

sharpen

keys:	[from]	<number>	source picture
	[to]	<number>	output picture
	over	<number>	width of averaged block/strip around each pixel during high frequency extraction
options:	horizontally/vertically		use horizontal/vertical strip averages around each pixel

sharpen applies a simple picture sharpening filter, effectively doubling the high spatial frequencies (fine detail) by adding the difference between the original picture and a locally averaged version.

Examples

```
sharpen display
```

This command sharpens the picture display.

```
sharpen 50 51 over 3
```

This command doubles frequencies that have a period no greater than 3 pixels, from picture 50 to picture 51.

Description

Use the **over** key to specify the size of block over which the local average is to be taken (the default is 5). You can specify 1-D **horizontal** and **vertical** forms as well as square forms. It is not useful to assign a very large value to **over**, as this does little more than double all pixels.

Note the possible clash of the **vertical** option with the general option **verify**, as Semper only takes into account the first three characters of a command, key or option.

The general form of the filter kernel is illustrated by its value in the case of **over 3**:

$$\frac{1}{9} \begin{bmatrix} (-1 & -1 & -1) \\ (-1 & 17 & -1) \\ (-1 & -1 & -1) \end{bmatrix}$$

sharpen processes edge pixels of the source, where the averaged block overflows the source, as if the boundary values are repeated indefinitely outwards. If you specify an even value for **over**, the replaced source pixel is rounded to the bottom right from the block centre.

Semper 6 Command Reference

sharpen

Note that **sharpen** is closely related to the **lmean** command, in fact, it performs the following action:

original picture + (original picture - lmean)

Notes

multi-layer pictures: faulted
forms used internally: fp, complex
see also: lmean

Defaults and Ranges

keys/options	defaults	range
[from]	current picture, held in the variable <i>select</i>	valid picture number
[to]	source picture	valid picture number
over	5	positive integer