

**NAME**

spline – interpolate smooth curve

**SYNOPSIS**

**spline** [ option ] ...

**DESCRIPTION**

*Spline* takes pairs of numbers from the standard input as abscissas and ordinates of a function. It produces a similar set, which is approximately equally spaced and includes the input set, on the standard output. The cubic spline output (R. W. Hamming, *Numerical Methods for Scientists and Engineers*, 2nd ed., 349ff) has two continuous derivatives, and sufficiently many points to look smooth when plotted, for example by *plot* (I).

The following options are recognized, each as a separate argument.

- a** Supply abscissas automatically (they are missing from the input); spacing is given by the next argument, or is assumed to be 1 if next argument is not a number.
- k** The constant  $k$  used in the boundary value computation
 
$$y_0' = ky_1', \quad y_n'' = ky_{n-1}''$$
 is set by the next argument. By default  $k = 0$ .
- n** Space output points so that approximately  $n$  points occur between the lower and upper  $x$  limits. (Default  $n = 100$ .)
- p** Make output periodic, i.e. match derivatives at ends. First and last input values should normally agree.
- x** Next 1 (or 2) arguments are lower (and upper)  $x$  limits. Normally these limits are calculated from the data. Automatic abscissas start at lower limit (default 0).

**SEE ALSO**

plot (I)

**AUTHOR**

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**BUGS**

A limit of 1000 input points is enforced silently.