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CHART

A Graphic Display and Analysis System

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For Reference

Not to be taken from this room

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Introduction

This document describes CHART, a program for data analysis and report design.

The introduction is divided into the following sections:

A description of this document

A description of CHART capabilities

A discussion of CHART concepts

A glossary of terms used within this document

1.1. About this Reference Manual

This document is written to describe the operation of CHART running on VAX/VMS systems. The user is assumed to have access to a graphic-display terminal. When, in this document, you are instructed to type a word, the word will be inclosed in quotation marks. You do not type the quotation marks.

In command summaries, parenthesis are used to show where replacement of parameters should occur.

This manual has divided the over fifty CHART commands into four groups. To a large degree the division of these groups relate to the order in which they are usually used, thus GROUP I commands are usually used before GROUP II commands, and so on. (Note: there are exceptions to this rule.)

2. Capabilities

CHART is used to represent numerical data tables in graphic display formats so data analysis and report design can be done in a rapid and efficient fashion.

Typical analysis tasks include grouping and ranking of rows and columns of data, computing totals, subtotals, averages and percents.

Typical report designs include bar, line, pie and tabular reports, or any combination of these.

Tabular data can be entered from either the terminal, or from a previously prepared script. The interactive nature of CHART allows users to experiment with different graphic displays. Users can define

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and adjust titles, labels, legends and grids in real-time and observe their results at once.

CHART is able to manipulate the display in such a way as to highlight certain portions of the data, as well as display more than one graph on a page allowing complex data to be represented in different ways on the same report.

3. Concepts

The process of displaying data in a graphic form starts with tabular data. Tabular data (tables) may be entered directly from a terminal, or retrieved from a file previously prepared. This data is stored on the MATBOARD.

The MATBOARD can hold up to 140 rows of data of up to 140 columns each. However, it is impossible to display this much data on a terminal screen, at one time. To resolve this difficulty, CHART is capable of isolating parts of this larger set of data, on the MATBOARD, into a smaller set, known as the VISIBLE TABLE. GROUP II Commands are used to manipulate the MATBOARD and the VISIBLE TABLE.

The GROUP II Commands WINDOW and MASK allow you to specify which piece or pieces of the MATBOARD are to be included on the VISIBLE TABLE. When you use these commands, only those portions of the MATBOARD which have been selected and which have not been masked from the VISIBLE TABLE will be shown.

In the event that you wish to reacquire data you have windowed out or masked out of the VISIBLE TABLE, CHART provides two commands, BACKUP and RESTORE to allow you to go back to data previously masked or windowed out, and redefine the contents of the VISIBLE TABLE.

After using GROUP II commands to select the data to be displayed, GROUP III Commands are utilized to select the graphic form the data is to take. That is, whether the data will be displayed as a line, pie or bar chart.

When the appropriate data is selected and presented on the screen in a satisfactory fashion, GROUP IV Commands may be used to enhance the display by adding titles, marks, borders and shading.

4. The Process

The process begins with "logging on" to the host computer. After you have successfully logged on, CHART may be executed by typing "CHART" after the dollar-sign prompt.

CHART's prompt is "READY", and CHART will type this out in the upper left corner of the display whenever it has finished execution of it's last instruction and is waiting for input from the user.

At this point CHART's MATBOARD and VISIBLE TABLE are empty. Data may be placed into the MATBOARD by utilizing the GROUP I command TABLE and responding to CHART's prompts, or by using the SCRIPT command to instruct CHART to look for it's input on a file you specify the name of.

After you have entered data into the MATBOARD, you may utilize GROUP II commands to manipulate the contents of the display, masking some rows or columns or performing calculations you may require.

If at this point, the data on the VISIBLE TABLE is in it's final numeric form, you can utilize GROUP III commands and define the graphic display. The available major displays are pie, line, bar and tabular report.

When you have defined the display, GROUP IV commands are used to annotate the reports. You may add and position title lines, marks, rotate pie charts and utilize other display enhancement techniques.

If at this point, you wish to save your work on a file, the GROUP I command WRITE is used to create a file which will contain data and instructions to CHART sufficient to recover the contents of the VISIBLE TABLE, and the graphic display.

5. Glossary

COLUMN

The vertical ordering of tabular data.

GRAPH

A graphic representation of numerical data.

LEGEND-REGION

The area of a report reserved for legends., the bottom.

LIST-DIRECTED

A command is said to be list-directed if, when invoked and not given the number of parameters equal to the number of rows or columns affected, it re-uses the parameters given.

MASKING

The process of removing certain rows or columns from the VISIBLE TABLE.

MATBOARD

The conceptual area where all data available to CHART is stored.

ON-LINE

Connected to the host computer

RANGE

A spread of rows or columns, i.e., 1-3 means 1, 2 and 3.

REPORT

The graphic or tabular representation of numeric data

ROW The horizontal ordering of tabular data.

SCRIPT

A file which contains sequential instructions for CHART to execute.

TABULAR

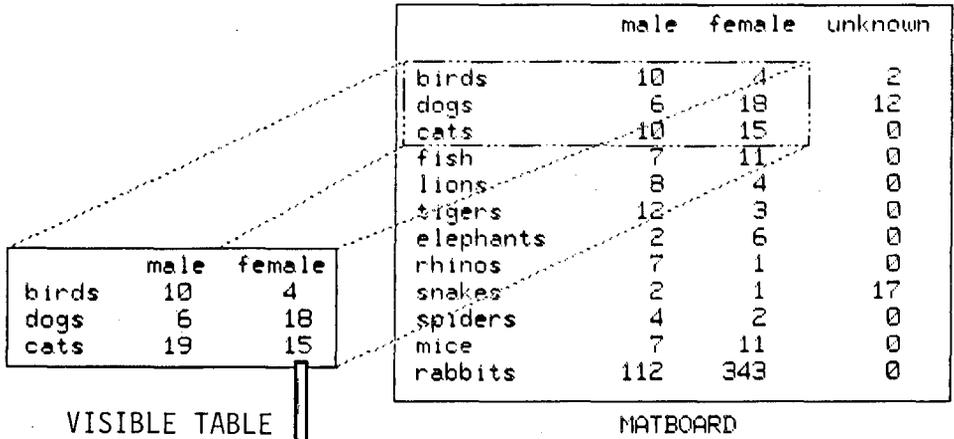
Data in the form of tables

VISIBLE-TABLE

The conceptual area where data selected from the MATBOARD is held.

WINDOWING

The process of selecting specific row and columns from the MATBOARD for inclusion in the VISIBLE TABLE



VISIBLE TABLE

MATBOARD

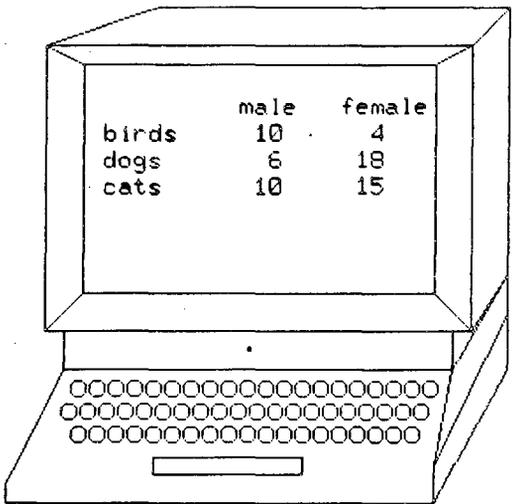
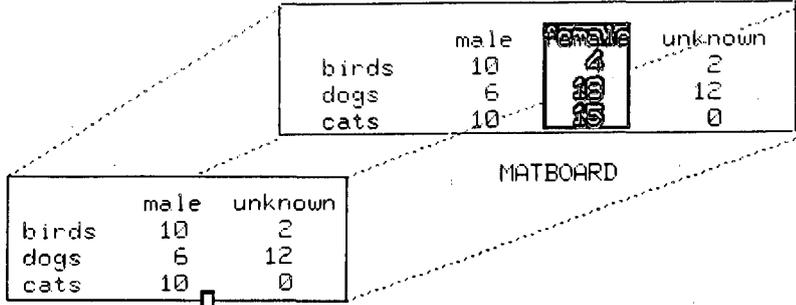
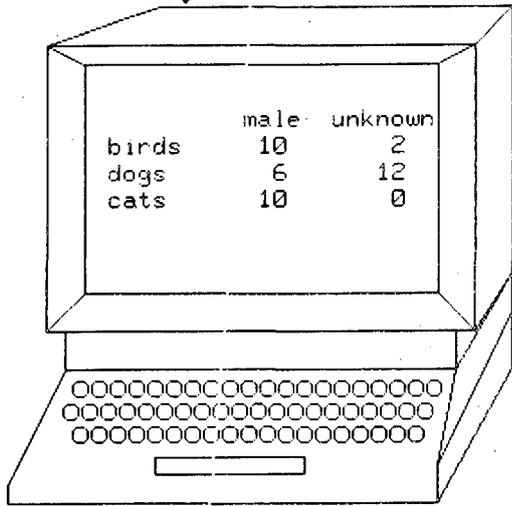


CHART stores its "RAW" data on the ""MATBOARD"
 The "MASK" and "WINDOW" commands select
 specific data elements
 for the display



VISIBLE TABLE



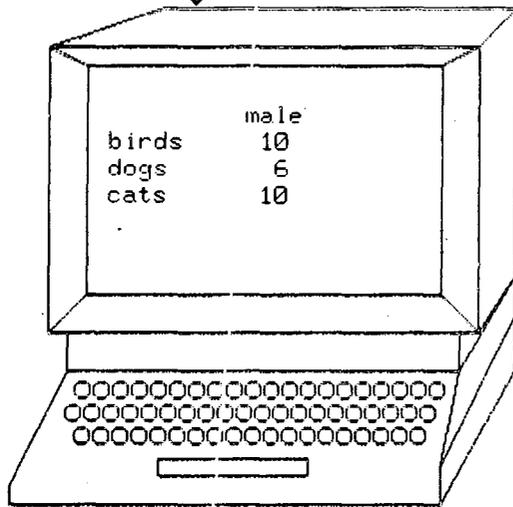
Given the data stored in the above MATBOARD,
 The command: "MASK COLUMN 2" would
 result in the display
 shown above

	male	female	unknown
birds	10	4	2
dogs	6	18	12
cats	10	15	0

MATBOARD

	male
birds	10
dogs	6
cats	10

VISIBLE TABLE



Given the data stored in the above MATBOARD,
 The command: "WINDOW COLUMN 1" would
 result in the display
 shown above

GROUP I COMMANDS

HELP

DATA FLOW

TERMINAL SETTINGS

GROUP I COMMANDS

GROUP I commands control data flow, help, and terminal settings.

There are four sets of GROUP I commands:

Informational:

HELP	1-1
LOG	1-2
QUIT	1-3

Reading and writing of data:

TABLE	1-4
SCRIPT	1-5
WRITE	1-6

Manipulation of the MATBOARD:

DECLARE RAW	1-7
BACKUP	1-8

Control of the graphics terminal:

PAGE	1-9
------	-----

HELP (subject)

Provides information about (subject)

The HELP command provides limited on-line information about various CHART commands and functions given by (subject).

The HELP command accepts one parameter:

1. The item you wish additional information about, given by (subject).

CAVEAT:

SEE ALSO: '?'

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LOG

Retypes the last 15 commands given to CHART

The LOG command provides a means of reviewing the steps taken previous to this command.

It is often used as a method of error detection.

NOTE: The "write script" command will show the current status of the script.

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QUIT

Ends a CHART session.

The QUIT command provides an orderly exit from the CHART program.

CAVEAT: CHART also understands STOP and EXIT. Be sure you have written away all the work to be saved.

SEE ALSO: WRITE, SCRIPT

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TABLE

Initiates the input sequence to enter data onto the MATBOARD

The TABLE command is the basic method of input for CHART. This command instructs CHART to delete the previous contents of it's MATBOARD, and replace it with the information you provide.

CHART will initiate the following input sequence: first prompts for column labels to be terminated by a blank line, then row labels and the appropriate number of data values terminated by a blank line.

Once data is entered into CHART with the TABLE command, you may use the write script command to save your information on a script file.

CAVEAT: CHART disposes of all information previously contained on it's MATBOARD.

SEE ALSO: SCRIPT, WRITE SCRIPT

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SCRIPT (file-name)

Instructions and data for CHART are read from (file-name)

The script command allows you to recall any previously saved work. This method allows you to gain a "basic" display with your data, and modify it as you please, without changing the contents of the script file.

CAVEAT: Scripts can also be created via a text editor.

SEE ALSO: WRITE SCRIPT

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WRITE TO (file-name)

Save data and format of visible display on (file-name)

The WRITE SCRIPT command allows you to save the contents of the visible display on a file for later use by CHART.

You must assign a name to the parameter (file-name) which should be of the form "file.scr". Replace the word "file" with any set of up to 9 letters or numbers.

The script will contain a "snapshot" of the visible display, and when recalled with the "script" command will reproduce the current display exactly.

CAVEAT:

SEE ALSO: SCRIPT

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DECLARE RAW

Releases the contents of the MATBOARD and defines the visible table as the MATBOARD.

The DECLARE RAW command establishes a new starting point for the user. It is commonly used after some arithmetic manipulation of the data.

The contents of the visible table become the total contents of the MATBOARD. Information which was contained on the MATBOARD but not selected on the visible table will be lost.

The DECLARE RAW command thus establishes a reference point which can easily be returned to if desired via the use of the BACKUP command.

CAVEAT: Data not in the visible display when this command is issued will be lost unless contained on a script file.

SEE ALSO: WRITE SCRIPT, BACKUP, SCRIPT

BACKUP

Copies all information from the MATBOARD onto the visible table

Often, data is "masked" or "windowed" out of the visible table to highlight specific data elements. BACKUP restores the view of the visible table and allows you to manipulate the entire known data set.

BACKUP allows access to all data on the MATBOARD subsequent to the last TABLE or DECLARE RAW command.

BACKUP is used to gain access to data previously removed from the visible table by WINDOW or MASK commands.

The effect of any GROUP IV commands will be reversed unless a DECLARE RAW command was issued.

CAVEAT: BACKUP will not retrieve data entered through previous TABLE commands, or data not included in the visible table when DECLARE RAW is issued.

SEE ALSO: WRITE SCRIPT, DECLARE RAW, BACKUP, TABLE, SCRIPT

PAGE (x-minimum) (x-maximum) (y-minimum) (y-maximum)

Sets x (horizontal) and y (vertical) areas for plotting graphics

The PAGE command allows you to specify the area available to CHART for drawing it's output.

CHART's initial values are 0 1 0 1 for x-min, x-max, y-min, y-max, respectively.

On the Tektronix 4014, 4016 and 4027, there is additional area available on the left hand side of the screen. (the x-axis).

CHART can be given access to this area by using the page command with the following parameters:

PAGE -.3 1 0 1

The PAGE command accepts up to four parameters, however only the first parameter is required if there is to be no change to the other parameters: "PAGE -.3" is the same as "PAGE -.3 1 0 1".

CAVEAT: CHART's default parameters are (0 1 0 1), the most often used on Tektronix terminals are (-.3 1 0 1).

GROUP II COMMANDS

MANIPULATION OF THE VISIBLE TABLE

**Window, mask, sequence, switch, group, replace
insert, rank, change and format**

GROUP II COMMANDS

Commands which affect the content of the visible table

The GROUP II commands are the basic data manipulation commands.

These commands allow manipulation of the visible table including masking and windowing, ranking of data, and basic arithmetic calculations.

The commands documented include:

Window Column	2-2
Window Row	2-4
Mask Column	2-6
Mask Row	2-8
Restore Column	2-10
Restore Row	2-12
Sequence Column	2-14
Sequence Row	2-16
Switch Column	2-18
Switch Row	2-20
Group Column	2-22
Group Row	2-24
Replace Value Column	2-26
Replace Value Row	2-28
Replace Column	2-30
Replace Row	2-32
Insert Column	2-34
Insert Row	2-36
Rank Column	2-38
Format	2-40
Change	2-42

WINDOW COLUMN (position or range)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

"WINDOW COLUMN 1-3" will produce:

	college	%male post college	%female college
wisconsin	24.9	8.0	24.0
michigan	25.9	9.4	22.3
illinois	29.7	10.3	22.1
indiana	22.7	8.8	17.9
ohio	25.0	9.3	18.6

WINDOW COLUMN (position or range)

Removes all columns not specified by (range) from the visible table

The WINDOW COLUMN command allows you to isolate columns of information on the MATBOARD.

The command accepts

a number or numbers specifying a column or range of columns to be selected for display.

Ranges may be specified with a hyphen, thus:

WINDOW COLUMN 1-5

would select columns 1 through 5 for the visible table. A range need not be specified if you only desire to "window" in on one column. Thus:

WINDOW COLUMN 5

would select only column 5 for the visible table.

The visible table can be expanded to include the contents of the MATBOARD via the BACKUP command, conversely the MATBOARD can be erased of all information except the contents of the visible table via the DECLARE RAW command.

CAVEAT: Does not remove columns from the MATBOARD unless DECLARE RAW is issued. Column numbers will always be referenced by their position in the visible table.

SEE ALSO: MASK, BACKUP, DECLARE RAW, WINDOW ROWS, RESTORE

WINDOW ROW (position or range)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "WINDOW ROW 1-3"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8

WINDOW ROW (position or range)

Removes all rows not specified by (range) from the visible table.

The WINDOW ROW command allows you to isolate information on the MATBOARD.

The command accepts

a number or numbers specifying a row or range of rows to be selected for display.

Ranges are specified with a hyphen, thus:

WINDOW ROW 1-5

would select rows 1 through 5 for the visible table. A range need not be specified if you only desire to "window" in on one row. Thus:

WINDOW ROW 5

would select only row 5 for the visible table.

The visible table can be expanded to include the contents of the MATBOARD via the BACKUP command; conversely, the MATBOARD can be erased of all information except the contents of the visible table via the DECLARE RAW command.

CAVEAT: Does not remove rows from the MATBOARD unless DECLARE RAW is issued. Row numbers will always be referenced by their position in the visible table.

SEE ALSO: MASK, BACKUP, DECLARE RAW, WINDOW COLUMNS, RESTORE

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MASK COLUMN (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "MASK COLUMN 2"

will produce:

	%male college	college	%female post college
wisconsin	24.9	24.0	3.6
michigan	25.9	22.3	5.6
illinois	29.7	22.1	4.8
indiana	22.7	17.9	4.7
ohio	25.0	18.6	4.7

MASK COLUMN (position)

Removes a column from the visible table. Does not affect the MATBOARD.

The MASK command allows you to manipulate the visible table, choosing which columns to display, or which not to display. You can, using this command, specify a column to "hide" from the visible table, thereby emphasising the remaining information.

The MASK command accepts

a list of numbers indicating the positions of the columns to be "masked".

The MASK command does not affect the information on the MATBOARD, thus, a BACKUP command will restore all masked columns unless a DECLARE RAN command has been issued since the MASK command was given.

CAVEAT: This command does not remove information from the MATBOARD unless a DECLARE RAN command is issued. Selected columns can be brought back into the display by the RESTORE command.

SEE ALSO: WINDOW, BACKUP, WRITE, RESTORE, MASK ROWS

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MASK ROW (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "MASK ROW 2"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

`MASK ROW (position)`

Removes a row from the visible table. Does not affect the MATBOARD.

The `MASK ROW` command allows you to manipulate the visible table choosing which rows to display, or which not to display. You can, using this command, specify a row to "hide" from the visible table, thereby emphasizing the remaining information.

The `MASK` command accepts

a list of numbers indicating the positions of the rows to be "masked".

The `MASK` command does not affect the information on the MATBOARD, thus, a `BACKUP` command will restore all masked rows unless a `DECLARE RAW` command has been issued since the `MASK` command was given.

CAVEAT: This command does not remove information from the MATBOARD unless a `DECLARE RAW` command is issued. Selected rows may be brought back into the visible table with the `RESTORE` command.

SEE ALSO: `WINDOW`, `BACKUP`, `WRITE`, `RESTORE`, `MASK COLUMNS`

RESTORE COLUMN (number of columns)

Given the following table with a column masked:

	%male college	college	%female	post college
wisconsin	24.9	24.0		3.6
michigan	25.9	22.3		5.6
illinois	29.7	22.1		4.8
indiana	22.7	17.9		4.7
ohio	25.0	18.6		4.7

The command: "RESTORE COL 1"

will produce:

	%male college	%female college	post college	%male post college
wisconsin	24.9	24.0	3.6	8.0
michigan	25.9	22.3	5.6	9.4
illinois	29.7	22.1	4.8	10.3
indiana	22.7	17.9	4.7	8.8
ohio	25.0	18.6	4.7	9.3

RESTORE COLUMN (quantity)

Restores a column or set of columns to the visible table.

RESTORE allows you to return selective columns to the visible display.

The column or columns are restored at the right side of the visible display.

Use the "sequence columns" command to reorder the display if necessary.

CAVEAT: RESTORE COLUMNS requires the number of columns to be restored as its parameter.

SEE ALSO: SEQUENCE COLUMNS

RESTORE ROW (number of rows)

Given the following table with a row masked:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "RESTORE ROW 1"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7
michigan	25.9	9.4	22.3	5.6

RESTORE ROW (quantity)

Restores a row or set of rows to the visible table.

RESTORE allows you to return selective rows to the visible display. The row or rows are restored to the bottom of the visible display. Use the "sequence rows" command to reorder the display if necessary.

CAVEAT: RESTORE requires the number of rows to be restored as its parameter.

SEE ALSO: SEQUENCE ROWS

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SEQUENCE COLUMNS (positional list)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "SEQUENCE COLUMNS 3 4 1 2"

will produce:

	%female		%male	
	college	post college	college	post college
wisconsin	24.0	3.6	24.9	8.0
michigan	22.3	5.6	25.9	9.4
illinois	22.1	4.8	29.7	10.3
indiana	17.9	4.7	22.7	8.8
ohio	18.6	4.7	25.0	9.3

SEQUENCE COLUMNS (positional list)

Specifies the ordering of columns for the visual table.

The SEQUENCE COLUMNS command allows you to specify the order in which columns will be displayed. The positional list is a series of discrete column numbers which are typed in the order you wish them displayed:

The SEQUENCE COLUMNS command accepts

a series of numbers separated by blanks which will indicate the new positions the columns are to take.

The SEQUENCE command does not affect the contents of the MATBOARD, thus a BACKUP command will restore the original ordering of COLUMNS unless a DECLARE RAW command is given.

CAVEAT: Does not reorder columns on the MATBOARD unless DECLARE RAW is issued. Columns not specified by (positional list) are placed at the bottom of the report in their positional order.

SEE ALSO: SEQUENCE ROWS, DECLARE RAW, BACKUP, SWITCH COLUMN

SEQUENCE ROWS (positional list)

Given the following display:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "SEQUENCE ROWS 5 4 1 2 3"

will produce:

	%male		%female	
	college	post college	college	post college
ohio	25.0	9.3	18.6	4.7
indiana	22.7	8.8	17.9	4.7
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8

SEQUENCE ROWS (positional list)

Specifies the ordering of rows for the visual table.

The SEQUENCE ROWS command allows you to specify the order in which rows will be displayed. The positional list is a series of discrete row numbers which are typed in the order you wish them displayed.

The SEQUENCE ROWS command accepts

a series of numbers separated by blanks which will indicate the new positions the rows are to take.

The SEQUENCE command does not affect the contents of the MATBOARD, thus a BACKUP command will restore the original ordering of ROWS unless a DECLARE RAW command is given.

CAVEAT: Does not reorder rows on the MATBOARD unless DECLARE RAW is issued. Rows not specified by (positional list) are placed at the bottom of the report in their positional order.

SEE ALSO: SEQUENCE COLUMNS, DECLARE RAW, BACKUP, SWITCH ROW

SWITCH COLUMNS (position) (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

"SWITCH COLUMNS 1 2" will produce:

	%male		%female	
	post college	college	college	post college
wisconsin	8.0	24.9	24.0	3.6
michigan	9.4	25.9	22.3	5.6
illinois	10.3	29.7	22.1	4.8
indiana	8.8	22.7	17.9	4.7
ohio	9.3	25.0	18.6	4.7

SWITCH COLUMN (position) (position)

Transposes two columns on the visual table.

The SWITCH COLUMN command allows you to transpose two columns in the visual table. The command accepts two parameters:

- 1) The current position of the first column
- 2) The current position of the second column.

The SWITCH command does not change the ordering of columns on the MATBOARD unless the DECLARE RAW command is issued, thus a BACKUP command will restore the original order of the COLUMNS.

CAVEAT: Does not reorder columns on the MATBOARD unless DECLARE RAW is issued. References to columns on the visual table must reflect the new positional order of columns.

SEE ALSO: SWITCH ROW, BACKUP, DECLARE RAW

SWITCH ROWS (position) (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

"SWITCH ROWS 1 5" will produce:

	%male		%female	
	college	post college	college	post college
ohio	25.0	9.3	18.6	4.7
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
wisconsin	24.9	8.0	24.0	3.6

SWITCH ROW (position) (position)

Transposes two rows on the visual table.

The SWITCH ROW command allows you to transpose two rows in the visual table. The command accepts two parameters:

- 1) The current position of the first row
- 2) The current position of the second row.

The SWITCH command does not change the ordering of rows on the MATBOARD unless the DECLARE ROW command is issued, thus a BACKUP command will restore the original order of the ROWS.

CAVEAT: Does not reorder rows on the MATBOARD unless DECLARE ROW is issued. References to rows on the visual table must reflect the new positional order of rows.

SEE ALSO: SWITCH COLUMNS, BACKUP, DECLARE ROW

GROUP COLUMNS (number)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: ""GROUP COLUMNS 2"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

GROUP COLUMN (number)

Groups Columns together in sets specified by (number).

The GROUP COLUMN command allows you to display columns in sets. Columns will be separated by a double space.

The GROUP COLUMN command accepts

a list of numbers which specify the grouping
CHART is to use.

will force CHART to group the columns into groups of 2.

CAVEAT: While a command of the form "GROUP ROW (number), GROUP COLUMN (number)" will not work, a GROUP COLUMN command followed by a GROUP ROW command, or vice versa, is acceptable. GROUP is a list directed command.

SEE ALSO: GROUP ROW, RESTORE

GROUP ROWS (number)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

"GROUP ROWS 2" will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

GROUP ROW (number)

Group Rows together in sets as specified by (number)

The GROUP ROW command allows you to display rows in groups of (number). Rows will be separated by a double space.

The GROUP ROW command accepts

a list of numbers which specify the grouping
CHART is to use.

CAVEAT: While a command of the form "GROUP ROW (number), GROUP COLUMN (number)" will not work, a GROUP ROW command followed by a GROUP COLUMN command, or vice versa, is acceptable. The GROUP ROW command is a list directed command.
SEE ALSO: GROUP COLUMN, RESTORE

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REPLACE VALUE COLUMN (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "REPLACE VALUE COLUMN 1" will force CHART to respond
TYPE 5 DATA VALUES FOR

%male college

The reply: "10.0 12.0 13.0 14.0 15.0"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	10.0	8.0	24.0	3.6
michigan	12.0	9.4	22.3	5.6
illinois	13.0	10.3	22.1	4.8
indiana	14.0	8.8	17.9	4.7
ohio	15.0	9.3	18.6	4.7

REPLACE VALUE COLUMN (position)

Initiates the input sequence, replacing the values for the columns specified by (position)

The REPLACE VALUE COLUMN command allows you to change the values for the columns specified by (position).

This command will initiate an input sequence, replacing all the values in the column specified by (position) on the visible table with new values you give CHART.

The command accepts

The column number for which the values are to be replaced.

CHART will prompt you for the appropriate number of data values.

The new values for the column can be separate data values, or a formula for the new values.

CAVEAT: Does not affect the data held on the MATBOARD unless DECLARE RAW is issued.

SEE ALSO: DECLARE RAW, REPLACE VALUE ROW, CHANGE VALUE

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REPLACE VALUE ROW (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "REPLACE VALUE ROW 1" will force chart to respond:
TYPE 4 DATA VALUES FOR
WISCONSIN

The reply: "30.0 10.0 30.0 10.0"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	30.0	10.0	30.0	10.0
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

REPLACE VALUE ROW (position)

Initiates an input sequence, replacing the values for the rows specified by (position)

The REPLACE VALUE ROW command allows you to change the values for the rows specified by (position).

The command will initiate the input sequence, replacing all the values in the row specified by (position) on the visible table with new values you give CHART.

The command accepts

The row number for which the values are to be replaced.

CHART will prompt you for the appropriate number of data values.

The new values for the column can be separate data values, or a formula for the new values.

CAVEAT: Does not affect the data held on the MATBOARD unless DECLARE RAW is issued.

SEE ALSO: DECLARE RAW, REPLACE VALUE COLUMN, CHANGE VALUE

REPLACE COLUMN (position)

Given the following table:

	Male		Female	
	College	Post College	College	Post College
Minnesota	310593	111436	302904	51901
Wisconsin	308101	98993	323781	49063
Michigan	626690	226088	598563	151404
Illinois	882695	307766	748075	162402
Indiana	316409	123137	283350	74969
Ohio	706858	264472	605589	151808

The command:
replace col 1
TYPE LABEL ON ONE LINE, THEN 5 DATA VALUES FOR COL 1
Male * Nopost * Grad
= col 1 - col 2
will produce:

	Male		Female	
	Nopost Grad	Post College	College	Post College
Minnesota	199157	111436	302904	51901
Wisconsin	209108	98993	323781	49063
Michigan	400602	226088	598563	151404
Illinois	574929	307766	748075	162402
Indiana	193272	123137	283350	74969
Ohio	442386	264472	605589	151808

REPLACE COLUMN (position)

Initiates input sequence, replacing both labels and data values for column specified.

The REPLACE COLUMN command allows you to replace all the information associated with a specific column, given by (position).

Both the data values, and the column label are modified to contain the information you provide in response to the input sequence.

The input sequence is a column label on one line, and new data values on succeeding lines.

The REPLACE COLUMN command accepts

The position of the column to be changed,
given by (position).

CAVEAT: does not affect data held on the matboard unless the DECLARE RAW command is issued.

SEE ALSO: REPLACE ROW, DECLARE RAW, CHANGE VALUE

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REPLACE ROW (position)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "REPLACE ROW 5" will force CHART to respond:
TYPE LABEL ON ONE LINE. THEN 4 DATA VALUES FOR ROW 5
The response: "REGION GOAL"
"30.0 10.0 24.0 6.0"
will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
REGION GOAL	30.0	10.0	24.0	6.0

REPLACE ROW (position)

Initiates input sequence, replacing both labels and data values for row specified.

The REPLACE ROW command allows you to replace all the information associated with a specific row, given by (position).

Both the data values, and the row label are modified to contain the information you provide in response to the input sequence.

The input sequence is a row label on one line, and new data values on succeeding lines.

The REPLACE ROW command accepts

The position of the row to be changed,
given by (position).

CAVEAT: does not affect data held on the matboard unless the DECLARE ROW command is issued.

SEE ALSO: REPLACE COLUMN, DECLARE ROW, CHANGE VALUE

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INSERT COLUMN (position)

Given the following table:

	Male		Female	
	College	Post College	College	Post College
Minnesota	310593	111436	302904	51901
Wisconsin	308101	98993	323781	49063
Michigan	626690	226088	598563	151404
Illinois	882695	307766	748075	162402
Indiana	316409	123137	283350	74969
Ohio	706858	264472	605589	151808

The command: "INSERT COLUMN" will force chart to respond:
TYPE LABEL ON ONE LINE, THEN 6 DATA VALUES ON NEXT LINES
TYPE A BLANK LINE TO EXIT.

The response: "Total * College * Graduates"
"=col 1 + col 3"

will produce:

	Male		Female		Total
	College	Post College	College	Post College	College Graduates
Minnesota	310593	111436	302904	51901	613497
Wisconsin	308101	98993	323781	49063	631882
Michigan	626690	226088	598563	151404	1225253
Illinois	882695	307766	748075	162402	1630770
Indiana	316409	123137	283350	74969	599759
Ohio	706858	264472	605589	151808	1312447

INSERT COLUMN (position)

Initiates the input sequence to insert a column into the visible table at the position specified by (position).

This command allows you to add a new column to the visible table. CHART will place the new column in the position specified by (position). Thus:

"INSERT COLUMN 3"

will initiate the input sequence, with CHART asking you for a column label and the appropriate number of data values. The new column will be column 3.

The INSERT COLUMN command accepts

a number which indicates the position the column is to take in the visible table.

The input sequence is terminated with a blank line.

The values for this new column can be separate data values or a formula.

CAVEAT: Unless the DECLARE RAW command is given, the new column is not stored on the MATBOARD, thus a BACKUP command will erase the data.

SEE ALSO: DECLARE RAW, BACKUP, WRITE, INSERT COLUMN

INSERT ROW (position)

Given the following table:

	Male		Female	
	College	Post College	College	Post College
Minnesota	310593	111436	302904	51901
Wisconsin	308101	98993	323781	49063
Michigan	626690	226088	598563	151404
Illinois	882695	307766	748075	162402
Indiana	316409	123137	283350	74969
Ohio	706858	264472	605589	151808

The command: "INSERT ROW" will force CHART to respond:
TYPE LABEL ON ONE LINE, THEN 4 DATA VALUES ON NEXT LINES.
TYPE A BLANK LINE TO EXIT.
ROW 7

The response: "Regional Total"
"= row 1 + row 2 + row 3 + row 4 + row 5"

will produce:

	Male		Female	
	College	Post College	College	Post College
Minnesota	310593	111436	302904	51901
Wisconsin	308101	98993	323781	49063
Michigan	626690	226088	598563	151404
Illinois	882695	307766	748075	162402
Indiana	316409	123137	283350	74969
Ohio	706858	264472	605589	151808
Regional Total	2444488	867420	2256673	489739

INSERT ROW (position)

Initiates the input sequence to insert a row into the visible table at the position specified by (position).

This command allows you to add a new row to the visible table. CHART will place the new row in the position specified by (position). Thus:

"INSERT ROW 3"

will initiate the input sequence, with CHART asking you for a row label and the appropriate number of data values. The new row will be row 3.

The INSERT ROW command accepts

a number which indicates the position the row is to take in the visible table.

The input sequence is terminated with a blank line.

The values for the row can be separate data values, or a formula for the new values.

CAVEAT: Unless the DECLARE ROW command is given, the new row is not stored on the MATBOARD, thus a BACKUP command will erase the new data.

SEE ALSO: DECLARE ROW, BACKUP, WRITE, INSERT COLUMN

RANK COLUMN (position) (order)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

"RANK COLUMN 2 ASCENDING" will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8

RANK COLUMN (position) (order)

Sorts the visible table into the order specified by (order) in column (position).

The RANK command allows you to sort the visible table using the column specified as the key, in the order specified by (order).

The RANK command accepts two parameters:

- 1) The position of the key column
- 2) The words ASCENDING or DESCENDING for (order)

The default is ascending order.

CAVEAT: Does not affect the order in which data is stored on the MATBOARD unless the DECLARE RAW command is issued. The words Ascending and Descending may be abbreviated as ASC or DES.

SEE ALSO: DECLARE RAW

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FORMAT (total-width).(decimal-places)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

The command: "FORMAT 6.3 6.2"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.876	7.99	24.033	3.64
michigan	25.936	9.36	22.282	5.64
illinois	29.678	10.35	22.128	4.80
indiana	22.704	8.84	17.881	4.73
ohio	24.954	9.34	18.616	4.67

FORMAT (total-width).(decimal-places)

Specifies the total width of numeric fields and the number of spaces to be reserved to the right of the decimal point.

FORMAT gives the user the option to display data as either integer or decimal numbers.

FORMAT statements can be given for rows or columns, and formats can be mixed across columns. The FORMAT statement will repeat for every column on the display.

If a unique format is desired for individual columns, you must specify them as a list in the FORMAT command.

The FORMAT command accepts three parameters, which may be repeated for sequential columns if desired:

- 1) The total width of the data item (including the decimal point)
- 2) a decimal point
- 3) The number of digits to appear to the right of the decimal point.

Integers are specified by not including the second and third parameters of the command.

CAVEAT: CHART performs a rounding operation on data which has been given an integer format.

SEE ALSO:

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CHANGE ROW (position) COLUMN (position) TO (value)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

"CHANGE ROW 2 COLUMN 3 to 30.0" will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	30.0	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

CHANGE ROW (position) COLUMN (position) TO (value)

Replaces a single data element specified by ROW (position) and COLUMN (position) to the value following the keyword "TO".

The CHANGE command modifies a single data element in the visible portion of the table. The CHANGE command accepts three parameters:

- 1) The word "ROW" followed by a position number
- 2) The word "COLUMN" followed by a position number
- 3) The word "TO" followed by the new data value

This value is not entered onto the MATBOARD, but is stored instead on the visible table only. To replace the old data element with the new data element permanently, use the DECLARE RAW command.

CAVEAT: The CHANGE command does not affect the contents of the MATBOARD. To ensure that the new value is saved, use the DECLARE RAW command.

SEE ALSO: DECLARE RAW, WRITE

GROUP III COMMANDS

MAOR DISPLAY

COMMANDS

Plot Report, Bar, Line and Pie

GROUP III

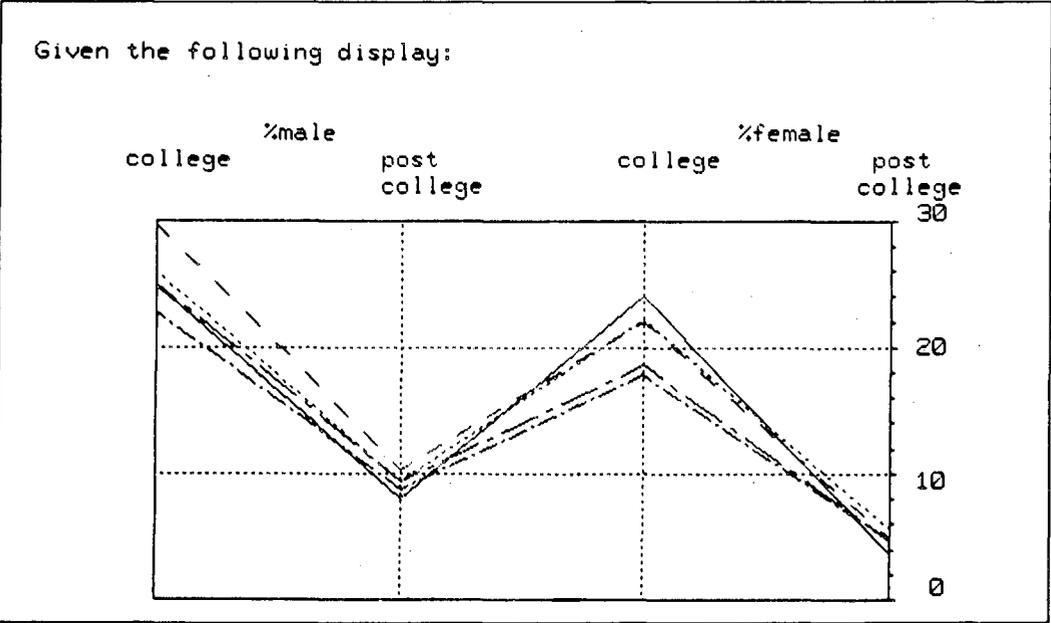
The GROUP III commands are the major display commands.

The GROUP III commands are the commands which instruct CHART to display the data in the visible table in graphic form.

The commands documented include:

Plot Report	3-2
Bar	3-4
Line	3-6
Pie	3-8

PLOT REPORT



"PLOT REPORT" will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	25	8	24	4
michigan	26	9	22	6
illinois	30	10	22	5
indiana	23	9	18	5
ohio	25	9	19	5

PLOT REPORT

Draws a tabular display of the data contained in the visible table.

The PLOT REPORT command allows you to display all the data contained on the visible table in tabular format.

The PLOT REPORT command requires no parameters.

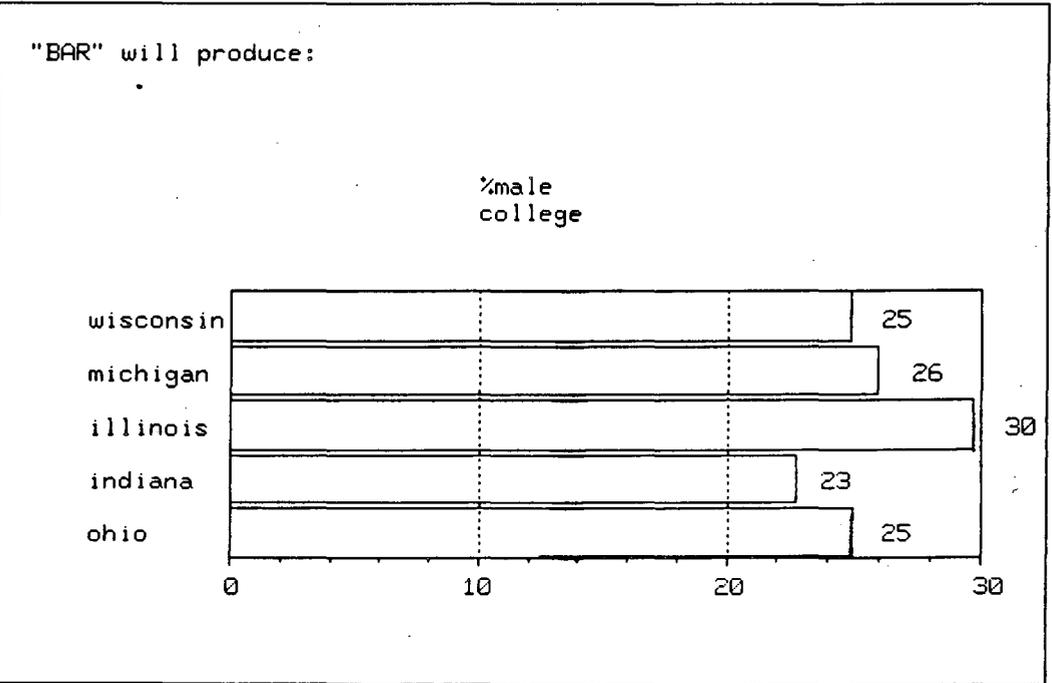
CAVEAT: GROUP IV commands may be utilized to enhance the display.

SEE ALSO: BAR, LINE, PIE, TITLE

BAR

Given the following table:

	%male college
wisconsin	24.9
michigan	25.9
illinois	29.7
indiana	22.7
ohio	25.0



BAR

Creates a Bar chart using the data contained in the visible table

The BAR command allows you to display the information contained in the visible table in the form of a BAR chart.

Several default display options are preset and can be modified using the Group IV commands.

The set options are:

- 1) A grid is drawn to accommodate the largest bar
- 2) A scale is provided.
- 3) Data values are printed at the end of the bar.

The PLOT REPORT command will return the chart to a tabular display.

CAVEAT: Care should be exercised to avoid an excessively busy display.

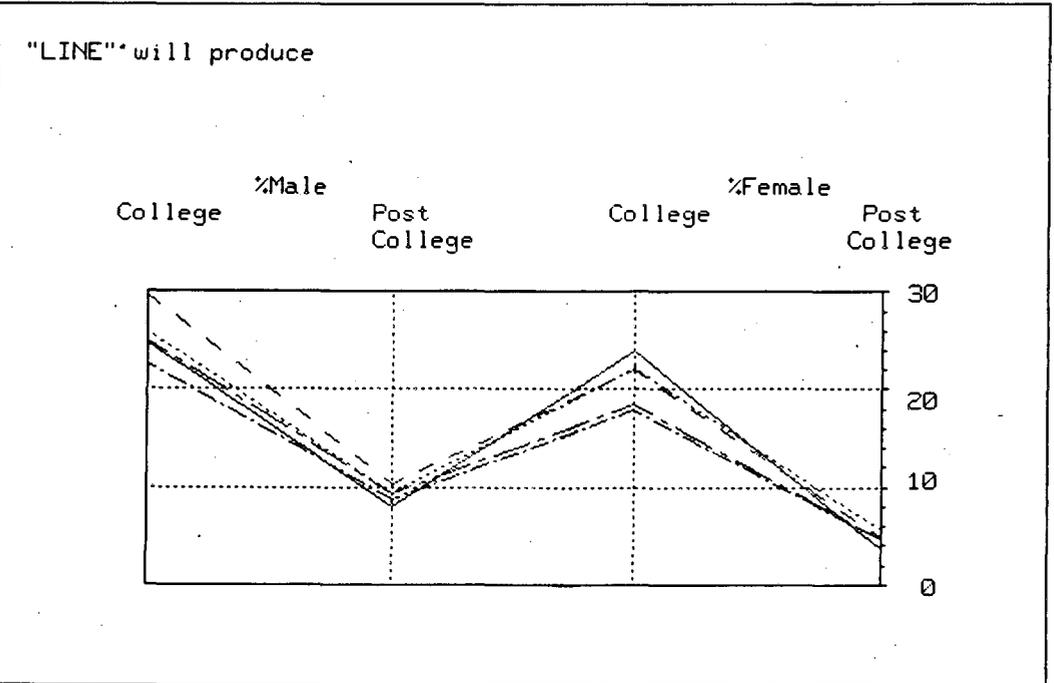
SEE ALSO: TRANSPOSE, SHADE, SCALE, VALUE FLIP, VALUE NONE

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LINE

Given the following table:

	%Male		%Female	
	College	Post College	College	Post College
Wisconsin	24.9	8.0	24.0	3.6
Michigan	25.9	9.4	22.3	5.6
Illinois	29.7	10.3	22.1	4.8
Indiana	22.7	8.8	17.9	4.7
Ohio	25.0	9.3	18.6	4.7



LINE

Creates a line graph from the information contained in the visible table.

The LINE command allows you to display data contained in the visible table in the form of a line chart.

Chart will attempt to select different line types to differentiate between the various data elements.

Line charts are particularly effective in displaying information from successive time periods.

The Line chart is drawn with several default display options. These options can be modified by using the various GROUP IV commands. The set options are:

- 1) a grid is drawn
- 2) a scale is drawn
- 3) actual data values are not shown.

The PLOT REPORT command will return the display to a tabular report.

CAVEAT: The user should utilize the various GROUP IV commands to adjust and enhance the display.

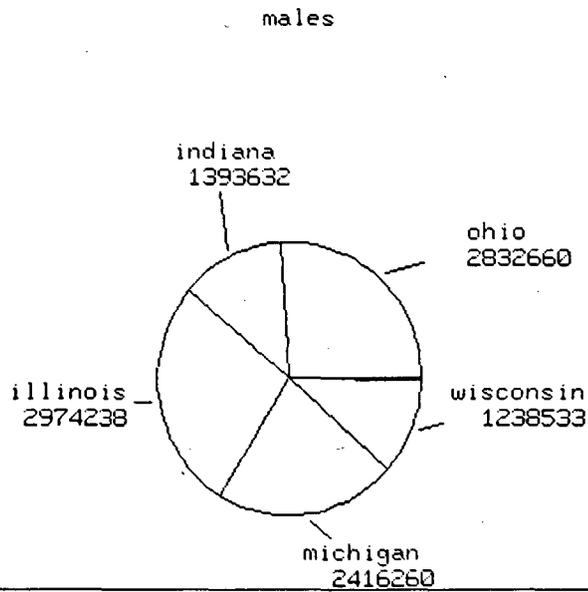
SEE ALSO: VALUE, SCALE, GRID

PIE

Given the following table:

	males
wisconsin	1238533
michigan	2416260
illinois	2974238
indiana	1393632
ohio	2832660

"PIE" will produce:



PIE

Creates a PIE chart from the data contained in the visible table

The PIE command allows you to display the data contained on the visible table in the form of a PIE chart.

The PIE command accepts no parameters, but the display may be modified and enhanced with various GROUP IV commands, such as PIE TURN.

The default pie given with this command provides for the row labels to be displayed with their values placed underneath.

CAVEAT: The display may be enhanced and modified with various GROUP IV commands. Note also that most terminals have only enough display area to display one pie chart effectively at a time.

SEE ALSO: PIE TURN, LINE, BAR, TITLE, VALUE PERCENT, LABEL PIE

GROUP IV COMMANDS

DISPLAY

ENHANCEMENT

Titles, labels, shading, borders and marks

GROUP IV

GROUP IV commands modify the presentation of the visible display.

Group IV commands are used to enhance the display you have built using group II and III commands.

Group IV commands include commands to define and place titles, to draw marking lines and borders and control the appearance of your display.

The Group IV commands documented include

Label Row	4-3
Label Size	4-5
Label Top	4-7
Title	4-8
Title Top	4-10
Title Bottom	4-12
Title Legend	4-15
Replace Label Column	4-17
Replace Label Row	4-19
Shade	4-20
Slope	4-22
Mark	4-24
Value	4-26
Border	4-28
Pie Turn	4-30

LABEL ROW (number of characters)

LABEL ROW sets the number of characters to be used in identifying each row.

The LABEL ROW command accepts the number of characters to be printed as identifying text for each row.

CAVEAT: If the row identifier is longer than the number of characters specified, the identifier will be truncated.

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LABEL SIZE (size)

LABEL SIZE determines the size of the characters drawn on the visible display.

The LABEL SIZE command allows you to adjust the size of the characters drawn at the terminal. This command is only used on Tektronix terminals.

Label sizes range in size from 50 (very large) to 120 (very small). The command accepts one size parameter for the entire display.

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LABEL TOP (sequence)

LABEL TOP assigns hierarchical labels to the tops of data columns.

Column labels which span more than one column are called hierarchical labels.

The positioning of these labels is done with the LABEL TOP command which expects a list of numbers describing the order and number of lines above the data values the labels are to be printed.

Hierarchical labels are entered in the following form:

```
main label*secondary label*tertiary label
main label*secondary label*new tertiary label
```

The command "label top 3 2 1" will produce:

```
          main label
        secondary label
      tertiary label    new tertiary label
```

with the main label 3 lines above the data, the secondary label 2 lines above the data and the tertiary (third) label 1 line above the data.

TITLE (title numbers)

The command: "TITLE 1 2 3" will force CHART to respond:
ENTER 3 TITLE LINES

The response: "REGION V"
"MALE-FEMALE"
"COLLEGE ATTENDANCE"

READY

Notice that the titles are defined, but not displayed.
(See TITLE TOP and TITLE BOTTOM commands)

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

TITLE (title-numbers) (option)

Initiates an input sequence for assigning textual information to individual title slots.

The TITLE command allows you to assign text to 20 title slots.

The (title-numbers) parameter may be entered as a list, thus to define 3 titles, you would type:

TITLE 1 2 3

CHART will then prompt you to enter 3 title lines. These title lines can then be displayed with the TITLE TOP, TITLE BOTTOM, or TITLE LEGEND commands.

The TITLE command accepts one required parameter (title-numbers) and one optional parameter (option),

Optional qualifiers are:

- a) JUSTIFY - left justify title
- b) RIGHT - right justify title
- c) CENTER - center title
- d) FLUSH - flush title line to plot region
- e) LABEL - flush title with row labels
- f) RULE - draw a line instead of text
- h) DATESTAMP - append run date to title line
- i) TIMESTAMP - append run time to title line
- j) SIZE (n) - draw title with size (n) letters
- k) SHADE (v) - precede title with box shaded (n)
- l) ROW (n) - use row label (n) as title line
- m) COL (n) - use column label (n) as title line

CAVEAT: Several attributes may be combined within one title line by invoking the TITLE command with different options and responding with a blank line when CHART asks for the title. Line 0 is always blank.

SEE ALSO: SET SIZE, TITLE TOP, TITLE BOTTOM, TITLE LEGEND

TITLE TOP (title lines)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

If Title lines 1,2 and 3 are defined (see TITLE command):

The command: "TITLE TOP 1 2 3"

will produce:

	REGION V MALE-FEMALE COLLEGE ATTENDANCE			
	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

TITLE TOP (title-number)

Positions title lines selected by (title-number) at the top of the report, in the order specified by (title-number)

The TITLE TOP command allows you to position title lines you have previously defined using the TITLE command, at the top of your report.

The TITLE TOP command accepts

A list of title-numbers which correspond to the numbers given to the titles when they were defined.

The command: TITLE TOP 1 2 3

would put title lines 1, 2 and 3 at the top of the report,

and the command: TITLE TOP 3 2 1

would put title lines 3 2 1 at the top of the report, in that order.

Several title lines can share the same report line, by concatenating their two digit numbers. For example,

TITLE TOP 301 2

would place titles 3 and 1 on the first title line, with title 2 immediately below.

Omitting any title numbers in the command removes all title lines from the top of the report.

CAVEAT: Title line 0 is always blank, omitting title numbers results in no titles being printed at the top of the report.

SEE ALSO: TITLE, TITLE BOTTOM, TITLE LEGEND

TITLE BOTTOM (title lines)

Given the following table:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

If Title lines 1,2 and 3 are defined (see TITLE command)

The command: "TITLE BOTTOM 1 2 3"

will produce:

	%male		%female	
	college	post college	college	post college
wisconsin	24.9	8.0	24.0	3.6
michigan	25.9	9.4	22.3	5.6
illinois	29.7	10.3	22.1	4.8
indiana	22.7	8.8	17.9	4.7
ohio	25.0	9.3	18.6	4.7

REGION V
MALE-FEMALE
COLLEGE ATTENDANCE

TITLE BOTTOM (title-number)

Positions title lines selected by (title-number) at the bottom of the report, in the order specified by (title-number)

The TITLE BOTTOM command allows you to position title lines you have previously defined using the TITLE command, at the bottom of your report.

The TITLE BOTTOM command accepts:

A list of title-numbers which correspond to the numbers given to the titles when they were defined.

The command: TITLE BOTTOM 1 2 3

would put title lines 1, 2 and 3 at the bottom of the report,

and the command: TITLE BOTTOM 3 2 1

would put title lines 3 2 1 at the bottom of the report, in that order.

Several title lines can share the same report line, by concatenating their two digit numbers. For example,

TITLE BOTTOM 301 2

would place titles 3 and 1 on the first title line, with title 2 immediately below.

Omitting any title numbers in the command removes all title lines from the bottom of the report.

CAVEAT: Title line 0 is always blank, omitting title numbers results in no titles being printed at the bottom of the report.

SEE ALSO: TITLE, TITLE TOP, TITLE LEGEND

TITLE LEGEND (title-number)

Positions title lines selected by (title-number) in the legend region of the report, in the order specified by (title-number)

The TITLE LEGEND command allows you to position title lines you have previously defined using the TITLE command, in the legend region of your report.

The TITLE LEGEND command accepts:

A list of title-numbers which correspond to the numbers given to the titles when they were defined.

The command: TITLE LEGEND 1 2 3

would put title lines 1, 2 and 3 in the legend-region of your report.

Omitting any title numbers in the command removes all title lines from the legend-region of your report.

CAVEAT: Title line 0 is always blank, omitting title numbers results in no titles being printed at the legend-region of the report.

SEE ALSO: TITLE, TITLE BOTTOM, TITLE TOP

REPLACE LABEL COLUMN (position or range)

Initiates Input sequence for new column label at column (position)

The REPLACE LABEL COLUMN command allows you to modify existing column labels. The command initiates an input sequence which will ask you for a new column label for the column you specified by (position).

The REPLACE LABEL COLUMN command accepts one parameter:

- 1) The position numbers of the columns which are to receive new column labels.

The command is often used when an existing label does not adequately describe the column contents.

CAVEAT: The Matboard is not modified unless DECLARE RAW is issued thus, any column label changes will not be saved.

SEE ALSO: REPLACE LABEL ROW, DECLARE RAW, TITLE

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REPLACE LABEL ROW (position or range)

Initiates Input sequence for new row label at row (position)

The REPLACE LABEL ROW command allows you to modify existing row labels. The command initiates an input sequence which will ask you for a new row label for the row you specified by (position).

The REPLACE LABEL ROW command accepts one parameters:

- 1) The position numbers of the rows which are to receive new row labels.

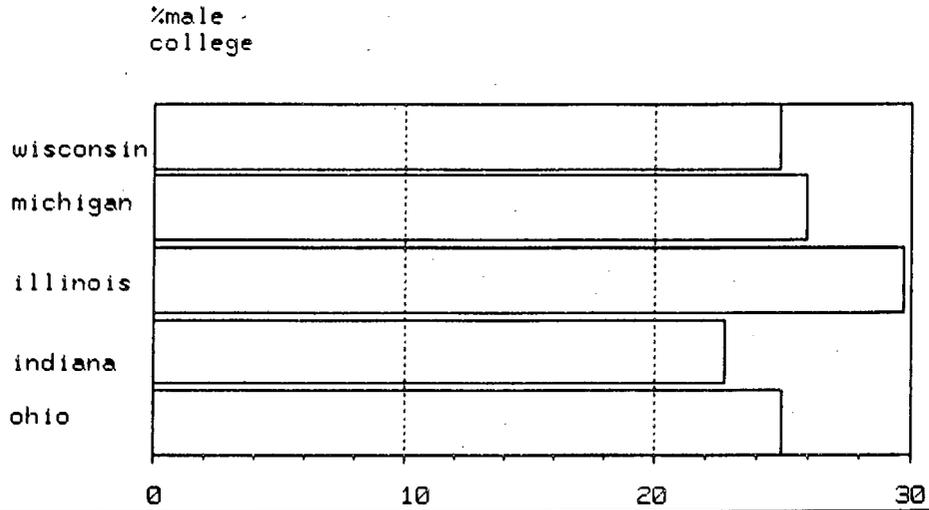
The command is often used when an existing label does not adequately describe the row contents.

CAVEAT: The Matboard is not modified unless DECLARE RAW is issued, thus, any row label changes will not be saved.

SEE ALSO: REPLACE LABEL COLUMN, DECLARE RAW, TITLE

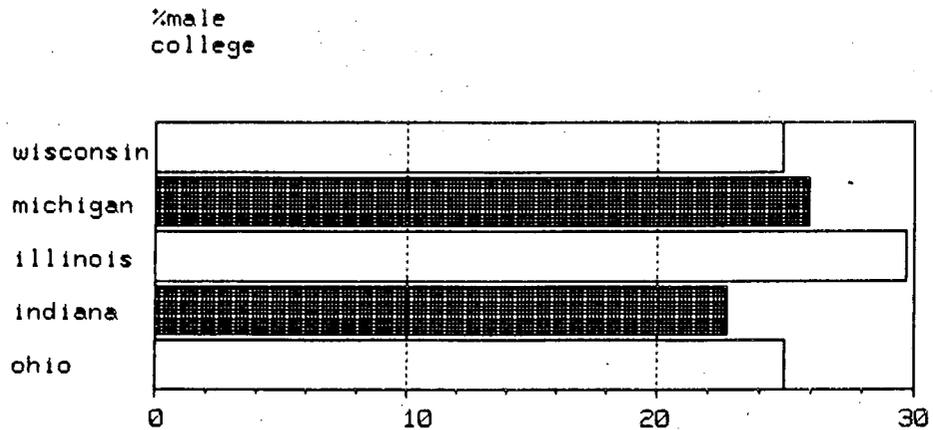
SHADE (list of shade values)

Given the following display



The command "SHADE 0 1"

will produce



SHADE (value)

Fills Bar graphs with lines of density (value)

Bar graphs are drawn without shading. The SHADE command allows you to specify the density of shading to be used for each bar. The parameter (value) is a repeatable value that can be given for each bar.

Shading is used to accentuate differences between data values. Most terminals use cross hatch patterns to create the shading. The parameter (value) must range from 0 (no shading) to 1 (solid). Specifying only one (value) will result in all bars being shaded alike. If the list of values is not long enough to be used for each bar, the list will be repeated.

The SHADE command accepts

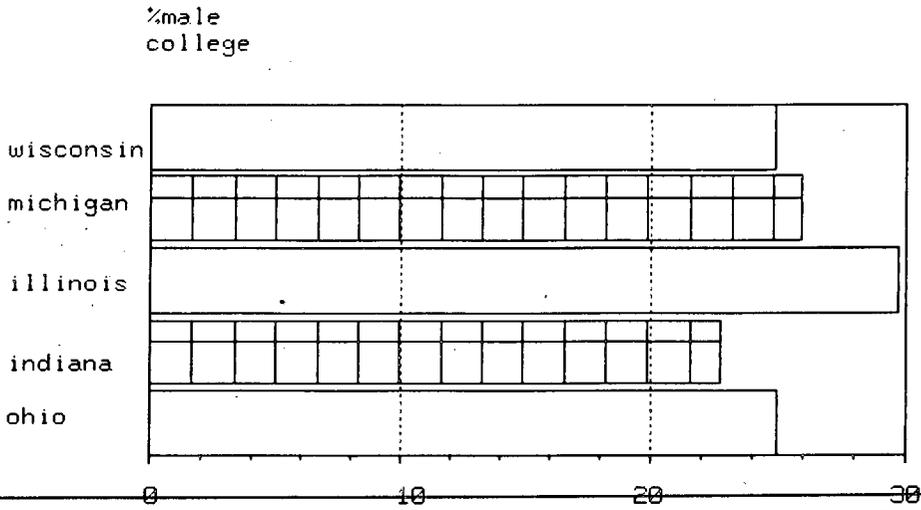
A value between 0 and 1.
This value may be repeated as many times as
there are bars in your chart.

CAVEAT: The higher the SHADE value, the longer it will take to draw, this may be important if you are a dial-up user with a slower terminal. The SHADE command is a list directed command.

SEE ALSO: SLOPE, BAR

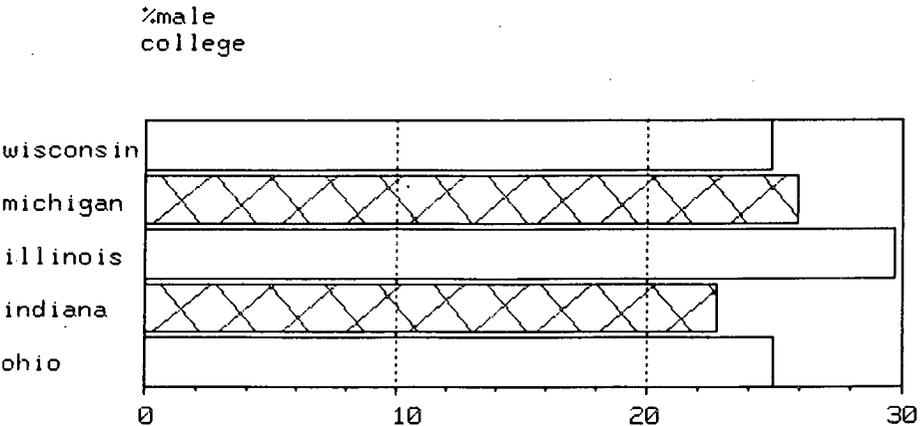
SLOPE (value)

Given the following display:



The command: "SLOPE .45"

will produce:



SLOPE (value)

Set angle of lines used for shading bar graphs

Shade lines are drawn perpendicular to each other in bar graphs, unless specified otherwise. The SLOPE command allows you to specify the angle the lines are to be drawn.

The SLOPE command accepts one parameter

A value between 0 and 1 to represent the angle the fill lines are to take. This value may be repeated.

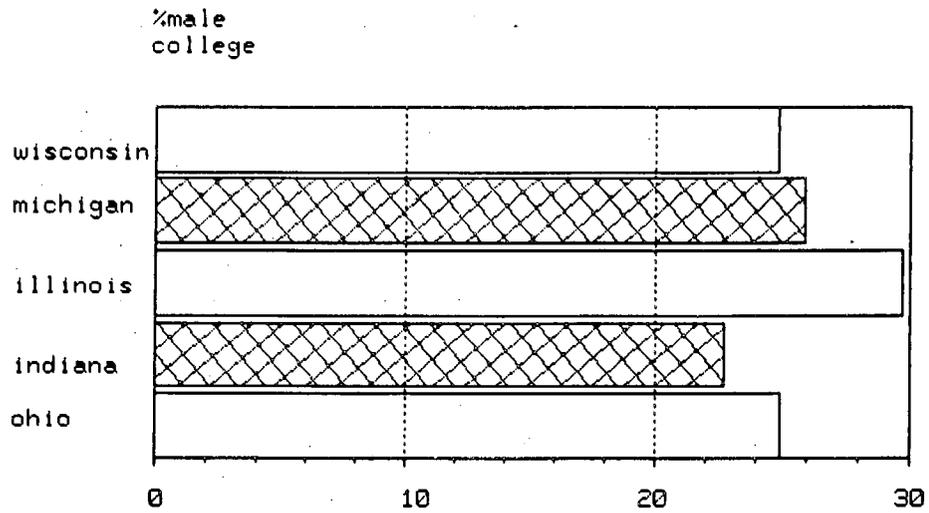
CAVEAT: Some slope values are not particularly appealing.

SEE ALSO: SHADE, BAR

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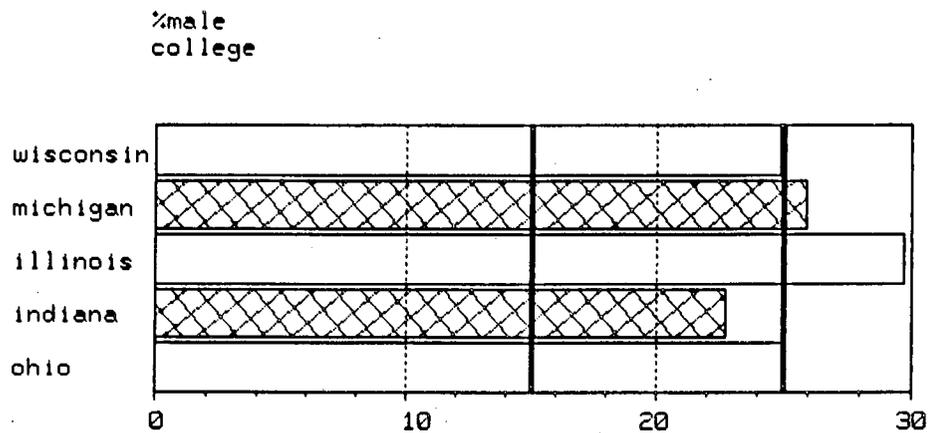
MARK (value)

Given the following display:



The command: "MARK 15 25"

will produce:



MARK (value)

Draws a rule line on line or bar charts at (value)

The MARK command allows you to draw arbitrary lines at various points on line or bar charts.

The MARK command accepts a list of parameters.

The MARK command is most often utilized to identify decision points on the display, and to make them clearer to other users of your graphs.

Lines drawn by the MARK command may be removed from the display by issuing the MARK command without any value given.

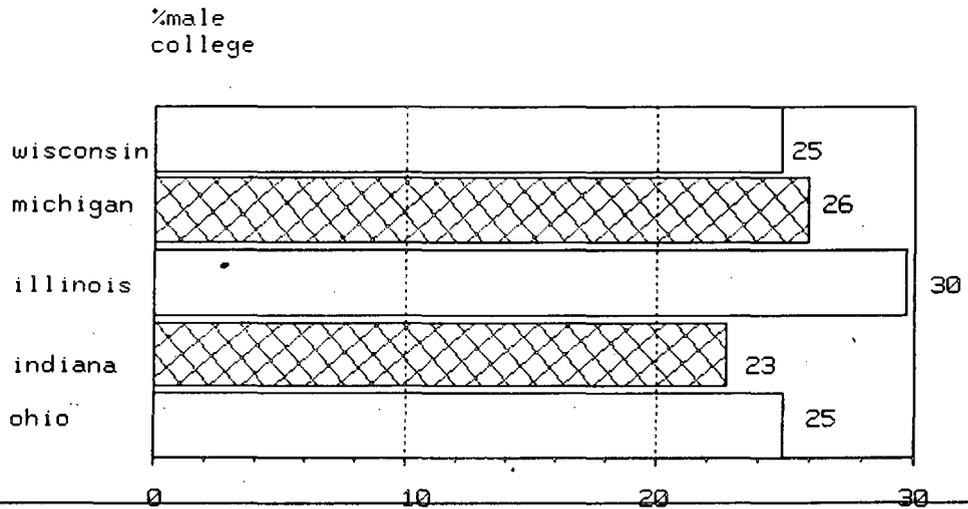
The MARK command is a list directed command and accepts at least one parameter:

A number or numbers given by (value) which indicates where on the scale CHART is to draw the rule-line.

CAVEAT: Mark lines may be removed by issuing the MARK command without any parameter.

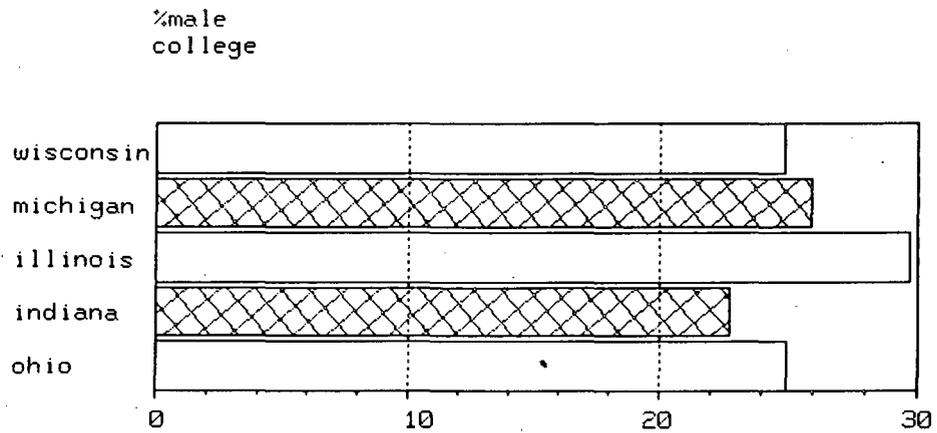
VALUE (option)

Given the following display:



The command: "VALUE NONE"

will produce:



VALUE (option)

Controls the display of data values on graphic displays

The VALUE command accepts only one parameter, given by (option), which may be any one of:

- 1) NONE - turns off the display of data values
- 2) SHOW - turns on the display of data values
- 3) PERCENT - displays data values as percentages
 - this command is used with pie charts
 - and the data values are expressed as percentages of the pie
- 4) FLIP - places data values inside bar charts, or
 - if not enough room, just outside the bar

In addition, in some circumstances, it is desirable to adjust the scale of bar charts to highlight some lower values. In these instances, some bars may overrun the display. You may then define a title-line, and by providing that title-line number, CHART will place that title at the bars which overrun the display. If for instance, you define title 9 to be

" * Indicates values off the scale"

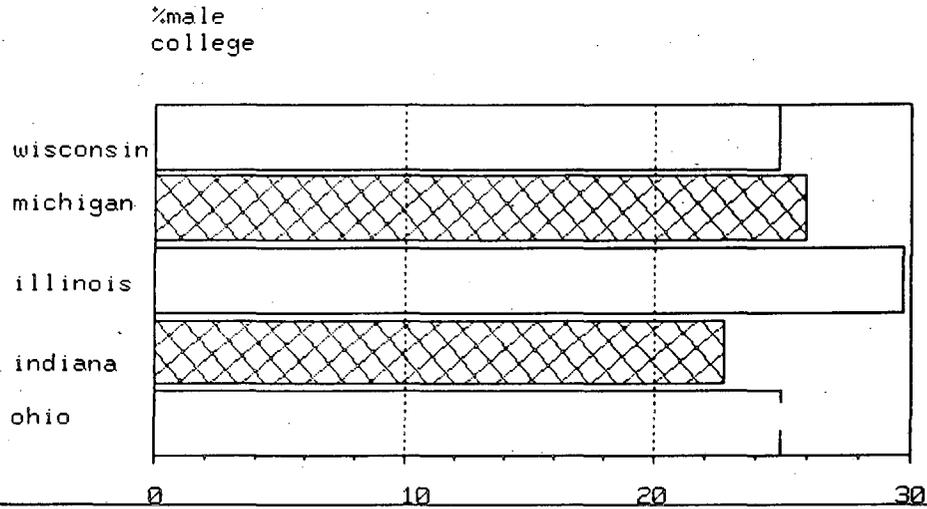
and then type: VALUE 9

CHART will take the first character in title 9 and place it on the bars which overrun the display. Title 9, could then be placed at the bottom of the report via the use of the TITLE BOTTOM command.

SEE ALSO: TITLE, TITLE BOTTOM, TITLE TOP, SCALE, BAR

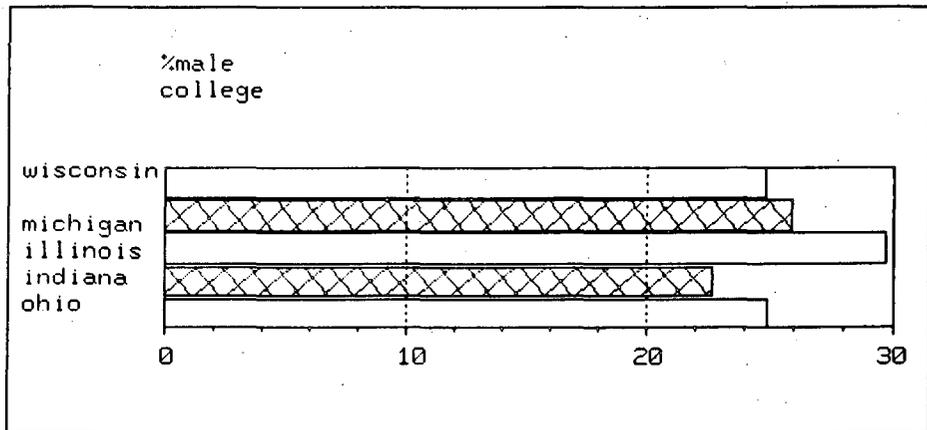
BORDER (spaces)

Given the following display:



The command: "BORDER 2"

will produce:



BORDER (spaces)

Places a border (spaces) in from the edge of the page

The BORDER command allows positioning a border around the display.

The BORDER command accepts one parameter:

The number of spaces in from the edge of the page to draw the border.

The BORDER command without a parameter will inhibit drawing the border.

CAVEAT:

SEE ALSO:

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PIE TURN (degrees)

Rotates Pie charts

The Pie Turn command allows the user to rotate Pie charts to improve the readability of the display.

The Pie Turn command accepts one parameter:

- 1) The number of degrees to turn the displayed Pie chart.

CAVEAT: The number used may be a negative value.

SEE ALSO: PIE

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