

input memory	N	E	S	W
0	1, N			3, W
1	2, \emptyset			1, \emptyset
2	2, \emptyset			2, \emptyset
3	3, \emptyset			3, \emptyset

input memory	N	E	S	W
0	0, N	1, \emptyset		
1	2, \emptyset	2, \emptyset		
2	3, N	3, E		
3	3, \emptyset	0, \emptyset		

input memory	N	E	S	W
0		1, \emptyset	1, \emptyset	
1		2, \emptyset	2, \emptyset	
2		3, E	3, S	
3		0, \emptyset	3, \emptyset	

(a) State Machine of agent at state 1 (b) State Machine of agent at state 2 (c) State Machine of agent at state 3

input memory	N	E	S	W
0			1, \emptyset	0, \emptyset
1			2, \emptyset	1, \emptyset
2			3, S	2, \emptyset
3			3, \emptyset	3, \emptyset

input memory	N	E	S	W
0	0, N	1, \emptyset		0, W
1	2, \emptyset	2, \emptyset		1, \emptyset
2	3, N	3, E		2, \emptyset
3	3, \emptyset	0, \emptyset		3, \emptyset

input memory	N	E	S	W
0	0, N	2, \emptyset	0, \emptyset	
1	1, \emptyset	2, \emptyset	1, \emptyset	
2	3, N	2, \emptyset	3, S	
3	3, \emptyset	2, \emptyset	3, \emptyset	

(d) State Machine of agent at state 4 (e) State Machine of agent at state 5 (f) State Machine of agent at state 6

input memory	N	E	S	W
0		1, \emptyset	1, \emptyset	0, \emptyset
1		2, \emptyset	2, \emptyset	1, \emptyset
2		3, E	3, S	2, \emptyset
3		0, \emptyset	3, \emptyset	3, \emptyset

input memory	N	E	S	W
0	1, N		1, \emptyset	0, \emptyset
1	1, \emptyset		2, \emptyset	1, \emptyset
2	2, \emptyset		3, S	2, \emptyset
3	3, \emptyset		3, \emptyset	3, \emptyset

input memory	N	E	S	W
0	0, N	2, \emptyset	0, \emptyset	0, \emptyset
1	1, \emptyset	2, \emptyset	1, \emptyset	1, \emptyset
2	3, N	2, \emptyset	3, S	2, \emptyset
3	3, \emptyset	2, \emptyset	3, \emptyset	3, \emptyset

(g) State Machine of agent at state 7 (h) State Machine of agent at state 8 (i) State Machine of agent at state 9

Figure 1: Agent state machines at different positions on the patch, a tuple designates next memory state and a picked movement direction, or *do nothing* otherwise. Empty hatched cells should be treated as erroneous states. Input direction is a position of empty cell at the beginning of time tick. In the absence of neighboring empty cell agents *do nothing* (not shown).