

# Types and Programming Languages, Exercise 1

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Issued: Monday 21 January 2008. Due: Monday 28 January 2008.

TAPL refers to *Types and Programming Languages* by Benjamin Pierce.

1. TAPL, Exercise 3.5.18
2. TAPL, Exercise 3.5.17
3. Write an implementation of untyped call-by-value lambda calculus based on the following principles:
  - use a big-step semantics;
  - use an environment rather than substitution at each step;
  - use variable names rather than de Bruijn indices;
  - include booleans and naturals as base types, with the operations given in the text (boolean constants, conditionals, zero, successor, predecessor, test for zero).

Base your on programs `arith` and `untyped` from Pierce's implementation, found here:

<http://www.cis.upenn.edu/~bcpierce/tapl/resources.html#checkers>