Stat 151.003 (Kozdron) Fall 2006
Confidence Intervals and Hypothesis Testing
November 29, 2006

Example 1. Measurements of left-hand and right-hand gripping strengths of five left-handed people are recorded (in kilograms).

Person	1	2	3	4	5
Left hand	63	41	50	55	47
Right hand	60	37	52	50	50

At the 1% significance level, do these data provide evidence that left-handed people have greater gripping strength in their left hand?

Example 2. A small commuter airline owns two jets and has subcontracted its maintenance operations to two separate firms. Samples of the monthly downtimes of these subcontractors follow.

	n	$\overline{X}$	S
Firm A	42	14.4 hours	3.1 hours
Firm B	44	16.3 hours	1.6 hours

Determine at the $\alpha = 0.02$ significance level if there is any significant difference between the true mean monthly downtimes for these two airlines. Answer this question by

(a) conducting an appropriate hypothesis test;

(b) constructing two separate 98% confidence intervals; and

(c) constructing a single 98% confidence interval.

Example 3. To determine whether men have nightmares as often as women, 28 out of 88 randomly chosen men and 30 out of 100 randomly chosen women reported having nightmares at least once a month. Do these figures indicate a significant difference in the frequency of nightmares between the two sexes at the 0.05 significance level?

Example 4. A food company wishes to market a new type of ice cream. Before marketing this ice cream, the company wants to find the percentage of the people who like it. The company's management has decided it will only market this ice cream if more than 35% of the people like it. The company's research department selected a random sample of 500 people and asked them to taste this ice cream. Of these 500 people, 202 said that they liked it. At the $\alpha = 0.01$ significance level, is there evidence to conclude that the company should make this ice cream?