Sequential, Parallel, Mixed, Declarations: Quick Exercises

Example

Exercise 1.
The formula written for parallel declaration is:
$$\mathcal{D}[\![\texttt{Mut } D_1 \ D_2 \ \texttt{Ally}]\!]_\rho = \texttt{Y}\mu.\mathcal{D}[\![D_2]\!](\mathcal{D}[\![D_1]\!](\rho)(\mu))$$
This writing contains a small bug.
(a) Can you find it?
(b) Do you know how to correct it?
(c) Which consequences in letting the formula unchanged?

Exercise 2.
(a) Do You recognize the language used in the interactive sessions below?
(b)
let rec x = fun u → u + y and y = 5 in x(3);;
- ... what will be printed here?
(c)
let rec x = fun u → y(u) and y = fun u → x(u) in x;;
- ... what will be printed here?
(d)
let rec onetwo = 1::twoone and twoone=2::onetwo in List.nth onetwo 5;;
- ... what will be printed here?
(e)
let rec onetwo = 1::twoone and twoone=2::onetwo in twoone;;
- ... what will be printed here?