

```

\valign { <preamble>\cr <column>\cr ... <column>\cr }
\valign to <dimen>{ <preamble>\cr <column>\cr ... <column>\cr }
\valign spread <dimen>{ <preamble>\cr <column>\cr ... <column>\cr }

```

This command produces a vertical alignment consisting of a sequence of columns, where each column in turn contains a sequence of row entries. T_EX adjusts the heights of the row entries to accommodate the tallest one in each row.

A vertical alignment can only appear when T_EX is in a horizontal mode. Because vertical alignments are (a) conceptually somewhat difficult and (b) not often used, we recommend that you learn about alignments in general (p. ‘alignment’) and the `\halign` command (see above) before you attempt to use the `\valign` command.

An alignment consists of a preamble followed by the text to be aligned. The preamble, which describes the layout of the columns that follow, consists of a sequence of row templates, separated by ‘&’ and ended by `\cr`. Each column consists of a sequence of row entries, also separated by ‘&’ and ended by `\cr`. Within a template, ‘#’ indicates where T_EX should insert the corresponding text of a row entry.

T_EX typesets each row entry in internal vertical mode, i.e., as the contents of a vbox, and implicitly encloses the entry in a group. It always gives the vbox zero depth. Any text or other horizontal mode material in a row entry then puts T_EX into ordinary horizontal mode. (This is just an application of the general rules for T_EX’s behavior in internal vertical mode.) The usual paragraphing parameters apply in this case: the row entry has an initial indentation of `\parindent` (p. ‘\parindent’) and its lines have the `\leftskip` and `\rightskip` (p. ‘\leftskip’) glue appended to them.

Note in particular that a row entry containing text has a width of `\hsize` (p. ‘\hsize’). Unless you reset `\hsize` to the row width that you want, you’re likely to encounter overfull hboxes, or find that the first column takes up the width of the entire page, or both.

Normally, you need to include a strut in each template so that the rows don’t come out crooked as a result of the varying heights of the entries in the alignment. You can produce a strut with the `\strut` command.

The `to` form of this command instructs T_EX to make the vertical extent of the alignment be `<dimen>`, adjusting the space between rows as necessary. The `spread` form of this command instructs T_EX to make the alignment taller by `<dimen>` than its natural height. These forms are like the corresponding forms of `\vbox` (p. ‘\vbox’).

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Example:

```
{\hsize=1in \parindent=0pt
\valign{#\strut&\strut&\strut&\strut\cr
    bernaise&curry&hoisin&hollandaise\cr
    ketchup&marinara&mayonnaise&mustard\cr
    rarebit&tartar\cr}}
```

produces:

| | | |
|-------------|------------|---------|
| bernaise | ketchup | rarebit |
| curry | marinara | tartar |
| hoisin | mayonnaise | |
| hollandaise | mustard | |

Example:

```
% same thing but without struts (shows why you need them)
{\hsize=1in \parindent=0pt
\valign{####\cr
    bernaise&curry&hoisin&hollandaise\cr
    ketchup&marinara&mayonnaise&mustard\cr
    rarebit&tartar\cr}}
```

produces:

| | | |
|-------------|------------|---------|
| bernaise | ketchup | rarebit |
| curry | marinara | tartar |
| hoisin | mayonnaise | |
| hollandaise | mustard | |