

Programming Languages — 604, spring 2008

Assignment 4

March 2, 2009

General rules

Return your answers via *CSNET*, or if that fails, by email to the instructor. Late penalty is calculated in the same manner than for Assignment 1; deadline is announced in class and/or on the class web pages.

Assignment

- Provided is a parser, type-checker, evaluator, and pretty printer for simply typed lambda calculus with integers. Please extend the type-checker and the evaluator with the following constructs. Note that the data types that represent types and terms in your language already contain cases for the extensions: The type-checker and evaluator, however, do not know what to do with those terms. The parser mostly understands those terms, but you have to implement parsers for a few of the requested features. A good source for understanding the parser library used is (besides class notes) <http://legacy.cs.uu.nl/daan/parsec.html>.

1. Add built-in support for units.
2. Add built-in support for ascription.
3. Add built-in support for sequences.
4. Add built-in support for defining records.
5. Add built-in support for projection on records.

You need to modify files `Parser.hs`, `Eval.hs`, and `Syntax.hs`, and `Typeof.hs`. I don't expect that `Main.hs` or `Pretty.hs` require modifications, but feel free to modify those too if you feel the need. Submit all these `.hs` files and any others you create, such as example files. Also, include a test suite that can be executed with the shell command “`make test`”. (that means that you need to write a Makefile too).

Extra points for good suggestions and bugfixes of the provided framework.

Enjoy!