

**Sampling Qualitative vs. Qualitative Confidence Intervals**

1) Suppose that 17% of Americans know which Major League Baseball stadium sells a large food item named "The Boomstick." In a sample of 280 Americans, what is the probability that between 14% and 20% know which stadium sells The Boomstick?

Note: You know  $p$ . You are curious about specific values of  $\hat{p}$ , namely, 14% and 20%.

2) In a sample of 280 Americans, you find that 58 know which stadium sells The Boomstick. Find a 95% confidence interval for the fraction of all Americans who know which stadium sells The Boomstick.

Note: You know  $\hat{p}$  but not  $p$ . You want to estimate  $p$ , that is, find a confidence interval for  $p$  using your value of  $\hat{p}$ .

**Hypothesis Tests for Qualitative variables**

1) A poll of 1003 likely voters finds that 515 say they will vote for Fry for governor. Test the hypothesis that Fry will get more than 50% of votes of likely voters.

$H_0$ :

$H_a$ :

Type 1 error would mean...

Type 2 error would mean...

Which would be worse?

To minimize this, choose  $\alpha$  to be large or small (circle one). Use  $\alpha = \dots$

2) A slot machine is supposed to give a jackpot 13% of the time. The casino boss wants to check that this percentage is correct. In a sample of 800 spins, the jackpot happens 114 times.

$H_0$ :

$H_a$ :

Type 1 error would mean...

Type 2 error would mean...

Which would be worse?

To minimize this, choose  $\alpha$  to be large or small (circle one). Use  $\alpha = \dots$

1) You make \$500 per week. Then you get a \$60 raise. Now you make \$560 per week. What percent increase was your raise?

2) In 2000, twenty percent of people celebrated Festivus. Now, 30% of people celebrate Festivus. The proportion of people who celebrate Festivus has increased by ..... percentage points, which is also a ..... percent increase over the 2000 rate.