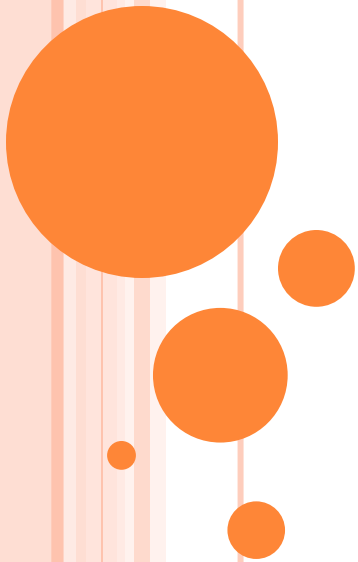


ARTIFICIAL INTELLIGENCE

LECTURE 10

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2012-2013 3rd year, semester 5



INTRODUCTION

- The content of this lecture is based on the book on expert systems [GR], and on the documentation from Clips website [CLIPS].
- The lecture will be taught on december 17, 2012 in room 045C, between 16:20 and 17:50. It's topic will be again CLIPS/Jess syntax and programming style.
- Note: this powerpoint presentation will be all the written material for the lecture, those who come at the lecture (in room 045C) will hear the rest of the explanations, and can see more examples on the blackboard (this week we recover last week's lab, you will present the assignments during the lecture)

CONTENTS

- Multiple matches of a fact [GR, page 378(382)] program 41.clp from the archive
- An example of an expert system for the blocks world problem [GR, 8.6 section, page 371(382)]
- A stack implementation [GR, 380(391)], example 42.clp
- The use of or, and and not operators in constraints, [GR, 384(395)], example 44.clp
- The use of expressions and functions, example 45.clp (not a complete one, it doesn't call the function)
- The predicate field constraint “:”, example 46.clp (just explanations, not a program)
- How to compute a sum, using rules [GR, page 389(400)], example 47.clp

KNOWLEDGE REPRESENTATION

- The OAV model for representing semantic nets [GR, page 66]
- Frames representation [GR, page 74(89)]
- Propositional logic – the first order predicate logic [GR, page 86(101)]
 - Quantifiers
 - De Morgan's laws
 - Rules of inference
 - Modus ponens rule
 - Modus tolens rule, etc. A summary is on page 120(134)
 - Resolution (page 128)
- And-or-trees [GR, page 106]

- You have 7 examples in the archive [lab 4](#) which are referred on the previous slides.

ASSIGNMENTS (THIS IS COPIED FROM PREVIOUS LECTURE)

- See the document “[assignments 2](#)” to see a list of problems.
- Do not solve problem 2 on the list, since it is rather difficult, a part of the solving can be read from [GR, section 8.6, page 371(382)]

BIBLIOGRAPHY

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<http://www.cs.rochester.edu/~brown/242/docs/JessTutorial.html>
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<http://www2.cs.siu.edu/~rahimi/cs537/slides/chapter02.pdf>
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- [W1] Mark Watson – Practical Artificial Intelligence Programming With Java AI 3rd ed., 2008
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