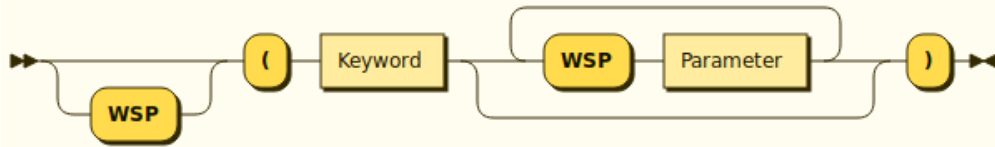# Kicad V6 S-Expression Syntax

This is a trial to define the proposed S-expression or DSN format dialect by EBNF.
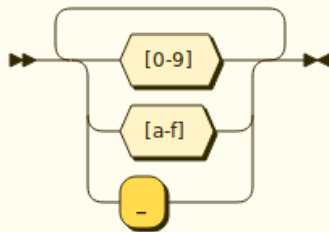
S-Expression:


```
S-Expression
        ::= 'WSP'? '(' Keyword ( 'WSP' Parameter )* ')'
```

S-Expressions are delimited by brackets for easy parsing. Indents by whitespace are recommended to improve human readability. Expression starts with a keyword what may be followed by several parameters. Parameters are separated by whitespace.
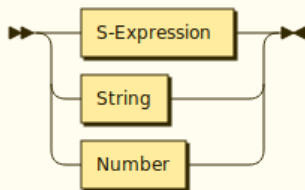
keyword:


```
keyword   ::= [0-9a-f_]+
```

As a replacement for capital letters, underscore may be used to improve human readability of keywords (key_words / KeyWords)

Parameters sequence order become arbitrary by recursion what requires the use of another S-expression for next parameter. This improves human readability as the parameter values are practically explained by its meaningful chosen preceding keyword.

Parameter:

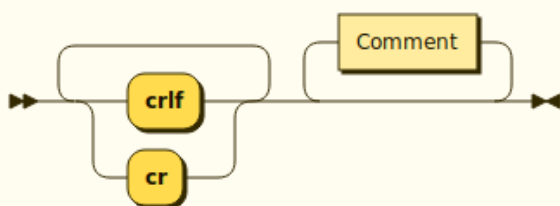
```
Parameter
        ::= S-Expression
          | String
          | Number
```

Comments are supported as separate lines indented at the same level as the current keyword delimiter and begin with the # character. In line comments are not allowed.

(why ??? - as # is not allowed in keywords and strings have quotes, everything between # and EOL could be easy parsed as comments)
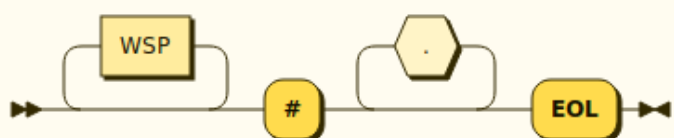
Long S-expressions may wrap the line by EOL, why they may contain any extra lines of comments. The EOL shows the position of an optional comment as these must not share its line with anything else.
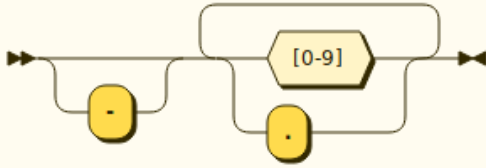
EOL:


```
EOL       ::= ( 'crlf' | 'cr' )+ Comment*
```

Comment:


```
Comment   ::= WSP* '#' .* 'EOL'
```
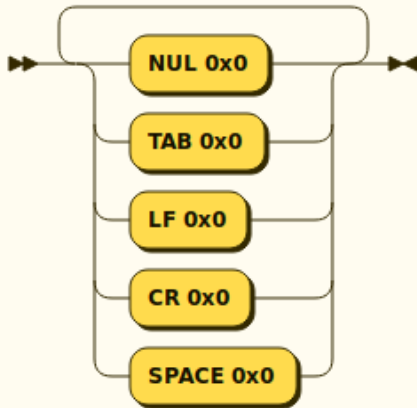
Number:

Number   ::= '-'? [0-9.]+

String:

String   ::= '"' '*'* '"'

WSP:

WSP   ::= ('NUL 0x0' | 'TAB 0x0' | 'LF 0x0' | 'CR 0x0' | 'SPACE 0x0')+

Strings allow any character between the quote delimiters. The character interpretation is UTF8 by definition what includes Unicode multi byte sequences for national characters. The tilde ~ is reserved to print overscore for inverted signals.

Todo: Escape sequences. As long as quotes are not allowed in strings, there is no need for escape sequences. Otherwhile they are \" and \\