COVARIANCE

PURPOSE

Compute the covariance between two variables.

DESCRIPTION

The covariance is computed as:

$$\text{cov}(x, y) = \frac{\sum_{i=1}^{N} (x - \bar{x})(y - \bar{y})}{(N - 1)} \qquad \textbf{(EQ 2-6)}$$

The two variables must have the same number of elements.

SYNTAX

LET <par> = COVARIANCE <y1> <y2> <SUBSET/EXCEPT/FOR qualification>
where <y1> is the first response variable;
<y2> is the second response variable;
<par> is a parameter where the computed covariance is stored;
and where the <SUBSET/EXCEPT/FOR qualification> is optional.

EXAMPLES

LET A = COVARIANCE Y1 Y2
LET A = COVARIANCE Y1 Y2 SUBSET TAG > 2

DEFAULT

None

SYNONYMS

None

RELATED COMMANDS

CORRELATION	=	Compute the correlation between two variables.
VARIANCE	=	Compute the variance of a variable.
AUTOCOVARIANCE	=	Compute the lag 1 autocovariance of a variable.
LINEAR SLOPE PLOT	=	Generate a linear slope versus subset plot.
FIT	=	Perform a least squares fit (including a linear fit between two variables).

REFERENCE

Consult any introductory statistics book.

APPLICATIONS

Exploratory Data Analysis

IMPLEMENTATION DATE

Pre-1987

PROGRAM

```
SKIP 25
READ SNAIL.DAT DISTANCE ANGLE
LET A1 = COVARIANCE DISTANCE ANGLE
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The computed covariance is 4512.18.