Small Maps — 20 x 20 grids

Agents	Instances	ICBS	CG	DG	WDG
Nodes (×1000)					
30	44	3.6	2.6	**0.5**	**0.5**
40	39	8.9	7.0	**0.2**	**0.2**
50	23	12.4	10.1	**2.9**	**2.9**
Runtime (s)					
30	44	0.5	0.4	**0.1**	**0.1**
40	39	1.0	0.9	**0.1**	**0.1**
50	23	1.7	1.5	**0.6**	0.7

(a) Empty map.

Agents	Instances	ICBS	CG	DG	WDG
Nodes (×1000)					
16	47	20.2	9.6	7.8	**6.1**
20	29	20.2	13.6	10.7	**8.9**
24	7	79.6	47.4	33.2	**15.2**
Runtime (s)					
16	47	7.0	**2.4**	**2.4**	2.4
20	29	4.0	3.3	2.1	**1.9**
24	7	17.9	9.6	5.4	**3.0**

(b) Dense map.

Table 2: Average expanded CT nodes and average runtime over instances solved by all solvers.

Smaller number of expanded CT nodes

Empty map				Dense map				20 agents			
k	CG	DG	WDG	k	CG	DG	WDG	obs	CG	DG	WDG
30	0.2	1.0	1.2	16	3.9	3.9	11.6	0	0.1	0.5	0.5
40	0.5	1.7	2.0	20	4.8	4.8	15.2	10	1.0	1.3	2.1
50	0.6	2.3	2.8	24	6.9	7.0	22.2	20	3.0	3.1	6.2

Table 1: Average h-values of the root CT node. k represents the number of agents, and obs represents the percentage of cells that are randomly blocked on a 20×20 grid.

	CG	DG	WDG
All 50 instances			
h-value of the root node	9.4	10.1	**17.0**
Runtime per node (ms)	**16.1**	21.7	21.9
Success rate	0.32	0.58	**0.76**
16 instances solved by all CBSH solvers			
Nodes ($\times 1000$)	19.9	6.9	**0.4**
Runtime (s)	319	141	**6**

Large Maps

— 192 x 192 grids with 51% blocked cells