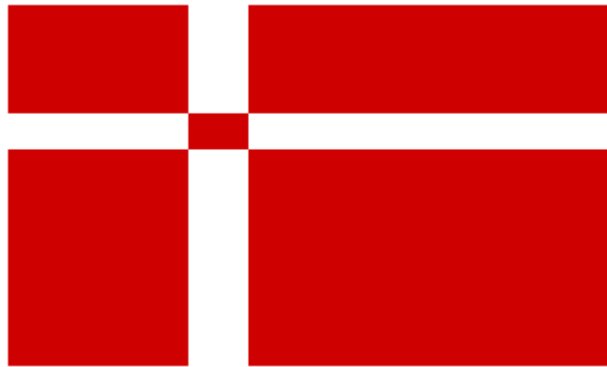# Let's Get Together

Group 1

Andrey Kutser

Chris Murphy

Becky Plummer

Multiplayer Strategy

- Move in random diagonals to capture information
- Communication protocol:
  - Calculate what I see
  - Calculate what they see
  - Lower num moves onto higher num

5	3	6
1	0	2
7	4	8

Player 1's view of Player 2

5	3	6
1	0	2
7	4	8

Player 2's view of Player 1

- Deadlock detection
  - Timeout: 2 rounds, then I move

Single Player Strategy

- Gather player coordinates by laying down tracks
- Calculate areas
- Find meeting point in smallest area
- Shortest path to meeting point

- Multiplayer and Single player combination
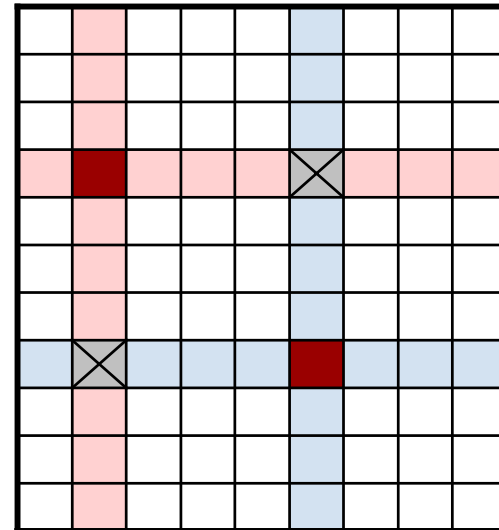
Multiplayer Detection

- If we found some information before 2*min + max rounds have elapsed

- If we didn't find at least one of a player's coordinates during the last two revolutions

- Worst case convergence time out 3*min + 2*max rounds

Laying down tracks

- One revolution in the min direction
- One revolution in the max direction: search for one player coordinates
- Last revolution in the min direction: search for the other player coord.

- 2*min + max steps

Minimum Areas

- Adjust coordinate system to determine direction of travel
- Choose minimum area among those created by any pair of players
- Compute center point of area and player offset
- Move diagonally to shorten distance traveled

Conflict Resolution

- Odd number distances result in "off by one" errors
- Two or more minimum areas

- Equidistant locations due to wrapping

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
				■										■					

Tournament Analysis

- Success Rate determined by comparing our score to the "Expected Score"

$$2.5 * \min \; + 1.5 * \max$$

Number of Players	Success Rate	Average Ranking
2	96%	1
3	90%	4
5	73%	6
9	55%	10