Lista de exercícios de Introdução à Redes Booleanas Probabilisticas

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Exercício 2. Monte a tabela de probabilidade condicional para a rede do exercício 1 usando o modelo de PBNs de αs e βs

R:

Para x_1:

$x_1(t)$	$x_3(t)$	$P(x_1(t+1)=0\|x_1(t),x_3(t))$	$P(x_1(t+1)=1\|x_1(t),x_3(t))$
X	1	$\frac{e^{\beta}}{e^{\beta}+e^{-\beta}}$	$\frac{e^{-\beta}}{e^{\beta}+e^{-\beta}}$
0	0	$\frac{1}{1+e^{-\alpha}}$	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$
1	0	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$	$\frac{1}{1+e^{-\alpha}}$

Para x_2:

$x_2(t)$	$x_1(t)$	$x_4(t)$	$P(x_2(t+1)=0\|x_1(t),x_2(t),x_4(t))$	$P(x_2(t+1)=1\|x_1(t),x_2(t),x_4(t))$
X	1	0	$\frac{e^{-\beta}}{e^{\beta}+e^{-\beta}}$	$\frac{e^{\beta}}{e^{\beta}+e^{-\beta}}$
X	0	1	$\frac{e^{\beta}}{e^{\beta}+e^{-\beta}}$	$\frac{e^{-\beta}}{e^{\beta}+e^{-\beta}}$
0	0	0	$\frac{1}{1+e^{-\alpha}}$	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$
1	0	0	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$	$\frac{1}{1+e^{-\alpha}}$
0	1	1	$\frac{1}{1+e^{-\alpha}}$	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$
1	1	1	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$	$\frac{1}{1+e^{-\alpha}}$

Para x_3:

$x_3(t)$	$x_2(t)$	$P(x_3(t+1)=0\|x_2(t),x_3(t))$	$P(x_3(t+1)=1\|x_2(t),x_3(t))$
X	1	$\frac{e^{-\beta}}{e^{\beta}+e^{-\beta}}$	$\frac{e^{\beta}}{e^{\beta}+e^{-\beta}}$
0	0	$\frac{1}{1+e^{-\alpha}}$	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$
1	0	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$	$\frac{1}{1+e^{-\alpha}}$

Para x_4:

$x_4(t)$	$x_3(t)$	$P(x_4(t+1)=0\|x_3(t),x_4(t))$	$P(x_4(t+1)=1\|x_3(t),x_4(t))$
X	1	$\frac{e^{-\beta}}{e^{\beta}+e^{-\beta}}$	$\frac{e^{\beta}}{e^{\beta}+e^{-\beta}}$
0	0	$\frac{1}{1+e^{-\alpha}}$	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$
1	0	$\frac{e^{-\alpha}}{1+e^{-\alpha}}$	$\frac{1}{1+e^{-\alpha}}$