS Wallets for Everyone (Exclusively for Dash) - FIRST STAGE VENEZUELA** 2018-10-16 00:04:07 (Details \| Comments [73]) | LorenzoReyC | 3/3 | 837 | 135 | 42 | 702 | **15%** | 36.00 ($6,739.20) | 262.00 | 262.00 | Graph |
| **DASH MEDELLÍN Colombia Merchant Network: 450 New Dash Merchants, 12 Dash Merchant Fairs, Self-Sustaining Dash Sales, Dash Remittances, Permanent Dash Marketing and Support (renewal)** 2019-02-12 14:57:58 (Details \| Comments [44]) | georgedonnelly | 2/6 | 837 | 142 | 82 | 695 | **15%** | 59.00 ($11,044.80) | 321.00 | 321.00 | |
| **DASH HELP - SUPPORT CENTER (VENEZUELA): Expansion to Brazil & US + Video tutorials (Wallets) + Publicity work** 2018-10-15 23:10:28 (Details \| Comments [35]) | alejandroe | 3/3 | 800 | 135 | 0 | 665 | **14%** | 32.00 ($5,990.40) | 353.00 | 353.00 | Graph |
| **Dash Brazil: YouTube + Social Media + Conference Attendance + Content Creation** 2019-02-12 14:54:02 (Details \| Comments [37]) | rambrissi | 2/6 | 797 | 136 | 21 | 661 | **14%** | 41.00 ($7,675.20) | 394.00 | 394.00 | |
| **Inactive Proposal For This Budget Cycle (was passed last** | | | | | | | | | | | |

# Governance

« On the Blockchain nobody knows you're a fridge » — Richard G Brown

# Governance

« On the Blockchain nobody knows you're a fridge » — Richard G Brown

What if everybody knows ?

# Governance

« On the Blockchain nobody knows you're a fridge » — Richard G Brown

What if everybody knows ?

What if we replaced our government by a fridge ?

# Governance

# Governance

Jesco Denzel—EPA-EFE/Shutterstock

Questions ?