LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

INFORMED CHOICES, INCLUSIVE VOICES: EPISTEMIC JOURNEYS IN DEMOCRATIC DECISION MAKING

THE WISDOM OF CROWDS

OR, WHY THE GROUP CAN BE SMART, SO YOU DON'T HAVE TO

Adrian Haret
a.haret@lmu.de

April 15, 2024

What is the wisdom of crowds about?

Let’s kick things off by solving a problem.

What is the age of Adrian’s grandmother (on his father’s side)?

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What is the age of Adrian’s grandmother (on his father’s side)?

Answer: 83.75

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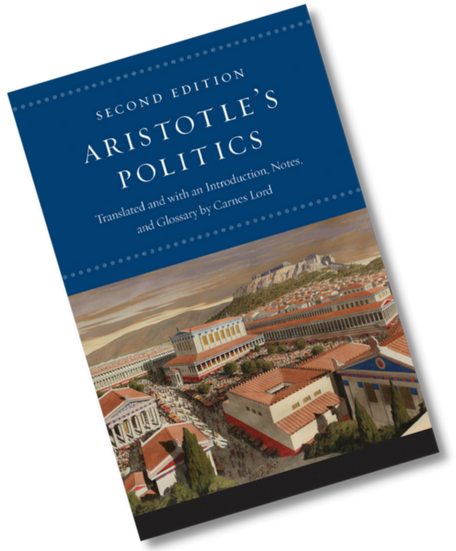
…just as feasts to which many contribute are better than feasts provided at one person's expense.



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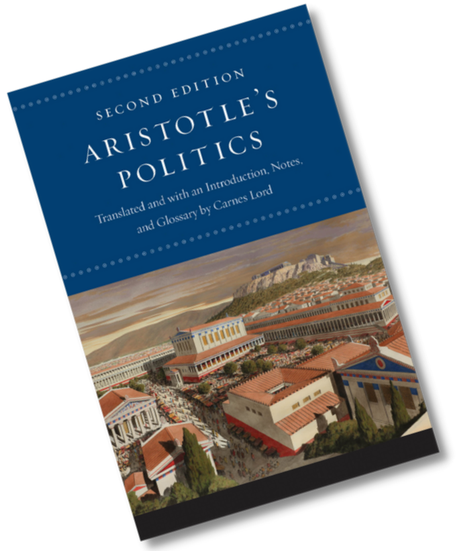

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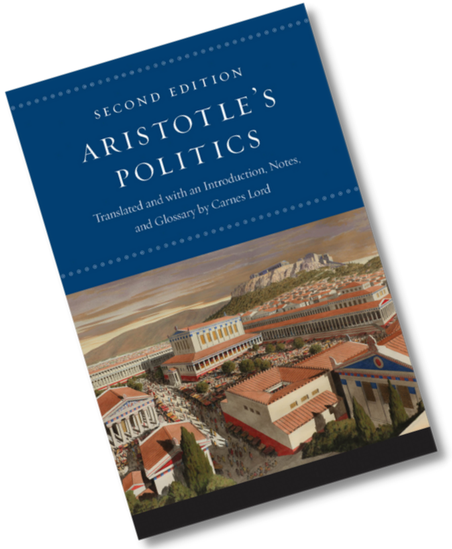

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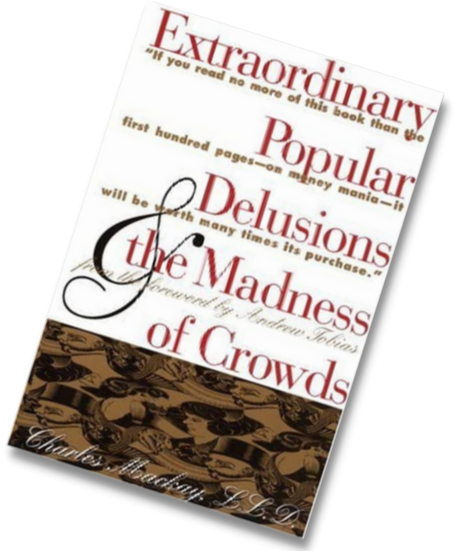

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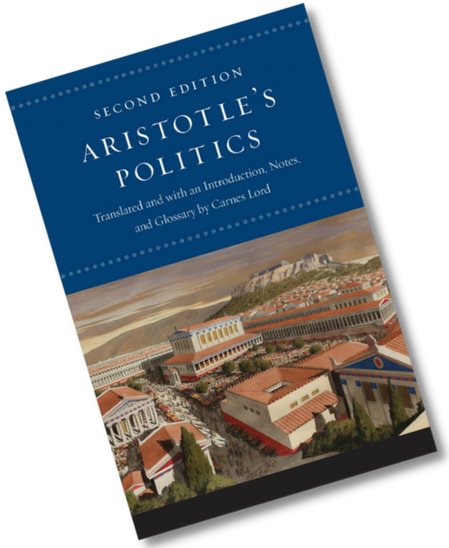

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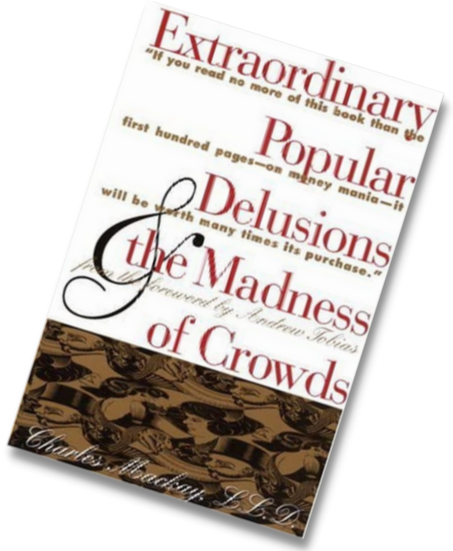

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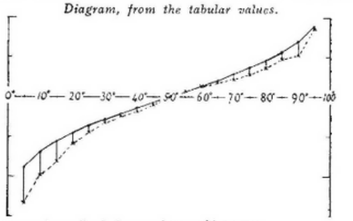

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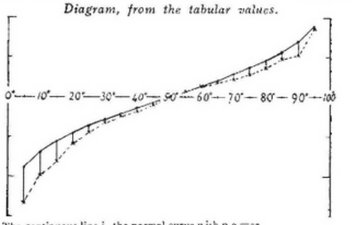

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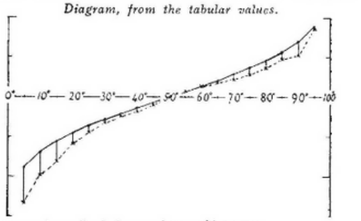

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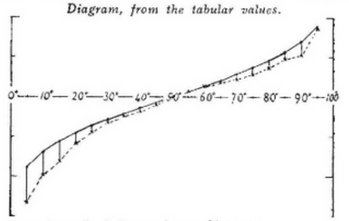

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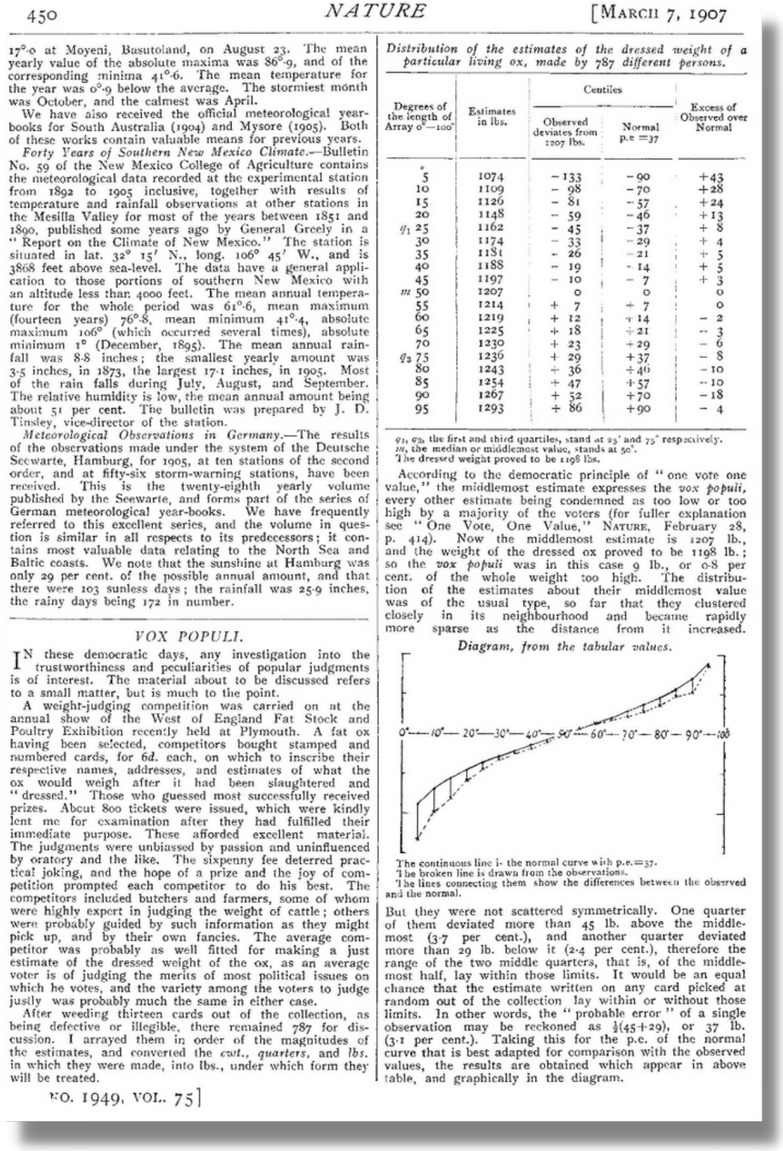

450 NATURE [MARCH 7, 1907

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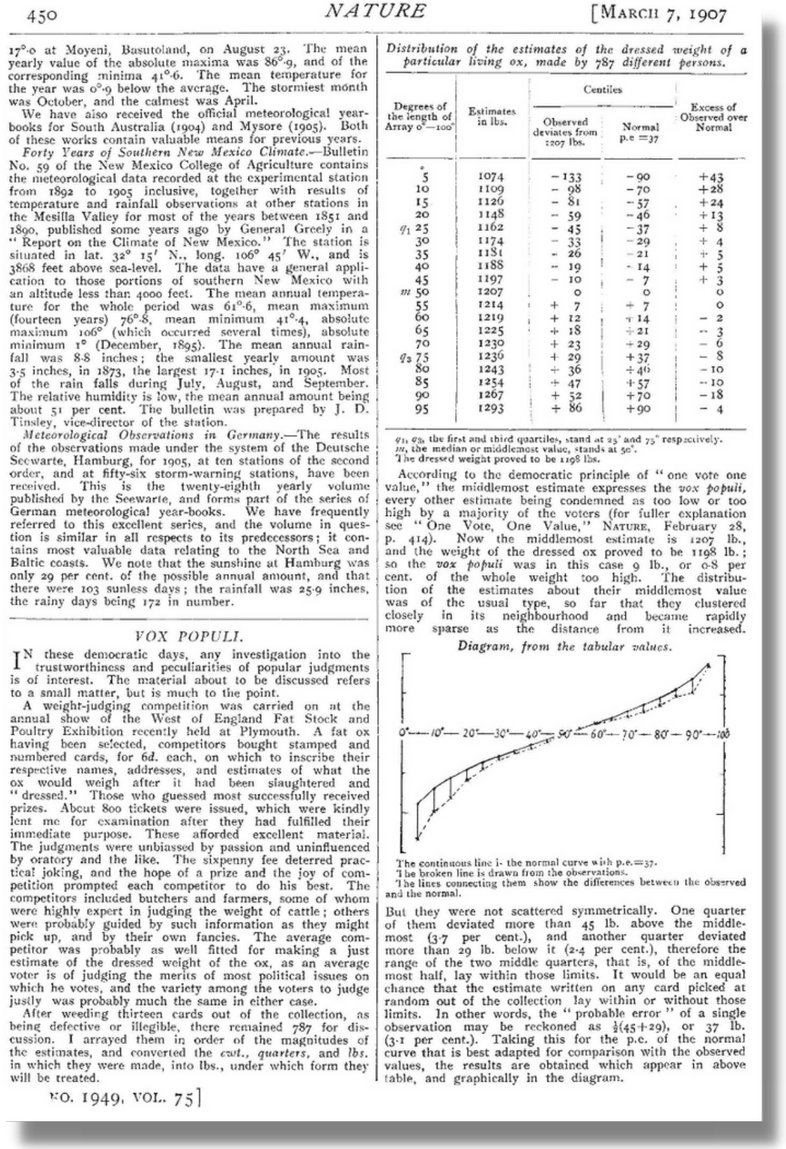
This result is, I think, more creditable to the trustworthiness of a democratic judgment than might have been expected.



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So groups can be used to estimate the weights of oxen...

What's the big deal?

JAMES SUROWIECKI

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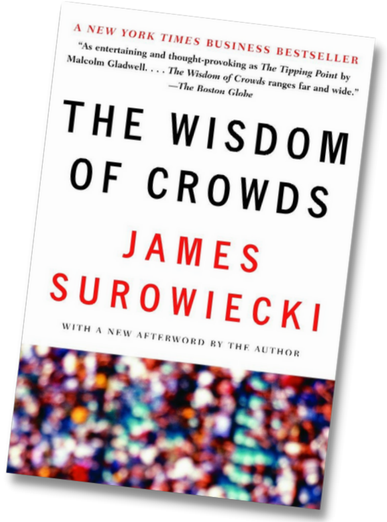
Like the market response to the *Challenger* disaster.

Or the finding of the *Scorpion* submarine.



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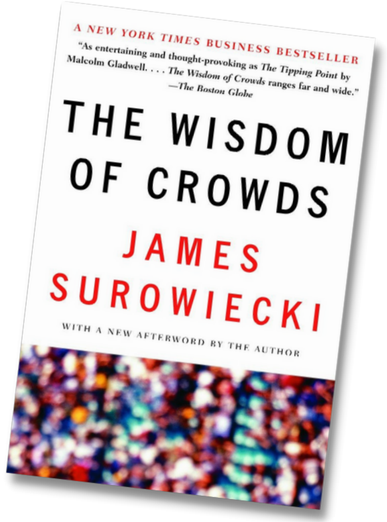


IAIN COUZIN

Or golden shiners, as a group, finding patches of shade.

Even though individuals are bad at it.

Surowiecki, J. (2005). *The Wisdom of Crowds*. Anchor

Berdahl, A., Torney, C. J., Ioannou, C. C., Faria, J. J., & Couzin, I. D. (2013). Emergent sensing of complex environments by mobile animal groups. *Science*, 339(6119), 574-576.

Yong, E. (2013). The Real Wisdom of Crowds. *National Geographic*.

In fact, all sorts of organisms with very limited intelligence can end up behaving rather smartly.

As a group…

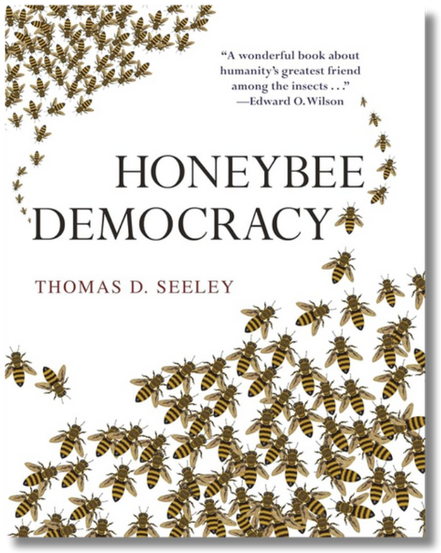
THOMAS D. SEELEY

Once a year, wild honeybees swarm in search of a new nest.

Scouts are sent off, and they return with information about potential nesting sites.

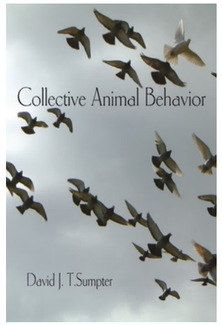
The rest of the swarm weighs up the options and ‘democratically’ chooses a new site.

Remarkably, the collective choice usually turns out to be the best one available.



Seeley, T.D. (2010). *Honeybee Democracy*. Princeton University Press

Collective animal intelligence is a thriving research topic. 🔎



DAVID J.T. SUMPTER
Collective Animal Behavior
Princeton University Press
2012

Wise crowds also give us a way of looking at democratic institutions.

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Not just fair, but also good at finding solutions to problems.

Aggregation of opinions can be used to improve medical assessments.

Wolf, M., Krause, J., Carney, P. A., Bogart, A., & Kurvers, R. H. J. M. (2015). Collective intelligence meets medical decision-making: the collective outperforms the best radiologist. *PloS One*, 10(8)

And even LLMs are getting into it now!

Halawi, D., Zhang, F., Yueh-Han, C., & Steinhardt, J. (2024). Approaching Human-Level Forecasting with Language Models. In arXiv [cs.LG]. arXiv. http://arxiv.org/abs/2402.18563

PARTY-POOPER PLATO

When you give people democratic choice they end up doing something stupid.

Good statecraft is like flying a plane.

And you need a good pilot for that.

EDWIN HUTCHINS

Actually… flying a plane (or running a ship) requires a lot of coordination and teamwork.

HÉLÈNE LANDEMORE

Similarly, modern societies need the input of as many and as diverse parties as possible to work well.

Plato. *Republic*. Translated by Paul Shorey, 2 volumes. Loeb.
Hutchins, E. (1995). *Cognition in the Wild*. MIT Press
Landemore, H. (2012). *Democratic Reason*. Princeton University Press

Applications?

JUSTIN WOLFERS

Prediction markets!

Simple markets can be used to aggregate disparate information into efficient forecasts of uncertain future events.

Wolfers, J., & Zitzewitz, E. (2004). Prediction Markets. *The Journal of Economic Perspectives: A Journal of the American Economic Association*, 18(2), 107–126.

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See PredictIt.

PREDICTIT

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Ron DeSantis	2¢ NC
Nikki Haley	1¢ NC
Vivek Ramaswamy	1¢ NC
Mike Pompeo	1¢ NC

Contract	Latest Yes Price
Joe Biden	89¢ 1¢↓
Gavin Newsom	6¢ NC
Kamala Harris	4¢ NC
Hillary Clinton	2¢ 1¢↑
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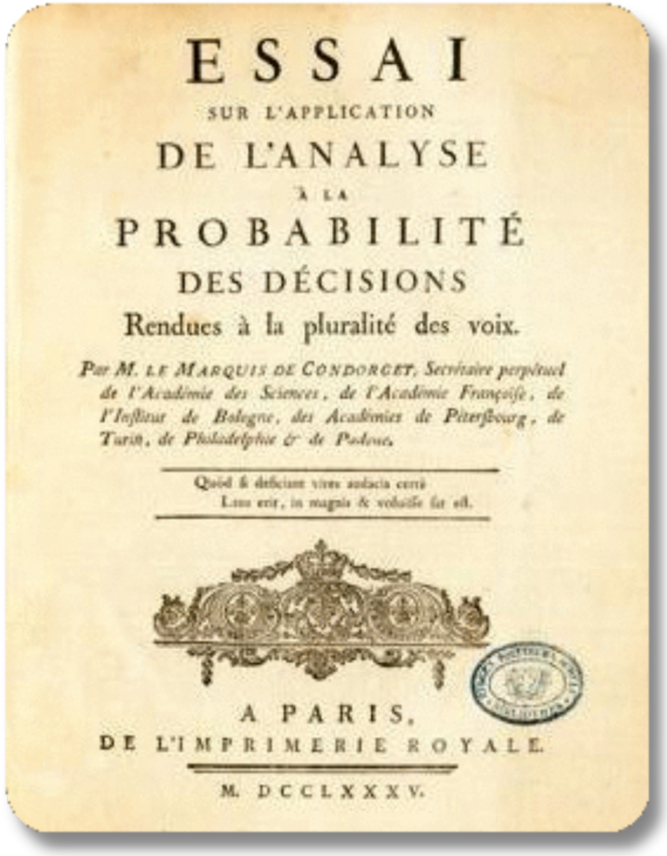
Where did it all start?

CONDORCET

The role of the government is to implement measures that are in the best interest of society.

But how to decide on what outcomes are good?

Democratic procedures can work well.



ESSAI

SUR L'APPLICATION

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À LA

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DES DÉCISIONS

Rendues à la pluralité des voix.

Par M. LE MARQUIS DE CONDORCET, Secrétaire perpétuel de l'Académie des Sciences, de l'Académie Françoise, de l'Institut de Bologne, des Académies de Pétersbourg, de Turin, de Philadelphie & de Padoue.

Quòd si deficiunt vires audacia certè
Laus erit, in magnis & voluisse sat est.

A PARIS,

DE L'IMPRIMERIE ROYALE.

M. DCCLXXXV.

Marie Jean Antoine Nicolas de Caritat, Marquis of Condorcet (1785). *Essai sur l'application de l'analyse à la probabilité des decisions rendues à la pluralité des voix.*

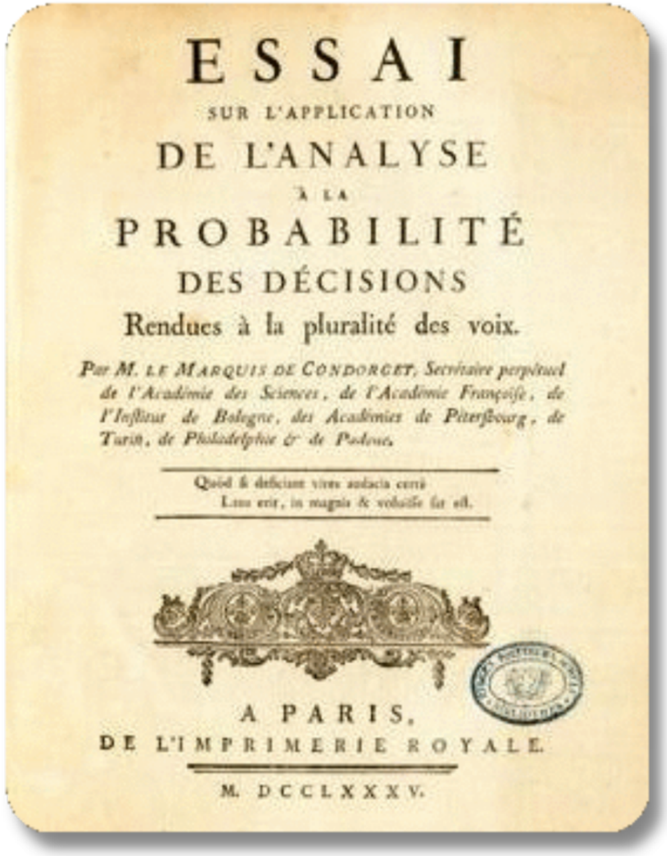
CONDORCET

The role of the government is to implement measures that are in the best interest of society.

But how to decide on what outcomes are good?

Democratic procedures can work well.

And I can show it using this newfangled theory of probabilities…



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