Werkcollege Compilerconstructie
Dinsdag 21 oktober 2014

1. (Derived from Excercise 6.4.3(a) from the book)

   Consider the following assignment:

   ```
   x = a[i] + b[j]
   ```

   where the arrays a and b are declared as follows:
   int a[5];
   int b[7];

   (a) Draw the 'syntax trees' for the types of a and b.

   (b) Draw the parse tree for the assignment.

   (c) Use the translation scheme of Fig. 6.22 to annotate the parse tree. Give the resulting translation of the assignment into three-address code.

2. (Derived from Exercise 6.7.1(a) from the book)

   Consider the following boolean expression:

   ```
   a==b && (c==d || e==f)
   ```

   (a) Construct the parse tree for the boolean expression.

   (b) Use the translation scheme of Fig. 6.43 to annotate the parse tree. Give the resulting translation of the boolean expression into three-address code.
   You may assume that the address of the first instruction generated is 100.

3. (Extension of Exercise 6.7.1(a) from the book)

   Consider the following 'program':

   ```
   { if (a==b && (c==d || e==f)) x=1; y=x+1; }
   ```

   (a) Construct the parse tree for the program.

   (b) Use the translation scheme of Fig. 6.43 and Fig. 6.46 to annotate the parse tree. Give the resulting translation of the program into three-address code.
   You may assume that the address of the first instruction generated is 100.