box

keys:	**[from]**	*<number>*	source picture
	[to]	*<number>*	output picture
	with	*<number>*	picture containing training statistics
	stride	*<number>*	sampling interval across and down the picture
	position	*<x>, <y>*	subregion position
	size	*<x>, <y>*	size of subregion
options:	**left/right, top/bottom**		subregion position

The **box** command classifies a picture using a box classifier (*parallelepiped*). This command is used for *Remote Sensing* applications.

Examples

```
box 1 2 with 3
```

Perform a box classification of picture 1 into picture 2 using the training data from picture 3.

```
box 2:37 to 3:15 with 2:38 stride 4
```

Perform a box classification of picture 2037 into picture 3015, using the training data from picture 2038. The output picture, 3015, is a quarter the size of the original image.

Description

A box classification of the source picture is carried out based on the ranges of data described in the **with** picture. (Use the **learn** command to create this picture, containing training statistics of polygonal regions).

The classification process sorts the pixels of a multi-spectral image into separate classes on the basis of the pixels spectral characteristics. In the case of supervised classification, as provided by **box, mindistance** and **likelihood**, the spectral characteristics of each class are determined from sets of training data. The training data are formed from known areas of an image to provide the statistics of each class that is required.

The command gives a warning message if it is possible for *multiple* classifications to arise, although this does not mean that such classifications will occur. The classification process takes the first class that matches a given pixel.

box

The number of classes that the **box** command can process depends on the size of a Semper row buffer and on the number of layers in the source picture. Note that classes run from zero, indicating unclassified, to *n*, where *n* is the number of layers in the **with** picture. The *Remote Sensing* commands, **likelihood** and **mindistance** also perform picture classification.

The **stride** key gives the stride across and down the picture allowing a fast classification of the entire picture. By default **stride** has a value of 1 and the whole picture is classified. You can also indicate a subregion of the source picture, in which case only the subregion is processed, and the output is correspondingly smaller.

You can specify a subregion using the standard keys and options **size**, **position**, **left/right** etc. For further details of defining a subregion refer to *Appendix C, Semper Keys and Options.*

Notes

see also: **covariance**, **learn**, **mindistance**, **likelihood**

Defaults and Ranges

keys/options	defaults	range
[from]	current picture, held in the variable *select*	valid picture number
[to]	source picture	valid picture number
with	*none*	valid picture number
stride	sampling interval 1	positive integer
position	position 0,0	within bounds of the picture (integers)
size	whole picture	less than or equal to the size of the picture (integers)