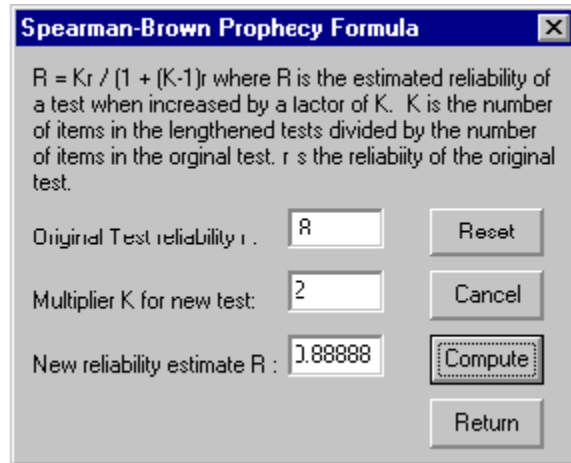## Spearman-Brown Reliability Prophecy

The Spearman-Brown "Prophecy" formula has been a corner-stone of many instructional text books in measurement theory. Based on "Classical True-Score" theory, it provides an estimate of what the reliability of a test of a different length would be based on the initial test's reliability estimate. It assumes the average difficulty and inter-item covariances of the extended (or trimmed) test are the same as the original test. If these assumptions are valid, it is a reasonable estimator. Shown below is the specification form which appears when you elect this Measurement option from the Analyses menu:

Figure 1   Spearman-Brown Prophecy Dialog

You can see that in an example, that when a test with an initial reliability of 0.8 is doubled (the multiplier k = 2) that the new test is expected to have a reliability of 0.89 approximately. The program may be useful for reducing a test (perhaps by randomly selecting items to delete) that requires too long to administer and has an initially high internal consistency reliability estimate. For example, assume a test of 200 items has a reliability of .95. What is the estimate if the test is reduced by one-half? If the new reliability of 0.9 is satisfactory, considerable time and money may be saved!