

Artificial Utopia

Simulation and AI to Explore Utopian (& Dystopian) Futures

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Unil.

real
A POST GROWTH DEAL

101071647 (ERC)

Paper:

Oswald, Y. (2025 March). Artificial Utopia: Simulation and Intelligent Agents for a Democratised Future. arXiv preprint arXiv:2503.07364.

Dystopian and drastic escalation

Trump sends Marines against Protesters



Militäreinsatz in Los Angeles

Was bezweckt Trump?

US-Präsident Trump schickt 700 Marines und Tausende Nationalgardisten nach Los Angeles. Damit

Agenda



What is Artificial
Utopia about?



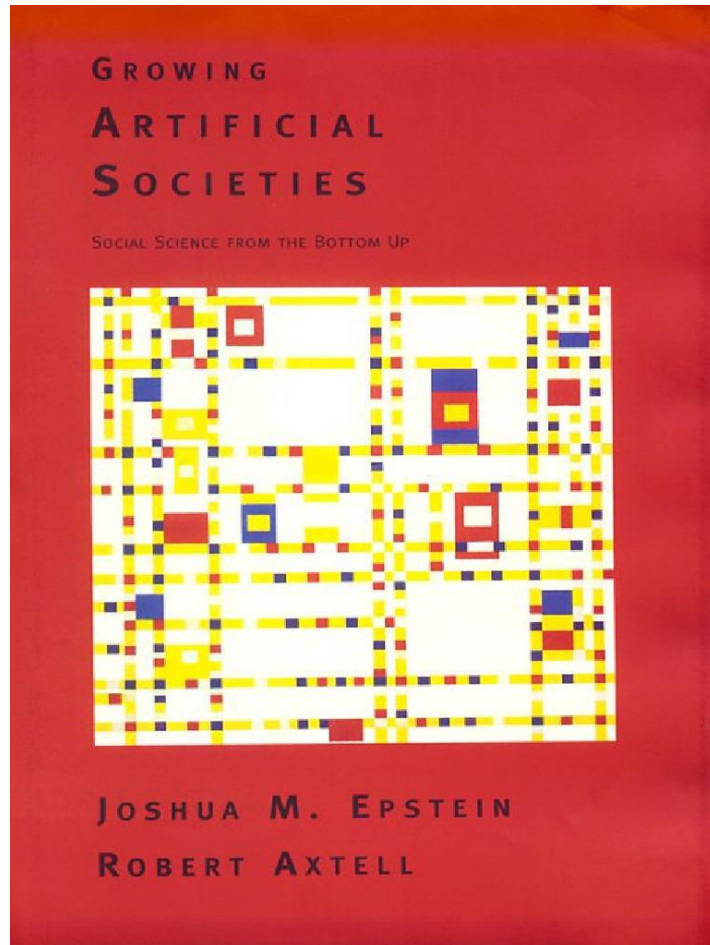
State-of-the-art



What to do next?

Utopia is always about finding or creating a better society. Sure, but there is more.

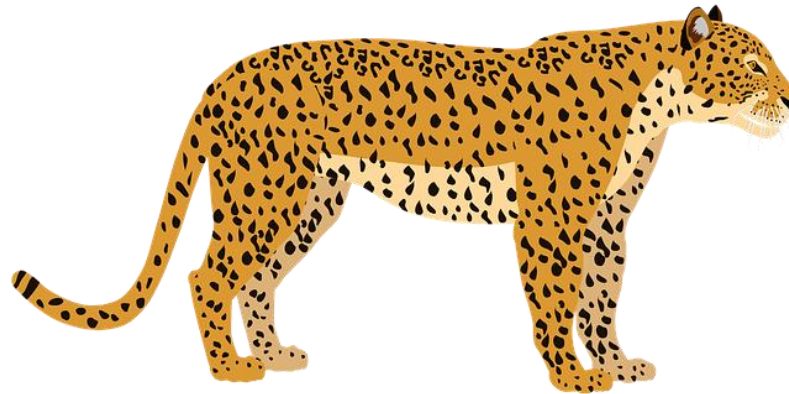
Background – Artificial Societies



Background – Artificial Life



Game of life



Synthesis, Complexity, Self-organisation and Evolution of Natural Systems

An explicit natural science analogy
- AI effectively swept the search space!!

AlphaFold

Accelerating breakthroughs in biology with AI

Explore the AlphaFold Database >

<https://deepmind.google/science/alphafold/>

ARTIFICIAL INTELLIGENCE

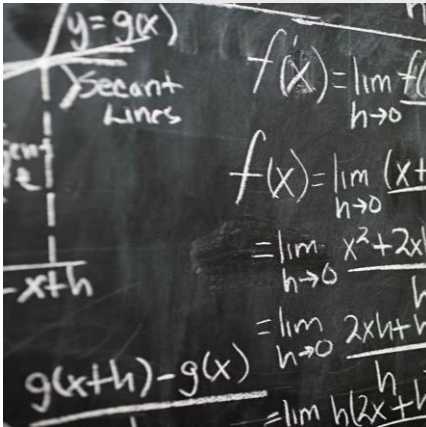
Google DeepMind's new AI tool helped create more than 700 new materials

Newly discovered materials can be used to make better solar cells, batteries, computer chips, and more.

By June Kim

November 29, 2023

From Maths to Artificial Utopia



Pure Mathematics

"The difference between math and physics is that physics describes our universe, while math describes any potential universe."

– Edward Frenkel



Artificial Utopia

The difference between artificial utopia and artificial societies (or even social science) is that artificial societies describe our society, while artificial utopia describes any potential society.

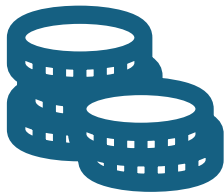
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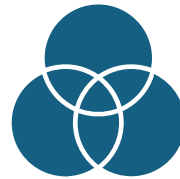
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Defining the search space!

Three ways to think about utopia



The economic way

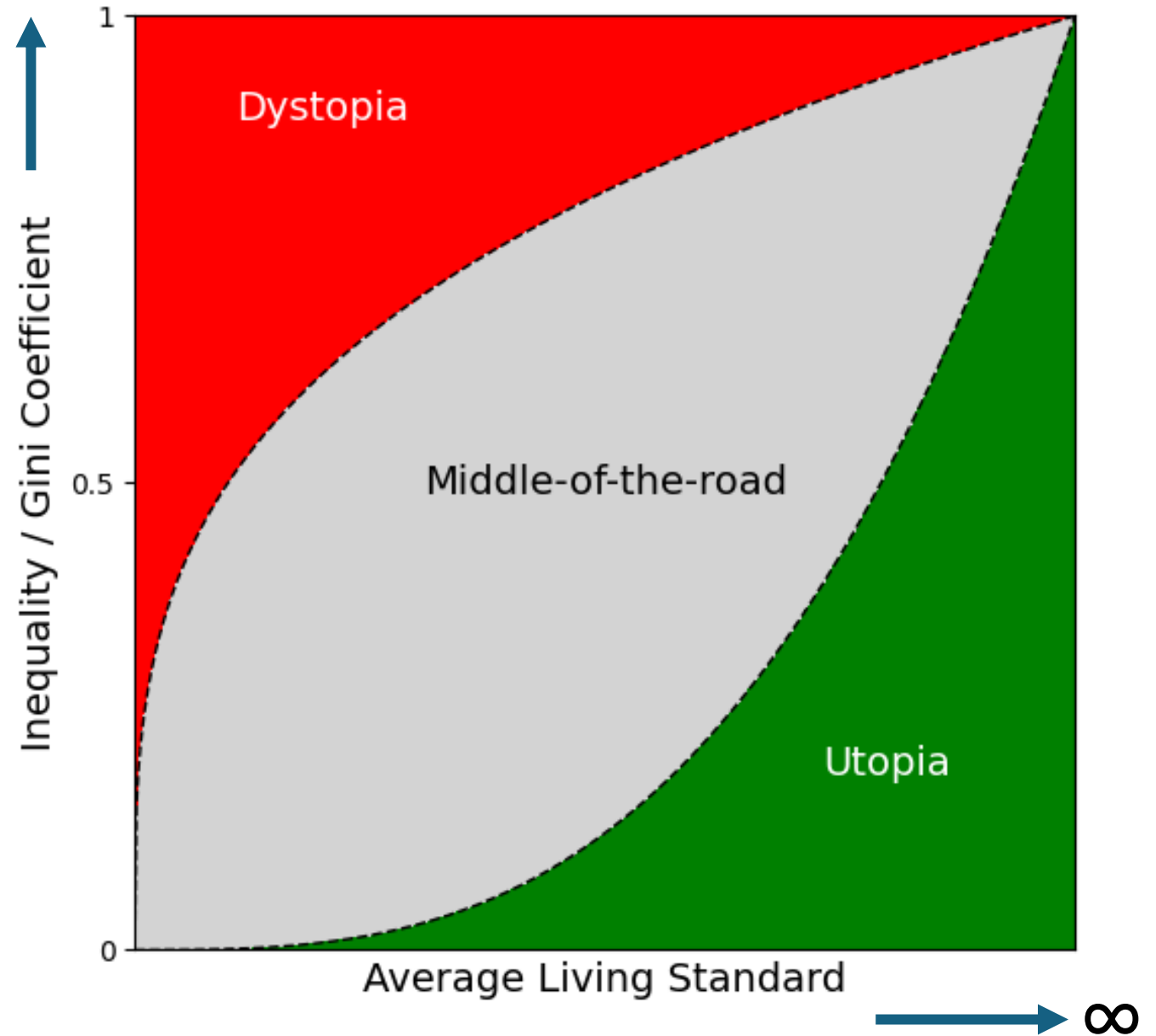


The technology/nature way

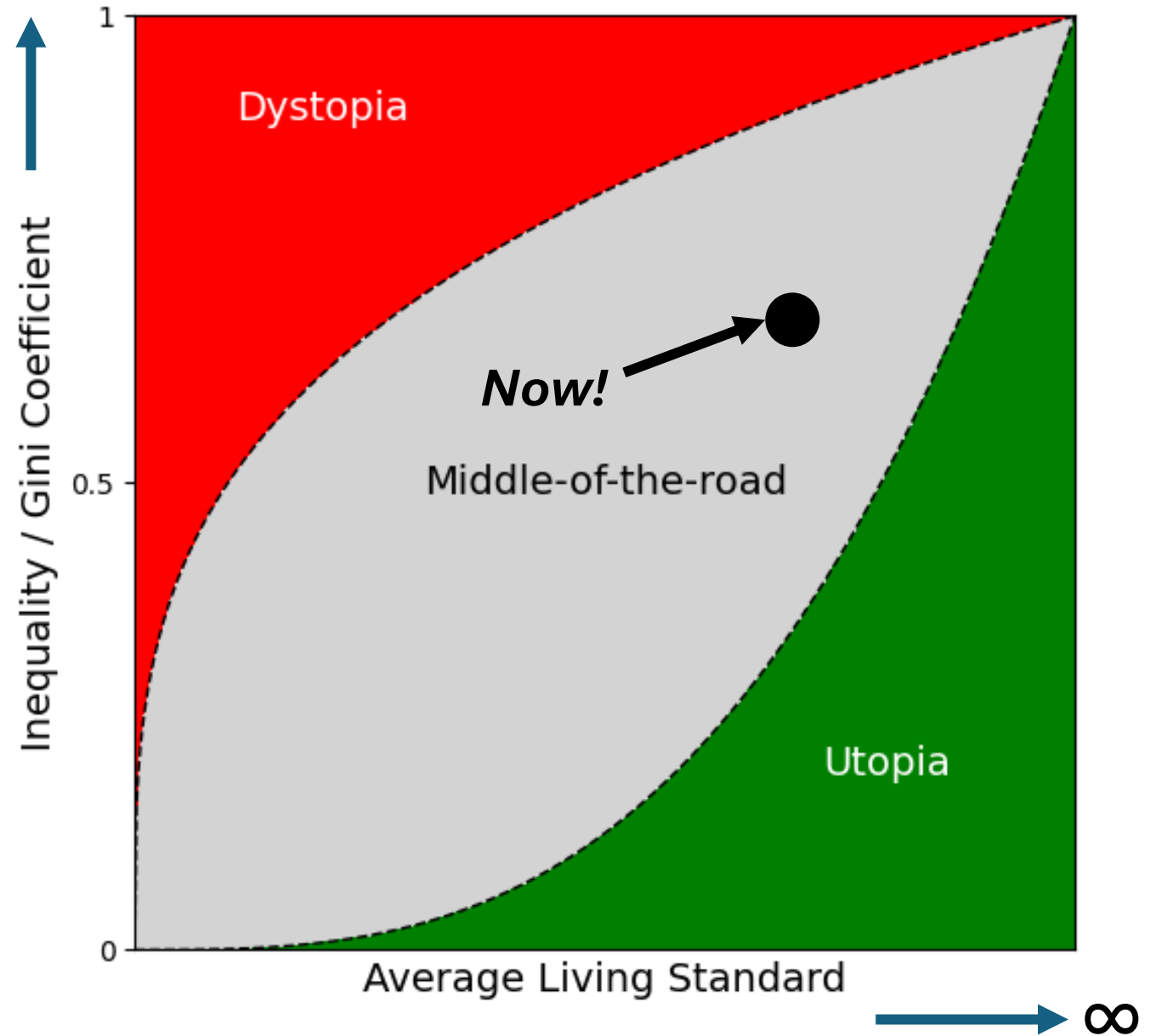


The political way

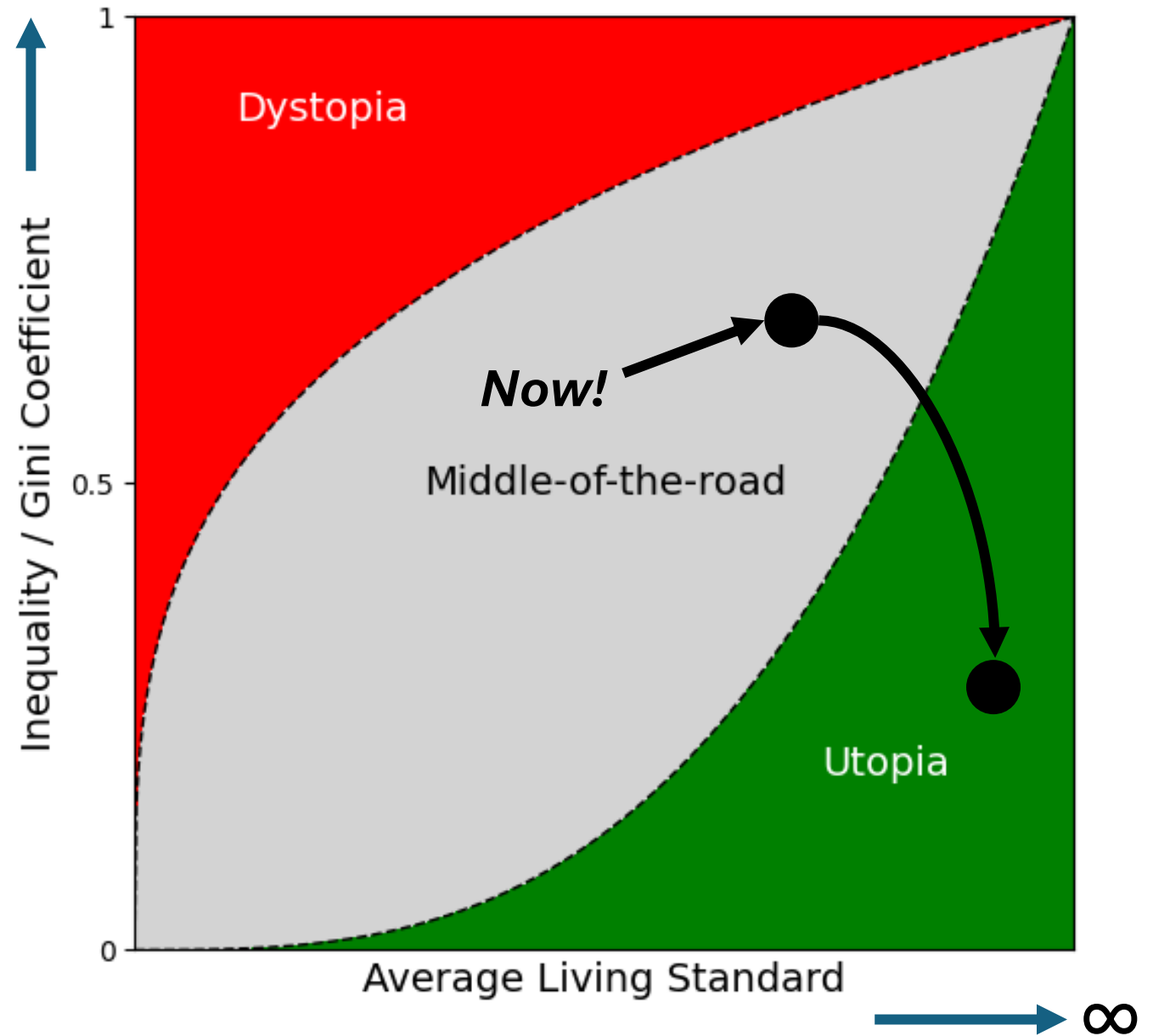
The economic way



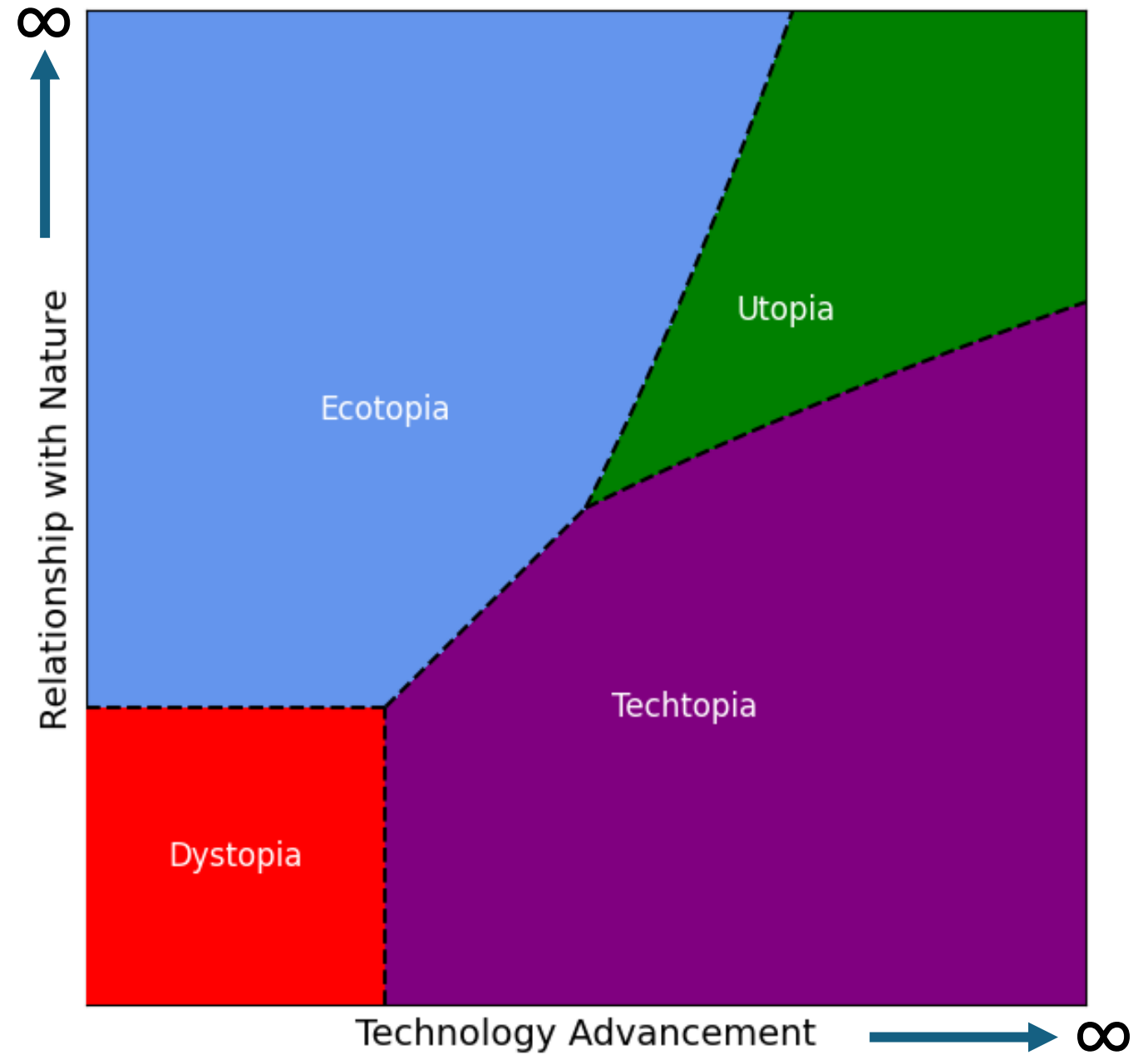
The economic way



The economic way

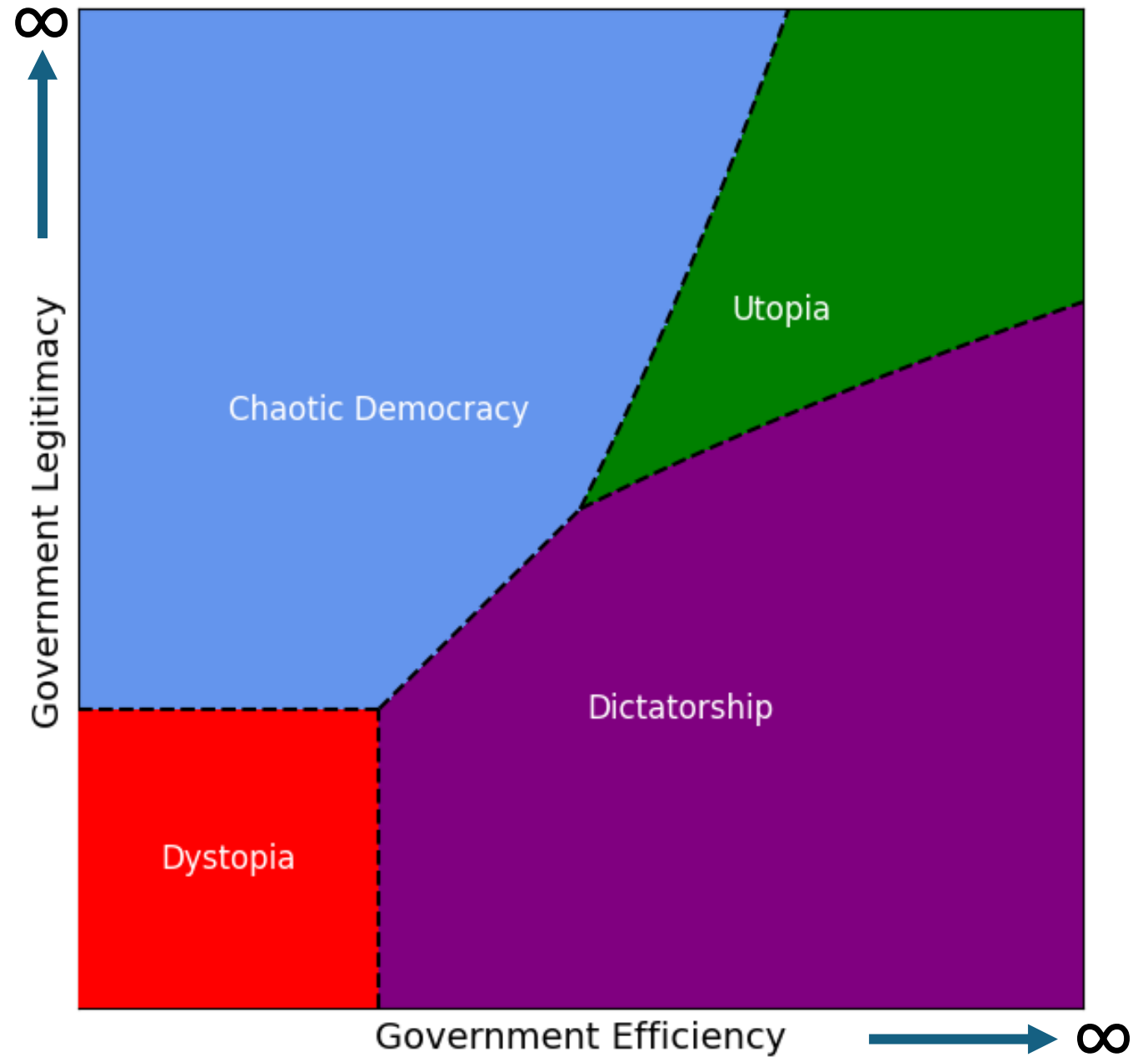


The technology & nature way



The political way

Inspired by Against Elections:
The Case for Democracy
Book by David Van Reybrouck



Thinking About These Utopian Regimes/Phase

What political institutions would this be?

What economic structures and rules would this be?

What would people do in such societies?

Who would they be?

What technologies would they use day-to-day?

How would they interact with nature in a concrete way?

How to get there? What would be different or the same as compared to today?

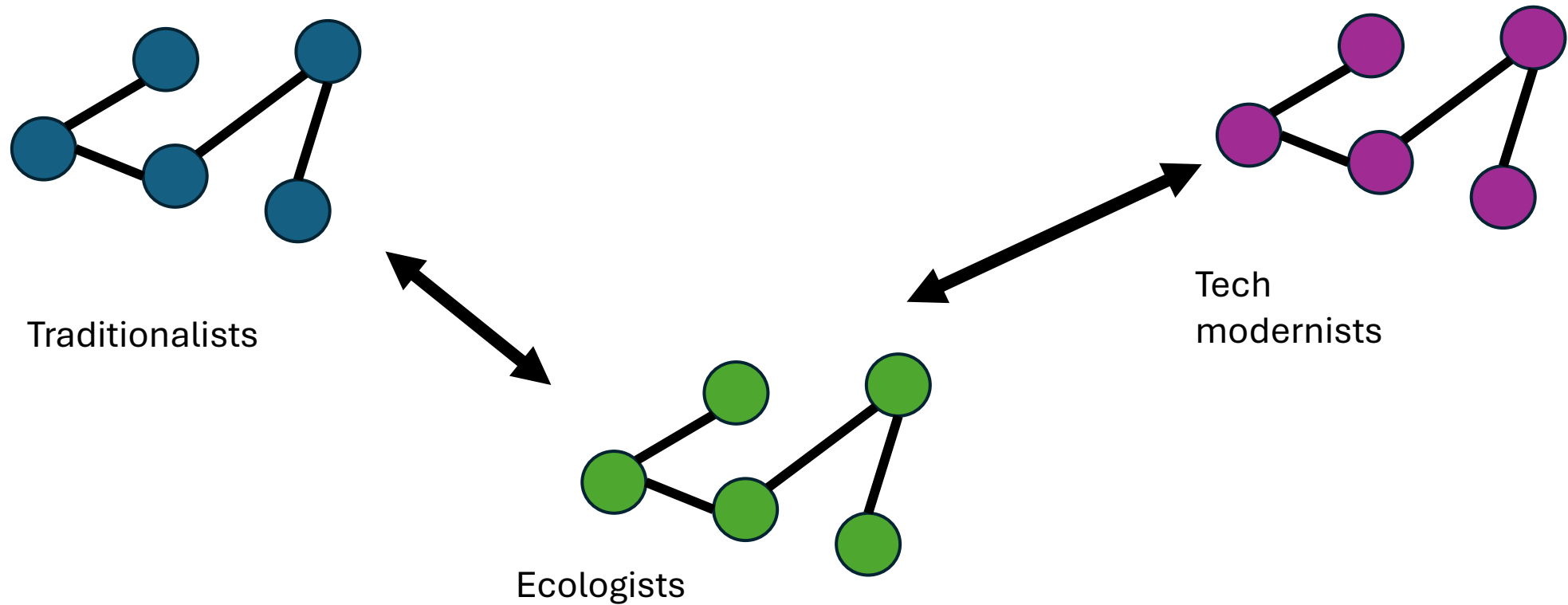
State-of-the-art

State of the art is very limited so far

Gerdes, L., Aigner, E., Meretz, S., Pahl, H., Schlemm, A., Scholz-Wäckerle, M., ... & Sutterlützi, S. (2023). COMMONSIM: Simulating the utopia of COMMONISM. Review of Evolutionary Political Economy, 4(3), 559-595.

Almudi, I., Fatas-Villafranca, F., Izquierdo, L. R., & Potts, J. (2017). The economics of utopia: a co-evolutionary model of ideas, citizenship and socio-political change. Journal of Evolutionary Economics, 27, 629-662.

Example: CommonSim Utopia – “Autarch” communities Trade based on human needs



Currently available AI is ready for many applications (1)

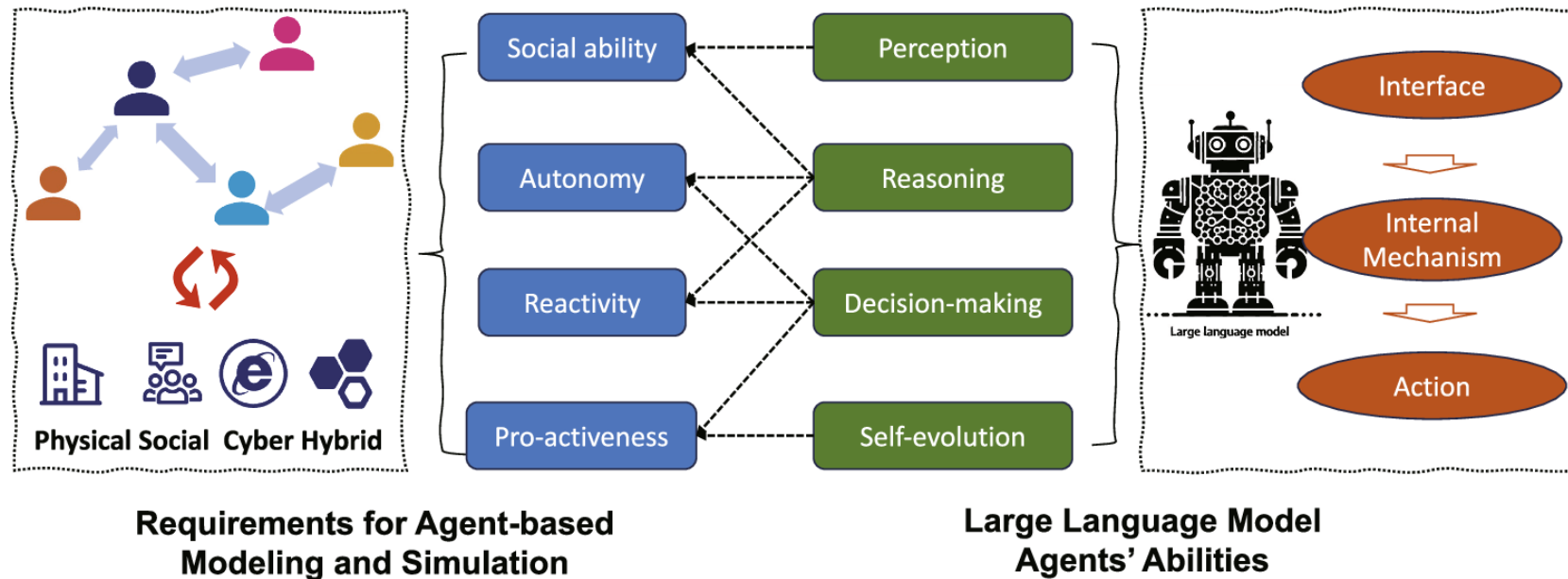


Figure taken from: Gao, C., Lan, X., Li, N. et al. Large language models empowered agent-based modeling and simulation: a survey and perspectives. Humanit Soc Sci Commun 11, 1259 (2024). <https://doi.org/10.1057/s41599-024-03611-3>

Currently available AI is ready for many applications (2)

Caveats!

Can Generative AI agents behave like humans?
Evidence from laboratory market experiments

R. Maria del Rio-Chanona^{*1,2,3}, Marco Pangallo^{*4}, and Cars Hommes^{5,6}

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²Complexity Science Hub

³Bennett Institute for Public Policy, University of Cambridge

⁴CENTAI Institute

⁵Canadian Economic Analysis Department, Bank of Canada

⁶Faculty of Economics and Business, University of Amsterdam

^{*}Equal contribution

May 22, 2025

Abstract

We explore the potential of Large Language Models (LLMs) to replicate human behavior in economic market experiments. Compared to previous studies, we focus on dynamic feedback between LLM agents: the decisions of each LLM impact the market price at the current step, and so affect the decisions of the other LLMs at the next step. We compare LLM behavior to market dynamics observed in laboratory settings and assess their alignment with human participants' behavior. Our findings indicate that LLMs do not adhere strictly to rational expectations, displaying instead bounded rationality, similarly to human participants. Providing a minimal context window i.e. memory of three

Emergent LLM behaviors are observationally
equivalent to data leakage^{*}

Christopher Barrie¹ and Petter Törnberg²

¹New York University

²University of Amsterdam

June 2, 2025

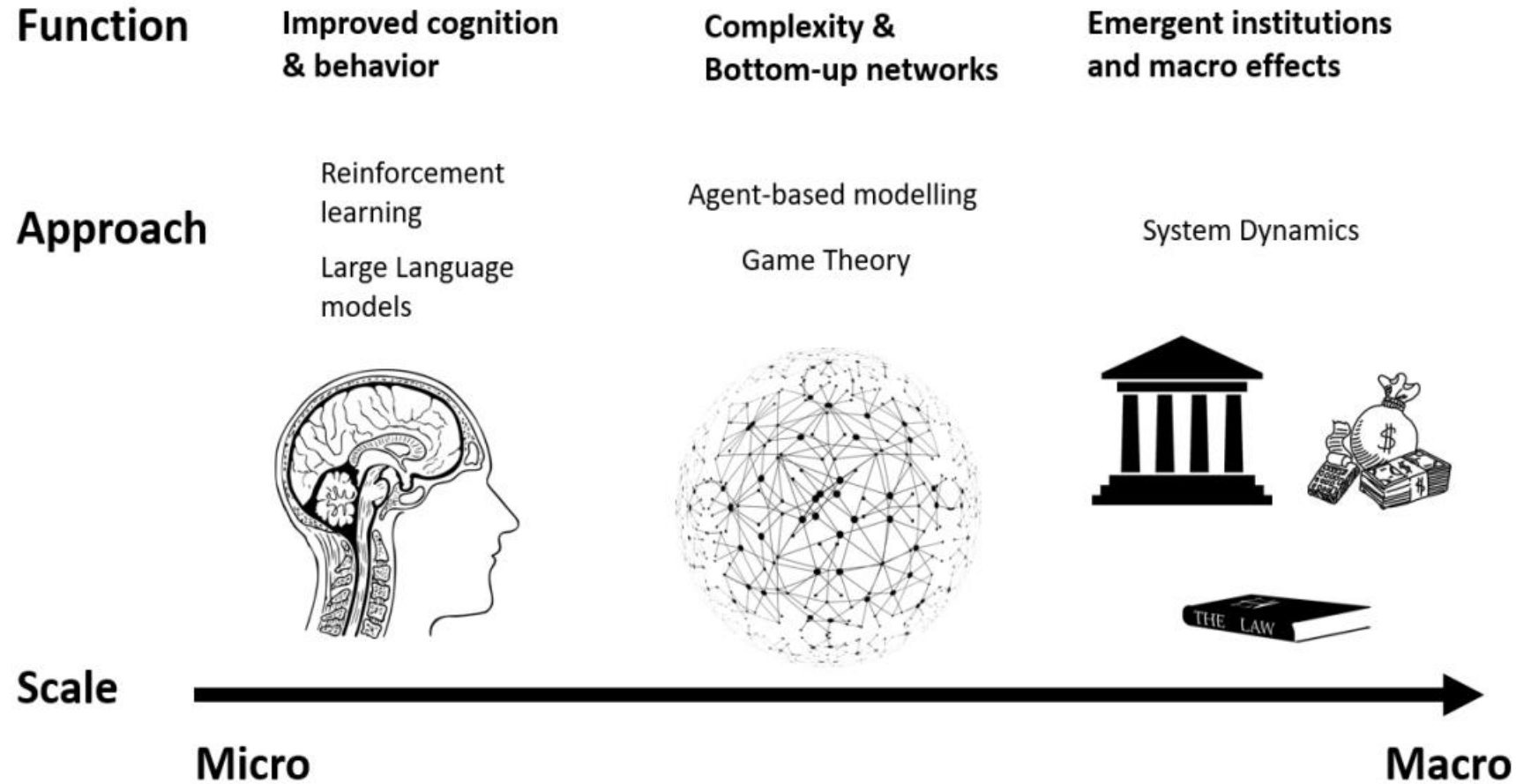
In a recent contribution, Ashery *et al.* [1] argue that interacting large language models (LLMs) spontaneously exhibit emergent norms characteristic of simulated models of human populations. Specifically, they instantiate a version of the classic “naming game” wherein two agents are randomly paired and can choose from a lexicon of potential conventions/words. When two agents choose the same word, they receive a reward; when they choose different words, they receive a penalty. When the agents match, they pare down their lexicon to the last matched word, mechanically tilting the balance in favor of future matches on that convention/word. The key contribution of this model is that it demonstrates that decentralized agents represented through simple rules can



What to do next?

- A few suggestions from my article

Further systematize (rapidly evolving) methodology



From: Oswald, Y. (2025 March). Artificial Utopia: Simulation and Intelligent Agents for a Democratised Future. arXiv preprint arXiv:2503.07364.

Study past egalitarian societies

Anthropologists have done so

**THE DAWN OF
EVERYTHING**

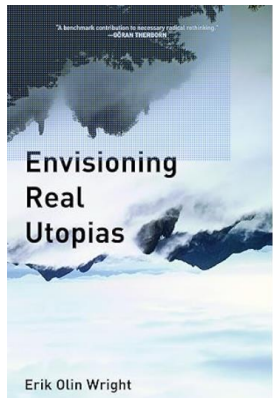
**A NEW HISTORY OF
HUMANITY**

**DAVID GRAEBER ^{AND}
DAVID WENGROW**

Study real existing alternative societies

Ernst Bloch
“Concrete” Utopias

Erik Olin Wright
Envisioning Real Utopias



https://en.wikipedia.org/wiki/Twin_Oaks_Community,_Virginia

https://en.wikipedia.org/wiki/Federation_of_Egalitarian_Communities

Study edge cases (*my focus*)

- on the verge of utopia at scale, but not quite there

Citizen
assemblies



Democratic
firms



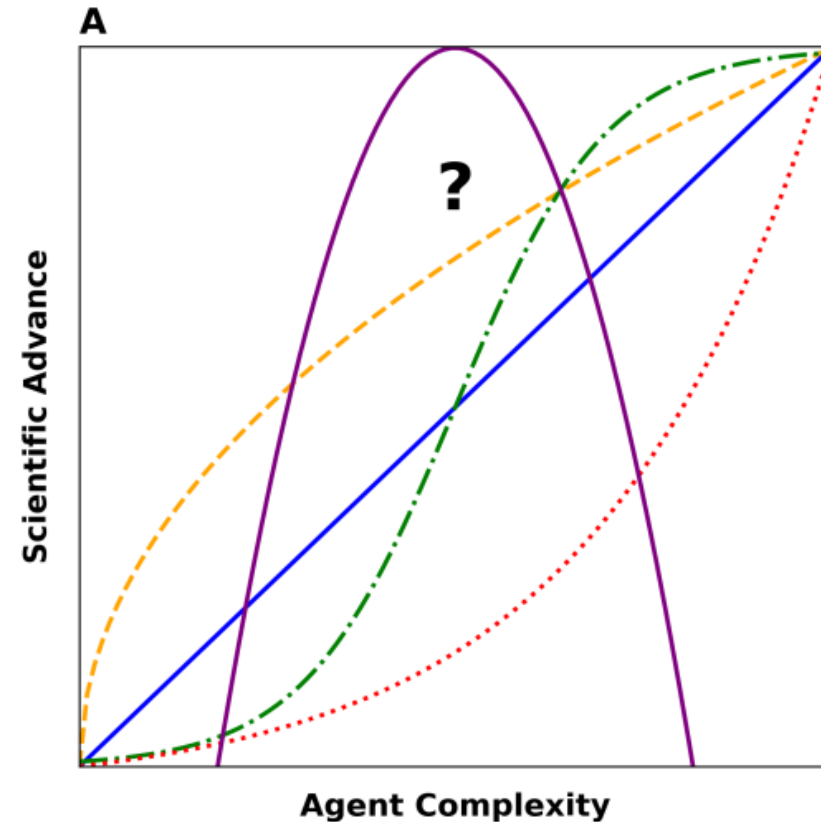
Uniquely offers some empirical insight, but rarely at scale and with little theoretical insight.

From: Oswald, Y. (2025 March).

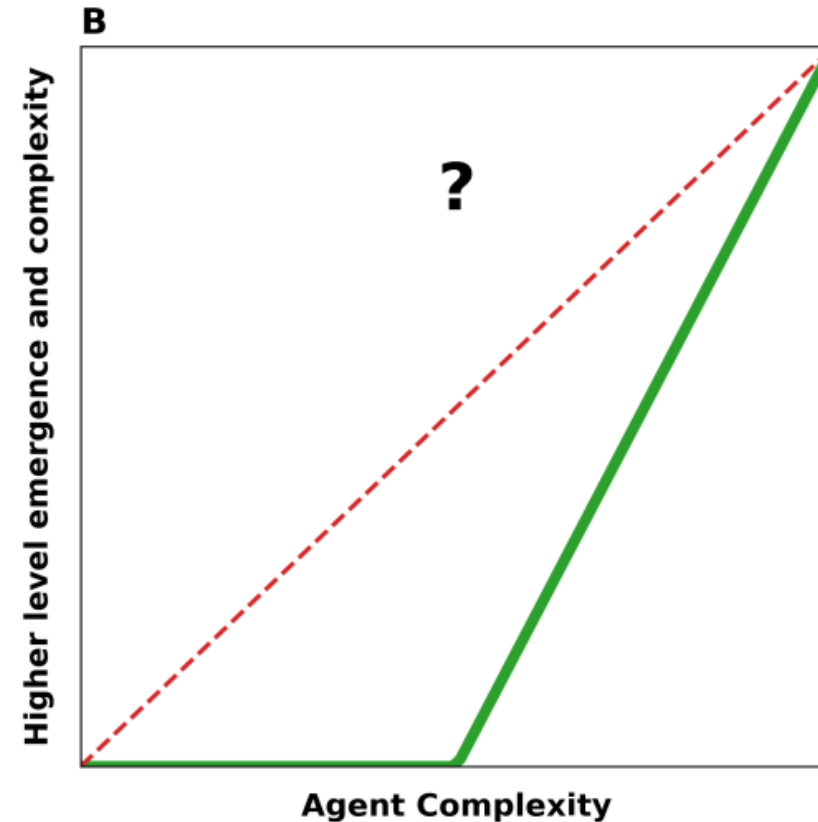
Artificial Utopia: Simulation and Intelligent Agents for a Democratised Future. arXiv preprint arXiv:2503.07364.

Fundamentals & critical reflection

- methodological and epistemological



— Linear - · - S-Curve — Inverse U-Shape
- - - Saturating · · · Accelerating



— Thresholding - - - Linear Relationship

An invitation to

Collaboration opportunities?

***Simulation and AI to Explore Utopian
(& Dystopian) Societal Futures***

contact me via [**y-oswald@web.de**](mailto:y-oswald@web.de)