

GATECRASHER: A music venue sells seats at its event but does not issue, or record who purchases, tickets. One day the gate is left open and, taking advantage of the lack of ticketing system, many people gatecrash. The managers realize only 10 seats were sold, but 100 people attended (including Jay). Is the 90% chance that Jay gatecrashed sufficient to establish probable cause to arrest him?

Prisoner

PRISONER: 100 prisoners (including Prisoner 37) are exercising in the prison yard. Knowing that the CCTV is down, 99 of them suddenly join in a planned lethal attack on a prison guard; 1 prisoner plays no part. There is no evidence available to show who joined in and who did not. Is the 99% probability that Prisoner 37 is guilty enough to prove beyond reasonable doubt that he is guilty?

Alternative versions (ctd)

- Regarding the other two cases:

PRISONER*: A prison guard has been attacked from behind. The murderer fled the scene without any witnesses but left the print of a shoe with a particularly rare defect. There is only a 1 in 100 chance of a prisoner being issued with shoes with this kind of defect and Prisoner 37 wears such a pair.

GATECRASHER*: A music venue sells seats at its event but does not issue, or record who purchases, tickets. Last Saturday, grainy CCTV footage shows a balding 45yo with a beard and a maroon jacket jumping the gate. The evidence puts a 90% probability on Jay's being the one who attended without paying.

Alternative versions

- In all cases, intuitions seem support a negative answer
- Puzzlingly, each case has a counterpart in which evidence conferring an identical probability *does* seem sufficient
- Call whatever this kind of evidence is “**trace evidence**”
- Regarding RED TAXI:

RED TAXI*: Jeanette is hit by a car late at night. Red Taxi Co. operates 50% of taxis in town, while Purple Taxi Co. operates the remainder. Jeanette claims she saw it was a red taxi. Data on colour perception suggests that Jeanette would discern the correct colour 80% of the time under those conditions.

Alternative versions (ctd)

- **Outside the courtroom**, psychologists have robustly observed this discrepancy in intuitions on toy cases:
 - 8.2% inclined to rule against Red Taxi Co in RED TAXI vs 67.1% in RED TAXI* (Wells 1992; see also Arkes *et al* 2012)
- **Inside the courtroom**, in a number of similar cases, responsibility of the defendant wasn't established on the basis of base rate statistics (e.g. *Smith v. Rapid Transit, Inc.*, similar to RED TAXI) (Note: there are also a few real cases going the other way, such as *Turner v. United States* or *Kramer v. Weedhopper* See Khoeler (2002) for a nuanced study)