

## U1U2Chpt

U1-13:

type	O	A	B	AB
observed	228	124	40	8
expected	176	168	40	16

$$\chi^2 = \frac{(176-228)^2}{176} + \frac{(168-124)^2}{168} + \frac{(40-40)^2}{40} + \frac{(16-8)^2}{16}$$

$$= 15.36 + 11.52 + 0 + 4$$

$$= 30.887$$

Figure 1: Calculate Chi

# We see that this is the same as the value from the slides  
 (1 - pchisq(30.8874, df=3))

## [1] 8.977405e-07

U2-9:

Degrees of freedom = (no. of rows - 1) × (no. of columns - 1) = 2 × 1 = 2

$$\chi^2 = \frac{(332.49-400)^2}{332.49} + \frac{(1447.51-1380)^2}{1447.51} + \frac{(418.22-416)^2}{418.22} + \frac{(1820.78-1823)^2}{1820.78} + \frac{(253.29-188)^2}{253.39} + \frac{(1102.71-1168)^2}{1102.71}$$

$$\chi^2 = 37.559$$