

Introduction to Multi-Agent-Programming

B. Nebel, A. Kleiner
C. Dornhege, D. Zhang
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University of Freiburg
Department of Computer Science

Exercise Sheet 7

Due: December 14th, 2010

Exercise 7.1 (Coalition Structure Search)

Three robots $\{a, b, c\}$ need to finish two tasks $\{t_1, t_2\}$ in the following grid world. It takes 1 day for a robot to move from one cell to one of its 4 neighbors.

4					t_1
3				b	
2	c				
1				t_2	
0	a				
	0	1	2	3	4

In the following table, we list the days that each robot can finish each task alone. The tasks need to be finished as soon as possible.

	t_1	t_2
a	10	20
b	30	30
c	15	10

- Paint the coalition graph of $\{a, b, c\}$. (1pt)
- If each robot can only do one task, compute the coalition, and how many days do they need? (2pt)
- If a robot can move for the next task after a task is finished, compute the coalition, and how many days do they need (2pt)

This exercise should be submitted during the lecture on Tuesday (Dec. 7th)