



# **Research on Implicit Bias and Implications in a Higher Education Setting**

**Kuheli Dutt, PhD**

**Asst. Director, Academic Affairs & Diversity**

**Lamont-Doherty Earth Observatory, Columbia University**

# Implicit Bias

(also: Unconscious, Subconscious, Hidden)

- ⌘ Association or bias that is outside of our conscious control
- ⌘ Immediate, automatic, unconscious associations – from our everyday lives and the society we live in (*TV, news, movies, books, friends, family, school, work, everyday observations*)
- ⌘ Affects how we perceive things, which in turn affects our decision-making process

# Implicit Bias

(also: Unconscious, Subconscious, Hidden)

## Closely related concepts:

- ⌘ **Stereotype threat** (*Claude Steele*)
- ⌘ **Mindbugs** (*Banaji et al*)

# Stereotype threat

Risk of being perceived as conforming to a (*usually negative*) stereotype. Racial/ethnic examples:

- **Jew: miserly, mercenary**
- **Irish: drunk, quarrelsome**
- **African American: lazy, prone to violence**
- **American: materialistic, individualistic**

Stereotypes can include: race, age, gender, religion, nationality, sexual orientation, disability, etc.

# Stereotype threat

**Brent Staples: Black graduate student in Chicago's Hyde Park in the 1970s.**

**Noticed that people avoided him, felt threatened by him.**

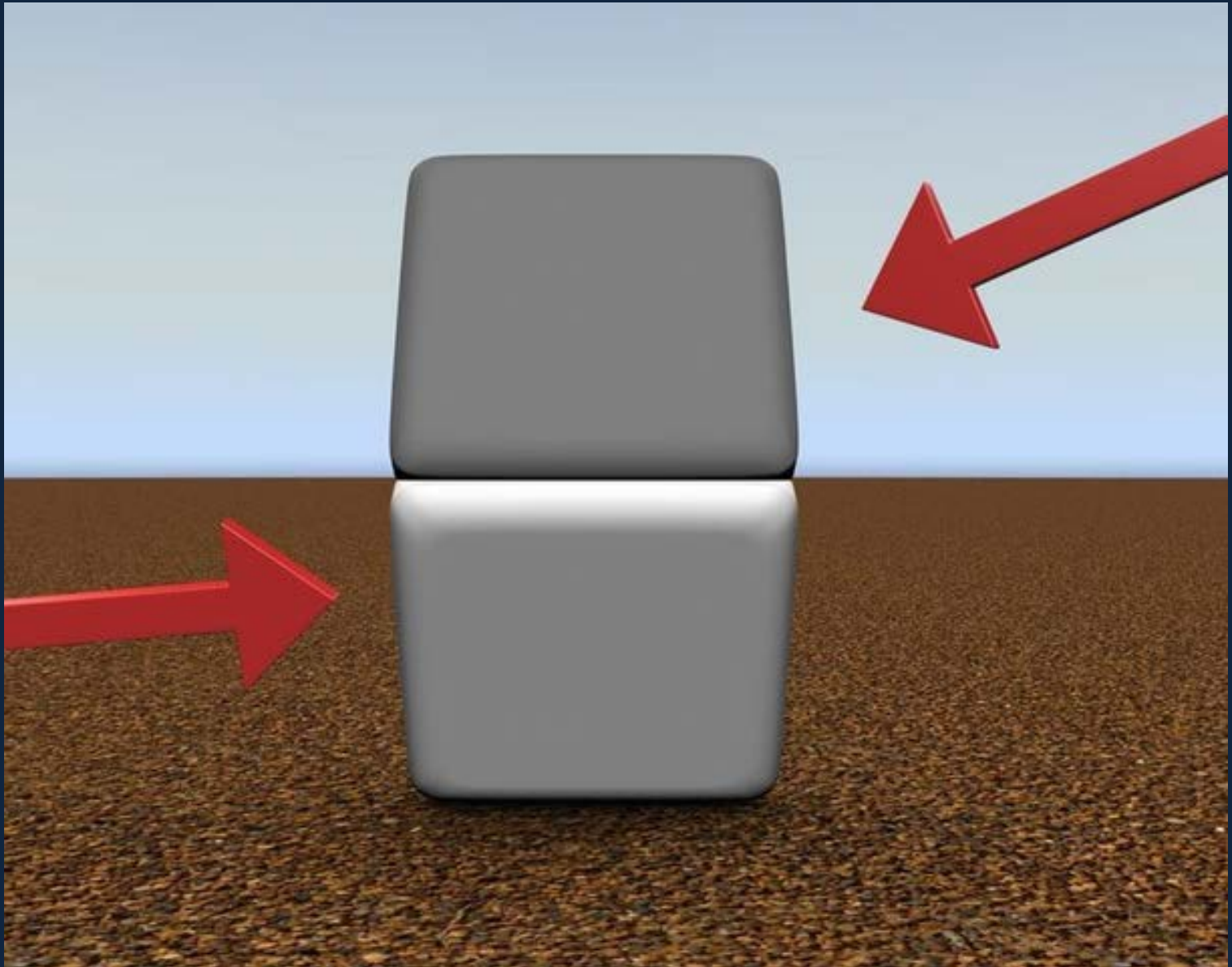
**Devised a unique solution to remove himself from the stereotype.**



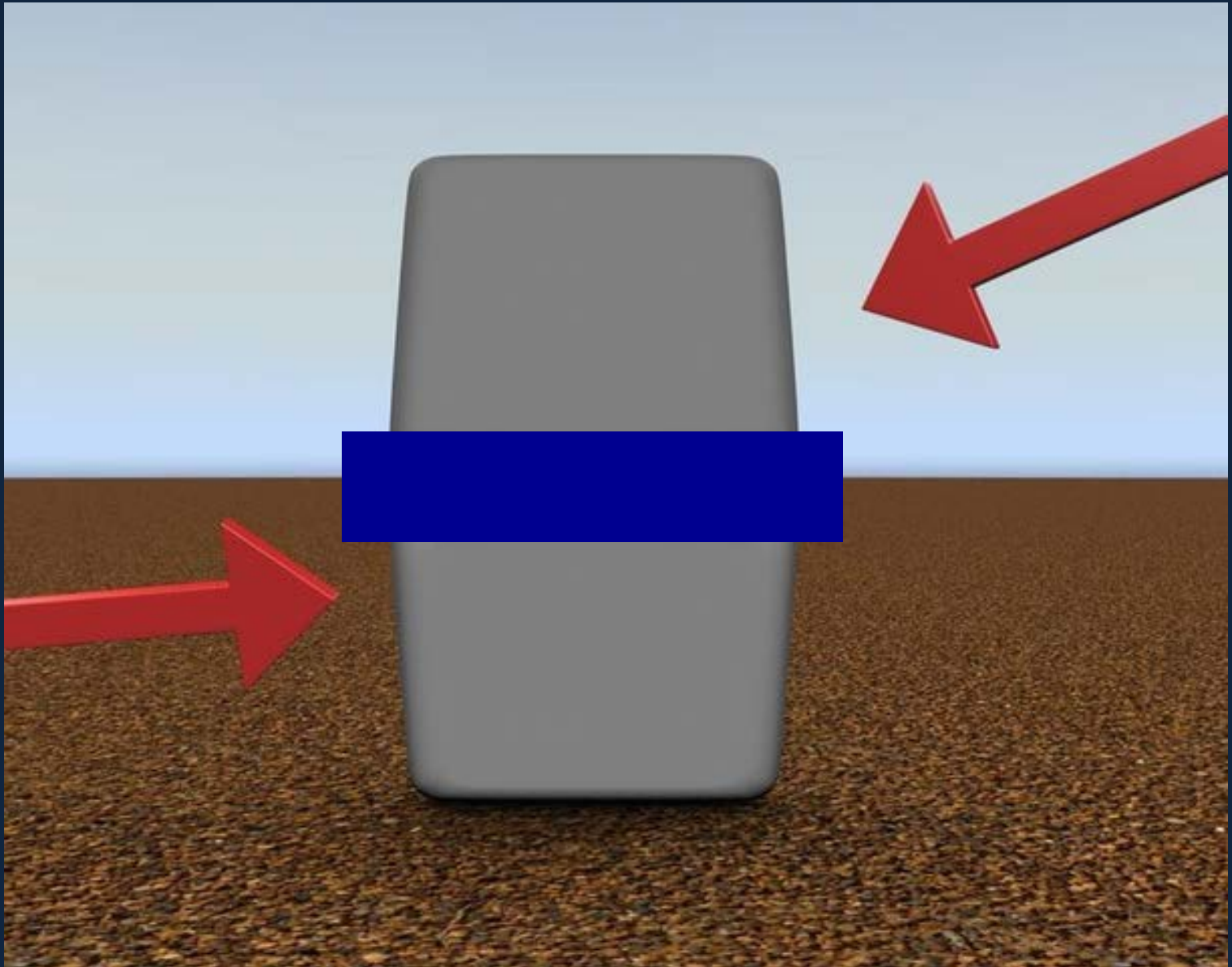
*Steele, C. (2010). Whistling Vivaldi: And other clues to how stereotypes affect us.*

# Mindbugs

*Banaji, Mahzarin R. and Greenwald, Anthony G. (2013). Blindspot : Hidden biases of good people*

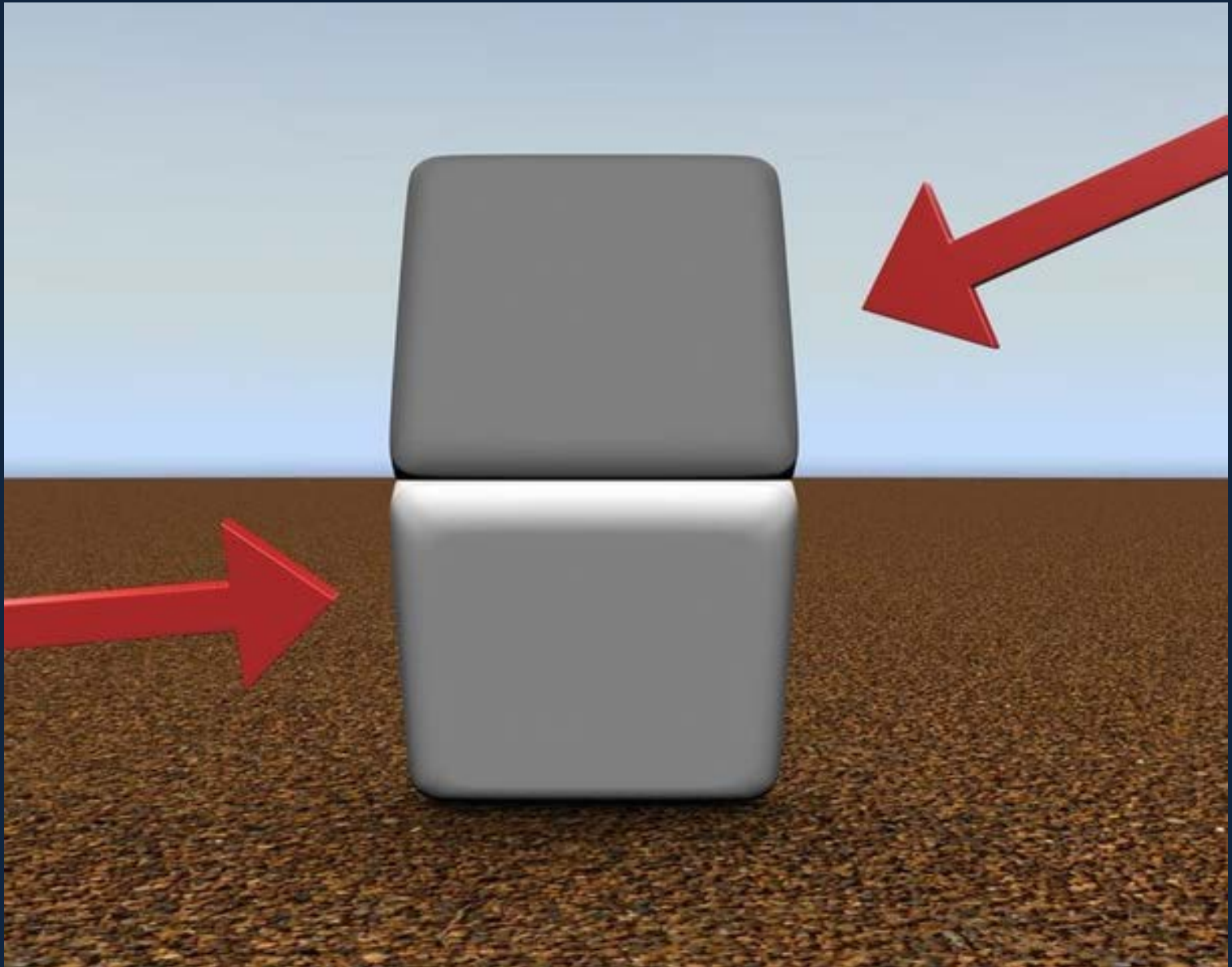


*Source: National Geographic*

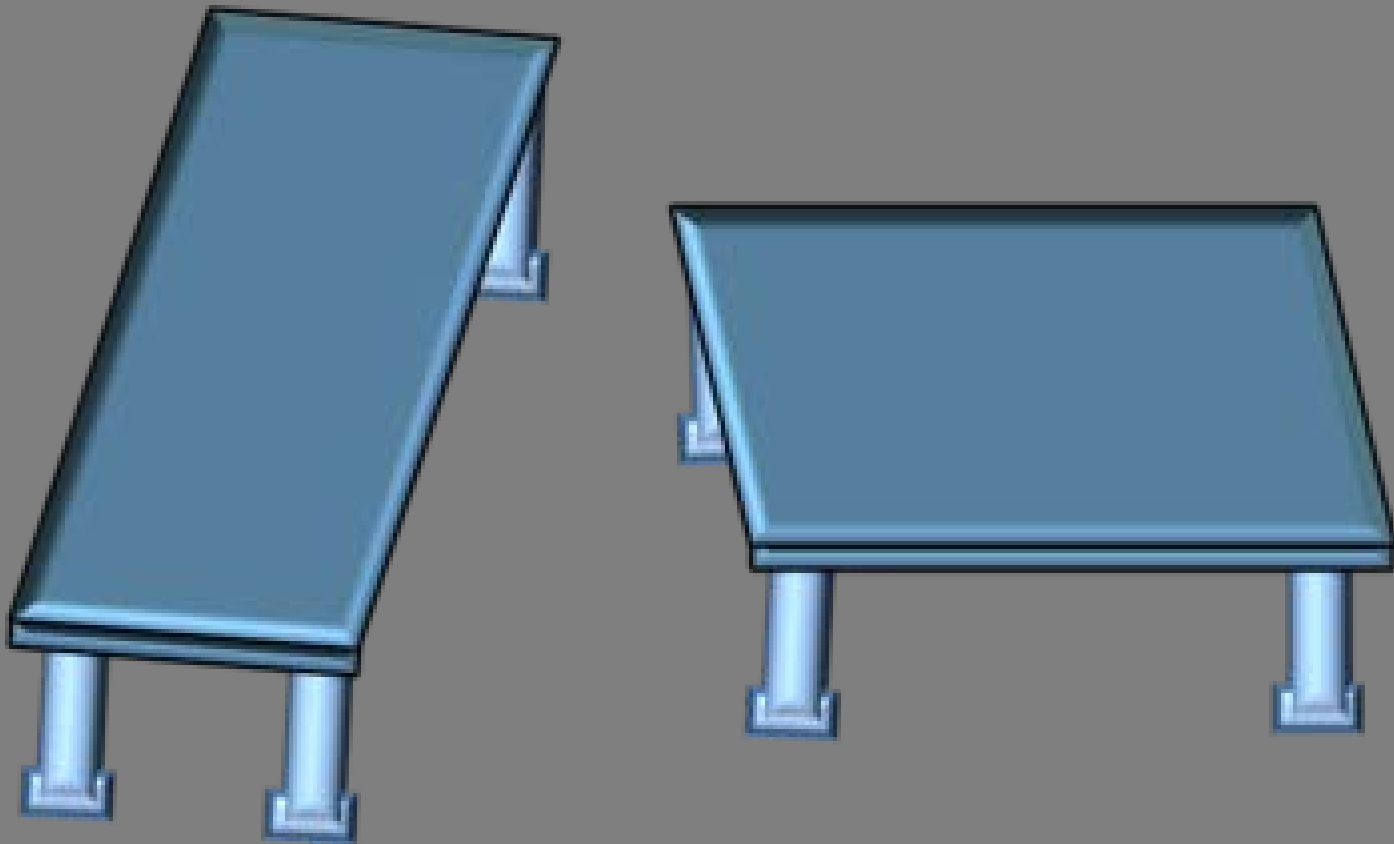


*Source: National Geographic*

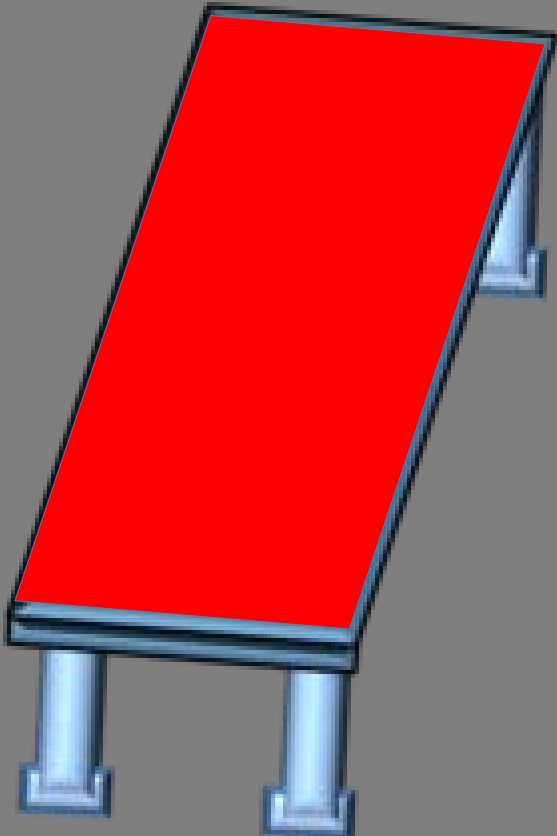


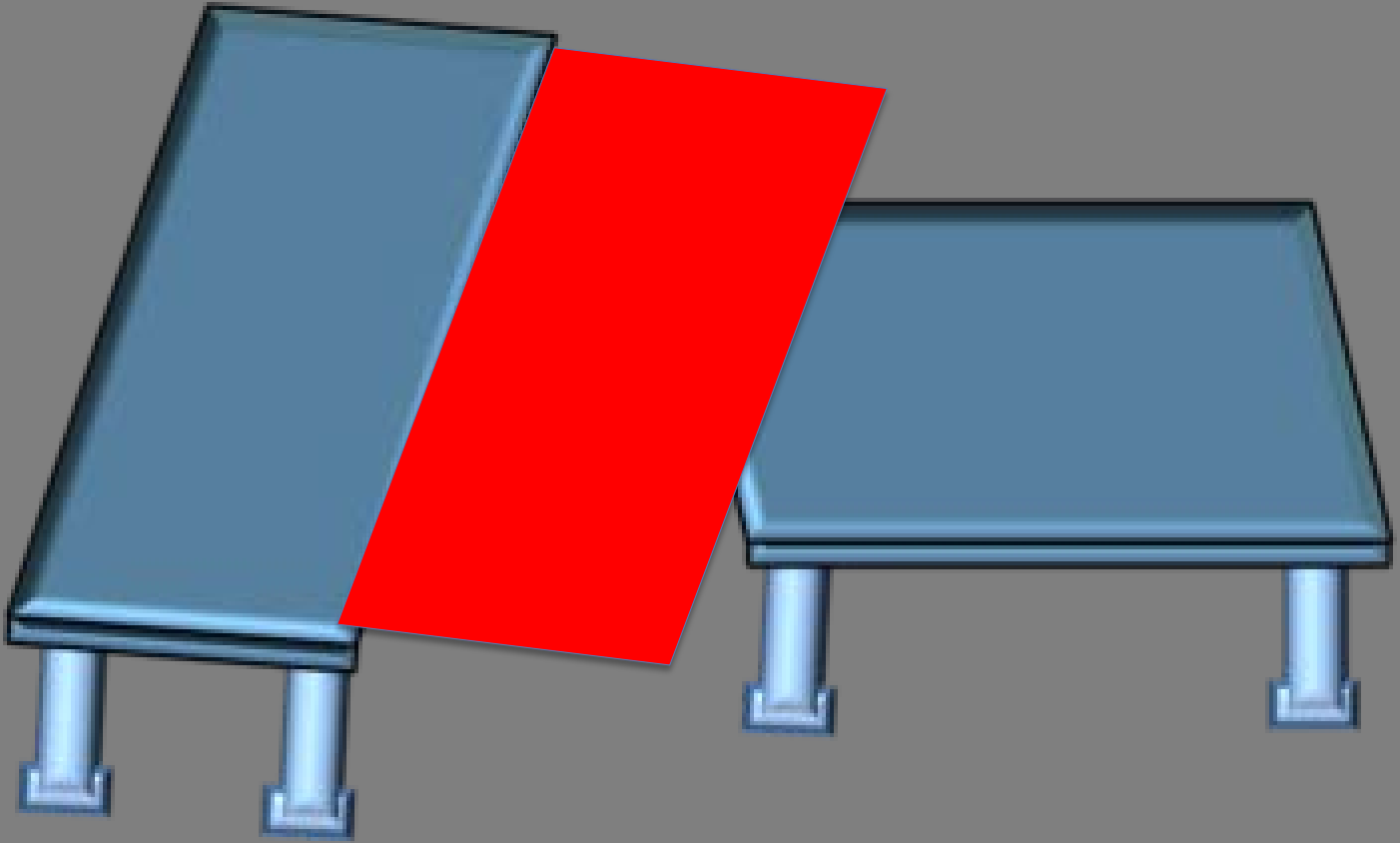


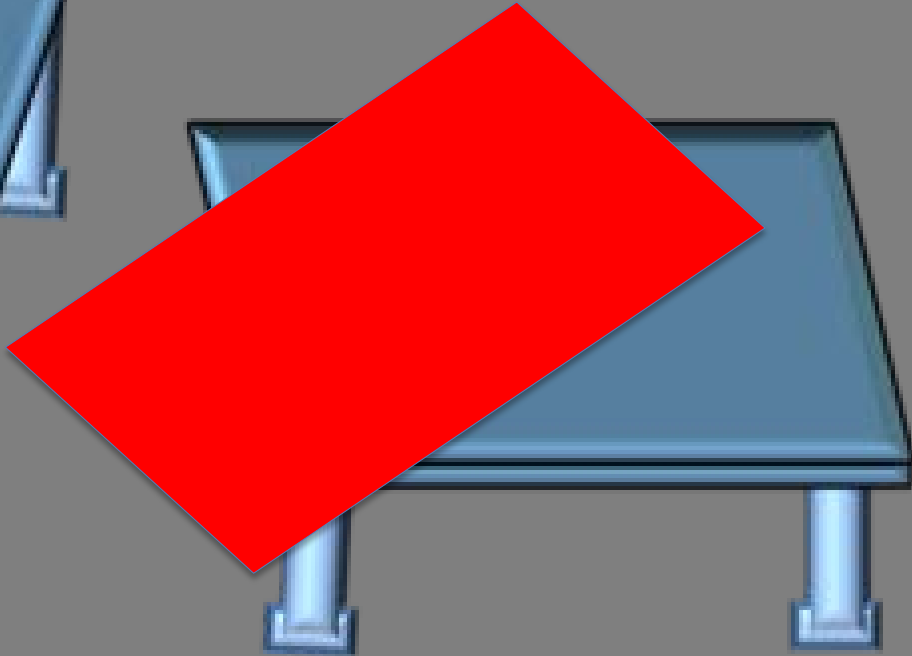
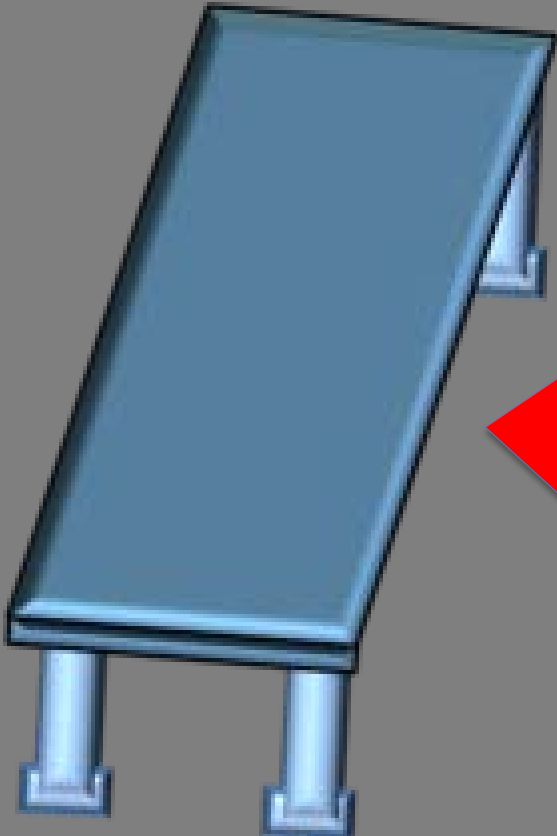
*Source: National Geographic*

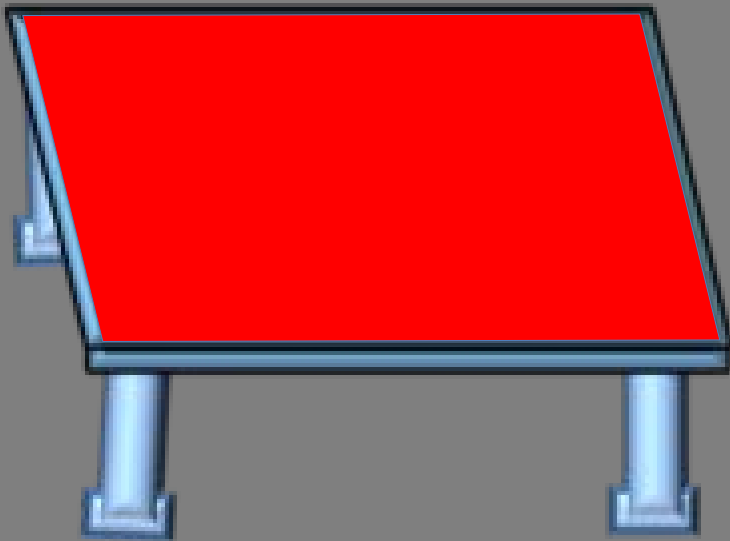
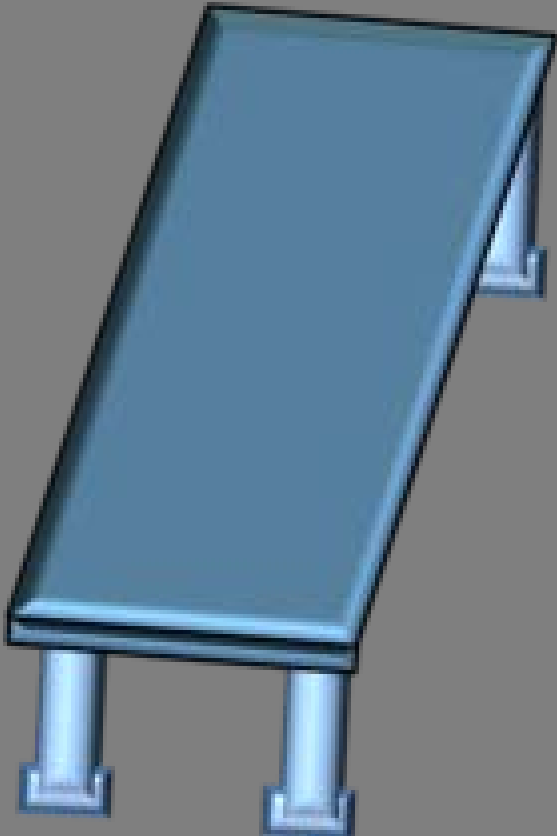


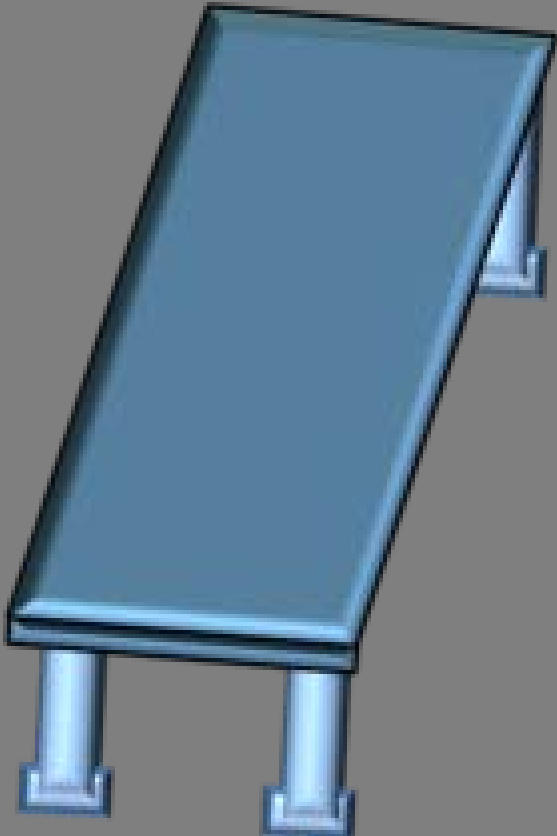
*Image: Statistics Online Computational Resource, UCLA*











**Combine mindbugs with  
stereotypes...**



# Combine mindbugs with stereotypes

## Example: Innocence Project

**False eyewitness testimony: 290 people exonerated via DNA testing – more than 75% convictions due to mistaken eyewitness accounts**



# Implicit Association Test (IAT)\*:

Measures the strength of automatic mental associations between certain concepts (women, black people, Asians, gay people, etc.) and an evaluations of those concepts.

<https://implicit.harvard.edu>



*\*Developed by Banaji, Nosek, Greenwald.*

# Implicit Association Test (IAT)

Gender, race/ethnicity, color, religion, appearance, sexuality

Typical results: Preferences for *whites over blacks*; *straight over gay*; *thin over fat*; *light skin over dark*.

Strong associations between:

⌘ *Female-family vs. male-career*;

⌘ *Male-science vs. female-liberal arts*

⌘ *Asian American-foreign vs. white American-American*;

⌘ *Blacks – weapons vs. whites*

⌘ *Textured hair – less professional vs. straight hair – more professional*

**Note: these associations typically occurred across all groups**

## **Cognitive dissonance:**

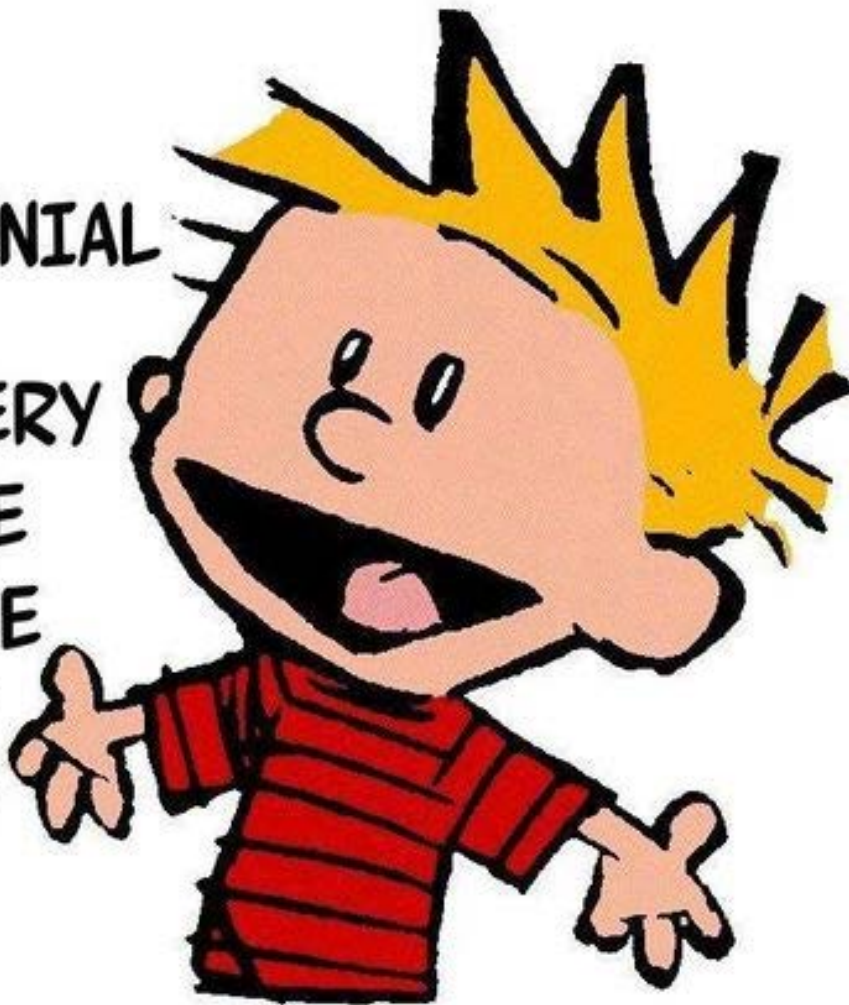
**Mental stress or discomfort experienced when we find a conflict or inconsistency between our unconscious associations and our conscious beliefs**

## **Confirmation bias:**

**Tendency to believe those facts that are consistent with our preexisting notions and beliefs, and reject those facts that aren't**

IT'S NOT DENIAL

I'M JUST VERY  
SELECTIVE  
ABOUT THE  
REALITY  
I ACCEPT





# Research on Implicit Bias

# Research on Implicit Bias

⌘ Growing research on implicit bias. Bias exists in many areas:

*CVs; course evaluations; grant funding; interview callbacks; orchestra auditions; salary; recommendation letters; personality traits; innate brilliance; entrepreneurial ventures; receiving credit; publications; reviewing activity; type of lab work performed*

# Teaching evaluations

- ⌘ **Boring, A., Ottoboni, K., & Stark, P. (2016). Student Evaluations of Teaching (Mostly) Do Not Measure Teaching Effectiveness**
- ⌘ **MacNell, L., Driscoll, A. & Hunt, A.N. (2015). What's in a Name: Exposing Gender Bias in Student Ratings of Teaching**

**Found significant gender bias in evaluations. Online evaluations. Professor with male name rated higher than identical professor with female name. And this even included so called objective information such as whether the professor returned assignments on time.**



# Teaching evaluations

⌘ **Storage D, Horne Z, Cimpian A, Leslie S-J (2016). The Frequency of “Brilliant” and “Genius” in Teaching Evaluations Predicts the Representation of Women and African Americans across Fields**

**Looked at frequency of words “brilliant” and “genius” in 14 million online reviews on RateMyProfessor.com**

**Found that women and African Americans were significantly less likely to be described as “brilliant” or “genius”.**

# Letters of recommendation

- ⌘ Dutt et. al (2016): *Gender differences in recommendation letters for postdoctoral fellowships in geoscience*
- ⌘ Madera et al (2009): *Gender and letters of recommendation for academics: agentic and communal differences*
- ⌘ Schmader et al (2007): *A linguistic comparison of letters of recommendation for male and female chemistry and biochemistry job applicants*
- ⌘ Trix & Psenke (2003): *Exploring the color of glass: letters of recommendation for female and male medical faculty*

Similar results: On average, men were described in more standout terms than women.

Men: **brilliant, dynamic, confident, star**

Women: **team player, nurturing, reliable**

**Heilman & Wallen (2010): *Wimpy and undeserving of respect: penalties for men's gender-inconsistent success***

*Found that gender bias worked both ways. When women were successful at a male gender-type job, they were interpersonally derogated and disliked compared to men successful at the same job. When successful at a female gender-type job, men were viewed as “wimpy” and less deserving of respect than women successful at the same job or than men in a gender-consistent position.*

**Davies et al (2005): *Clearing the air: identity safety moderates effects of stereotype threat on women's leadership aspirations***

*Found that due to the negative stereotype of aggressiveness associated with women leaders, women avoid leadership opportunities to avoid being viewed in that stereotype.*

**Moss-Racusin et al (2012): *Science faculty's subtle gender biases favor male students***

*Faculty evaluated applicants (randomly assigned a male or female name) and rated male applicants as significantly more competent than identical female applicants for a lab manager position. Male applicants were also offered higher salaries and more mentoring. Male and female faculty were equally likely to rank male applicants higher than identical female applicants.*

***Milkman, Akinola, Chugh (2015): What Happens Before? A Field Experiment Exploring How Pay and Representation Differentially Shape Bias on the Pathway Into Organizations***

*Measured email responses from 6,500 professors across 250 top US universities. Results showed that faculty were biased in favor of white men, receiving significantly more responses than women and minorities. Asian students experienced the most bias. Also, gender and racial diversity among the faculty did not reduce discrimination.*

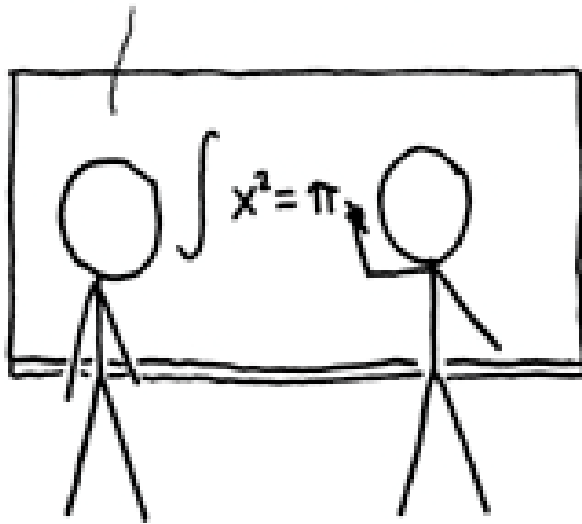
*Highest rates of discrimination occurred in private universities in natural science and business schools. Frequency of racial and gender discrimination increased with the average faculty salary.*

## **Reuben, Sapienza & Zingales (2014): *How stereotypes impair women's careers in science***

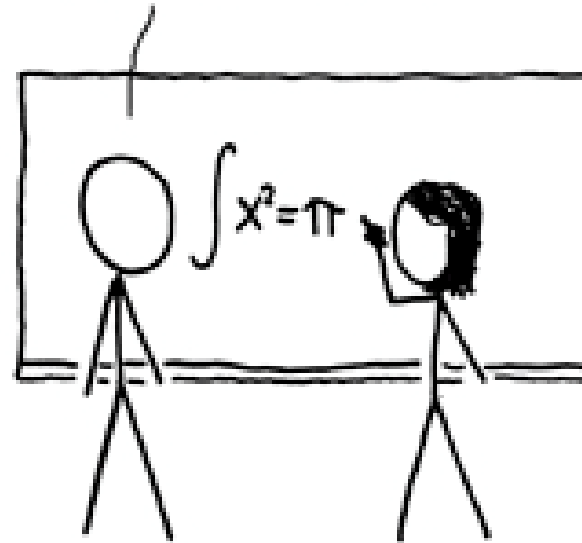
*Without any information other than the candidate's appearance, men were twice as likely to be hired for a mathematical task compared to women, even though it was a task that on average both men and women perform equally well. This bias was somewhat reduced (but not eliminated) when full information was provided about previous performance on the task.*

*When asked to self-report, men were more likely to boast about their performance, while women were more likely to underestimate their performance.*

WOW, YOU  
SUCK AT MATH.



WOW, GIRLS  
SUCK AT MATH.



<http://xkcd.com/385/>

**Leslie, Cimpian, Meyer & Freeland (2015): *Expectations of brilliance underlie gender distributions across academic disciplines***

**Under-representation of women is not limited to STEM fields; women are well represented in fields such as biological sciences, but under-represented in non-STEM fields like philosophy and economics.**

**Across the academic spectrum, *women and minorities are under-represented in fields where raw innate talent/ brilliance is considered a requirement* for success in those fields, since they are stereotyped as not possessing such brilliance. This bias did not extend to Asians.**



**Handley et al (2015): *Quality of evidence revealing subtle gender biases in science is in the eye of the beholder***

**Found that men evaluated gender bias research less favorably than women, and this was especially prominent among men in STEM fields. Reluctance among male faculty in STEM to accept evidence of gender bias in STEM fields.**

**In a similar vein: the Pew Center (2016) showed that an overwhelming majority of blacks (almost 90%) felt that there was racial inequity in society, compared to around 50% of whites.**

Loren Fehman



CARTOONSTOCK  
.com

Search ID: IfIn444

“A glass ceiling?... Don’t be ridiculous. The sign works just fine.”

**Brooks et al (2014): *Investors prefer entrepreneurial ventures pitched by attractive men***

**Funding for entrepreneurial ventures: investors preferred entrepreneurial ventures pitched by men over *identical ventures pitched by women*, and said the male pitches were *more persuasive, logical and fact-based*. Also, attractive males had an advantage over others.**

**Sugimoto et al (2016): *Is science built on the shoulders of women? A study of gender differences in contributorship***

**Women disproportionately perform the experimental work/ labor involved in producing science — *pipetting, centrifuging, sequencing*. Men are more likely to be credited for *analyzing data, conceiving experiments, contributing resources, or writing the study*.**

**Wenneras & Wold (1997): *Nepotism and sexism in peer review***

**Women received lower scores for the same level of scientific productivity. Also, women needed 2.5 times more publications as men to achieve the same rating of scientific competence.**

**Goldin & Rouse (2000): *Orchestrating impartiality: the impact of blind auditions on female musicians***

**Using data from symphony orchestra auditions, the study found that with the introduction of blind auditions, the likelihood of a woman advancing to the next round increased by 50%.**

WE NEED TO GET  
AN EQUAL PAY  
EXPERT IN...

( LET'S GET  
A GIRL-IT'LL  
BE CHEAPER!



CARTOONSTOCK  
.com

Search ID: jby0321

JOHN BYRNE

# Race and Ethnicity Bias

**Ginther et al (2011): *Race, ethnicity and NIH research awards***

**NIH study - black Ph.D. scientists were far less likely to receive grant funding for a research idea than a white scientist from a similar institution with the same research record. Smaller gap found for Asians – gap disappeared when only US citizens were included.**

**Bertrand and Mullainathan (2003): *Are Emily and Greg more employable than Lakisha and Jamal?***

**Using fictitious resumes - resumes with traditionally white names such as Emily and Greg elicited 50% more callbacks for interviews than similar resumes with black/ethnic names such as Lakisha and Jamal. Also found that a higher quality resume elicited 30% more callbacks for whites but a far smaller increase for blacks.**

**Levy-Ari and Keysar (2010):** *Why don't we believe non-native speakers? The influence of accent on credibility*

**Non-native accents make it difficult for native speakers to understand what is being said, and thereby reduces cognitive fluency, i.e. the ease with which the brain processes it, causing people to doubt the truthfulness of what is said. This bias was somewhat reduced for mild accents compared to heavy accents.**

**Cheryan S., Monin B. (2005):** *“Where are you really from?” Asian Americans and identity denial.*

**Identity denial is a common occurrence among Asian Americans, with them being viewed as perpetual foreigners, and less American than white Americans.**

SO WHERE ARE  
YOU **REALLY** FROM?

California...  
Isn't it obvious  
b/c I'm blonde?

[wesaasc.org](http://wesaasc.org)

asc



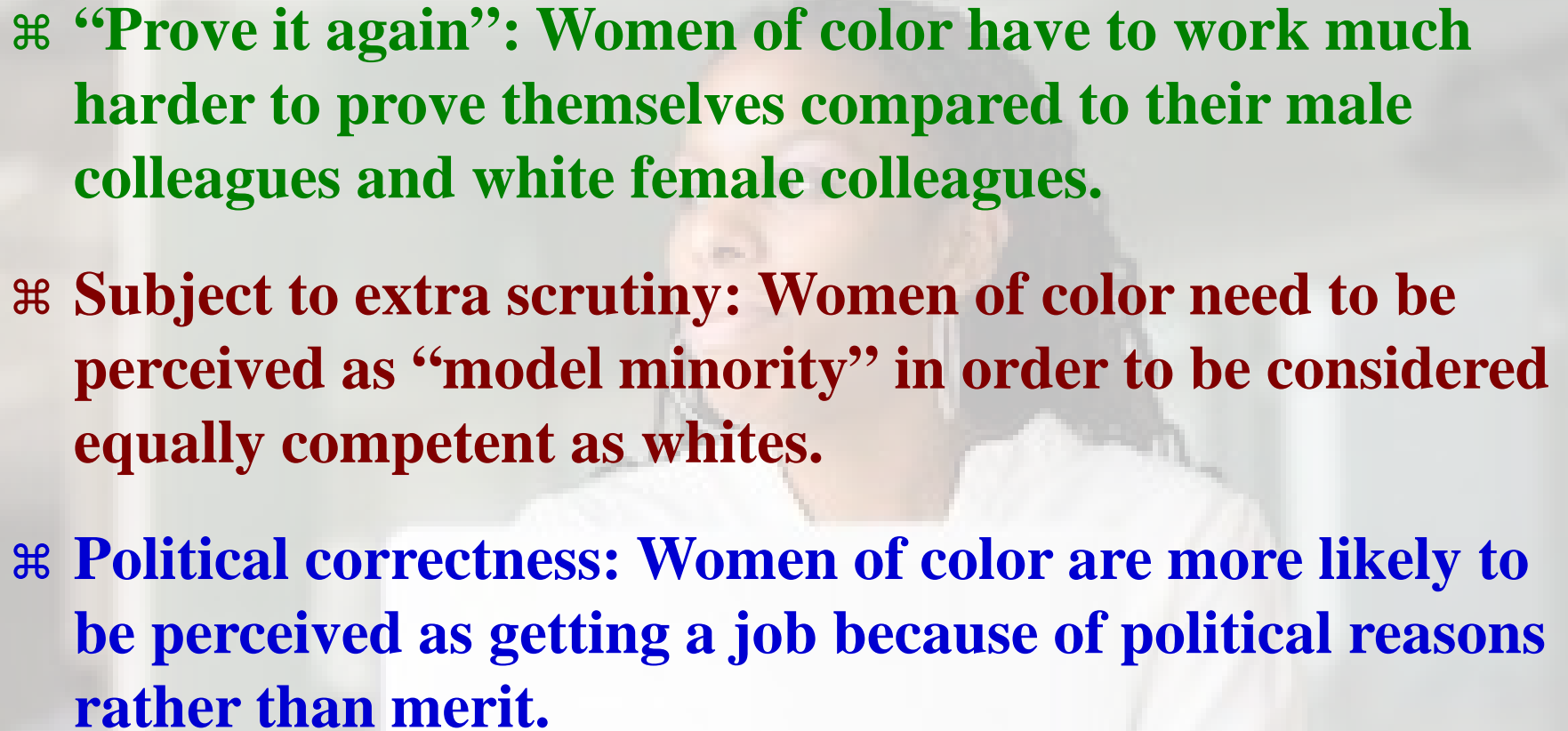
# Double Jeopardy: Women of Color



## **Double Jeopardy: penalized for being female AND minority.**

- ⌘ **Latinas who behave assertively are seen as being “emotional” or “angry”.**
- ⌘ **Black women who behave assertively risk being perceived as “angry black women”.**
- ⌘ **Almost half (47-48%) of all Latina and black female scientists have been mistaken for administrative/ support staff, including janitors.**
- ⌘ **Stereotype of Asian-American women being good at math helps with students but not with colleagues. Asian-American women also face more backlash than others when perceived as showing masculine traits (e.g., being assertive, engaging in self-promotion).**

*Source: Williams Joan C., Phillips Katherine W., Hall Erika V. 2014. Double Jeopardy? Gender Bias against Women of Color in Science.*

- 
- ⌘ **“Prove it again”:** Women of color have to work much harder to prove themselves compared to their male colleagues and white female colleagues.
  - ⌘ **Subject to extra scrutiny:** Women of color need to be perceived as “model minority” in order to be considered equally competent as whites.
  - ⌘ **Political correctness:** Women of color are more likely to be perceived as getting a job because of political reasons rather than merit.

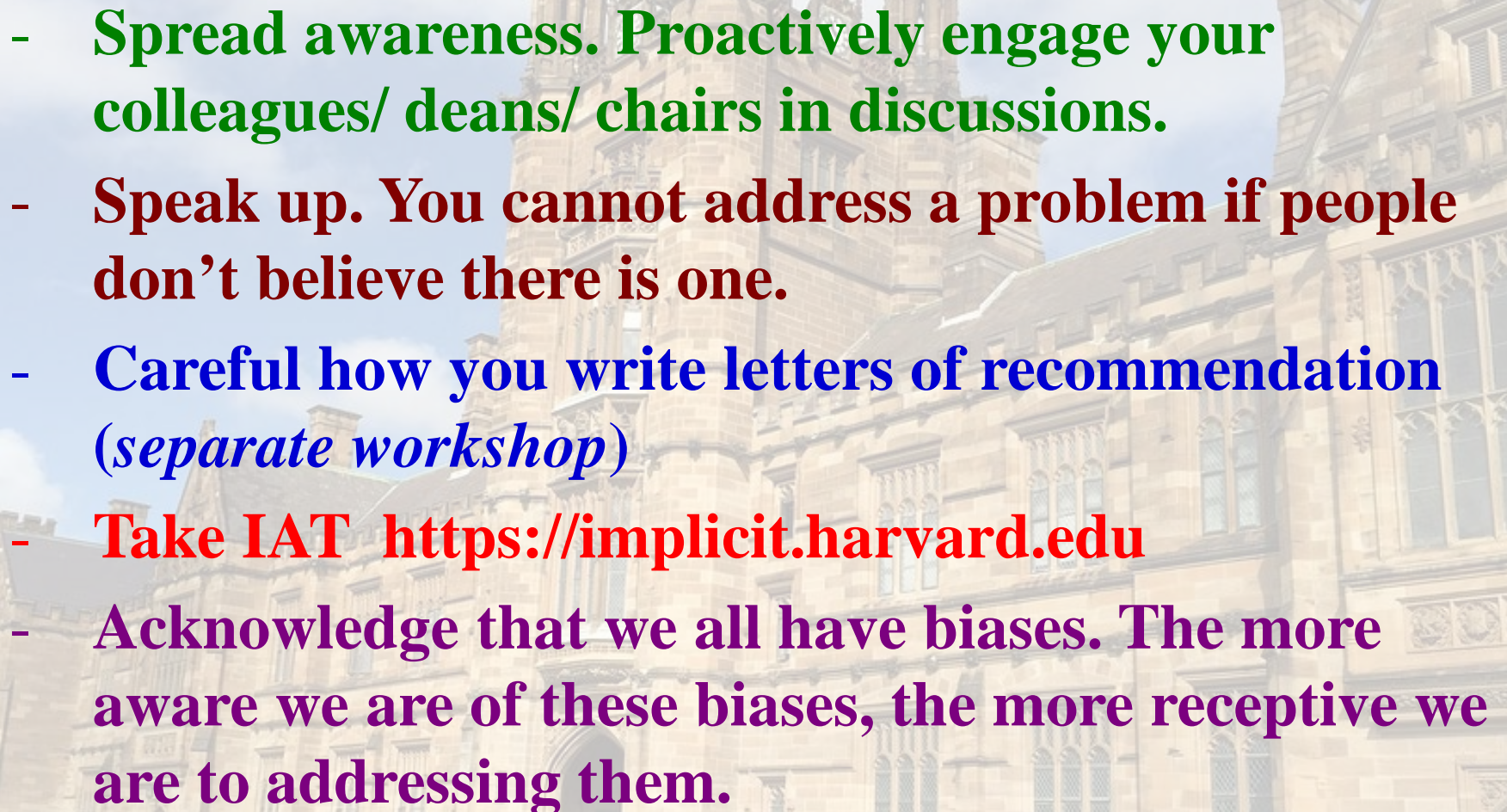
# Implications for Higher Education

A large, ornate Gothic-style building, likely a university or cathedral, with multiple spires and windows. The building is constructed from light-colored stone and features intricate architectural details. The sky is blue with scattered white clouds. In the foreground, a paved walkway and a small green lawn are visible, with a few people walking. The text "Implications for Higher Education" is overlaid in a bold, red, serif font across the center of the image.

- 
- **Women and minorities at a comparative disadvantage**
  - **Perceived as less competent/ accomplished**
  - **Bias / “chilly climate” plays an important role**
  - **Facing hurdles in career advancement at all levels**
  - **Combination of various factors: institutional, social, historical.**
  - **Overt discrimination has declined over time, but subtle biases and barriers continue to exist.**

# Recommendations



- 
- **Spread awareness. Proactively engage your colleagues/ deans/ chairs in discussions.**
  - **Speak up. You cannot address a problem if people don't believe there is one.**
  - **Careful how you write letters of recommendation (*separate workshop*)**
  - **Take IAT <https://implicit.harvard.edu>**
  - **Acknowledge that we all have biases. The more aware we are of these biases, the more receptive we are to addressing them.**



**Thank You!**