

### Problem #3.3

		Second Shot		
		$S_2 = 1$	$S_2 = 0$	
First Shot	$S_1 = 1$	251	34	$H_0 : S_1 \perp S_2$ vs $H_1 : \text{not } H_0$
	$S_1 = 0$	48	5	

Data is not ordinal so a restricted alternative is not necessary.

Statistics	Value	p-value	Conclusion
$X^2$	0.2727	0.6015	Do not reject $H_0$ , there is evidence that the first and second shot are independent
$G^2$	0.2858	0.5930	Do not reject $H_0$ , there is evidence that the first and second shot are independent

### Problem #3.9(a)

	Drugs	No Drugs
Schizophrenia	105	52
Affective disorder	19	2
Neurosis	8	0
Personality disorder	47	18
Special Systems	12	13

Table 1: Counts

	Drugs	No Drugs
Schizophrenia	9.6582	-9.6582
Affective disorder	-6.3053	6.3053
Neurosis	-6.1760	6.1760
Personality disorder	1.3491	-1.3491
Special Systems	0.6542	-0.6542

Table 2: Pearson Standardized Residuals

OUTSTANDING: conclusion

### Problem #3.12

Gamma,  $\gamma$ : 0.3873

95% CI: (0.3156, 0.4591)

Gamma is 0.3873 which indicates that when attitudes disagree (i.e. counts that are not on the diagonal), the proportion of concordant attitudes towards abortions ( $\uparrow$  school =  $\uparrow$  approval) is larger than the proportion of discordant attitudes. This means that there is greater approval of abortion when there is more schooling.

### Problem #3.15

	Type of CI for OR	95% CI
(a)	Woolf (i.e. Wald)	$(0, \infty)$
(b)	Cornfield's Exact	$(2.646, \infty)$ <b>OUTSTANDING: Answer: <math>(0.618, \infty)</math></b>
(c)	Profile Likelihood	$(5.117, \infty)$

### Problem #3.31

**OUTSTANDING:**

Table 3: Counts

Table 5: Pearson Standard Residuals