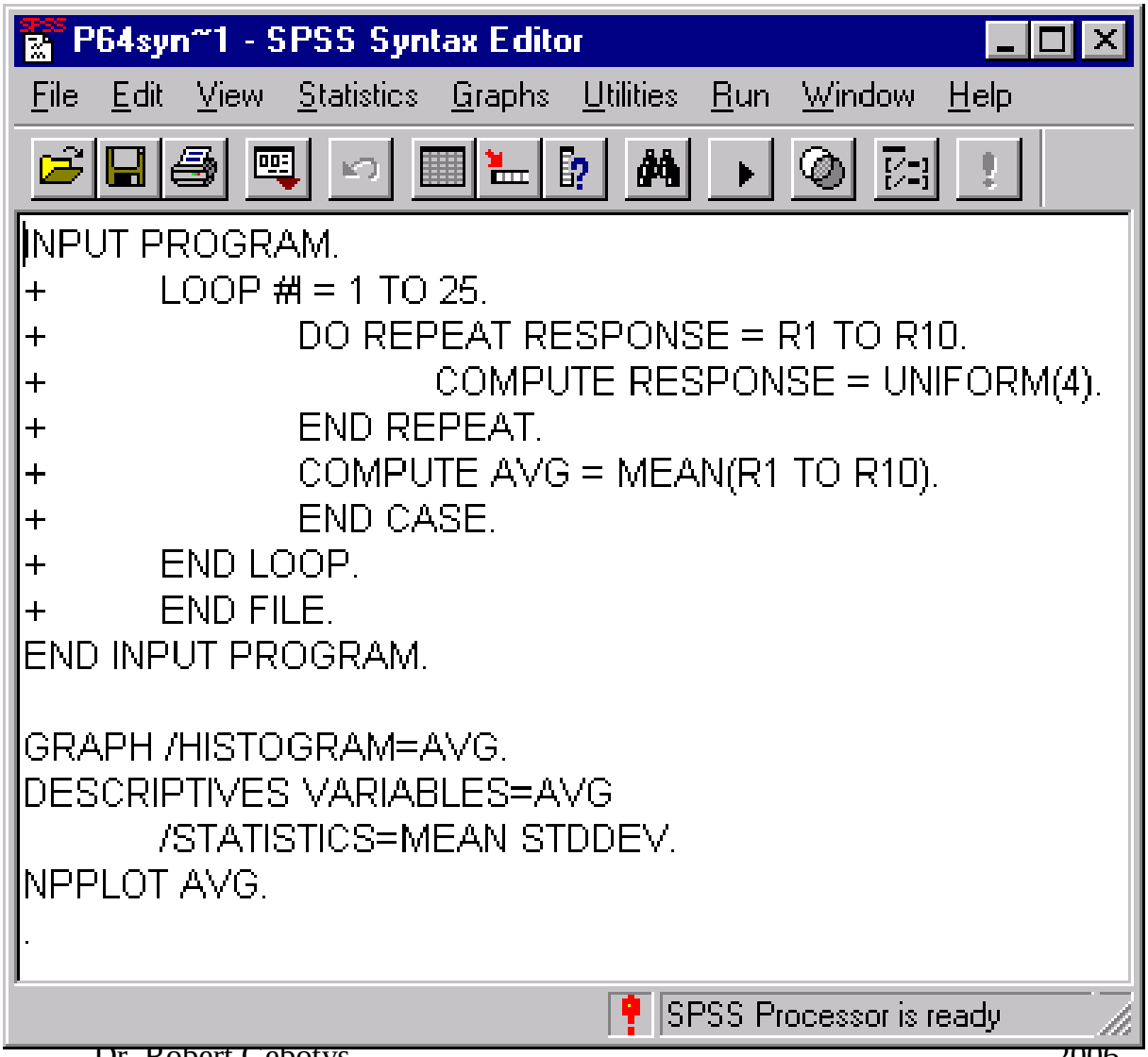
SPSS Chapter 3 Example 2 - Sampling Distribution for N=25 and n=10

The notes describe a very non-normal population. The central limit theorem tells us that the sampling distribution of the mean from this non-normal population will be normal as the sample size increases. You can see this by performing the following simulation on SPSS.

Follow these steps to produce a sampling distribution of 25 samples (N=25) of size ten (n=10) from our population of $\mu = 2.0$:

1. Click **File**, click **New**, and click **Syntax**. The *SPSS Syntax Editor* window will appear (see Introduction).

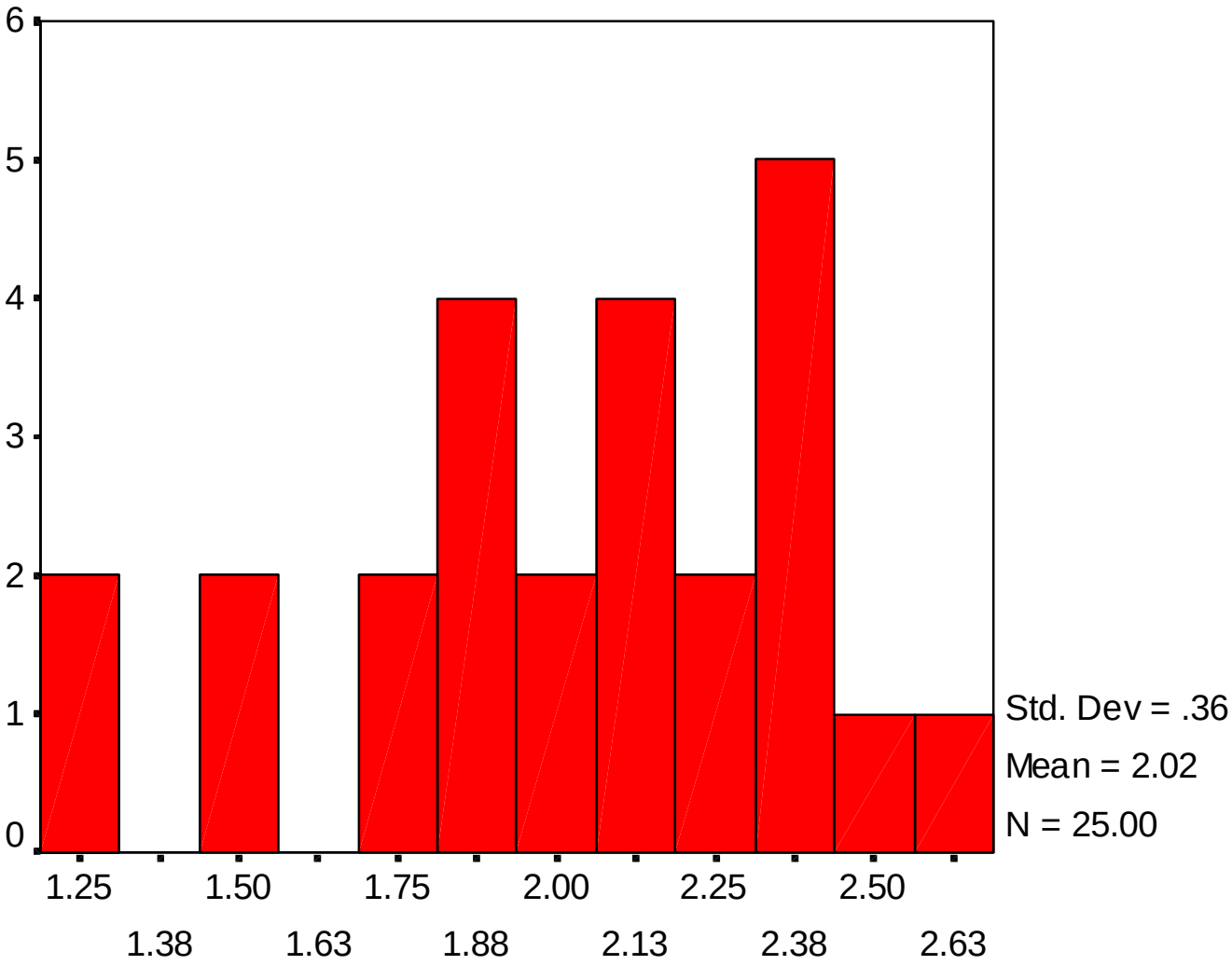
2. Enter the following text, or *syntax*, as you see it below.



3. To run the program that you have entered, click **Run** and then click **All**. (You may also run the program after using the mouse to highlight all the syntax, and then clicking the ▸ button.)

The SPSS output for this example of a Sampling Distribution is the following:

Histogram



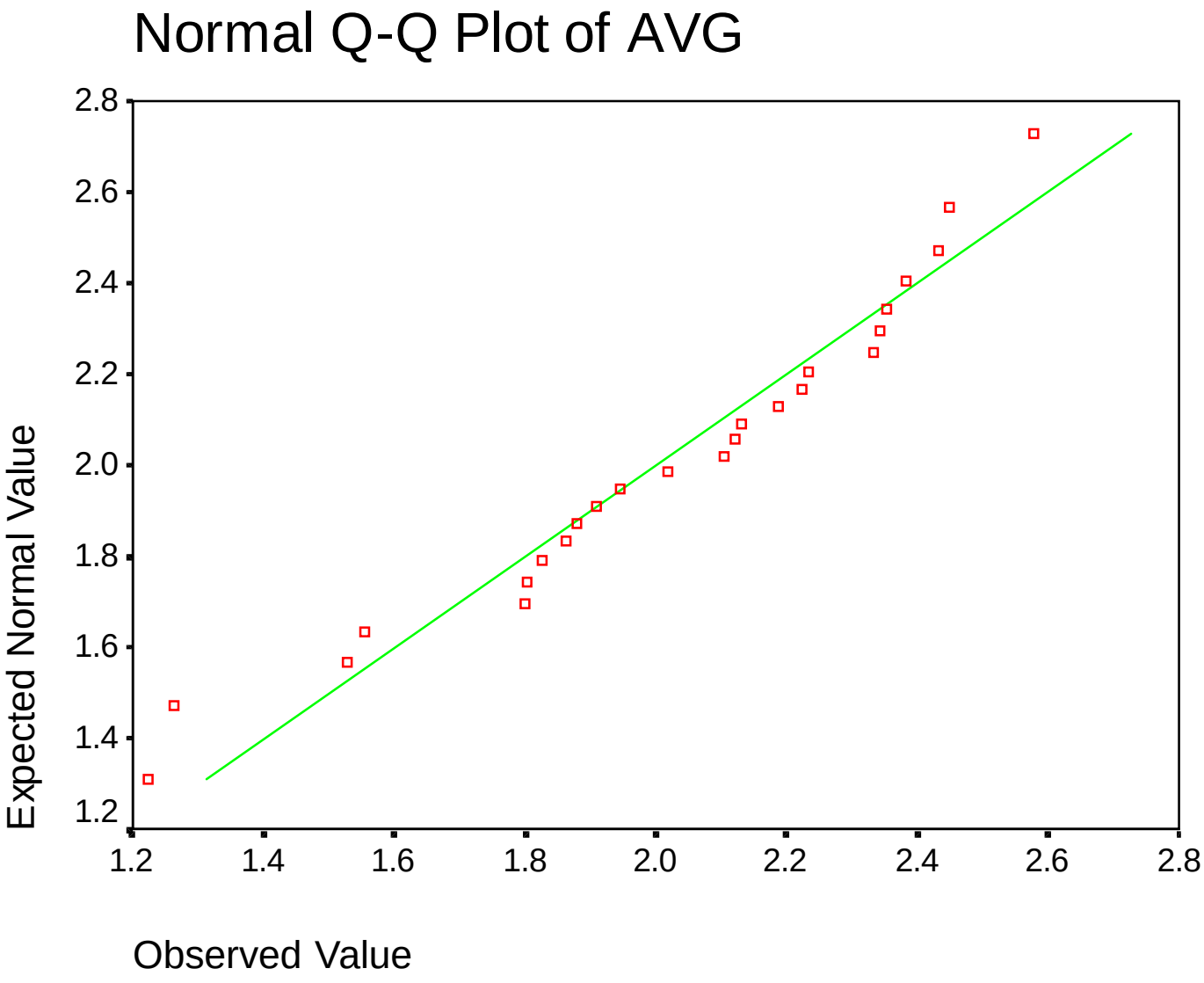
AVG

Note that the mean of our sampling distribution is 2.02, yet our population mean is 2.0.

Descriptive Statistics

	N	Mean	Std. Deviation
AVG	25	2.02	.36
Valid N (listwise)	25		

In order to assess the normality of our sampling distribution we produce a normal probability plot of the data.



The plot indicates that we have a reasonable normal distribution for this sample size.

Try this: Change N from 25 to 100 (second line in the syntax file) and see what happens. What is the mean of the sampling distribution?