# The Language $\text{XLE}_L EXICON$

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 $\text{XLE}_L EXICON$

### Literals

Word literals are recognized by the regular expression $(\langle letter \rangle \mid \langle digit \rangle \mid$ '_' | '−' | '+')+

### 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 $\text{XLE}_L EXICON are the following$ :

```
ETC   XLE
```

The symbols used in $\text{XLE}_L EXICON are the following$ :

```
;     .     +
`     !     *
?     ,     '
[     ]     =
=c    ~=    ~
$     {     }
(     )     |
%     --    %stem
@     ^
```

## Comments

There are no single-line comments in the grammar.
Multiple-line comments are enclosed with " and ".

## The syntactic structure of $\mathbf{XLE}_L EXICON$

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

⟨*LEXICON*⟩   ::=   ⟨*ListRULE*⟩

⟨*RULE*⟩   ::=   ⟨*WORD*⟩ ⟨*RULEDEF*⟩
          |   ⟨*RULEDEF*⟩

⟨*RULEDEF*⟩   ::=   ⟨*CAT*⟩ ⟨*MORPHCODE*⟩ ⟨*ListSCHEM*⟩
          |   ⟨*RULEDEF*⟩ ; ⟨*RULEDEF*⟩
          |   ⟨*CAT*⟩ ⟨*MORPHCODE*⟩ ⟨*Word*⟩
          |   ⟨*CAT*⟩ ⟨*MORPHCODE*⟩
          |   ETC
          |   ⟨*ListMORPHCODE*⟩ ⟨*Word*⟩ ⟨*ListMORPHCODE*⟩
          |   ⟨*ListMORPHCODE*⟩ ⟨*Word*⟩ ⟨*ListMORPHCODE*⟩ ⟨*SCHEM*⟩

⟨*ListRULE*⟩   ::=   $\epsilon$
          |   ⟨*RULE*⟩ . ⟨*ListRULE*⟩
          |   $\epsilon$
          |   ⟨*RULE*⟩ ⟨*ListRULE*⟩

⟨*WORD*⟩   ::=   ⟨*Word*⟩
          |   + ⟨*Word*⟩
          |   ⟨*Word*⟩ +
          |   ⟨*Word*⟩ ` ⟨*Word*⟩
          |   + ⟨*Word*⟩ +

$$\langle CAT \rangle \ ::= \ \langle Word \rangle$$
$$| \quad ! \ \langle Word \rangle$$
$$| \quad + \ \langle Word \rangle$$
$$| \quad \langle Word \rangle +$$

$$\langle MORPHCODE \rangle \ ::= \ \ast$$
$$| \quad \texttt{XLE}$$
$$| \quad ?$$
$$| \quad ,$$
$$| \quad ;$$
$$| \quad \texttt{\`}$$
$$| \quad .$$
$$| \quad ,$$
$$| \quad \texttt{[}$$
$$| \quad \texttt{]}$$

$$\langle ListMORPHCODE \rangle \ ::= \ \epsilon$$
$$| \quad \langle MORPHCODE \rangle \ \langle ListMORPHCODE \rangle$$
$$| \quad \epsilon$$
$$| \quad \langle MORPHCODE \rangle \ \langle ListMORPHCODE \rangle$$

$$\langle SCHEM \rangle \ ::= \ \langle LEFTSCHEMA \rangle = \langle RIGHTSCHEMA \rangle$$
$$| \quad \langle ListLEFTSCHEMA \rangle = \langle ListRIGHTSCHEMA \rangle$$
$$| \quad \langle LEFTSCHEMA \rangle =\texttt{c} \ \langle RIGHTSCHEMA \rangle$$
$$| \quad \langle LEFTSCHEMA \rangle \ \tilde{} = \langle RIGHTSCHEMA \rangle$$
$$| \quad \tilde{} \ \langle LEFTSCHEMA \rangle$$
$$| \quad \langle TEMPLATERULE \rangle$$
$$| \quad \langle LEFTSCHEMA \rangle \ \$ \ \{ \ \langle ListSYMBOL \rangle \ \}$$
$$| \quad \langle LEFTSCHEMA \rangle \ \$ \ \langle RIGHTSCHEMA \rangle$$
$$| \quad \langle TEMPLATEDISJOINTRULE \rangle$$
$$| \quad \{ \ \langle ListDISJOINTSCHEMA \rangle \ \}$$

$$\langle DISJOINTSCHEMA \rangle \ ::= \ \langle ListDSCHEM \rangle$$

$$\langle DSCHEM \rangle \ ::= \ \langle LEFTSCHEMA \rangle = \langle RIGHTSCHEMA \rangle$$
$$| \quad \langle LEFTSCHEMA \rangle =\texttt{c} \ \langle RIGHTSCHEMA \rangle$$
$$| \quad \langle LEFTSCHEMA \rangle \ \tilde{} = \langle RIGHTSCHEMA \rangle$$
$$| \quad ( \ \langle UP \rangle \ \langle SYMBOL \rangle \ )$$
$$| \quad ( \ \langle DOWN \rangle \ \langle SYMBOL \rangle \ )$$

$$\langle ListDISJOINTSCHEMA \rangle \ ::= \ \epsilon$$
$$| \quad \langle DISJOINTSCHEMA \rangle$$
$$| \quad \langle DISJOINTSCHEMA \rangle \ | \ \langle ListDISJOINTSCHEMA \rangle$$

$$\langle ListDSCHEM \rangle \ ::= \ \epsilon$$
$$| \quad \langle DSCHEM \rangle \ \langle ListDSCHEM \rangle$$

$$\begin{aligned}
\langle LEFTSCHEMA \rangle \quad &::= \quad \langle UP \rangle \\
&\mid \quad \langle DOWN \rangle \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \langle DOWN \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{\%}\ \langle Word \rangle \\
&\mid \quad (\ \texttt{\%}\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \texttt{\%}\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \texttt{\%}\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ )
\end{aligned}$$

$$\begin{aligned}
\langle RIGHTSCHEMA \rangle \quad &::= \quad \langle SYMBOL \rangle \\
&\mid \quad {}'\ \langle SYMBOL \rangle\ {}' \\
&\mid \quad \langle DOWN \rangle \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad + \\
&\mid \quad - \\
&\mid \quad \texttt{\%stem}
\end{aligned}$$

$$\begin{aligned}
\langle TEMPLATEDISJOINTRULE \rangle \quad &::= \quad \{\ \langle ListTEMPLATERULEORHS \rangle\ \} \\
&\mid \quad \{\ \{\ \langle ListTEMPLATERULEORHS \rangle\ \}\ \langle ListTEMPLATERULE
\end{aligned}$$

$$\langle TEMPLATERULEORHS \rangle \quad ::= \quad \langle ListTEMPLATERULE \rangle$$

$$\begin{aligned}
\langle TEMPLATERULE \rangle \quad &::= \quad \texttt{@}\ \langle SYMBOL \rangle \\
&\mid \quad \texttt{@}\ \langle TEMPLATE \rangle \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle + \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle - \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ \texttt{\%}\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ \langle UP \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ (\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ )\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ \texttt{@}\ \langle SYMBOL \rangle\ ) \\
&\mid \quad \texttt{@}\ (\ \langle SYMBOL \rangle\ \{\ \langle ListTEMPLATERULEORHS \rangle\ \}\ ) \\
&\mid \quad \texttt{\textasciitilde}\ (\ \langle UP \rangle\ \langle SYMBOL \rangle\ ) \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) = \langle SYMBOL \rangle \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ ) = \langle PLUS \rangle \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ ) =\texttt{c} + \texttt{@}\ (\ \langle SYMBOL \rangle\ \langle SYMBOL \rangle\ \langle PLUS \rangle\ ) \\
&\mid \quad (\ \langle UP \rangle\ \langle SYMBOL \rangle\ ) =\texttt{c}\ \langle SYMBOL \rangle
\end{aligned}$$

$\langle TEMPLATE \rangle$ ::= ( $\langle SYMBOL \rangle$ $\langle SYMBOL \rangle$ )
              | ( $\langle SYMBOL \rangle$ + )
              | ( $\langle SYMBOL \rangle$ − )
              | ( $\langle SYMBOL \rangle$ $\langle SYMBOL \rangle$ $\langle SYMBOL \rangle$ )
              | ( $\langle SYMBOL \rangle$ $\langle SYMBOL \rangle$ $\langle SYMBOL \rangle$ $\langle SYMBOL \rangle$ )
              | ( $\langle SYMBOL \rangle$ `%stem` )
              | ( $\langle SYMBOL \rangle$ `%stem` $\langle SYMBOL \rangle$ )

$\langle SYMBOL \rangle$ ::= $\langle Word \rangle$

$\langle UP \rangle$ ::= ^

$\langle DOWN \rangle$ ::= !

$\langle PLUS \rangle$ ::= +

$\langle ListWORD \rangle$ ::= $\epsilon$
           | $\langle WORD \rangle$ $\langle ListWORD \rangle$

$\langle ListCAT \rangle$ ::= $\epsilon$
           | $\langle CAT \rangle$ $\langle ListCAT \rangle$

$\langle ListSCHEM \rangle$ ::= $\epsilon$
           | $\langle SCHEM \rangle$ $\langle ListSCHEM \rangle$

$\langle ListLEFTSCHEMA \rangle$ ::= $\epsilon$
           | $\langle LEFTSCHEMA \rangle$ $\langle ListLEFTSCHEMA \rangle$

$\langle ListRIGHTSCHEMA \rangle$ ::= $\epsilon$
           | $\langle RIGHTSCHEMA \rangle$ $\langle ListRIGHTSCHEMA \rangle$

$\langle ListTEMPLATERULEORHS \rangle$ ::= $\epsilon$
           | $\langle TEMPLATERULEORHS \rangle$
           | $\langle TEMPLATERULEORHS \rangle$ | $\langle ListTEMPLATERULEORHS \rangle$

$\langle ListTEMPLATERULE \rangle$ ::= $\epsilon$
           | $\langle TEMPLATERULE \rangle$ $\langle ListTEMPLATERULE \rangle$

$\langle ListSYMBOL \rangle$ ::= $\epsilon$
           | $\langle SYMBOL \rangle$ $\langle ListSYMBOL \rangle$

$\langle ListUP \rangle$ ::= $\epsilon$
           | $\langle UP \rangle$ $\langle ListUP \rangle$

$\langle ListDOWN \rangle$ ::= $\epsilon$
           | $\langle DOWN \rangle$ $\langle ListDOWN \rangle$

$\langle ListPLUS \rangle$   ::=   $\epsilon$
          |       $\langle PLUS \rangle$ $\langle ListPLUS \rangle$