Reconstructing Reasonable Doubt

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Guilt beyond a reasonable doubt (BARD) has generated much criticism, especially that BARD does not lend itself easily to mathematical precision; it is notoriously difficult to specify the probability threshold, if any, that constitutes BARD-proof. We reconstruct BARD-proof such that it admits of the desired mathematical precision, but we do not explicate BARD-proof as mere shorthand for some sufficient threshold probability (or credence). Two major insights are offered to cash this out. The first tells us when a belief state (whether a credence or full belief) is reasonable. The second describes the reasonable dynamic evolution of belief states during a trial. For convenience, we speak as Bayesians (while remaining agnostic between its subjective and objective varieties.)

On the first, ruling out relevant alternatives as unreasonable requires attention to higher-order evidence about the belief-formation process that the trier-of-fact used to arrive at a guilty verdict. The probability of guilt is sufficient only if (*i*) the trier-of-facts have higher-order evidence with respect to first-order evidence adduced at trial such that their beliefs caused by that first-order evidence are not themselves believed to be caused by flawed or otherwise unreasonable cognitive processes; and (*ii*) that belief-formation process is safe, in the sense that the agent could not have easily been wrong in similar situations (Williamson 2000: 147).

The second key insight is predicated on an understanding that a simple model of conditionalization starting from a prior probability function is insufficient to capture reasonable doubt, since absent cases of deductive certainty, there will always be a set of priors, starting from which, and conditional upon evidence adduced at trial, doubt regarding guilt would be warranted and, therefore, prima facie reasonable. Accordingly, the BARD test should trace back to all possible priors and ask: of all the possible starting points (priors) that lead to doubt, is there at least one of them that is reasonable? What is reasonable is captured by the first insight we offer. Unreasonable doubt is doubt that even if it is fully rational (such that it obeys Kolmogorov's axioms and updates without error on the evidence via conditionalization) is nonetheless unreasonable because its initial credence assignment was unreasonable.

We take it as plain beyond peradventure that a probability threshold for BARD-guilt is at most a necessary, not sufficient, condition for conviction. One could discover what it is and still not know whether to acquit or convict in a trial. By contrast, our two isnights offer a sufficient condition for BARD-proof.

<div align="center">References</div>

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