

Figure 1 consists of three tables (a, b, c) showing the state machine of an agent at different positions on a patch. Each table has four columns: N (North), E (East), S (South), and W (West). The rows represent time ticks from 0 to 3. The input memory column indicates the position of the empty cell at the beginning of each tick. Cells containing a tuple (e.g., 2, N) represent valid states; empty hatched cells represent erroneous states. In (a), the agent is at state 1 and moves North at tick 0. In (b), it moves East at tick 0. In (c), it moves South at tick 0.

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

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

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

Figure 1 consists of three tables (d, e, f) showing the state machine of an agent at different positions on a patch. Each table has four columns: N (North), E (East), S (South), and W (West). The rows represent time ticks from 0 to 3. The input memory column indicates the position of the empty cell at the beginning of each tick. Cells containing a tuple (e.g., 2, \emptyset) represent valid states; empty hatched cells represent erroneous states. In (d), the agent is at state 4 and moves South at tick 0. In (e), it moves West at tick 0. In (f), it moves North at tick 0.

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

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

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

Figure 1 consists of three tables (g, h, i) showing the state machine of an agent at different positions on a patch. Each table has four columns: N (North), E (East), S (South), and W (West). The rows represent time ticks from 0 to 3. The input memory column indicates the position of the empty cell at the beginning of each tick. Cells containing a tuple (e.g., 1, \emptyset) represent valid states; empty hatched cells represent erroneous states. In (g), the agent is at state 7 and moves East at tick 0. In (h), it moves West at tick 0. In (i), it moves North at tick 0.

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

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

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