

Snowflake Language

Snowflake is a subset of the Snobol 4 programming language. Snowflake is a string manipulation language. The only data type is a string. There are no numbers. Snowflake is “line oriented”. A complete Snowflake statement must fit on a line and only one Snowflake statement can be on a line. Therefore it is important that you recognize the end of line characters. Snowflake is case insensitive so variables can be either upper or lower case and still be considered the same. String constants inside single quotes can be either upper or lower case and must remain the case entered.

The default operator in Snowflake is concatenation. If you write two variables or string constants (‘constants are surrounded by single quotes’) with one or more spaces between them, the strings will be concatenated. Concatenation is the only operation allowed on the right side of the equals sign.

Pattern matching is the major operation in Snowflake. A pattern can be specified after the variable on the left.

```
cat (cow | "tree") dog = rat
```

The variable `cat` will be searched to see if the value of the variable `cow` or the string “tree” can be found. The first value that matches is used. The value of the variable `dog` must be found immediately after the match of the first part. If there is an expression to the right of the equals sign, then this value will be substituted for the characters that matched the pattern.

A pattern or any part of a pattern may be followed by a dollar sign and a variable. If the pattern matches, the matching string will be stored in the specified variable.

```
cat = "The dog bit the man"  
cat ("rat" | "dog") $ mouse
```

In the above program, the variable `mouse` will receive the string “dog” as that portion of the pattern matches.

There are two special variables, `input` and `output`. If you reference `input` in a program, it will read a line from the keyboard. For example:

```
cat = input "ABC"
```

The variable `cat` will have the value of what was typed on the keyboard concatenated with `ABC`. When a value is assigned to the variable `output`, the string will be written to the screen. The variable `output` cannot appear on the right side of an equals sign and the variable `input` cannot appear on the left.

Comments in Snowflake have the same format as Java and C++ comments, both `/* */` and `//`.

Difference between Snowflake and Snobol

Snowflake pattern matching does not do any back tracking. Alternate patterns are matched in the order they are given. The only functions supported for patterns are `span` and `break`. There are no numbers or tables.

Snowflake Language

Snowflake BNF

program → labelline | labelline **EOL** program
labelline → ~**name** line | line
line → asg | asg : nextline
nextline → (**name**) | **s(name)** | **f(name)** | **s(name)f(name)**
asg → **name** = equation | **name** pattern = equation | **name** pattern
equation → varconst | varconst equation
pattern → alt | alt ! pattern
alt → saveitem alt | saveitem
saveitem → item | item **\$ name**
item → (pattern) | varconst | **break(varconst)** | **span(varconst)**
varconst → **name** | **constant**