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IS DEMOCRACY COMPUTABLE, OR IS IT?

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 It means that you suffer side-effects of medication



Review

A Review of the Theoretical and Biological Understanding of the Nocebo and Placebo Phenomena



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You may develop the intended effects of a vaccine though you got a placebo?

The latter would be great but has not been established, though placebo and nocebo effects may influence your immune system experimental paradigms. The neurobiology of the nocebo and placebo phenomena is also reviewed, emphasizing the involvement of reward pathways, such as the μ -opioid and dopamine pathways. Neurobiological pathways have

Both effects demonstrate the performative effects of expectations and anticipation at the level of the brain and the body

Similar to the biological substrate of Merton's self fulfilling prophesy:

"if men define a situation as real it is real in its consequences"

The biological substrate of the performative effects of speech acts:

"I declare you husband and wife"

The biological substrate of the normative force of the factual:

The force of law and the force of technology

- Biological substrate does not imply:
 - biological causation
- It does not depend on behaviourism
- It rather confirms the enactive nature of
 - action and perception



"I am not afraid that behaviourism is true but that it will become true"



I am not afraid that democracy is computable

but that it will become computable

Why be concerned?

- 1. Because what matters can always be computed in different ways, and
- Democracy is not just a decisionmechanism but a discussion about which computation would be the right one or the better one

Democratic theory and practice:

Representative democracy: one person one vote

– Aggregated majority rules

Deliberative democracy: the better argument

– Decisions based on rational consensus

Participatory democracy: conflict and compromise

- Agonism offers robust decision making

Democratic theory and practice:

Computational democracy

- Voting algorithm
- Reasoning algorithm
- Preference prediction algorithm

AI & SOCIETY https://doi.org/10.1007/s00146-021-01170-8

ORIGINAL ARTICLE



Algorithmic augmentation of democracy: considering whether technology can enhance the concepts of democracy and the rule of law through four hypotheticals

Paul Burgess¹

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Abstract

The potential use, relevance, and application of AI and other technologies in the democratic process may be obvious to some. However, technological innovation and, even, its consideration may face an intuitive push-back in the form of algorithm aversion (Dietvorst et al. J Exp Psychol 144(1):114–126, 2015). In this paper, I confront this intuition and suggest that a more

- 1. The simple transfer of voting for representatives online;
- 2. The use of online voting to pass or reject bills proposed in the legislature;
- 3. The use of (anonymised) individuals' preferences to directly inform legislative decision-making; and,
- 4. The wholesale replacement of the (physical) legislature and the individuals within it with a legislature composed of algorithms representing the voting public.



- Introduction of Rules as Code and Smart Regulation
- Propositions of data-driven (personalised) computational law
- 'Legal search' that informs law firms and courts based on 'intelligent' software systems
- ADM in fraud detection and benefit decisions (student loans, unemployment benefits), based on data-driven
- Disruption of the information ecosystem (public sphere) that grounds democracy – by behavioural targeting



Is Democracy Computable?

Hildebrandt: Is Democracy Computable?

A bit of history

The Arrow

Impossibility Theorem

- Based on the assumption that if you prefer x to z, and z to y, you may nevertheless prefer y to x
- Outcome: paradox or dictator



STRONG ARROW'S THEOREM: THE PEOPLE WHO FIND ARROW'S THEOREM SIGNIFICANT WILL NEVER AGREE ON ANYTHING ANYWAY. Pioneered in the 18th century by Nicolas de Condorcet and Jean-Charles de Borda and in the 19th century by Charles Dodgson (also known as Lewis Carroll), social choice theory took off in the 20th century with the works of Kenneth Arrow, Amartya Sen, and Duncan Black. Its influence extends across economics, political science, philosophy, mathematics, and recently computer science and biology. Apart from contributing to our understanding of collective decision procedures, social choice theory has applications in the areas of institutional design, welfare economics, and social epistemology.

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Steeped in **social choice theory**:

- Calculating the right decision
- Based on aggregate preferences
- Often aligned with some form of utilitarianism
- As if voting 'behaviours' can be reduced to to consumer preference:
 - You like red wine, I prefer white
 - You prefer republicans, I prefer democrats

The problems with social & public choice theory

Behaviourism:

- Pavlov approach
- Simon approach

Relational approach:

Gibson

JOURNAL OF LEARNING ANALYTICS



(2017). Learning as a machine: Crossovers between humans and machines. *Journal of Learning Analytics*, 4(1), 6–23. http://dx.doi.org/10.18608/jla.2017.41.3

Learning as a Machine: Crossovers between Humans and Machines

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ABSTRACT: This article is a revised version of the keynote presented at LAK '16 in Edinburgh. The article investigates some of the assumptions of learning analytics, notably those related to behaviourism. Building on the work of Ivan Pavlov, Herbert Simon, and James Gibson as ways of "learning as a machine," the article then develops two levels of investigation (processing of personal data and profiling based on machine learning) to assess how data driven education affects privacy, non-discrimination, and the presumption of innocence. Finally, the article discusses how data minimization and profile transparency will contribute to the methodological integrity of learning analytics, while protecting the fundamental rights and freedoms of human learners thus safeguarding the creativity, humour, and contestability of human learning.

Keywords: Data protection, data protection by design, privacy, machine learning, behaviourism, nudging, Pavlov, Simon, Gibson, capture, optimization, affordance

Behaviourism:

- Pavlov approach
- Simon approach



Behaviourism:

- Pavlov approach
- Simon approach

The stimulus-reflex theory

- Treating an animal like a manipulable mechanism
- Methodological atomism (*Methodenstreit*)

Watson 1930:

The interest of the behaviorist in man's doings is more than the interest of the spectator — he wants to control man's reactions as physical scientists want to control and manipulate other natural phenomena. It is the business of behavioristic psychology to be able to predict and control human activity. To do this it must gather scientific data by scientific methods. Only then can the trained behaviourist predict, given the stimulus, what reaction will take place; or, given the reaction, state what the situation or stimulus is that has caused the reaction.

Skinner, Pentland, Helbing, Sunstein

Buytendijk & Plessner 1936 for in-depth critique

Behaviourism:

- Pavlov approach
- Simon approach

"To design ion ained at Courses of dji oriSi Changin 1066 into pro - Herbert Simm

Behaviourism:

- Pavlov approach
- Simon approach

Herbert Simon 1986: Why should machines learn?

"[W]e should ask whether we really want to make the computer go through that tedious process, or whether machines should be programmed directly to perform tasks avoiding humanoid learning entirely!

Only one computer would have to learn; not every one would have to go to school."

Cf. the controversy between Gary Marcus and Yann LeCun

Simon 'invented' bounded rationality and satisficing:

- Kahnemann & Tversky cognitive bias
- Gigerenzer heuristics, ecological rationality



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1 Projects

The Psychometrics Centre Cambridge Judge Business School

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myPersonality database		
The Psychometrics Centre		
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myPersonality was a popular Facebook application created by David Stillwell in 2007 that allowed users to take real psychometric tests and obtain their results instantly. As well as the data from the tests, around 40% of the respondents also opted in to share data from their Facebook profile, resulting in one of the largest social science research databases in history. The application was active until 2012 and collected data from over 6 million volunteers during this time. This data was anonymised and samples of it were shared with registered academic collaborators around the world through the myPersonality project, resulting in over 45 scientific publications in peer-reviewed journals.

Respondents came from various age groups, backgrounds and cultures. They were highly motivated to answer honestly and carefully, as the only gratification they received for their participation was feedback on their results. Their scores are combined with additional information from those who opted in to sharing it with us, including detailed demographic profiles, a record of their social media behaviour, their interests, preferences, opinions, etc.

If you are interested to learn more about the myPersonality project, please contact David Stillwell.

The MyPersonality database:

- Psychometrics
- What could possibly go wrong?

Cambridge Analytica

EUROPEAN DATA PROTECTION SUPERVISOR

Opinion 3/2018 EDPS Opinion on online manipulation and personal data

Cambridge Analytica:

- Wilful manipulation of voters
- Disruption of elections
- Destroying the public sphere

Sunstein 2007:

- Republic.com 2.0
- Sunstein 2008
- Nudge

James Buchanan 1986 Nobel Prize

- The Calculus of Consent 1962
- Public Choice theory

Behaviourism:

- Pavlov approach
- Simon approach

Relational approach:

Gibson



Behaviourism:

- Pavlov approach
- Simon approach

Gibson approach

Gibson's 1986 concept of an 'affordance':

"The affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill. The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment."

A relational, enactive understanding of agent & environment

Crucial for robotics, HMI, capability theory, privacy

Even more crucial for democratic theory and practice

DEMOCRACY

Back to Arendt:

"The world lies between people"

- 'Interest' lies between people

DEMOCRACY

Back to Arendt: "I am not afraid that behaviourism is true but that it will become true"

Series Contribute

Designing in Dark Times

Presents newly commissioned books looking at designing as ways of acting in, shaping and understanding the world. (Read more)



ttps://www.designdarktimes.net/home/designing-in-dark-times/designing-relationally-making-restor-v-ing-life

ACTION

Design Reframing by Visiting

When faced with situations of high complexity and uncertainty, i.e., so-called wicked problems,³ design offers a capacity for action through reframing of the problematic issue. By inventing new analytical frames for understanding and appreciating the issue at hand, new openings for meaningful action arises, what Schön calls naming and framing.⁴

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DEMOCRACY

Back to Arendt

4 The Issue of Bias: The Framing Powers of Machine Learning

Mireille Hildebrandt

4.1 Productive Bias, Wrongful Bias, and Unlawful Bias

In this chapter I will discuss three types of bias and their interrelationship. The first con-^{25/3/21} cerns the bias that is inevitable? Design action works through a hopeful "if," setting things into motion by asking evocative questions: what if we understood the issue in this way; what if we arranged our efforts in that way; what other futures might we envision if we challenge and unpack some of the contingencies that hold current reality in place?

DEMOCRACY

Back to Arendt

Donna Haraway has developed Arendt's notion of "visiting" into what she calls "response-ability": a practice of curiosity that insists on welcoming the responses of those one engages with: "to venture off the beaten path to meet unexpected, nonnatal kin, and to strike up conversations, to pose and respond to interesting questions, to propose together something unanticipated, to take up the unasked-for obligations of having met."⁶ This is what Haraway calls cultivating response-ability.

DEMOCRACY

Back to Arendt:

DEMOCRACY

THE NORMATIVE FORCE OF THE FACTUAL

- Interplay between facticity and normativity (Jellinek)
 - The gravity of the normal, the expected
 - Computability is gaining traction as 'the factual'
- Interrelation between norm, decision and concrete order (Schmitt)
 - Computability may reduce norm to rule
 - Rule to decision rule
 - Decision rule to concrete order
- Antinomian nature of law (Radbruch)
 - The normative cannot do without the factual
 - The factual cannot do without the normative
 - Computability may reduce the normative to the factual

Is democracy computable?

Anything is computable

In different ways

it would mean that democratic deliberation and participation will be displaced: (1) which computationis an adequate translation or proxy of what we want? (2) what big players have the expertise to offer such translation and what big playershave the power to decide on the proxies

I am not sure this is what democracy should be about



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See also slides of the TILT Public Lecture & Europe Lecture

- Why Microtargeting does not work but nevertheless disrupts the public sphere: <u>https://www.cohubicol.com/assets/uploads/why-microtargeting-does-not-work.pdf</u>
- Democracy as action in the era of political behavioural targeting: <u>https://www.montesquieu-instituut.nl/9353262/g/ppt/mireille.pdf</u>