FAIR EQUALITY OF CHANCES: fairness for statistical prediction-based decision-making

- A **new** theory of fairness **for *imperfect procedural justice***
- A **second-order** theory that specifies what makes an *imperfect procedure* fair, *given* a *prior* definition of what perfectly just outcomes would be

Fair equality of chances is satisfied *if and only if*
individuals equal in their values for J
have the same expectations of obtaining U,
irrespective of their values for G.

U=advantage (utility, capability, resources)

Equivalent to group fairness metrics IF specific conditions are satisfied

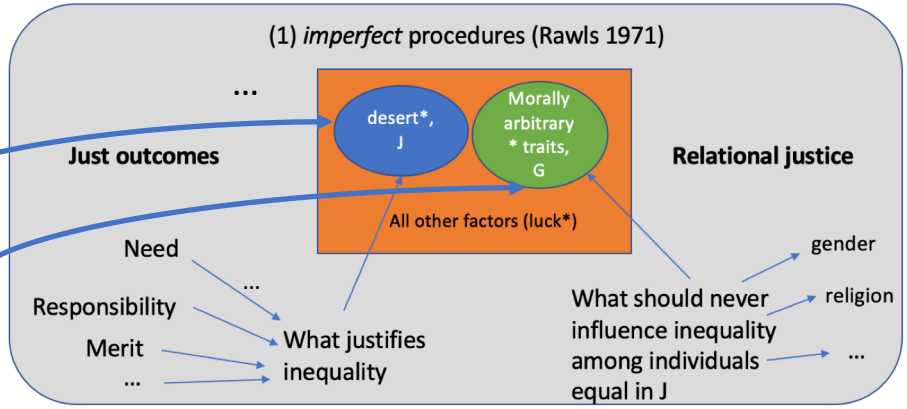
J = Y (true label)
U = D(ecision)

Separation (equal odds)

J = D(ecision)
U = Y (true label)

Sufficiency (predictive value parity)

Principles of justice apply to…



Fair equality of chances → Imperfect procedures are just because they imperfectly, but fairly, achieve just outcomes (however defined)

VS

Most other theories → Justice is a property of outcomes, e.g. unequal distributions of goods among individuals are just iff morally justified

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https://papers.ssrn.com/sol3/papers.cfm?abstractid = 3450300