

Mitigating the Freeroll Effect in Statistical Research (Discussion of Shafer's "Testing by Betting")

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Definition (Freeroll, in gambling)

A bet which is guaranteed to break even (in worst case).

- Betting/Gambling is central to the roots of mathematical probability.
- Risk/Consequence is central to the practice of gambling. (No Risk, No Gamble)
- Statistical analyses pose risk to society (medicine, Covid-19, policy), but those risks aren't shared by the statisticians and scientists who perform and publish the analysis.

Where does this leave us?

- Replication crisis
- 'evidence-based' Covid-19 recommendations by WHO and others
- Election predictions 2016/2020

Definition (Freeroll Effect, in science)

Researchers get credit when a recommendation works, face no consequences when it fails, while society bears the risk.

Reputational risk is cheap: Covid-19

I need not risk a lot of money. I can risk as little as I like—so little that I am indifferent to losing it and to winning any amount the bet might yield. [...] I am betting merely to make a point. (Shafer, p 4)

Covid-19: Early advice of experts (WHO, Sunstein, Ioannidis, others):

BEFORE

The Cognitive Bias That Makes Us Panic About Coronavirus

Feeling anxious? Blame "probability neglect."

By Cass R. Sunstein

WHO: Coronavirus Not Yet A Global Health Threat

January 23, 2020

Why Most Published Research Findings Are False

John P. A. Ioannidis

Corollary 5: The greater the financial and other interests and prejudices in a scientific field, the less likely the research findings are to be true.

AFTER

Cass Sunstein tapped to chair WHO technical advisory group

As COVID-19 rages across the globe, the World Health Organization is asking Cass Sunstein '88 and other experts whether changing people's behavior can help save lives

11 March 2020

Deeply concerned both by the alarming levels of spread and severity, and by the alarming levels of inaction, WHO made the assessment that COVID-19 can be characterized as a pandemic.

JetBlue's Founder Helped Fund A Stanford Study That Said The Coronavirus Wasn't That Deadly

A Stanford whistleblower complaint alleges that the controversial John Ioannidis study failed to disclose important financial ties and ignored scientists' concerns that their antibody test was inaccurate.

Reputational risk is cheap: Elections

I need not risk a lot of money. I can risk as little as I like—so little that I am indifferent to losing it and to winning any amount the bet might yield. [...] I am betting merely to make a point. (Shafer, p 4)

Money Talks

Betfair (NJ): Biden 51%, Trump 47%

Joe Biden	1.04	1.95	1.96	1.97	1.98	1.99
	\$12018	\$18356	\$13469	\$7289	\$5347	\$22578
Donald Trump	2.06	2.08	3.1	2.12	2.14	2.16
	\$43459	\$19141	\$12471	\$27829	\$26854	\$9773

Pinnacle: Biden 55%, Trump 49%

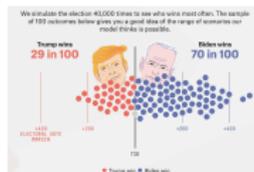
2020 Presidential Election Winner(see rules)?	
Tue, Sep 15 22:00	
Donald Trump	2.030
Joe Biden	1.833

PredictIt: Biden 58%, Trump 45%

	Joe Biden	58¢	1c	42¢	Buy No	Sell No	41¢
	Donald Trump	45¢	NC	56¢	Buy No	Sell No	55¢

BS Walks

538: Biden 70%, Trump 29%



Not all forecasters got it wrong: Nate Silver does it again (again)

Referral Inquiry 2018111029

(Fundamental Principle of Probability)

Probability claims are only meaningful when corresponding to a (real money) risk at the correct implied price.

FPP + Testing by Betting could mitigate the freeroll effect:

- **addition by subtraction:** tenuous and speculative conclusions might never be published because of downside.
- **meaningful signal:** provides a before-the-fact, self-policing constraint against data mining, p-hacking, multiple testing, etc. (Can't afford to wait until after-the-fact for a retrospective analysis.)
- **no freeroll:** better aligns incentives of researchers and society, but still the risks to individual researchers pale in comparison to large-scale, systemic risks posed by their mistakes.

(References)

- *Harry Crane. (2018). The Fundamental Principle of Probability. Researchers.One, <https://www.researchers.one/article/2018-08-16>.*
- *Harry Crane. (2020). Naive Probabilism. Researchers.One, <https://www.researchers.one/article/2020-03-9>.*