Particle filter

Calculate lineage of $\mathbf{x}_3^{(1)}$.

$$B_{1}^{(1)} = 3 \quad \begin{pmatrix} \mathbf{x}_{1}^{(1)} \\ 0/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{1}^{(2)} \\ 2/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{1}^{(3)} \\ 0/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{1}^{(4)} \\ 1/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{1}^{(5)} \\ 0/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{1}^{(5)} \\ 1/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{2}^{(5)} \\ 1/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{2}^{(3)} \\ 1/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{2}^{(4)} \\ 1/5 \end{pmatrix} \quad \begin{pmatrix} \mathbf{x}_{2}^{(5)} \\ 1/5 \end{pmatrix} \quad \begin{pmatrix}$$