

Exercise 3.9.2.

We consider an offspring distribution with $\mathbb{P}(E=0) = p$ and $\mathbb{P}(E=2) = 1-p$.

Using eq. (3.103), we find

$$\varphi(s) = \mathbb{E}[s^E] = \sum_{k=0}^{\infty} p_k s^k = p_0 + p_2 s^2 = p + (1-p)s^2.$$