Prediction: Final Week

Let’s fix the world

Climate Change

AI

Communication

Video Samples & Discussion

What's a "Prediction"? (V4)

My possible future career...

Secretary of Transportation Pete Buttigieg

U.S. Secretary of Transportation

Pete Buttigieg currently serves as the 19th Secretary of Transportation, having been sworn in on February 3, 2021.

Prior to joining the Biden-Harris Administration, Secretary Buttigieg served two terms as mayor of his hometown of South Bend, Indiana. A graduate of Harvard University and a Rhodes Scholar at Oxford, Buttigieg served for seven years as an officer in the U.S. Navy Reserve, taking a leave of absence from the mayor’s office for a deployment to Afghanistan in 2014.

He is the son of Joseph Buttigieg, who immigrated to the United States from Malta, and Jennifer Anne Montgomery, a fifth-generation Hoosier.

Growing up in South Bend—which was once home to Studebaker car manufacturing—Pete Buttigieg, like many other Americans in the industrial Midwest, grew up surrounded by empty factories and abandoned houses, sometimes hearing that the only way to a good future was to get out.

Alyssa A. Goodman
@AlyssaAGoodman

Nice piece on @PeteButtigieg today. He would do @Harvard and the #USA proud as #USPresident. As I’ve said before, he impressed me when he was (even) young(er) as a student in my #datavisualization class. nytimes.com/2019/04/01/opi... via @nytopinion

8:11 AM · Apr 2, 2019 · Twitter for iPhone

View Tweet activity

15 Retweets **1** Quote Tweet **62** Likes

Ken Hudson @shareastronomy · Apr 2, 2019
Replying to @AlyssaAGoodman @PeteButtigieg and 2 others
Alyssa, that's very cool. To think you could have taught a future President! Wow.

1

Maria Wells @karmafur · Apr 2, 2019
Replying to @AlyssaAGoodman @PeteButtigieg and 2 others
Pete took a class on data visualization?

2

JG Grey @NewsSprint · Apr 2, 2019
Replying to @AlyssaAGoodman @Nm4Pete and 3 others
Thank you Dr. Goodman!! It’s great to hear a Harvard professor who taught #PeteButtigieg say complementary things about #MayorPete. As a former university instructor myself, I know how exciting it is when one of my former students does well. Congratulations Alyssa!

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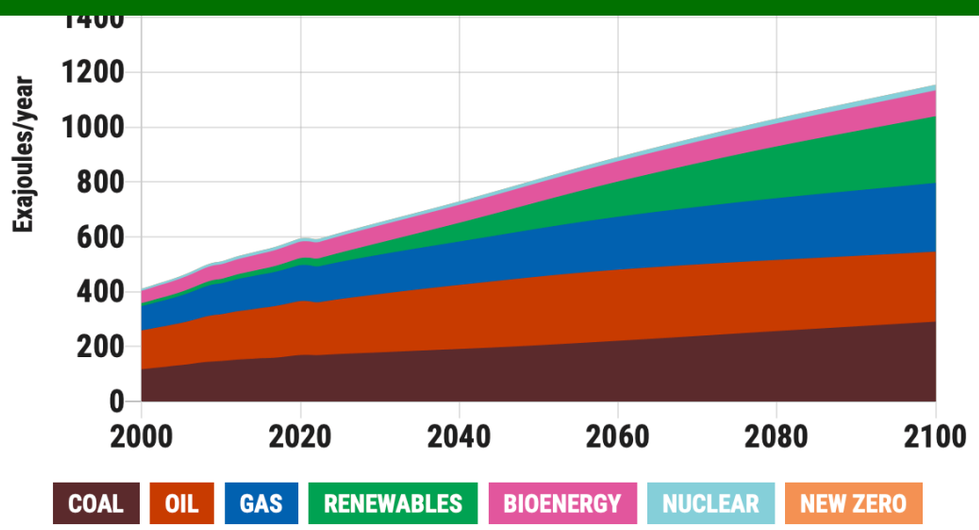
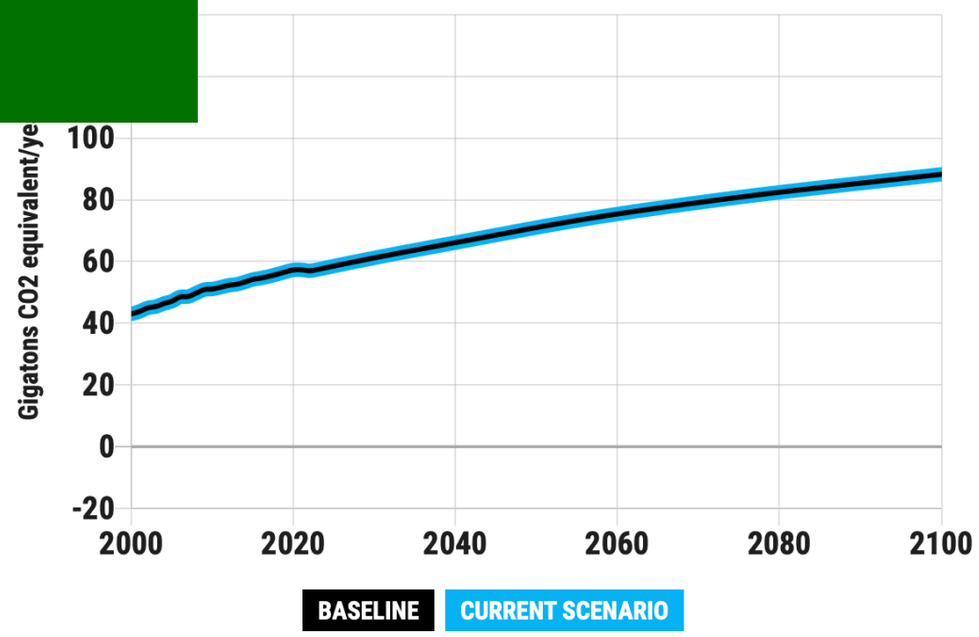
Let's fix the world

EN-ROADS | English | Simulation | Graphs | View | Help | Share Your Scenario

Climate Change





+3.6 °C

+6.4 °F

Temperature Increase by 2100

Energy Supply

- Coal — status quo
- Renewables — status quo
- Oil — status quo
- Nuclear — status quo
- Natural Gas — status quo
- New Zero-Carbon — status quo
- Bioenergy — status quo
- Carbon Price — status quo

Transport

- Energy Efficiency — status quo
- Electrification — status quo

Buildings and Industry

- Energy Efficiency — status quo
- Electrification — status quo

Growth

- Population — status quo
- Economic Growth — status quo

Land and Industry Emissions

- Deforestation — status quo
- Methane & Other Gases — status quo

Carbon Removal

- Afforestation — status quo
- Technological — status quo

CLIMATE INTERACTIVE

MIT MANAGEMENT Sustainability Initiative

Register Your En-ROADS Event

climateinteractive.org/en-roads/

Let's fix the world

The Prediction Project

The Past and Present of the Future

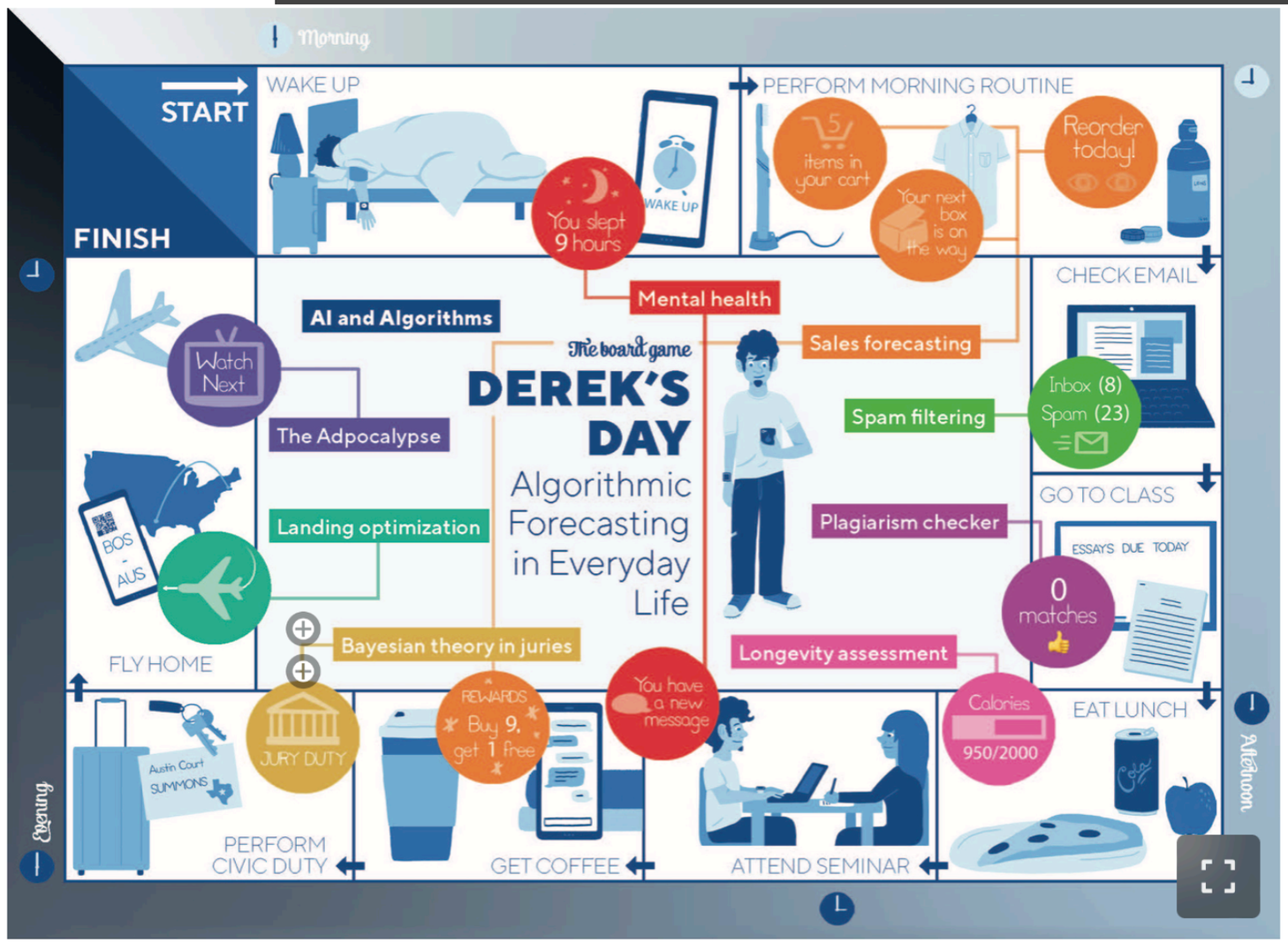
Search...

HOME ABOUT MATERIALS COURSES

AI

Algorithmic Forecasting

This page is under development and will feature the "Derek's Day game" developed based on a the roles played by algorithmic forecasting in Harvard undergraduate's (a)typical day.



Prediction: Final Week

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Communication

Video Samples & Discussion

CfA Education and Community Engagement Strategy

Wendy Berland, Nar *Dussault, Alyssa Goodman, Phil Sadler, Sue Sunbury, Pat* *Wright.*

Re scientists at CfA see
on Slack to a couple of
programming).

It's wonderful that y
thinking about how
Building impactful,
relationships with
design and build t
are meeting your
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In general, I wo
pathway for sci
There are exist
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Forging New Horizons in Astronomy Research with Foundation Models

Principal Investigator

Alyssa Goodman (Center for Astrophysics | Harvard & Smithsonian)

Co-Investigators

Ioana (Jo) Ciucă & Yuan-Sen Ting (Australian National University)
Alberto Accomazzi (NASA ADS & Center for Astrophysics | Harvard & Smithsonian)
Josh Peek (Space Telescope Science Institute)

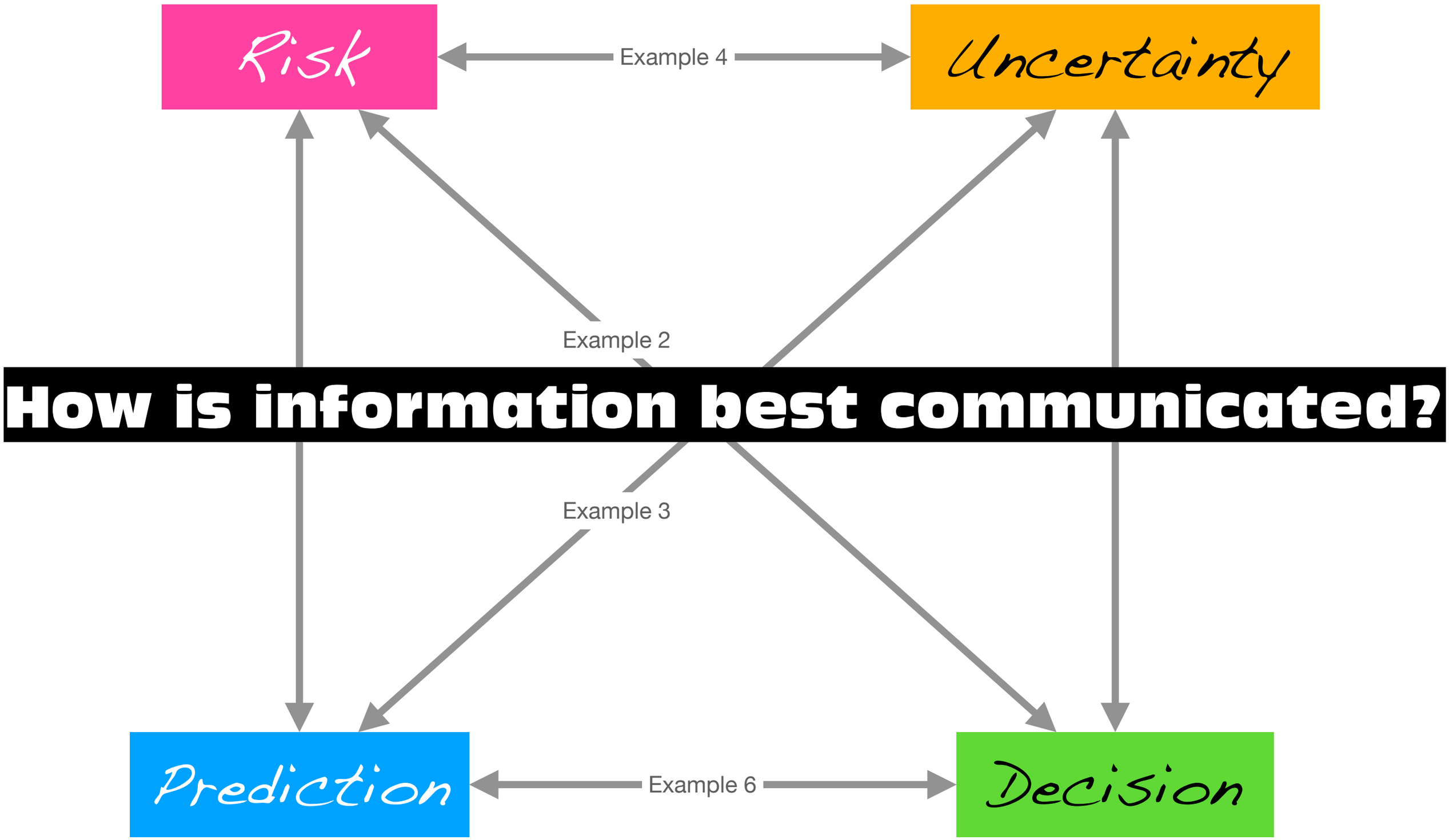
Introduction

Dating back nearly five thousand years, Astronomy has aimed to unravel the mysteries of the Universe and push the boundaries of theoretical understanding. The advent of the Internet has allowed astronomers to archive our corpus of knowledge, with NASA's"Astrophysics Data System" (ui.adsabs.harvard.edu) hosting over 15 million resources, representing essentially *all* of the astronomical literature used by researchers (Accommazzi et al. 2015; Borgman & Wofford 2021). Recent breakthroughs in large language models (LLMs, e.g., Vaswani et al. 2017; Devlin et al. 2018; Brown et al. 2020) are now empowering researchers to draw insights from the expansive and intricate body of astronomy literature. For example, the LLMs can help researchers navigate the various scientific interpretations of research findings, which may disagree in non-trivial ways. Moreover, the multidisciplinary aspect of Astronomy enables the utilisation of LLMs to reveal hidden relationships within our knowledge corpus, thereby opening the possibility of formulating novel scientific hypotheses.

Goals

The primary goal of this project is to improve human interaction with astronomy literature by leveraging the capabilities of foundation models such as the SoTA GPT-4 LLM (OpenAI 2023) in a focused manner. To this end, we will collaborate closely with NASA ADS to define a set of astro
extracting questions

Communication



How is information best communicated?

The Prediction Project
The Past and Present of the Future

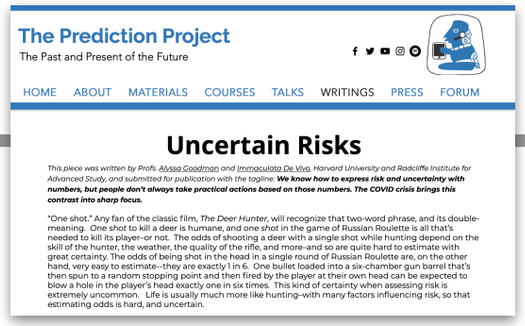
Uncertain Risks

This piece was written by Profs. Alyssa Goodman and Immaculata De Vivo, Harvard University and Radcliffe Institute for Advanced Study, and submitted for publication with the tagline: ***We know how to express risk and uncertainty with numbers, but people don't always take practical actions based on those numbers. The COVID crisis brings this contrast into sharp focus.***

"One shot." Any fan of the classic film, *The Deer Hunter*, will recognize that two-word phrase, and its double-meaning. *One shot* to kill a deer is humane, and *one shot* in the game of Russian Roulette is all that's needed to kill its player–or not. The odds of shooting a deer with a single shot while hunting depend on the skill of the hunter, the weather, the quality of the rifle, and more–and so are quite hard to estimate with great certainty. The odds of being shot in the head in a single round of Russian Roulette are, on the other hand, very easy to estimate--they are exactly 1 in 6. One bullet loaded into a six-chamber gun barrel that's then spun to a random stopping point and then fired by the player at their own head can be expected to blow a hole in the player's head exactly one in six times. This kind of certainty when assessing risk is extremely uncommon. Life is usually much more like hunting–with many factors influencing risk, so that estimating odds is hard, and uncertain.

Communication

Risk



Uncertainty

Prediction

Decision

How is information best communicated?

The Prediction Project

The Past and Present of the Future

HOME ABOUT MATERIALS COURSES TALKS WRITINGS PRESS FORUM

Uncertain Risks

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vincentli · HARVARD Harvard GenEd 2021 1h

I appreciated the real-world examples of the combinations of risk and uncertainty (whether high or low for each). They concretely demonstrated the difference between risk and uncertainty in a way accessible for all readers. Perhaps including a graphic with the example scenarios (e.g. 2x2 table of risk on horizontal axis and uncertainty on vertical axis, similar to a Prisoner's Dilemma table) would be a quick way to reference the difference between risk and uncertainty. Overall, I thought the essay addressed an important topic, since risk and uncertainty are often used interchangeably in everyday conversation but have different meanings.

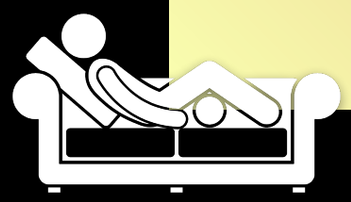
Food Allergy

Apollo 11

High Uncertainty

COVID-19

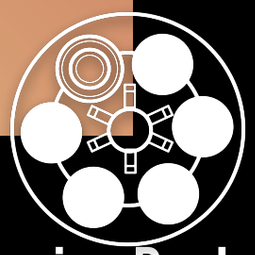
Low Uncertainty



Couch

Low Risk

High Risk



Russian Roulette

Food Allergy

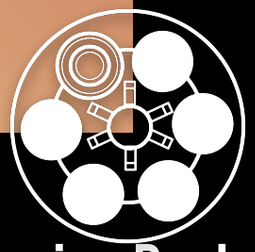
Apollo 11

COVID-19

UNCERTAINTY

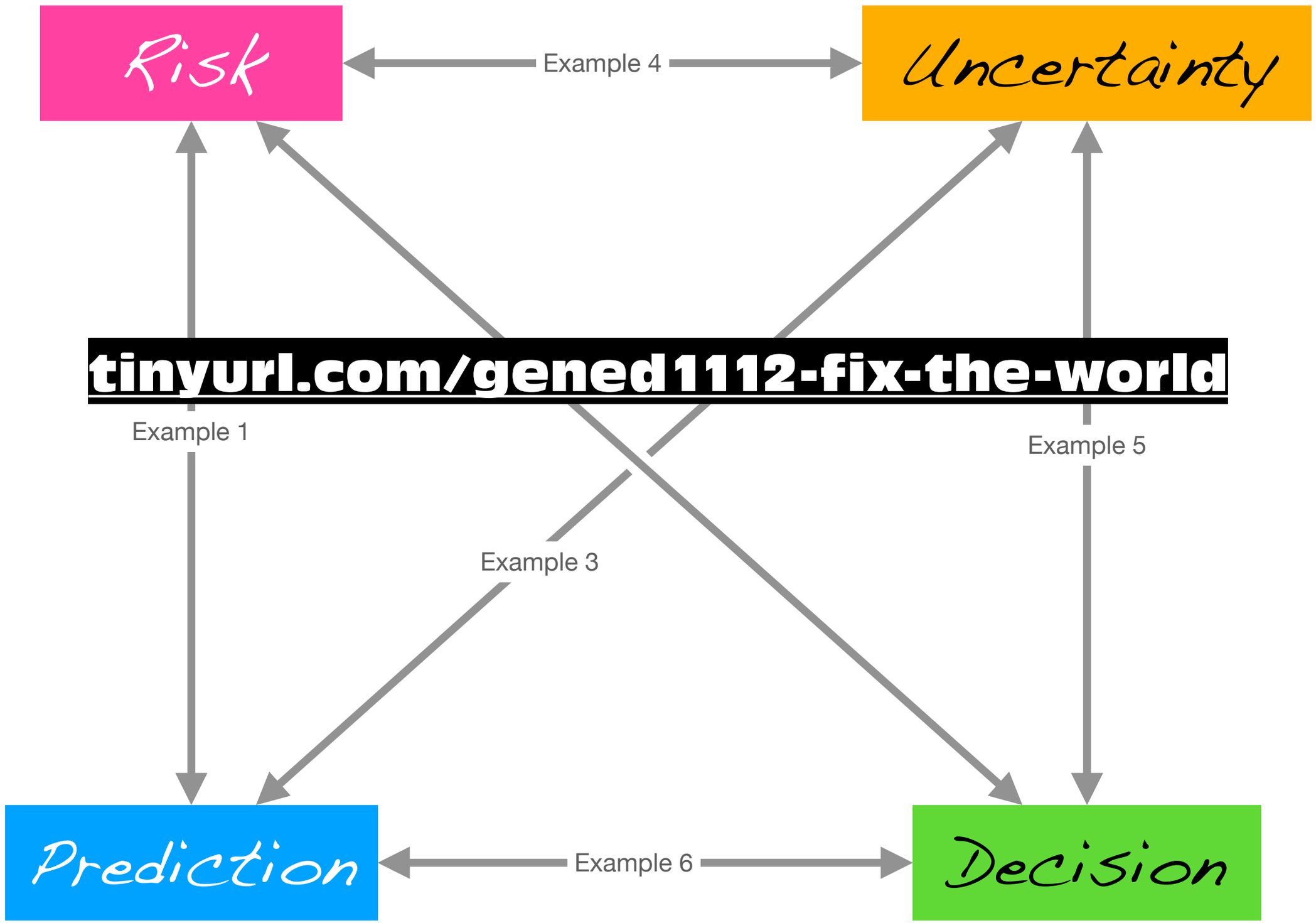
Couch

ODDS of DEATH



Russian Roulette

Communication



tinyurl.com/gened1112-fix-the-world

Table Contributions

Template for how you should start your Table's section of this document:

Topic:

Member names:

Intended Audience [choose one: 1. Media , 2. Leaders 3. Citizens , 4. Educators}

Focusing on connection between [...] and [...] (Example #)

URL (if Google Doc format is unhelpful)

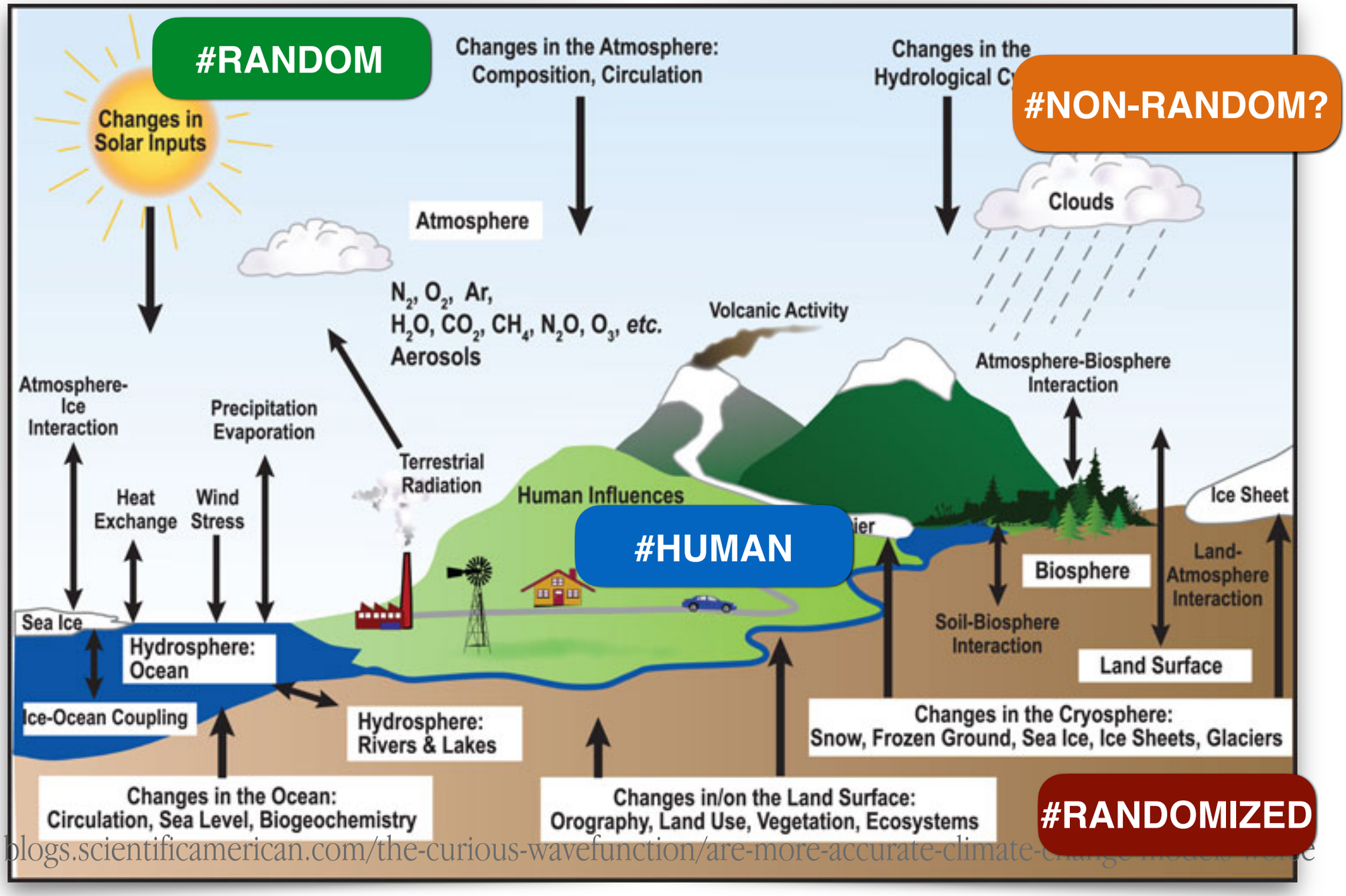
Remember, your goal, for your chosen combination of audience, topic, and Example #(s) is to **"focus on one (or two) of the numbered "examples" *–at least one of which connects to "Uncertainty"--* in the diagram [at right.]**
Come up with and create a presentation–at the level of what you would show to your target audience as a hired management consultant– of a clear strategy for communication of the distinctions and tradeoffs, as they relate to uncertainty. "

Expect to be asked for a 3 minute summary of your group's "pitch," as entered below.

Start contributions below here. ⇣

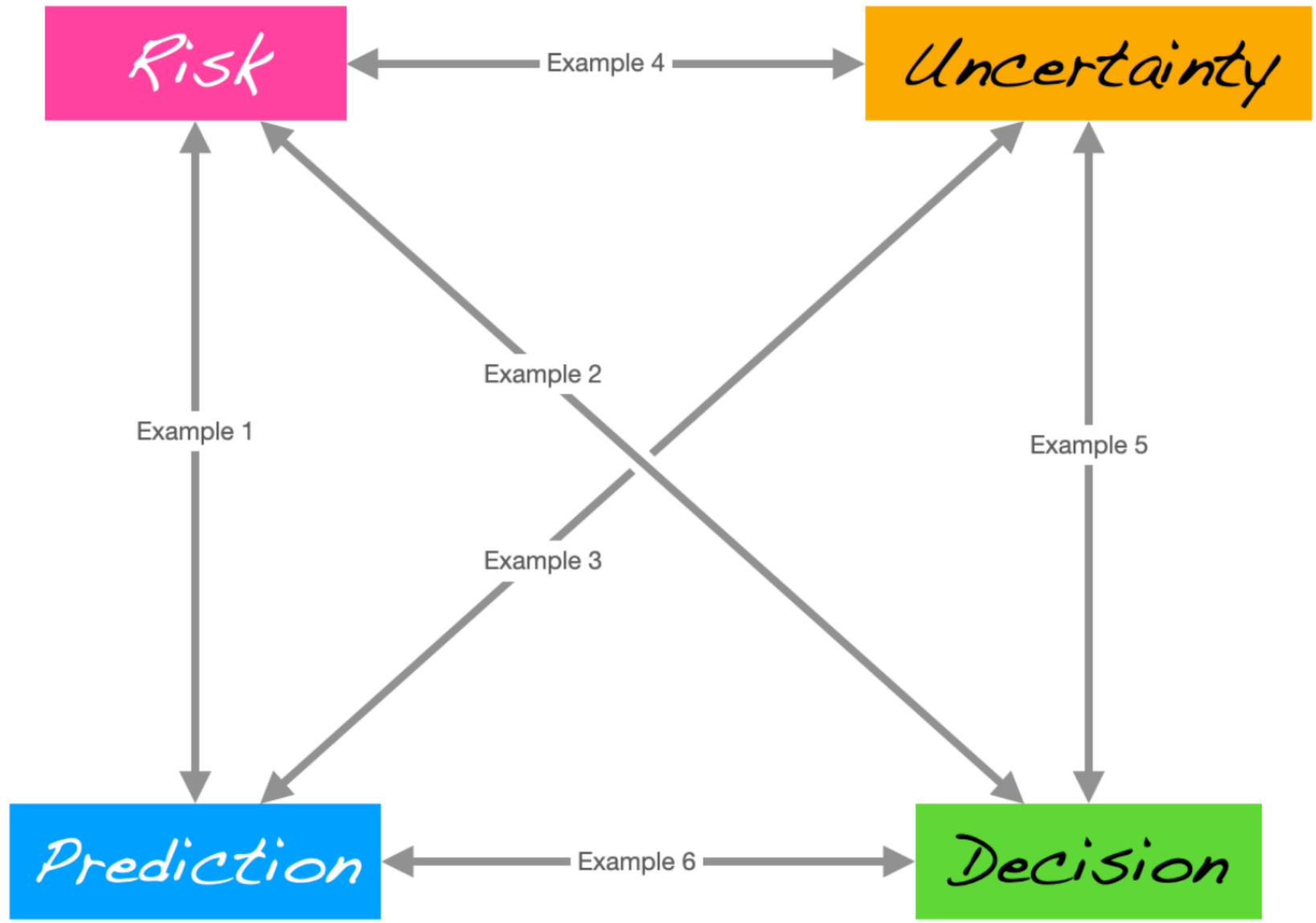
Climate Change Simulation & the Framework

EVALUATE
ACCURACY

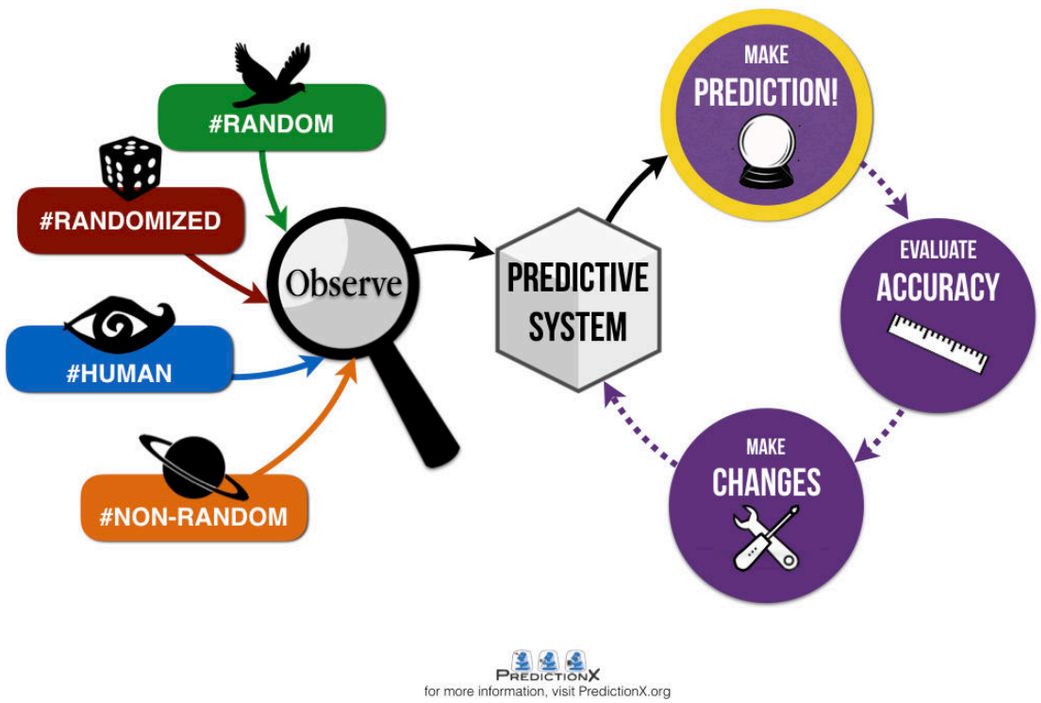


blogs.scientificamerican.com/the-curious-wavefunction/are-more-accurate-climate-change-models-worse

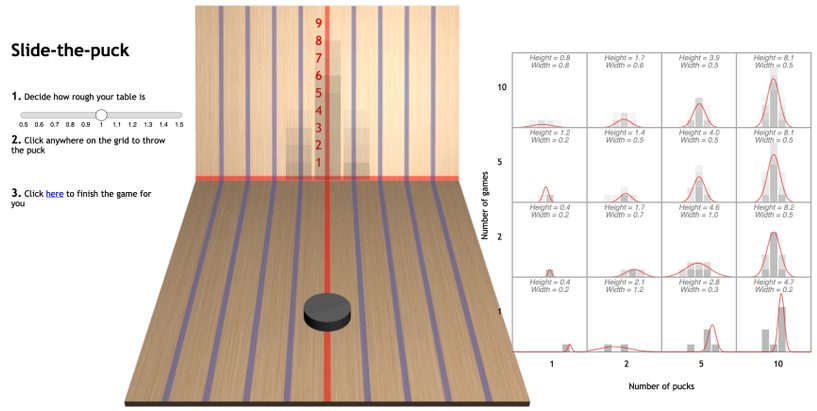
Here's your goal. Think about the diagram below. And then...

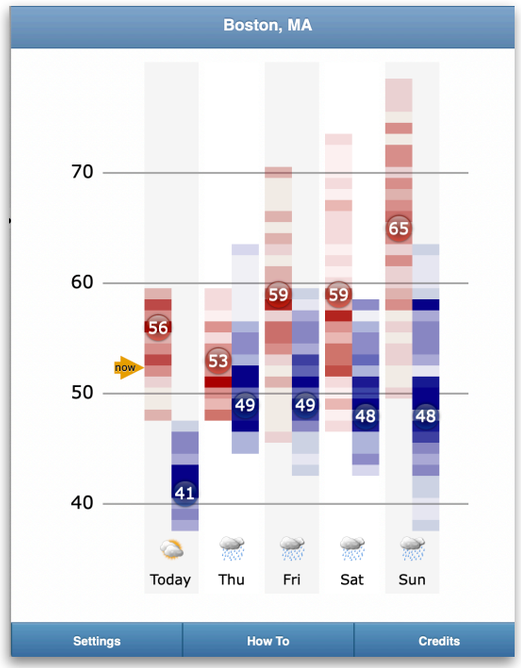


Predictive Systems Framework



Uncertainty





Assessing Accuracy

"Padua" Rainbow

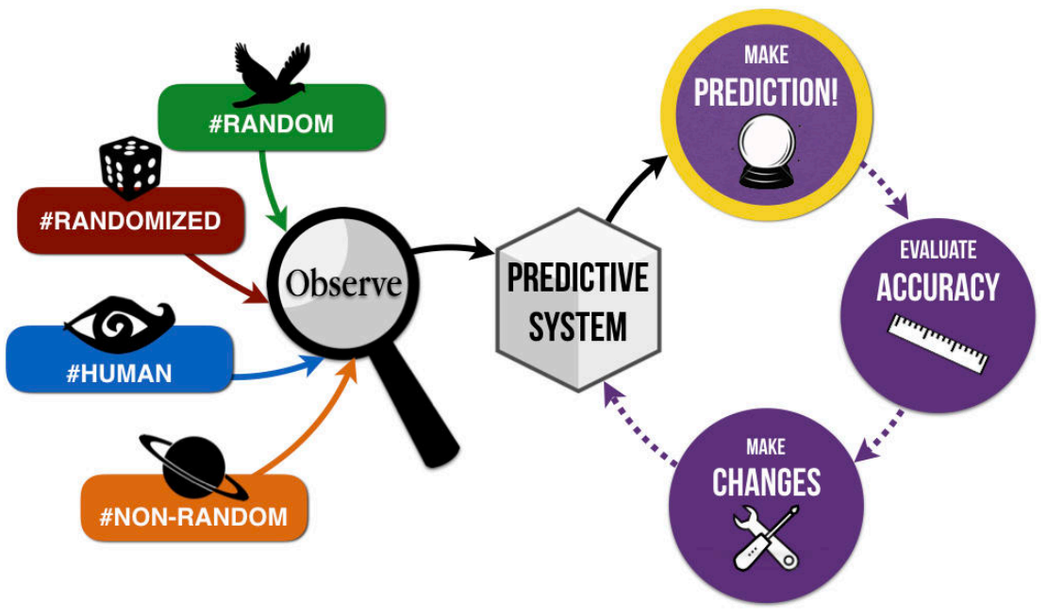
Phenomenon	Observation	Data	Rule	Theory	Explanation	Prediction

Fine points & questions for future discussions

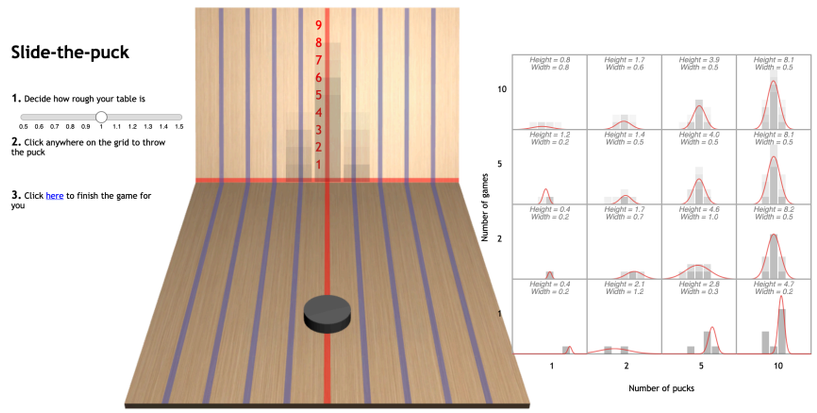
Prediction X: Modern Simulations--THEMES/TAGS

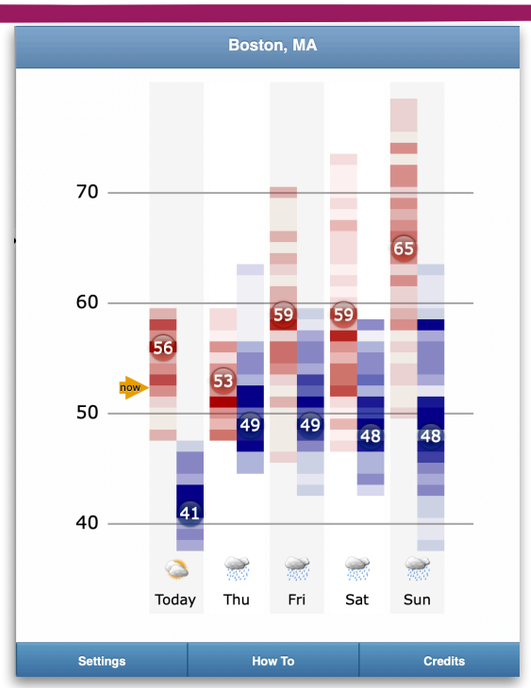
#simulation_or_model (c.f. list)
#theoretical_empirical (c.f. Rainbow diagram)
#framework_model_inputs (c.f. document)
#framework_testing (c.f. document)
#biases (c.f. document)
#uncertainty (c.f. document, puck simulation (link), Take a Sweater)
#approximation (c.f. Ten questions) #Heuristic
#public_reaction (c.f. document)
#predictability
(predictability, determinism, randomness and uncertainty--use sand on shuffleboard analogy, includes #convergence, #divergence, #feedback #chaos)
#unkown_unknowns
#bayes_theorem
#deterministic_vs_probabilistic (probabilistic vs. deterministic prediction...when is uncertainty small enough to call it "deterministic"?)
#machine_learning (c.f. list)
#artificial_intelligence(c.f. list, Derek's Day)
#prediction_vs_decision
#explanation_vs_prediction (c.f. rainbow diagram)
#technology_theoretical_computation_and_math (c.f. list)
#technology_observational_experimental_devices_and_sensors (c.f. PtN)
#future_of_the_future
#personal_or_societal
#samplesize
#resolution
#rainbow_diagram

Predictive Systems Framework



Uncertainty





Assessing Accuracy

"Padua" Rainbow

Phenomenon	Observation	Data	Rule	Theory	Explanation	Prediction

HARVARD UNIVERSITY

The Prediction Project

Thoughts, Resources, Course, Seminar and Someday a Book

THANK YOU ALL SO VERY MUCH.