Exercise 4.12

From $A_{50:\overline{20|}} = A^{1}_{50:\overline{20|}} + {}_{20}E_{50}$, we can express ${}_{20}E_{50} = A_{50:\overline{20|}} - A^{1}_{50:\overline{20|}}$ and

$$\begin{aligned} A_{50} &= A^{1}_{50:\overline{20|}} + {}_{20}E_{50}\, A_{70} \\ &= A^{1}_{50:\overline{20|}} + \left(A_{50:\overline{20|}} - A^{1}_{50:\overline{20|}}\right) A_{70}\,. \end{aligned}$$

Solving for A_{70}, we get

$$A_{70} = \frac{A_{50} - A^{1}_{50:\overline{20|}}}{A_{50:\overline{20|}} - A^{1}_{50:\overline{20|}}} = \frac{0.31266 - 0.14996}{0.42247 - 0.14996} = 0.5970423.$$