

Theory-Driven Strategic Management Decisions

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Session

How is strategic management useful in a world of Knightian uncertainty



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Luxottica

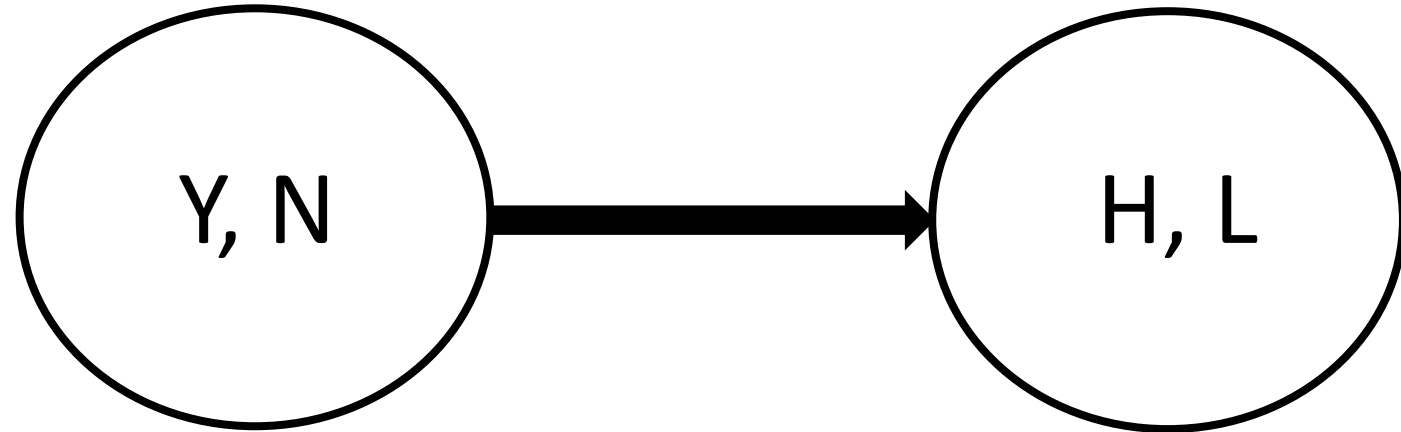


Attributes

Causal links

Good design?

Demand?



Theory: $P(H | Y) > P(H | N)$

Good design makes a difference



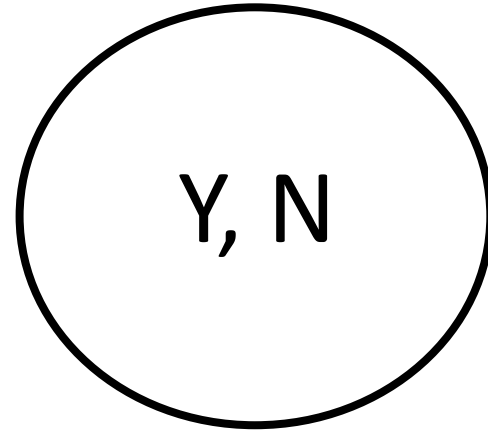
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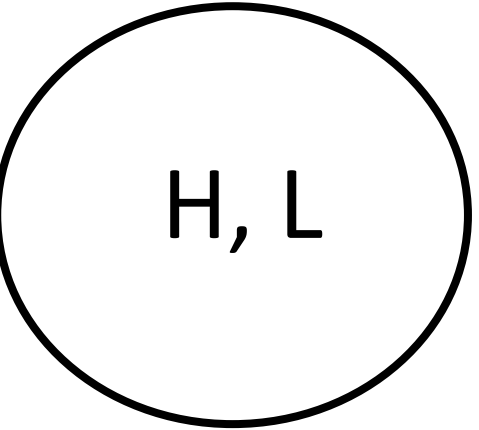
RISK



Good design?



Demand?



Necessary & sufficient condition

$$\underbrace{P(H | Y)} > \underbrace{P(H | N)}$$

1

sufficient

0

necessary



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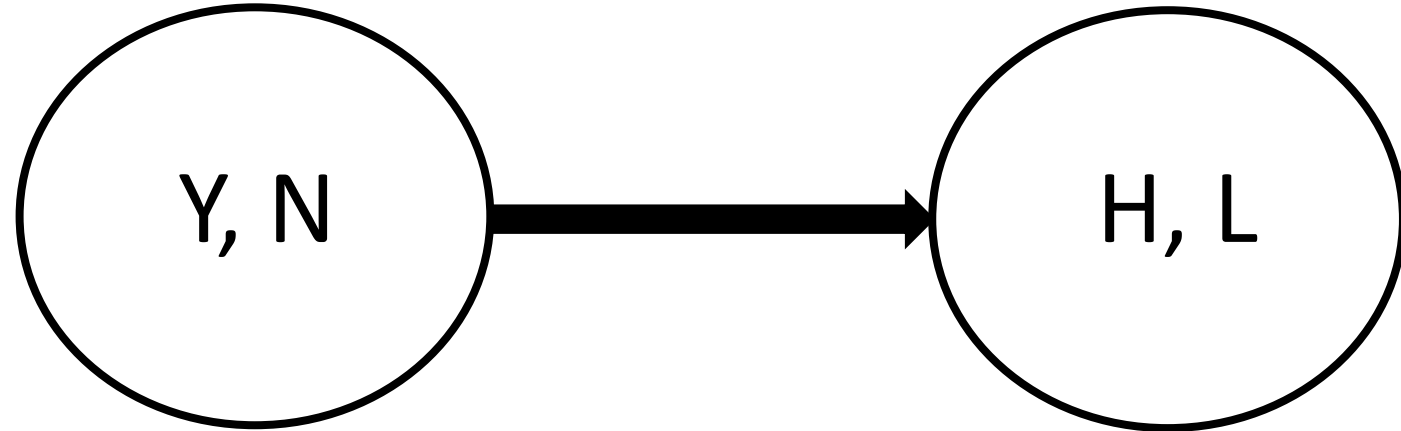
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AMBIGUITY



Good design?

Demand?



$$P(H | Y) < 1 \quad \dots \quad P(H | N) > 0$$

$$\text{Null HP: } P(H | Y) = P(H | N)$$



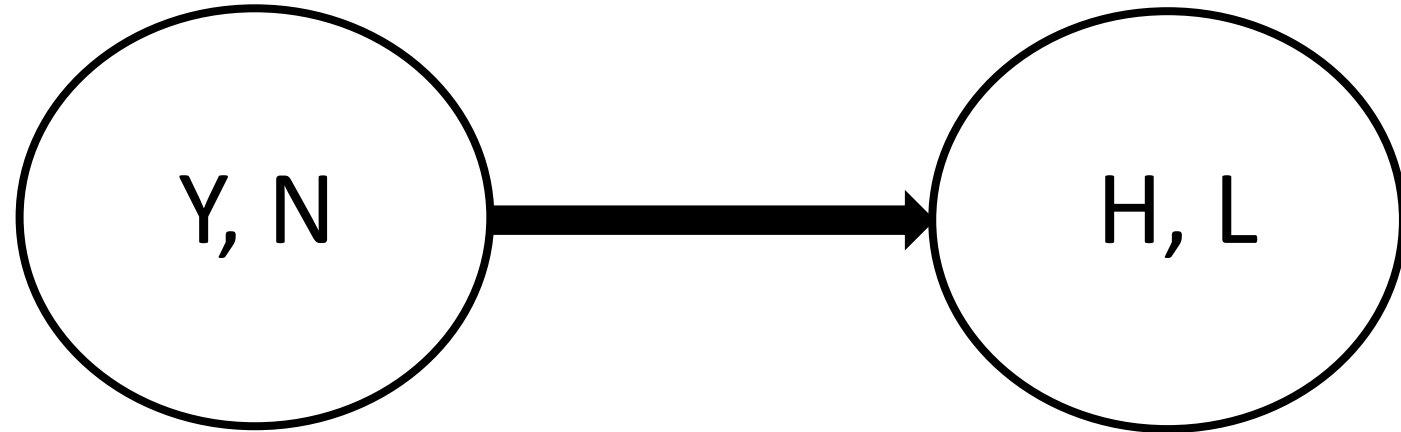
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Good design?

Demand?



If I am able to produce a good design:

- under theory $\rightarrow P(H)$
- under null HP $\rightarrow P_0(H)$

Belief: ω

$$V = \omega P(H) + (1 - \omega) P_0(H)$$



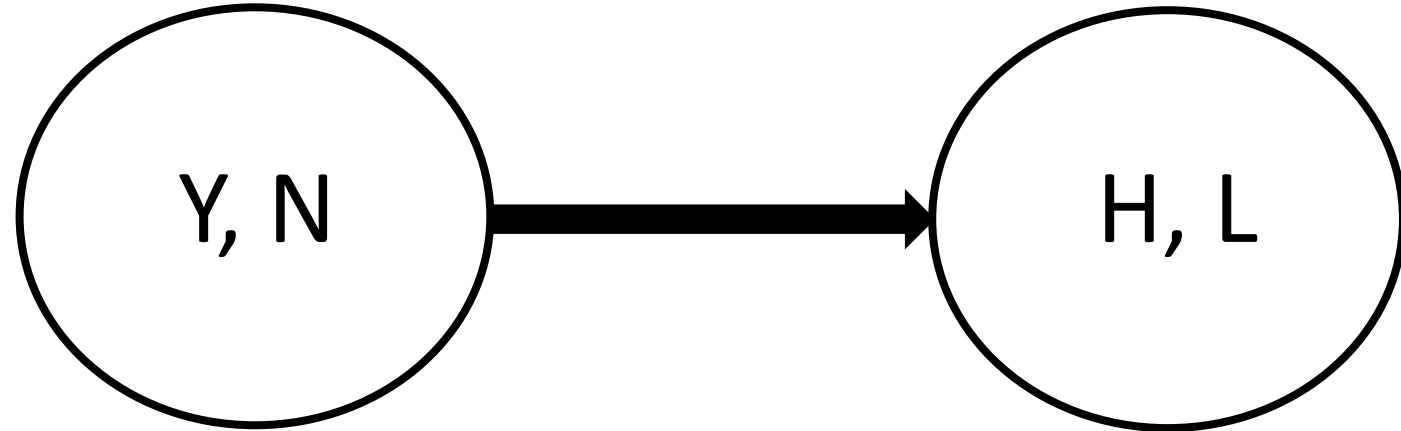
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Good design?

Demand?



$$P(H | Y) < 1 \quad \dots \quad P(H | N) > 0$$

unknown attributes matter



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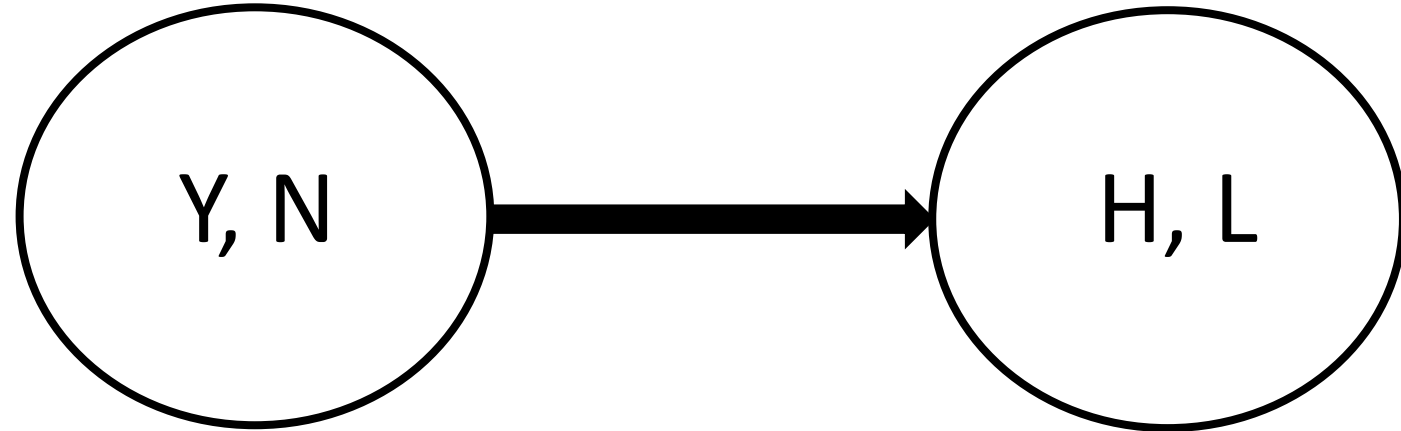
UNCERTAINTY



Different space

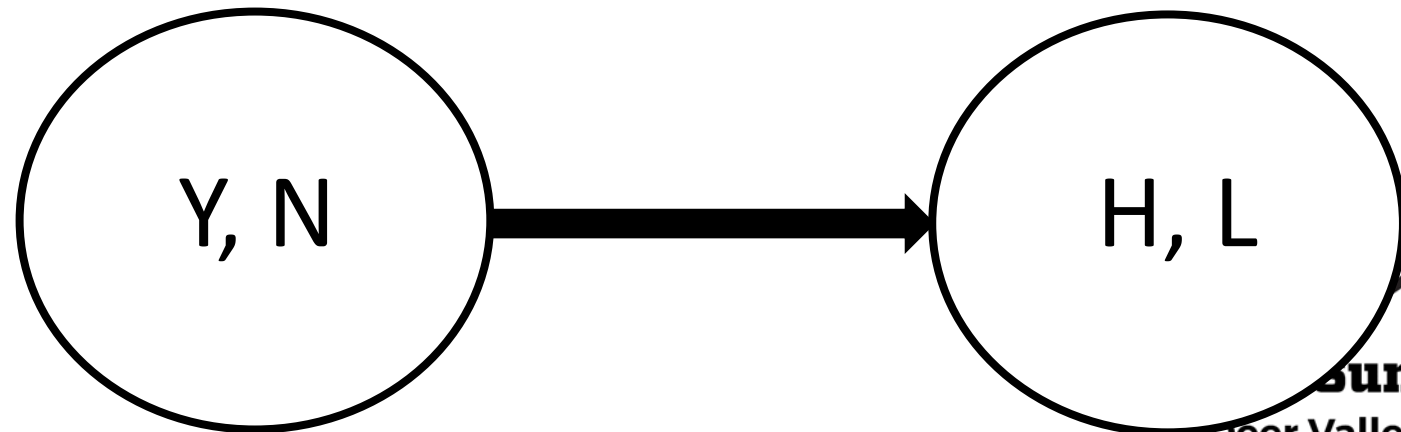
Good design?

Demand?



Eye Surgery?

Standard glasses?



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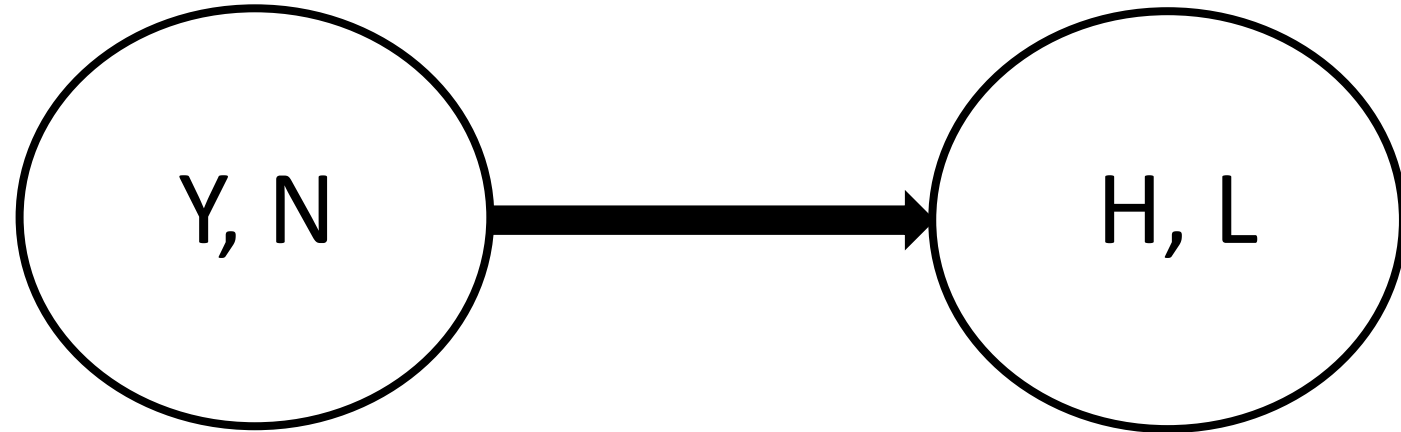
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UNCERTAINTY



Good design?

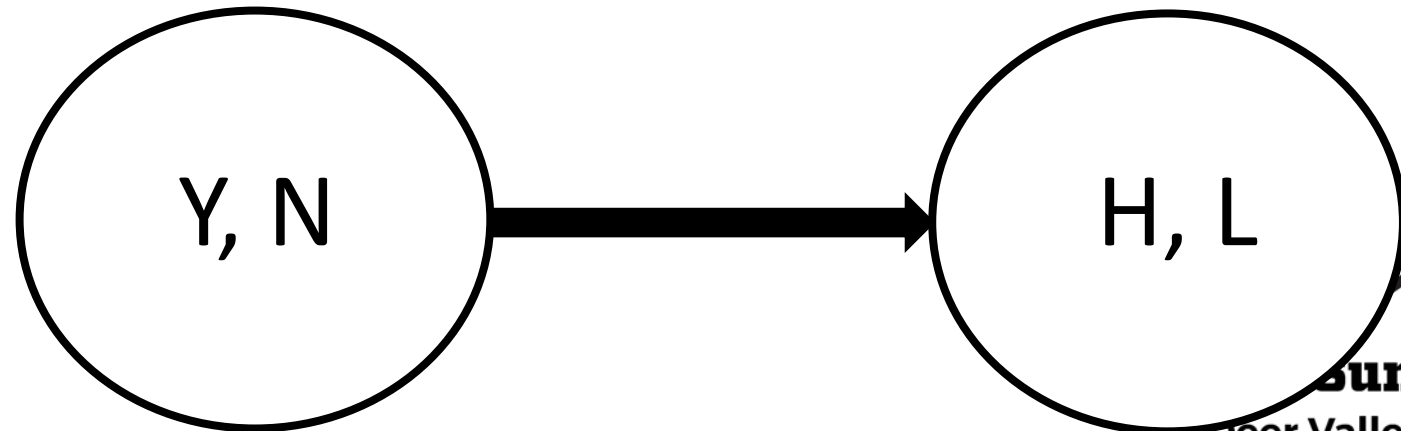
Demand?



Different space

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Compare

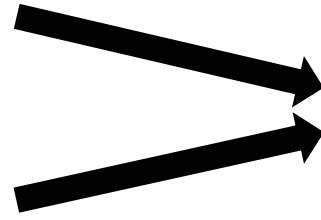
$$V = \omega P(H) + (1 - \omega) P_0(H)$$

$$Q = \xi R(H) + (1 - \xi) R_0(H)$$

General Electric
(Larry Culp)

Sell & focus

Execution



Lower debt



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General Electric
(Larry Culp)

Sell & focus

Execution

Lower debt

Bayer
(Bill Anderson)

New drugs

Monsanto

US market

Test:

$$P(S | M) \neq P(S | \bar{M})$$



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General Electric
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(Bill Anderson)

New drugs
Monsanto

US market

Toyota
(Akyo Toyoda)

Battery
Regulation
Sustainability
Technology

Electric

Hybrid

Test:
 $P(S | M) \neq P(S | \bar{M})$



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Framework & Platform

- Teaching
- Learning
- Research

- 1.0 cases
- 2.0 DAG & prob from text
- 3.0 AI generated theories

Please select the simulation you want to play



Adobe

John Warnock and Charles Geschke leave Xerox PARC with an innovative idea to revolutionize the printing industry. What theories did they have in mind to achieve their vision?

Play



Amazon Web Services

Jeff Bezos and Andy Jassy have built an internal technological infrastructure to efficiently scale up Amazon. Can they create a new market around it?

Play



Apple

In 2007, Steve Jobs contemplates the future of the iPhone experience. Should Apple prioritize a secure iPhone user experience? Or should Apple differentiate the iPhone through a dedicated software ecosystem?

Play



BP

In the shifting landscape of the energy industry in 2005, should CEO John Browne balance BP's traditional operations with carbon reduction efforts, or fundamentally shift its focus to renewables?

Play



Boeing

Alan Mulally is the CEO of Boeing at an important juncture in its history and has to make strategic decisions that might change the fate of the American giant. Will he envision a plausible future for Boeing?

Play



Booking.com

In the late 1990s, Geert-Jan Bruinsma, after struggling when looking for a hotel room during a holiday, decides to re-formulate this problem and build a company around it. How will he do so?

Play



Carlyle

At the dawn of the European Debt Crisis, Carlyle's De Benedetti is considering how to exit the fund's successful investment in Moncler. What shall De Benedetti do?

Play



Danaher

Should Larry Culp maintain George Sherman's acquisition-based strategy at Danaher, or transition the industrial conglomerate into a family of strategic growth platforms for increased shareholder value?

Play



Geox

In 1991, Mario Moretti-Polegato, inspired by an epiphany during a Nevada hike, is torn about whether continuing his family's winemaking business or pursuing an innovative



Google

In a rapidly evolving internet video market of 2006, should Eric Schmidt focus on developing Google's own all-media ecosystem, or accelerate growth through acquiring YouTube to



Hewlett-Packard

Meg Whitman is tasked with a crucial decision: will financial markets recognize a higher value to HP as a single company or as separate entities following a spinout of some of its



IBM

In 1993, IBM's new CEO, Louis Gerstner Jr. must decide whether to reinvent the struggling giant as an integrated tech service provider or to break it into a conglomerate of nimble,

Version 2.0 DAG & Probabilities from Text



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Version 3.0 AI Generated Theories



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Learned so far ...

- Less info → more confused networks (vs orthogonal attributes)
- Selection relatively more important than generation
- AI can hardly make it without assistance



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- Less info → more confused networks (vs orthogonal attributes)
- Selection relatively more important than generation
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Article

AI models collapse when trained on recursively generated data

<https://doi.org/10.1038/s41586-024-07566-y>

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Open access

 Check for updates

Ilia Shumailov^{1,8}, Zakhar Shumaylov^{2,8}, Yiren Zhao³, Nicolas Papernot^{4,5}, Ross Anderson^{6,7,9} & Yarin Gal¹

Stable diffusion revolutionized image creation from descriptive text. GPT-2 (ref. 1), GPT-3(.5) (ref. 2) and GPT-4 (ref. 3) demonstrated high performance across a variety of language tasks. ChatGPT introduced such language models to the public. It is now clear that generative artificial intelligence (AI) such as large language models (LLMs) is here to stay and will substantially change the ecosystem of online text and images. Here we consider what may happen to GPT- $\{n\}$ once LLMs contribute much of the text found online. We find that indiscriminate use of model-generated content in training causes irreversible defects in the resulting models, in which tails of the original content distribution disappear. We refer to this effect as ‘model collapse’ and show that it can occur in LLMs as well as in variational autoencoders (VAEs) and Gaussian mixture models (GMMs). We build theoretical intuition behind the phenomenon and portray its ubiquity among all learned generative models. We demonstrate that it must be taken seriously if we are to sustain the benefits of training from large-scale data scraped from the web. Indeed, the value of data collected about human interactions with systems will be increasingly valuable in the presence of LLM-generated content in data crawled from the Internet.

How could we make it without



Abhi

Saeid



Amin

Thank you!



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