EdPsych/Psych/Soc 589
Applied Categorical Data Analysis
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Homework 1

1. Problem 1.8 on page 18 of Agresti (2007)

2. Problem 2.6 on page 56 of Agresti (2007).

3. Problem 2.7 on page 56 of Agresti (2007).

4. Problem 2.10 on page 57 of Agresti (2007).

5. In class we analyzed data on whether taller US presidential candidate won the election. Repeat this analysis but include data through 2016. Added to data given in class are 1996 Clinton (taller) vs Dole, 2000 G.W.Bush vs Kerry (taller), 2004 Obama (taller) vs McCain, 2008, Obama vs Rommney (taller), and 2016 Trump (taller) vs Clinton:

	The Winner	
Taller	Shorter	Total
Y	$N - y$	N
16	4	20

Include:

(a) Hypothesis test of $\pi = .5$ using exact method.

   In R, binom.test gives the p-value. For SAS, the code below will give you the probability mass function for $\pi = 0.5$. (will still need to compute p-value):

   data someHelp;
       po = 0.5;
       n=20;
       do y=0 to n;
           py = PDF('binoial',y, po , n);

```
        output;
    end;
run;
proc print data=someHelp;
run;
```

(b) Hypothesis test of $\pi = .5$ using z-test (asymptotic).

(c) Compare the results between exact and asymptotic. For this problem, which is the better method to use.

(d) Using method that your decided was better from part (c), report a 95% confidence interval for π .