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 to customized output using `RenewDocumentCommand`.

`\SimpleBNFDefOr`

This command is used to typeset the separator symbol between productions. It defaults to |. It can be redefined to customized output 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
;;
...
termk ::= rhsk
```

*This file describes v0.3.1.

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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:

```
\begin{bnfgrammar}
  a \in \textit{Vars}
  ;;
  expr ::=
    expr + term : sum
  | term        : term
  ;;
  term ::=
    term * a : product
  | a        :
  variable
\end{bnfgrammar}
```

$$
\begin{array}{lcll}
\texttt{a} & \in & \textit{Vars} & \\
\\
\texttt{expr} & ::= & \texttt{expr + term} & \textit{sum} \\
 & | & \texttt{term} & \textit{term} \\
\\
\texttt{term} & ::= & \texttt{term * a} & \textit{product} \\
 & | & \texttt{a} & \textit{variable}
\end{array}
$$

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

```
\begin{bnfgrammar}
  a : Variables \in
  \textit{Vars}
  ;;
  expr : Expressions
  ::=
    expr + term
  | term
  ;;
  term ::=
    term * a
  | a
\end{bnfgrammar}
```

$$
\begin{array}{llcll}
\textit{Variables} & \texttt{a} & \in & \textit{Vars} & \\
\\
\textit{Expressions} & \texttt{expr} & ::= & \texttt{expr + term} & \\
 & & | & \texttt{term} & \\
\\
 & \texttt{term} & ::= & \texttt{term * a} & \\
 & & | & \texttt{a} &
\end{array}
$$

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

$$
\begin{array}{lll}
\textit{Variables} & \texttt{a} \in \textit{Vars} & \\
\\
\texttt{expr} ::= & \texttt{expr + term} & \textit{sum} \\
 \quad | & \texttt{term} & \textit{term} \\
\\
\texttt{term} ::= & \texttt{term * a} & \textit{product} \\
 \quad | & \texttt{a} & \textit{variable}
\end{array}
$$

```
\begin{bnfgrammar}[lr@{\hspace{4pt}}c@{\hspace{2pt}}ll]
  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.

```
\begin{bnfgrammar}
  a \in \textit{Vars}
  ;;
  expr ::= expr +
  term || term
  ;;
  term ::= term * a
  || a
\end{bnfgrammar}
```

a ∈ *Vars*

expr ::= expr + term | term

term ::= term * a | a

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

a ∈ *Vars*

expr ::= expr + term | term

term ::= term * a
| a

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