

The array addon offers a number of ways to present J arrays in LaTeX.

## 1 Lists

The verb `list` turns its right argument into a comma-separated list. The optional left argument gives a pair (or some other number; the first and last are used) of characters to surround the list with. It has the same form as the left argument to `texs`. Like `texs`, `list` will add `\left` and `\right` delimiters if the list is tall.

```
list \([: {"1 ({:,+/)^:(<6)) 0 1
0,1,1,2,3,5
```

```
('\' ; '\') list e_ i.3
{e_0,e_1,e_2}
```

```
'[() ' list %3 2 NB. trick to balance parentheses
```

$$\left[\frac{1}{3}, \frac{1}{2}\right)$$

For convenience, the function `rowvec` is defined as `' ()' &list`.

```
rowvec 3#1
(1,1,1)
```

## 2 Tables and matrices

The verb `totable` takes a two-dimensional array, and delimits it with `&` and `\` so it can be used in LaTeX's `tabular` environment. A number of functions are defined using `totable` to give matrices with various delimiters.

```
bmatrix \_omega ^ \*/~ i.3
\begin{bmatrix} \omega^0 & \omega^0 & \omega^0 \\ \omega^0 & \omega^1 & \omega^2 \\ \omega^0 & \omega^2 & \omega^4 \end{bmatrix}
```

The following are the automatically-defined matrix commands; define a new one with `DeclareMatrix`. Take a look at this table's source for an example of `tabular` in the wild.

Verb	Output
<code>matrix</code>	$\cdot$
<code>bmatrix</code>	$\left[\cdot\right]$
<code>Bmatrix</code>	$\left\{\cdot\right\}$
<code>pmatrix</code>	$\left(\cdot\right)$
<code>vmatrix</code>	$\left \cdot\right $
<code>Vmatrix</code>	$\left\ \cdot\right\ $

To create a LaTeX table, use the `tabular` verb. Much like the LaTeX environment `tabular` requires an argument specifying the column alignment, the J verb requires a left argument. J also allows (but does not require) a second such argument which specifies where to place lines vertically. This makes each `'|'` into an `\hline`. This argument will automatically be extended if it is too short.

```
label =: ([,' ',])&.> & ('cooperates';'defects') @>
'TAB'is ('';label A),.(label B), (list@,"0 |: ) 1 3,:0 2
('l|cc';'.|..') tabular TAB
```

	B cooperates	B defects
A cooperates	1,1	3,0
A defects	0,3	2,2

### 3 English lists

The `textlist` verb turns a list of boxed strings into an english phrase listing the items (with a serial comma, if applicable). This is useful if, for instance, you wish to list in a paper's text the objects given in a table, and keep that list consistent even if you change the order of those objects. Similarly, `mathlist` lists a set of math-mode objects. Each is placed in inline math-mode separately.

```
textlist ;:'aluminium plexiglass copper lead'
```

aluminium, plexiglass, copper, and lead

```
mathlist G_2, F_4, E_]6 7 8
```

$G_2$ ,  $F_4$ ,  $E_6$ ,  $E_7$ , and  $E_8$