A note on Delta ln L = -1/2 errors

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The points at which the log likelihood falls by 1/2 from its maximum value are often used to give the 'errors' on a result, i.e. the 68% central confidence interval. The validity of this is examined for two simple cases: a lifetime measurement and a Poisson measurement. Results are compared with the exact Neyman construction and with the simple Bartlett approximation. It is shown that the accuracy of the log likelihood method is poor, and the Bartlett construction explains why it is flawed.