Foundations of Artificial Intelligence

Prof. Dr. B. Nebel, Prof. Dr. W. Burgard   University of Freiburg
C. Plagemann, P. Pfaff, D. Zhang, R. Mattmüller   Department of Computer Science
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Exercise Sheet 1
Due: Friday, April 27, 2007

Exercise 1.1 (What is AI?)

(a) Characterize the following definitions with respect to the four categories presented in the lecture.

- "A collection of algorithms that are computationally tractable, adequate approximations of intractably specified problems." (Partridge, 1991)
- "The enterprise of constructing a physical symbol system that can reliably pass the Turing Test." (Ginsberg, 1993)
- "The field of computer science that studies how machines can be made to act intelligently." (Jackson, 1986)

(b) "Surely computers cannot be intelligent—they can do only what their programmers tell them."

Discuss whether the latter statement is true, and whether it implies the former.

Exercise 1.2 (Potentials and Limits of AI)

Examine the AI literature or the Internet to discover to what extent the following tasks can currently be solved by computers:

(a) Playing the Chinese game of Go.

(b) Performing real-time translations of spoken English into spoken German.

(c) Autonomously navigating a vehicle (e.g. a Jeep) through the desert over a distance of 200 kilometers.

(d) Playing table tennis.

Write down your findings in 2–3 sentences each.

The exercise sheets may and should be worked on in groups of three (3) students. Please write all your names and the number of your exercise group on your solution.