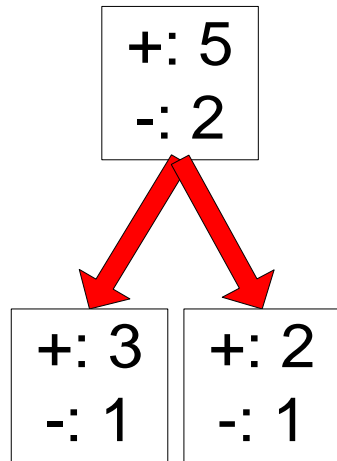


# Estimating Statistical Bounds



$$e'(N, e, \alpha) = \frac{e + \frac{z_{\alpha/2}^2}{2N} + z_{\alpha/2} \sqrt{\frac{e(1-e)}{N} + \frac{z_{\alpha/2}^2}{4N^2}}}{1 + \frac{z_{\alpha/2}^2}{N}}$$

**Before splitting:  $e = 2/7$ ,  $e'(7, 2/7, 0.25) = 0.503$**

$$e'(T) = 7 \times 0.503 = 3.521$$

**After splitting:**

$$e(T_L) = 1/4, \quad e'(4, 1/4, 0.25) = 0.537$$

$$e(T_R) = 1/3, \quad e'(3, 1/3, 0.25) = 0.650$$

$$e'(T) = 4 \times 0.537 + 3 \times 0.650 = 4.098$$

**Therefore, do not split**