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CS 352
03/01/2013

1 SML Assignment

1.1 Warm-Up: SML types and functions

a. The type of (”hello”, 2.1, 3) is string * real * int

b. No, the tuples are not identical. Yes, the lists are identical.

c. [#”c”,#”a”,#”t”] : char list

d. [[[1]],[[2]]] : int list list list

e. fun conv x = floor x;
val conv = fn : real -> int

f. fun booltest (i,r) = if floor r > i then true else false;
val booltest = fn : int * real -> bool

g. fun currybool i r =
let val r = floor r
in
if r > i then r else i
end;

val currybool = fn : int -> real -> int

h. fun cycle l = tl(l)@ [hd(l)];
val cycle = fn : ’a list -> ’a list

1.2 Warm-up: SML error messages

a. The input for reverse should be (x::xs) and the other end of the = should be xs @ [x]; . Otherwise, the interpreter considers [x::xs] to be a list of fixed size, which it is not.

b. The forced type signature should be in the constructor of ”square” as opposed to its definition.

c. There is a input error in the constructor for myster, should be nil instead of niil.

d. The second constructor for comb is incorrect. comb (n,n) will not work because n has already been assigned. This can be fixed by adding an if statement in the curried definition of comb to check that the first and second arguments are equal to each other.