

University of Massachusetts Lowell

91.301: Organization of Programming Languages
Fall 2004

Problem Set 9 The Metacircular Evaluator

Issued: Section 201 (Dimock): Monday, 29 Nov 2004; Section 202 (Yanco): Tuesday, 30 Nov 2004
Due: Section 201: Monday, 6 Dec 2004; Section 202: Tuesday, 7 Dec 2004
Reading: Text (SICP 2nd Edition by Abelson & Sussman): Section 4.1

Overview

In this problem set, you'll make modifications to the metacircular evaluator, changing UML Scheme.

To run the metacircular evaluator, download `mceval.ss` from the course web site. Use the `MzScheme` language.

After executing the code, evaluate (driver-loop). This will run the interactions for your metacircular UML Scheme world. Remember that everything you type in (except for variables and numbers) should be prefixed by `uml:` if you forget, the system will have an error. If you type in an error, the driver-loop exits and you lose the state you had in the metacircular world.

You only need to turn in the portions of the code that you change.

Warm-up: Run the metacircular evaluator and evaluate some UML Scheme expressions. Nothing to turn in for this part.

Exercise 1: Exercise 4.1 on p. 368. Only do one of the two (left to right or right to left) – your choice.

Exercise 2: Exercise 4.2 on p. 374.

Exercise 3: Add `uml:or` to the metacircular evaluator. You may want to look at the definitions for `uml:and` to help you with this problem.

Exercise 4: Change `uml:if` to the following syntax:

```
(uml:if <predicate> uml:then <consequent> uml:else <alternative>)
```

Exercise 5: Exercise 4.10 on p. 376. Choose your own way to change the syntax of UML Scheme. For this problem, explain what you did as well as turning in the code.