7. **Fill Intens**: The fill intensity for units on monochrome printers.
8. **Display**: Selects the display to be printed.

4.2.10 Help Windows

An arbitrary number of help windows may be opened, each displaying a different part of the text. For a display of context sensitive help about the editor commands, the mouse must be in a display and the key $\boxed{\texttt{h}}$ must be pressed. Then the last open help window appears with a short description.

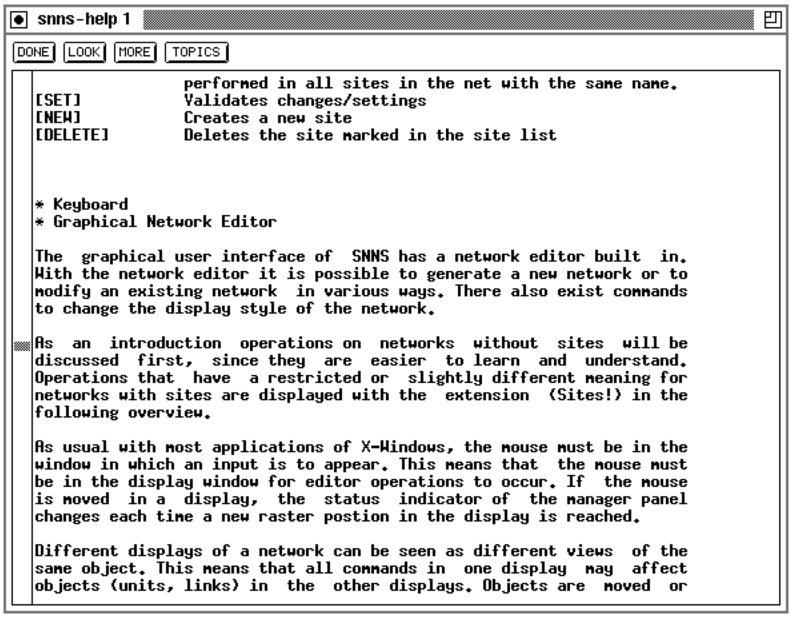

Figure 4.14: Help Window

A special feature is the possibility of searching a given string in the help text. For this, the search string is selected in the text window (e.g. by a double click).

1. $\boxed{\texttt{LOOK}}$: After clicking this button, SNNS looks for the first appearance of the marked string, starting at the beginning of the help document. If the string is found, the corresponding paragraph is displayed.
2. $\boxed{\texttt{MORE}}$: After clicking this button, SNNS looks for the first appearance of the marked string, starting at the position last visited by a call to the help function. If the text was scrolled afterwards, this position might not be on the display anymore.

Note: All help calls look for the first appearance of a certain string. These strings start with the sequence ASTERISK-BLANK (`* `), to assure the discovery of the appropriate text position. With this knowledge it is easy to modify the file `help.hdoc` to adapt it to special demands, like storing information about unit types or patterns. The best approach would be to list all relevant keywords at the end of the file under the headline "`* TOPICS`", so that the user can select this directory by a click to $\boxed{\texttt{TOPICS}}$.

4.2.11 Shell window

The window of the shell from which SNNS is invoked is used for the output of protocol messages.

These protocols include:

- Messages about the success or failure of the loading or saving of a file.
- Information about the settings of SNNS when the INFO button in the control panel is pressed.
- Error messages of the pattern file parser when the pattern file does not correspond to the required grammar.
- Learning error values (see below)
- Validation set error values

When learning is started, the error of the output units is reported on this window after each epoch, i.e. after the presentation of all patterns.

To save the window from being flooded on longer training runs, the maximum number of reported errors is limited to 10. Therefore, when 20 learning cycles are specified, the error gets printed only after every other cycle. This error report has the following form:

```
    Learning all patterns:
      epochs   : 100
      parameter:  0.80000
      #o-units : 26
      #patterns: 26

       epoch:         SSE             MSE            SSE/o-units

  Train  100:      57.78724       2.22259           2.22259
  Train   90:      24.67467       0.94903           0.94903
  Train   80:      23.73399       0.91285           0.91285
  Train   70:      22.40005       0.86154           0.86154
  Train   60:      20.42843       0.78571           0.78571
  Train   50:      18.30172       0.70391           0.70391
  Test    50:      25.34673       0.97487           0.97487
  Train   40:      16.57888       0.63765           0.63765
  Train   30:      14.84296       0.57088           0.57088
  Train   20:      12.97301       0.49896           0.49896
  Train   10:      11.22209       0.43162           0.43162
  Train    1:      10.03500       0.38596           0.38596
  Test     1:      11.13500       0.42696           0.42696
```

The first line reports whether all or only a single pattern is trained. The next lines give the number of specified cycles and the given learning parameters, followed by a brief setup description.

Then the 10-row-table of the learning progress is given. If validation is turned on this table is intermixed with the output of the validation. The first column specifies whether