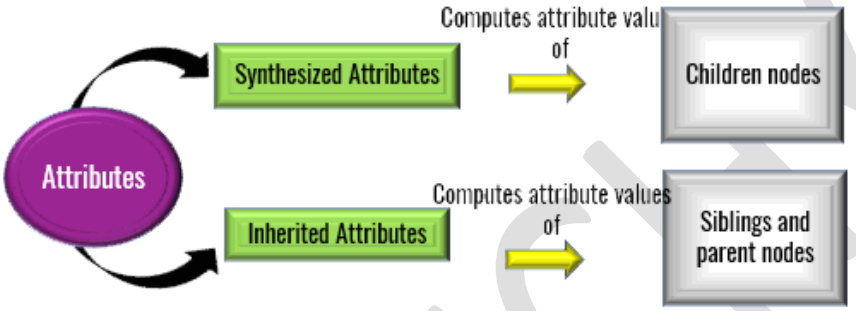
## Syntax Directed Definition

- A Syntax Directed Definition (SSD) is a generalization of a context-free grammar in which each grammar symbol has an associated set of attributes, partitioned into two subsets called the synthesized and inherited attributes of that grammar symbol.
- An attribute can represent a string, a number, a type, a memory location, or whatever. The value of an attribute at a parse-tree node is defined by a semantic rule associated with the production used at that node.


- Attributes are divided into two types:
    - Synthesized Attributes are computed from the values of the attributes of the children nodes.
        - Inherited Attributes are computed from the values of the attributes of both the siblings and the parent nodes.
- For Example, Each production, A → α, is associated with a set of semantic rules: b := f(c1, c2, . . . , ck), where f is a function.

- b is a synthesized attribute of A, and c1, c2, . . . , ck are attributes of the grammar symbols of the production
- b is an inherited attribute of a grammar symbol in α, and c1, c2, . . . , ck are attributes of grammar symbols in α or attributes of A.




## Syntax Directed Translation Schemes

An annotated parse tree for the input string **3 * 5 + 4 n,**

- A parse tree showing the values of attributes at each node is called an annotated parse tree.
- The process of computing the attributes values at the nodes is called annotating of the parse tree.

For More Details Click Here:

https://www.wikitechy.com/tutorials/compiler-design/syntax-directed-definition