

CS 415 Compilers: Problem Set 5
Due date: Thursday, April 5, before recitation

Problem 1 – Attribute Grammars

1. EaC, p.734, problem 4.3.1
2. EaC, p.734, problem 4.3.2. (The classic expression grammar is given in Figure 3.1 on page 85)

Problem 2 – Attribute Grammars

Assume the following partial grammar taken from our second project.

```
vardcl ::= idlist : type
idlist ::= idlist, ID | ID
type   ::= array [ICONST .. ICONST] of stype | stype
stype  ::= integer | real | double
```

1. Write an attribute grammar that computes the attribute **type** for each identifier, i.e., for each occurrence of an **ID** node in a subtree with `<vardcl>` as its root. State for each attribute that you are using whether it is synthesized or inherited.
2. Show the parse tree for the input string
A, B, C : real
with all attribute instances and the final values of these attributes, i.e., show the decorated tree.
3. Is your attribute grammar S-attributed or L-attributed?