

CHI-SQUARE: SOLUTIONS TO THE EXERCISES

Exercise 1

Table 1: *Observed Frequencies*

	LOB	BROWN	Total
will	2316	2237	4553
'll	505	441	946
Total	2821	2678	5499

Table 2: *Expected Frequencies*

	LOB	BROWN
will	2335.7	2217.3
'll	485.3002	460.6998

Table 3: *Differences*

	LOB	BROWN
will	0.166152	0.175024
'll	0.799671	0.842372

Table 3: *Statistics*

df	1
Chi-square	1.983219
Significance	0.159052 not significant

Exercise 2

Table 1: *Observed Frequencies*

	LOB	KOLH.	Total
will	2316	1974	4290
'll	505	230	735
Total	2821	2204	5025

Table 2: *Expected Frequencies*

	LOB	KOLH.
will	2408.376	1881.624
'll	412.6239	322.3761

Table 3: *Differences*

	LOB	KOLH.
will	3.543196	4.535097
'll	20.68069	26.47016

Table 3: *Statistics*

df	1
Chi-square	55.22914
Significance	1.07E-13 highly significant

Note: The p-value here and in many of the following exercises is given in the so-called *scientific format* for ease of exposition. This format is read as follows: the figure following the E indicated the decimal place at which the figure before the E appears; a minus sign indicates that we are talking about decimal places after the point. Thus, 1.07E-13 stands for 0.000000000000107.

Exercise 3

Table 1: *Observed Frequencies*

	LOB	BROWN	Total
will/shall	3184	2945	6129
going to	172	144	316
Total	3356	3089	6445

Table 2: *Expected Frequencies*

	LOB	BROWN
will/shall	3191.454	2937.546
going to	164.5455	151.4545

Table 3: *Differences*

	LOB	BROWN
will/shall	0.017412	0.018917
going to	0.337712	0.366902

Table 3: *Statistics*

df	1
Chi-square	0.740943
Significance	0.389359 not significant

Exercise 4

Table 1: *Observed Frequencies*

	LOB	KOLH.	Total
will/shall	3184	2567	5751
going to	172	75	247
Total	3356	2642	5998

Table 2: *Expected Frequencies*

	LOB	KOLH.
will/shall	3217.799	2533.201
going to	138.2014	108.7986

Table 3: *Differences*

	LOB	KOLH.
will/shall	0.355008	0.450949
going to	8.265801	10.49963

Table 3: *Statistics*

df	1
Chi-square	19.57139
Significance	9.69E-06 highly significant

Exercise 5

Table 1: *Observed Frequencies*

	LOB	BROWN	KOLH.	Total
will/shall	3184	2945	2567	8696
going to	172	144	75	391
Total	3356	3089	2642	9087

Table 2: *Expected Frequencies*

	LOB	BROWN	KOLH.
will/shall	3211.596	2956.085	2528.319
going to	144.4037	132.915	113.6813

Table 3: *Differences*

	LOB	BROWN	KOLH.
will/shall	0.237128	0.041567	0.591794
going to	5.273816	0.924472	13.16174

Table 3: *Statistics*

df	2
Chi-square	20.23051
Significance	4.05E-05 highly significant

Exercise 6

Table 1: *Observed Frequencies*

	ditransitive	to-dative	Total
give	461	146	607
other verbs	574	1773	2347
Total	1035	1919	2954

Table 2: *Expected Frequencies*

	ditransitive	to-dative
give	212.676	394.324
other verbs	822.324	1524.676

Table 3: *Differences*

	ditransitive	to-dative
give	289.9471	156.381
other verbs	74.98844	40.44452

Table 3: *Statistics*

df	1
Chi-square	561.7611
Significance	3.5E-124 highly significant

Exercise 7(a)Table 1: *Observed Frequencies*

	boys	girls	Total
little	3100	2000	5100
small	100	440	540
Total	3200	2440	5640

Table 2: *Expected Frequencies*

	boys	girls
little	2893.617	2206.383
small	306.383	233.617

Table 3: *Differences*

	boys	girls
little	14.71996	19.30487
small	139.0219	182.3238

Table 3: *Statistics*

df	1
Chi-square	355.3705
Significance	2.87E-79 highly significant

Exercise 7(b)Table 1: *Observed Frequencies*

	boys	girls	children	Total
little	3100	2000	1000	6100
small	100	440	2250	2790
Total	3200	2440	3250	8890

Table 2: *Expected Frequencies*

	boys	girls	children
little	2195.726	1674.241	2230.034
small	1004.274	765.7593	1019.966

Table 3: *Differences*

	boys	girls	children
little	372.411	63.38342	678.4575
small	814.2319	138.5802	1483.366

Table 3: *Statistics*

df	2
Chi-square	3550.43
Significance	0 highly significant

Exercise 8Table 1: *Observed Frequencies*

	LOB	BROWN	KOLH.	Total
will	2316	2237	1974	6527
shall	363	267	363	993
going to	172	144	75	391
Total	2851	2648	2412	7911

Table 2: *Expected Frequencies*

	LOB	BROWN	KOLH.
will	2352.228	2184.742	1990.03
shall	357.8616	332.3807	302.7577
going to	140.9103	130.877	119.2127

Table 3: *Differences*

	LOB	BROWN	KOLH.
will	0.557973	1.249974	0.129117
shall	0.073781	12.86067	11.98694
going to	6.85949	1.315838	16.3973

Table 3: *Statistics*

df	4
Chi-square	26.85846
Significance	2.12E-05 highly significant