Johar "Star" Interface Interpreter
Requirements Specification of the Star GUI

1   The Main Panel

See Figure 1. The Main Panel is displayed when the application is started, and remains visible throughout the lifetime of the application.

1. At the top is the *Menu Bar*. This shows one menu for each command group in the application, and one menu named "Star" (for services provided by the Star interpreter for all Johar applications). We refer to the non-Star menus as "application menus".

2. Each application menu is labelled in the Menu Bar by the name of the command group.

3. The menu items in each application menu are the commands that are in that command group.

4. An application menu item is clickable (not greyed out) if the corresponding command is *active*.

5. A command is *active* at a given point if either it has no `ActiveIfMethod`, or it has an `ActiveIfMethod` and that method returns `true`.

6. On the left is the *Text Display Area*. This shows all text messages sent by the application engine using `showText` that are not displayed through some other means.

7. On the right is the *Table Area*. This is a tabbed pane.

8. In the Table Area, there is one tab corresponding to every revealed Table currently in the application.

9. The application decides which Tables to conceal and reveal.

10. If, during the processing of a command, the application engine sets the top table, then immediately after the command has finished processing, the topmost table in the Table Area is the last table to have been set as the top table.

11. If, during the processing of a command, the application engine does not set the top table, then immediately after the command has finished processing, the topmost table in the Table Area remains unchanged from the time that the command was issued.

12. Notwithstanding the table set as the topmost table by the app engine, the user can (between issuing one command and issuing the next command) click on a table tab in order to move that table to the top.

13. At the bottom is the *Status Bar*. This shows low-prominence messages sent by the application engine using `showText`.

14. On the Star menu, there is one menu item, "Help".

15. When the "Help" menu item is selected, the Help Box is displayed (see below).
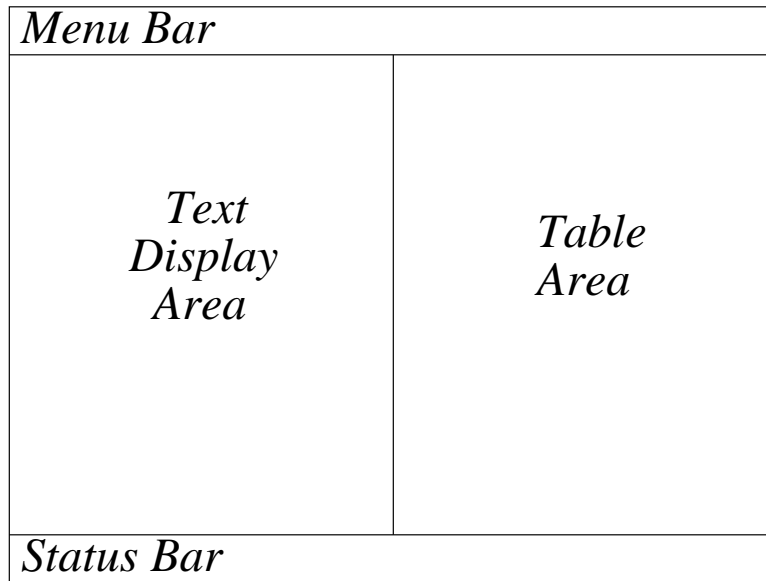
Figure 1: The main panel.

2 The Command Dialog Box

See Figure 2.

1. At the top is the `Label` attribute of the command.

2. Under that is one section for every *queryable parameter* (see below) in the current stage.

3. Many commands have only one stage. However, if there is more than one stage, only the queryable parameters in the current stage will appear in the parameter section.

4. There is one section of the box for each queryable parameter in the current stage.

5. At the bottom are two to four buttons: `Cancel`, `Previous`, `Next`, and `OK`. `Cancel` and `OK` always appear; `Previous` and `Next` do not always appear.

6. The *Cancel button* always appears and is always enabled.

7. The Cancel button is on the left-hand side of the dialog box.

8. The *Previous button*:

   (a) Appears if there is more than one *queryable stage* (see below).

   (b) Is enabled if the current stage is not the first queryable stage.

9. The *Next button*:

   (a) Appears if there is more than one queryable stage.

   (b) Is enabled if the current stage is not the last queryable stage.

10. The *OK button*:
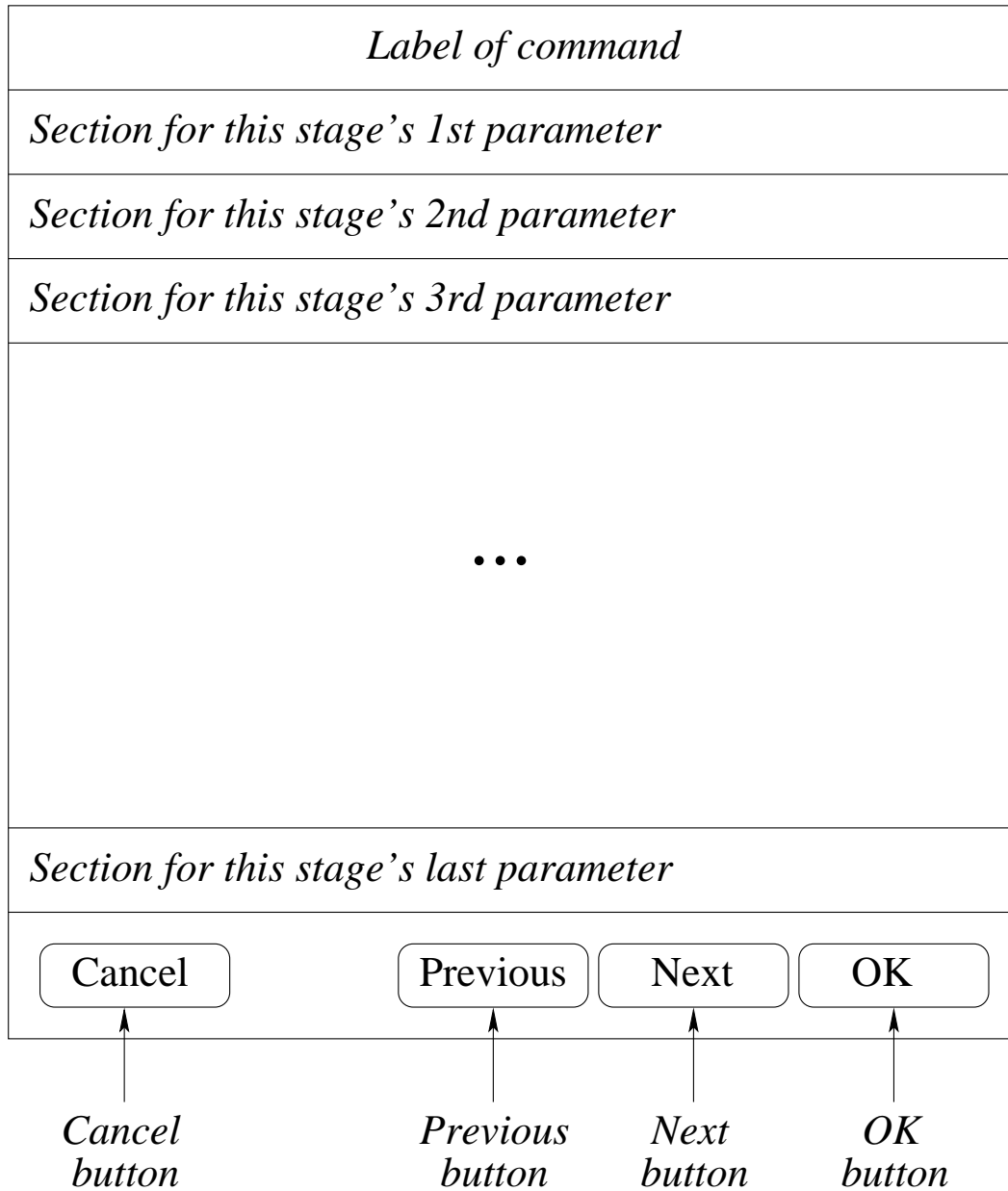
Label of command
Section for this stage's 1st parameter
Section for this stage's 2nd parameter
Section for this stage's 3rd parameter
•••
Section for this stage's last parameter

Cancel   *Previous*   *Next*   *OK*

Cancel button   *Previous button*   *Next button*   *OK button*

Figure 2: The command dialog box.

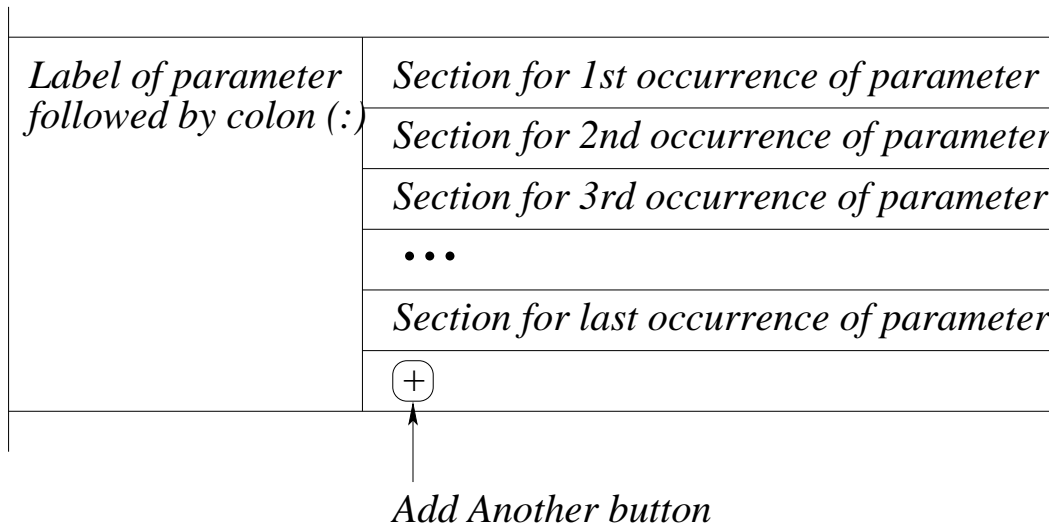| Label of parameter followed by colon (:) | Section for 1st occurrence of parameter |
	Section for 2nd occurrence of parameter
	Section for 3rd occurrence of parameter
	• • •
	Section for last occurrence of parameter
	(+)

Add Another button

Figure 3: The parameter section of the command dialog box.

   (a) Always appears.

   (b) Is enabled if there are no *incomplete stages* (see below).

11. The OK button is on the right-hand side of the dialog box.

12. A parameter is *inactive* if both (a) it has a `ParentParameter`, and (b) the current value of the `ParentParameter` is not the `ParentValue` for this parameter.

13. A *queryable parameter* is any parameter that is not a `tableEntry` parameter with a browsable `SourceTable`.

14. A *queryable stage* is a stage that contains some queryable parameter.

15. An *incomplete stage* is a stage that contains some parameter such that: (a) the parameter is not inactive, (b) there is no `DefaultValue` or `DefaultValueMethod` for the parameter, and (c) the current number of repetitions for which the user has selected a value is less than the `MinNumberOfReps` for the parameter.

   (That is, any repetitions that the user has not filled in and that do not have a default value should be interpreted as repetitions that the user does not want to give to the application engine. If the number of the remaining repetitions is less than the `MinNumberOfReps`, then the user still needs to fill in more values.)

3   Parameter Section of the Command Dialog Box

Every queryable parameter in the current stage is represented by a section of the command dialog box. See Figure 3.

1. On the left is the `Label` attribute of the parameter, at the top of the left-hand side, followed by a colon.

2. On the right is one subsection for each repetition of the parameter, and sometimes a small *Add Another* button.
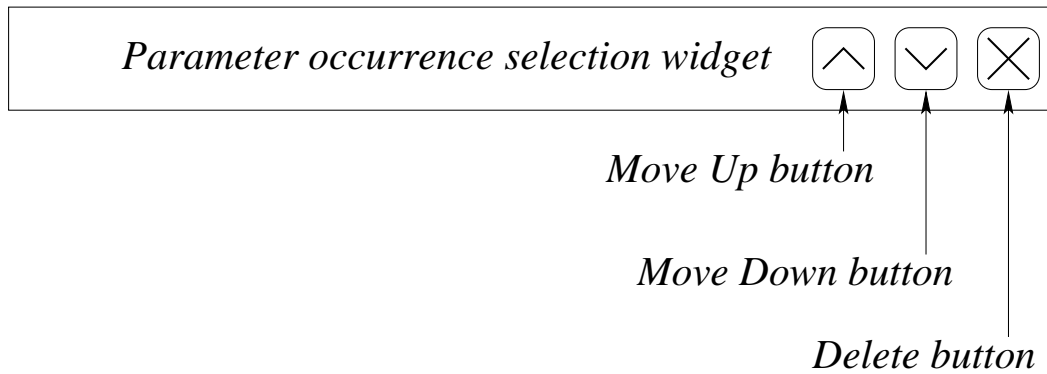
4

Figure 4: The repetition section of the parameter section.

3. Initially (before any user interaction), the number of repetition sections will be equal to maximum(1, m), where m is the value of MinNumberOfReps for the parameter.

4. The Add Another button:

    (a) Has the ToolTip "Add another".

    (b) Is a small button with a plus sign ("+") in it.

    (c) Appears only if MinNumberOfReps is not equal to MaxNumberOfReps for this parameter.

    (d) Is enabled only if the current number of repetitions of the parameter is less than MaxNumberOfReps for this parameter.

    (e) Is on the left-hand side of the right-hand half of the parameter section.

5. The entire section corresponding to the parameter is greyed out if the parameter is inactive.

4 Repetition Section of the Parameter Section

Every repetition of a queryable parameter in the current stage is represented by a section of the command dialog box. See Figure 4.

1. On the left is a widget which the user can use to select the value of the repetition. This widget will be different for different types of parameters. For instance, for a boolean parameter, it may be a widget consisting of two radio buttons labelled "Yes" and "No", whereas for a text parameter it may be a text area.

2. On the right of the section is zero to three small buttons with icons in them.

3. The Move Up button:

    (a) Is a small button with an up-arrow in it.

    (b) Has the ToolTip "Move up".

    (c) Appears only if MaxNumberOfReps is not equal to 1 for this parameter, and RepsModel for this parameter is sequence.

    (d) Is enabled only if this is not the first repetition (the topmost repetition).

```
┌─────────────────────────────────────────┐
│          Label of question              │
├─────────────────────────────────────────┤
│   Parameter occurrence selection widget  │
├─────────────────────────────────────────┤
│  ┌──────────┐         ┌──────────┐       │
│  │  Cancel  │         │    OK    │       │
│  └──────────┘         └──────────┘       │
└─────────────────────────────────────────┘
        ↑                     ↑
     *Cancel*               *OK*
     *button*             *button*
```
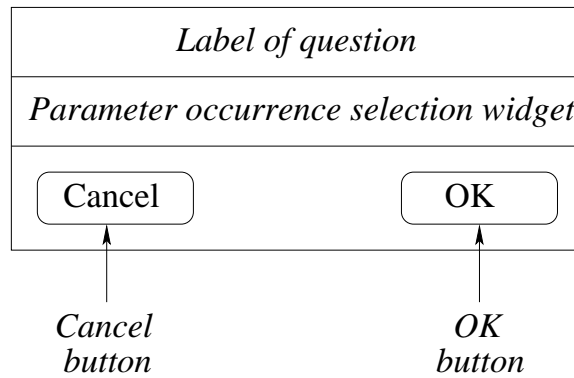
Figure 5: The question dialog box.

4. The `Move Down` button:

   (a) Is a small button with an down-arrow in it.

   (b) Has the ToolTip "Move down".

   (c) Appears only if `MaxNumberOfReps` is not equal to 1 for this parameter, and `RepsModel` for this parameter is `sequence`.

   (d) Is enabled only if this is not the last repetition (the bottommost repetition).

5. The `Delete` button:

   (a) Is a small button with an X ("x") in it.

   (b) Has the ToolTip "Delete".

   (c) Appears only if `MinNumberOfReps` is not equal to `MaxNumberOfReps` for this parameter.

   (d) Is enabled only if the current number of repetitions of the parameter is more than maximum(1, m), where m is the value of `MinNumberOfReps` for this parameter.

5   Question Dialog Box

See Figure 5. The Question Dialog Box is used to ask `Questions`.

1. On the top is the `Label` attribute of the question.

2. Below that is a parameter occurrence selection widget, such as would appear in the Command Dialog Box for one repetition of a parameter.

3. On the lower left is a `Cancel` button.

4. On the lower right is an `OK` button.

6   Help Box

The Help Box has three states: the Top-Level state, the Command state, and the Parameter/Question state. It may be wise to put the contents of the window into a JScrollPane, since the size of the contents will sometimes depend on the size of the `MultiLineHelp` attributes of given commands and parameters.
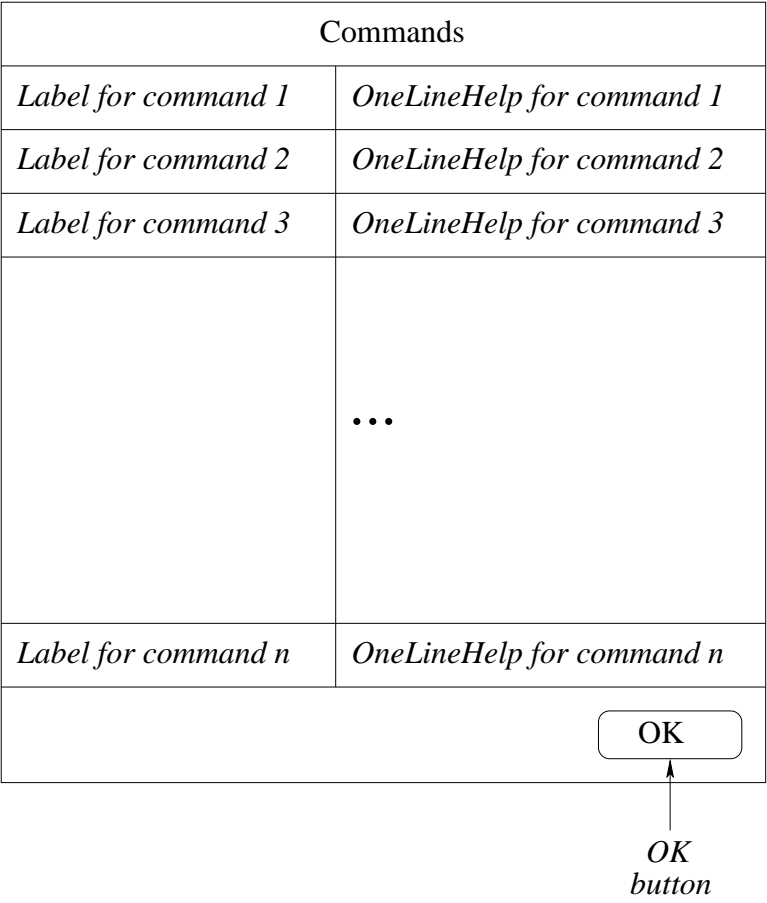
Commands	
Label for command 1	*OneLineHelp for command 1*
Label for command 2	*OneLineHelp for command 2*
Label for command 3	*OneLineHelp for command 3*
	. . .
Label for command n	*OneLineHelp for command n*
	OK

OK
button

Figure 6: The help box, in the Top-Level state.

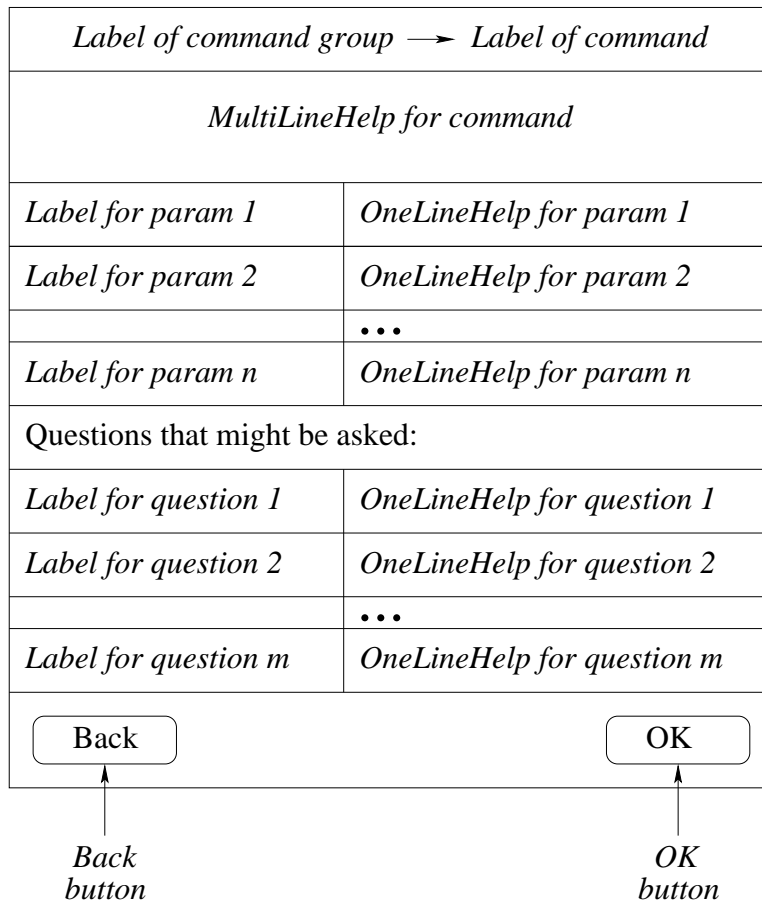| *Label of command group* ⟶ *Label of command*	
MultiLineHelp for command	
Label for param 1	*OneLineHelp for param 1*
Label for param 2	*OneLineHelp for param 2*
	• • •
Label for param n	*OneLineHelp for param n*
Questions that might be asked:	
Label for question 1	*OneLineHelp for question 1*
Label for question 2	*OneLineHelp for question 2*
	• • •
Label for question m	*OneLineHelp for question m*
[Back]	[OK]

Back
button

OK
button

Figure 7: The help box, in the Command state.

6.1 Top-Level State

The Help Box begins in the Top-Level state. See Figure 6.

1. At the top is the word Commands.

2. Below that is a table (perhaps a JTable) with one row for every command in the application. The table has two columns.

3. Each row of the table contains the `Label` attribute of the command in the first column. This should be displayed in a way that makes it clear that it is "clickable".

4. Each row of the table contains, in the second column, the `OneLineHelp` attribute of the command.

5. At the bottom right is a button labelled OK. If the user clicks this, the box should be disposed.

6.2 Command State

If a user selects a command label when the help box is in the Top-Level state, it moves to the Command state. See Figure 7.

8

1. At the top is the `Label` attribute of the `CommandGroup` that the command is in, an arrow, and the `Label` attribute of the command. (This gives an indication of where to find the command on the menus.)

2. Below that is a section containing the `MultiLineHelp` attribute of the command.

3. Below that is a table (perhaps a JTable) with one row for each parameter in the command. This parameter table has two columns.

4. Each row of the parameter table contains the `Label` attribute of the parameter in the first column. This should be displayed in a way that makes it clear that it is "clickable".

5. Each row of the parameter table contains, in the second column, the `OneLineHelp` attribute of the parameter.

6. If there are any questions in the command, then below the parameter table, there is a JLabel reading "Questions that might be asked:", and a table with one row for each question in the command. This question table also has two columns.

7. Each row of the question table contains the `Label` attribute of the question in the first column. This should be displayed in a way that makes it clear that it is "clickable".

8. Each row of the question table contains, in the second column, the `OneLineHelp` attribute of the question.

9. At the bottom left is a button labelled Back. If the user clicks this, the box should go back to the Top-Level state.

10. At the bottom right is a button labelled OK. If the user clicks this, the box should be disposed.

6.3 Parameter/Question State

If a user selects a parameter or question label when the help box is in the Command state, it moves to the Parameter/Question state. Figure 8 illustrates the Parameter/Question state when a parameter has been selected; the state when a question has been selected is similar.

1. At the top is the `Label` attribute of the `CommandGroup` that the command is in, an arrow, and the `Label` attribute of the command. (This provides continuity with the Command state.)

2. Below that is a section containing the text "Parameter:", followed by the `Label` attribute of the parameter.

3. Below that is a section containing the `MultiLineHelp` attribute of the parameter.

4. At the bottom left is a button labelled Back. If the user clicks this, the box should go back to the Command state with the selected command.

5. At the bottom right is a button labelled OK. If the user clicks this, the box should be disposed.

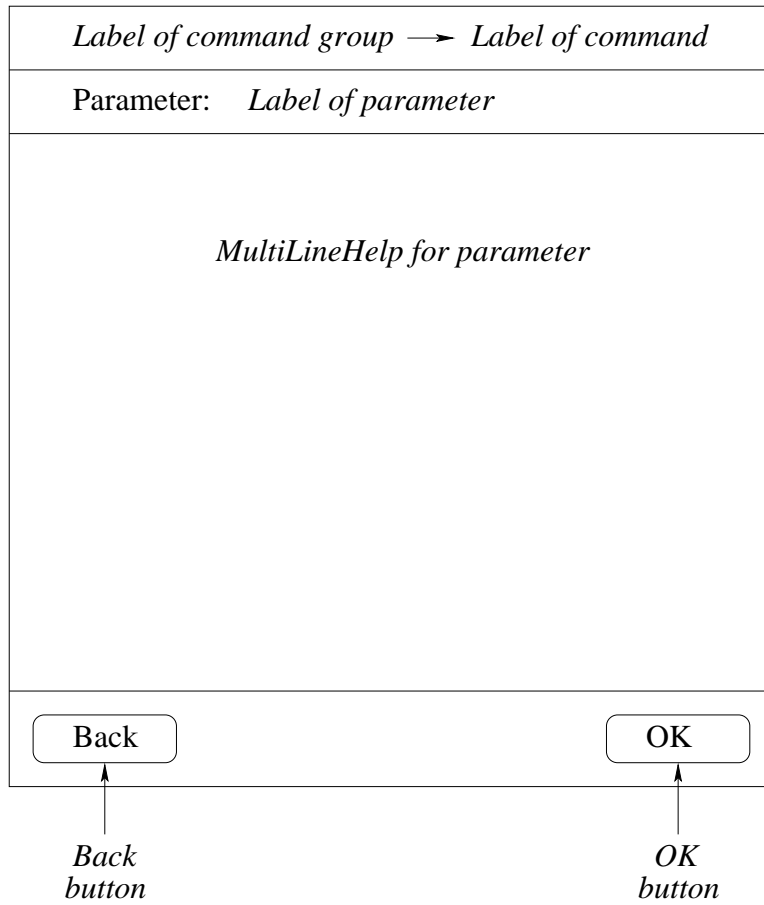6. For a Question, the Help Box is identical, except that the text "Parameter:" reads "Question:" instead.

Figure 8: The help box, in the Parameter/Question state.