

# Machine Learning for Computer Vision

## Exercise 2

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### 1 Higher order factors

The domain of  $x_z$  is 0, 1, 2, 3, 4, 5, 6, 7. Each variable value represents one energy state. The pairwise factors are given in the following table:

$x_z$	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
$x_0$	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
$\phi_{0z}$	a	b	c	d	$\infty$				$\infty$				e	f	g	h
$x_z$	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
$x_1$	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
$\phi_{1z}$	0	0	$\infty$	0	0	$\infty$	$\infty$				0	0	$\infty$	0	0	
$x_z$	0	1	2	3	4	5	6	7	0	1	2	3	4	5	6	7
$x_1$	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
$\phi_{1z}$	0	$\infty$	0	$\infty$	0	$\infty$	0	$\infty$	0	$\infty$	0	$\infty$	0	$\infty$	0	$\infty$