Reading Assignment 7

"Moving Furniture with Teams of Autonomous Mobile Robots" by *Rus, Donald and Jennings*
"Issues and Approaches in the Design of Collective Autonomous Agents" by *Mataric*
Due: *Wednesday, March 10th, 1999*

The following questions are intended to stimulate your understanding of the assigned reading material. Many of them have no "right" and "wrong" answers.

1. Rus, Donald and Jennings talk about using a "mechanical register" to achieve implicit communication between the robots. How does this relate to Brooks' view of the world as it's own model? What sort of drawbacks are there in this kind of approach? Would a more direct communication scheme overcome these drawbacks?

2. Briefly state the main differences between the four protocols described in section 2 of "Moving Furniture...". Which one seems best from an efficiency point of view? Which seems most robust? Why?

3. Mataric talks about different approaches to multi-agent control, and mentions reactive and planner-based methods as being at opposing ends of the control spectrum. For each of these methods, list some strengths and weaknesses that it is likely to have in this domain. Can these two paradigms be combined as straightforwardly in this domain as in other robots you have read about?

4. After reading the two papers, why do you think people are conducting research using multiple robots? What are some of the advantages over using a single robot? What are the disadvantages?