

Race: Taboo or not taboo? Differences between legal and medical decisions.

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Abstract: When deciding on a patient's medical diagnosis and treatment it can be perfectly correct to take account of statistics correlating race and disease. In a criminal trial, correlations between race and crime are generally considered inappropriate as evidence, even though they may rationally bear on a judgement about the probability that a defendant is guilty. I will explore this difference, considering whether it arises from ethics, the risk of prejudice, differences in probative value of the data, or the nature of medical and legal decisions and the utilities involved. The example helps to bring to the fore the importance, in applications of evidence science, of attending to subtle differences in the hypotheses that may be addressed in different contexts and in different fields. The precise proposition determines whether or not a fact is relevant as evidence, and in court cases it may make the difference between conviction and acquittal - even with totally rational analysis of all the available facts. A background paper is available at www.ucl.ac.uk/~ucgbarg/doubt/significance.htm

1. A surgeon encounters two patients, one ethnically X and the other Y, with similar symptoms and test results - each consistent with either condition A which is likely to be fatal unless he undertakes an immediate and very risky operation, or condition B that normally resolves spontaneously. Y is a familiar ethnic group to the surgeon and based on experience he does not operate because he considers the probability of A insufficient to merit the risk. Ethnic group X has a much higher incidence of condition A and the surgeon decides to operate on patient X.

- a) Was the surgeon justified in taking into account patient X's ethnic status ?
- b) Does the ethnic difference make it more probable that X has A than that Y has A?
- c) Is there any ethical issue involved here?

2. Sergeant A and constable B hear a loud cry and round a corner come upon a man groaning on the ground. Two men are observed walking away at some distance, in opposite directions, one ethnically X and the other Y. A calls to B to deal with the injured man, while he chases a suspect. He can only chase one, and chooses X because he knows that most criminal convictions for assault in the area are of ethnic group X.

- a) Was A correct to use the ethnic association to decide whom he should chase?
- b) Would he have been correct to weigh this in some sort of balance even if Y appeared to be walking away faster, in a more suspicious manner?
- c) Does the ethnic association make it more probable that X is the assailant?
- d) Is there any ethical issue involved here?

3. A jury tries a case of alleged double infanticide by parent X, in which the direct medical evidence and witness statements are consistent with either murder or SIDS. The jury knows that accepted medical opinion is such that double SIDS in one family, though rare, is not so rare as to be ruled out altogether 'beyond reasonable doubt'. Legal precedent has normally acquitted such defendants unless there is additional evidence of a crime. The jury nevertheless convicts X in this case, seemingly swayed by convincing evidence that X's minority ethnic status is associated with a much higher incidence of infanticide than the precedent cases, though the incidence of SIDS is the same.

- a) Was the jury correct to allow ethnic evidence to influence the verdict?
- b) Does the evidence of ethnic association make it more probable that X is guilty?
- c) Does the ethnic association alter one's degree of belief that the deaths could have arisen through SIDS?
- d) Does the ethnic association make it less probable that the deaths were SIDS?
- e) Is there any ethical issue involved here?

Prejudice

Is use of ethnic association in any/all of these cases 'prejudice'? Is 'prejudice' bad?

Is prejudice equivalent to 'prior probability' ?

- NB a prior P is a necessary precondition for Bayesian inference under uncertainty.

Prior P + evidence → posterior P

[*strictly*: prior log odds + sum of independent evidence

weights = posterior log odds]

What are the meanings and popular connotations of 'prejudice' ?

- Opinion about a judgment, held prior to obtaining (all) the relevant evidence ?
 - Unsubstantiated opinion ?
 - Opinion based on incorrect beliefs ?
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Indirect (or Background) vs. Direct Evidence

Indirect: D belongs to a crime-prone ethnic group

Direct: A witness says he saw D near the victim with a smoking gun

Is there a logical difference?

- a) They both increase the degree of belief (or subjective probability) that D is guilty
- b) Only the direct evidence influences belief that the evidence is consistent with D being innocent

My view: The issue is "*Could the evidence have arisen if D is innocent?*"

Is it believable that an innocent person charged with a crime belongs to a crime-prone ethnic group?

Yes, and perhaps this is part of the reason they were apprehended

Is it believable that an innocent person was seen near the victim holding a smoking gun?

Not very, though there may be doubt about identification, witness probity, etc. - the usual stuff of a trial.

The ethnic evidence affects P(guilt) but not P(the evidence, assuming innocence).

The 'how come' test :-

Both the prosecution and defence generate stories - to explain 'how come' the evidence arose consistent with guilt/innocence?

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|----|---|---------------------------------|
| 1. | How come D belongs to a crime-prone ethnic group if he is innocent ? | <i>He was born that way!</i> |
| | How come D belongs to a crime-prone ethnic group if he is guilty ? | <i>He was born that way!</i> |
| 2. | How come D was seen to be holding a smoking gun if he is innocent ? | <i>The witness is lying!</i> |
| | How come D was seen to be holding a smoking gun if he is guilty ? | <i>He just shot the victim!</i> |

In (1) the explanations are identical, equally plausible on either story.

In (2) they may differ in plausibility and affect the outcome.

Provided it is the believability of the defence story that is at issue (i.e. not P(D is guilty)), the ethnic evidence is superfluous.

How does this relate to "Beyond reasonable Doubt"?

Conventional Wisdom: "guilty beyond reasonable doubt" means
 $P(D \text{ is guilty}) > \text{some high value, e.g. } \sim 0.95$

My View:

- To "doubt" = to entertain the hypothesis that D is innocent
- "Reasonable doubt" means then that the defence case seems, to a reasonable person, plausible ... i.e. it is believable that the evidence could have arisen without guilt
- A jury may rationally believe both:
 - a) The evidence could "reasonably plausibly" have arisen without guilt
 - b) It is extremely probable that D is guilty... then they should acquit.

Should one allow indirect evidence such as ethnic associations in court?

No scientist or statistician can allow that a fully rational person can arrive at a better decision by ignoring certain facts.

Could there be justification for disallowing such evidence?

- On my view (though not on conventional wisdom) such evidence would not impact a correctly thought through decision.
- If a jury is tempted to convict on the basis of $P(\text{guilt})$ then they are better off not to have evidence that affects only $P(\text{guilt})$
- One should save time, money and energy by omitting evidence irrelevant to the proper basis of a verdict

Could there be benefits from allowing such evidence?

- The general rationalist argument that all facts are of positive value, though for some the value may be slight.
- Juries may (correctly or incorrectly) infer something from the mere fact that a defendant has been brought to court, often a function of background evidence inadmissible in court. Understanding this process may be highly pertinent.
- Any evidence may have unforeseen impact. Evidence of an ethnic-crime association unknown to the jury may act in the defendant's favour if it explains why (if innocent) he/she was nevertheless apprehended.

What is the usual rationale for deeming background evidence inadmissible in court?

A large & complex legal minefield that I don't know a lot about!

- Rules of evidence may sometimes I think be sound for the wrong reasons.
- I suspect they have evolved intuitively to steer juries (tempted to decide on the basis of $P(\text{guilt})$) towards decisions that would arise from addressing $P(\text{evidence is believable on the presumption of innocence})$.

Examples of the arguments are:

- A perceived predominance of 'prejudicial' over 'probative' impact. [*Perhaps not an issue if the jury were to address the correct question.*]
- One cannot be sure that statistical arguments apply to specific cases. [*A failure to understand or qualify statistical argument?*]
- Juries may not understand or may overestimate the relevance of statistics or prior convictions, etc. [*Rather patronising!*]
- Background evidence may already have been taken into account prior to trial and shouldn't 'count twice'. [*How does this distinguish it from direct evidence? It seems to invite the jury to make uninformed judgements about the nature of police procedure.*]