Data Ethics: Choices and Values

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We use data to inform our decisions

- Evidence-based
- Impartial
- Reliable

QUALITY

5.0

DIFFICULTY

1.0

CS101 😎 **AWESOME** **May 21st, 2015**

Attendance: **Not Mandatory** Grade: **A** Textbook: **Yes** Online Class: **Yes**

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2 1

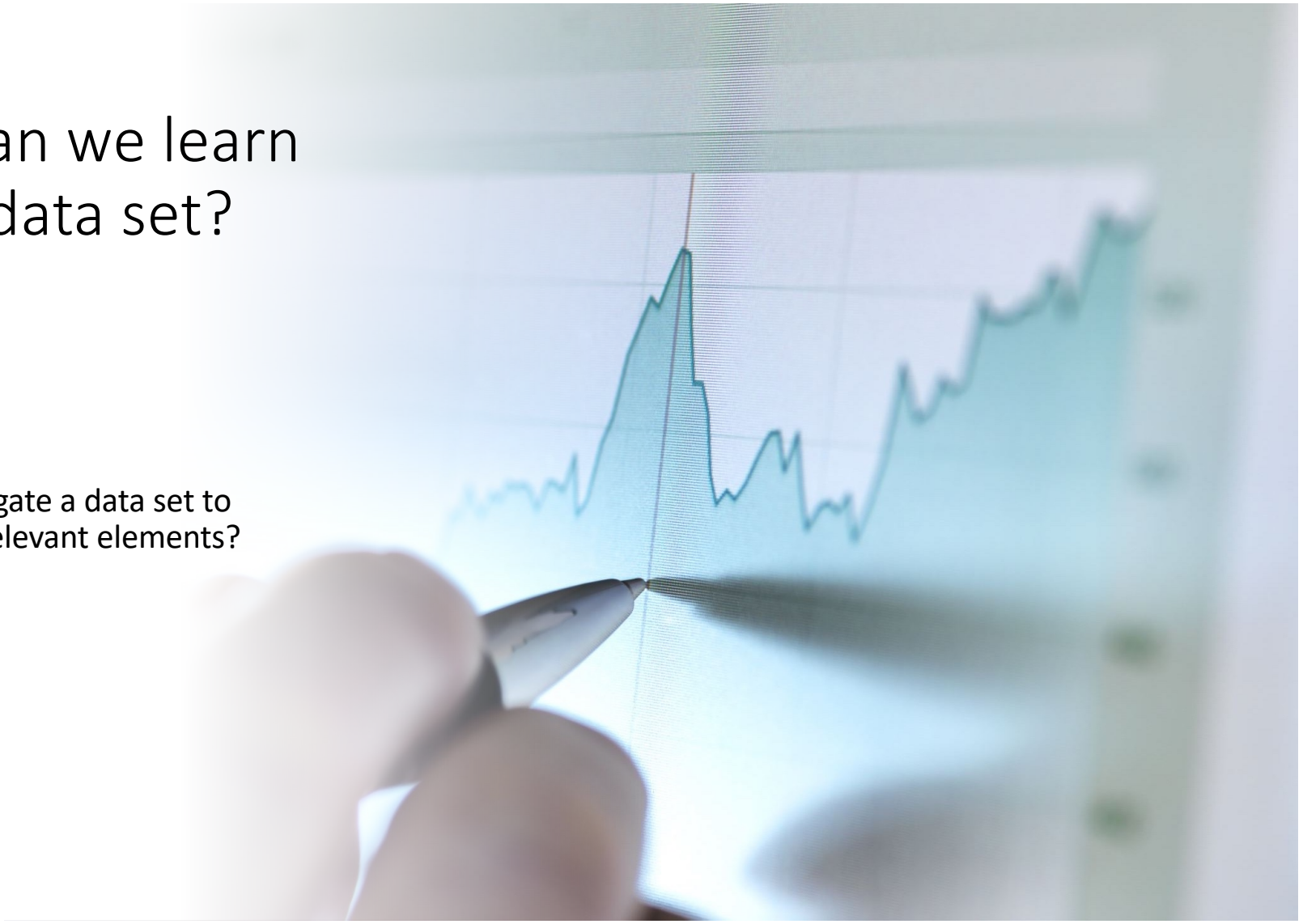
What can we learn from a data set?

- Patterns
- Correlations
- Distributions
- …

- Choices
- Values
- Assumptions
- Biases

What can we learn from a data set?

How to interrogate a data set to find ethically relevant elements?



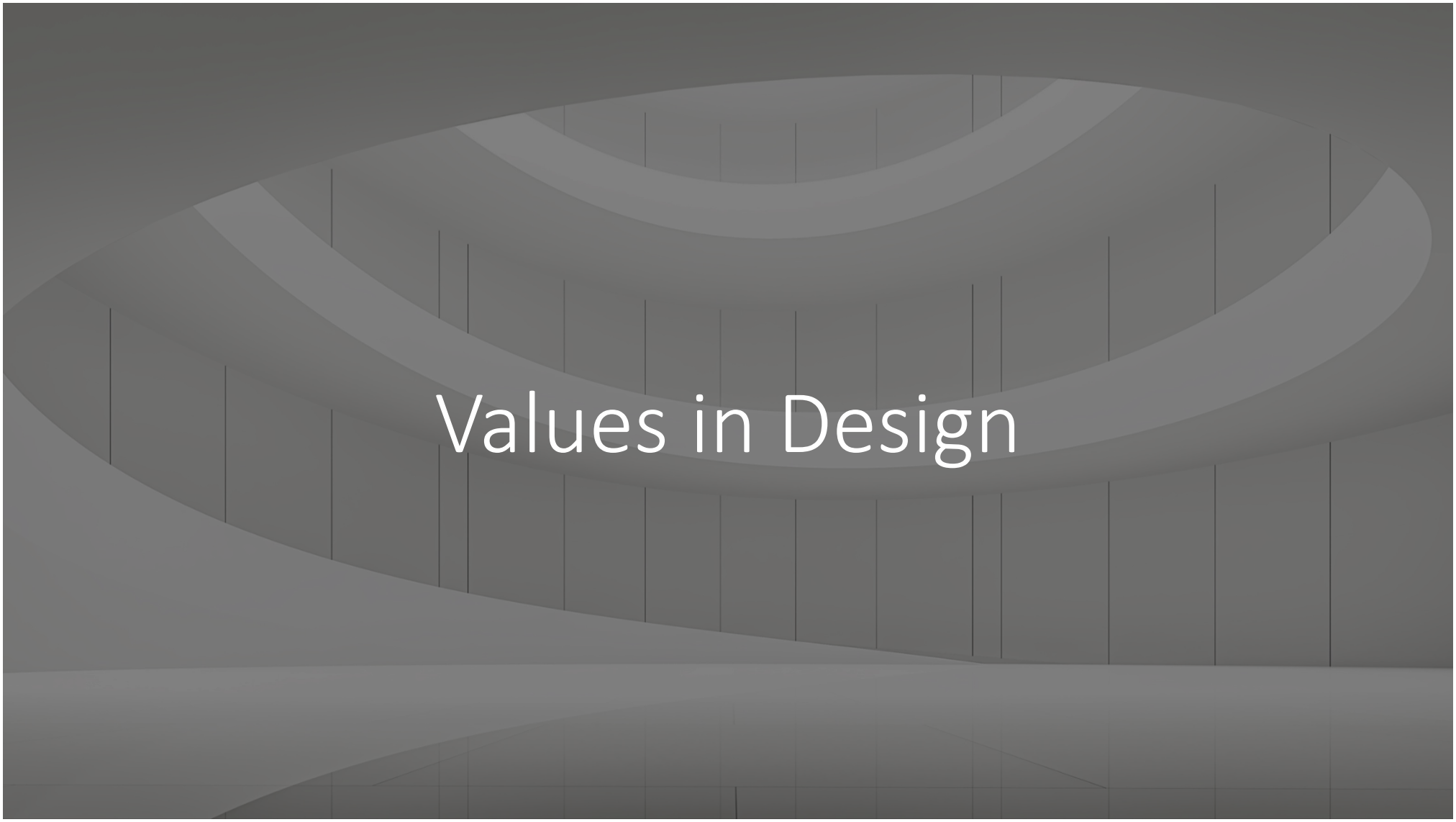
VALUES IN DESIGN

PROBLEM FORMULATION

LANGUAGE

BIAS AND REPRESENTATION

FAIRNESS


Values in Design

Values in Design

- Design decisions encode values.
- They are expressive of what we care about
- They reveal our assumptions about the world, the people who will be interacting with our design, and benefiting from it

Values in Design

- **Explicit values:** Values that designers intend their products to embody
- **Collateral values**: values that crop up as side effects of design decisions and the way users interact with them

Explicit Values

Contact-tracing

Health
Safety
Efficiency
Public interest

Collateral Values

- Security?
  - Where is information stored?
  - Encryption?
- Privacy?
  - Who has access to information?
  - Geolocation or blue-tooth?
  - What information is accessible to health authorities/ the public?
- Autonomy?
  - Informed consent?

Explicit Values

Bike-sharing app

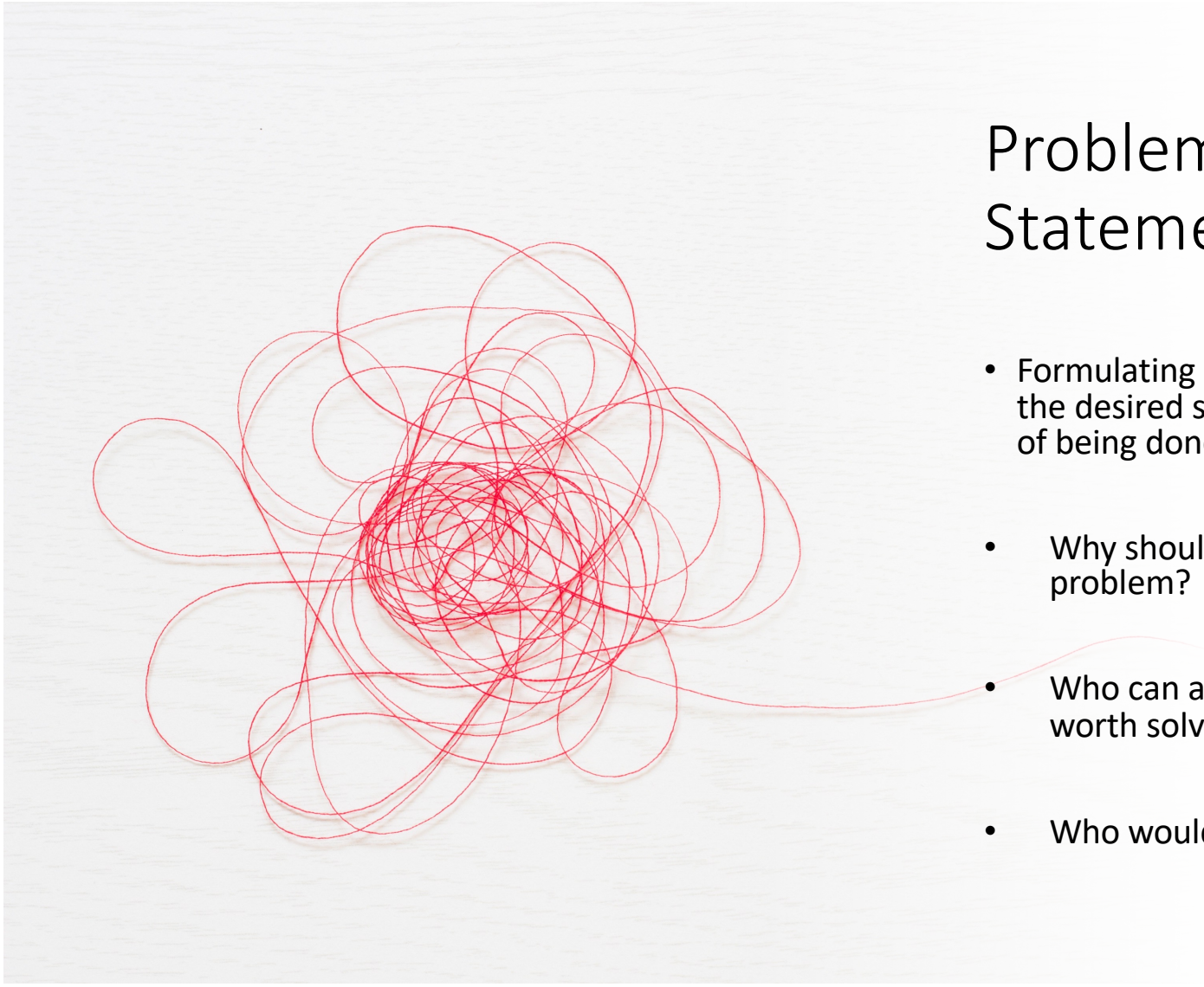
Mobility
Health
Sustainability
Inclusion

Collateral Values

Bike-sharing

Who is the default user?

Problem Formulation

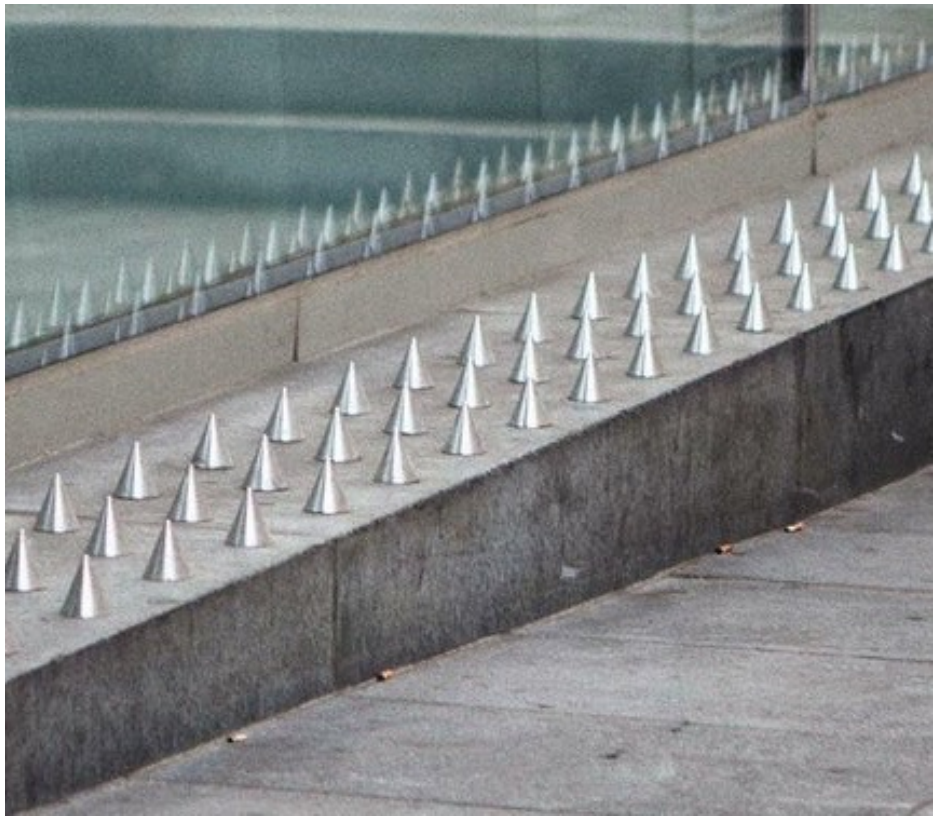


Problem Formulation Statements

- Formulating a problem means treating the desired solution as good or worthy of being done.
- Why should we care about solving this problem?
- Who can agree that this is a problem worth solving?
- Who would benefit from its solution?

Problem Formulation

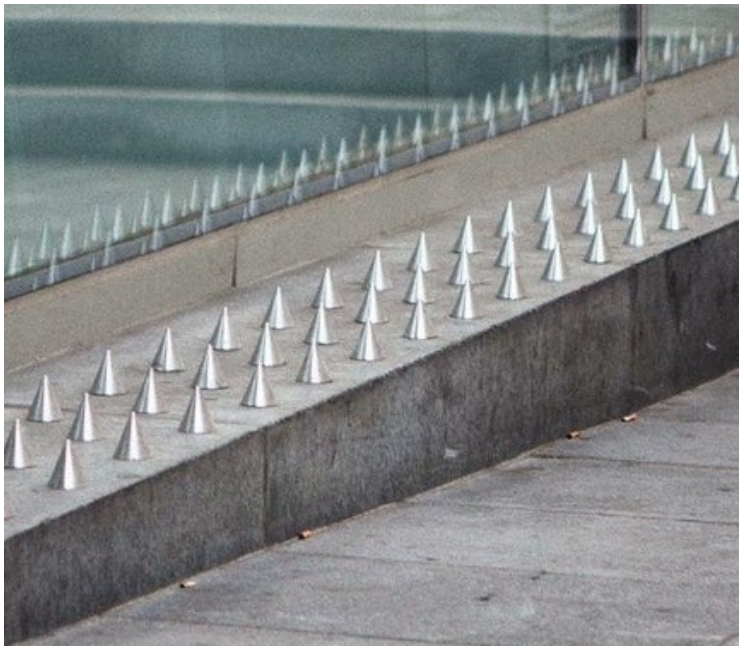
"Homeless people are sleeping here and *we* want them to stop"



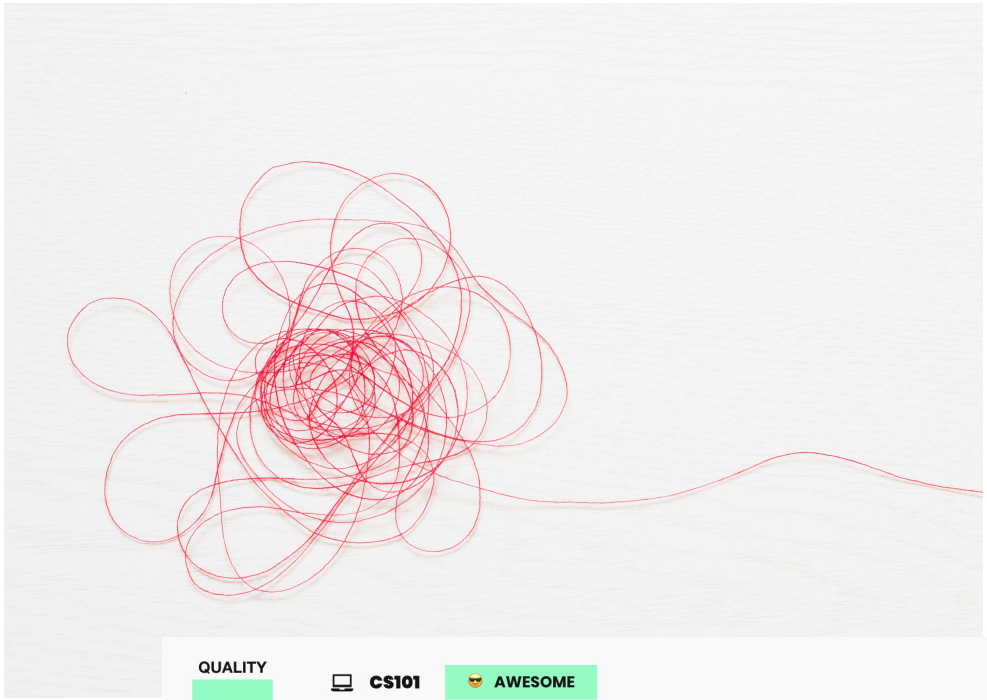
Problem Formulation

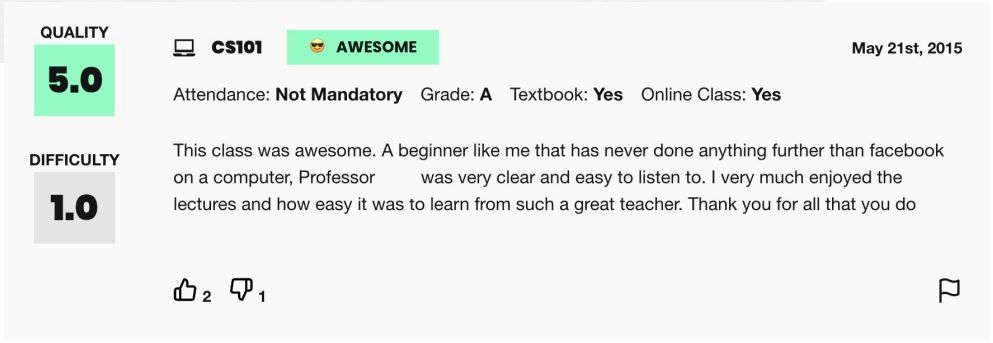
"Some people in our community don't have a place to sleep and *we* think they should"

Problem Formulation



Who is included in each problem formulation?
Who can agree it's a problem?



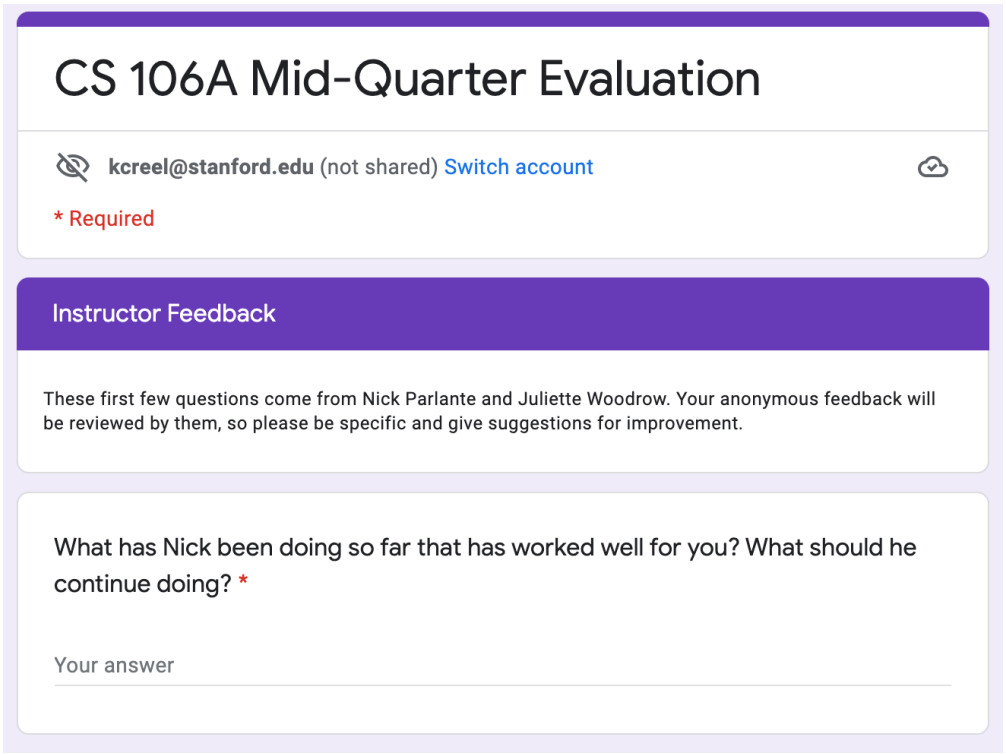


Problem Formulation Statements

- What is the problem to be solved?

  Is Professor X a good teacher?
  - ➢ Do students think she is a good teacher?
  - ➢ Do most students think she is a good teacher?

Choice of Data



CS 106A Mid-Quarter Evaluation

kcreel@stanford.edu (not shared) Switch account

* Required

Instructor Feedback

These first few questions come from Nick Parlante and Juliette Woodrow. Your anonymous feedback will be reviewed by them, so please be specific and give suggestions for improvement.

What has Nick been doing so far that has worked well for you? What should he continue doing? *

Your answer

- What kind of data should inform our decisions?
- Where will it come from?
- Is it a reflection of what we want to measure?


Language

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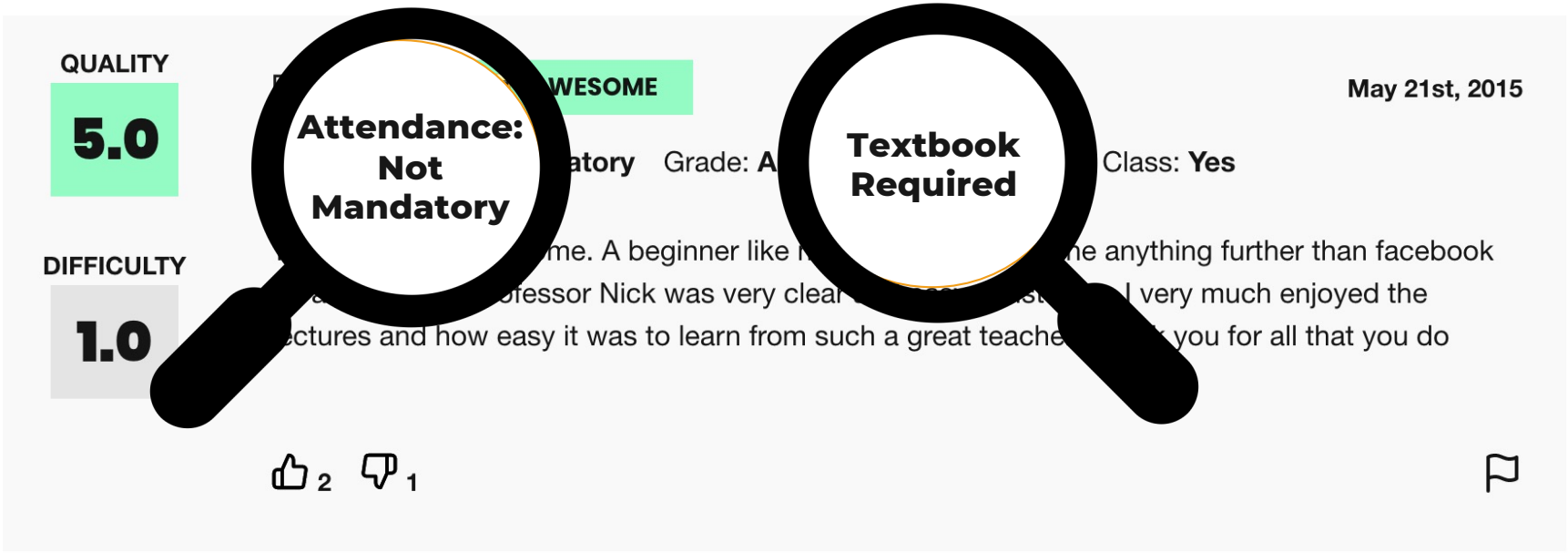
Descriptive vs. Normative Language

Descriptive language

- Statements of fact
- What people did
- What happened

- "Lectures are 90-minutes long"
- "Assignments take more than two hours to finish"
- "Sections are mandatory"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Textbook Required

Descriptive vs. Normative Language

Normative language:

- Evaluative statements
- Express the speaker's opinions/reactions
- How they think things should be

- "right"
- "wrong"
- "good"
- "bad"
- "should"
- "should not"

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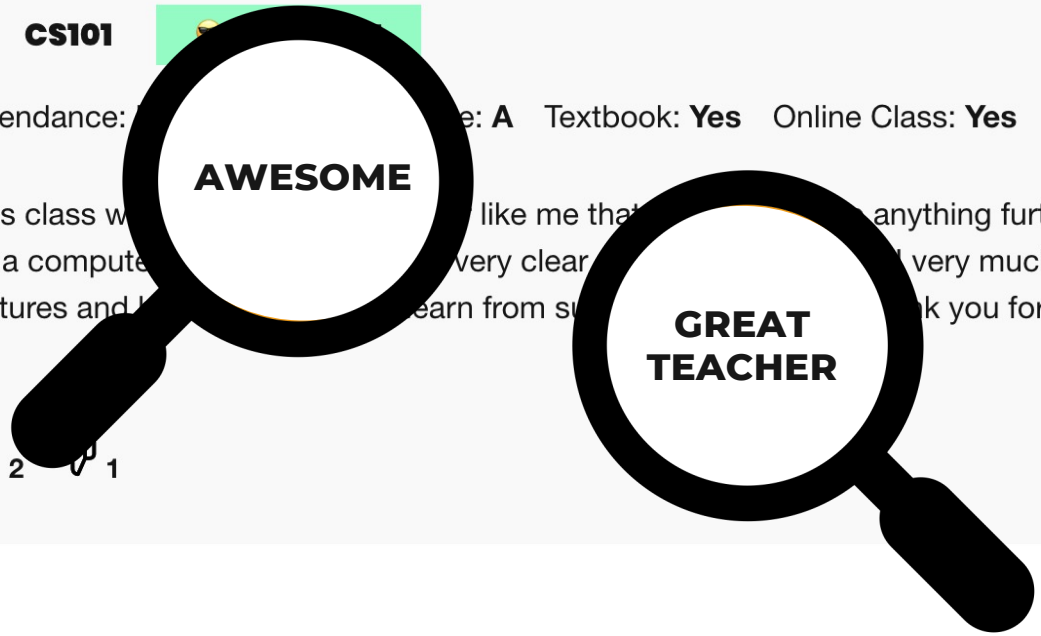

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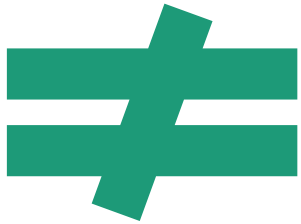

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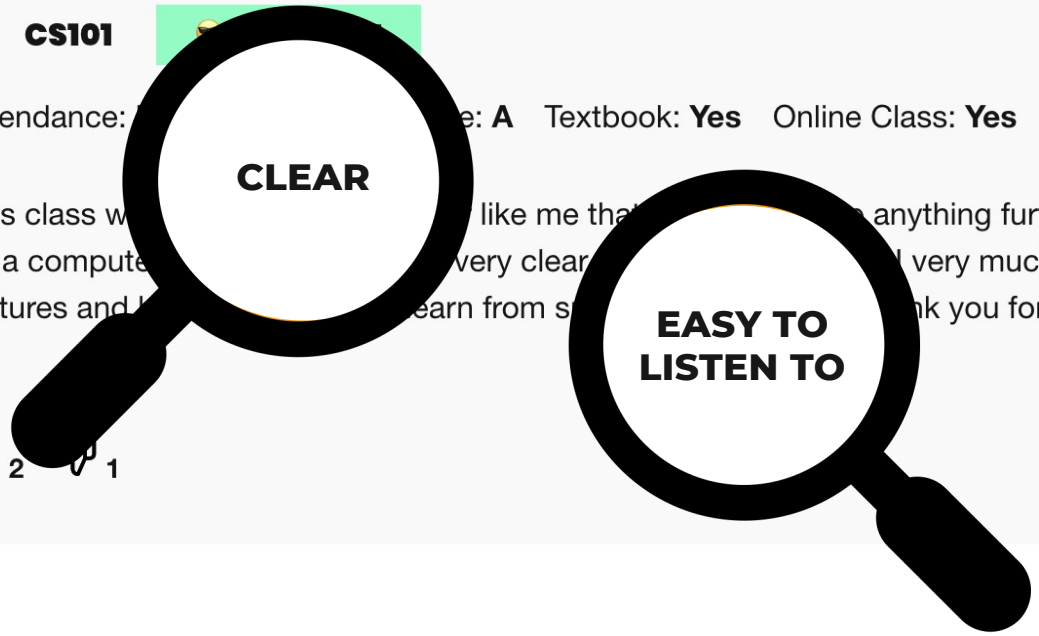


Thick Normative Terms

Descriptive AND normative:

- Thick normative terms express morally or aesthetically “loaded” descriptions

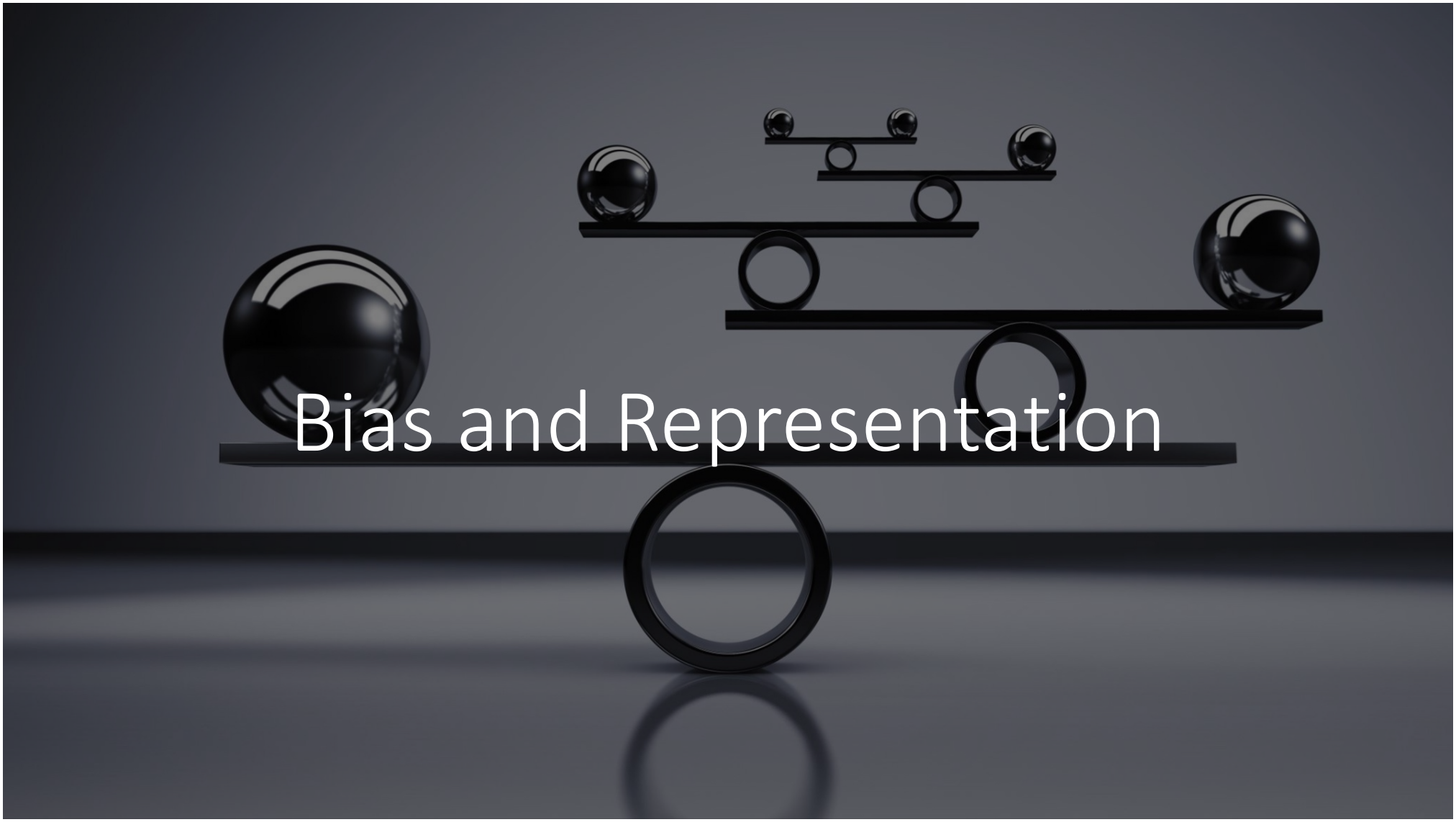
- Cowardly
- Cautious
- Polite
- Rude
- Chill
- Kind
- Caring
- Smart
- Knowledgeable
- **Professional**

Descriptive or Normative?

Does the program you are writing contain descriptive claims?

Do it contain normative claims or values?

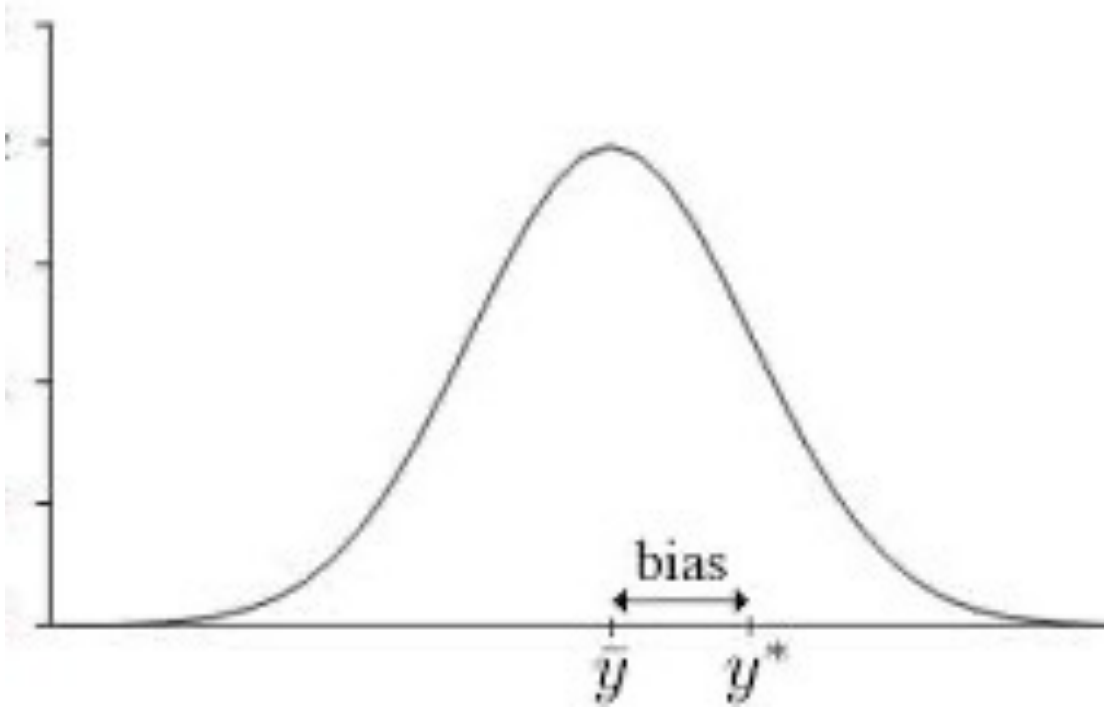
How about thick normative terms?


Bias and Representation

What is Bias?

Statistical bias is the difference between measured results and “true” value.

- This is the “neutral” or statistical meaning of the word bias. You will see it often in discussions of patterns in data.



Discriminatory Bias in Data

Biased measurement or classification

+

Use of that bias that compounds existing injustice

=

Discriminatory or Unfair Bias

Discrimination

- *Direct discrimination:* discrimination resulting from a negative attitude toward the social group (e.g. animus or indifference)

- *Indirect discrimination:* discrimination that does not result from such an attitude, but from rules and procedures constructed in a way that favors one group over another

Discrimination

”The rules and norms of society **consistently** produce **disproportionately** disadvantageous outcomes for the members of a certain group [and] the outcomes are **unjust** to the members of the disadvantaged group”

(Stanford Encyclopedia of Philosophy)

Discrimination

A decision procedure unjustly discriminates against social group *x* if and only if:

- There is a social group *y* such that the procedure treats the members of *x* less favorably than the members of *y*;
- Part of the explanation for the difference in treatment is their membership in *x* and *y*, respectively; and
- The difference in treatment is not morally justified on independent grounds.

Representation in Survey Data

Representational Harms

A person is harmed when her identity is diminished in public representations of her social groups.

Who is represented in this data?

Who can see themselves in it?


Allocation of goods

Distributional or Allocative Harm

Allocative Harms

A person is harmed when opportunities resources, benefits, and protections that would otherwise be allocated to them are **unfairly** withheld.


Fairness

Distribution of goods should be based on morally relevant characteristics, not on morally arbitrary ones.

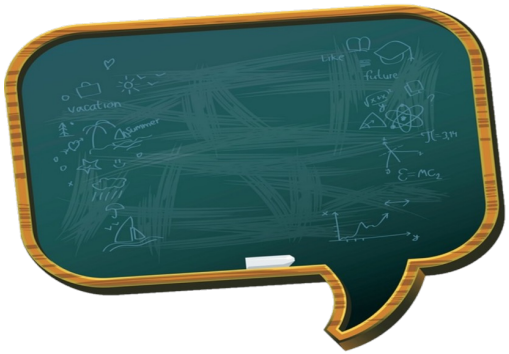
Formal Equality of Opportunity

"Positions and posts that confer superior advantages should be open to all applicants. Applications are assessed on their merits, and the applicant deemed most qualified according to appropriate criteria is offered the position."

(Stanford Encyclopedia of Philosophy)

Formal Equality of Opportunity:

Everyone has same opportunity to develop skills needed for the job, apply for the job, and get promoted.

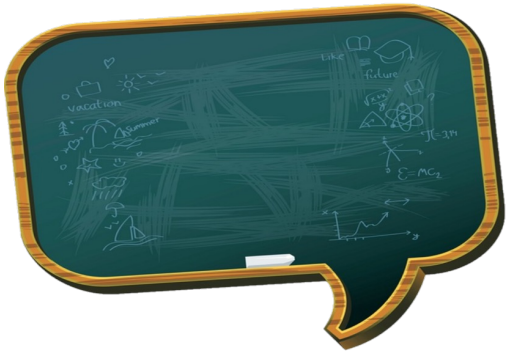


Substantive Equality of Opportunity

Takes into account systemic inequalities to ensure everyone in a community has access to the same opportunities and outcomes. Acknowledging that inequalities exist and works to eliminate them.

Substantive Equality of Opportunity

Because there are pervasive disadvantages, we should adjust our rules and procedures to eliminate (or mitigate) their effects on people's ability to access social goods.

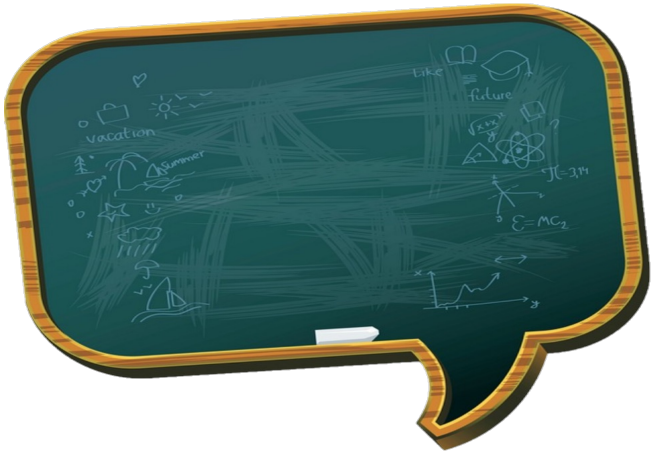


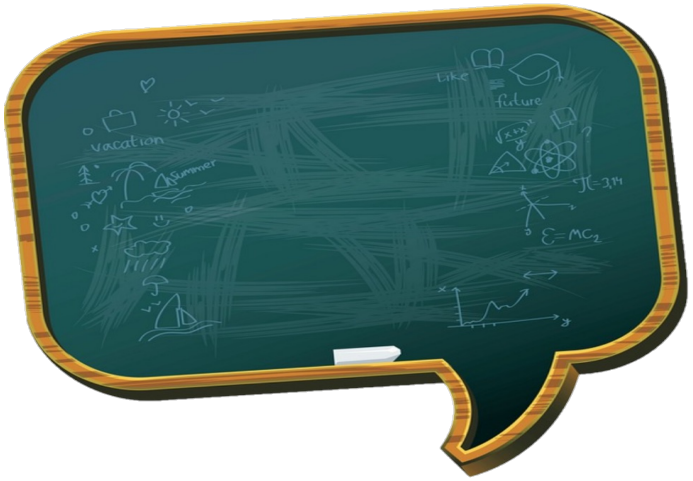
Parity

Because we are equal, we should adjust rules and procedures to ensure that outcomes reflect that.

Parity

Everyone is equally likely to be a good teacher, so we should expect to end up with numbers of good teachers (and high rankings) proportionate to population.





Two Sets of Questions to Ask

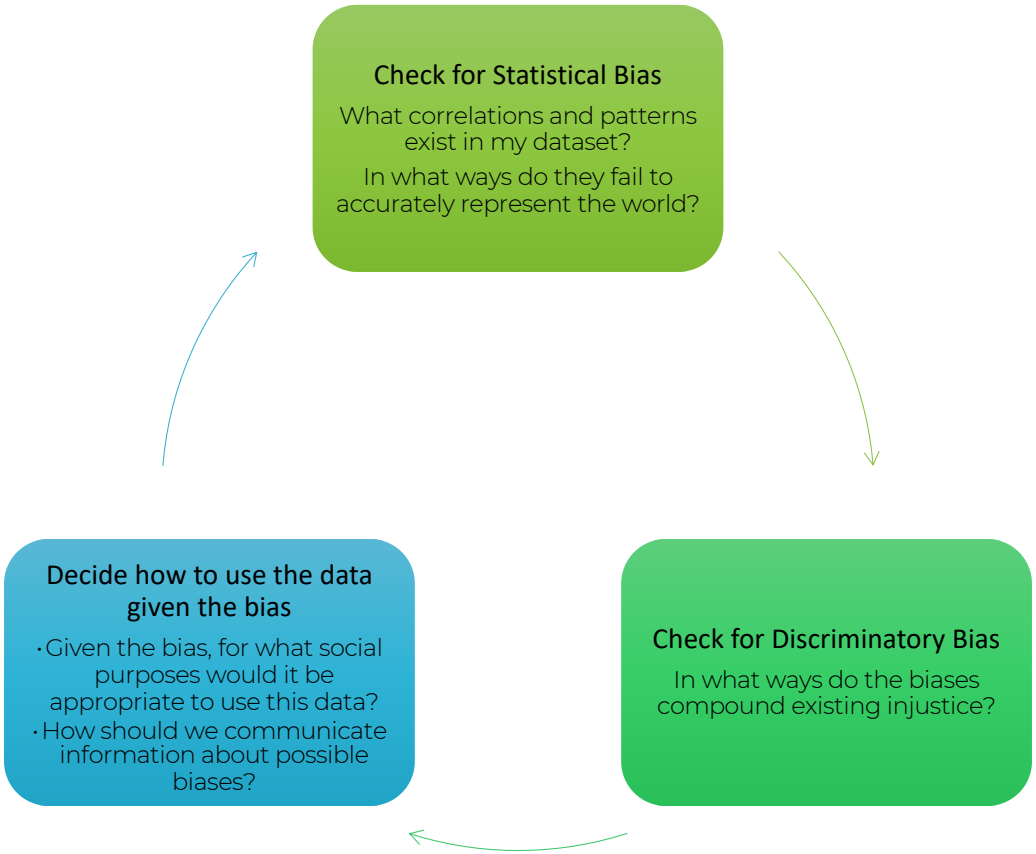
Values in Data Set

- What conception of fairness is encoded in the data set, if any?
- Does it lead to discrimination?

Values in data-based decisions

- Given existing biases in the data set, would it be fair to rely on them for our decisions?
- Would decisions based on the data set lead to discrimination?

I have data about people! Now What?



Thank you!