

$$q_{k+3p}$$

$$a$$

$$q_{k+2p} = q$$

$$a$$

$$q_{k+p} = q$$

$$a$$

$$q_{k+3p}$$

$$q_k = q$$

$$a$$

$$a$$

$$q_{k+2p} = q$$

$$q_1$$

$$a$$

$$a$$

$$q_{k+p} = q$$

$$\begin{matrix} q_0 \\ c/d \end{matrix}$$

$$a$$

$$q_k = q$$

Figure 1: Illustration for the proof of Proposition ?? . All inner nodes of the tree are labeled with a . All leaves not shown in the illustration are labeled with c .