Ps4 assignment handin

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Task 1.1

First:

Definition 0.1 (Syntax Directed Definitions)**.** A context free grammar where grammar symbols have semantic operations, named attributes.

Definition 0.2 (Synthesized attribute)**.** A value which is only given from a given non-terminal or any of its children.

Definition 0.3 (Inherited attribute)**.** A value for a non-terminal in a parse tree which is given from either a parent or sibling node.

An S-attributed definition is an SDD where all attributes are synthesized. An L-attributed definition is an SDD where attributes can be either synthesized or inherited. When using inherited attributes, there may be pitfalls that make interpretation difficult. Typically, to do translation of L-attributed SDDs by traversing parse trees from left to right in a postorder, top-down fashion. To avoid trouble, we apply the following constraints to inherited attributes:

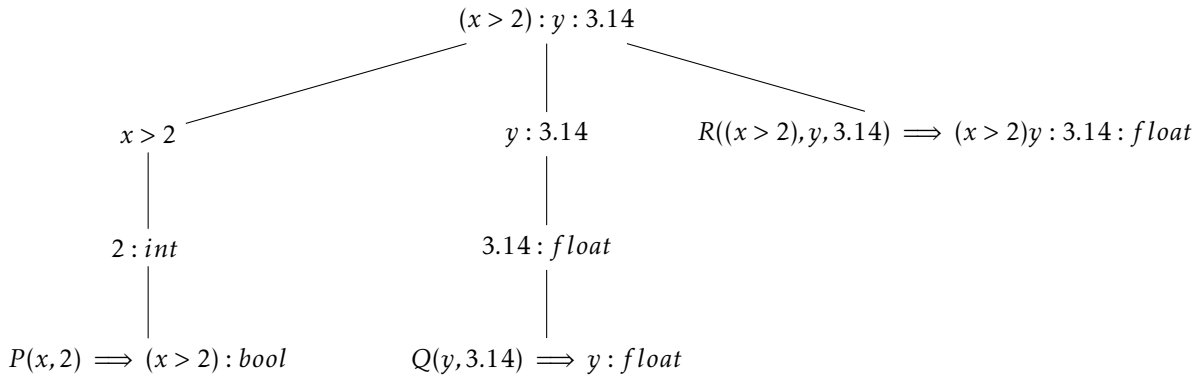
1. Inheritance must be to the left of any given node. I.e. for a given production rule $A \to X_1 X_2 \ldots$, any given X_i can only have its value computed by using values from X_j, for any $j < i$.
2. There cannot be cyclic definition, e.g. the following set is invalid: $X \to A, A \to X$.

Since synthesized attributes do not yield the same traversal problems, S-attributed defintions do not need extra constraints. S-attributed SDD can thusly be parsed bottom-up without much trouble. Since all s-attributed SDD's can also be valid as L-attributed grammars, they can also be parse the same way as an L-attributed grammar.

Task 1.2

I define the following rules:

1. $P(a,b) = a > b \wedge b : t \implies a : t$
2. $Q(a,b) = a : b \wedge b : t \implies a : t$
3. $R(a,b,c) = a : bool \wedge b : t \wedge c : t \implies ((A)b : c) : t$



Task 2

Okay. My output seems to match the .table.correct files for all inputs. The only difference is the ordering (assumably because I use a different hashing scheme than you did).