Outline for December 8, 2006

Reading: §15.2, 15.4

1. Greetings and felicitations!
   a. Puzzle of the day
   b. Volunteer for course evaluations
2. Capabilities
   a. Capability-based addressing
   b. Inheritance of C-Lists
   c. Revocation: use of a global descriptor table
3. Privilege in Languages
   a. Nesting program units
   b. Temporary upgrading of privileges
4. MULTICS ring mechanism
   a. MULTICS rings: used for both data and procedures; rights are REWA
   b. (b_1, b_2) access bracket—can access freely; (b_3, b_4) call bracket—can call segment through gate; so if a's access bracket is (32,35) and its call bracket is (36,39), then assuming permission mode (REWA) allows access, a procedure in:
      rings 0–31: can access a, but ring-crossing fault occurs
      rings 32–35: can access a, no ring-crossing fault
      rings 36–39: can access a, provided a valid gate is used as an entry point
      rings 40–63: cannot access a
   c. If the procedure is accessing a data segment d, no call bracket allowed; given the above, assuming permission mode (REWA) allows access, a procedure in:
      rings 0–32: can access d
      rings 33–35: can access d, but cannot write to it (W or A)
      rings 36–63: cannot access d