The Language PCFG

BNF-converter

January 14, 2016

This document was automatically generated by the *BNF-Converter*. It was generated together with the lexer, the parser, and the abstract syntax module, which guarantees that the document matches with the implementation of the language (provided no hand-hacking has taken place).

The lexical structure of PCFG

Identifiers

Identifiers ⟨*Ident*⟩ are unquoted strings beginning with a letter, followed by any combination of letters, digits, and the characters _ ', reserved words excluded.

Literals

Reserved words and symbols

The set of reserved words is the set of terminals appearing in the grammar. Those reserved words that consist of non-letter characters are called symbols, and they are treated in a different way from those that are similar to identifiers. The lexer follows rules familiar from languages like Haskell, C, and Java, including longest match and spacing conventions.

The reserved words used in PCFG are the following:

There are no reserved words in PCFG.

The symbols used in PCFG are the following:

```
-->    +    *
?      (    )
\n
```

Comments

Single-line comments begin with #.
There are no multiple-line comments in the grammar.

The syntactic structure of PCFG

Non-terminals are enclosed between ⟨ and ⟩. The symbols ::= (production),
| (union) and ϵ (empty rule) belong to the BNF notation. All other symbols
are terminals.

$$\langle Grammer \rangle \quad ::= \quad \langle ListRule \rangle$$

$$\langle Rule \rangle \quad ::= \quad \langle Prob \rangle\, \langle LHS \rangle\, --> \langle ListRHS \rangle$$

$$\langle LHS \rangle \quad ::= \quad \langle Ident \rangle$$

$$\langle Prob \rangle \quad ::= \quad \langle Double \rangle$$

$$
\begin{aligned}
\langle SYM \rangle \quad ::= \quad & \langle Ident \rangle \\
| \quad & \langle Ident \rangle\ + \\
| \quad & \langle Ident \rangle\ * \\
| \quad & \langle Ident \rangle\ ?
\end{aligned}
$$

$$
\begin{aligned}
\langle T \rangle \quad ::= \quad & \langle String \rangle \\
| \quad & \langle String \rangle\ + \\
| \quad & \langle String \rangle\ * \\
| \quad & \langle String \rangle\ ?
\end{aligned}
$$

$$
\begin{aligned}
\langle RHS \rangle \quad ::= \quad & \langle SYM \rangle \\
| \quad & \langle SYM \rangle\, \langle ListRHS \rangle \\
| \quad & \langle T \rangle \\
| \quad & \langle T \rangle\, \langle ListRHS \rangle \\
| \quad & (\ \langle ListRHS \rangle\ ) \\
| \quad & (\ \langle ListRHS \rangle\ )\ + \\
| \quad & (\ \langle ListRHS \rangle\ )\ * \\
| \quad & (\ \langle ListRHS \rangle\ )\ ?
\end{aligned}
$$

$$
\begin{aligned}
\langle ListRHS \rangle \quad ::= \quad & \epsilon \\
| \quad & \langle RHS \rangle\, \langle ListRHS \rangle
\end{aligned}
$$

$$
\begin{aligned}
\langle ListRule \rangle \quad ::= \quad & \epsilon \\
| \quad & \langle Rule \rangle \\
| \quad & \langle Rule \rangle\ \backslash n\ \langle ListRule \rangle
\end{aligned}
$$