Democracy Without Politicians

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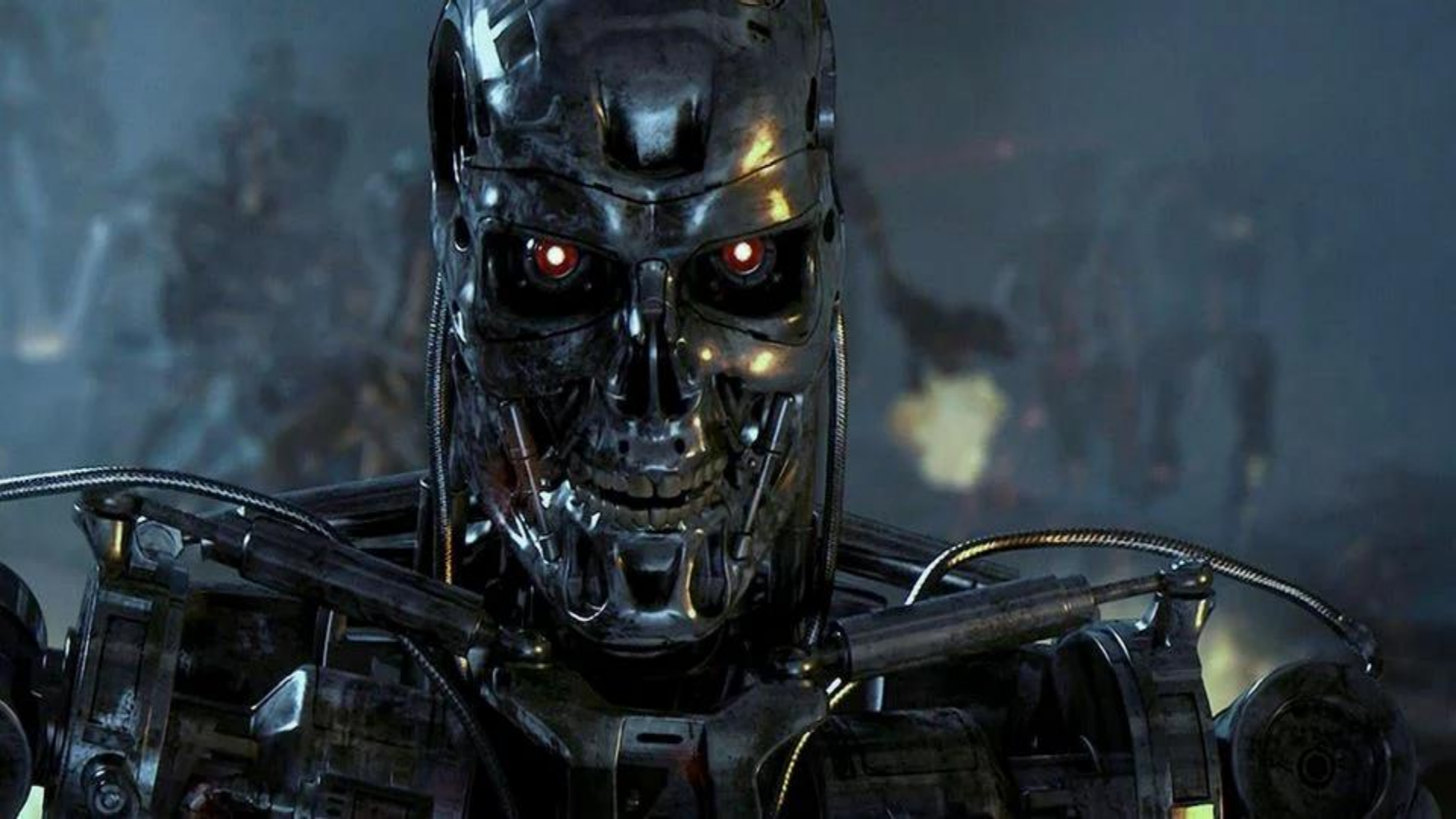
Democracy Without Politicians

Joint work with
Zhao Meng

Roger Wattenhofer

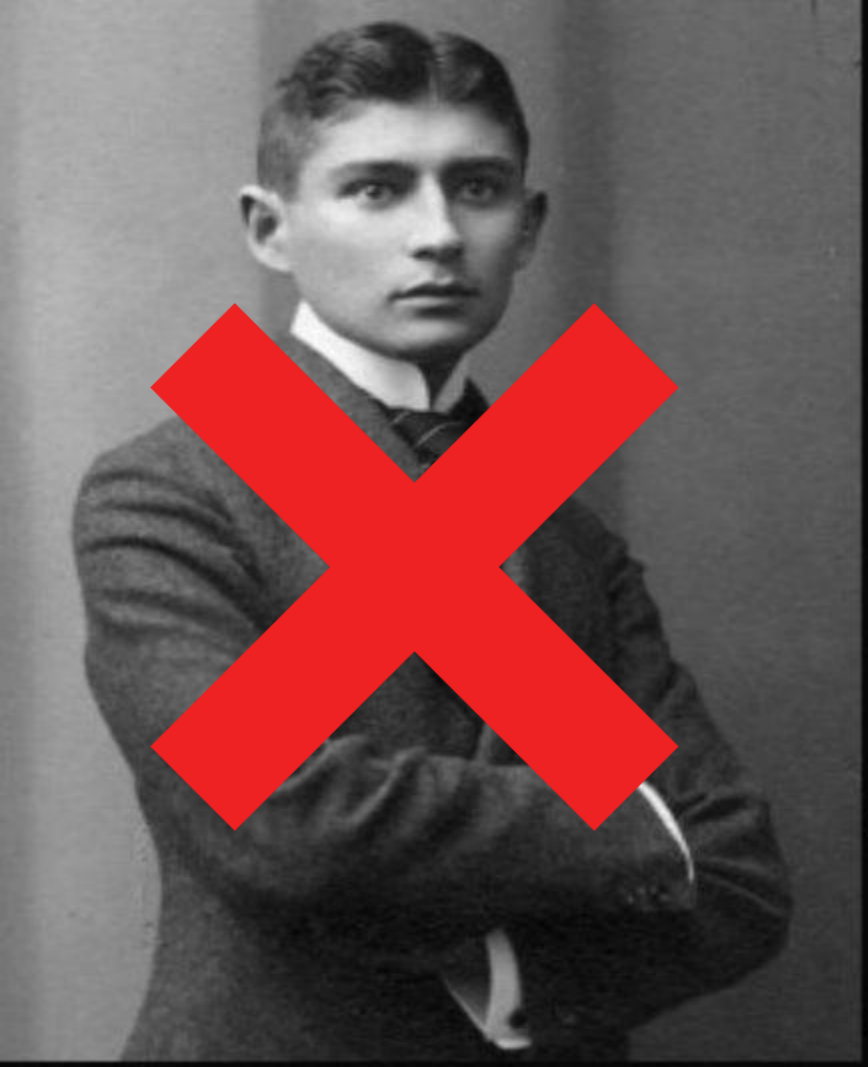


G7 Cornwall
United Kingdom 2021

200
200

One idiot
is one idiot.
Two idiots
are two idiots.
Ten thousand
idiots are
a political party.

- Franz Kafka



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Two idiots
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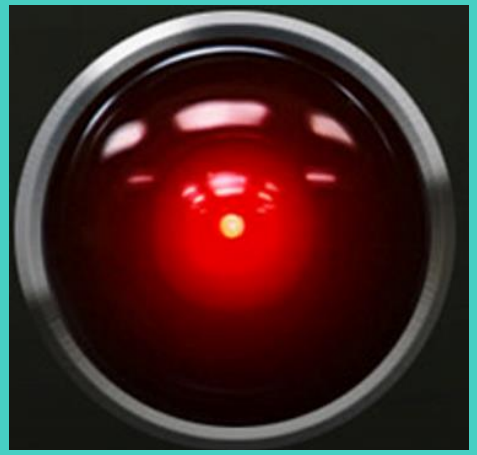
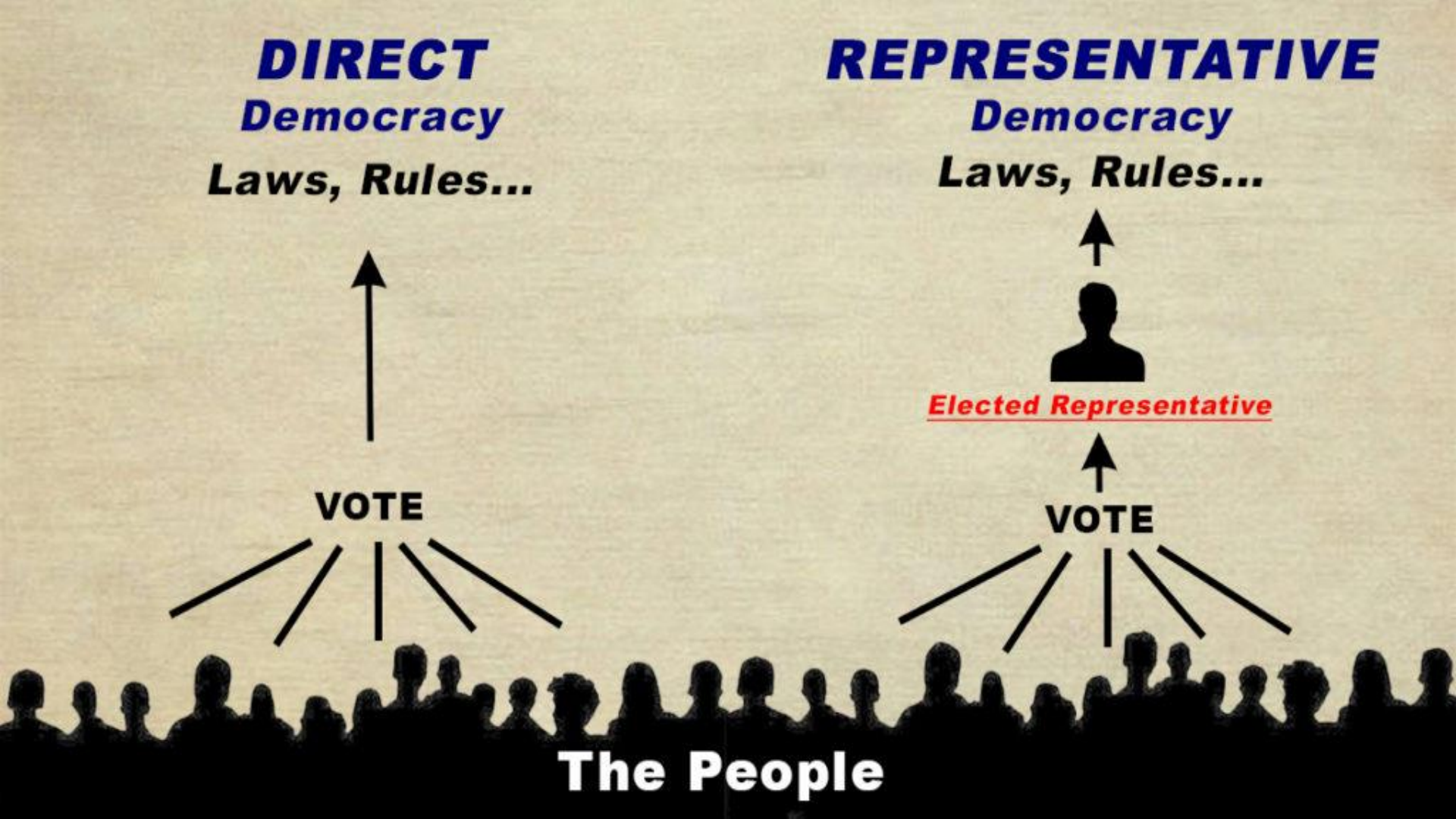
- Franz Kafka

I, FOR ONE, WELCOME



OUR NEW ROBOT OVERLORDS


DIRECT
Democracy
Laws, Rules...
VOTE
REPRESENTATIVE
Democracy
Laws, Rules...
Elected Representative
VOTE
The People

Heute
Abstimmung

CALENDAR
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
1
2
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4
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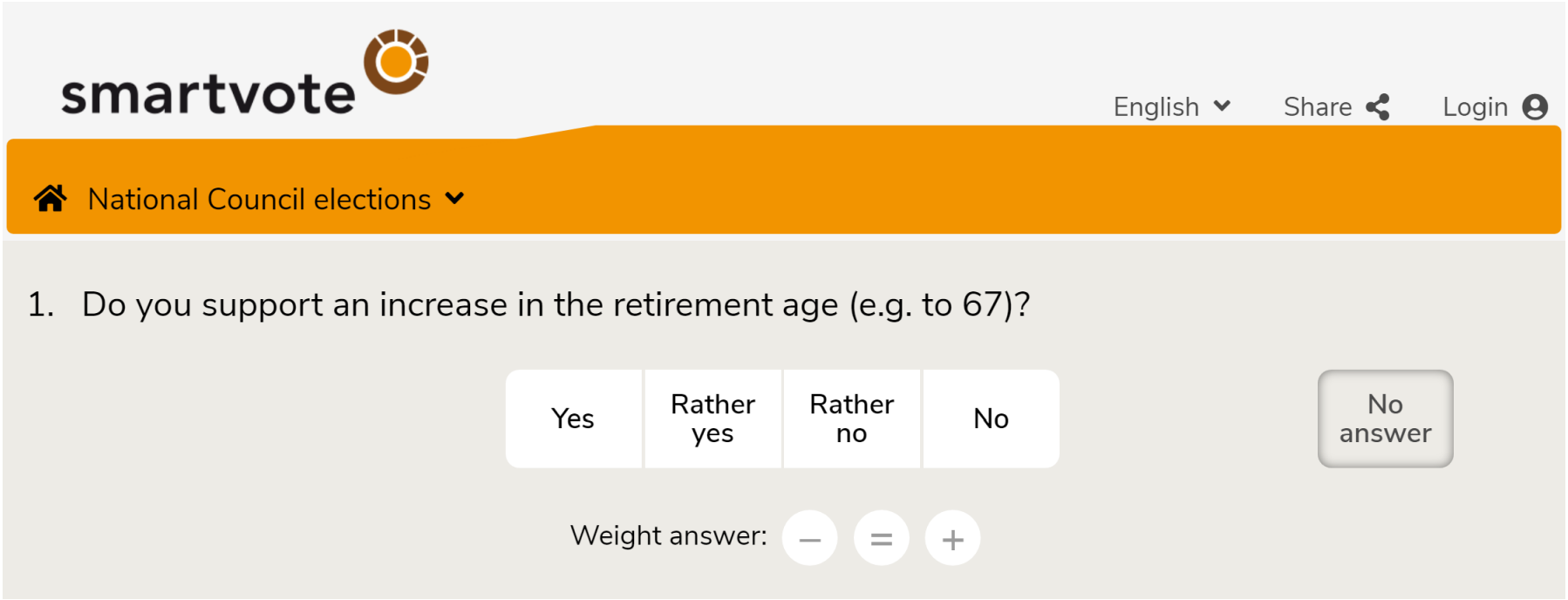
31
Heute
Wahlen

CALENDAR
SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY
Heute Wahlen

Artificial Intelligence

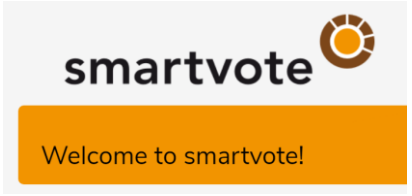
artificial model learns human
then votes for human



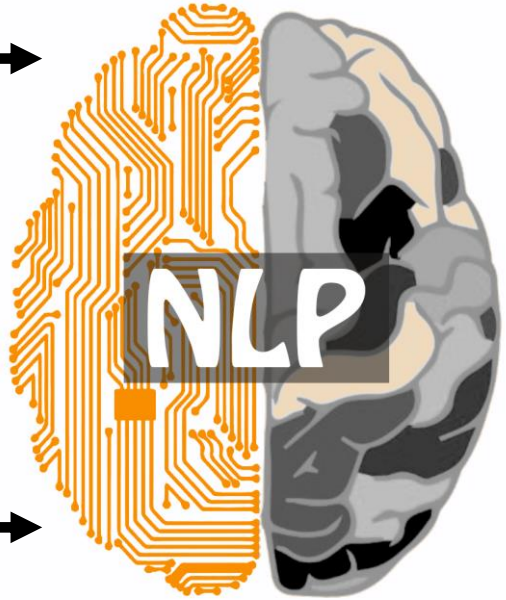
75 Questions

We used sample of 5k voters (smartvote has much more)

voting question →



human profile →



→

John
goes
to
Rome
[PER]
[GPE]

AI: BERT Training

Input: 59 text questions with answers, followed by a removed single training question Q_x

$$Q_1A_1\ Q_2A_2\ \ldots Q_{60}A_{60}\ Q_x$$

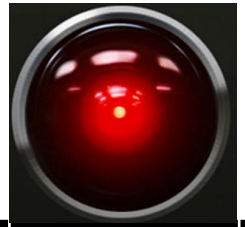
Loss: How far is answer A_x by voter from answer given by Bert

AI: BERT Testing

Input: 60 text questions with answers, followed by a new question Q_{new}

$$Q_1A_1\ Q_2A_2\ \ldots Q_{60}A_{60}\ Q_{new}$$

AI: Results



	Yes	-	No
Yes	26.3%	5.4%	8.3%
-	0.3%	6.8%	0.0%
No	12.2%	10.6%	30.0%

Baseline

	Yes	-	No
Yes	25.3%	3.6%	11.2%
-	1.4%	2.9%	2.6%
No	9.5%	4.2%	39.2%

Baseline

best politician (closest for 60 questions)
probably wrong canton (not electable)
probably not going to get elected

AI Refinements

human can check (and override) AI
human can choose new AI
multiple AIs, majority decision
combine with representation

AI Main Issue

languague models are remarkable…

Q: I support an increase of the retirement age to 70. Do I support retirement at 80?
A: No. But I don't have a problem with 70, and I think it could be a good start.

AI Main Issue

languague models are remarkable, but…

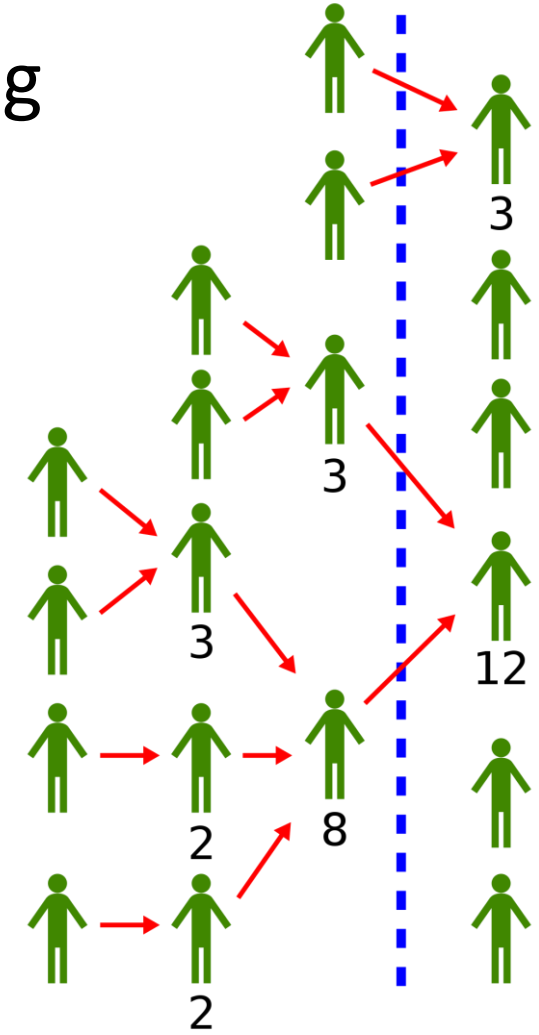
Q: I support an increase of the retirement age to 70. Do I also agree to retire at 60?
A: “No!” he said. Yevgeny Roizman, who is running for mayor of Yekaterinburg, …

Friendly AI

artificial model learns human
but then only delegates vote to expert

Liquid Democracy / Delegated Voting

like representation
but more fine grained

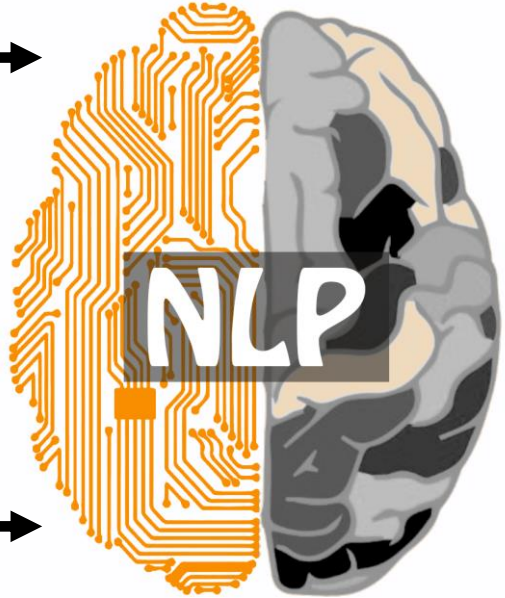


voting question →

smartvote

Welcome to smartvote!

human profile →



BDP YES

SVP NO

SP YES

CVP YES

FDP NO

Friendly AI Refinements

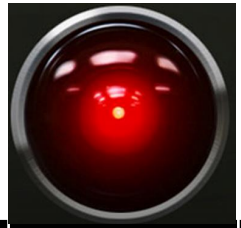
actual experts, not parties
combinable with other solutions

AI Bootstrapping

introducing AI party
wins 10% of votes at election
gets 10% of votes according to voters

Main Problems

minority protection
negotiating compromises
making proposals



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Questions? Remarks?

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