Guilt beyond reasonable doubt

Barbara Davidson & Robert Pargetter

GUILT BEYOND REASONABLE DOUBT

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Consider where a jury is asked to reach a verdict of guilty or not guilty in a criminal trial. It is a requirement that the verdict of guilty should only be made where there is no reasonable doubt. We are concerned with the import of the requirement of no reasonable doubt.

It might be thought that the notion is completely conspicuous. In fact given that the requirement is placed on jurors without training or instruction, it may seem essential that there is a simple explication of reasonable doubt. The received wisdom is that guilt beyond reasonable doubt is simply a matter of high probability of guilt. Clearly, if on all the evidence available, the probability of the accused being guilty is not very high, then guilt has not been established beyond reasonable doubt.

Consider Eggleston's comment

> To say that the term 'reasonable doubt' is self-explanatory is not, of course, to say that opinions may not differ as to whether the standard has been attained in a given case. Investigation has shown that individuals have widely differing views as to what level of probability should be reached before all reasonable doubt is excluded.[1]

Thus for Eggleston, while there is a hard and controversial question (one which we acknowledge and will not be considering in this paper) as to what level of probability is required, there is no question that such a probability (at the required level) is all that is required.

There are two important points which must be noted about the requirement of high probability of guilt. First, the requirement of high probability of guilt is itself a conflation of two requirements. It is determined by the conjunction of the probability of guilt given (or relative to) the evidence presented *and* the probability of that evidence. We should, perhaps, to be more conspicuous, talk about not the single requirement that the probability of guilt is high, but rather the two requirements

(a) the probability of guilt given the evidence is high, and

(b) the evidence on which the probability is based is very reliable.

It might be responded to this point that all this is true, and acknowledged by the law. For example, the importance of reliability of evidence is acknowledged in such statements as that of the Full Supreme Court of South Australia 'that you cannot be satisfied beyond reasonable doubt of the truth

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[1] R. Eggleston *Evidence, Proof and Probability* (1st edition, London, 1978), p. 104.

of an inference drawn from facts about which you are in doubt'.[2] But there is no need to separate the requirement of high probability of guilt into two requirements, as evidence of the unreliability of other evidence is *itself* evidence which must be taken into account when determining probability of guilt.

However there is an inadequacy in such a response. It amounts to the requirement that it is not just high probability of guilt that is required. Rather it is high probability that the important and relevant evidence on which the conviction is based is true and that the accused is guilty. In fact, from the probability calculus, we know that this probability is measured by the product of the probability of guilt given the evidence and the probability of the evidence. To simply believe that talk of high probability of guilt will conspicuously and clearly carry the message to jurors and others that we are jointly concerned with the reliability of evidence and the probability of guilt given that evidence is, at best, doubtful. But the inadequacy of the response is exemplified in another way. It presupposes that reliability of evidence will be itself determined by evidence presented at the trial. Now in theory this cannot generally be the case, as we would require a never ending presentation of evidence to justify other evidence, and in practice it is not the case. Witnesses are believed or not believed, and some judgment of reliability is made by jurors, judges, and others when conflicting evidence is presented. All these judgments cannot be related to material evidence of the case.

The second point which must be noted about the requirement of high probability of guilt, is that while it seems non-controversial that this is a *necessary* condition of guilt beyond reasonable doubt, despite a popular view to the contrary it *cannot* be a *sufficient* condition. Suppose we have ten defendants and absolutely reliable evidence that of the group, nine are guilty and one is innocent. In fact this may even be conceded by all parties. There is a high probability for any of the defendants that he or she is guilty. Yet surely we must say that there is no guilt established beyond reasonable doubt for that defendant. And making the probability even higher is no help: the same point applies if there were ninety-nine known to be guilty among one hundred defendants.

This second point also serves to illustrate *why* a high probability is not enough. Suppose Bloggs is one of the defendants with 0.9 (or 0.99) probability of guilt. One piece of plausible reliable evidence, should it become available, could reduce our probability of guilt from 0.9 (or 0.99) to near zero. All such a piece of evidence would need to do is make it likely that Bloggs is the innocent defendant.

We suggest then that there is a third requirement for guilt beyond reasonable doubt pertaining to the nature of the evidence relative to which the probability of guilt is high. It relates not to its reliability, but to its strength or quality. This is in line with the most obvious interpretation of Lord Denning's attempted explication of standard of proof (cited by Eggleston).

[2] *Ibid.*, p. 121.

> If the evidence is so strong against a man as to leave only a remote possibility in his favour, which can be dismissed with the sentence 'of course it is possible, but not in the least probable' the case is proved beyond reasonable doubt, but nothing short of that will suffice.[3]

We take it that this strength of evidence is not simply the insistence that evidence must be reliable. It is also the requirement that it be substantial. Cases can be dismissed on the grounds of insufficient evidence, or the guilty verdict resisted if there is insufficient evidence, even if the evidence that is available is reliable and does make it highly probable that the accused is guilty. This suggests that guilt beyond reasonable doubt is only established if the jury believes that they have all the relevant evidence, in the sense that any further evidence which probably obtains would not change the probability of guilt; or alternatively, that any evidence which would lower the probability of guilt has a low probability.

That strength of evidence, in this sense, is required is evident in a case such as that discussed by Cohen,[4] where we have reliable evidence that a particular person, who is accused of burglary, was found in the early hours of the morning in the garden of a house which has just been burgled with the stolen jewels in his pocket. *Prima facie* the probability that the person is guilty is very high. However, Cohen argues there may be reasonable doubt of guilt in such a case and, further, to remove such doubt what is required is to provide further evidence of a special sort, for example, that nobody else was in the vicinity at the time of the robbery and that the accused was running away from the house when apprehended.[5] What is special about such bodies of evidence is that, if they do not obtain, the probability of guilt would be greatly affected. That is, relative to some bodies of evidence, the probability of guilt is not very resilient. Thus, to remove any reasonable doubt of guilt we must ensure that the probability of e is low, for any e such that the probability of guilt lacks resilience relative to e.

This too was the feature that was so striking in our example of Bloggs. A piece of evidence could radically change the probability that Bloggs was guilty, and we know some such evidence is available for one of the defendants. So the high probability of Bloggs' guilt is not very resilient to such evidence.

Our third requirement for guilt beyond reasonable doubt is thus

[3] *Ibid.*, p. 103.

[4] L. J. Cohen *The Probable and the Provable* (Oxford, 1977), p. 248ff.

[5] It is worth noting that, in Cohen's terminology, the increase in evidence in the burglary case, if obtained, increases what he calls the inductive probability of guilt of the accused. Cohen's use of 'inductive probability' differs from the use of that term by, for example, Skyrms (*Choice and Chance* (Belmont, 1966)) and others. Without analysing Cohen's use of the term in any detail it seems there are some difficulties with it. Cohen uses inductive probability as a measure of certainty. But to say that someone is certain about something is to say more than that that thing is highly probable given the evidence. To claim certainty, we also require that our evidence is very substantial. It seems to us to be unnecessarily complicated to introduce a new probability concept as a measure of certainty when a reductionist account in terms of an 'old' probability concept will suffice. We note that Cohen's inductive probability differs from mathematical probability concepts in that the former is not subject to the constraints imposed by the axioms and rules of the probability calculus. In view of this, we question whether Cohen's inductive probability is appropriately called a probability concept at all.

(c) the probability of guilt must have high resilience relative to all bodies of evidence which are probable.

We shall call strength of evidence in this sense 'weight', and so our third requirement is that the probability of guilt should have high weight.[6]

To explicate further this notion of weight consider the probability of a proposition h. Suppose we consider how discovering a piece of evidence e would affect this probability. We could measure the effect by considering the change in the probability that e would produce, i.e., $Pr(h/e)-Pr(h)$, where $Pr(h/e)$ is the probability of h on the supposition that e, and $Pr(h)$ is the probability of h (held by us at this time without any supposition). If this difference is small (tending to zero), we say that the probability, $Pr(h)$, has high resilience with respect to evidence e. If the difference is large (tending to $1-Pr(h)$, or $O-Pr(h)$)) we say that the probability has low resilience with respect to evidence e. Now if we wish to take into account both the resilience of the probability of h, relative to evidence e, *and* the probability of that evidence (i.e., of it being true, not of it being discovered or presented), we should consider the product of the probability of e and the change in the probability of h due to e, (reflecting the resilience of the probability of h relative to e), i.e., $Pr(e).|Pr(h/e)-Pr(h)|$, where $Pr(e)$ is the probability of the evidence. (Note we take the modulus of the difference that e makes to the probability as it is immaterial whether this difference is positive or negative.) We will say that the probability of h has high weight if this measure is low for all possible bodies of evidence e, and that it has low weight if the measure is high for some possible body of evidence e. So the weight for the probability of h is measured by the value of $1-Pr(e).|Pr(h/e)-Pr(h)|$ for each possible body of evidence e. A high weight requires high resilience relative to *all* bodies of possible evidence that are probable.

How should a juror decide that the probability of guilt has high weight, i.e., that it has high resilience relative to all bodies of possible evidence which are probable?

He or she should ask what bodies of relevant evidence are possible, and then which of these has a significant probability (of being the case, not of being discovered or presented as evidence). He or she then considers how such evidence would affect the probability of guilt. If it appears that the probability of guilt is resilient relative to every body of evidence which is probable, then the juror can conclude that the evidence is strong and the probability of guilt has high weight. If however it appears that there is some body of possible evidence which is reasonably probable and relative to which the probability of guilt is not resilient, then the juror should conclude that the probability of guilt does not have high weight, and that guilt has not been proved beyond reasonable doubt. And, of course, it is the combined effect that matters, that is the juror should worry about possible evidence even with a fairly low probability that would make a great difference to the probability of guilt, and not worry about possible evidence that would make little difference to the probability of guilt unless it is extremely probable.

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[6] We follow J. M. Keynes use of the term 'weight' to refer to this feature of a probability (A Treatise on Probability, (London, 1921) p. 77).

   Therefore, the process the juror must go through to determine whether guilt has been established beyond reasonable doubt is to determine, first, what evidence is reliable; secondly, what is the probability of guilt of the accused given that (reliable) evidence; thirdly, what further evidence is (reasonably) probable; and finally, what is the weight of the probability that the accused is guilty relative to that further evidence.

   Thus in summing, the requirements for a guilty verdict are threefold:

   (a) the probability of guilt given the evidence is very high,
   (b) the evidence on which the probability is based is very reliable, and
   (c) the probability of guilt is highly resilient relative to any possible evidence that is probable, i.e., the weight of the probability of guilt is high.

Of course this still leaves the difficult question as to how high, how reliable, and how weighty. But these are not the questions being addressed in this paper.

   Finally, let us see how the above can help us in a legal controversy. In criminal trials the standard of proof required for conviction is guilt beyond reasonable doubt. It is controversial as to whether there is any difference in the standard of proof corresponding to the seriousness of the offence. While this is vigorously denied by many, others claim that there clearly is a direct relationship between seriousness of offence and standard of proof, and in the practice of law there clearly is some such difference, a difference that has not been coherently or adequately explained by those who argue for a single standard.[7]

   The problem is that if guilt beyond reasonable doubt, and standard of proof, are to be explicated only in terms of high probability it does seem *prima facie* plausible to insist that the notion of justice will resist varying the actual degree of probability of guilt required over the great range needed to reflect the variation in the seriousness of the range of possible offences. And to suggest that the same degree of probability is more difficult to establish with more serious crimes is no more than a highly implausible conjecture.[8]

   Our discussion of reasonable doubt however opens the possibility that the standard of proof can vary in ways not requiring variation in the probability of guilt. The difference could be that the weight of the probability required is greater the more serious the crime.

   It should be noted that *this* is *not* merely a fanciful conjecture. It is a necessary requirement of the most commonly accepted (and non-controversial) theory of rational action. We should observe that when a juror votes for a guilty verdict he or she is *acting* on a probability. Further, since such an action has serious consequences for the accused we demand that the rationality of acting as though the accused is guilty is very high. Still further, as the seriousness of the charge increases, so does the seriousness of the consequences for the accused if found guilty and, consequently, we demand

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[7] For the view that there is no variation in the standard of proof see *Phipson on Evidence*, 11th ed., 1970, pp. 56, 57, *Cross on Evidence*, 5th ed., 1976, p. 111, and Nokes, *An Introduction to Evidence*, 4th ed., 1967, p. 490. For an impressive discussion to the contrary see Eggleston *op. cit.*, 2nd ed., pp. 117-120.

[8] See for example Hunt (ed.) *Cross on Evidence*, 1970, p. 114.

a corresponding increase in the *degree of rationality of acting on the probability* that the accused is guilty. Now, a juror may increase the rationality of acting as though the accused is guilty in a number of ways. One way is to increase the probability that the accused is guilty. *But another* is to ensure that the probability is highly resilient even relative to possible evidence which has only a somewhat low probability. That is we demand a higher weight for the probability of guilt before it is acted upon.

Further, one probability has higher weight than another (i) if the former is more resilient than the latter relative to possible evidence with (at least) a given degree of probability, or, (ii) the former probability is as resilient, relative to possible evidence with (at least) a given degree of probability, as the latter probability is, relative to possible evidence with (at least) some higher degree of probability.

The demand for an increase in the weight of the probability of guilt as the seriousness of the crime increases follows from a result in classical decision theory.[9] Consider the choice of acting on a probability now, or first determining whether some piece of additional evidence obtains and then acting on the new probability. It is easy to show that the weightier the probability, the less the gain in utility of first obtaining the additional evidence and then acting. We can combine this result with the straight forward direct relationship between the value of a probability and the rationality of acting on that probability.

Thus we see that as the seriousness of an offence increases, and thus the negative consequence for the accused if found guilty increases, to maintain the *same* rationality of acting on the probability of guilt would require *both* an increase in the probability of guilt and an increase in the weight of the probability. Thus the standard of proof must differ to maintain the same high level of rationality of acting on the probability of guilt. Now it might be argued that the degree of probability of guilt is so high for any guilty verdict, that no significant variation in the standard of proof occurs in this way and the loss in the rationality of acting on the probability is only very marginal. This is a controversy that we leave to one side.[10] But what is clear is that the weight of probability is quite a different matter, and it is the variation in the high weight requirement which accounts for commonly experienced variation in standard of proof with the seriousness of the offence.

We have argued that guilt beyond reasonable doubt is not simply a matter of high probability of guilt. We have offered three criteria for such guilt and pointed particularly to the importance of the weight of the probability of guilt. Weight has implications for the law, not only in the matter of adequate instruction for juries, but also to understand such features as variation in standard of proof, and the nature of commital proceedings.

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[9] See P. Horwich *Probability and Evidence*, (Cambridge, 1982) pp. 125-127.
[10] This is explicitly rejected by Eggleston *op. cit.*, 2nd ed., p. 120.