Exercises Week 11

1. [6 POINTS] Complete the evaluator for the core ML.
2. [4 POINTS] Consider the following type for expressions:

```
type e = Var of string | T | F
       | Not of e | And of e * e | Or of e * e
```

   (a) Implement `variables`.

```
# variables (And (Or (Not T, Not (Var "x")),
                  And(Var "y", (Or (T, F)))));;
- : string list = ["x"; "y"]
```

   (b) (Depth-first search.) Use `variables`, `substitute`, and `simplify` (see Homework Week 10) to implement a satisfiability checker.

```
# solve (And (Or (Not T, Not (Var "x")),
              And(Var "y", (Or (T, F)))));;
- : (string * e) list = [("x", F); ("y", T)]
```

   Hint: Use the following code.

```
let rec solve e =
  match ??? e with
  | T -> []
  | F -> raise No_solution
  | e' ->
      let x = List.hd (??? e') in
      try
        ??? :: ???
      with
        No_solution -> ??? :: ???
```

Submit `yourMatrNr.ml` before 23:59 on **January 18**.