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CIS 500 Software Foundations

Homework Assignment 5

Representation of Terms; Basic Properties of Typing

Due: Monday, October 6, by noon

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Submission instructions: Same as usual.

Reminder: When reading in TAPL, you should stop and work *every* one-star exercise.

1 Exercise 6.1.5 in TAPL.

2 Exercise 6.2.8 in TAPL.

3 Exercise 7.3.1 in TAPL. (You will need to download and compile the `untyped` checker from the TAPL web site.)

4 Exercise 8.3.6 in TAPL.

5 Exercise 8.3.7 in TAPL.

6 Debriefing [N.b.: This question is part of the assignment: please take the time to write out answers and turn them in with the rest. What you write will not affect your grade in any way, but we need this information to track how the course is going.]

1. How many hours did you spend on this assignment?

2. Would you rate it as easy, moderate, or difficult?

3. How much did you rely on our solutions while developing yours? (Completely / substantially / moderately / just for verification / not at all?)

4. Did you work on it mostly alone, or mostly with other people?

5. How deeply do you feel you understand the material it covers (0%–100%)?

6. Any other comments?

3.

```
let rec eval ctx t = match t with
    TmAbs(fi, _, _) -> t
  | TmApp(fi,t1,t2) ->
      let v1 = eval ctx t1 in
      let v2 = eval ctx t2 in
      (match v1 with
          TmAbs(_,x,t12) -> eval ctx (termSubstTop v2 t12)
        | _ -> raise NoRuleApplies)
  | _ ->
      raise NoRuleApplies
```

The rest of the solutions can be found in the back of the book. (The solution given for 6.2.8 is just a sketch. What you hand in should be a complete, detailed proof.)