

# simplebnf — A simple package to format Backus-Naur form\*

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This package provides a simple way to typeset grammars written in Backus-Naur form (BNF).

```
\SimpleBNFDefEq
```

This command is used to typeset the definition symbol separate a nonterminal from its productions. It defaults to `::=`. It can be redefined using `RenewDocumentCommand`.

```
\SimpleBNFDefOr
```

This command is used to typeset the separator symbol between productions. It defaults to `|`. It can be redefined using `RenewDocumentCommand`.

```
\SimpleBNFStretch
```

This command is used to control the vertical spacing between consecutive rules. It defaults to 0. It can be redefined using `Renewdocumentcommand`.

```
\bnfexpr
```

This command is used when typesetting the BNF nonterminal and productions. It defaults to a wrappers around `\texttt`. It can be redefined to customized output using `RenewDocumentCommand`.

```
\bnfannot
```

This command is used when typesetting the annotations on nonterminals and productions. It defaults to a wrappers around `\textit`. It can be redefined to customized output using `RenewDocumentCommand`.

```
\begin{bnfgrammar} text\end{bnfgrammar}
```

can be used to typeset BNF grammars. The *text* inside the environment should be formatted as:

```
term1 ::= rhs1
;;
term2 ::= rhs2
```

---

\*This file describes v0.3.2.

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```

;;
...
termk ::= rhsk

```

where each of the *rhs* represents alternative syntactic forms of the *term*. An annotation may accompany each alternative in which case the alternative must be separated from its annotation with a colon (:). If you don't need annotations, simply omit the colons and annotations altogether. The alternatives themselves are separated using the pipe symbol (|).

A sample code and the result is shown below:

<pre> \begin{bnfgrammar} a \in \textit{Vars} ;; expr ::=   expr + term : sum   term       : term ;; term ::=   term * a : product   a       :   variable \end{bnfgrammar} </pre>	<pre> a      ∈  Vars expr ::= expr + term  sum          term         term term  ::= term * a    product          a            variable </pre>
--	---

Annotations can also be provided on left-hand sides, to label the nonterminal instead of a specific production.

<pre> \begin{bnfgrammar} a : Variables \in   \textit{Vars} ;; expr : Expressions  ::=   expr + term   term ;; term ::=   term * a   a \end{bnfgrammar} </pre>	<pre> Variables  a      ∈  Vars Expressions  expr ::= expr + term                  term               term ::= term * a                  a </pre>
---	---

You can also provide an optional specification to the grammar environment, to redefine alignment or spacing.

```

Variables  a      ∈  Vars
expr ::= expr + term  sum
      |  term         term
term ::= term * a    product
      |  a            variable

```

```

\begin{bnfgrammar}[lr@{\hspace{4pt}}c@{\hspace{2pt}}l]
a : Variables \in \textit{Vars}
;;
expr ::=
  expr + term : sum
| term      : term
;;
term ::=
  term * a : product
| a       : variable
\end{bnfgrammar}

```

If you want to typeset multiple productions on a single line, you can use double vertical bars by default.

<pre> \begin{bnfgrammar} a \in \textit{Vars} ;; expr ::= expr + term    term ;; term ::= term * a    a \end{bnfgrammar} </pre>	<pre> a      ∈  Vars expr ::= expr + term   term term  ::= term * a   a </pre>
--	--

The second and third optional arguments specify regular expressions for the line-breaking and non-breaking RHS separators:

```

a      ∈  Vars
expr  ::= expr + term | term
term  ::= term * a
        | a

```

```

\begin{bnfgrammar}[llc|l][\|\|][\|]
a \in \textit{Vars}
;;
expr ::= expr + term | term
;;
term ::= term * a
|| a
\end{bnfgrammar}

```