

Solution Wolff exercise 2.33

(a) If α_j is the probability that a woman gets j children, the distribution of the number of siblings $\beta_j, j = 1, 2, 3$ is given by

$$\beta_j = \frac{j\alpha_j}{\sum_{j=1}^3 j\alpha_j}$$

In this case we get

$$\beta_1 = \frac{1}{6} \quad \beta_2 = \frac{1}{3} \quad \beta_3 = \frac{1}{2}$$

The mean of this distribution is $\frac{7}{3}$.

(b) This is the mean of the α_j distribution. In this case we get 2.

(c) One important assumption is that none of the women interviewed are siblings.