

LISP FUNCTION PROOFS ASSIGNMENT

1. Prove that the definition of APPEND is associative. In other words,
 $\text{APPEND}(x, \text{APPEND}(y, z)) \equiv \text{APPEND}(\text{APPEND}(x, y), z)$. [Hint: use induction on the length of the list bound to x .]
2. Show how the FLAT function can be transformed to yield the FLAT2 function using the transformations we described in class for adding an accumulator variable and thereby making the function be tail recursive. The FLAT and FLAT2 functions are given in the book *Notes on Data Structures* although in class we used the name FLAT to correspond to the FLAT2 function.