



$$P(\text{Wolken}) = \begin{pmatrix} W = \mathbf{l} & W = \mathbf{d} \\ 0.4 & 0.6 \end{pmatrix}$$

$$P(\text{Temp} | \text{Wolken}) = \begin{matrix} & \text{Wolken} & T = \mathbf{n} & T = \mathbf{h} \\ \begin{pmatrix} \mathbf{l} & 0.2 & 0.8 \\ \mathbf{d} & 0.5 & 0.5 \end{pmatrix} \end{matrix}$$

$$P(\text{Regen} | \text{Wolken}) = \begin{matrix} & \text{Wolken} & R = \mathbf{T} & R = \mathbf{F} \\ \begin{pmatrix} \mathbf{l} & 0.3 & 0.7 \\ \mathbf{d} & 0.8 & 0.2 \end{pmatrix} \end{matrix}$$

$$P(\text{Rasen} | \text{Temp}, \text{Regen}) = \begin{matrix} & \text{Temp} & \text{Regen} & R = \mathbf{n} & R = \mathbf{tr} \\ \begin{pmatrix} \mathbf{n} & \mathbf{F} & 0.1 & 0.9 \\ \mathbf{n} & \mathbf{T} & 0.7 & 0.3 \\ \mathbf{h} & \mathbf{F} & 0 & 1 \\ \mathbf{h} & \mathbf{T} & 0.8 & 0.2 \end{pmatrix} \end{matrix}$$

$$\begin{aligned}
& P(\text{Wolken} \mid \text{Regen} = F, \text{Rasen} = \text{nass}) \\
& \sum_{\text{Temp}} [P(\text{Temp}, \text{Regen}, \text{Rasen} \cdot P(\text{Temp}, \text{Wolken}) \cdot P(\text{Regen}, \text{Wolken}) \cdot \underline{P(\text{Wolken})}]_{\text{Regen}=F, \text{Rasen}=\text{nass}} \\
& = P(\text{Wolken}) \cdot \sum_{\text{Temp}} [P(\text{Temp}, \text{Regen}, \text{Rasen} \cdot P(\text{Temp}, \text{Wolken}) \cdot P(\text{Regen}, \text{Wolken})]_{\text{Regen}=F, \text{Rasen}=\text{nass}} \\
& = P(\text{Wolken}) \cdot \sum_{\text{Temp}} \left[\begin{array}{c} \text{Temp} \quad \text{Regen} \quad \text{Rasen} \quad P \\ \left(\begin{array}{cccc} n & F & \text{nass} & 0.1 \\ \color{red}{n} & \color{red}{F} & \color{red}{tr} & \color{red}{0.9} \\ n & T & \text{nass} & 0.7 \\ \color{red}{n} & \color{red}{T} & \color{red}{tr} & \color{red}{0.3} \\ h & F & \text{nass} & 0 \\ \color{red}{h} & \color{red}{F} & \color{red}{tr} & \color{red}{1} \\ h & T & \text{nass} & 0.8 \\ \color{red}{h} & \color{red}{T} & \color{red}{tr} & \color{red}{0.2} \end{array} \right) \cdot P(\text{Temp}, \text{Wolken}) \cdot P(\text{Regen}, \text{Wolken}) \end{array} \right] \\
& = P(\text{Wolken}) \cdot \sum_{\text{Temp}} \left[\begin{array}{c} \text{Temp} \quad \text{Regen} \quad P \\ \left(\begin{array}{ccc} n & F & 0.1 \\ \color{red}{n} & \color{red}{T} & \color{red}{0.7} \\ h & F & 0 \\ \color{red}{h} & \color{red}{T} & \color{red}{0.8} \end{array} \right) \cdot P(\text{Temp}, \text{Wolken}) \cdot \left(\begin{array}{c} \text{Regen} \quad \text{Wolken} \quad P \\ \left(\begin{array}{ccc} F & l & 0.7 \\ F & d & 0.2 \\ \color{red}{T} & \color{red}{l} & \color{red}{0.3} \\ \color{red}{T} & \color{red}{d} & \color{red}{0.8} \end{array} \right) \end{array} \right]_{\text{Regen}=F, \text{Rasen}=\text{nass}} \\
& = P(\text{Wolken}) \cdot \sum_{\text{Temp}} \left[\begin{array}{c} \text{Temp} \quad P \\ \left(\begin{array}{cc} n & \underline{0.1} \\ h & \underline{0} \end{array} \right) \cdot \underline{P(\text{Temp}, \text{Wolken})} \cdot \left(\begin{array}{c} \text{Wolken} \quad P \\ \left(\begin{array}{cc} l & \underline{0.7} \\ d & \underline{0.2} \end{array} \right) \end{array} \right) \right]_{\text{Regen}=F} \\
& = P(\text{Wolken}) \cdot \sum_{\text{Temp}} \left[\begin{array}{c} \text{Temp} \quad \text{Wolken} \quad P \\ \left(\begin{array}{ccc} n & l & \underline{0.1 \cdot 0.2 \cdot 0.7} \\ n & d & \underline{0.1 \cdot 0.5 \cdot 0.2} \\ h & l & \underline{0 \cdot 0.8 \cdot 0.7} \\ h & d & \underline{0 \cdot 0.5 \cdot 0.2} \end{array} \right) \end{array} \right]
\end{aligned}$$

$$\begin{aligned}
&= \begin{matrix} \text{---} \\ \vdots \\ \text{---} \end{matrix} \begin{matrix} \text{---} & & \text{---} \\ \text{---} & & \text{---} \\ \text{---} & & \text{---} \end{matrix} \\
&= \begin{matrix} \text{---} & & \text{---} \\ \text{---} & & \text{---} \\ \text{---} & & \text{---} \end{matrix} \\
&= \begin{matrix} \text{---} & & \text{---} \\ \text{---} & & \text{---} \\ \text{---} & & \text{---} \end{matrix} \\
&= \begin{matrix} \text{---} & & \text{---} \\ \text{---} & & \text{---} \\ \text{---} & & \text{---} \end{matrix} \\
&\xrightarrow{\text{normalisiert}} \begin{matrix} \text{---} & & \text{---} \\ \text{---} & & \text{---} \\ \text{---} & & \text{---} \end{matrix}
\end{aligned}$$