



# FAIRNESS & FRIENDS

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# What is 'Fairness'?



# 'Fair' Resource Allocation



**(EXECUTIVE)**

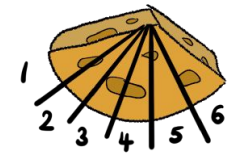


**(SOUS CHEFS)**



**(ROOKIES/LINE CHEFS)**

Is it **Equality in the Distribution**  
of some commodity/outcome?  
(in the economic sense)



Is it some notion of **Distributive Justice**?  
(from political philosophy)



# Is it **Non-Discrimination?** (from legal doctrines)



# Which 'Fairness' metric is suitable for our particular context?

Is it **Equality in the Distribution** of some commodity/outcome?  
(in the economic sense)

Is it some notion of **Distributive Justice**?  
(from political philosophy)

Is it **Non-Discrimination**?  
(from legal doctrines)



Maybe we can get some guidance from political philosophy!

# Meet EO (Equality of Opportunity)!

- Eliminates irrelevant, arbitrary barriers to achievement
- Irrelevant personal characteristics don't help or hurt access to desirable positions, outcomes



🎵 Your daddy is rich...  
and your mama's good looking 🎵  
...but that won't help you  
in an EO world





# EO as individual fairness



Individual fairness:

- Similar treatment of similar individuals
- Only irrelevant characteristics separate similar people

EO:

- Irrelevant characteristics don't lead to different treatment of similar people

# EO as group fairness



Statistical fairness:

- ID protected groups
- Membership irrelevant to correct or positive classification

EO:

- Irrelevant characteristics also don't affect outcomes

## Equality of Opportunity principles:

### 1. Fair contests

Formal EO / “Careers open to talents”

### 2. Fair life chances

(Equality in developmental opportunities)

Fair EO / “Equally talented people should have the same prospects of success”

It's the....  
Age of  
Equality Of  
Opportunity!  
(EO)



# Age of EO!



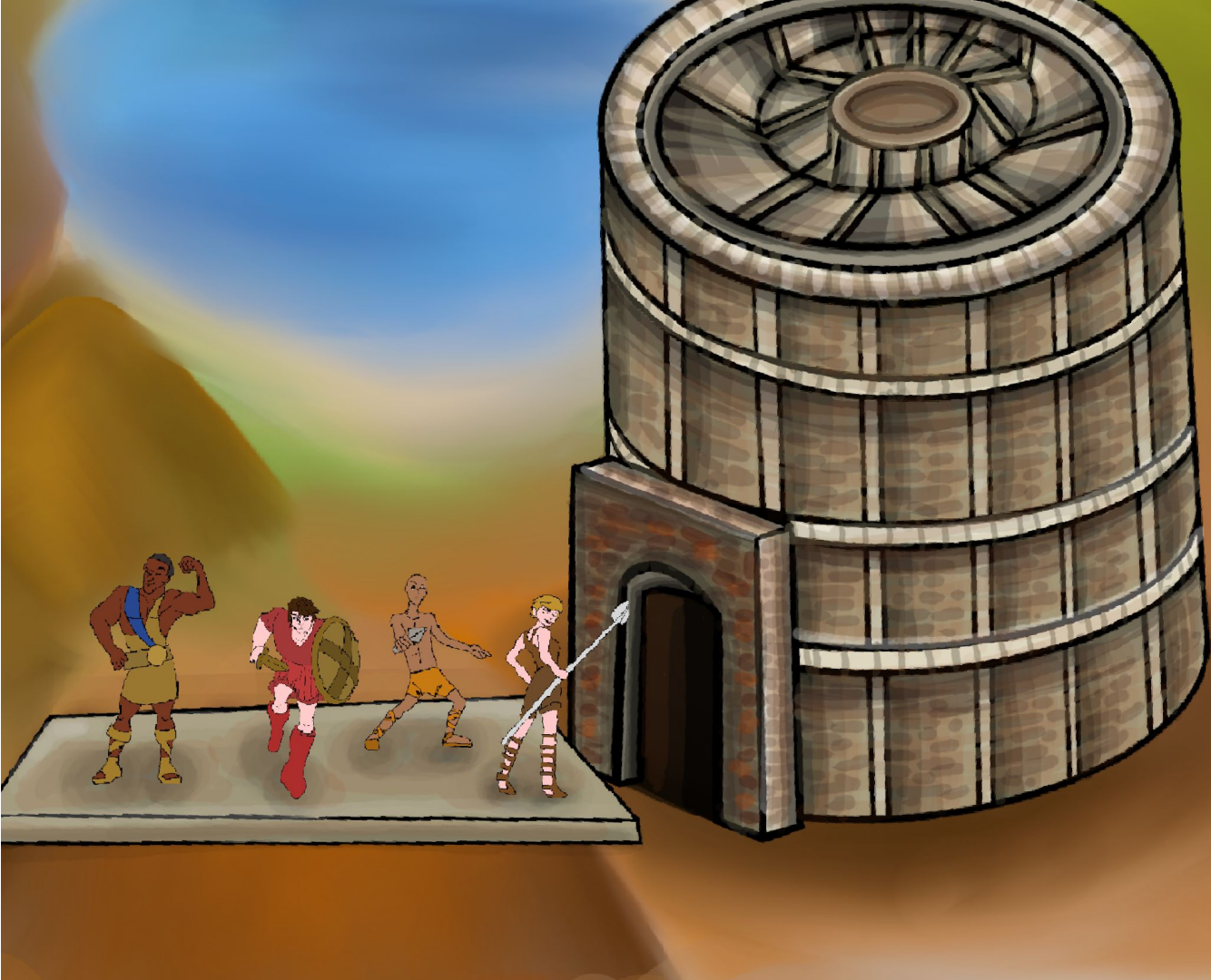
Formal EO

# Formal EO

Careers open to talents



- In any contest, applicants should only be judged by ‘job-relevant’ qualifications
- “See nothing irrelevant, speak nothing irrelevant, hear nothing irrelevant”
- Codified as “fairness through blindness,” with its known weaknesses



# Formal EO

The theatre of formal EOP is open to all talents. You fight with what you have - no special treatment once you're in.

# Fairness through Blindness

- Some characteristics can be excluded
- “Ban the box”: blindness to criminal history during resume screening
- Blindness to credit history





# Formal+ EO

A test that systematically under/overestimates people in a way that tracks group membership violates formal EO

Measures of accuracy or test validity broken out by demographic group



Credit to Joseph Fishkin

# Age of EO!

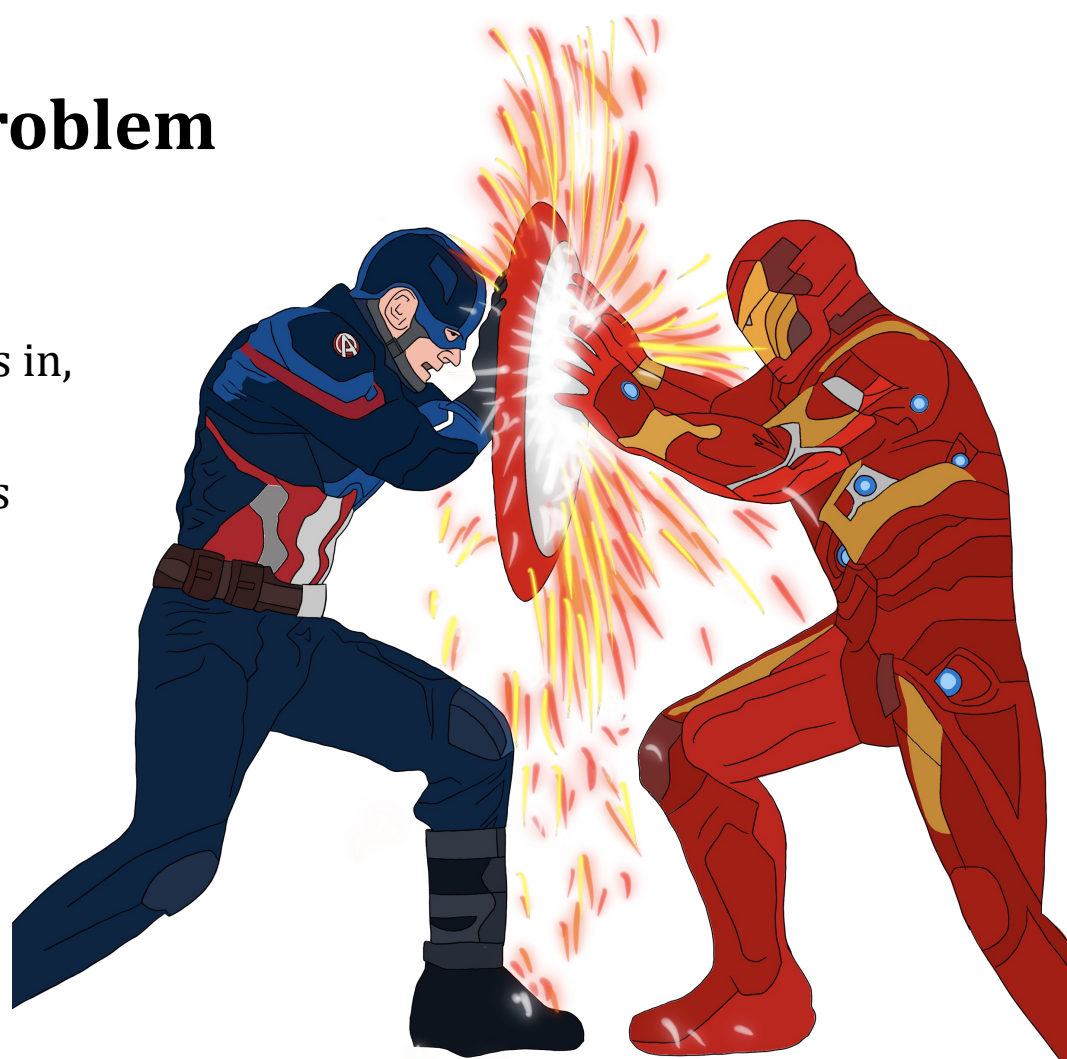


## Formal EO

- Fairness through blindness and measures of test accuracy & validity broken out by group
- But formal EO doesn't satisfy ALL fairness cravings

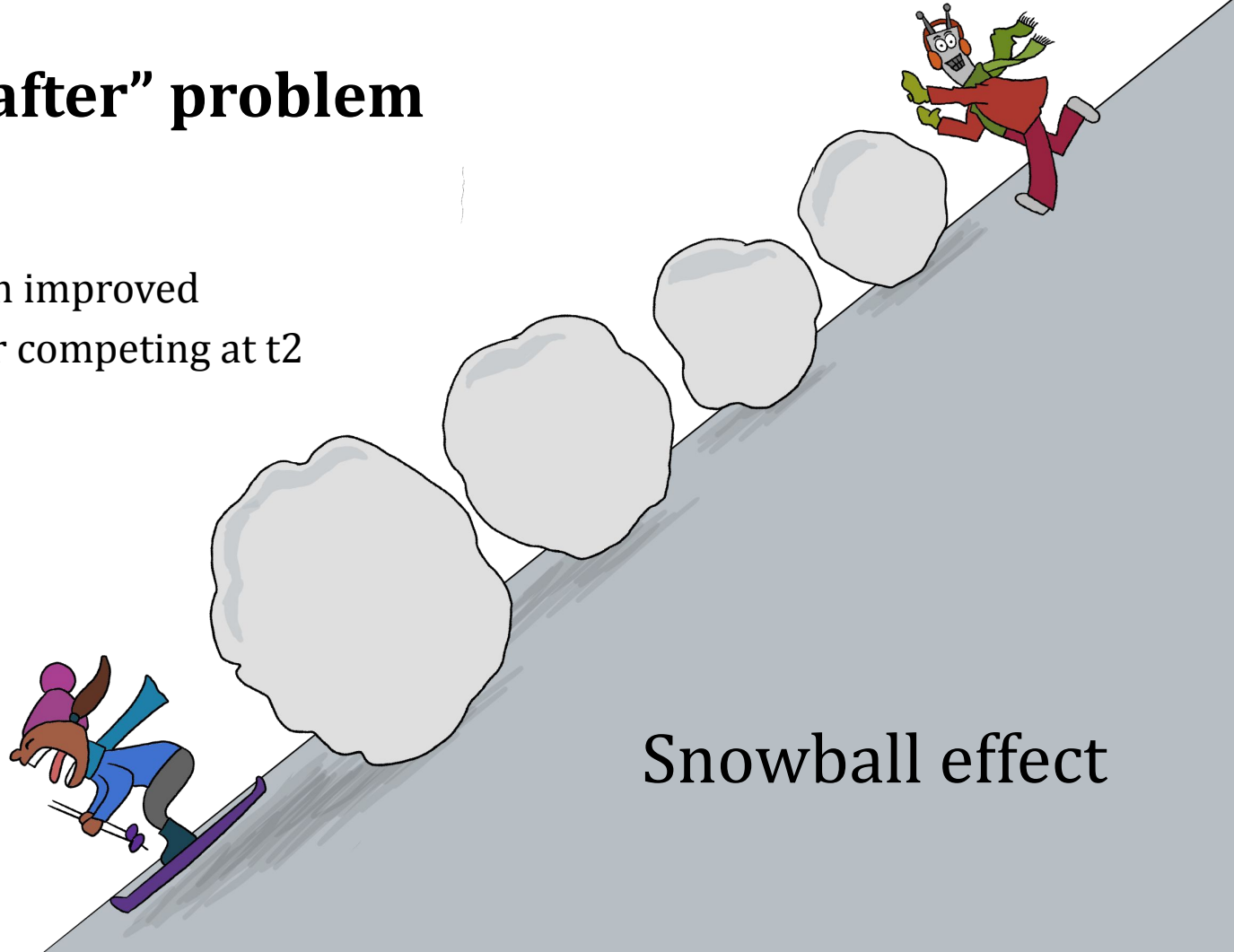
# Formal EO's "before" problem

- Formal EO's appeal: relevant skills in, irrelevant stuff out
- But OK to use irrelevant privileges before competition
- So privileges affect competition outcomes



# Formal EO's "after" problem

- Winners at t1 gain improved characteristics for competing at t2
- Losers lose faster



Snowball effect

# Before + after problems → discrimination laundering

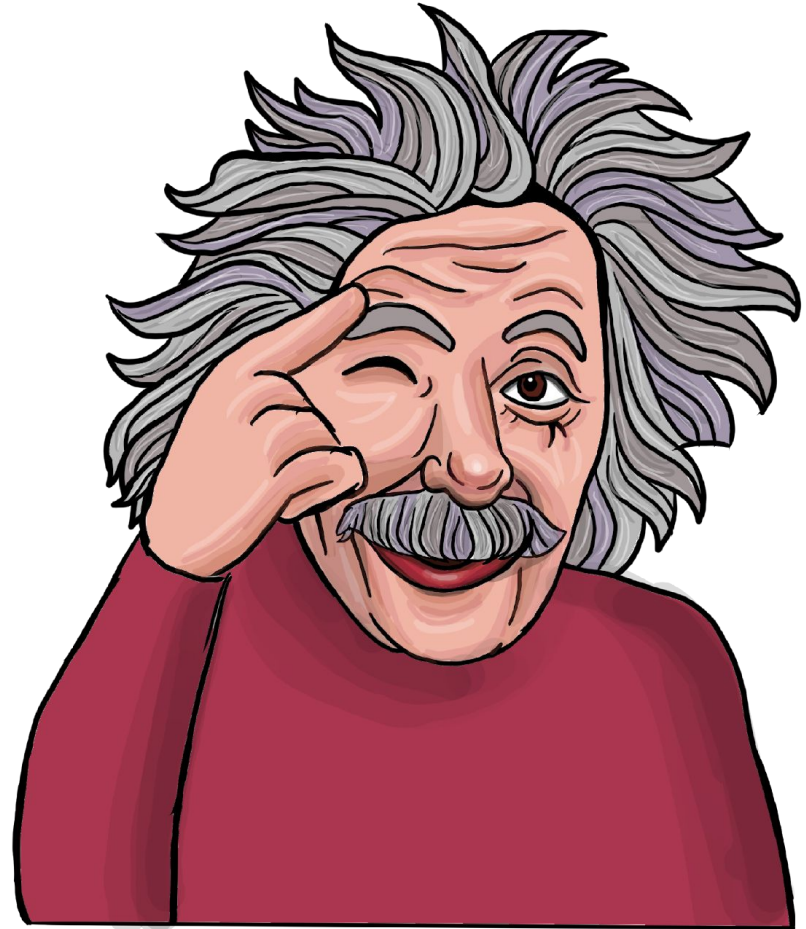
- Real world discrimination → privileges
- OK to convert privileges to qualifications
- Winning on the basis of qualifications leads to more winning on qualifications
- Discrimination recedes from view...

“Racial discrimination in on-the-job training is illegal; discrimination on the basis of differences in human capital due to differences in on-the-job training is not”

(Elizabeth Anderson, *The Imperative of Integration*)



**Questions?**



# Age of EO!



**Substantive:  
Luck-Egalitarian**

# Substantive EO: Luck Egalitarian

- Outcomes should only be affected by ‘choice luck’ (one’s responsible choices), not ‘brute luck’
- How do we make this separation?

“Nothing that you didn't choose for yourself should affect your life prospects”



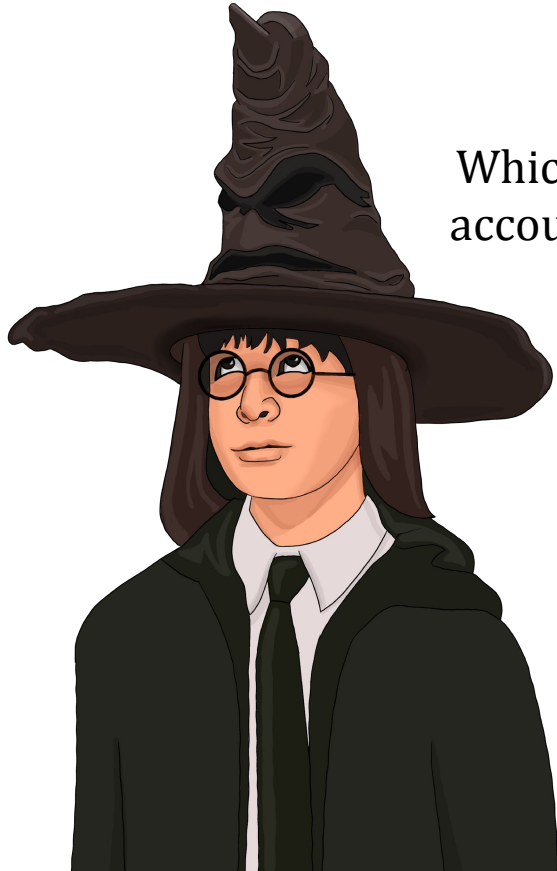


# Substantive EO: Luck Egalitarian

The Luck Egalitarians gather around the communal fire - forsaking all disparities in talent and effort, in favor of unicorns on rainbows!

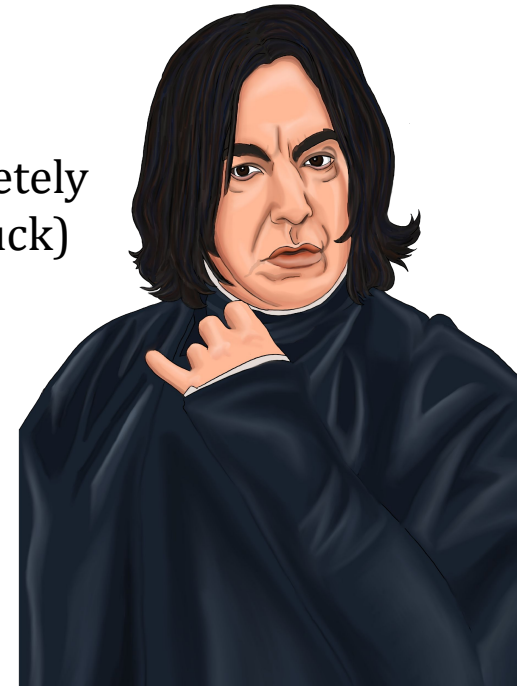


# Brute luck vs. Choice luck



Which characteristics can we hold one accountable for? (Responsible choices)

And which matters are completely out of their control? (Brute luck)



# Substantive EO without effort/circumstances split

- Effort and circumstances can't be disentangled
- That's OK: circus families → circus kids
- Not OK: privileged family → access to wide range of desirable positions



# Substantive EO without effort/circumstances split

- Why not attend only to responsible effort?
- To avoid putting fairness and good decision-making at odds
- Good hiring decisions depend on considering all of a person's skill



# Substantive EO: Roemer

- No split between responsible effort and irrelevant circumstances
- Rank people in the effort distribution of their “type”
- But how do we compare the best apples to the best oranges?



# Age of EO!

Substantive:  
Rawlsian





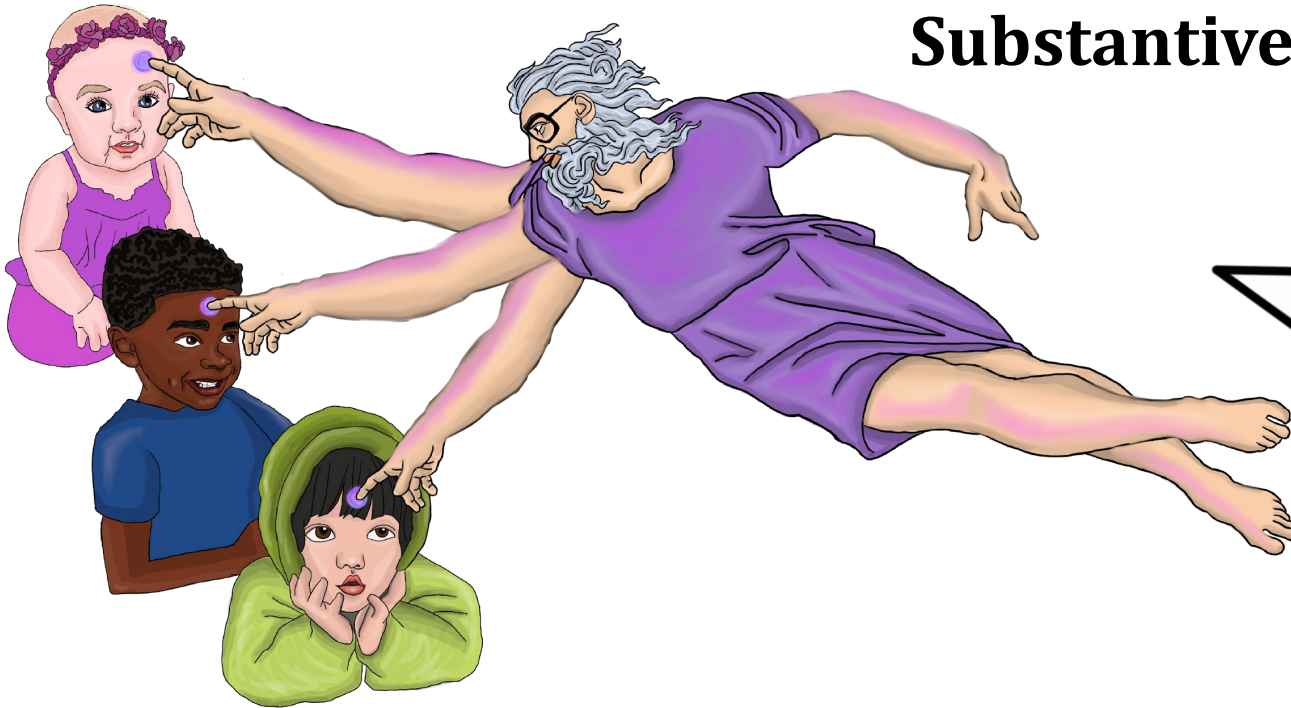
Original Position-  
“Veil of Ignorance”

Natural Lottery-  
Arbitrary distribution of  
talents and fortune





# Substantive EO: Rawlsian



“Equally talented babies must have equal life prospects”

- All people - rich or poor - must have the same opportunities to develop their qualifications, so that at the point of competition they are equally likely to succeed
- Difference principle (maximin) redistributes inequalities to undo the effect of the social and talent lottery

# Broader view of justice



1. [Rights and Liberties] Everyone has the same inalienable right to equal basic liberties
2. (a) [Rawlsian Fair EOP] All offices and positions must be open to all under conditions of fair equality of opportunity
2. (b) [Difference Principle] Social and economic inequalities must be of the greatest benefit to the least advantaged



# Substantive EO: Rawlsian

The bouncy castle of social security has strategically placed trampolines to propel individuals toward the opportunities they seek

# Substantive EO: Rawlsian



Fair-ML formulations of Rawls's Fair EOP are statistical parity and equality of odds.

BUT, these measures distort Rawlsian EOP!  
At the point where an algorithm is making a decision it is already too late to provide people with equality in developmental opportunities!

Rawlsian EOP is fundamentally concerned with providing “fair contests” and “fair life chances”

Starting gate interpretation of Rawls – a “fair contest” will evaluate people’s qualifications in a counterfactually “fair” world.

Can further apply maximin principle to provide “fair life chances”



# Age of EO!

Libertarian



# Libertarian



“You do  
you!”

- Emphasis is on people’s rights and liberties
- The libertarian will object to any ‘ill-gotten gains’ - no cheating or defrauding allowed



# Libertarian

Any holding acquired without cheating, is claimed 'fairly', even if some end up with significantly more than others

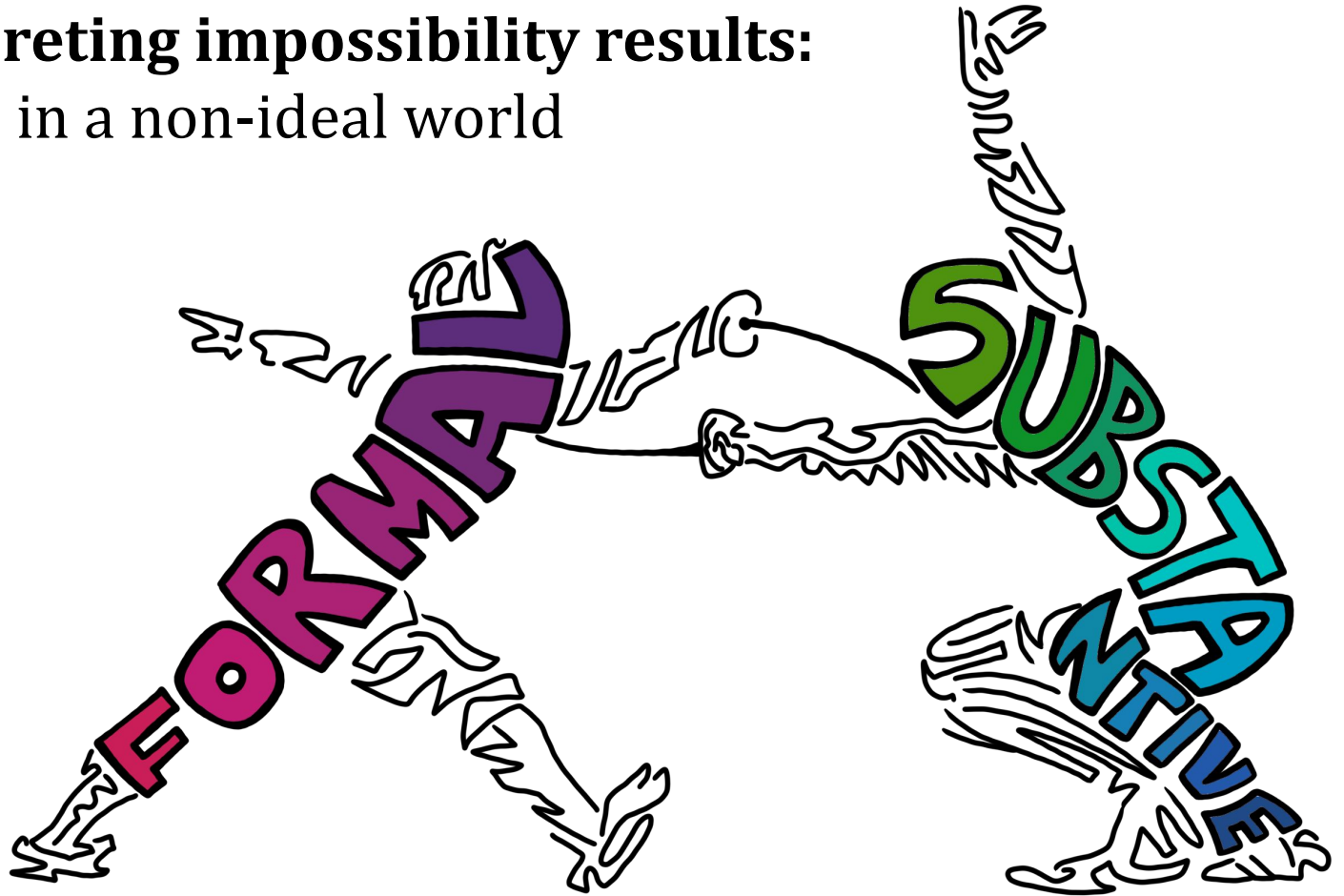
Inequality is due to exercise of free will – not a form of EO at all!

# Moral desiderata of different EO doctrines:

<b>Doctrine</b>	<b>Objects to/ Corrects for</b>	<b>Moral Desiderata</b>
Formal	Irrelevant characteristics as the basis for desirable positions	Measure relevant qualifications – fairness through blindness
Formal+	Test performance tracking irrelevant characteristics	Parity in test performance across groups.
Luck Egalitarian	Effects of brute luck	Mitigate effects of brute luck, only measure choice luck
Roemer	Effect of circumstances on effort	Rank people according to position in their effort-circumstance distribution
Rawls	Social lottery and natural lottery	Measure natural talents in a counterfactually fair world Redistribute inequalities to the benefit of the worst-off group



# Re-interpreting impossibility results: Trade-offs in a non-ideal world



# Fair Footraces



When: qualifications are not affected by circumstances of birth

# Blind Auditions



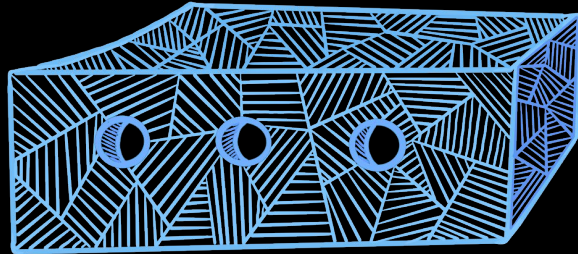
When: judges might be swayed by irrelevant traits like appearance

# Hiring



“Fair contest” and “fair life prospects”

# Limitations in guidance - pure procedural justice



The fairness that you asked for is inside this box!

**Questions?**

