CS 565 Out: March 19, 1998
Jens Palsberg Due: March 26, 1998

Homework 8:

Implement the Decision Procedure for Subtyping

1. Implement in Java the $O(n^2)$ time algorithm from *Efficient Recursive Subtyping*. The set of types is defined by the following grammar:

```
t  ::=  int
     |  float
     |  ( t -> t )
     |  mu u .(  t -> t )
     |  u
```

The definition of subtyping for these types is like the definition in Lecture Note 8, extended with `int` $\leq$ `float`. (The motivation for `int` $\leq$ `float` is Java.)

For a given subtype problem, your solution must output true or false. Here are two examples:

```
mu u.((u -> float) -> int) <=
mu v.((v -> int) -> float)

gives true


mu v.(v -> int) <=
mu u.(u -> float)

gives false
```

Note: part of the problem is to figure out how to translate a type expression into an automaton.