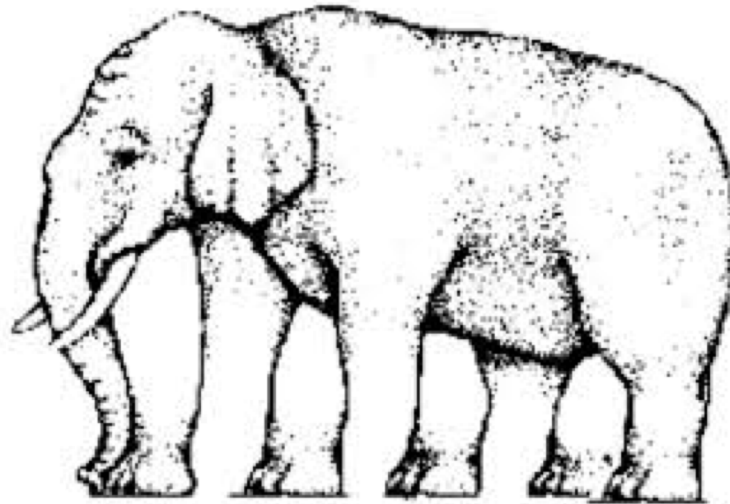


Bias: when the brain takes shortcuts



Dr. AZA Allsop
Yale University

Dr. Bruce Birren
Broad Institute

Agenda

1. Why diversity and inclusion?
2. Bias: the why and the how
3. Understanding microaggressions
4. Addressing microaggressions

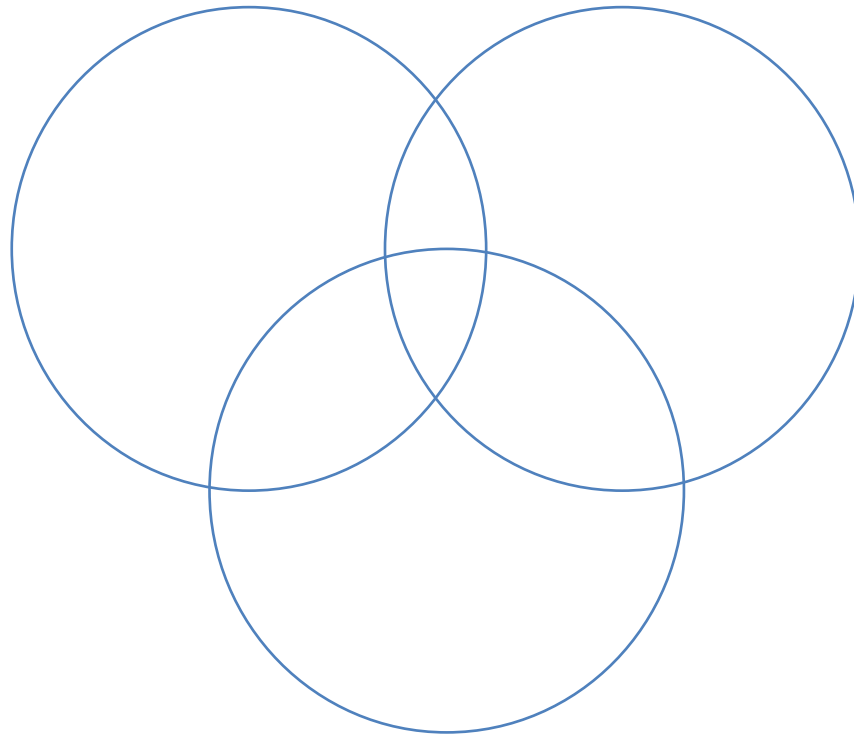
Fisher v. University of Texas

“What unique perspective does a minority student bring to a physics class?”

“I’m just wondering what the benefits of diversity are in that situation?”

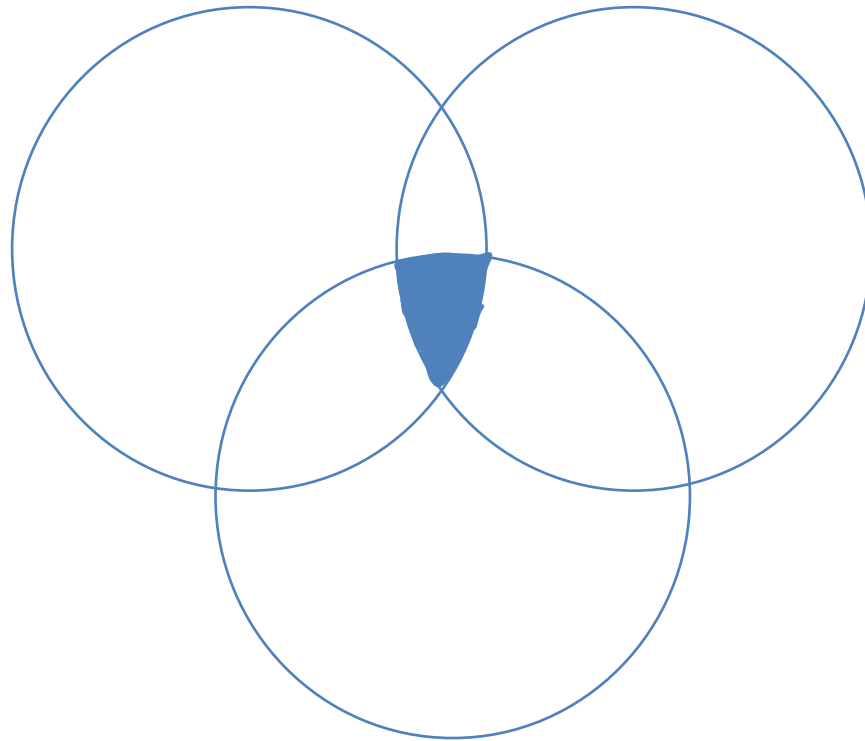
Chief Justice John Roberts
Oral arguments 2015

Diverse teams are more effective



From: Frances Frei, Harvard Business School

Unmanaged diverse teams underperform



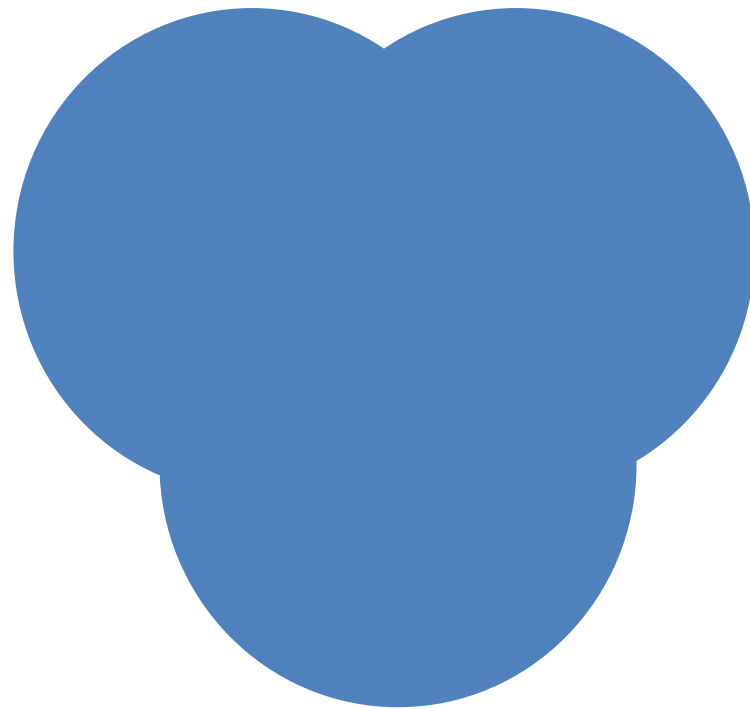
Phillips, Liljenquist and Neale 2009

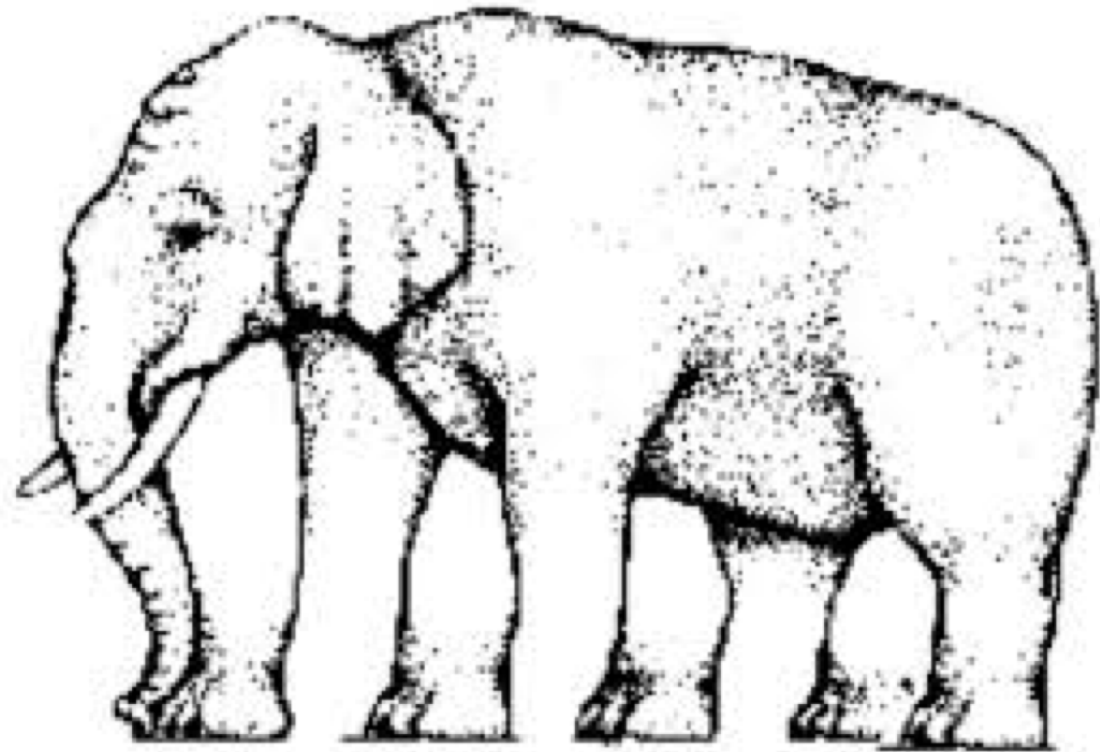
Mello & Delise 2015

Lount, Sheldon, Rink, Sheldon and Phillips 2015

From: Frances Frei, Harvard Business School

Managed diverse teams outperform homogeneous teams





9x4

37x13

The Two Systems

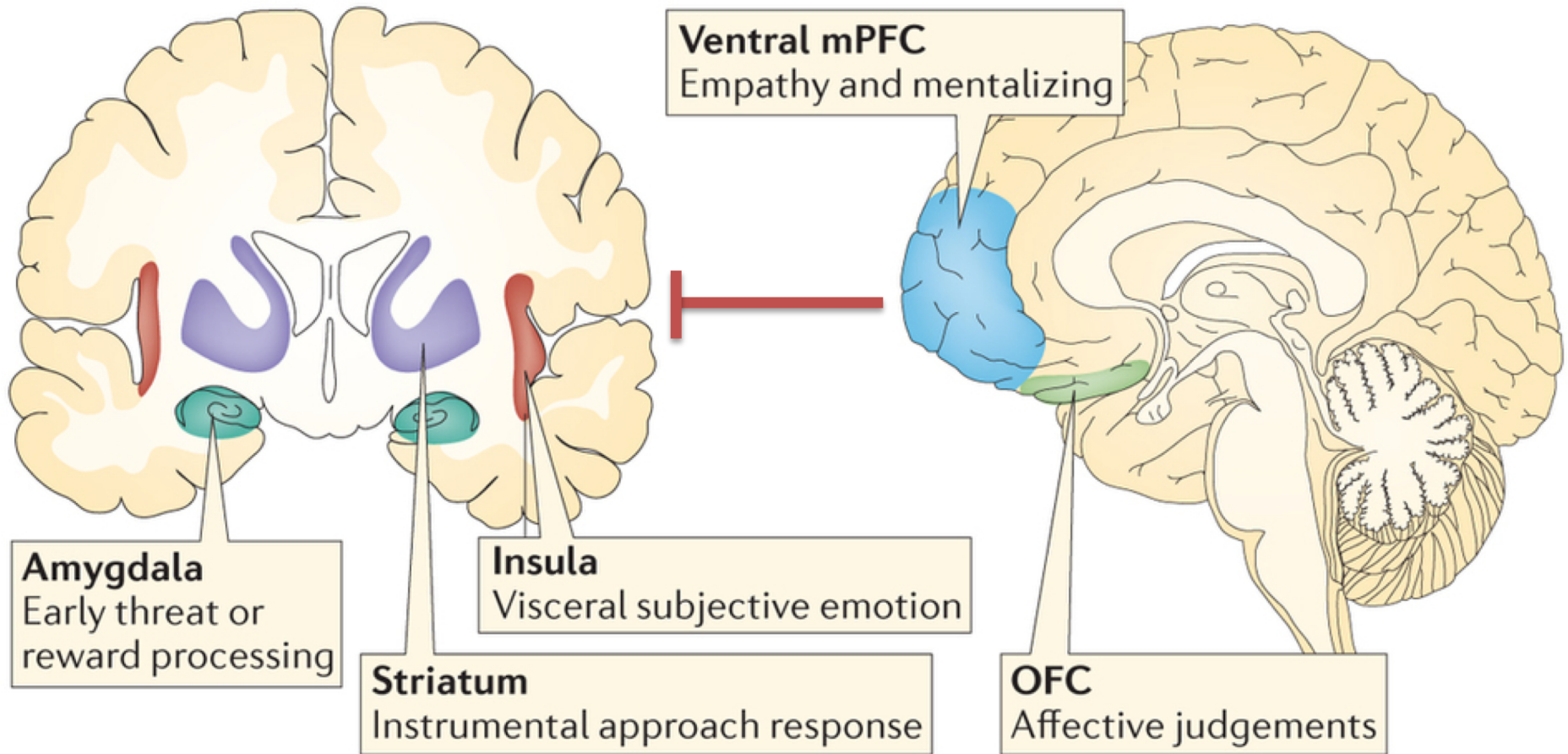
System 1

System 2

Neuroanatomy of the two systems

System 1

System 2



Why have a system 1?

Implicit systems can be helpful in certain contexts:

friend

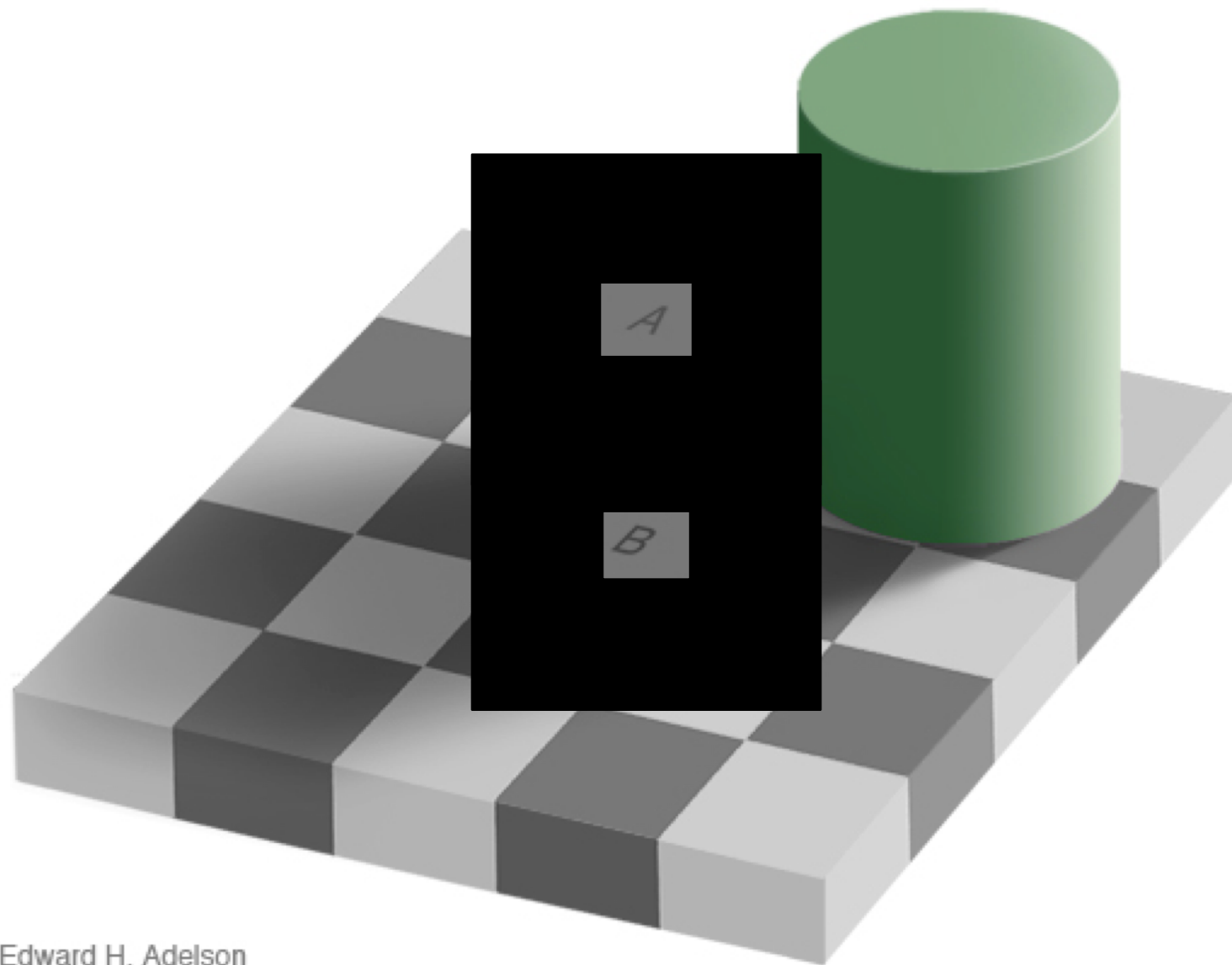
?



foe

?

Allocation of brain resources



Edward H. Adelson

Implicit information processing (System 1) generates biased behavior

Can be wrong even when we “KNOW” better

Most associations or behaviors we learn can be controlled by System 1 over time

System 2 takes effort to engage so the brain's default is to engage System 1 whenever possible

Implicit information processing (System 1) generates biased behavior



Implicit biases are cognitive errors introduced by System 1 selecting or encouraging one association or outcome over another

Biases have an evolutionary and neurophysiological basis

Animal social behaviors are modulated by social context



spectrumnews.org

Social behaviors are modulated by kinship, familiarity, strain and early life social experience in rodents in a manner consistent with in- and out-groups

(Kavaliers et al 2005,, Bartal et al 2014, Nakamura et al 2016)

Differential neuronal responses to social information may underlie biased social processing in humans and rodents (Singer et al 2006, Hein et al 2010, Perry et al 2010, Golkar et al 2015)

Social cognition and behaviors can be biased by social group



Javier Zarracina/Vox

Biased social cognition/behaviors are shaped by perceived group identity (Quattrone et al 1980, Levine et al 2005, Sturmer et al 2006)

Social biases can reduce social intelligence and impact human behavior, systems, organizations, and culture (Corell et al 2007, Ginther et al 2011, Moss-Rascusin et al 2012, Milkman et al 2014)

Orchestra auditions and gender bias



Orchestrating Impartiality: The Impact of “Blind” Auditions on Female Musicians
Goldin and Rouse
American Economic Review, 2000

Social biases impact in science

Randomized double-blind study in which science faculty from research-intensive universities rated the application materials of a student (male or female) for lab manager position.

Identical applications, only variable changed was gender, indicated by name.

Faculty assessed student competence, salary offers, and how deserving they were of faculty mentoring.

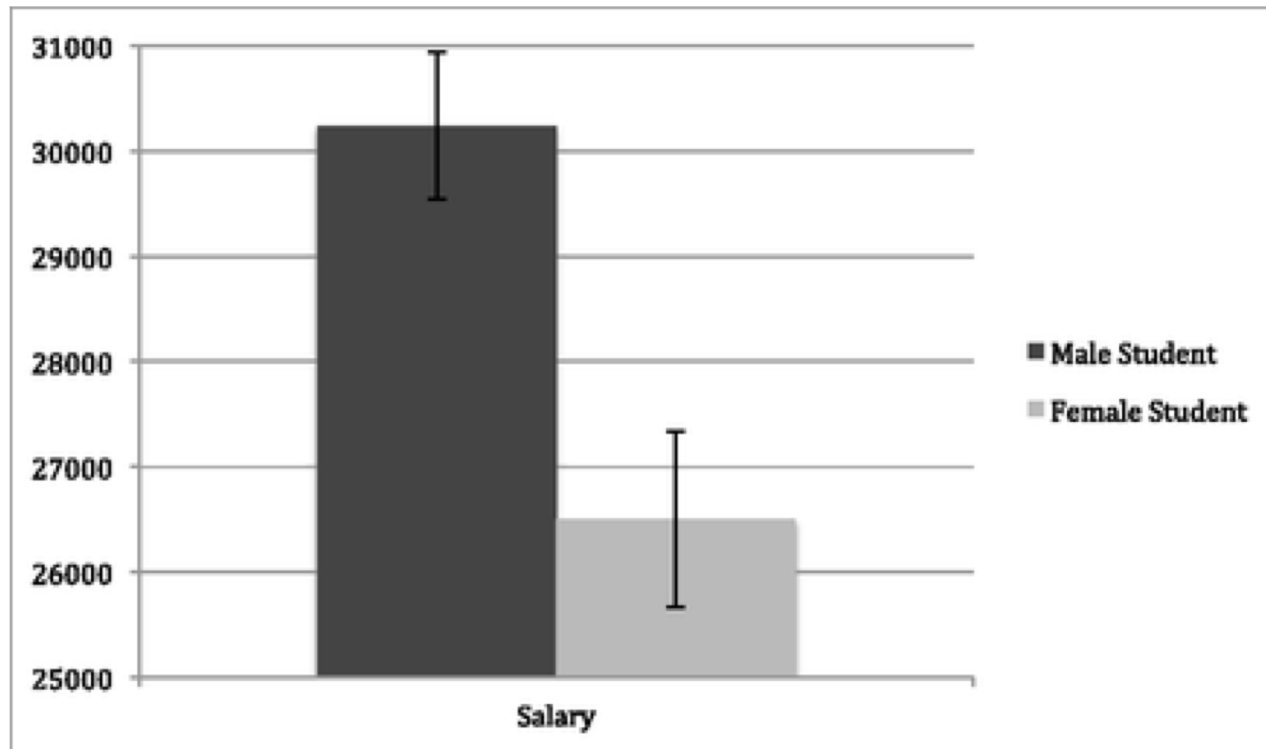
Faculty participants believed that their feedback would be shared with the student they had rated

Science faculty's subtle gender biases favor male students.

C. A. Moss-Racusin, J. Dovidio, V. Brescoli, M. Graham, and J. Handelsman

PNAS October 9, 2012, vol. 109 no. 41

Lasting consequences



Science faculty's subtle gender biases favor male students.

C. A. Moss-Racusin, J. Dovidio, V. Brescoli, M. Graham, and J. Handelsman

PNAS October 9, 2012, vol. 109 no. 41

Bias in Science, cont.

White investigators significantly more likely than Black and Hispanic investigators to win NIH R01 awards (Ginther *et al.* 2011)

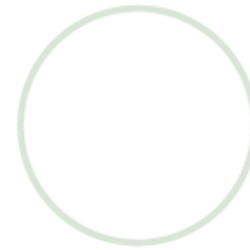
URMs and White women's requests for career guidance more ignored than those by White men (Milkman *et al.* 2014)

Male biologists less likely to hire and train women in their laboratories (Sheltzer & Smith, 2014)

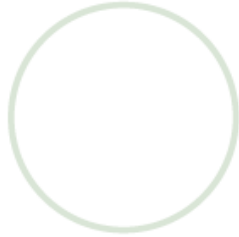
So that's them, what about us?



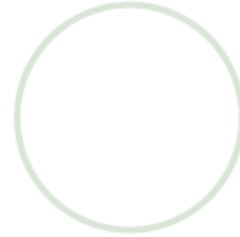
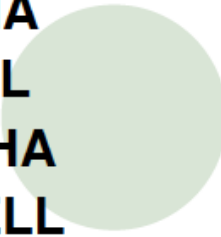
**caress
freedom
health
love
peace
cheer
heaven
pleasure
diamond
gentle
honest
lucky
rainbow
miracle
sunrise
family
happy
laughter
paradise
vacation**



Lists courtesy of
Dr. Keith Maddox and
Dr. Sam Sommers



**AIESHA
JAMAL
LAKISHA
DARNELL
EBONY
LATISHA
TERRELL
TYRONE
MARQUIS
LATASHA
TAMEKA
DARRYL
JAZMIN
ROSHANDA
DERON
SHANIQUA
DARIUS
DESHAWN
LASHANDA
TREVON**





cancer
 health
 corpse
 diamond
 truth
 devil
 assault
 triumph
 glory
 brutal
 talent
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 kindness
 family
 divorce
 stink
 pleasure
 torture
 bomb
 peace



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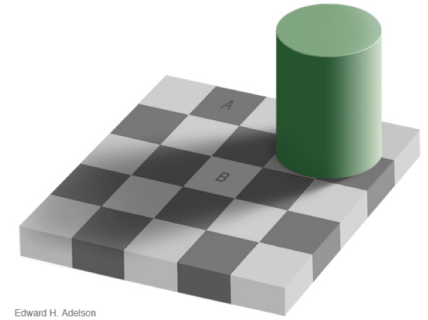
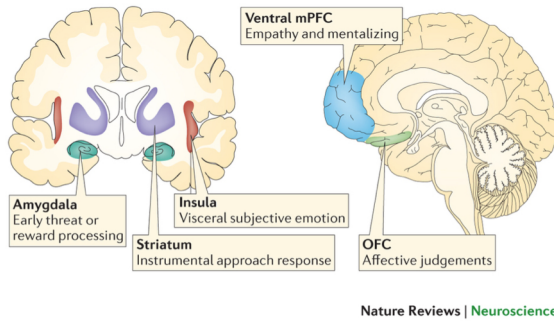
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Bias and the brain



It's the way our brains work

Bias can run counter to our intentions

Deliberately invoking System 2 reduces the impact of implicit bias

Use of objective standards reduces systemic impact of implicit bias

Microaggressions

Subtle verbal, and/or nonverbal, slights, insults, indignities, denigrating messages directed toward an individual due to their group identity

Brief, everyday exchanges that are pervasive

Automatic, unconscious; harm often unintended and unnoticed by the person committing them

Pierce, Carew, Pierce-Gonzalez, & Willis, 1978

Solorzano, Ceja, & Yosso, 2000

DW Sue, MG Constantine, 2007

Josh: So, Magdalena, where are you from?

Magdalena: Denver

Josh: No, I mean where are you from?”

What might the intent have been?

What might the impact be?

Dr. Swan actually told me that the reason we don't have a diverse student body is because all the strong URMs go to Harvard or MIT.

Dr. Baker just called me Yolanda. Dr. Peters did the same thing yesterday. There are just two of us in the program, and they can't tell us apart?

Cumulative impact of microaggressions

Each can seem harmless

Each on its own is “no big deal”

But they all add up

Dr. Swan actually told me that the reason we don't have a diverse student body is because all the strong URMs go to Harvard or MIT.

Believe me, Julio, as the only woman in the computer science department I know what you are going through.

Detecting Microaggressions

Often hard to see because they are:

small

hard to see

can be easily explained away or dismissed

as a simple misunderstanding

From: Ijeoma Oluo
So You Want To Talk About Race

You speak English really well!

That one has not detected or heard a radio broadcast does not mean the radio signal was not sent; it means that one was not tuned in to the right channel to hear it.

It's about belonging

Microaggressions are messages about group membership

In-group versus out-group

Your name is so difficult, do you have
a nickname?

Reacting to microaggressions

Targeted person must deal with a profound, complicated and deeply emotional event

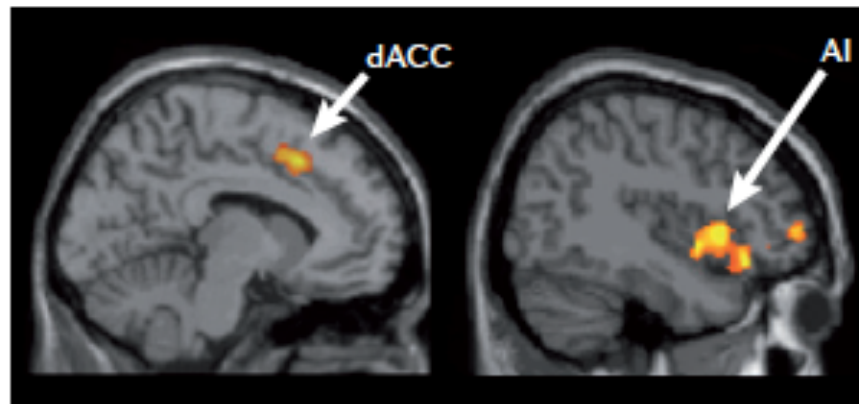
- Was that a biased comment?
- Am I being too sensitive?
- Was that too small to make a big deal about?

Neural mechanisms of social pain

‘Social pain’ is the unpleasant experience associated with actual or potential damage to one’s sense of social connection/ value

Processed by some of the same neural circuitry that processes physical pain

Pain mechanisms involved in preventing physical harm may have been co-opted to prevent social separation.



You don't sound _____.

That's great that you got an award at SACNAS,
maybe you are ready to go to a real meeting.

Non-verbal microaggressions?

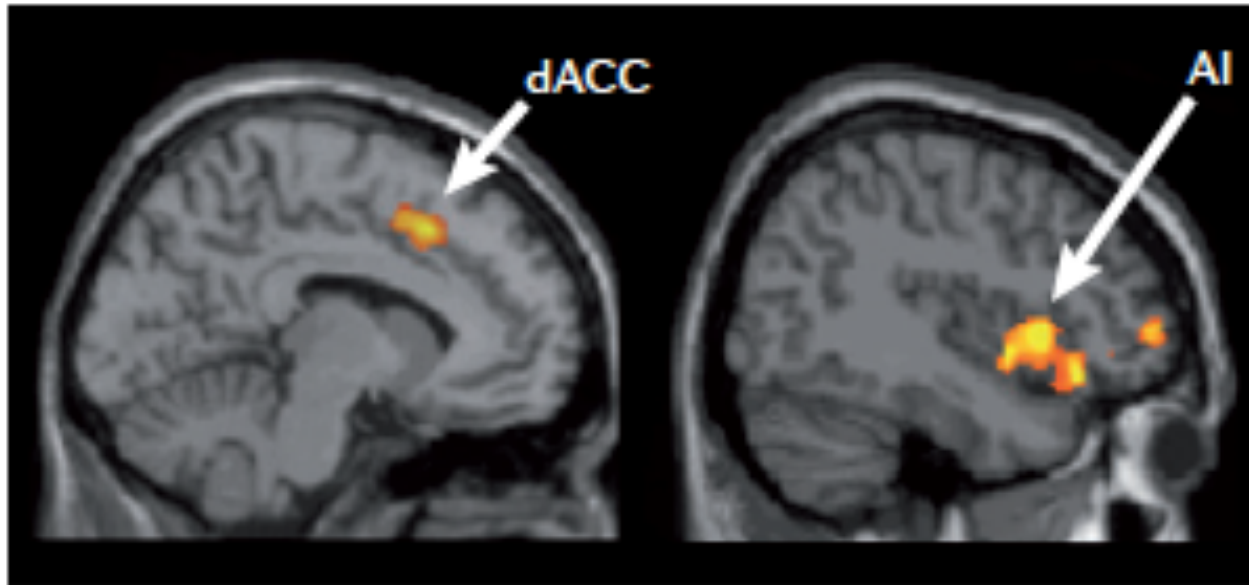
Photos of representation

Store clerks following you, not helping you

Waiting for the next elevator

How to respond?

At the same time the target must...



address the question of “should I speak up?”

Be Ready

These situations will happen, so be prepared

Have a script, a simple phrase

Rehearse it

Ask a question, using a tone of humble inquiry to invoke System 2

Examples

Why do you say that?

Can you say more about what you mean by that?

I'm not sure I understand, can you explain?

I'm missing the joke, can you tell me what's funny about that?

Let's practice

Your parents must have been proud of you getting into school here, how far did they get in school?

But I don't see you as _____, I just see you as a friend

You probably get tired of being called a credit to your race, but you should be proud of your accomplishments.

Think of yourself as someone who
engages

But it's not your obligation!

Maybe today you don't feel like it-that's fine

Maybe today you are in a good mood and are
willing to do some teaching - but let them know
it's not your job

Talking about Equity And Inclusion

Can be hard

if you are uncomfortable then you are probably doing something right

We needn't be perfect

silence will not lead to change

Comfort zones grow

engaging is a skill that can be developed

“Even well-intended people cause harm. As such, people will often make statements which they intend or perceive to be supportive or complimentary yet end up becoming problematic.”

Dr. Maura Cullen

Approach With Humility

The discomfort is not equally shared

different risks due to power, prestige, group status etc.
consider your conversational partner's calculations

Cultivate curiosity

Those with privilege and power must...

demonstrate willingness to do their own work

Microaffirmations

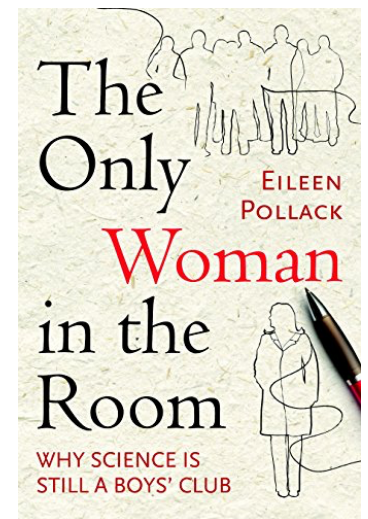
Small, hard-to-see acts that occur wherever people wish to help others to succeed.

...gestures of inclusion, listening and providing support that help a person build on strength and correct weakness.

“Wise feedback” has lasting impact

“Most science and math instructors believe they are being evenhanded in their refusal to encourage anyone, not understanding that any white male who grows up in this country already receives encouragement for his ambitions, if only in the form of the prevailing image of scientists as white and male.”

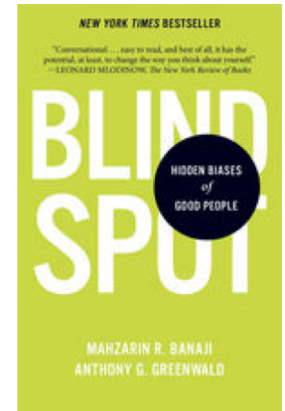
Eileen Pollack, *The Only Woman In The Room*
2015 Beacon Press



Additional Resources

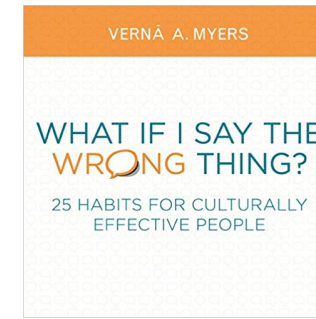
Blindspot: Hidden biases of good people

Mazarin Banaji and Anthony Greenwald 2013 Bantam Books



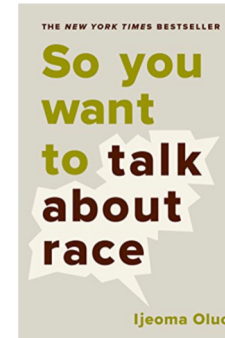
What if I say the wrong thing?

Verna A Myers, 2014 American Bar Assoc.

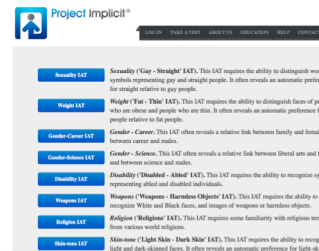


So you want to talk about race?

Ijeoma Oluo, 2018, Seal Press



Implicit Association Test projectimplicit.net/index.html



Breaking the Bias Habit wiseli.engr.wisc.edu

FairPlay fairplaygame.org



Speaking Up

tolerance.org/sites/default/files/general/speak_up_handbook.pdf

Curiosity versus expectations

why-it-is-not-my-responsibility-as-a-marginalized-individual-to-educate-you-about-my-experience