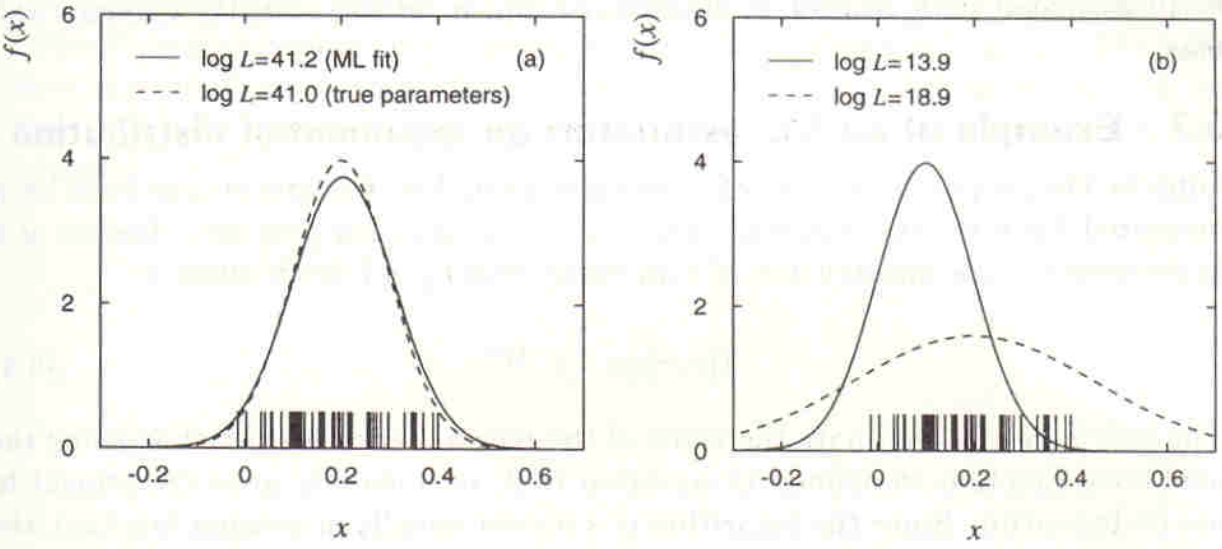



**Fig. 6.1** A sample of 50 observations of a Gaussian random variable with mean $\mu = 0.2$ and standard deviation $\sigma = 0.1$. (a) The p.d.f. evaluated with the parameters that maximize the likelihood function and with the true parameters. (b) The p.d.f. evaluated with parameters far from the true values, giving a lower likelihood.

- aus G. Cowan    Statistical Data Analysis

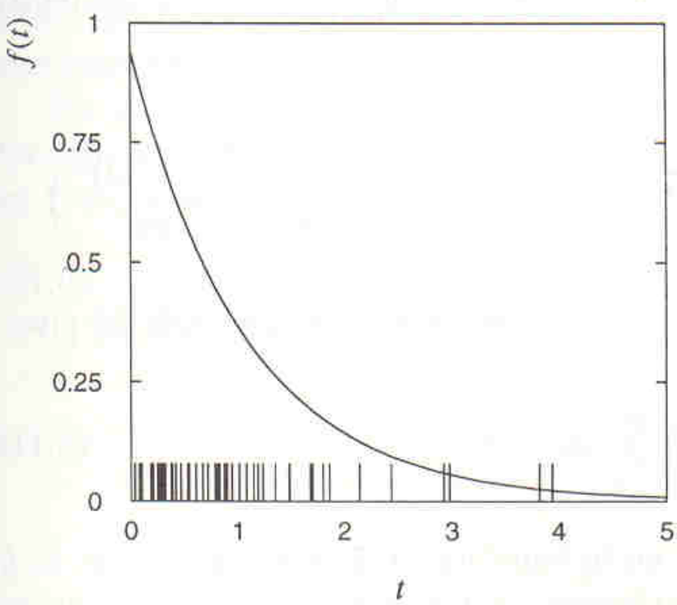



**Fig. 6.2** A sample of 50 Monte Carlo generated observations of an exponential random variable $t$ with mean $\tau = 1.0$. The curve is the result of a maximum likelihood fit, giving $\hat{\tau} = 1.062$.

- aus G. Cowan    Statistical Data Analysis

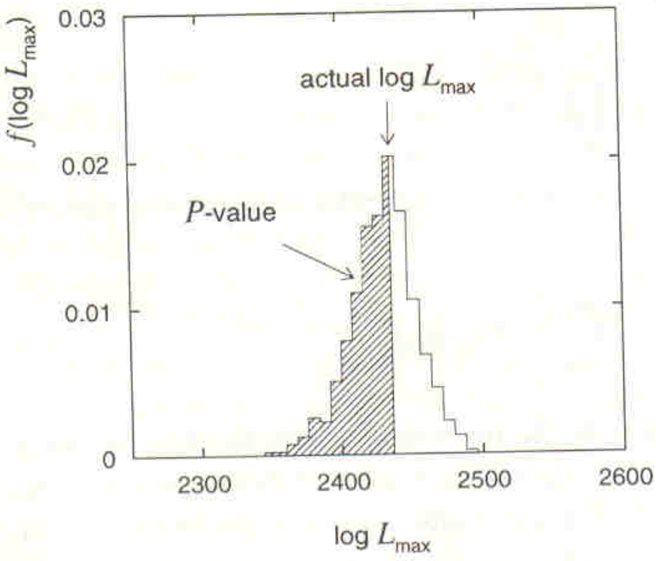



**Fig. 6.11** Normalized histogram of the values of the maximized log-likelihood function $\log L_{\max}$ from 500 Monte Carlo experiments. The vertical line shows the value of $\log L_{\max}$ obtained using the data shown in Fig. 6.5 (see text).

- aus G. Cowan    Statistical Data Analysis

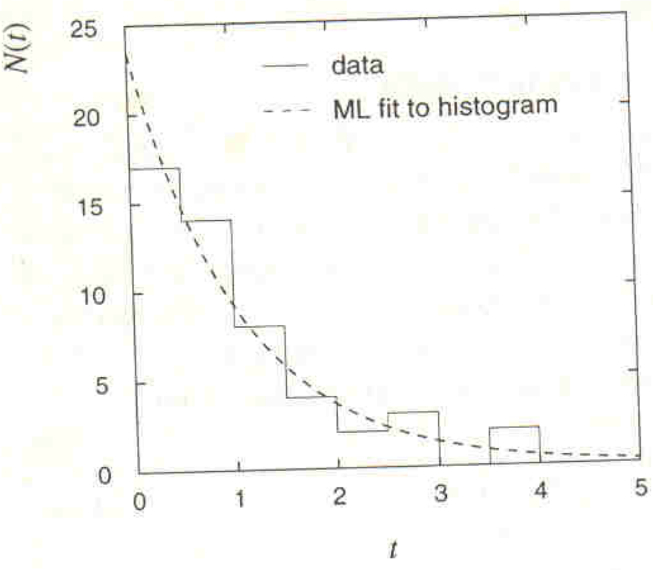



**Fig. 6.10** Histogram of the data sample of 50 particle decay times from Section 6.2 with the ML fit result.

- aus G. Cowan    Statistical Data Analysis

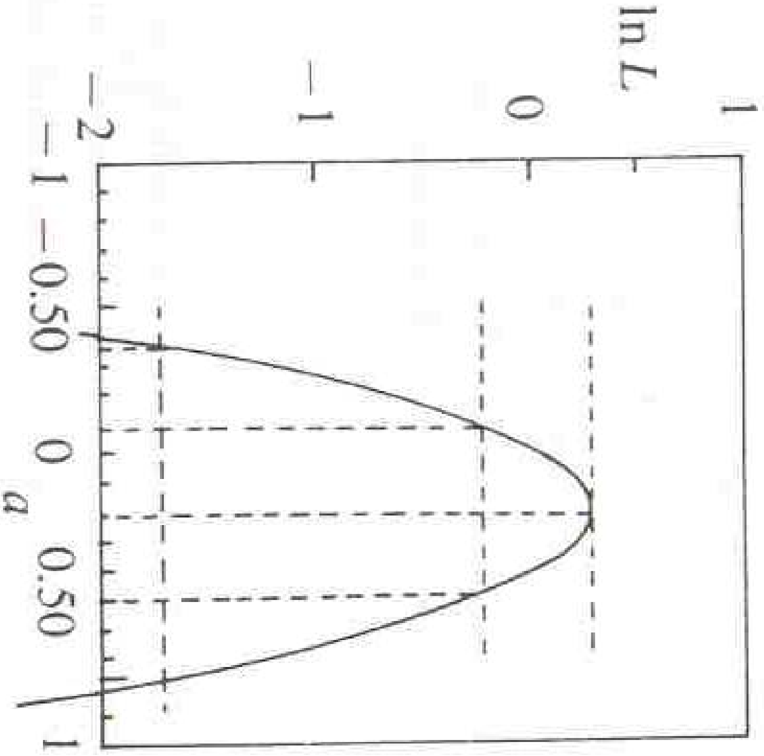



Fig. 5.2. A log likelihood function showing the $1\sigma$ and $2\sigma$ limits.

- aus R.J. Barlow   Statistics

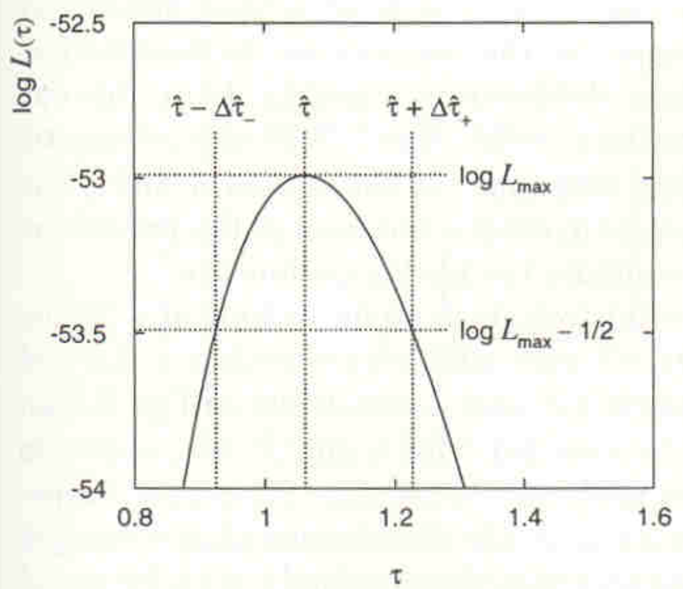
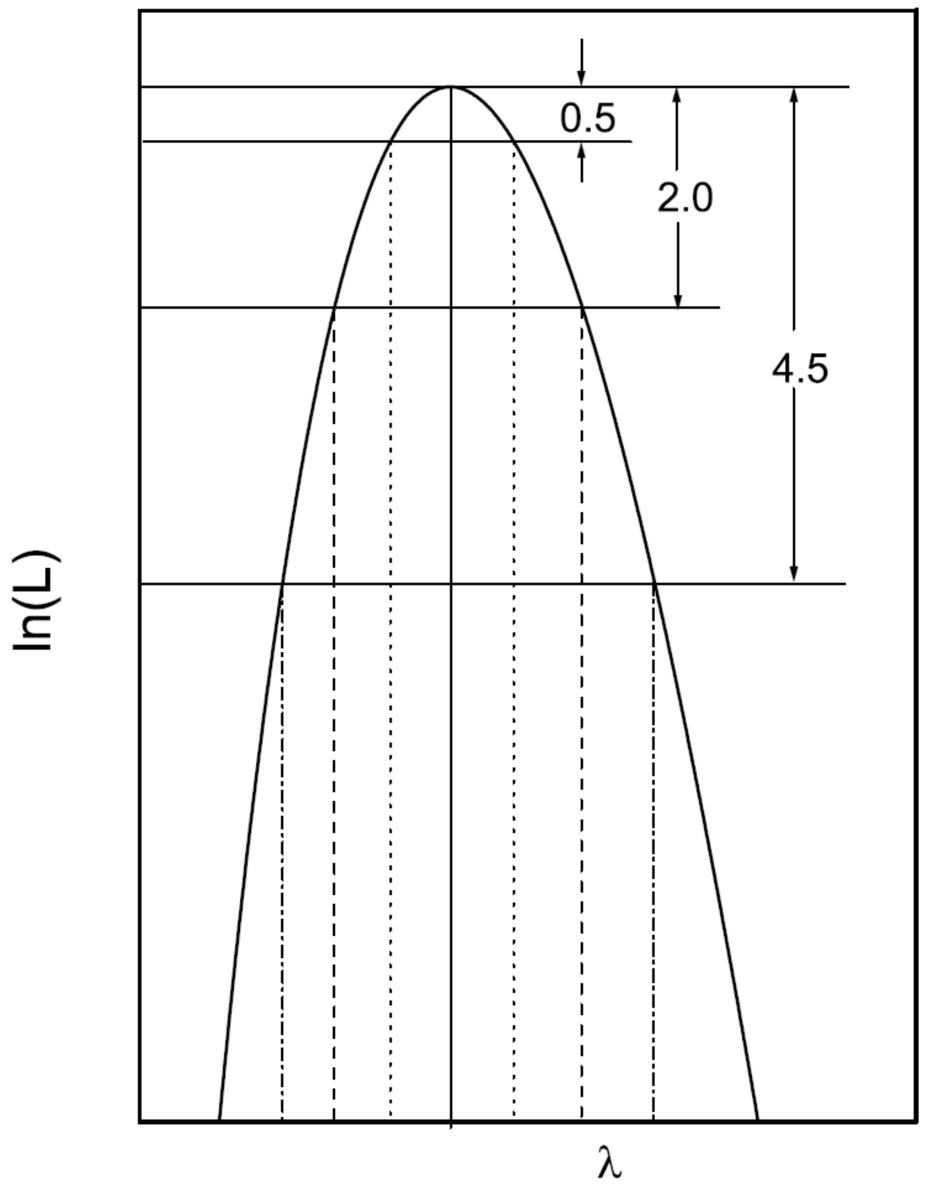



**Fig. 6.4** The log-likelihood function $\log L(\tau)$. In the large sample limit, the widths of the intervals $[\hat{\tau} - \Delta\hat{\tau}_-, \hat{\tau}]$ and $[\hat{\tau}, \hat{\tau} + \Delta\hat{\tau}_+]$ correspond to one standard deviation $\hat{\sigma}_{\hat{\tau}}$.

- aus G. Cowan    Statistical Data Analysis



0.5
2.0
4.5
ln(L)
λ