

	0	1	2	3
	$s_0$	$s_1$	$s_2$	$s_3$
R	$s_0$	$s_0$	$s_0$	$s_0$
S	$s_0$	$s_1$	$s_2$	$s_3$
U	$s_1$	$s_2$	$s_3$	$s_0$
D	$s_3$	$s_0$	$s_1$	$s_2$

	$x_1 x_2$		$g_1 g_2$
R	00	$s_0$	00
S	01	$s_1$	01
U	10	$s_2$	10
V	11	$s_3$	11

	$y_1$	$y_2$
0	0	0
1	0	1
2	1	0
3	1	1

$$\Rightarrow s_1(g_1, g_2, x_1, x_2) = \overline{g_1} g_2 x_1 \overline{x_2} \vee \overline{g_1} \overline{g_2} x_1 x_2$$

$$\rightarrow k_2(g_1, g_2, x_1, x_2) = g_2 \bar{x}_2 \vee g_2 x_1$$

$$\rightarrow s_2(g_1, g_2, x_1, x_2) = \bar{g}_2 x_1$$

The image shows four 4x4 grids arranged in a 2x2 pattern, illustrating the construction of a 2D lattice. Each grid has axes labeled  $g_1$  (horizontal) and  $g_2$  (vertical). The grids are labeled  $k_1$  and  $k_2$  on the left and right respectively.

- Top-left grid:** Shows a unit cell with red and green boxes. The red box is at  $(1,1)$  and the green box is at  $(2,2)$ . The grid is labeled  $k_1$  and  $k_2$ .
- Top-right grid:** Shows a 2x2 arrangement of unit cells. The red box is at  $(1,1)$  and the green box is at  $(2,2)$ . The grid is labeled  $k_1$  and  $k_2$ .
- Bottom-left grid:** Shows a single unit cell. The red box is at  $(1,1)$  and the green box is at  $(2,2)$ . The grid is labeled  $k_1$  and  $k_2$ .
- Bottom-right grid:** Shows a 2x2 arrangement of unit cells. The red box is at  $(1,1)$  and the green box is at  $(2,2)$ . The grid is labeled  $k_1$  and  $k_2$ .



