

**blockdiag()** — Block-diagonal matrix

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## Description

`blockdiag( $Z_1$ ,  $Z_2$ )` returns a block-diagonal matrix with  $Z_1$  in the upper-left corner and  $Z_2$  in the lower right, that is,

$$\begin{bmatrix} Z_1 & \mathbf{0} \\ \mathbf{0} & Z_2 \end{bmatrix}$$

$Z_1$  and  $Z_2$  may be either real or complex and need not be of the same type.

## Syntax

*numeric matrix* `blockdiag(numeric matrix  $Z_1$ , numeric matrix  $Z_2$ )`

## Remarks and examples

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To create a block diagonal matrix of  $Z_1$ ,  $Z_2$ ,  $Z_3$ , code

```
: blockdiag( $Z_1$ , blockdiag( $Z_2$ ,  $Z_3$ ))
```

## Conformability

`blockdiag( $Z_1$ ,  $Z_2$ ):`

$Z_1$ :  $r_1 \times c_1$

$Z_2$ :  $r_2 \times c_2$

*result*:  $r_1 + r_2 \times c_1 + c_2$

## Diagnostics

None. Either or both  $Z_1$  and  $Z_2$  may be void.

## Also see

[M-4] [standard](#) — Functions to create standard matrices