

# BIAS AND WIGGINS: A PRECEPT 1 CHALLENGE

Jay M. Jaffe, FSA, MAAA  
President

Actuarial Enterprises, Ltd.

[jay@actentltd.com](mailto:jay@actentltd.com)

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# DISCLOSURES

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- I am a superannuated actuary
- I am not a psychologist, sociologist, etc.
- I am presenting the opinions of my employer (I'm self employed)
- My examples are primarily for insurance
- First full-time job at Connecticut General Life



# AAA

## QUALIFICATIONS FOR ISSUING STATEMENTS OF ACTUARIAL OPINION IN THE US: PROFESSIONALISM §2.2.6.C

**Professionalism topics** include content that assists in understanding and applying the Code of Professional Conduct, actuarial standards of practice (ASOPs), and related actuarial professionalism guidance. **Professionalism continuing education** includes studying, reviewing, or providing input on an exposure draft of an ASOP; studying or reviewing the Code of Professional Conduct; attending an actuarial professionalism webinar; and serving on the Actuarial Standards Board or a professionalism committee.

# QUALIFICATIONS FOR ISSUING STATEMENTS OF ACTUARIAL OPINION IN THE US: PROFESSIONALSIM §2.2.6.B

**Bias topics (1 hour required)** include content that provides knowledge and perspective that assist in identifying and assessing biases that may exist in data, assumptions, algorithms, and models that impact Actuarial Services. **Biases may include but are not limited to statistical, cognitive, and social biases.**



# 7 GOALS FOR THIS PROFESSIONALISM SESSION

- Fulfill AAA's bias CE requirement
- Professionalism / bias > numbers
- Review some bias elements
- Examples of actuarial bias (Wiggins)
- Bias insurance regulatory developments
- Thoughts for managing bias
- FULFILLING PRECEPT 1



**BOBBY ORR, Game 4, 1970 Stanley Cup Finals, 5/10/70, overtime winning goal**

## OTHER GOALS

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**Not to change any personal or professional biases you may have but I will try to:**

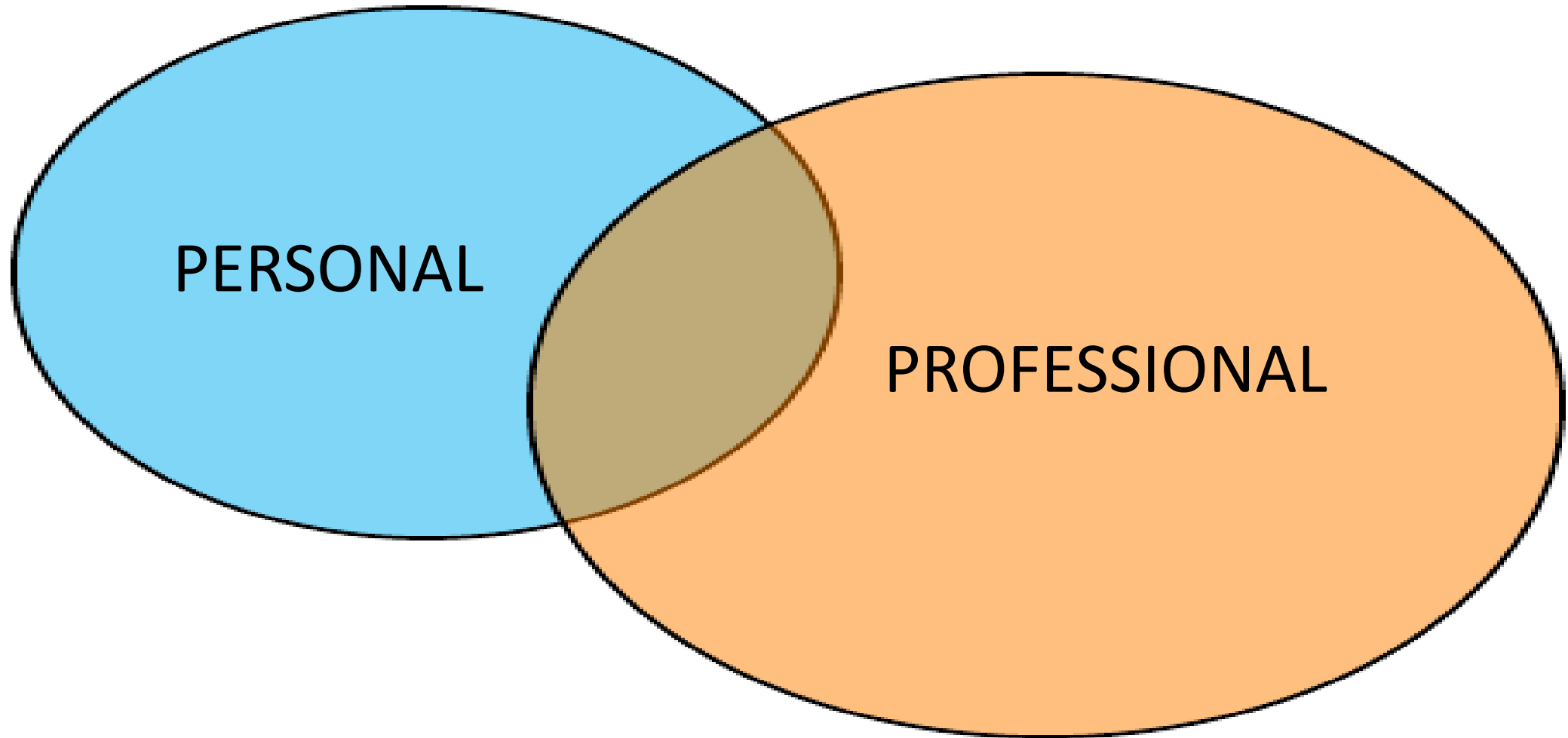
- **make you more aware of and attuned to bias**
- **better deal with bias both personally and professionally**
- **prevent bias**



# BIAS IS COMPLICATED

- Intentional or unintentional.
- Explicit or implicit.
- Subject to context in which it is presented.
- A negative but also a positive.
- Time sensitive rather than static.
- Proven or inferential.
- May be a legal and/or an ethical issue.
- Personal or organizational.
- Overcompensation.
- Individual or collective.

# PERSONAL AND PROFESSIONAL BIAS INTERSECTS



# BIAS AWARENESS STEPS 1 AND 2

#1: Become more observant,

and

#2. Recognize that words matter.



# 50 MEMORIAL DRIVE



# TYPICAL ER CUBICLES





# NOT A FREQUENT EVENT IN 2022



# CHARLESTON, SC





# WORDS MATTER

Words express meanings, ideas, and relationships. They impact how we relate to the past and to one another. When we speak to others, we should strive to use words that reinforce the idea of people's humanity rather than the conditions that were forced upon them.

# SCHOLARLY FREEDOM

The struggle on behalf of scholarly freedom will be long, indeed, never ending. For now, we simply assert that vocalizing any word for a legitimate pedagogical purpose—and in particular to accurately report facts—should not be made taboo. We respect the teaching choices made by others with whom we disagree. Due regard for intellectual pluralism should also prompt respect for a decision to eschew silence, avoidance, or bowdlerization [to modify by abridging, simplifying, or distorting in style or content] in our classrooms.\*

\* Kennedy and Volokh, p63

# DEFINITIONS

- **Bias --- means a prejudiced belief, attitude, or stereotype about social groups that can be positive or negative.**
- **Discrimination --- the cause and effect of unfair policies that assign social advantage or disadvantage to individuals based on their group identity.**
- **Cause and correlation --- cause refers to Option A causing outcome B; correlation is where Option A relates to Option B but does not cause Option A to occur.**
- **Risk classification --- placing risks that have the same expected claim costs in a group.**
- **Bigotry --- intolerant prejudice which glorifies one's own group but denigrates members of other groups.**

# Equality



# Equity



# Solution



# REVERSE WORDS

Wouldn't it be better for actuaries to have guidelines for and be discussing "fair discrimination" rather than only be concerned about "unfair discrimination"?

Isn't our goal to learn how to become unbiased in both our professional and personal lives rather than "avoid being biased"?

# CORRELATION EXAMPLE

**There is high positive correlation between:**

**A. the number of deaths in Kolkata, India,  
and**

**B. the number of ice cream cones sold in  
New York City.**

# TYPES OF BIAS

CPD Online College  
by Nicole Murphy

Last updated on 27th May 2022

# BIAS OBSERVATIONS

(CPD Online College)

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**A uniquely human trait,**

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**Usually based on stereotypes,**

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**A prejudgment which can result in  
discriminatory practices, and**

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**Helpful biases and negative,  
prejudicial biases.**



# JAFFE'S BASIC FOOD GROUPS



# BIAS BASES\*

\*CPD Online College

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Race

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Ethnicity

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Gender

---

Religion

---

Sexual orientation

---

Socioeconomic background

---

Educational background

# ORPHEUS ISLAND



# MAIN TYPES OF BIASES\*

\*CPD Online College

**Cognitive bias**

**Prejudices**

**Contextual  
bias**

**Unconscious  
or implicit  
bias**

**Statistical bias**

# AAA'S TYPES OF BIAS V. CPD COLLEGE

Statistical bias

Cognitive bias

Social bias:

Prejudices

Contextual biases

Unconscious or  
implicit bias

# STATISTICAL BIAS\*



Is related to the process of data collection,



Can affect how data or research samples are collected, and



Can result in misleading results that differ from accurate representation.

- CPD Online College

# RESULTS OF STATISTICAL BIAS\*

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Forecast bias,

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The observer-expectancy effect,

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Selection bias,

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Reporting bias, and

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Social desirability bias.

\*CPD Online College

**Bias attitudes over time.**

**The regulatory landscape.**

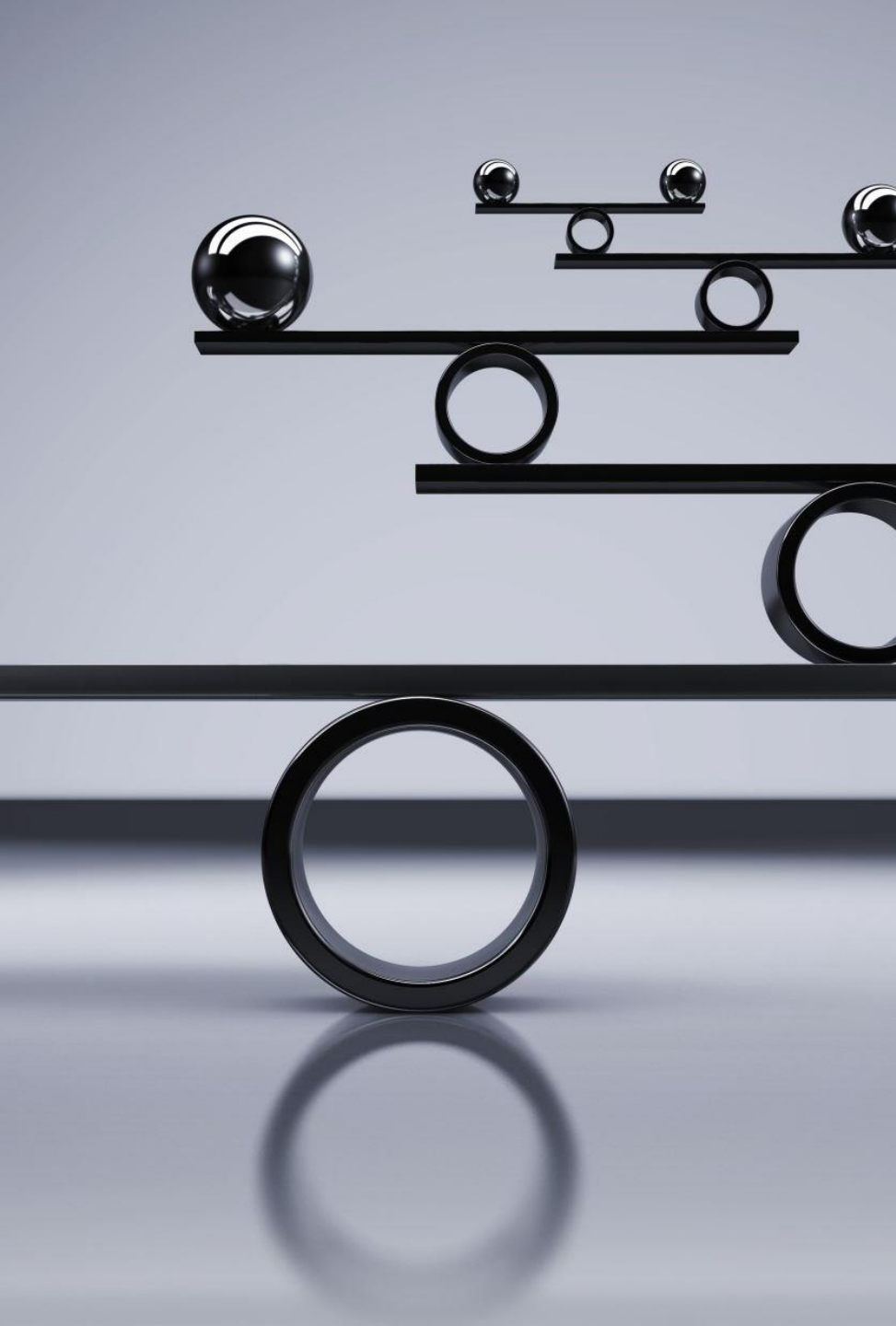
**Need for monitoring.**

**Actuarial interdependence.**

**Actuarial history.**

**SUBTLE AND  
NUANCED  
ASPECTS OF  
BIAS FOR  
ACTUARIES**





# BIAS IS TIME DEPENDENT

- **Determination of bias:**
  - when the work is done, OR
  - years after the original work?
- **Legal and actuarial standards:**
  - as of the time the original work is done AND/OR
  - should a professional also “do what is right”?

# OPERATING UNDER MULTIPLE STANDARDS

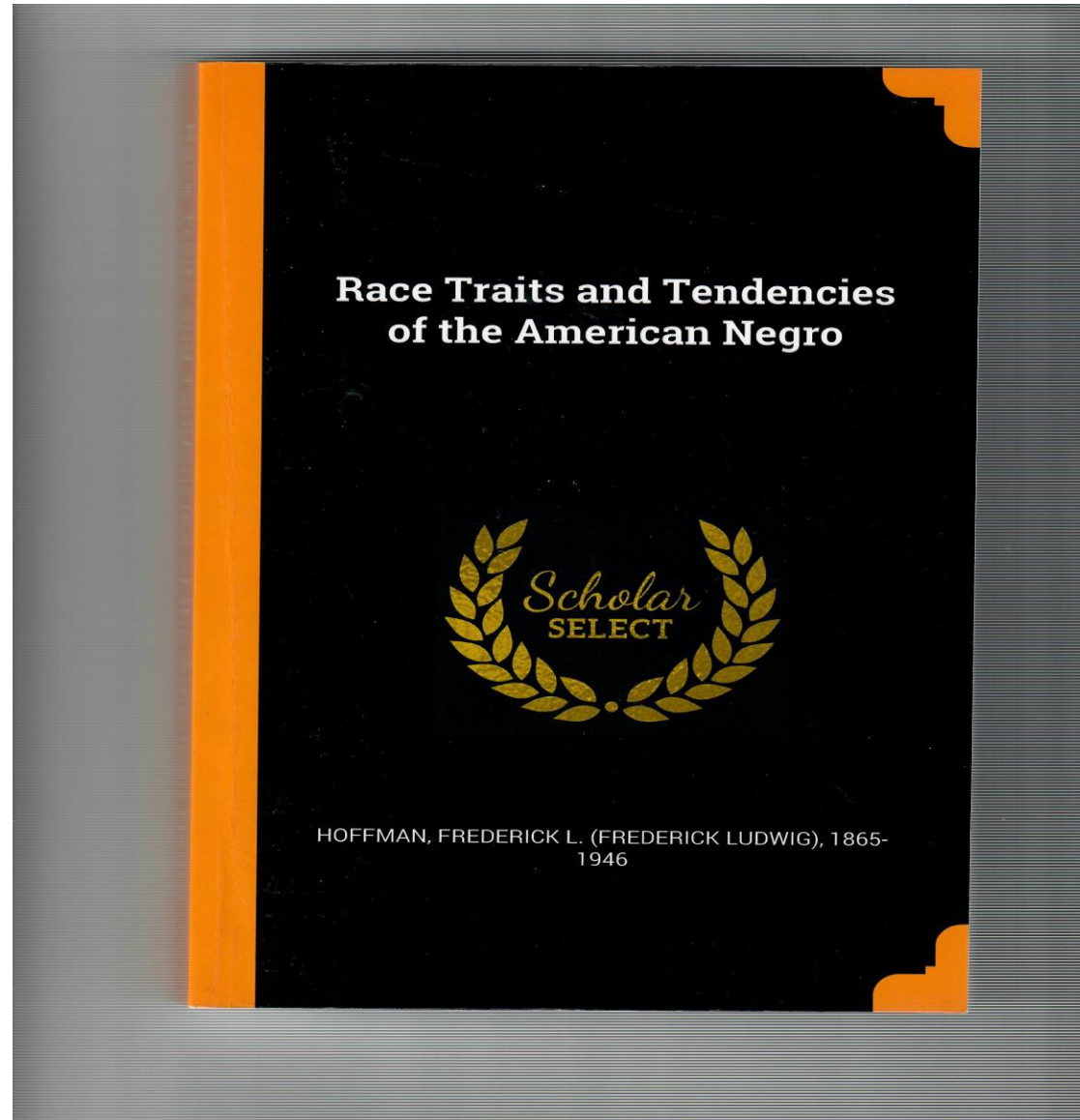
The current legal and actuarial standards

Professionals doing  
“what is right” --- not  
because it is the norm



FREDERICK L.  
HOFFMAN  
1865-1946

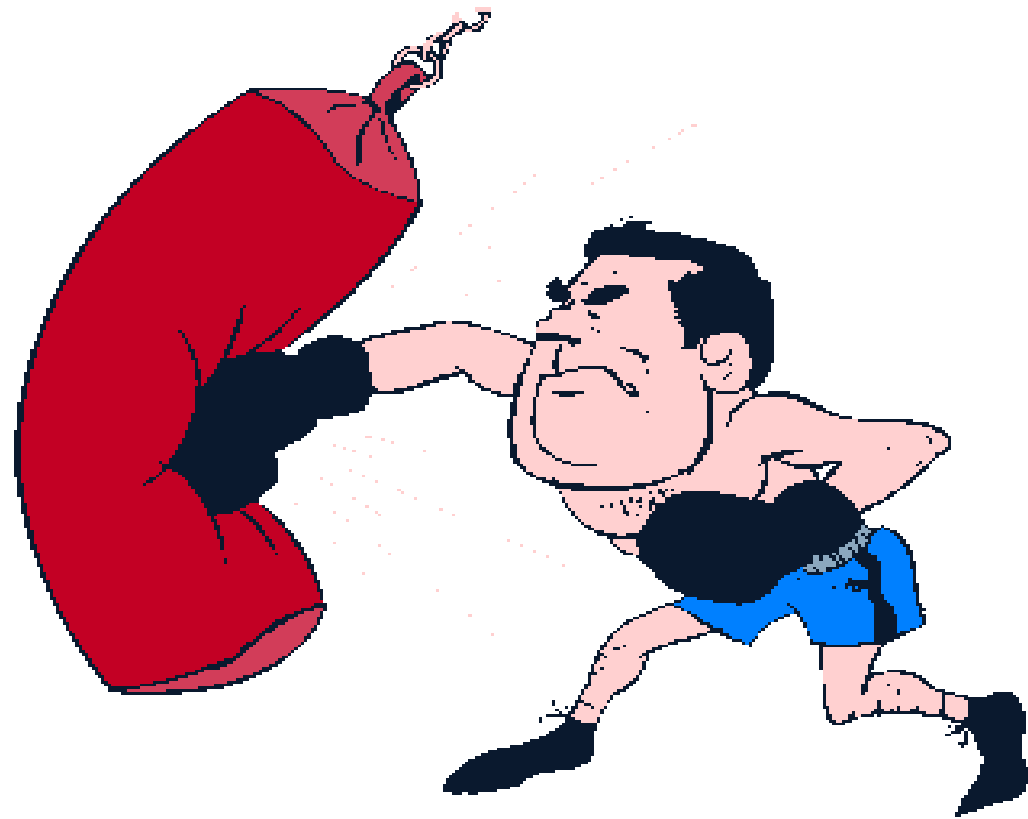
HOFFMAN'S BOOK



# HOFFMAN'S WORK

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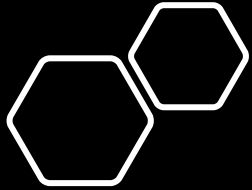
- Black applicants paid more for life insurance than whites
- Followed the practices being used in the late 1800's
- Hoffman's work showed Blacks had higher mortality than whites
- Hoffman's conclusions not based on actual mortality
- Race based premiums became illegal in the mid 20<sup>th</sup> century
- Hoffman's peers remained silent --- effectively condoning his work
- No actuarial standards of practice in late 1800's



# HOFFMAN QUESTIONS

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- Is “going with the flow” professional?
- Is looking into the future now necessary?
- What if we feel bias may be occurring?
- What about using a standard such as “ultimately fair”?
- If we’re not careful, can we be ignoring Precept 1’s requirements for being responsible to the public and upholding the reputation of the actuarial profession by avoiding possible bias?



# US INSURANCE REGULATORS' PERSPECTIVES ON ARTIFICIAL INTELLIGENCE\*

\*Mayer Brown 10/13/22,  
Chan, Feldman, Sidhu

**“US Insurance Regulators’ Perspectives on Artificial Intelligence”**

**Regulators have a concern that “ . . . insurance products are accessible and priced without reference to criteria that could be regarded as discriminatory . . . ”**

**Ongoing projects both at the NAIC and state levels.**



# THE COLLABORATION FORUM 2022 TOPICS\*

\*Mayer Brown 10/13/22  
Chan, Feldman, Sidhu

## Topics:

- “Bias Detection Methods”
- “Ethical and Responsible Uses of Data and Predictive Models”

## Methods that could be used to identify bias:

- Control Variable Test
- Interaction Test
- Nonparametric Matching (Matching Pairs) Test
- Double Life Chart

## States active in these areas:

- California
- Colorado
- Connecticut
- New York

COLORADO  
REVISED STATUTE  
§10-3-1104.9  
Effective 1/1/23



# **UNFAIR DISCRIMINATION BASED ON CERTAIN PERSONAL CHARACTERISTICS**

# COLORADO'S NEW LAW COVERS

- Any insurance practice or use of any external consumer data and information sources,
- and
- Any algorithms or predictive models that use external consumer data and information sources

# COLORADO'S REGULATION PROHIBITS DISCRIMINATION IN REGARDS TO:

**race,**

**color,**

**national or  
ethnic origin,**

**religion,**

**sex,**

**sexual  
orientation,**

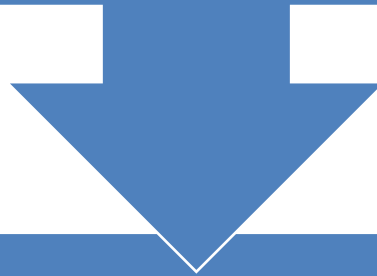
**disability,**

**gender  
identity, or**

**gender  
expression.**

# COLORADO INSURERS TASKS\*

Test that : “ . . . its use of external consumer data and information sources, as well as algorithms or predictive models using external consumer data and information sources, [to be certain that they do not] unfairly discriminates based on race, color, national or ethnic origin, religion, sex, sexual orientation, disability, gender identity, or gender expression.”



Provide an attestation by one or more officers that the insurer has implemented the risk management framework or similar processes or procedures appropriately on a continuous basis.

**\*COLORADO REVISED STATUTE §10-3-1104.9 Effective 1/1/23**

# MANAGE AI BIAS INSTEAD OF TRYING TO ELIMINATE IT

1/23/23

Sian Townson  
Oliver Wyman Digital Practice



**MIT Sloan**  
Management Review

# QUOTES FROM TOWNSON RE: AI MONITORING

- People have become used to bias so they seldom spot it.
- Most people expect that rare events will not happen.
- Predictive factors are based on the status quo, so they're wrong.
- Misclassification or error rates will always be higher in the minority groups for which less data is available.



# TOWNSON'S ADVICE

“ . . . if companies truly want their algorithms to work equitably with a diverse population, they must deliberately compensate for unfairness --- or **rewrite the laws of mathematics.**”

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# ACTUARIES ARE INTERDEPENDENT

Marketing,

Underwriting,

Claims,

Customer service,

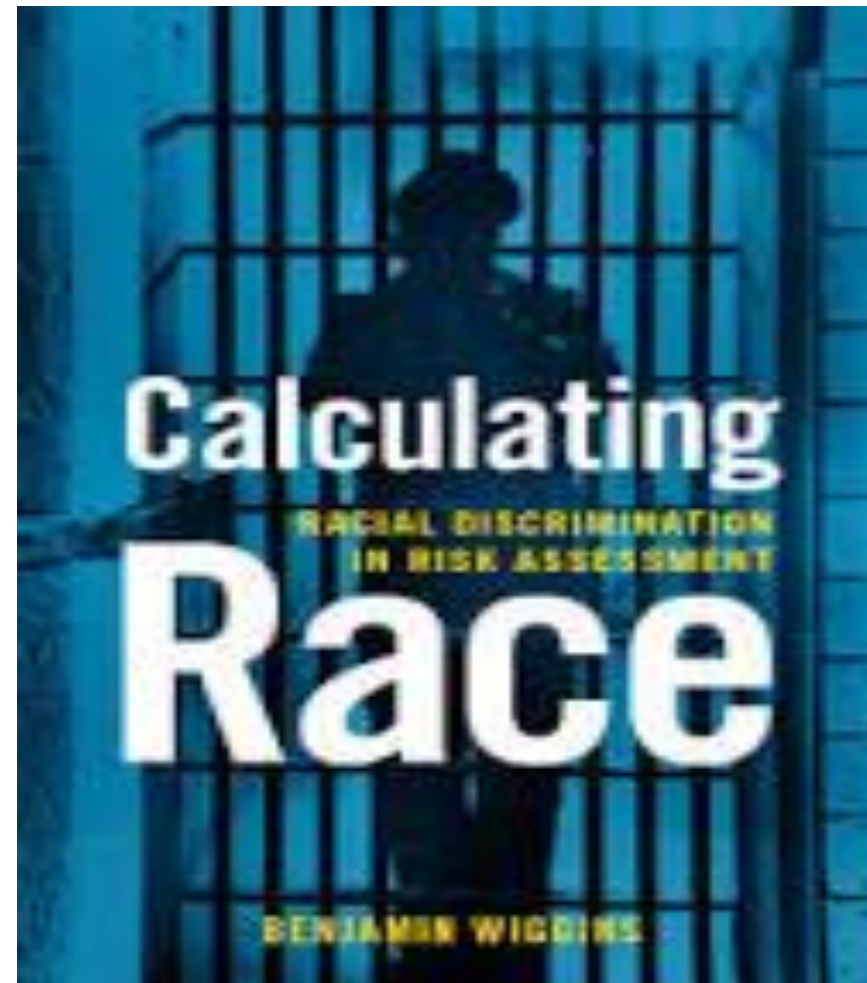
Investments,

ETC.



# THE COMPANY'S BIAS MANAGEMENT COUNCIL





# CALCULATING RACE WIGGINGS QUOTES\*

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**Wiggins' motivation for writing the book: “. . . no story has fully captured the disturbingly sustained and multifaceted use of race as a significant variable in actuarial science . . .” p4**

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**The book analyzes “. . . the historical understanding of the relationship between risk assessment and race . . .” in the United States. p4**

# CRIME AND ACTUARIAL SCIENCE

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**The intent: to use “ . . . actuarial assessments to determine sentences and parole decisions.” p34**

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**The workers were described as “actuarial criminologists.” p51**

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**Criminal history, a proxy for race, was identified as “. . . the factor possessing the most predictive value” for sentencing and parole decisions. p51**

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**The result “. . . ensured that Black African Americans received disproportionately lengthy criminal records . . . “ p51**

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# THE REAL CRIMES OF ACTARIAL CRIMINOLOGISTS

Criminal record was  
used as a proxy for  
race. p51

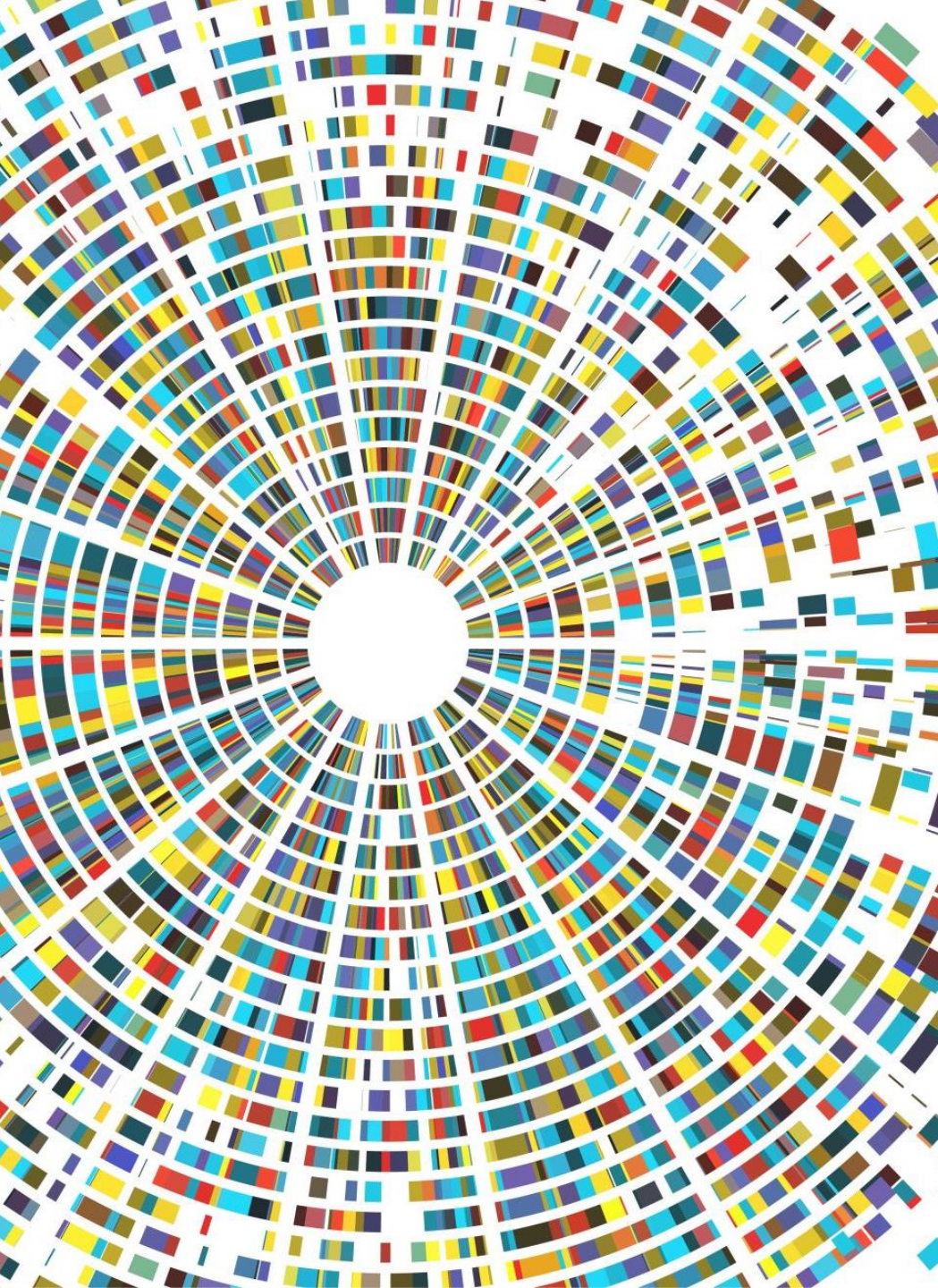
Another example that  
inappropriate data has  
the potential to result  
in inappropriate  
conclusions.

# HOME OWNERSHIP\*

\*Wiggins, chapter 3

- FHA charged to do statistical research
- Frederick Babcock, one of the researchers, had worked for a real estate valuation company and called a Real Estate Actuary p54
- Wiggins reports that Babcock was “. . . committed to the idea that race held significant influence in property values.” p57
- The FHA’s formulas for approving mortgages ensured “. . . that people of color and undesirable nationalities were barred from the opportunity of access to mortgages.” p63
- Redlining: the areas for riskier mortgages were color coded (in red)





# PROXIES

When a proxy for race is used in these analyses, intentionally or unintentionally, “. . . it allows race back into the calculation even in the absence of the race variable itself.”\*

\*Wiggins, p. 91



ACH&S 5/23

# WIGGINS' FAUX ACTUARIES

Hoffman,  
titled a  
statistician

Actuarial  
criminologists

Real estate  
actuaries

# CONCLUSION

**Rather than seek an abolition of actuarial science, we should seek a renewal of its potential to share risk equitably.** Such restructuring of society will no doubt be difficult as long as capitalism reigns. A market-based economy has little incentive to employ actuarial science for anything but gaining advantages, which is why, of course, race was integrated into risk assessment formulas in the first place. As the actuarialization of everything spreads across the United States and the world, **we must remember that risk assessment need not be put to use for individual, corporate, or government advantage, but, rather, that it has always been capable of guiding the equitable distribution of risk, instead.\***

\*Wiggins, p. 100

# BIAS AND WIGGINS: A PRECEPT 1 CHALLENGE

**Precept 1 requires that actuaries have a responsibility to the public**

**Wiggins believes that actuarial science can be used to guide the equitable distribution of risks**

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**BOBBY ORR, Game 4, 1970 Stanley Cup Finals, 5/10/70**

# MY DOG



HIS NAME IS PEEVE

Harvard Public Health

# **SICK** FROM **THE** **SYSTEM** **AND GETTING** **WORSE**

**HOW STRUCTURAL RACISM AFFECTS HEALTH—  
AND WHAT PEOPLE ARE DOING ABOUT IT.**





# Coalition to End Racism in Clinical Algorithms

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Formed by NYC Department of Health

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Includes 12 NYC institutions

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Commitment to end use of race adjustment in  $\geq$  one algorithm

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A year later 11 of the institutions had made progress

# WHY THE COALITION'S PLAN WORKS

- Tackled a manageable aspect of program
- Short r/t long-term perspective
- Utilized current resources
- Commitment



*Equality*



*Equity*



*Solution*



RISE picture

# PROFESSIONALISM'S SOFTER SIDE EXAMPLES



A MENSCH is a person  
of integrity, morality,  
dignity, with a sense of  
what is right and  
responsible



# 3 TAKEAWAY THOUGHTS

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**>Observation  
+  
>Awareness  
=  
>Sensitivity**

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# TAKEAWAY THOUGHTS

- If you have been the victim of bias, please use this experience to be more sensitive to those likely to be victims of bias and treat these people as you want to be treated.
- If in the past you misspoke or otherwise acted biasedly towards another individual, please recognize what happened and handle any future situations differently.
- Please remember the OBSERVATION + AWARENESS = SENSITIVITY equation so that both as an individual and a professional actuary will help to fulfill our Precept 1 responsibility to the public.

# CODE OF CONDUCT PRECEPT 1

FULFILL THE  
PROFESSION'S  
RESPONSIBILITY TO THE  
PUBLIC



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*The End*



FOR Q&A