

# COMS W4115

## Programming Languages and Translators

### Homework Assignment 2

Prof. Stephen A. Edwards    Assigned April 8th, 2002  
Columbia University        Due April 17th, 2002

Hand this in at the beginning of class, 2:40 PM.

Submit your answers on paper (i.e., do not email it).

Write both your name and your Columbia ID (e.g., se2007) on your assignment.

Do this homework alone. You may consult the instructor and the TAs, but not other students.

1. Scott, Exercise 10.8, Page 584. In addition to answering the question, draw a diagram showing the layout of fields in objects of classes `foo` and `bar`.
2. Scott, Exercise 6.26, Page 315. Keep your example as small as possible.
3. Scott, Exercise 8.4, Page 486. Consider both optimized and unoptimized implementations of the function.
4. Scott, Exercise 8.7, Page 487. We did not discuss call-by-name in class. Read the discussion on pages 451–452 to answer the question.
5. Scott, Exercise 9.9, Page 525. Don't worry about deciphering Figure 9.8: the bottom line is that it allocates registers the same way as our Tiger interpreter allocates fields in the current activation record. The problem could also be stated "give an expression that requires more than four temporary storage locations."