

## \$<sub>1</sub> #<sub>2</sub> +<sub>3</sub> K<sub>4</sub> **Macro Language**

The MicroEMACS macro language allows you to add extensions to the editor. Statements (one per line) are composed of the following elements:

<u>Commands</u>	manipulate text, buffers, windows, etc... within the editor
<u>Directives</u>	control the flow of execution within a macro
<u>Arguments:</u>	
<u>Constants</u>	
<u>Variables</u>	
<u>Functions</u>	
<u>Comments</u>	

Macros are registered with MicroEMACS by the store-macro or store-procedure commands. They get executed through menus or keystrokes they have been bound to, or through the execute-macro-n or run commands.

Macros can also be executed directly from a buffer or a file by the execute-buffer or execute-file commands.

1\$ Macro Language  
2# MacroLanguage  
3+ Index:2040  
4K macro;language

\$<sub>5</sub> #<sub>6</sub> +<sub>7</sub> K<sub>8</sub> **Commands**

**By topic:**

Binding  
Block of Text  
Buffer, Window and Screen  
Clipboard and Kill Buffer  
Execution, Macro and Variable  
File  
Mouse  
Positioning  
Search and Replace  
Miscellaneous

**Alphabetical lists:**

Standard commands  
Additional commands

5\$ Commands  
6# Commands  
7+ MacroLanguage:010  
8<sup>K</sup> commands

\$9 #10 +11 K12 **Binding commands**

- [apropos](#)
- [bind-to-key](#)
- [bind-to-menu](#)
- [ctlx-prefix](#)
- [describe-bindings](#)
- [describe-key](#)
- [macro-to-key](#)
- [macro-to-menu](#)
- [meta-prefix](#)
- [unbind-key](#)
- [unbind-menu](#)

9\$ Binding commands

10# BindingCommands

11+ CommandsByTopic:bindingcommands

12K binding;commands

\$<sub>13</sub> #<sub>14</sub> +<sub>15</sub> K<sub>16</sub> **Block of Text commands**

Commands that affect regions, lines, words and paragraphs.

case-region-lower  
case-region-upper  
case-word-capitalize  
case-word-lower  
case-word-upper  
copy-region  
count-words  
delete-blank-lines  
delete-next-word  
delete-previous-word  
detab-region  
entab-region  
fill-paragraph  
indent-region  
kill-paragraph  
kill-region  
kill-to-end-of-line  
narrow-to-region  
remove-mark  
set-fill-column  
set-mark  
trim-region  
undent-region  
widen-from-region  
wrap-word

13\$ Block of Text commands

14# BlockOfTextCommands

15+ CommandsByTopic:blockoftextcommands

16K region;line;word;paragraph;commands

\$<sub>17</sub> #<sub>18</sub> +<sub>19</sub> K<sub>20</sub> **Buffer, Window and Screen commands**

[add-global-mode](#)  
[add-mode](#)  
[cascade-screens](#)  
[change-screen-column](#)  
[change-screen-row](#)  
[change-screen-size](#)  
[change-screen-width](#)  
[clear-and-redraw](#)  
[cycle-screens](#)  
[delete-buffer](#)  
[delete-global-mode](#)  
[delete-other-windows](#)  
[delete-mode](#)  
[delete-screen](#)  
[delete-window](#)  
[execute-buffer](#)  
[filter-buffer](#)  
[find-screen](#)  
[grow-window](#)  
[list-buffers](#)  
[list-screens](#)  
[maximize-screen](#)  
[minimize-screen](#)  
[move-window-down](#)  
[move-window-up](#)  
[name-buffer](#)  
[narrow-to-region](#)  
[next-buffer](#)  
[next-window](#)  
[pipe-command](#)  
[pop-buffer](#)  
[previous-window](#)  
[rename-screen](#)  
[resize-window](#)  
[restore-screen](#)  
[restore-window](#)  
[save-window](#)  
[scroll-next-up](#)  
[scroll-next-down](#)  
[select-buffer](#)  
[shrink-window](#)  
[split-current-window](#)  
[tile-screens](#)  
[unmark-buffer](#)  
[update-screen](#)  
[widen-from-region](#)

17\$ Buffer, Window and Screen commands

18# BufferWindowScreenCommands

19+ CommandsByTopic:bufferwindowsscreencommands

20K buffer;window;screen;commands

\$<sub>21</sub> #<sub>22</sub> +<sub>23</sub> K<sub>24</sub> **Clipboard and Kill Buffer commands**

clip-region  
copy-region  
cut-region  
cycle-ring  
delete-kill-ring  
delete-next-character (with argument)  
delete-next-word  
delete-previous-character (with argument)  
delete-previous-word  
insert-clip  
kill-paragraph  
kill-region  
kill-to-end-of-line  
yank  
yank-pop

21\$ Clipboard and Kill Buffer commands

22# ClipboardKillBufferCommands

23+ CommandsByTopic:clipboardandkillbuffercommands

24<sup>K</sup> clipboard;kill;commands

\$<sub>25</sub> #<sub>26</sub> +<sub>27</sub> K<sub>28</sub> **Execution, Macro and Variable commands**

abort-command  
begin-macro  
describe-functions  
describe-variables  
display  
end-macro  
execute-buffer  
execute-command-line  
execute-file  
execute-macro  
execute-macro-*n*  
execute-named-command  
execute-procedure  
execute-program  
filter-buffer  
i-shell  
nop  
pipe-command  
run  
set  
shell-command  
source  
store-macro  
store-procedure  
help-engine

25\$ Execution, Macro and Variable commands

26# ExecutionMacroVariableCommands

27+ CommandsByTopic:executionmacrovariablecommands

28<sup>K</sup> execute;spawn;filter;pipe;shell;DOS;macro;variable;commands

\$<sub>29</sub> #<sub>30</sub> +<sub>31</sub> K<sub>32</sub> **File Commands**

append-file  
change-file-name  
execute-file  
find-file  
insert-file  
read-file  
save-file  
show-files  
source  
view-file  
write-file

29\$ File Commands

30# FileCommands

31+ CommandsByTopic:filecommands

32K file;commands

\$<sub>33</sub> #<sub>34</sub> +<sub>35</sub> K<sub>36</sub> **Mouse commands**

[mouse-move-down](#)

[mouse-move-up](#)

[mouse-region-down](#)

[mouse-region-up](#)

[mouse-resize-screen](#)

33\$ Mouse commands

34# MouseCommands

35+ CommandsByTopic:mousecommands

36K mouse;commands

\$<sub>37</sub> #<sub>38</sub> +<sub>39</sub> K<sub>40</sub> **Positioning commands**

backward-character  
beginning-of-file  
beginning-of-line  
buffer-position  
end-of-file  
end-of-line  
end-of-word  
exchange-point-and-mark  
forward-character  
goto-line  
goto-mark  
goto-matching-fence  
next-line  
next-page  
next-paragraph  
next-word  
previous-line  
previous-page  
previous-paragraph  
previous-word  
redraw-display

37\$ Positioning commands

38# PositioningCommands

39+ CommandsByTopic:positioningcommands

40K position;point;commands

\$<sup>41</sup> #<sup>42</sup> +<sup>43</sup> K<sup>44</sup> **Search and Replace commands**

hunt-backward

hunt-forward

incremental-search

query-replace-string

replace-string

reverse-incremental-search

search-forward

search-reverse

41\$ Search and Replace commands

42# SearchReplaceCommands

43+ CommandsByTopic:searchreplacecommands

44K search;replace;commands

\$<sub>45</sub> #<sub>46</sub> +<sub>47</sub> K<sub>48</sub> **Miscellaneous Commands**

clear-message-line  
exit-emacs  
handle-tab  
help  
insert-space  
insert-string  
newline  
newline-and-indent  
nop  
open-line  
overwrite-string  
print  
quick-exit  
quote-character  
redraw-display  
set-encryption-key  
set-fill-column  
transpose-characters  
universal-argument  
write-message

45\$ Miscellaneous commands  
46# MiscellaneousCommands  
47+ CommandsByTopic:zzz010  
48<sup>K</sup> misc;commands

\$49 #50 +51 K52 **Standard commands**

The following commands are available in all implementations of MicroEMACS:

<u>abort-command</u>	Allows the user to abort out of any command that is waiting for input
<u>add-global-mode</u>	Add a global mode for all new <u>buffers</u>
<u>add-mode</u>	Add a mode to the current <u>buffer</u>
<u>append-file</u>	Append a <u>buffer</u> to the end of a file
<u>apropos</u>	Lists <u>commands</u> and <u>macros</u> whose name contains the string specified
<u>backward-character</u>	Move one character to the left
<u>begin-macro</u>	Begin recording a <u>keyboard macro</u>
<u>beginning-of-file</u>	Move to the beginning of the file in the current <u>buffer</u>
<u>beginning-of-line</u>	Move to the beginning of the current line
<u>bind-to-key</u>	<u>Bind</u> a key to a <u>command</u>
<u>buffer-position</u>	List the position of the <u>point</u> on the <u>message line</u>
<u>case-region-lower</u>	Make a <u>region</u> all lower case
<u>case-region-upper</u>	Make a <u>region</u> all upper case
<u>case-word-capitalize</u>	Capitalize the following word
<u>case-word-lower</u>	Lower case the following word
<u>case-word-upper</u>	Upper case the following word
<u>change-file-name</u>	Change the name of the file in the current <u>buffer</u>
<u>change-screen-column</u>	change the column offset of the current <u>screen</u>
<u>change-screen-row</u>	change the row offset of the current <u>screen</u>
<u>change-screen-size</u>	Change the number of lines of the current <u>screen</u>
<u>change-screen-width</u>	Change the number of columns of the current <u>screen</u>
<u>clear-and-redraw</u>	Repaint all <u>screens</u> or center the <u>point</u> in the current <u>window</u>
<u>clear-message-line</u>	Clear the <u>message line</u>
<u>copy-region</u>	Copy the current <u>region</u> into the <u>kill buffer</u>
<u>count-words</u>	Count how many words, lines and characters are in the current <u>region</u>
<u>ctlx-prefix</u>	<u>Bound</u> to the key used as the ^X prefix
<u>cycle-ring</u>	moves the current position of the <u>kill buffer</u> within the <u>kill ring</u>
<u>cycle-screens</u>	Bring the rearmost <u>screen</u> to front
<u>delete-blank-lines</u>	Delete all blank lines around the <u>point</u>
<u>delete-buffer</u>	Delete a <u>buffer</u> which is not being currently displayed in a <u>window</u>
<u>delete-kill-ring</u>	Reclaim the memory used by the <u>kill ring</u>

49\$ Standard commands

50# StandardCommands

51+ CommandsByTopic:zzz900

52K standard;commands

<u>delete-global-mode</u>	Turn off a global mode
<u>delete-mode</u>	Turn off a mode in the current <u>buffer</u>
<u>delete-next-character</u>	Delete the character following the <u>point</u>
<u>delete-next-word</u>	Delete the word following the <u>point</u>
<u>delete-other-windows</u>	Make the current <u>window</u> cover the entire <u>screen</u>
<u>delete-previous-character</u>	Delete the character to the left of the <u>point</u>
<u>delete-previous-word</u>	Delete the word to the left of the <u>point</u>
<u>delete-screen</u>	Delete a <u>screen</u> (not the top one)
<u>delete-window</u>	Remove the current <u>window</u> from the <u>screen</u>
<u>describe-bindings</u>	List all <u>commands</u> and <u>macros</u>
<u>describe-functions</u>	List all <u>functions</u>
<u>describe-variables</u>	List all <u>variables</u>
<u>describe-key</u>	Describe what <u>command</u> or <u>macro</u> is <u>bound</u> to a <u>keystroke</u> sequence
<u>detab-region</u>	Change all tabs in a <u>region</u> to the equivalent spaces
<u>display</u>	Displays a <u>variable's</u> current value
<u>end-macro</u>	Stop recording a <u>keyboard macro</u>
<u>end-of-file</u>	Move to the end of the current <u>buffer</u>
<u>end-of-line</u>	Move to the end of the current line
<u>end-of-word</u>	Move just past the end of the current word
<u>entab-region</u>	Change multiple spaces to tabs where possible
<u>exchange-point-and-mark</u>	Move the <u>point</u> to the last <u>marked</u> spot, make the original position be marked
<u>execute-buffer</u>	Execute a <u>buffer</u> as a <u>macro</u>
<u>execute-command-line</u>	Execute a line typed on the <u>command line</u> as a <u>macro</u>
<u>execute-file</u>	Execute a file as a <u>macro</u>
<u>execute-macro</u>	Execute the <u>keyboard macro</u> (play back the recorded keystrokes)
<u>execute-macro-n</u>	Execute numbered <u>macro</u> <i>n</i> where <i>n</i> is an integer from 1 to 40
<u>execute-named-command</u>	Execute a <u>command</u> by name
<u>execute-procedure</u>	Execute a <u>procedure</u> by name
<u>execute-program</u>	Execute a program directly (not through an intervening shell)
<u>exit-emacs</u>	Exit MicroEMACS. If there are unwritten, changed <u>buffers</u> MicroEMACS will ask to confirm
<u>fill-paragraph</u>	Fill the current paragraph
<u>filter-buffer</u>	Filter the current <u>buffer</u> through an external filter
<u>find-file</u>	Find a file to edit in the current <u>window</u>
<u>find-screen</u>	Bring the named <u>screen</u> on top, creating it if needed
<u>forward-character</u>	Move one character to the right
<u>goto-line</u>	Goto a numbered line

<a href="#"><u>goto-mark</u></a>	Goto a numbered <a href="#"><u>mark</u></a>
<a href="#"><u>goto-matching-fence</u></a>	Goto the matching fence
<a href="#"><u>grow-window</u></a>	Make the current <a href="#"><u>window</u></a> larger
<a href="#"><u>handle-tab</u></a>	Insert a tab or set tab stops
<a href="#"><u>hunt-backward</u></a>	Hunt for the last match of the last search string
<a href="#"><u>hunt-forward</u></a>	Hunt for the next match of the last search string
<a href="#"><u>help</u></a>	Read EMACS.HLP into a <a href="#"><u>buffer</u></a> and display it
<a href="#"><u>i-shell</u></a>	Shell up to a new command processor
<a href="#"><u>incremental-search</u></a>	Search for a string, incrementally
<a href="#"><u>indent-region</u></a>	Indent the current <a href="#"><u>region</u></a> one tab
<a href="#"><u>insert-file</u></a>	Insert a file at the <a href="#"><u>point</u></a> in the current file
<a href="#"><u>insert-space</u></a>	Insert a space to the right of the <a href="#"><u>point</u></a>
<a href="#"><u>insert-string</u></a>	Insert a string at the <a href="#"><u>point</u></a>
<a href="#"><u>kill-paragraph</u></a>	Delete the current paragraph
<a href="#"><u>kill-region</u></a>	Delete the current <a href="#"><u>region</u></a> , moving it to the <a href="#"><u>kill buffer</u></a>
<a href="#"><u>kill-to-end-of-line</u></a>	Delete the rest of the current line
<a href="#"><u>list-buffers</u></a>	List all existing <a href="#"><u>buffers</u></a>
<a href="#"><u>list-screens</u></a>	List all existing <a href="#"><u>screens</u></a>
<a href="#"><u>macro-to-key</u></a>	Bind a key to a <a href="#"><u>macro</u></a>
<a href="#"><u>meta-prefix</u></a>	Key used to precede all <a href="#"><u>META</u></a> commands
<a href="#"><u>mouse-move-down</u></a>	Usually bound to a press on the left mouse button
<a href="#"><u>mouse-move-up</u></a>	Usually bound to the release of the left mouse button
<a href="#"><u>mouse-region-down</u></a>	Usually bound to a press on the right mouse button
<a href="#"><u>mouse-region-up</u></a>	Usually bound to the release of the right mouse button
<a href="#"><u>mouse-resize-screen</u></a>	Resize the screen to bring the bottom-left corner where the mouse was clicked
<a href="#"><u>move-window-down</u></a>	Scroll the current <a href="#"><u>window</u></a> down
<a href="#"><u>move-window-up</u></a>	Scroll the current <a href="#"><u>window</u></a> up
<a href="#"><u>name-buffer</u></a>	Change the name of the current <a href="#"><u>buffer</u></a>
<a href="#"><u>narrow-to-region</u></a>	Hides all text not in the current <a href="#"><u>region</u></a> (see <a href="#"><u>widen-from-region</u></a> )
<a href="#"><u>newline</u></a>	Insert a newline
<a href="#"><u>newline-and-indent</u></a>	Insert a newline and indent the new line the same as the preceding line
<a href="#"><u>next-buffer</u></a>	Bring the next <a href="#"><u>buffer</u></a> in the list into the current <a href="#"><u>window</u></a>
<a href="#"><u>next-line</u></a>	Move down one line
<a href="#"><u>next-page</u></a>	Move down one page
<a href="#"><u>next-paragraph</u></a>	Move to the next paragraph
<a href="#"><u>next-window</u></a>	Move to the next <a href="#"><u>window</u></a>

<u>next-word</u>	Move to the beginning of the next word
<u>nop</u>	Does nothing
<u>open-line</u>	Open a line at the <u>point</u>
<u>overwrite-string</u>	Overwrite a string at the <u>point</u>
<u>pipe-command</u>	Execute an external command and place its output in a <u>buffer</u>
<u>pop-buffer</u>	Display a <u>buffer</u> temporarily, paging through it
<u>previous-line</u>	Move up one line
<u>previous-page</u>	Move up one page
<u>previous-paragraph</u>	Move back one paragraph
<u>previous-window</u>	Move to the last <u>window</u>
<u>previous-word</u>	Move to the beginning of the word to the left of the <u>point</u>
<u>print</u>	Display a string on the <u>message line</u> (synonym of <u>write-message</u> )
<u>query-replace-string</u>	Replace occurrences of a string with another string, interactively querying the user
<u>quick-exit</u>	Exit MicroEMACS, writing out all the changed <u>buffers</u>
<u>quote-character</u>	Insert the next character literally
<u>read-file</u>	Read a file into the current <u>buffer</u>
<u>redraw-display</u>	Reposition the current line in the <u>window</u>
<u>remove-mark</u>	Remove a numbered <u>mark</u>
<u>replace-string</u>	Replace all occurrences of a string with another string
<u>resize-window</u>	Change the number of lines in the current <u>window</u>
<u>restore-window</u>	Move to the last saved <u>window</u> (see <u>save-window</u> )
<u>reverse-incremental-search</u>	Search backwards, incrementally
<u>run</u>	Execute a named <u>procedure</u>
<u>save-file</u>	Save the current <u>buffer</u> if it is changed
<u>save-window</u>	Remember the current <u>window</u> (see <u>restore-window</u> )
<u>scroll-next-up</u>	Scroll the next <u>window</u> up
<u>scroll-next-down</u>	Scroll the next <u>window</u> down
<u>search-forward</u>	Search for a string
<u>search-reverse</u>	Search backwards for a string
<u>select-buffer</u>	Select a <u>buffer</u> to display in the current <u>window</u>
<u>set</u>	Set a <u>variable</u> to a value
<u>set-encryption-key</u>	Set the encryption key of the current <u>buffer</u>
<u>set-fill-column</u>	Set the current fill column
<u>set-mark</u>	Set a numbered <u>mark</u>
<u>shell-command</u>	Causes an external shell to execute a command
<u>show-files</u>	list files matching a pattern within a directory

<u>shrink-window</u>	Make the current <u>window</u> smaller
<u>source</u>	Execute a file as a <u>macro</u>
<u>split-current-window</u>	Split the current <u>window</u> in two
<u>store-macro</u>	Store the following <u>macro</u> lines as a numbered macro
<u>store-procedure</u>	Store the following <u>macro</u> lines in a named procedure
<u>transpose-characters</u>	Transpose the character at the <u>point</u> with the character immediately to the left
<u>trim-region</u>	Trim any trailing white space from a <u>region</u>
<u>unbind-key</u>	Unbind a key from a <u>command</u> or <u>macro</u>
<u>undent-region</u>	Remove a leading indent from a <u>region</u>
<u>universal-argument</u>	Execute the following <u>command</u> or <u>macro</u> 4 times
<u>unmark-buffer</u>	Unmark the current <u>buffer</u> (so it is no longer seen as changed)
<u>update-screen</u>	Force a display update during <u>macro</u> execution
<u>view-file</u>	Read a file in a <u>buffer</u> , in view mode
<u>widen-from-region</u>	Restores hidden text (see <u>narrow-to-region</u> )
<u>wrap-word</u>	Wrap the current word (internal command)
<u>write-file</u>	Write the current <u>buffer</u> under a new file name
<u>write-message</u>	Display a string on the <u>message line</u>
<u>yank</u>	Yank the <u>kill buffer</u> into the current <u>buffer</u> at the <u>point</u>
<u>yank-pop</u>	yank the <u>kill buffer</u> , subsequent invocations replacing the yanked text by the next one from the <u>kill ring</u> .

\$<sub>53</sub> #<sub>54</sub> +<sub>55</sub> K<sub>56</sub> **Additional commands**

The following commands are available only from the Microsoft Windows version of MicroEMACS:

<u>bind-to-menu</u>	creates a menu item and <u>binds</u> it to a <u>command</u>
<u>cascade-screens</u>	arranges all non-iconic <u>screens</u> using a cascading scheme
<u>clip-region</u>	copies the <u>region</u> to the Windows <u>clipboard</u>
<u>cut-region</u>	moves the <u>region</u> to the Windows <u>clipboard</u>
<u>help-engine</u>	invokes the Microsoft Windows help engine
<u>insert-clip</u>	inserts the contents of the Windows <u>clipboard</u> at the <u>point</u>
<u>macro-to-menu</u>	creates a menu item and binds it to a <u>macro</u>
<u>maximize-screen</u>	makes the current <u>screen</u> occupy the whole MicroEMACS window
<u>minimize-screen</u>	iconizes the current <u>screen</u>
<u>rename-screen</u>	change the current <u>screen</u> 's name
<u>restore-screen</u>	restores the current <u>screen</u> back from maximized or iconized state
<u>tile-screens</u>	arranges all non-iconic <u>screens</u> using a tiling scheme
<u>unbind-menu</u>	deletes a menu item

53\$ Additional commands

54# AdditionalCommands

55+ CommandsByTopic:zzz910

56K Additionnal commands;Microsoft Windows;MS Windows

\$<sup>57</sup> #<sup>58</sup> +<sup>59</sup> K<sup>60</sup> **Directives**

Directives are used within macros to control what lines are executed and in what order.

Directives always start with the exclamation mark "!" character and must be the first non-white text placed on a line. They are:

!BREAK  
!ENDM  
!FORCE  
!GOTO  
!IF, !ELSE and !ENDIF  
!RETURN  
!WHILE and !ENDWHILE

Directives do not make sense as a single commands. As such, they cannot be called up singly or bound to keystrokes. Directives executed interactively (via the execute-command-line command) are ignored.

57\$ Directives

58# Directives

59+ MacroLanguage:020

60K directives;macro

\$<sub>61</sub> #<sub>62</sub> +<sub>63</sub> K<sub>64</sub> **!BREAK**

This directive lets you abort out of the most inner currently executing while loop, in a macro. It is often used to abort processing for error conditions. For example:

```
; Read in files and substitute "beginning" with "beginning"
set %filename #list
!while &not &seq %filename "<end>"
!force find-file %filename
  !if &seq $status FALSE
    write-message "[File read error]"
    !break
  !endif
beginning-of-file
replace-string "beginning" "beginning"
save-file
set %filename #list
!endwhile
```

61\$ !BREAK directive

62# .BREAK

63+ Directives: BREAK

64K !BREAK;!WHILE;loop

\$<sub>65</sub> #<sub>66</sub> +<sub>67</sub> K<sub>68</sub> !ENDM

This directive is used to terminate a macro being stored. For example:

```
; Read in a file in view mode, and make the window red
store-procedure get-red-viewed-file
  view-file @"File to view: "
  add-mode "red"
!endm
```

Related commands:

store-procedure  
store-macro.

65\$ !ENDM directive  
66# .ENDM  
67+ Directives: endm  
68K !ENDM;macro

\$69 #70 +71 K72 **!FORCE**

When MicroEMACS executes a macro, if any command fails, the macro is terminated at that point. If a line is preceded by a **!FORCE** directive, execution continues whether the command succeeds or not.

This is often used together with the \$status variable to test if a command succeeded. For example:

```
set %seekstring @"String to Find: "  
!force search-forward %seekstring  
!if $status  
    print "Your string is Found"  
!else  
    print "No such string!"  
!endif
```

69\$ !FORCE directive

70# .FORCE

71+ Directives:force

72K !FORCE;error

\$73 #74 +75 K76 **!GOTO**

The flow of execution within a MicroEMACS macro can be controlled using the **!GOTO directive**. It takes a label as argument. A label consists of a line starting with an asterisk "\*" and then an alphanumeric label. Only labels in the currently executing macro can be jumped to, and trying to jump to a non-existing label terminates execution of a macro. For example:

```
; Create a block of DATA statements for a BASIC program
insert-string "1000 DATA "
set %linenum 1000
*nxtin
update-screen ;make sure we see the changes
set %data @@"Next number: "
!if &equal %data 0
  !goto finish
!endif
!if &greater $curcol 60
  2 delete-previous-character
  newline
  set %linenum &add %linenum 10
  insert-string &cat %linenum " DATA "
!endif
insert-string &cat %data " , "
!goto nxtin
*finish
2 delete-previous-character
newline
```

Note that loops constructed with !WHILE are usually more efficient than those constructed purely by !GOTOS.

73\$ !GOTO directive

74# .GOTO

75+ Directives:goto

76K !GOTO;!WHILE;loop

\$<sup>77</sup> #<sup>78</sup> +<sup>79</sup> K<sup>80</sup> **!IF, !ELSE and !ENDIF**

The **!IF** directive allows for conditional execution within a macro.

Lines following the **!IF** directive, until the corresponding **!ELSE** or **!ENDIF**, are executed only if the expression within the **!IF** line evaluates to a TRUE value. Lines following an **!ELSE** directive, until the corresponding **!ENDIF**, are executed only if the expression within the corresponding **!IF** line did not evaluate to a TRUE value.

For example, the following macro creates the portion of a text file automatically:

```
!if &sequal %curplace "timespace vortex"
    insert-string "First, rematerialize~n"
!endif
!if &sequal %planet "earth" ;If we have landed on earth...
    !if &sequal %time "late 20th century" ;and we are then
        write-message "Contact U.N.I.T."
    !else
        insert-string "Investigate the situation....~n"
        insert-string "(SAY 'stay here Sarah)~n"
    !endif
!else
    set %conditions @"Atmosphere conditions outside? "
    !if &sequal %conditions "safe"
        insert-string &cat "Go outside....." "~n"
        insert-string "lock the door~n"
    !else
        insert-string "Dematerialize..try somewhen else"
        newline
    !endif
!endif
```

77\$ **!IF, !ELSE and !ENDIF** directives

78# **.IF**

79+ Directives:**if**

80K **!IF;!ELSE;!ENDIF**

`$81 #82 +83 K84 !RETURN`

This directive causes the current macro to exit, either returning to the caller (if any) or to interactive mode. For example:

```
; Check the display type and set %wintyp
!if &sequal $sres "MSWIN"
    set %wintyp 1
    !return
!endif
set %wintyp 0
write-message "You are not running under MS-Windows!"
!return
```

81\$ !RETURN directive  
82# .RETURN  
83+ Directives:return  
84K !RETURN

\$<sup>85</sup> #<sup>86</sup> +<sup>87</sup> K<sup>88</sup> **!WHILE and !ENDWHILE**

This pair of directives facilitates repetitive execution within a macro. If a group of statements needs to be executed while a certain expression evaluates to TRUE, enclose them with a while loop. For example:

```
!while &less $curcol 70  
    insert-string &cat &cat "[" #stuff "]"  
!endwhile
```

While loops may be nested and can contain and be the targets of !GOTOs with no ill effects. Using a while loop to enclose a repeated task will run much faster than the corresponding construct using !IFs.

85\$ !WHILE and !ENDWHILE directives  
86# .WHILE  
87+ Directives:while  
88K !WHILE;!ENDWHILE;loop;!BREAK

## \$<sup>89</sup> #<sup>90</sup> +<sup>91</sup> K<sup>92</sup> Arguments

In the MicroEMACS macro language, commands and functions often require arguments. There are three types of arguments and they are automatically converted to the proper type when used:

<b>Numerical</b>	An ASCII string of digits which is interpreted as a numeric value. Any string which does not start with a digit or a minus sign "-" will be considered zero.
<b>String</b>	An arbitrary string of characters. Strings are limited to 128 characters in length.
<b>Boolean</b>	A logical value consisting of the string "TRUE" or "FALSE". Numeric strings will also evaluate to "FALSE" if they are equal to zero, and "TRUE" if they are non-zero. Arbitrary text strings will be considered equivalent "FALSE".

While arguments usually follow the command or function that uses them, a single numerical argument can also be placed in front of a command, producing an effect similar to the numeric arguments used in interactive mode.

If a command needs more arguments than have been supplied on the line, the command fails.

89\$ Arguments

90# Arguments

91+ MacroLanguage:030

92K argument;evaluate;expression;

Wherever macro language statements need to have arguments, it is legal to place constants. A constant is a double quote character, followed by a string of characters, and terminated by another double quote character.

The double quotes around constants are not needed if the constant contains no white space and it also does not happen to meet the rules for any other MicroEMACS commands, directives, variables, or functions. This is very practical for numeric constants.

To represent various special characters within a constant, the tilde "~" character is used. The character following the tilde is interpreted according to the following table:

<b>Sequence</b>	<b>Meaning</b>
~"	double quote
~~	tilde
~b	backspace (^H)
~f	formfeed (^L)
~l	linefeed (^J)
~n	newline
~r	carriage return (^M)
~t	tab (^I)

Any character not in the above table which follows a tilde will be passed unmodified. This action is similar to the quote-character (^Q) command available from the keyboard.

MicroEMACS may use different characters for line terminators on different computers. The "~n" combination will always get the proper line terminating sequence for the current system.

## \$<sub>97</sub> #<sub>98</sub> +<sub>99</sub> K<sub>100</sub> **Variables**

Variables are part of the MicroEMACS Macro language. They can be used wherever an argument (number, boolean or string) is needed.

Environmental variables both control and report on different aspects of the editor. User variables hold values which may be changed and inspected. Buffer variables allow lines from buffers to be used as values. Interactive variables allow macros to prompt the user for information.

97\$ Variables

98# Variables

99+ MacroLanguage:050

100K variable;macro

\$<sub>101</sub> #<sub>102</sub> +<sub>103</sub> K<sub>104</sub> **Buffer Variables**

Buffer variables are a way to take a line of text from a buffer and place it in a variable. They can only be queried and cannot be set. A buffer variable consists of the buffer name, preceded by a pound sign "#". Its value is the text between the point and the end of the line. Each use of a buffer variable advances the point to the beginning of the following line.

For example, if you have a buffer by the name of RIGEL2, and it contains the text (the point being on the "B" of "Bloomington"):

```
Richmond
Lafayette
Bloomington
Indianapolis
Gary
```

and within a command you reference #rigel2, like in:

```
insert-string #rigel2
```

MicroEMACS would start at the current point in the RIGEL2 buffer and grab all the text up to the end of that line and pass that back. Then it would advance the point to the beginning of the next line. Thus, after the insert-string command executes, the string "Bloomington" gets inserted into the current buffer, and the buffer RIGEL2 now looks like this (the point is on the "I" of "Indianapolis"):

```
Richmond
Lafayette
Bloomington
Indianapolis
Gary
```

101\$ Buffer Variables

102# BufferVariables

103+ Variables:buffervariables

104K buffer;variable

## \$<sub>105</sub> #<sub>106</sub> +<sub>107</sub> K<sub>108</sub> **Environmental Variables**

These variables are used to change or get information about various aspects of the editor. They return a current setting if used as part of an expression. All environmental variable names begin with a dollar sign "\$" and are in lower case:

<u>\$acount</u>	Countdown until next auto-save
<u>\$asave</u>	Auto-save frequency
<u>\$bufhook</u>	Command/macro run when entering a buffer
<u>\$cbflags</u>	Buffer attribute flags.
<u>\$cbufname</u>	Buffer name
<u>\$cfname</u>	File name
<u>\$cmdhook</u>	Command/macro run before each keystroke
<u>\$cmode</u>	Buffer modes
<u>\$curchar</u>	ASCII value of character
<u>\$curcol</u>	Current column
<u>\$curline</u>	Current line
<u>\$curwidth</u>	Number of columns
<u>\$curwind</u>	Window index
<u>\$cwindow</u>	Line number in current window
<u>\$debug</u>	Macro debugging flag
<u>\$deskcolor</u>	Color for desktop
<u>\$diagflag</u>	Diagonal dragging flag
<u>\$discmd</u>	Prompt echo flag
<u>\$disinp</u>	Input echo flag
<u>\$disphigh</u>	High-bit characters display flag
<u>\$exbhook</u>	Command/macro run when leaving a buffer.
<u>\$fcol</u>	Line number at top of window
<u>\$fillcol</u>	Fill column.
<u>\$flicker</u>	Flicker flag (for CGA or animated grinder cursor)
<u>\$fmtlead</u>	Text formatter command prefixes
<u>\$gflags</u>	Global flags
<u>\$gmode</u>	Global mode flags
<u>\$hardtab</u>	Size of hard tabs
<u>\$hjump</u>	Horizontal scrolling quantum
<u>\$hscroll</u>	Horizontal scrolling flag
<u>\$hscribar</u>	Horizontal scroll bar flag
<u>\$kill</u>	Kill buffer contents
<u>\$language</u>	National language used by MicroEMACS
<u>\$lastkey</u>	Last keyboard character
<u>\$lastmesg</u>	Last message
<u>\$line</u>	Current line contents
<u>\$lterm</u>	Line terminator string
<u>\$lwidth</u>	Width of current line
<u>\$match</u>	Last string matched in a search
<u>\$modeflag</u>	Mode line display flag
<u>\$msflag</u>	Mouse flag
<u>\$numwind</u>	Number of windows
<u>\$oldcrypt</u>	Encryption method flag
<u>\$orgrow</u>	Row of current screen within desktop

105<sup>\$</sup> Environmental Variables

106<sup>#</sup> EnvironmentalVariables

107<sup>+</sup> Variables:environmentalvariables

108<sup>K</sup> variable

<u>\$orgcol</u>	Column of current screen within desktop
<u>\$pagelen</u>	Number of lines in screen
<u>\$palette</u>	Color palette settings
<u>\$paralead</u>	Paragraph start characters
<u>\$pending</u>	Keystrokes pending flag
<u>\$popflag</u>	Popup buffer flag
<u>\$posflag</u>	Row&column display flag
<u>\$progname</u>	"MicroEMACS"
<u>\$readhook</u>	Command/macro run when a file is read
<u>\$region</u>	Contents of current region
<u>\$replace</u>	Default replace string.
<u>\$rval</u>	Exit value from last invoked subprocess
<u>\$scrname</u>	Screen name
<u>\$search</u>	Default search string
<u>\$searchpnt</u>	After-search-positioning flag
<u>\$seed</u>	Random number generator seed
<u>\$softtab</u>	Tab size for handle-tab command
<u>\$sres</u>	Display resolution (MSWIN under MS-Windows)
<u>\$ssave</u>	Safe-save flag
<u>\$sscroll</u>	Smooth scroll flag
<u>\$status</u>	Status from last command
<u>\$sterm</u>	Search string terminator key
<u>\$target</u>	Target for line moves
<u>\$time</u>	Date and time
<u>\$timeflag</u>	Time display flag
<u>\$tpause</u>	Duration of fence matching pause
<u>\$version</u>	MicroEMACS version
<u>\$vsclbar</u>	Vertical scroll bar flag
<u>\$wchars</u>	List of characters that can be part of a word
<u>\$wline</u>	Window height (lines)
<u>\$wraphook</u>	Command/macro run when wrapping text
<u>\$writehook</u>	Command/macro run when writing a file
<u>\$xpos</u>	Column the mouse was in at last click
<u>\$yankflag</u>	After-yank-positioning flag
<u>\$ypos</u>	Line the mouse was in at last click

`$109 #110 +111 K112 $account`

This variable is used in ASAVE mode. It contains the countdown on inserted character until the next auto-save. When it reaches zero, it is reset to the value of \$asave.

Initial value: 256

109<sup>§</sup> \$account variable

110<sup>#</sup> \_account

111<sup>+</sup> EVariables:account

112<sup>K</sup> \$account;ASAVE;autosave

\$<sub>113</sub> #<sub>114</sub> +<sub>115</sub> K<sub>116</sub> **\$asave**

This variable is used in ASAVE mode. It specifies the value used to reset \$acount after an automatic save occurs.

Default value: 256

113<sup>\$</sup> \$asave variable

114<sup>#</sup> \_asave

115<sup>+</sup> EVariables:asave

116<sup>K</sup> \$asave;ASAVE;autosave

`$117 #118 +119 K120 $bufhook`

The command or macro named in this variable is run when a buffer is entered. This can be used to implement modes which are specific to a particular file or file type.

Default value: nop

117<sup>\$</sup> \$bufhook variable

118<sup>#</sup> \_bufhook

119<sup>+</sup> EVariables:bufhook

120<sup>K</sup> \$bufhook;hook;buffer

\$<sub>121</sub> #<sub>122</sub> +<sub>123</sub> K<sub>124</sub> **\$cbflags**

This variable contains the current buffer's attribute flags, encoded as the sum of the following numbers:

- 1 Internal invisible buffer
- 2 Changed since last read or write
- 4 Buffer was truncated when read (due to lack of memory)
- 8 Buffer has been narrowed

Only the invisible (1) and changed (2) flags can be modified by setting \$cbflags. The truncated file (4) and narrowed (8) flags are read-only.

121\$ \$cbflags variable  
122# \_cbflags  
123+ EVariables:cbflags  
124K \$cbflags

`$125 #126 +127 K128 $cbufname`

This variable contains the name of the current buffer.

125<sup>\$</sup> \$cbufname variable  
126<sup>#</sup> \_cbufname  
127<sup>+</sup> EVariables:cbufname  
128<sup>K</sup> \$cbufname;buffer

`$129 #130 +131 K132 $cname`

This variable contains the file name associated to the current buffer.

129<sup>\$</sup> \$cname variable  
130<sup>#</sup> \_cname  
131<sup>+</sup> EVariables:cname  
132<sup>K</sup> \$cname;file;buffer

`$133 #134 +135 K136 $cmdhook`

This variable contains the name of a command or macro to run before accepting a keystroke. This is by default set to the nop command.

Default value: nop

133\$ \$cmdhook variable

134# \_cmdhook

135+ EVariables:cmdhook

136K \$cmdhook;hook;keyboard

\$<sup>137</sup> #<sup>138</sup> +<sup>139</sup> K<sup>140</sup> **\$cmode** and **\$gmode**

The two variables \$cmode and \$gmode contain a number that corresponds to the modes for the current buffer (\$cmode) and the new buffers (\$gmode). They are encoded as the sum of the following numbers for each of the possible modes:

<u>WRAP</u>	1	Word wrap
<u>CMODE</u>	2	C indentation and fence matching
<u>SPELL</u>	4	Interactive spell checking (Not implemented yet)
<u>EXACT</u>	8	Exact matching for searches
<u>VIEW</u>	16	Read-only buffer
<u>OVER</u>	32	Overwrite mode
<u>MAGIC</u>	64	Regular expressions in search
<u>CRYPT</u>	128	Encryption mode active
<u>ASAVE</u>	256	Auto-save mode

Thus, if you wished to set the current buffer to have CMODE, EXACT, and MAGIC on, and all the others off, you would add up the values for those three, CMODE 2 + EXACT 8 + MAGIC 64 = 74, and use a statement like:

```
set $cmode 74
```

or, use the binary or operator to combine the different modes:

```
set $cmode &bor &bor 2 8 64
```

Alternatively, you can also modify the modes one by one, using the add-mode and add-global-mode or delete-mode and delete-global-mode commands

137<sup>\$</sup> \$cmode and \$gmode variables

138<sup>#</sup> \_cmode

139<sup>+</sup> EVariables:cmode

140<sup>K</sup> \$cmode;\$gmode;mode

\$<sub>141</sub> #<sub>142</sub> +<sub>143</sub> K<sub>144</sub> **\$curchar**

This variable contains the ASCII value of the character currently at the point.

141\$ \$curchar variable  
142# \_curchar  
143+ EVariables:curchar  
144K \$curchar

\$<sub>145</sub> #<sub>146</sub> +<sub>147</sub> K<sub>148</sub> **\$curcol**

This variable contains the column (starting at 0) of the point in the current buffer.

145\$ \$curcol variable  
146# \_curcol  
147+ EVariables:curcol  
148K \$curcol

`$149 #150 +151 K152 $curline`

This variable contains the line number (starting at 1) of the point in the current buffer.

149<sup>\$</sup> \$curline variable  
150<sup>#</sup> \_curline  
151<sup>+</sup> EVariables:curline  
152<sup>K</sup> \$curline

`$153 #154 +155 K156 $curwidth`

This variable contains the number of columns displayed in the current screen.

Setting this variable is equivalent to using the change-screen-width command with a numeric argument.

153<sup>\$</sup> \$curwidth variable  
154<sup>#</sup> \_curwidth  
155<sup>+</sup> EVariables:curwidth  
156<sup>K</sup> \$curwidth

`$157 #158 +159 K160 $curwind`

This variable contains the index of the current window within the screen. Windows are numbered from top to bottom, starting at 1. The number of windows within the current screen is held by the \$numwind variable.

157\$ \$curwind variable  
158# \_curwind  
159+ EVariables:curwind  
160K \$curwind

\$<sub>161</sub> #<sub>162</sub> +<sub>163</sub> K<sub>164</sub> **\$cwline**

This variable contains the number of lines displayed in the current window.

161\$ \$cwline variable  
162# \_cwline  
163+ EVariables:cwline  
164K \$cwline

\$<sub>165</sub> #<sub>166</sub> +<sub>167</sub> K<sub>168</sub> **\$debug**

This boolean variable contains a flag used to trigger macro debugging. If it is set to TRUE, macros are executed step by step, and each statement and variable assignment is displayed on the message line.

Default value: FALSE

165<sup>\$</sup> \$debug variable  
166<sup>#</sup> \_debug  
167<sup>+</sup> EVariables:debug  
168<sup>K</sup> \$debug

\$<sub>169</sub> #<sub>170</sub> +<sub>171</sub> K<sub>172</sub> **\$desktopcolor**

This variable contains the color to use for the desktop. In the MS-Windows version of MicroEMACS, the value of this variable is irrelevant.

Default value: BLACK.

169<sup>\$</sup> \$desktopcolor variable  
170<sup>#</sup> \_desktopcolor  
171<sup>+</sup> EVariables:desktopcolor  
172<sup>K</sup> \$desktopcolor

`$173 #174 +175 K176 $diagflag`

If this boolean variable is set to TRUE, diagonal dragging of text and mode lines is enabled. If it is FALSE, text and modelines can either be dragged horizontally or vertically but not both at the same time.

173<sup>§</sup> \$diagflag variable  
174<sup>#</sup> \_diagflag  
175<sup>+</sup> EVariables:diagflag  
176<sup>K</sup> \$diagflag

`$177 #178 +179 K180 $discmd`

If this boolean variable is set to TRUE, the echoing of command prompts and output on the message line is enabled. If it is FALSE, most messages and prompts are disabled (this is handy to avoid some cases of message line flashing while a macro is running).

Default value: TRUE.

177\$ \$discmd variable  
178# \_discmd  
179+ EVariables:discmd  
180K \$discmd

`$181 #182 +183 K184 $disinp`

If this boolean variable is set to TRUE, the echoing of input at the command prompts is enabled.

Default value: TRUE.

181\$ \$disinp variable  
182# \_disinp  
183+ EVariables:disinp  
184K \$disinp

`$185 #186 +187 K188 $disphigh`

If this boolean variable is set to TRUE, high-bit characters (single byte characters that are greater than 127 in value) will be displayed in a pseudo-control format. The characters "^!" will lead off the sequence, followed by the character stripped of its high bit.

Default value: FALSE.

185<sup>\$</sup> \$disphigh variable  
186<sup>#</sup> \_disphigh  
187<sup>+</sup> EVariables:disphigh  
188<sup>K</sup> \$disphigh

\$<sub>189</sub> #<sub>190</sub> +<sub>191</sub> K<sub>192</sub> **\$exbhook**

This variable holds the name of a command or macro which is run whenever you are switching out of a buffer.

Default value: nop

189<sup>\$</sup> \$exbhook variable

190<sup>#</sup> \_exbhook

191<sup>+</sup> EVariables:exbhook

192<sup>K</sup> \$exbhook;hook;buffer

\$<sub>193</sub> #<sub>194</sub> +<sub>195</sub> K<sub>196</sub> **\$fcol**

This variable contains the line position being displayed in the first column of the current window.

193\$ \$fcol variable  
194# \_fcol  
195+ EVariables:fcol  
196K \$fcol

`$197 #198 +199 K200 $fillcol`

This variable contains the current fill column. It is used by the fill-paragraph command. It can be set through the set command or by using the set-fill-column command.

Default value: 72

197\$ \$fillcol variable  
198# \_fillcol  
199+ EVariables:fillcol  
200K \$fillcol;fill

`$201 #202 +203 K204 $flicker`

In the MS-DOS version of MicroEMACS, this variable contains a flicker flag that should be set to TRUE if the display is an IBM CGA and set to FALSE for most others.

In the MS-Windows version of MicroEMACS, this variable can be set to FALSE to allow an animated grinder to be displayed in place of the hourglass mouse cursor. Since this animation results, on many video displays, in an annoying flicker of the cursor, it is disabled when \$flicker is set to TRUE.

Default value: TRUE

201<sup>\$</sup> \$flicker variable

202<sup>#</sup> \_flicker

203<sup>+</sup> EVariables:flicker

204<sup>K</sup> \$flicker;grinder;hourglass

\$<sub>205</sub> #<sub>206</sub> +<sub>207</sub> K<sub>208</sub> **\$fmtlead**

A line starting with one of the characters in the \$fmtlead variable is considered to be a text formatter command. Therefore, the following line is considered to be the start of a paragraph.

If you are editing text destined for use by a text formatter, set \$fmtlead to the command character for that formatter. That will prevent MicroEMACS from formatting what should be lines of commands meant for the formatter. If, for example, you are editing SCRIBE source, use the set (^XA) command to set \$fmtlead to "@".

Default value: empty string

205<sup>\$</sup> \$fmtlead variable

206<sup>#</sup> \_fmtlead

207<sup>+</sup> EVariables:fmtlead

208<sup>K</sup> \$fmtlead;paragraph

$\$_{209}$   $\#_{210}$   $+_{211}$   $K_{212}$  **\$gflags**

Some of the ways MicroEMACS controls its internal functions can be modified by the value in the \$gflags variable. Each bit in this variable will be used to control a different function:

- 1            If this bit is set to zero, EMACS will not automatically switch to the buffer of the first file after executing the startup macros.
- 2            If this bit is set to one, suppress redraw events.

$209^{\$}$  \$gflags variable  
 $210^{\#}$  \_gflags  
 $211^{+}$  EVariables:gflags  
 $212^K$  \$gflags

\$<sub>213</sub> #<sub>214</sub> +<sub>215</sub> K<sub>216</sub> **\$hardtab**

This variable contains the number of spaces between hard tab stops. This can be used to change the way tabs are displayed within the editor.

Default value: 8

213<sup>\$</sup> \$hardtab variable  
214<sup>#</sup> \_hardtab  
215<sup>+</sup> EVariables:hardtab  
216<sup>K</sup> \$hardtab

`$217 #218 +219 K220 $hjump`

This variable contains the number of columns the editor should scroll the screen horizontally when a horizontal scroll is required.

Default value: 1

217\$ \$hjump variable  
218# \_hjump  
219+ EVariables:hjump  
220K \$hjump

\$<sub>221</sub> #<sub>222</sub> +<sub>223</sub> K<sub>224</sub> **\$hscroll**

This variable is a flag that determines if MicroEMACS will scroll the entire window horizontally, or just the current line. The default value, TRUE, results in the entire window being shifted left or right when the cursor goes off the edge of the screen.

221\$ \$hscroll variable  
222# \_hscroll  
223+ EVariables:hscroll  
224K \$hscroll

\$<sub>225</sub> #<sub>226</sub> +<sub>227</sub> K<sub>228</sub> **\$hscrollbar**

This boolean variable exists only under the MS-Windows version of MicroEMACS. If it is TRUE, an horizontal scroll bar is available at the bottom of each screen, allowing you to scroll the text in the current window right and left.

If \$hscrollbar is FALSE, the horizontal scroll bar is not present.

Default value: TRUE

225<sup>\$</sup> \$hscrollbar variable

226<sup>#</sup> \_hscrollbar

227<sup>+</sup> EVariables:hscrollbar

228<sup>K</sup> \$hscrollbar;scroll bar

\$<sub>229</sub> #<sub>230</sub> +<sub>231</sub> K<sub>232</sub> **\$kill**

This variable contains the first 127 characters currently in the kill buffer.

Attempts to set this variable are ignored.

229\$ \$kill variable  
230# \_kill  
231+ EVariables:kill  
232K \$kill

`$233 #234 +235 K236 $language`

This variable contains the name of the national language in which MicroEMACS messages will be displayed. (Currently MicroEMACS is available in English, French, Spanish, Latin, Portuguese, Dutch, German, and Pig Latin).

The MS-Windows version of MicroEMACS is currently available in English only.

Attempts to set this variable are ignored. Changing the language used by MicroEMACS requires recompiling.

233<sup>§</sup> \$language variable  
234<sup>#</sup> \_language  
235<sup>+</sup> EVariables:language  
236<sup>K</sup> \$language

`$237 #238 +239 K240 $lastkey`

This variable contains a number representing the ASCII value of the last key press processed by MicroEMACS. This variable does not contain any indication that the last keystroke was prefixed by the Meta or the **Alt** keys. Further more, function or special keys are perceived as the last character of their keystroke representation.

Note that this variable does not change during playback of a keyboard macro.

Setting this variable does not have any effect on the editor beyond changing the variable's value.

237<sup>\$</sup> \$lastkey variable  
238<sup>#</sup> \_lastkey  
239<sup>+</sup> EVariables:lastkey  
240<sup>K</sup> \$lastkey

`$241 #242 +243 K244 $lastmesg`

This variable contains the text of the last message which MicroEMACS wrote on the message line.

Setting this variable does not have any effect on the editor beyond changing the variable's value.

241\$ \$lastmesg variable  
242# \_lastmesg  
243+ EVariables:lastmesg  
244K \$lastmesg

`$245 #246 +247 K248 $line`

This variable contains the first 127 characters of the current line. Setting this variable overwrites the contents of the current line.

245<sup>\$</sup> \$line variable  
246<sup>#</sup> \_line  
247<sup>+</sup> EVariables:line  
248<sup>K</sup> \$line

\$<sub>249</sub> #<sub>250</sub> +<sub>251</sub> K<sub>252</sub> \$lterm

This variable contains the string of characters to use as a line terminator when writing a file to disk. By default, it is an empty string, which causes a newline to be written (under MS-DOS or MS-Windows, this translates into a carriage return character followed by a line feed character).

Under some operating systems, the value of this variable is irrelevant.

249\$ \$lterm variable  
250# \_lterm  
251+ EVariables:lterm  
252K \$lterm

`$253 #254 +255 K256 $lwidth`

This variable contains the number of characters of the current line.

Attempts to set this variable are ignored.

253<sup>\$</sup> \$lwidth variable  
254<sup>#</sup> \_lwidth  
255<sup>+</sup> EVariables:lwidth  
256<sup>K</sup> \$lwidth

`$257 #258 +259 K260 $match`

This variable contains the last string matched by a search operation.

Attempts to set this variable are ignored.

257<sup>\$</sup> \$match variable  
258<sup>#</sup> \_match  
259<sup>+</sup> EVariables:match  
260<sup>K</sup> \$match

`$261 #262 +263 K264 $modeflag`

If this boolean variable is TRUE, mode lines are visible. If it is FALSE, mode lines are not displayed (thus allowing one more line per window).

Default value: TRUE

261<sup>\$</sup> \$modeflag variable  
262<sup>#</sup> \_modeflag  
263<sup>+</sup> EVariables:modeflag  
264<sup>K</sup> \$modeflag

\$265 #266 +267 K268 **\$msflag**

Under some operating systems, this boolean variable can be used to control the use of the pointing device: when it is TRUE, the mouse (if present) is active. When it is FALSE, the mouse cursor is not displayed, and mouse actions are ignored.

Under MS-Windows, setting this variable to FALSE does not cause the cursor to be hidden, but mouse actions within text areas are ignored. However, the mouse remains useable to activate menus or select, move and resize screens.

Default value: TRUE

265<sup>\$</sup> \$msflag variable  
266<sup>#</sup> \_msflag  
267<sup>+</sup> EVariables:msflag  
268<sup>K</sup> \$msflag

`$269 #270 +271 K272 $numwind`

This variable contains the number of windows displayed within the current screen.

Attempts to set this variable are ignored.

269\$ \$numwind variable  
270# \_numwind  
271+ EVariables:numwind  
272K \$numwind

`$273 #274 +275 K276 $oldcrypt`

If this boolean variable is TRUE, the CRYPT mode uses the old method of encryption (which had a bug in it). This allows you to read files that were encrypted with a previous version of MicroEMACS.

Default value: FALSE.

273<sup>§</sup> \$oldcrypt variable

274<sup>#</sup> \_oldcrypt

275<sup>+</sup> EVariables:oldcrypt

276<sup>K</sup> \$oldcrypt

`$277 #278 +279 K280 $orgrow`

This variable contains the position of the current screen's top row on the desktop, starting at 0.

Setting this variable is equivalent to invoking the change-screen-row command.

Under MS-Windows, the value of this variable is irrelevant.

Default value: 0

277\$ \$orgrow variable  
278# \_orgrow  
279+ EVariables:orgrow  
280K \$orgrow

<sup>281</sup>\$ <sup>282</sup># <sup>283</sup>+ <sup>284</sup>K **\$orgcol**

This variable contains the position of the current screen's left column on the desktop, starting at 0.

Setting this variable is equivalent to invoking the change-screen-column command.

Under MS-Windows, the value of this variable is irrelevant.

Default value: 0

281\$ \$orgcol variable  
282# \_orgcol  
283+ EVariables:orgcol  
284K \$orgcol

\$<sub>285</sub> #<sub>286</sub> +<sub>287</sub> K<sub>288</sub> **\$pagelen**

This variable contains the number of lines (including mode lines) displayed by the current screen.

Setting this variable is equivalent to invoking the change-screen-size command with a numeric argument.

285\$ \$pagelen variable

286# \_pagelen

287+ EVariables:pagelen

288K \$pagelen

\$<sub>289</sub> #<sub>290</sub> +<sub>291</sub> K<sub>292</sub> **\$palette**

This variable contains a string that is used to control the color palette settings on graphics versions of MicroEMACS.

Under MS-Windows, \$palette is composed of up to 48 octal digits. Each group of three digits redefines an entry of the palette, by specifying the red, green and blue levels of that color.

Default value: empty string

289<sup>\$</sup> \$palette variable  
290<sup>#</sup> \_palette  
291<sup>+</sup> EVariables:palette  
292<sup>K</sup> \$palette

\$<sub>293</sub> #<sub>294</sub> +<sub>295</sub> K<sub>296</sub> **\$paralead**

A line starting with one of the characters in the \$paralead variable is considered to be the first line of a paragraph.

Default value: Space and TAB characters

293<sup>\$</sup> \$paralead variable  
294<sup>#</sup> \_paralead  
295<sup>+</sup> EVariables:paralead  
296<sup>K</sup> \$paralead;paragraph

`$297 #298 +299 K300 $pending`

This boolean variable is TRUE if there are type ahead keystrokes waiting to be processed.

Attempts to set this variable are ignored.

297<sup>\$</sup> \$pending variable

298<sup>#</sup> \_pending

299<sup>+</sup> EVariables:pending

300<sup>K</sup> \$pending

\$<sub>301</sub> #<sub>302</sub> +<sub>303</sub> K<sub>304</sub> **\$popflag**

If this boolean variable is TRUE, popup buffers are used instead of opening a window for building completion lists and by the following commands:

apropos  
describe-bindings  
describe-functions  
describe-variables  
list-buffers  
list-screens  
show-files

Default value: TRUE

301\$ \$popflag variable  
302# \_popflag  
303+ EVariables:popflag  
304K \$popflag

\$<sub>305</sub> #<sub>306</sub> +<sub>307</sub> K<sub>308</sub> **\$posflag**

If this boolean variable is TRUE, the position of the point (row and column) is displayed in the current window's mode line.

Default value: TRUE

305\$ \$posflag variable  
306# \_posflag  
307+ EVariables:posflag  
308K \$posflag

\$309 #310 +311 K312 **\$progrname**

This variable contains the string "MicroEMACS" for standard MicroEMACS. It can be something else if MicroEMACS is incorporated as part of someone else's program.

Attempts to set this variable are ignored. Changing it requires recompiling.

309<sup>\$</sup> \$progrname variable  
310<sup>#</sup> \_progrname  
311<sup>+</sup> EVariables:progrname  
312<sup>K</sup> \$progrname

\$<sub>313</sub> #<sub>314</sub> +<sub>315</sub> K<sub>316</sub> **\$readhook**

The command or macro named in this variable is run when a file is read into a buffer. This can be used to implement modes which are specific to a particular file or file type.

Default value: nop

313<sup>\$</sup> \$readhook variable  
314<sup>#</sup> \_readhook  
315<sup>+</sup> EVariables:readhook  
316<sup>K</sup> \$readhook;hook;read

`$317 #318 +319 K320 $region`

This variable contains the first 255 characters of the current region. If the region is not defined (because the mark is not set), this variable contains the string: "ERROR".

Attempts to set this variable are ignored.

317\$ \$region variable  
318# \_region  
319+ EVariables:region  
320K \$region

`$321 #322 +323 K324 $replace`

This variable contains the current default replace string. That is the replace string that was specified in the last replace-string or query-replace-string command and will be used as default value for the next such command.

321\$ \$replace variable  
322# \_replace  
323+ EVariables:replace  
324K \$replace;replace

`$325 #326 +327 K328 $rval`

This variable contains the returned value from the last subprocess which was invoked from MicroEMACS's commands: execute-program, filter-buffer, i-shell, pipe-command.and shell-command.

Under MS-Windows, this variable always has the value 0.

Attempts to set this variable are ignored.

325\$ \$rval variable  
326# \_rval  
327+ EVariables:rval  
328K \$rval

`$329 #330 +331 K332 $scrname`

This variable contains the current screen's name.

Setting this variable causes the specified screen to be made the current one. If that screen does not exist, nothing happens. To change the name of a screen, use the rename-screen command.

329\$ \$scrname variable  
330# \_scrname  
331+ EVariables:scrname  
332K \$scrname

\$<sub>333</sub> #<sub>334</sub> +<sub>335</sub> K<sub>336</sub> **\$search**

This variable contains the current default search string. That is the search string that was specified in the last search-forward, search-reverse, incremental-search, reverse-incremental-search, replace-string or query-replace-string command and will be used as default value for the next such command or as the target for hunt-forward and hunt-backward.

333<sup>\$</sup> \$search variable

334<sup>#</sup> \_search

335<sup>+</sup> EVariables:search

336<sup>K</sup> \$search;search;replace

\$337 #338 +339 K340 **\$searchpnt**

The value of this variable specifies the positioning of the of the point at the end of a successful search:

- If \$searchpnt = 0, the cursor is placed at the end of the matched text on forward searches, and at the beginning of this text on reverse searches.
- If \$searchpnt = 1, the cursor is placed at the beginning of the matched text regardless of the search direction.
- If \$searchpnt = 2, the cursor is placed at the end of the matched text regardless of the search direction.

Setting this variable to a value other than one of the above causes the value 0 to be used.

Default value: 0

337<sup>\$</sup> \$searchpnt variable  
338<sup>#</sup> \_searchpnt  
339<sup>+</sup> EVariables:searchpnt  
340<sup>K</sup> \$searchpnt

`$341 #342 +343 K344 $seed`

This variable contains the integer seed of the random number generator. This is used by the &rnd function and also to compute temporary file names (if \$ssave is TRUE).

Initial value: 0

341\$ \$seed variable  
342# \_seed  
343+ EVariables:seed  
344K \$seed

\$<sub>345</sub> #<sub>346</sub> +<sub>347</sub> K<sub>348</sub> **\$softtab**

The value of this variable relates to the number of spaces inserted by MicroEMACS when the handle-tab command (which is normally bound to the TAB key) is invoked:

If \$softtab is  $n$ , strictly positive, tabs stops are located at every  $n^{\text{th}}$  column and the handle-tab command inserts space characters in sufficient number to move the point to the next tab stop.

If \$softtab is zero, the handle-tab command inserts true tab characters.

If \$softtab is strictly negative, the handle-tab command fails.

This variable can be set by passing a numeric argument to handle-tab or by directly using the set command.

Default value: 0

345\$ \$softtab variable  
346# \_softtab  
347+ EVariables:softtab  
348K \$softtab

\$349 #350 +351 K352 **\$sres**

This variable contains a string that identifies the current screen resolution (CGA, MONO, EGA or VGA on the IBM-PC, LOW, MEDIUM, HIGH or DENSE on the Atari ST1040, MSWIN under Microsoft Windows and NORMAL on most others).

Depending on the hardware and operating system MicroEMACS is running on, setting this variable may allow you to change the screen resolution. Not that under MS-Windows, attempts to set this variable are ignored.

349\$ \$sres variable  
350# \_sres  
351+ EVariables:sres  
352K \$sres

\$<sub>353</sub> #<sub>354</sub> +<sub>355</sub> K<sub>356</sub> **\$ssave**

If this boolean variable is TRUE, MicroEMACS perform "safe saves": when it is asked to save the current buffer to disk, it writes it out to a temporary file, deletes the original file, and then renames the temporary to the old file name.

If \$ssave is FALSE, MicroEMACS performs saves by directly overwriting the original file, thus risking loss of data if a system crash occurs before the end of the save operation. On the other hand, this mode insures that the original file attributes (ownership and access rights) are preserved on systems that support these (like UNIX).

Default value: TRUE.

353<sup>§</sup> \$ssave variable  
354<sup>#</sup> \_ssave  
355<sup>+</sup> EVariables:ssave  
356<sup>K</sup> \$ssave

\$<sup>357</sup> #<sup>358</sup> +<sup>359</sup> K<sup>360</sup> **\$sscroll**

If this boolean variable is TRUE, MicroEMACS is configured for smooth vertical scrolling: when the cursor moves off the top or bottom of the current window, the window's contents scroll up or down one line at a time.

If \$sscroll is FALSE, scrolling occurs by half pages.

Default value: FALSE

357<sup>\$</sup> \$sscroll variable  
358<sup>#</sup> \_sscroll  
359<sup>+</sup> EVariables:sscroll  
360<sup>K</sup> \$sscroll

`$`<sub>361</sub> `#`<sub>362</sub> `+`<sub>363</sub> `K`<sub>364</sub> **\$status**

This boolean variable contains the status returned by the last command. This is usually used with the ! FORCE directive to check on the success of a search, or a file operation.

Setting this variable can be used to return a FALSE status from a macro.

361<sup>\$</sup> \$status variable  
362<sup>#</sup> \_status  
363<sup>+</sup> EVariables:status  
364<sup>K</sup> \$status

`$365 #366 +367 K368 $stern`

This variable contains the character used to terminate search string inputs.  
Default value: the last key bound to meta-prefix (initially: Escape character)

365<sup>\$</sup> \$stern variable

366<sup>#</sup> \_stern

367<sup>+</sup> EVariables:stern

368<sup>K</sup> \$stern;replace;search

`$369 #370 +371 K372 $target`

This variable contains the column position where the point will attempt to move after a next-line or previous-line command. Unless the previous command was next-line or previous-line, the default value for this variable is the current column.

369<sup>§</sup> \$target variable  
370<sup>#</sup> \_target  
371<sup>+</sup> EVariables:target  
372<sup>K</sup> \$target

`$373 #374 +375 K376 $time`

This variable contains a string corresponding to the current date and time. Usually this is given in a form like to "Mon May 09 10:10:58 1988". Not all operating systems support this.

373<sup>\$</sup> \$time variable  
374<sup>#</sup> \_time  
375<sup>+</sup> EVariables:time  
376<sup>K</sup> \$time

`$377 #378 +379 K380 $timeflag`

If this boolean variable is TRUE, the current time is displayed on the bottom mode line of each screen.

Default value: FALSE.

Note: Under MS-Windows, this feature currently does not operate properly because MicroEMACS makes incorrect assumptions about the format of the time string (see \$time).

377<sup>\$</sup> \$timeflag variable  
378<sup>#</sup> \_timeflag  
379<sup>+</sup> EVariables:timeflag  
380<sup>K</sup> \$timeflag

\$381 #382 +383 K384 **\$tpause**

This variable contains the length of the pause used to show a matched fence when the current buffer is in CMODE and a closing fence ( a character among "}}])") has been typed.

On most systems, this pause is performed by a CPU loop and therefore, the value of \$tpause may need to be adjusted to compensate for the processor's speed.

Under MS-Windows, the pause is performed by a bona-fide timer and \$tpause is expressed in milliseconds. The default value is 1000.

381\$ \$tpause variable  
382# \_tpause  
383+ EVariables:tpause  
384K \$tpause

<sup>385</sup> <sup>#</sup><sub>386</sub> <sup>+387</sup> <sup>K</sup><sub>388</sub> **\$version**

This variable contains the current MicroEMACS version number (i.e. "3.11c").

Attempts to set this variable are ignored.

385<sup>\$</sup> \$version variable  
386<sup>#</sup> \_version  
387<sup>+</sup> EVariables:version  
388<sup>K</sup> \$version

\$389 #390 +391 K392 **\$vscrollbar**

This boolean variable exists only under the MS-Windows version of MicroEMACS. If it is TRUE, a vertical scroll bar is available at the right end of each screen, allowing you to scroll the text in the current window up and down.

If \$vscrollbar is FALSE, the vertical scroll bar is not present.

Default value: TRUE

389<sup>\$</sup> \$vscrollbar variable  
390<sup>#</sup> \_vscrollbar  
391<sup>+</sup> EVariables:vscrollbar  
392<sup>K</sup> \$vscrollbar;scroll bar

\$<sub>393</sub> #<sub>394</sub> +<sub>395</sub> K<sub>396</sub> **\$wchars**

This variable is used to define what a word is for MicroEMACS. It contains the list of all the characters that can be considered part of a word.

If \$wchar is empty, a word is defined as composed of upper and lower case letters, numerals (0 to 9) and the underscore character.

Default value: empty

393<sup>\$</sup> \$wchars variable  
394<sup>#</sup> \_wchars  
395<sup>+</sup> EVariables:wchars  
396<sup>K</sup> \$wchars;word

\$<sub>397</sub> #<sub>398</sub> +<sub>399</sub> K<sub>400</sub> **\$wline**

This variable contains the number of lines displayed in the current window, excluding the mode line.  
Setting this variable is equivalent to using the resize-window command with a numeric argument.

397\$ \$wline variable  
398# \_wline  
399+ EVariables:wline  
400K \$wline

\$<sub>401</sub> #<sub>402</sub> +<sub>403</sub> K<sub>404</sub> **\$wraphook**

This variable contains the name of a command or macro which is executed when a buffer is in WRAP mode and it is time to wrap the current line.

Default value: wrap-word

401\$ \$wraphook variable  
402# \_wraphook  
403+ EVariables:wraphook  
404K \$wraphook;hook;wrap

\$<sub>405</sub> #<sub>406</sub> +<sub>407</sub> K<sub>408</sub> **\$writehook**

This variable contains the name of a command or macro which is invoked whenever MicroEMACS attempts to write a file out to disk. This is executed before the file is written, allowing you to process a file on the way out.

Default value: nop

405\$ \$writehook variable  
406# \_writehook  
407+ EVariables:writehook  
408K \$writehook;hook;write

\$409 #410 +411 K412 \$xpos

This variable contains the horizontal screen coordinate where the mouse was located the last time a mouse button was pressed or released.

The leftmost column is considered to be 0 in screen coordinates.

409\$ \$xpos variable  
410# \_xpos  
411+ EVariables:xpos  
412K \$xpos;mouse

\$<sub>413</sub> #<sub>414</sub> +<sub>415</sub> K<sub>416</sub> **\$yankflag**

This boolean variable controls the placement of the point after a yank, yank-pop, insert-file or insert-clip command.

If \$yankflag is FALSE, the point is moved to the end of the yanked or inserted text.

If \$yankflag is TRUE, the cursor remains at the start of the yanked or inserted text.

Default value: FALSE

413<sup>\$</sup> \$yankflag variable

414<sup>#</sup> \_yankflag

415<sup>+</sup> EVariables:yankflag

416<sup>K</sup> \$yankflag

\$<sub>417</sub> #<sub>418</sub> +<sub>419</sub> K<sub>420</sub> **\$ypos**

This variable contains the vertical screen coordinate where the mouse was located the last time a mouse button was pressed or released.

The top row is considered to be 0 in screen coordinates.

417\$ \$ypos variable  
418# \_ypos  
419+ EVariables:ypos  
420K \$ypos;mouse

## \$<sub>421</sub> #<sub>422</sub> +<sub>423</sub> K<sub>424</sub> **Interactive Variables**

Interactive variables are actually a method to prompt the user for a string. This is done by using an at sign "@" followed with a string argument. The string is displayed on the message line, and the editor waits for the user to type in a string which is then returned as the value of the interactive variable. For example:

```
find-file @"What file? "
```

will ask the user for a file name, and then attempt to find it. Note also that complex expressions can be built up with these operators, such as:

```
set %default "file1"  
@&cat &cat "File to decode[" %default "]: "
```

which prompts the user with the string:

```
File to decode[file1]:
```

421\$ Interactive Variables

422# InteractiveVariables

423+ Variables:interactivevariables

424K interactive;variable

\$<sub>425</sub> #<sub>426</sub> +<sub>427</sub> K<sub>428</sub> **User Variables**

User variables allow you to store strings and manipulate them. These strings can be pieces of text, numbers (in text form), or the logical values TRUE and FALSE. These variables can be combined, tested, inserted into buffers, and otherwise used to control the way your macros execute. Up to 512 user variables may be in use in one editing session. All user variable names must begin with a percent sign "%" and may contain any printing character. Only the first 10 characters are significant (i.e. differences beyond the tenth character are ignored).

When a user variable has not been set, it has the value: "ERROR".

425<sup>\$</sup> User Variables

426<sup>#</sup> UserVariables

427<sup>+</sup> Variables:uservariables

428<sup>K</sup> variable

Functions are part of the MicroEMACS Macro language. They can be used wherever an argument (number, string or boolean) is needed.

Function names always begin with the ampersand "&" character, and only the first three characters after the ampersand are significant. Functions are always used in lower case.

Functions can be used to act on variables in various ways. Functions can have one, two, or three arguments. These are always placed after the function, and they can include functions (with their own arguments).

**By topic:**

Boolean functions

Numeric functions

String functions

Miscellaneous functions

**By returned value:**

Boolean: &and, &equal, &exist, &greater, &isnum, &less, &not, &or, &sequal, &sgreater and &sless

Numeric: &abs, &add, &ascii, &band, &bnot, &bor, &bxor, &divide, &length, &mod, &negate, &rnd, &sindex, &sub and &times

String: &bind, &cat, &chr, &env, &find, &group, &gttc, &gtk, &indirect, &left, &lower, &mid, &right, &slower, &supper, &trim, &upper and &xlate

429<sup>\$</sup> Functions

430<sup>#</sup> Functions

431<sup>+</sup> MacroLanguage:060

432<sup>K</sup> function

\$<sub>433</sub> #<sub>434</sub> +<sub>435</sub> K<sub>436</sub> **Boolean Functions**

These functions perform operations on boolean arguments:

<b>&amp;and</b>	<i>log1</i>	<i>log2</i>	Returns TRUE if both boolean arguments are TRUE
<b>&amp;not</b>	<i>log</i>		Returns the opposite boolean value
<b>&amp;or</b>	<i>log1</i>	<i>log2</i>	Returns TRUE if either argument is TRUE

433<sup>\$</sup> Boolean Functions

434<sup>#</sup> BooleanFunctions

435<sup>+</sup> Functions:booleanfunctions

436<sup>K</sup> function;&and;&not;&or

\$<sub>437</sub> #<sub>438</sub> +<sub>439</sub> K<sub>440</sub> **Numeric Functions**

These functions perform operations on numerical arguments:

<b>&amp;abs</b>	<i>num</i>	Returns the absolute value of <i>num</i>
<b>&amp;add</b>	<i>num1 num2</i>	Adds two numbers
<b>&amp;band</b>	<i>num1 num2</i>	Bitwise AND function
<b>&amp;bnot</b>	<i>num</i>	Bitwise NOT function
<b>&amp;bor</b>	<i>num1 num2</i>	Bitwise OR function
<b>&amp;bxor</b>	<i>num1 num2</i>	Bitwise XOR function
<b>&amp;chr</b>	<i>num</i>	Returns a string with the character represented by ASCII code <i>num</i> . This function is the opposite of <u>&amp;ascii</u>
<b>&amp;divide</b>	<i>num1 num2</i>	Divides <i>num1</i> by <i>num2</i> , giving an integer result
<b>&amp;equal</b>	<i>num1 num2</i>	Returns TRUE if <i>num1</i> and <i>num2</i> are numerically equal
<b>&amp;greater</b>	<i>num1 num2</i>	Returns TRUE if <i>num1</i> is greater than, or equal to <i>num2</i>
<b>&amp;isnum</b>	<i>num</i>	Returns TRUE if the given argument is a legitimate number
<b>&amp;less</b>	<i>num1 num2</i>	Returns TRUE if <i>num1</i> is less than <i>num2</i>
<b>&amp;mod</b>	<i>num1 num2</i>	Returns the remainder of dividing <i>num1</i> by <i>num2</i>
<b>&amp;negate</b>	<i>num</i>	Multiplies <i>num</i> by -1
<b>&amp;rnd</b>	<i>num</i>	Returns a random integer between 1 and <i>num</i>
<b>&amp;sub</b>	<i>num1 num2</i>	Subtracts <i>num2</i> from <i>num1</i>
<b>&amp;times</b>	<i>num1 num2</i>	Multiplies <i>num1</i> by <i>num2</i>

437<sup>\$</sup> Numeric Functions

438<sup>#</sup> NumericFunctions

439<sup>+</sup> Functions:numericfunctions

440<sup>K</sup>

function;&abs;&add;&band;&bnot;&bor;&bxor;&chr;&divide;&equal;&greater;&isnum;&less;&mod;&negate  
&sub;&times

## \$<sub>441</sub> #<sub>442</sub> +<sub>443</sub> K<sub>444</sub> String Functions

These functions perform operations related to strings. All of them have at least one string argument:

<b>&amp;ascii</b>	<i>str</i>	Returns the ASCII code of the first character in <i>str</i> . This function is the opposite of <u>&amp;chr</u>
<b>&amp;cat</b>	<i>str1 str2</i>	Concatenates the two strings to form one
<u>&amp;indirect</u>	<i>str</i>	Evaluate <i>str</i> as a variable.
<b>&amp;left</b>	<i>str num</i>	Returns the <i>num</i> leftmost characters from <i>str</i>
<b>&amp;length</b>	<i>str</i>	Returns length of string
<b>&amp;lower</b>	<i>str</i>	Transforms <i>str</i> to lowercase
<b>&amp;mid</b>	<i>str num1 num2</i>	Starting from <i>num1</i> position in <i>str</i> , returns <i>num2</i> characters
<b>&amp;right</b>	<i>str num</i>	Returns the <i>num</i> rightmost characters from <i>str</i>
<b>&amp;sequal</b>	<i>str1 str2</i>	Returns TRUE if the two strings are the same
<b>&amp;sgreater</b>	<i>str1 str2</i>	Returns TRUE if <i>str1</i> is alphabetically greater than or equal to <i>str2</i>
<b>&amp;sindex</b>	<i>str1 str2</i>	Returns the position of <i>str2</i> within <i>str1</i> . Returns zero if not found
<b>&amp;sless</b>	<i>str1 str2</i>	Returns TRUE if <i>str1</i> is less alphabetically than <i>str2</i>
<b>&amp;slower</b>	<i>str1 str2</i>	Translate the first char in <i>str1</i> to the first char in <i>str2</i> when lowercasing.
<b>&amp;supper</b>	<i>str1 str2</i>	Translate the first char in <i>str1</i> to the first char in <i>str2</i> when uppercasing.
<b>&amp;trim</b>	<i>str</i>	Trims the trailing white space from a string
<b>&amp;upper</b>	<i>str</i>	Transforms <i>str</i> to uppercase
<b>&amp;xlate</b>	<i>source lookup trans</i>	Translate each character of <i>source</i> that appears in <i>lookup</i> to the corresponding character from <i>trans</i>

441<sup>\$</sup> String Functions

442<sup>#</sup> StringFunctions

443<sup>+</sup> Functions:stringfunctions

444<sup>K</sup>

function;&ascii;&cat;&left;&length;&lower;&mid;&right;&sequal;&sgreater;&sindex;&sless;&slower;&supper;&trim;&upper;&xlate

\$<sup>445</sup> #<sup>446</sup> +<sup>447</sup> K<sup>448</sup> **Miscellaneous Functions**

<b>&amp;bind</b>	<i>str</i>	Returns the name of the command bound to the keystroke <i>str</i>
<b>&amp;env</b>	<i>str</i>	If the operating system has this capability, this returns the environment string associated with <i>str</i>
<b>&amp;exist</b>	<i>str</i>	Returns TRUE if the named file <i>str</i> exists
<b>&amp;find</b>	<i>str</i>	Finds the named file <i>str</i> along the <u>path</u> and return its full file specification or an empty string if no such file exists
<b>&amp;group</b>	<i>num</i>	Return <u>group</u> <i>num</i> as set by a <u>MAGIC</u> mode search.
<b>&amp;gt;c</b>		Returns a string of characters containing a MicroEMACS command input from the user
<b>&amp;gt;k</b>		Returns a string containing a single keystroke from the user

445<sup>\$</sup> Miscellaneous Functions

446<sup>#</sup> MiscellaneousFunctions

447<sup>+</sup> Functions:zzzmiscellaneousfunctions

448<sup>K</sup> function;&bind;&env;&exist;&find;&group;&gt;c;&gt;k

\$<sub>449</sub> #<sub>450</sub> +<sub>451</sub> K<sub>452</sub> **&indirect**

The **&indirect** function evaluates its argument, takes the resulting string, and then uses it as a variable name. For example, given the following piece of macro language:

```
; set up reference table
set %one "elephant"
set %two "giraffe"
set %three "donkey"
set %index "%two"
insert-string &ind %index
```

The string "giraffe" would have been inserted at the point in the current buffer. This indirection can be safely nested up to about 10 levels.

449<sup>\$</sup> &indirect function  
450<sup>#</sup> .indirect  
451<sup>+</sup> StringFunctions:indirect  
452<sup>K</sup> &indirect;function

\$<sub>453</sub> #<sub>454</sub> +<sub>455</sub> K<sub>456</sub> **Comments**

Within the macro language, a semicolon ";" signals the beginning of a comment. The text from the semicolon to the end of the line is ignored by MicroEMACS.

A comment can be the only content of a line, in which case the semicolon must be the first non-blank character on the line. A comment can also appear at the end of any statement.

Note that empty lines are legal (treated as comments).

453<sup>\$</sup> Comments

454<sup>#</sup> Comments

455<sup>+</sup> MacroLanguage:070

456<sup>K</sup> comment