SOLUTION FOR HOMEWORK ASSIGNMENT NO. 05

Nils Hoyer, Maurice Morgenthaler

Exercise 5.1

a) We are asked to find the position α for a given distance $\beta = 30$. To do this we maximize a likelihood function based on the probability $p(x;\alpha,\beta)$ which is given as

$$p(x;\alpha,\beta) = \prod_{i=1}^{n} \tag{1}$$

Exercise 5.2

After importing the dataset we plotted it to confirm that we indeed have a gaussian distribution. The resulting plot is illustrated in figure 1. The output by the fit is given in tabke 1.

Figure 1: Distribution of data points given in the file 'data_05.h'. The distribution of points seem to follow a gaussian distribution.

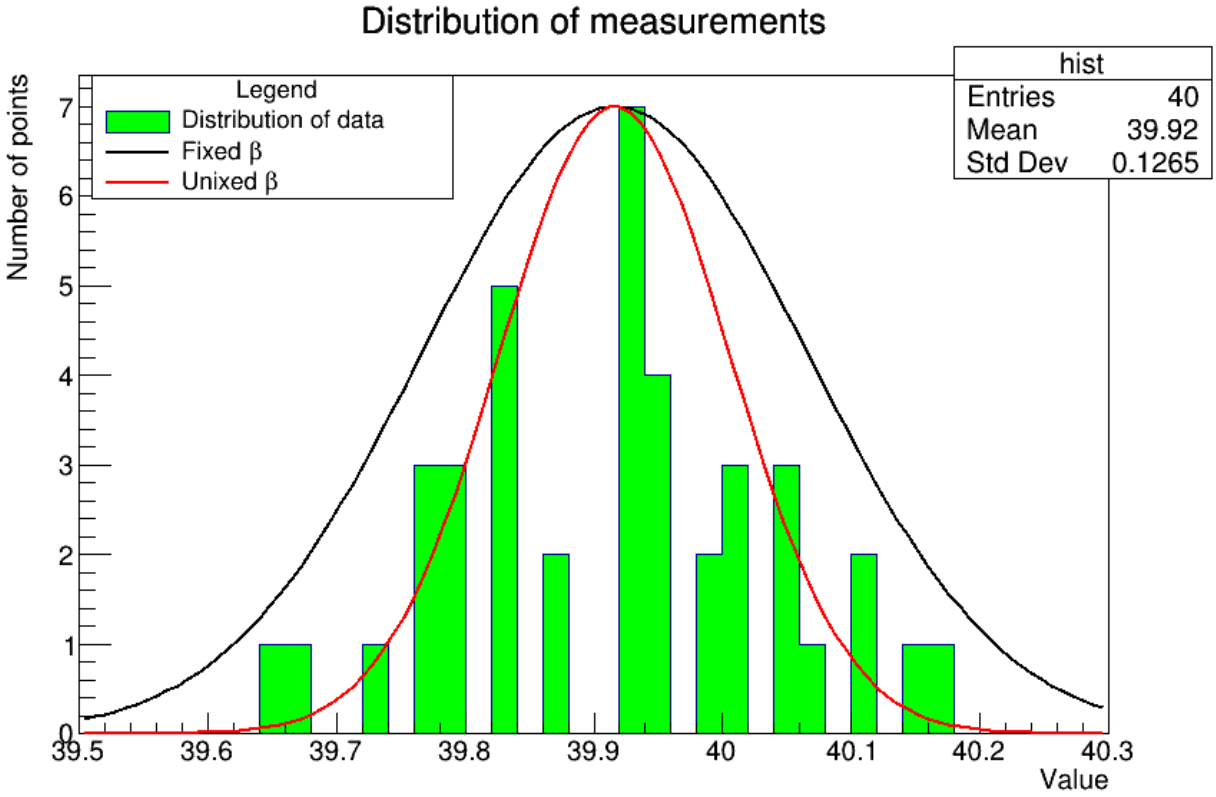

Table 1: Summary of all fitted parameters.

Parameter	**Value**	
	fixed σ	**unfixed** σ
μ	39.916	39.916
σ	0.15	0.089