



BU CAS CS 520 (FALL SEMESTER, 2008)
PRINCIPLES OF PROGRAMMING LANGUAGES

Assignment 4

Out: Monday, 20 October 2008
Due: Tuesday, 04 November 2008

Total: 110 points + 50 extra points

Exercise 1 (80 points) *In contrast to the (ordinary) list data structure, which only supports $O(n)$ -time list subscripting operations, the random-access list data structure by Chris Okasaki can support $O(\log(n))$ -time list subscripting operations while keeping $O(1)$ -time list consing and unconsing operations. In the file `ralist.sats`, which is available on-line, there are several list operations. Please implement these operations in a file named `ralist.dats`.*

Exercise 2 (30 points + 50 extra points) *A function named `power` is declared in the file `power.dats`, which is available on-line. Please implement the function `power`. If your implementation of `power` is of $O(\log(n))$ -time complexity, you will receive 50 extra points.*