

CS 510 Types Homework 1 – due 10am, Thursday, Oct. 6, 2005

Homework must be submitted on paper in class. You are strongly encouraged, though not required, to typeset your solutions using `latex`. All programs mentioned can be downloaded via the course web page.

1. Do Pierce 3.5.10.
2. Do Pierce 3.5.13.
3. Do Pierce 3.5.14. Use structural induction on τ .
4. Do Pierce 3.5.17. Just do one direction (“if” or “only if”) – take your pick!
5. Write and test an OCAML function

```
size : term -> int
```

that implements definition 3.3.2. It will be easiest to put this in file `syntax.ml` and change `main.ml` to print out the size of each input term. Submit just the code for the `size` function.

6. Do Pierce 4.2.2. Just change the implementation of the `eval` function in `core.ml`. If no big-step rule applies, raise the `NoRuleApplies` exception; unlike in the small-step case, this should *not* be caught, but should instead propagate to the top level. Submit your changed `core.ml` file.