Confidence Interval for a Mean

(Note that some aspects of this output have been rearranged for the sake of presentation!)

These values of the one-sample statistics are identical to the values that would be provided by the "Descriptives" commands. See the earlier annotated output for details of how these are computed from frequency distributions.

Descriptives

	N	Mean	SD	SE
Outcome	8.000	4.000	3.117	1.102

The "Standard Error of the Mean" provides an estimate of how spread out the distribution of all possible random sample means would be. Here it's calculated as:

$$SE_M = \frac{SD}{\sqrt{N}} = \frac{3.117}{\sqrt{8}} = 1.102$$

One Sample T-Test

	t	df	p	95% Confidence Interval	
				Lower	Upper
Outcome	3.360	7	0.008	1.394	6.606

Note. All tests, hypothesis is population mean is different from 6

This material provides a statistical significance test. It is important for the next topic, but not immediately relevant to the confidence interval.

This section provides a confidence interval around (centered on) the "Mean." Calculation requires the appropriate critical value. Specifically, the *t* statistic (with 7 *df*) that has a probability of .05 equals 2.365. As a result:

$$CI_M = M \pm (t_{CRITICAL})(SE_M) = 4.000 \pm (2.365)(1.102)$$

Thus, the researcher estimates that the true population mean is somewhere between 1.394 and 6.606 (knowing that the estimate could be incorrect).