# edge

| | | | |
|---|---|---|---|
| **keys:** | **[from]** | *<number>* | source picture |
| | **[to]** | *<number>* | output picture |
| **options:** | **roberts** | | applies the *Roberts* edge detector to the current picture |

Use **edge** to apply one of two forms of edge-detecting operator: a 3-point gradient magnitude, or the 4-point *Roberts* larger absolute diagonal difference.

## Examples

```
edge 1 to 2
```

This command places the edge magnitude of picture 1 in picture 2.

```
edge roberts
```

This command applies the *Roberts* edge operator to the current picture.

## Description

The **edge** command by default uses the the following 3-point gradient magnitude vector:

$$|( p(x+1,y)-p(x) , p(x,y+1)-p(x) )|$$

where */numeric expression/* represents an absolute value.

You can specify the following 4-point *Roberts* operator using the **roberts** option:

$$max\{ |p(x+1,y+1)-p(x,y)| , |p(x+1,y)-p(x,y+1)| \}$$

In both cases, the top row and the right hand column are simply set to zero.

Note that thresholding (for example, using the command **calculate :sel>10**) may be useful for making yes/no edge decisions on the basis of the output produced by **edge**.

## Notes

| | |
|---|---|
| multi-layer pictures: | layers processed independently |
| forms used internally: | fp |
| see also: | **calculate** |

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## Defaults and Ranges

| keys/options | defaults | range |
|---|---|---|
| **[from]** | current picture, held in the variable *select* | valid picture number |
| **[to]** | source picture | valid picture number |
| **roberts** | gradient magnitude | |