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Beginner’s Guide to English

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Section 1: About this guide

1.1 Introducing the tutorials

This guIDe is intended as an introduction to the ENGLISH Retrieval Language. It is split into two tutorial sections:

- Using ENGLISH - Chapters 2 to 15
- Dictionaries - Chapters 16 to 21

1.1.1 Tutorial one – Using English

If you are new to the system and have little or no knowledge of how to make inquiries of data on the system, then you will find Tutorial One extremely useful. Chapters 2 to 14 lead you through a series of exercises using sample data files located in the system account called ENGLISH-TUTORIAL. By working through these exercises, you are introduced to many of the ENGLISH Retrieval Language elements, one at a time, and taught how to build increasingly powerful ENGLISH statements.

Start with Chapter 2 and set your own pace through the tutorial. By the end of Tutorial One you should be familiar with many of the facilities of the ENGLISH Retrieval Language and their capabilities.

Chapter 15, Commands Reference, at the end of Tutorial One, contains a short description of most ENGLISH command elements to give you an idea of the scope of the language. For full descriptions of the complete set, refer to the *ENGLISH Reference Manual*.

1.1.2 Tutorial two – Dictionaries

If you are experienced in using the ENGLISH Retrieval Language and need to know how to structure and define data so that it can be accessed via ENGLISH, then you should turn to Tutorial Two. Chapters 16 to 20 contain exercises to teach you how to create a file, enter data, and then set up a dictionary that enables ENGLISH to locate and output data on request.

Chapter 21, Dictionaries Reference, at the end of Tutorial Two, contains a short description of most dictionary elements. For full descriptions of the complete set, refer to the *ENGLISH Reference Manual*.

1.1.3 Tutorial account

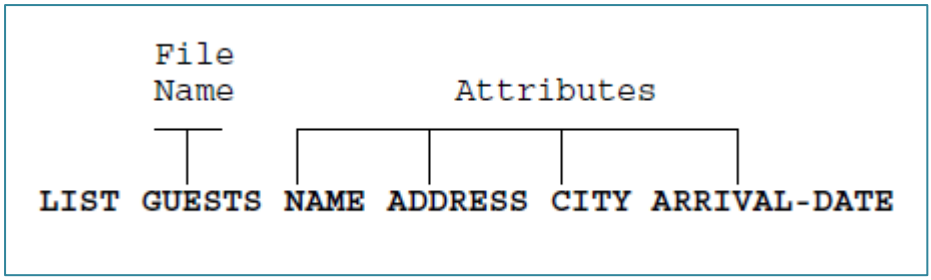
The tutorials (One and Two) use an account called ENGLISH-TUTORIAL which contains two files with "data sections". A data section is a data file associated with the file name which you can refer to by name to retrieve information. ROOMS has a single default data section and GUESTS has two data sections, the default and a second one called FEB. The default data section is referenced by quoting only the file name, for example GUESTS or ROOMS. Data sections, other than the default, are referenced by quoting the file name followed by a comma, then the data section name, for example, GUESTS,FEB.

In the ROOMS data section, each room is an "item" which contains information, such as room-type, bed-type, current guest and so on.

Similarly, in the GUESTS and GUESTS,FEB data sections each guest is an item which contains information, such as guest's name, address, date of arrival at the hotel, and so on.

Each item in the ROOMS, GUESTS or GUESTS, FEB data sections is IDentified by an "item-ID". Each piece of information in it, for example, name or address of guest is called an "attribute".

In these tutorials you use the ENGLISH Retrieval Language to retrieve this information and transfer it to your display screen or to a printer.
Below you can see an example of an ENGLISH language statement which lists the attributes, name, address city of origin, and arrival date of each guest in the GUESTS data section.



1.2 What to do if you make a mistake

When you ask for information about items in the database, you will be typing statements and will probably make a mistake from time to time. The system is set up to make it easy for you to correct your mistakes.

If you notice a mistake before pressing RETURN to enter the inquiry, just use the BACKSPACE key, on the upper right of your keyboard. to move back to where you made your error, and re-type the correct characters.
If you press RETURN without correcting a mistake, the system returns an error message IDentifying the location of the mistake. You must then re-type the correct statement at the colon prompt.

The effect of pressing the BACKSPACE key may vary from terminal to terminal, as its function depends on how the terminal is configured. It may erase characters as you move the cursor back or it may just move the cursor back to the location of the error where you can you then erase the incorrect characters using the DELETE key.

Remember, in Tutorial One, none of your errors will destroy or affect information in the computer.

1.3 Notes on terminal output and input

1.3.1 Screen illustrations

Throughout Tutorial One, whenever you are instructed to enter a statement, the screen output which you can expect to see is shown. There are a few points which you should bear in mind in relation to screen illustrations:

- Dates are displayed on your screen in one of two formats, American

(MM/DD/YY) or International (DD/MM/YY). This depends on how your system is set-up.

- The RESET-DEMO command which you will use at logon updates the dates in the GUESTS and ROOMS data sections. You can enter RESET-DEMO with or without a date following. If you don't give a date the system defaults to the current date. The system then resets the dates in the data sections relative to the date that you give.

  If you enter, RESET-DEMO followed by the date "2nd May 1991" typed in the appropriate format you will see the same dates on your screen as those shown in the illustrations given in this guIDe. The date "2nd May 1991" must be entered as follows: 02/05/91 (International format) or 05/02/91 (American format). Again, the format you enter depends on how your system is set-up.

- Either a pound (£) or dollar ($) sign may be displayed on your screen depending on your terminal setting.

1.3.2 Input statements

The way statements appear in this guIDe is not necessarily the way they will appear on your screen, as different terminals have different length lines. Just type statements character for character, if necessary, your terminal will automatically wrap the word at the end of the line onto the next line.

1.4 Conventions

This manual uses the following conventions:

Conventions	Definition
Text	Bold text shown in this typeface is used to indicate input which must be typed at the terminal.
Text	Text shown in this typeface is used to show text that is output to the screen.
SMALL CAPITALS	Small capitals are used for the names of keys such as RETURN.
CTRL+X	Two (or more) key names joined by a plus sign (+) indicate a combination of keys, where the first key(s) must be held down while the second (or last) is pressed. For example, CTRL+X indicates that the CTRL key must be held down while the X key is pressed.
Enter	To enter means to type text then press RETURN. For instance, 'Enter the WHO command' means type WHO, then press RETURN. In general, the RETURN key (shown as ENTER or ¿ on some keyboards) must be used to complete all terminal input unless otherwise specified.

Conventions	Definition
Press	Press single key or key combination but do not press RETURN afterwards.

1.5 References

For more detailed information on REALITY facilities used in this guIDe, refer to:

- ENGLISH Reference Manual
- EDITOR Reference Manual
- Managing Accounts and Files, Data Structures, or REALITY Reference Manual Volume 1

1.6 Changes in this issue

This issue of the tutorial reflects terminology changes in the latest ENGLISH Reference Manual. These are:

- Attribute Definition Item: now called Data Definition Item
- Correlatives: now called Attribute 8 (pre-processor) codes.
- Conversions: now called Attribute 7 (input/output conversion) codes

Some additional features of ENGLISH, including file indexing, which are available from REALITY Release 7.2 and RealityX Release 4.0, are not discussed in this issue of the Beginner's GuIDe to ENGLISH. For details, see the ENGLISH Reference Manual.

Section 2: Getting started (Tutorial one: Using English)

2.1 Switching on

The position of the power switch and the exact procedure for switching on and arriving at the point at which you can start work, varies slightly according to the model of terminal. Consult your Terminal Reference Manual for the information appropriate to your terminal and follow the instructions for arriving at the LOGON PLEASE: prompt.

2.2 Logging on

The exact procedure for logging on depends on how your system/database is set up. The standard prompt is 'LOGON PLEASE:' but this may have been changed to 'Enter user ID:', or similar. If you are unsuccessful in logging on to ENGLISHTUTORIAL, after carrying out the procedure described below, contact the System Manager and refer to the 'Note to System Manager' at the end of this section.

To carry out the tutorial exercises given in this guide you need to logon to the ENGLISH-TUTORIAL account. To do this continue as follows.

Press the CAPS LOCK key to make sure that every character you type is in uppercase. CAPS LOCK just makes the alphabet keys uppercase; you must use SHIFT to get the upper characters on the other keys.

When you try to connect to the database/system, you will see on the screen, a prompt such as,

```
LOGON PLEASE:
```

or

```
Enter user ID:
```

Alternatively, you may see the message,

```
Disconnected
```

In each case, type

ENGLISH-TUTORIAL

and press RETURN.

If the screen is currently showing the message 'Disconnected', it will automatically return to the LOGON PLEASE: prompt when you start typing ENGLISH-TUTORIAL.

On entering ENGLISH-TUTORIAL, a colon (:) appears on the left of the screen. This is known as the TCL prompt.

Note that if you make a mistake in typing ENGLISH-TUTORIAL, a PASSWORD prompt appears. You must then press RETURN and try again.

Normally, ENGLISH-TUTORIAL will be maintained without a password, although this depends on your System Manager.

On successfully logging on, type:

RESET-DEMO 02/05/91 (International date format)

or

RESET-DEMO 05/02/91 (American date format)

and press RETURN.

By entering this command with the date '2 May 1991' you have set the dates in the ROOMS and GUESTS data sections, to display the same dates as those shown in the screen illustrations in this tutorial. Dates in GUESTS,FEB are for February 1991.

Make sure that you enter the date in the correct format for your system, otherwise the correct dates shown in the screen illustrations in this manual will not be displayed on your screen.

If you only type RESET-DEMO, the data sections are updated so that dates relative to today's date are displayed.

Data may appear on the screen before the TCL prompt. When the colon prompt appears, you are ready to begin the tutorial.

Note

If you get a message of the following form, ask for the System Manager for help:

```
[82] YOUR SYSTEM PRIVILEGE LEVEL IS NOT SUFFICIENT FOR THIS STATEMENT
```

2.2.1 Note to System Manager

It is recommended that you set up a user-ID of ENGLISH-TUTORIAL with default logon account ENGLISH-TUTORIAL and no password so that anyone wishing to use that account can logon directly by entering its name at the LOGON prompt.

2.3 Logging off

If at any time during the tutorial, preferably at the end of a chapter, you want to stop for a break, then you can log off by typing,

OFF

at the TCL prompt and pressing RETURN.

The screen then displays,

```
Disconnected
```

When you are ready to continue, log on again in the same way as before, as described earlier in this chapter.

Section 3: Listing information

3.1 The LIST verb

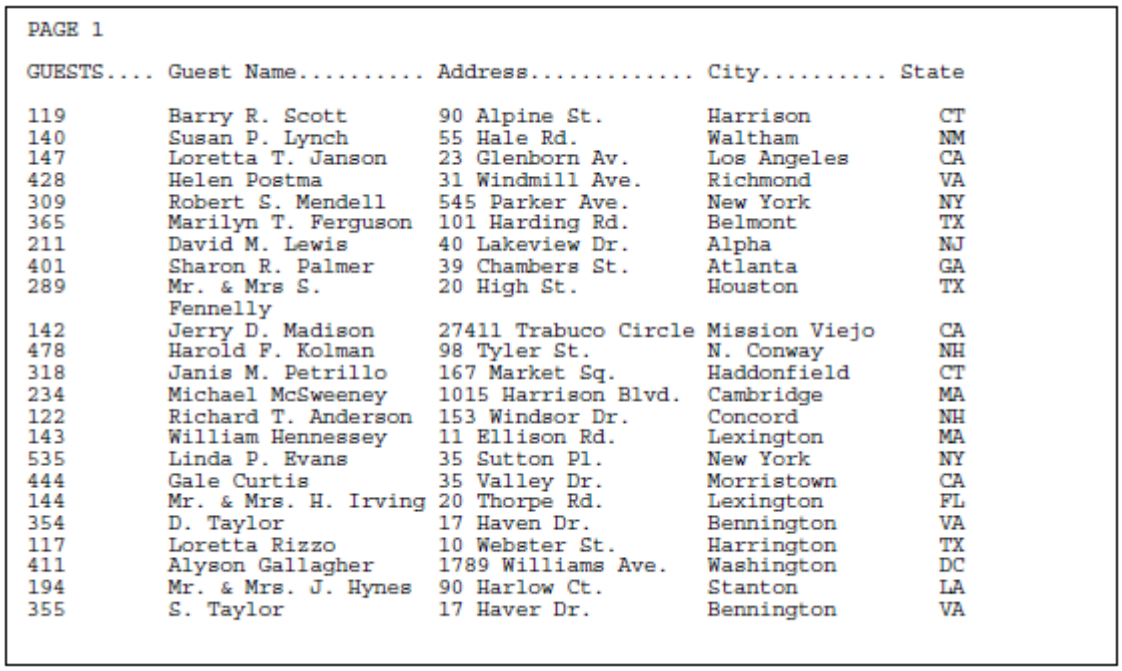
To retrieve information from a ROOMS or GUESTS data section you can use the LIST verb. This verb causes a list of data contained in a data section to be output at a display screen or printer. For example, type,

```
LIST GUESTS NAME ADDRESS CITY STATE
```

and press RETURN.

Remember that if you make a mistake before pressing RETURN, you can use the BACKSPACE key to correct it. However, you make a mistake and press RETURN without correcting it, then the screen will show an error message, telling you that something in your statement is wrong, for example, [10] FILE NAME MISSING, in which case, just re-type the correct statement at the TCL prompt. To save time it's a good IDea to check the statements you type before pressing RETURN.

The screen displays the following screenshot:



```
PAGE 1

GUESTS.... Guest Name.......... Address.............. City.......... State

119        Barry R. Scott       90 Alpine St.          Harrison         CT
140        Susan P. Lynch       55 Hale Rd.            Waltham          NM
147        Loretta T. Janson    23 Glenborn Av.        Los Angeles      CA
428        Helen Postma         31 Windmill Ave.       Richmond         VA
309        Robert S. Mendell    545 Parker Ave.        New York         NY
365        Marilyn T. Ferguson  101 Harding Rd.        Belmont          TX
211        David M. Lewis       40 Lakeview Dr.        Alpha            NJ
401        Sharon R. Palmer     39 Chambers St.        Atlanta          GA
289        Mr. & Mrs S.         20 High St.            Houston          TX
           Fennelly
142        Jerry D. Madison     27411 Trabuco Circle   Mission Viejo    CA
478        Harold F. Kolman     98 Tyler St.           N. Conway        NH
318        Janis M. Petrillo    167 Market Sq.         Haddonfield      CT
234        Michael McSweeney    1015 Harrison Blvd.    Cambridge        MA
122        Richard T. Anderson  153 Windsor Dr.        Concord          NH
143        William Hennessey    11 Ellison Rd.         Lexington        MA
535        Linda P. Evans       35 Sutton Pl.          New York         NY
444        Gale Curtis          35 Valley Dr.          Morristown       CA
144        Mr. & Mrs. H. Irving 20 Thorpe Rd.          Lexington        FL
354        D. Taylor            17 Haven Dr.           Bennington       VA
117        Loretta Rizzo        10 Webster St.         Harrington       TX
411        Alyson Gallagher     1789 Williams Ave.     Washington       DC
194        Mr. & Mrs. J. Hynes  90 Harlow Ct.          Stanton          LA
355        S. Taylor            17 Haver Dr.           Bennington       VA
```

Press RETURN to get the second page of information. At the end of the final screen of information you always get an ITEMS LISTED message and the TCL prompt is re-displayed.

3.1.1 Rules for typing the ENGLISH statement

You typed an ENGLISH language statement and received an answer. Like everyday ENGLISH, the ENGLISH Retrieval Language has certain rules that you must follow to get information. These rules cover the order of words in a statement, spacing and so on, are called the "syntax" of the language.

When you typed the statement above, you used the "verb" LIST. Verbs always come first in an ENGLISH language statement. GUESTS is the "file name" which usually comes second. NAME ADDRESS CITY ARRIVAL-DATE are

specific pieces of information called 'attributes' which you want to retrieve from the file. You type the attribute names in the order you want the information to appear. Always press RETURN when you finish typing a statement. Later in Chapter 14 you will use the data section name FEB. This follows on after the file name, separated by a comma.

3.1.2 Explanation of screen output

Notice the series of numbers in the left-hand column, under the heading GUESTS. The numbers are item-IDs and the heading is the file name. The systems staff who set up the GUESTS file, assigned these item-IDs and file name. These always appear on the screen unless you suppress them.

The four remaining columns show the attribute data in the order that you typed them in the ENGLISH statement.

3.2 Listing information in a different order

See what happens when you type,

```
LIST GUESTS STATE NAME ADDRESS CITY
```

and press `RETURN`.

The screen displays the following screenshot:

```
PAGE 1

GUESTS.... State Guest Name.......... Address.............. City..........

119           CT Barry R. Scott       90 Alpine St.         Harrison
140           NM Susan P. Lynch       55 Hale Rd.           Waltham
147           CA Loretta T. Janson    23 Glenborn Av.       Los Angeles
428           VA Helen Postma         31 Windmill Ave.      Richmond
309           NY Robert S. Mendell    545 Parker Ave.       New York
365           TX Marilyn T. Ferguson  101 Harding Rd.       Belmont
211           NJ David M. Lewis       40 Lakeview Dr.       Alpha
401           GA Sharon R. Palmer     39 Chambers St.       Atlanta
289           TX Mr. & Mrs S.         20 High St.           Houston
                 Fennelly
142           CA Jerry D. Madison     27411 Trabuco Circle  Mission Viejo
478           NH Harold F. Kolman     98 Tyler St.          N. Conway
318           CT Janis M. Petrillo    167 Market Sq.        Haddonfield
234           MA Michael McSweeney    1015 Harrison Blvd.   Cambridge
122           NH Richard T. Anderson  153 Windsor Dr.       Concord
143           MA William Hennessey    11 Ellison Rd.        Lexington
535           NY Linda P. Evans       35 Sutton Pl.         New York
444           CA Gale Curtis          35 Valley Dr.         Morristown
144           FL Mr. & Mrs. H. Irving 20 Thorpe Rd.         Lexington
354           VA D. Taylor            17 Haven Dr.          Bennington
117           TX Loretta Rizzo        10 Webster St.        Harrington
411           DC Alyson Gallagher     1789 Williams Ave.    Washington
194           LA Mr. & Mrs. J. Hynes  90 Harlow Ct.         Stanton
355           VA S. Taylor            17 Haver Dr.          Bennington
```

Press `RETURN` to display the second page of information.

You can see that the screen displays the information differently this time, to reflect the different order of attribute names in the statement from that of the

previous statement. However, note that the item-IDs are still in the left-hand column under the file name GUESTS.

3.3 What happens when you make a mistake

Remember, if you make a mistake in a statement, just press the BACKSPACE until you reach your mistake, correct it, re-type the rest of the word, and continue. Try typing,

```
LIST GURSTS
```

and correct your mistake with BACKSPACE before you press RETURN.

The screen displays the following screenshot:

```
PAGE 1

GUESTS.... Guest Name.......... Address.............. City......... Arrival.
                                                                    Date

119        Barry R. Scott       90 Alpine St.         Harrison      21/04/91
140        Susan P. Lynch       55 Hale Rd.           Waltham       17/04/91
147        Loretta T. Janson    23 Glenborn Av.       Los Angeles   19/04/91
428        Helen Postma         31 Windmill Ave.      Richmond      19/04/91
309        Robert S. Mendell    545 Parker Ave.       New York      17/04/91
365        Marilyn T. Ferguson  101 Harding Rd.       Belmont       19/04/91
211        David M. Lewis       40 Lakeview Dr.       Alpha         15/04/91
401        Sharon R. Palmer     39 Chambers St.       Atlanta       17/04/91
289        Mr. & Mrs S.         20 High St.           Houston       19/04/91
           Fennelly
142        Jerry D. Madison     27411 Trabuco Circle  Mission Viejo 18/04/91
478        Harold F. Kolman     98 Tyler St.          N. Conway     21/04/91
318        Janis M. Petrillo    167 Market Sq.        Haddonfield   15/04/91
234        Michael McSweeney    1015 Harrison Blvd.   Cambridge     18/04/91
122        Richard T. Anderson  153 Windsor Dr.       Concord       20/04/91
143        William Hennessey    11 Ellison Rd.        Lexington     17/04/91
535        Linda P. Evans       35 Sutton Pl.         New York      20/04/91
444        Gale Curtis          35 Valley Dr.         Morristown    21/04/91
144        Mr. & Mrs. H. Irving 20 Thorpe Rd.         Lexington     15/04/91
```

Press RETURN to display the second page.

3.4 Default attributes

This time you dID not type a list of the attribute names, but the screen displayed NAME ADDRESS, CITY and ARRIVAL-DATE. The system displays these attribute names by default unless you specify one or more attribute names. They are the "default attribute" names for the GUESTS file. The systems staff who set up the database assigned the default attributes.

The list of attributes in a command is also known as the "output specification" or "output-spec" because the attribute names specify what your output will contain.

To see the default attribute names for the ROOMS file, type,

```
LIST ROOMS
```

(Without an output-spec) and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.. Room Room..... Bed..... Room... Current Guest. Leave... Available
        Code Type      Type     Rate                    Date

321     DL   Deluxe    King      82.00
329     DL   Deluxe    WaterBed 104.00
140     S    Single Occ. Queen    68.00 Lynch           21/04/91  21/04/91
119     D    Double Occ. Double   64.00 Scott           22/04/91  22/04/91
147     D    Double Occ. King     72.00 Janson          02/05/91  04/05/91
428     DL   Deluxe    King      82.00 Postma          22/04/91  22/04/91
309     DL   Deluxe    King      82.00 Mendell         21/04/91  23/04/91
211     DL   Deluxe    King      82.00 Lewis           21/04/91  23/04/91
365     ST   Suite     WaterBed 104.00 Ferguson        30/04/91  01/05/91
142     D    Double Occ. King     72.00 Madison         26/04/91  26/04/91
289     DL   Deluxe    King      82.00 Fennelly        02/05/91  04/05/91
401     DL   Deluxe    King      82.00 Palmer          25/04/91  27/04/91
478     ST   Suite     King      82.00 Kolman          30/04/91  02/05/91
535     P    Penthouse WaterBed 164.00 Evans          25/04/91  25/04/91
318     ST   Suite     WaterBed 104.00 Petrillo        23/05/91  24/04/91
143     S    Single Occ. Queen    68.00 Hennessey       30/04/91  01/05/91
122     S    Single Occ. Double   64.00 Anderson        03/05/91  03/05/91
234     ST   Suite     King      82.00 McSweeney       27/04/91  28/04/91
444     ST   Suite     King      82.00 Curtis          27/04/91  27/04/91
```

Press `RETURN` to display the second page.

3.5 Summary

In this chapter you have learned the following:

- How to use the LIST verb
- How to create an ENGLISH Retrieval Language statement
- How to correct typing mistakes
- What happens when you ask for a file without specifying the output you want

Section 4: Sorting information

4.1 The SORT verb

You can use the SORT verb to organize information in order, either alphabetically or numerically. In this chapter, you will see how you can use SORT to organise the same information in a variety of different ways.

For example, type,

SORT GUESTS NAME ARRIVAL-DATE ADDRESS CITY

and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

GUESTS .... Guest Name ........  Arrival.  Address ..........   City .......
                                 Date

117         Loretta Rizzo        16/04/91  10 Webster St.       Harrington
119         Barry R. Scott       21/04/91  90 Alpine St.        Harrison
122         Richard T. Anderson  20/04/91  153 Windsor Dr.      Concord
140         Susan P. Lynch       17/04/91  55 Hale Rd.          Waltham
142         Jerry D. Madison     18/04/91  27411 Trabuco Circle Mission Viejo
143         William Hennessey    17/04/91  11 Ellison Rd.       Lexington
144         Mr. & Mrs. H.Irving  15/04/91  20 Thorpe Rd.        Lexington
147         Loretta T. Janson    19/04/91  23 Glenborn Av.       Los Angeles
194         Mr. & Mrs. J Hynes   18/04/91  90 Harlow Ct.        Stanton
211         David M. Lewis       15/04/91  40 Lakeview Dr.      Alpha
222         Michael T. O'Brien   15/04/91  286 Tremont Ave.     Asbury
234         Michael McSweeney    18/04/91  1015 Harrison Blvd.  Cambridge
289         Mr. & Mrs. S.        19/04/91  20 High St.          Houston
            Fennelly
309         Robert S. Mendell    17/04/91  545 Parker Ave.      New York
318         Janis M. Petrillo    15/04/91  167 Market Sq.       Haddonfield
354         D. Taylor            15/04/91  17 Haven Dr.         Bennington
355         S. Taylor            20/04/91  17 Haver Dr.         Bennington
365         Marilyn T. Ferguson  19/04/91  101 Harding Rd.      Belmont
```

Press RETURN to display the second page.

Scroll back the screen and notice that SORT organizes the item information according to the item-IDs, arranging them in ascending order. Unlike LIST which displayed the items in the order they are stored in the data section.

4.2 Sorting by Specified Attribute

You may want to arrange information in other ways. For example, type,

SORT GUESTS BY ARRIVAL-DATE ARRIVAL-DATE NAME ADDRESS CITY

and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

GUESTS ... Arrival.  Guest Name .......  Address ..........   City .......
           Date

144        15/04/91  Mr. & Mrs. H.Irving 20 Thorpe Rd.        Lexington
211        15/04/91  David M. Lewis      40 Lakeview Dr.       Alpha
222        15/04/91  Michael T. O'Brien  286 Tremont Ave.     Asbury
318        15/04/91  Janis M. Petrillo   167 Market Sq.       Haddonfield
354        15/04/91  D. Taylor           17 Haven Dr.          Bennington
117        16/04/91  Loretta Rizzo       10 Webster St.        Harrington
140        17/04/91  Susan P. Lynch      55 Hale Rd.           Waltham
143        17/04/91  William Hennessey   11 Ellison Rd.        Lexington
309        17/04/91  Robert S. Mendell   545 Parker Ave.       New York
401        17/04/91  Sharon R. Palmer    39 Chambers St.       Atlanta
142        18/04/91  Jerry D. Madison    27411 Trabuco Circle  Mission Viejo
194        18/04/91  Mr & Mrs J Hynes    90 Harlow Ct.         Stanton
234        18/04/91  Michael McSweeney   1015 Harrison Blvd.   Cambridge
147        19/04/91  Loretta T. Janson   23 Glenborn Ave.      Los Angeles
289        19/04/91  Mr & Mrs S.         20 High St.           Houston
                     Fennelly
365        19/04/91  Marilyn T. Ferguson 101 Harding Rd.       Belmont
428        19/04/91  Helen Postma        31 Windmill Ave.      Richmond
122        20/04/91  Richard. T Anderson 153 Windsor Dr.       Concord
```

Press RETURN to display the second page. This time the guests are arranged in ascending order of arrival dates.

Notice that the words ARRIVAL-DATE appear twice in the ENGLISH statement.
This is because BY ARRIVAL-DATE does not produce output to the screen or the printer. It simply tells the system how to sort the items, that is, it is a "sorting specification". You typed ARRIVAL-DATE again to tell ENGLISH to display the arrival date. This is the output-spec.

LIST (file name) BY performs in a similar way to SORT (file name) BY.

4.3 Sorting in descending order

When you use SORT or BY, the ENGLISH language organizes the information you want in ascending order. You can also get information in descending order. Type the following:

LIST GUESTS BY-DSND ARRIVAL-DATE ARRIVAL-DATE NAME ADDRESS CITY
and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

GUESTS ... Arrival.  Guest Name .......  Address ..........   City .......
           Date

119        21/04/91  Barry R. Scott      90 Alpine St.        Harrison
411        21/04/91  Alyson Gallagher    1789 Williams Ave.   Washington
444        21/04/91  Gale Curtis         35 Valley Dr.        Morristown
478        21/04/91  Harold F. Kolman    98 Tyler St.         N. Conway
122        20/04/91  Richard T. Anderson 153 Windsor Dr.      Concord
355        20/04/91  S. Taylor           17 Haver Dr.         Bennington
535        20/04/91  Linda P. Evans      35 Sutton Pl.        New York
147        19/04/91  Loretta T. Janson   23 Glenborn Ave.     Los Angeles
289        19/04/91  Mr & Mrs S.         20 High St.          Houston
                     Fennelly
365        19/04/91  Marilyn T. Ferguson 101 Harding Rd.      Belmont
428        19/04/91  Helen Postma        31 Windmill Ave.     Richmond
142        18/04/91  Jerry D. Madison    27411 Trabuco Circle Mission Viejo
194        18/04/91  Mr & Mrs J Hynes    90 Harlow Ct.        Stanton
234        18/04/91  Michael McSweeney   1015 Harrison Blvd.  Cambridge
140        17/04/91  Susan P. Lynch      55 Hale Rd.          Waltham
143        17/04/91  William Hennessey   11 Ellison Rd.       Lexington
309        17/04/91  Robert S. Mendell   545 Parker Ave.      New York
401        17/04/91  Sharon R. Palmer    39 Chambers St.      Atlanta
117        16/04/91  Loretta Rizzo       10 Webster St.       Harrington
```

Press RETURN to display the second page. Notice that the arrival dates are in descending order.

You must always type the attribute name used in the sorting criteria again if you want that piece of information to be output. In the above example, you typed BYDSND ARRIVAL-DATE to sort the information in descending order of arrival date and you typed ARRIVAL-DATE again to display Arrival Date. You can use any attribute name to sort on, in ascending or descending order.

4.4 Summary

In this chapter you have learned the following:

- How to sort information
- How to sort information in ascending and descending order

Section 5: Selecting items

5.1 Using WITH to select items

You now know how to get selected information about all items in a particular file and how to organize that information in ascending or descending order. However, you may not always want information about all the items in a file. For example, you might want to see only the single hotel rooms. To do this, type,

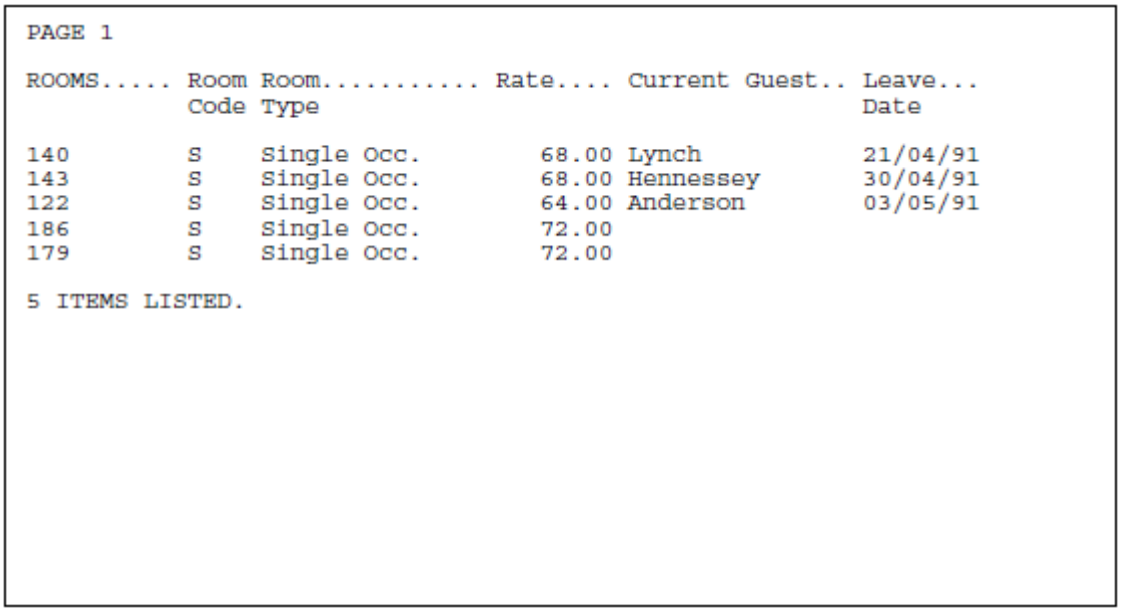
```
LIST ROOMS WITH ROOM-CODE "S" ROOM-CODE ROOM-TYPE RATE
GUEST-NAME LEAVE-DATE
```

and press RETURN.

ROOM-CODE is the attribute name against which you make the selection using the modifier WITH. 'S' is the value of ROOM-CODE for single rooms.

Remember to enclose values in double quotes " ". The ENGLISH Retrieval Language does not recognize values of attribute unless they are enclosed in double quotes.

The screen displays the following screenshot:

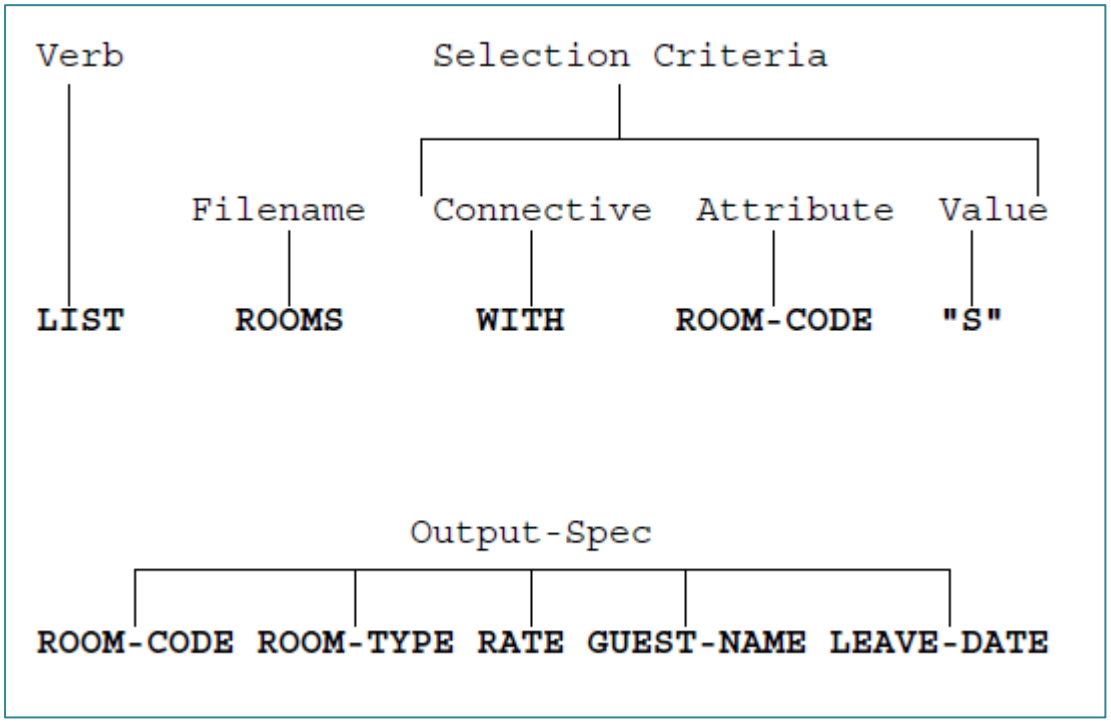


```
PAGE 1

ROOMS..... Room Room........... Rate.... Current Guest.. Leave...
           Code Type                                      Date

140        S    Single Occ.       68.00 Lynch           21/04/91
143        S    Single Occ.       68.00 Hennessey       30/04/91
122        S    Single Occ.       64.00 Anderson        03/05/91
186        S    Single Occ.       72.00
179        S    Single Occ.       72.00

5 ITEMS LISTED.
```

WITH ROOM-CODE "S" is the "selection criterion" that specifies which items you wish to select. This must be placed immediately after the file name, before any sorting specifications or output-specs. Selection criteria help you to narrow down the output and retrieve only the information you want from the database. In this case the screen displays only those items that have a ROOM-CODE equal to S (single rooms).

IF performs in the same way as WITH, so that WITH and IF can be used interchangeably.

The following diagram shows the different parts of the ENGLISH language statement which you have just typed.



5.2 Using relational operators

Relational operators tell the ENGLISH processor to compare attribute values with a specified value and display those which satisfy the operator specification. Work through the following examples to gain an understanding of their use.

5.2.1 = or EQ

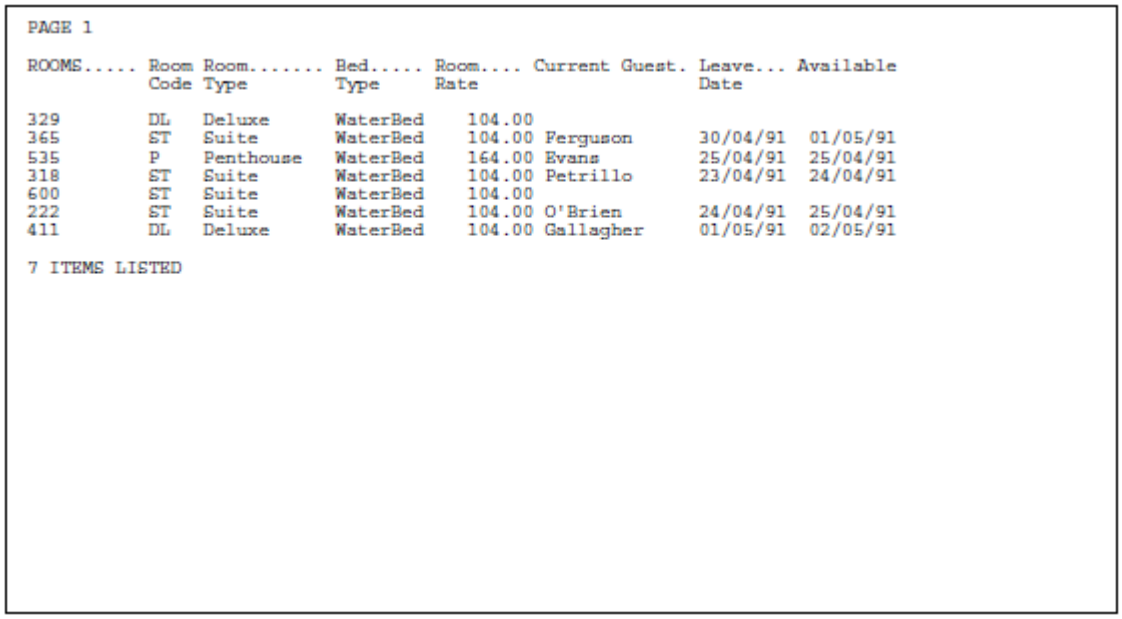
These two operators both mean "equal to" or "same as". For example, type,

```
LIST ROOMS WITH BED-CODE = "WB"
```

and press `RETURN`.

This means, display only those rooms with Bed-type 'equal to "WB"', that is, with a Water Bed.

The screen displays the following screenshot:



```
PAGE 1

ROOMS..... Room Room..... Bed..... Room.... Current Guest. Leave... Available
           Code Type       Type     Rate                     Date

329        DL   Deluxe     WaterBed   104.00
365        ST   Suite      WaterBed   104.00 Ferguson       30/04/91  01/05/91
535        P    Penthouse  WaterBed   164.00 Evans          25/04/91  25/04/91
318        ST   Suite      WaterBed   104.00 Petrillo       23/04/91  24/04/91
600        ST   Suite      WaterBed   104.00
222        ST   Suite      WaterBed   104.00 O'Brien        24/04/91  25/04/91
411        DL   Deluxe     WaterBed   104.00 Gallagher      01/05/91  02/05/91

7 ITEMS LISTED
```

You can also use EQ which performs the same function as the '=' sign. As you have already seen in previous examples '=' is the default relational operator. This means that if you type a value in an ENGLISH statement but do not specify a relational operator, ENGLISH assumes you mean '='. Be sure to leave a space before and after '=' and all other relational operators.

5.2.2 >, GT, and AFTER

These operators select those items which are greater than or more than a specific value. For example, suppose you want to see only the rooms that cost more than £70.00 per night. Type the following:

```
LIST ROOMS WITH RATE > "70.00" ROOM-CODE ROOM-TYPE RATE
GUEST-NAME LEAVE-DATE
```

and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

ROOMS..... Room Room..... Rate.... Current Guest.. Leave...
           Code Type                                Date

321        DL   Deluxe        82.00
329        DL   Deluxe       104.00
147        D    Double Occ.   72.00 Janson          02/05/91
428        DL   Deluxe        82.00 Postma          22/04/91
309        DL   Deluxe        82.00 Mendell         21/04/91
211        DL   Deluxe        82.00 Lewis           21/04/91
365        ST   Suite        104.00 Ferguson        30/04/91
142        D    Double Occ.   72.00 Madison         26/04/91
289        DL   Deluxe        82.00 Fennelly        02/05/91
401        DL   Deluxe        82.00 Palmer          25/04/91
478        ST   Suite         82.00 Kolman          30/04/91
535        P    Penthouse    164.00 Evans           25/04/91
318        ST   Suite        104.00 Petrillo        23/04/91
234        ST   Suite         82.00 McSweeney       27/04/91
444        ST   Suite         82.00 Curtis          27/04/91
186        S    Single Occ.   72.00
179        S    Single Occ.   72.00
354        ST   Suite         82.00 Taylor          28/04/91
600        ST   Suite        104.00
```

Press RETURN to display the second page.

LIST ROOMS WITH RATE > "70.00" means display only those rooms that cost more than $70.00.

You can also use GT and AFTER, which perform the same as >.

Remember to use double quotes " " around the value 70.00. Note that you cannot type the value in the format $70.00, $70 or 7000, as for this database, the ENGLISH processor recognizes the 70.00 format only.

Check with your System Manager for the format you should use for decimal numbers in your database.

5.2.3 <, LT, BEFORE>

These operators select items "less than", or "earlier in alphanumeric order than", a specified value. For example, if you want to retrieve information for rooms with number less than 300, type,

```
LIST ROOMS < '300' ROOM-TYPE RATE GUEST-NAME
```

and press RETURN.

Remember to use single quotes ' ' around the ROOM number (300 in this example) as it is a value being compared with item-IDs to create an item list. When specifying an attribute value, it must be enclosed in double quotes.

The screen displays the following screenshot:

```
PAGE 1

ROOMS..... Room..... Rate.... Current Guest..
           Type

140        Single Occ.      68.00 Lynch
119        Double Occ.      64.00 Scott
147        Double Occ.      72.00 Janson
211        Deluxe           82.00 Lewis
142        Double Occ.      72.00 Madison
289        Deluxe           82.00 Fennelly
143        Single Occ.      68.00 Hennessey
122        Single Occ.      64.00 Anderson
234        Suite            82.00 McSweeney
186        Single Occ.      72.00
179        Single Occ.      72.00
144        Double Occ.      68.00 Irving
117        Double Occ.      72.00 Rizzo
194        Double Occ.      64.00 Hynes
222        Suite           104.00 O'Brien

15 ITEMS LISTED.
```

Notice that the statement has only selected rooms with a Room Number less than 300.

You can also use LT and BEFORE instead of '<'. These mean the same as <.

5.2.4 BETWEEN

This operator selects items "between, but not equal to", the specified values. Type the following:

```
LIST GUESTS WITH LENGTH-OF-STAY BETWEEN "1" AND "7" NAME
ARRIVAL-DATE LEAVE-DATE STAY
```

and press RETURN.

The screen displays the following:

```
PAGE 1

GUESTS.... Guest Name.......... Arrival. Leave Date Length.
                                Date                of Stay

140        Susan P. Lynch       17/04/91   21/04/91       4
428        Helen Postma         19/04/91   22/04/91       3
309        Robert S. Mendell    17/04/91   21/04/91       4
211        David M. Lewis       15/04/91   21/04/91       6
535        Linda P. Evans       20/04/91   25/04/91       5
444        Gale Curtis          21/04/91   27/04/91       6
117        Loretta Rizzo        16/04/91   21/04/91       5
355        S. Taylor            20/04/91   23/04/91       3

8 ITEM LISTED
```

Notice that, in the above example, selection is restricted to those guests staying 2, 3, 4, 5 or 6 nights, that is BETWEEN "1" AND "7".

5.2.5 NE,

NE or # means "not equal to" in the ENGLISH language.
For example, type,

```
LIST ROOMS WITH ROOM-CODE NE "DL" ROOM-CODE RATE GUEST-NAME
LEAVE-DATE
```

and press RETURN. The display includes only the rooms with a 'Room-Code not equal to DL'.

The screen displays the following screenshot:

```
PAGE 1

ROOMS..... Room Rate.... Current Guest.. Leave...
           Code                          Date

140        S       68.00 Lynch           21/04/91
119        D       64.00 Scott           22/04/91
147        D       72.00 Janson          02/05/91
365        ST     104.00 Ferguson        30/04/91
142        D       72.00 Madison         26/04/91
478        ST      82.00 Kolman          30/04/91
535        P      164.00 Evans           25/04/91
318        ST     104.00 Petrillo        23/04/91
143        S       68.00 Hennessey       30/04/91
122        S       64.00 Anderson        03/05/91
234        ST      82.00 McSweeney       27/04/91
444        ST      82.00 Curtis          27/04/91
186        S       72.00
179        S       72.00
144        D       68.00 Irving          27/04/91
354        ST      82.00 Taylor          28/04/91
600        ST     104.00
117        D       72.00 Rizzo           21/04/91
194        D       64.00 Hynes           30/04/91
```

Press RETURN to display the second page.

Notice that the display includes only the Rooms with a Room Code not equal to DL.

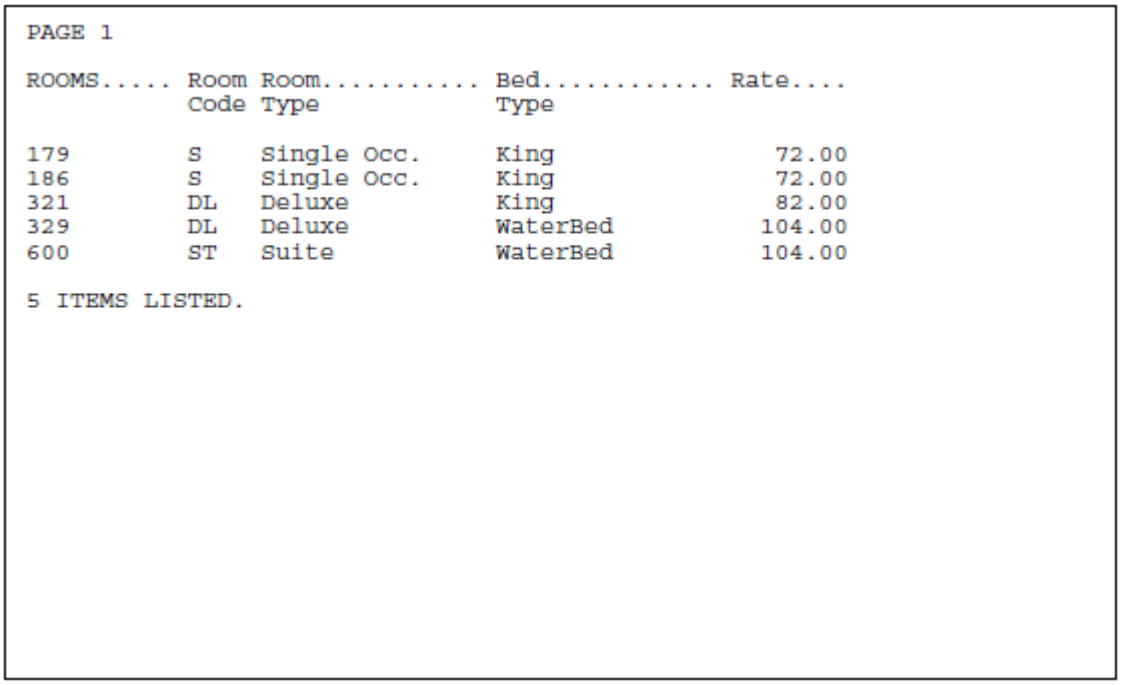
5.3 Using modifiers to select items

You can use the modifiers NO and NOT to test for the absence of data in a data section, to select some items and not others. Type the following:

```
SORT ROOMS WITH NO GUEST GUEST-NAME ROOM-CODE ROOM-TYPE BEDTYPE
RATE
```

and press RETURN.

The screen displays the following screenshot:



```
PAGE 1

ROOMS..... Room Room........... Bed............ Rate....
           Code Type            Type

179        S    Single Occ.     King              72.00
186        S    Single Occ.     King              72.00
321        DL   Deluxe          King              82.00
329        DL   Deluxe          WaterBed         104.00
600        ST   Suite           WaterBed         104.00

5 ITEMS LISTED.
```

Notice that in this case the ENGLISH statement chooses the rooms that have no current guest.

5.4 Connectives

The "connectives" AND and OR enable you to select items using two or more selection criteria given in an ENGLISH statement and to specify whether each item selected is to satisfy some or all the criteria.

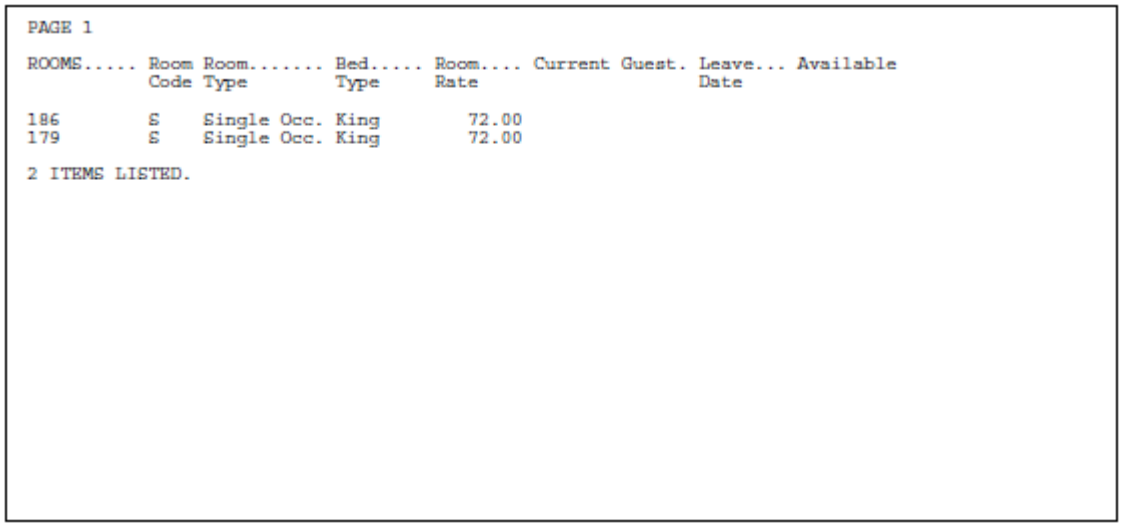
5.4.1 AND Connective

The AND Connective enables you to select items that satisfy two or more criteria at once.
You can use as many ANDs as you want in an ENGLISH statement but remember to type 'WITH' immediately after each. For example, if you type,

```
LIST ROOMS WITH ROOM-CODE "S" AND WITH BED-CODE "K" AND WITH RATE "72.00"
```

and press RETURN.

The screen displays the following screenshot:



```
PAGE 1

ROOMS..... Room Room..... Bed..... Room.... Current Guest. Leave... Available
           Code Type       Type     Rate                    Date

186        S    Single Occ. King       72.00
179        S    Single Occ. King       72.00

2 ITEMS LISTED.
```

Notice that the statement has chosen only single rooms which cost $72.00 and also have a King-size Bed.

5.4.2 OR Connective

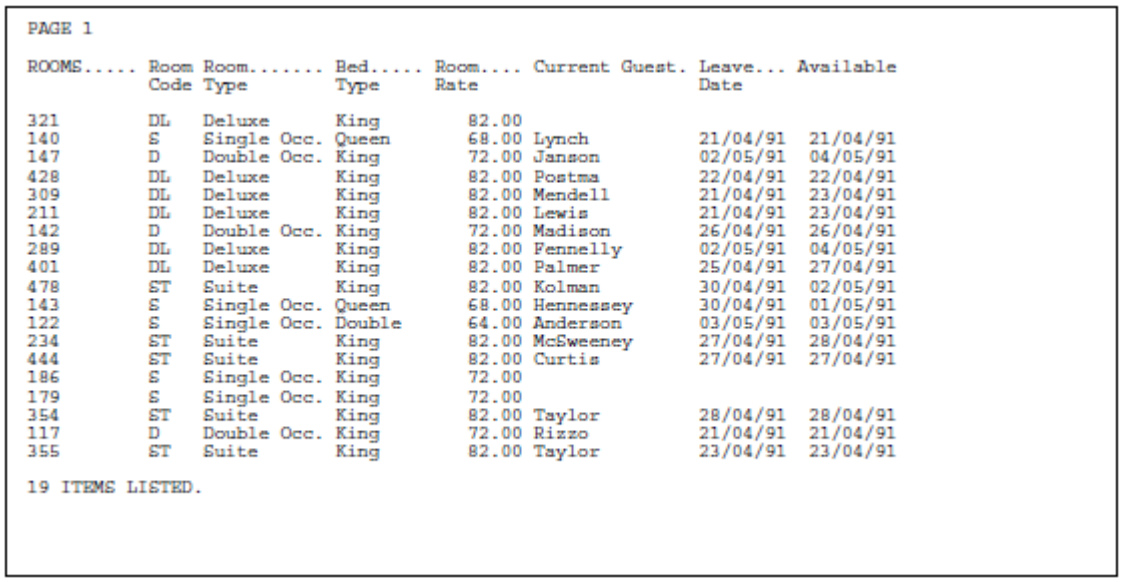
The OR connective enables you to select information that satisfies at least one of several criteria. You can use as many ORs as you wish.

Try out the following example, type,

`LIST ROOMS WITH ROOM-CODE "S" OR WITH BED-CODE "K"`

and press `RETURN`.

The screen displays the following screenshot:



```
PAGE 1

ROOMS..... Room Room..... Bed..... Room.... Current Guest. Leave... Available
           Code Type       Type     Rate                    Date

321        DL   Deluxe     King       82.00
140        S    Single Occ. Queen      68.00 Lynch           21/04/91  21/04/91
147        D    Double Occ. King       72.00 Janson          02/05/91  04/05/91
428        DL   Deluxe     King       82.00 Postma          22/04/91  22/04/91
309        DL   Deluxe     King       82.00 Mendell         21/04/91  23/04/91
211        DL   Deluxe     King       82.00 Lewis           21/04/91  23/04/91
142        D    Double Occ. King       72.00 Madison         26/04/91  26/04/91
289        DL   Deluxe     King       82.00 Fennelly        02/05/91  04/05/91
401        DL   Deluxe     King       82.00 Palmer          25/04/91  27/04/91
478        ST   Suite      King       82.00 Kolman          30/04/91  02/05/91
143        S    Single Occ. Queen      68.00 Hennessey       30/04/91  01/05/91
122        S    Single Occ. Double     64.00 Anderson        03/05/91  03/05/91
234        ST   Suite      King       82.00 McSweeney       27/04/91  28/04/91
444        ST   Suite      King       82.00 Curtis          27/04/91  27/04/91
186        S    Single Occ. King       72.00
179        S    Single Occ. King       72.00
354        ST   Suite      King       82.00 Taylor          28/04/91  28/04/91
117        D    Double Occ. King       72.00 Rizzo           21/04/91  21/04/91
355        ST   Suite      King       82.00 Taylor          23/04/91  23/04/91

19 ITEMS LISTED.
```

Press `RETURN` to display the second page.

Notice that the statement has chosen the single rooms and the rooms with a King-size Bed, that is, all the rooms satisfying one or more of the specified criteria.

If you type more than one WITH in an ENGLISH statement but do not precede each with AND or OR, ENGLISH assumes you mean OR, that is, OR is the "default connective". For example, type,

```
LIST GUESTS WITH PAYMENT-CODE "AMEX" WITH BILL-TOTAL >
"100.00" NAME STATE BILL-TOTAL PAYMENT-CODE
```

and press RETURN.

Remember to always enclose attribute values you use for selection in double quotes " ". In this example, 100.00 and AMEX.

The screen displays the following screenshot:

```
PAGE 1

GUESTS.... Guest Name.......... State Bill Total Payment
                                                 Code

119        Barry R. Scott          CT     $97.93 AMEX
140        Susan P. Lynch          NM    $125.71 AMEX
147        Loretta T. Janson       CA    $122.82 C
428        Helen Postma            VA    $152.50 C
309        Robert S. Mendell       NY    $195.87 AMEX
365        Marilyn T. Ferguson     TX    $159.70 BC
211        David M. Lewis          NJ    $241.68 C
401        Sharon R. Palmer        GA    $149.25 C
289        Mr. & Mrs. S.           TX    $157.90 BC
           Fennelly
142        Jerry D. Madison        CA    $138.60 AMEX
478        Harold F. Kolman        NH    $160.00 BC
318        Janis M. Petrillo       CT    $173.21 BC
234        Michael McSweeney       MA    $186.98 DC
535        Linda P. Evans          NY    $281.42 BC
444        Gale Curtis             CA    $204.50 AMEX
354        D. Taylor               VA    $191.38 V
411        Alyson Gallagher        DC    $249.76 AMEX
355        S. Taylor               VA    $191.38 V
222        Michael T. O'Brien      VA    $117.59 C

19 ITEMS LISTED.
```

Press RETURN to display the second page.

Notice that information is displayed for all guests who are charging to American Express or who have current balances greater than $100.00.

5.5 More error messages

If you see a typing mistake before you press RETURN, you can correct it with the BACKSPACE key. However, if you make a typing error and press RETURN without correcting it, the computer communicates with you by displaying an error message telling you that something is wrong with your statement. Some examples for you to try out are given below.

Type the following:

```
SOTR GUESTS
```

and press RETURN.

The screen displays the error message:

```
'SOTR' IS NOT A VERB
```

to help you IDentify the mistake -- an error in the verb, SORT. Now type the following:

```
SORT GUESTS NAME DADRESS
```

and press RETURN.

The screen displays the error message:

```
24] THE WORD "DADRESS" CANNOT BE IDENTIFIED
```

which means that the GUESTS file has no attribute name spelled "DADRESS."
See what happens when you type the following:

```
SORT GUESTS NAME BED-TYPE
```

and press RETURN. The screen displays the error message:

```
[24] THE WORD "BED-TYPE" CANNOT BE IDENTIFIED
```

because BED-TYPE is an attribute name in the ROOMS file, not in the GUESTS file.

Typing relational operators without leaving a space before the character also produces an error message.

Type the following:

```
LIST ROOMS WITH RATE="72.00"
```

and press RETURN.

The error message reads as follows:

```
[24] THE WORD "RATE=" CANNOT BE IDENTIFIED
```

because you dID not leave a space before the relational operator.

Note

Remember to leave a space between words, relational operators and connectives.

If you do not type a pair of single or double quotes, you will get an error message.
Type the following:

```
SORT ROOMS WITH RATE "72.00,'AND WITH ROOM-CODE "S"
```

The error message reads as follows:

```
[2] UNEVEN NUMBER OF SINGLE OR DOUBLE QUOTE-SIGNS (' ").
```

because you dID not type a double quote after the value 72.00.

An error message will appear when you do not type a file name in your statement.

Type the following:

```
LIST ROOM-CODE BED-TYPE RATE
```

The error message reads as follows:

```
[10] FILE NAME MISSING
```

because you forgot to type the file name, ROOMS.

The error message will help you IDentify which part of your statement you typed incorrectly.
Sometimes, however, you will get the following message:

```
[401] NO ITEMS PRESENT
```

This message may mean that there are no items that meet your specifications in the file. However, it may also mean that there is a mistake in your statement, probably in the way you typed one of the values. For example, type:

```
LIST ROOMS WITH RATE "7200"
```

and you will see the following:

```
[401] NO ITEMS PRESENT
```

This is because you dID not type the RATE value in the correct format: "72.00" or "72". When you get error message [401] it is a good IDea to check your statement carefully to make sure it is typed correctly, before you assume that there are no items that meet your specifications.

5.6 Summary

In this chapter you have learned the following:

- How to specify selection criteria, using the modifiers WITH and IF
- How and when to use single quotes ' ' and double quotes " "
- How to use the relational operators >, GT, AFTER, EQ, =, <, LT, BEFORE, BETWEEN, NE, and #
- How to use the modifiers NOT and NO
- How to use the connectives AND and OR
- How to use error messages to IDentify and correct your mistakes

Section 6: Specifying items

6.1 Retrieving items using item-IDs

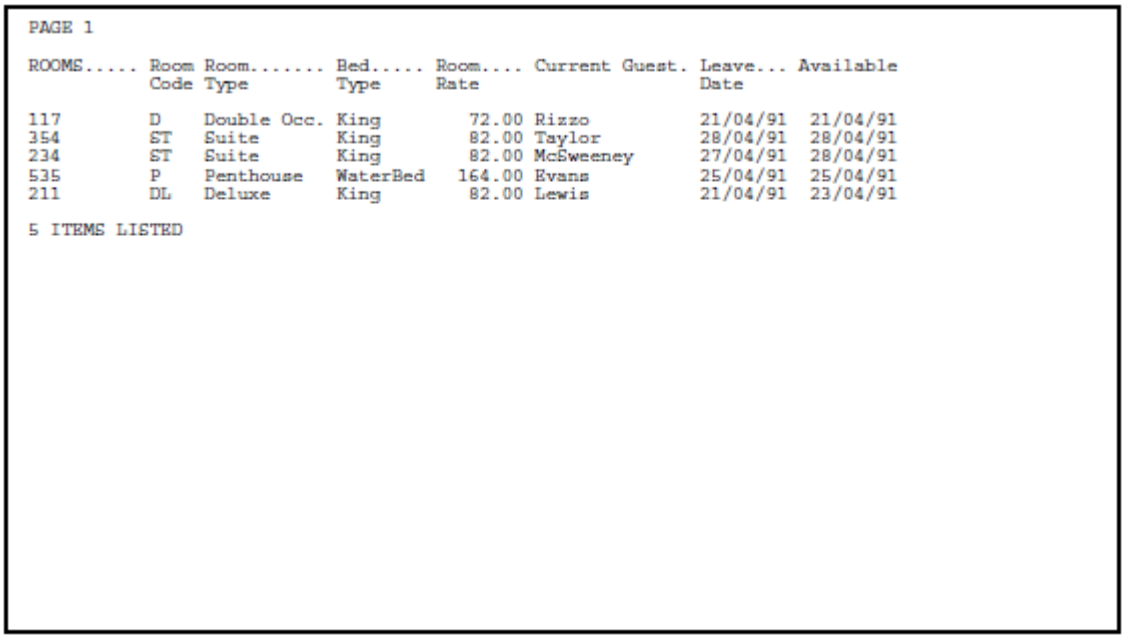
In the previous chapter you learned how to choose items by including selection criteria in the ENGLISH statement. You can also select items by specifying their item-IDs. In the tutorial file ROOMS, item-IDs correspond to room numbers so, for example, to list default information for rooms 117, 354, 234, 535, 211, just type,

```
LIST ROOMS '117''354''234''535''211'
```

and press RETURN.

Remember to always enclose item-IDs in single quotes.

The screen displays the following screenshot:



```
PAGE 1

ROOMS..... Room Room..... Bed..... Room.... Current Guest. Leave... Available
           Code Type       Type      Rate                    Date

117        D    Double Occ. King       72.00 Rizzo           21/04/91  21/04/91
354        ST   Suite       King       82.00 Taylor          28/04/91  28/04/91
234        ST   Suite       King       82.00 McSweeney       27/04/91  28/04/91
535        P    Penthouse   WaterBed  164.00 Evans           25/04/91  25/04/91
211        DL   Deluxe      King       82.00 Lewis           21/04/91  23/04/91

5 ITEMS LISTED
```

Notice that the ENGLISH Retrieval Language displays the items in the order you typed them.

'117' '354' '234' '535' '211' is called the item list.

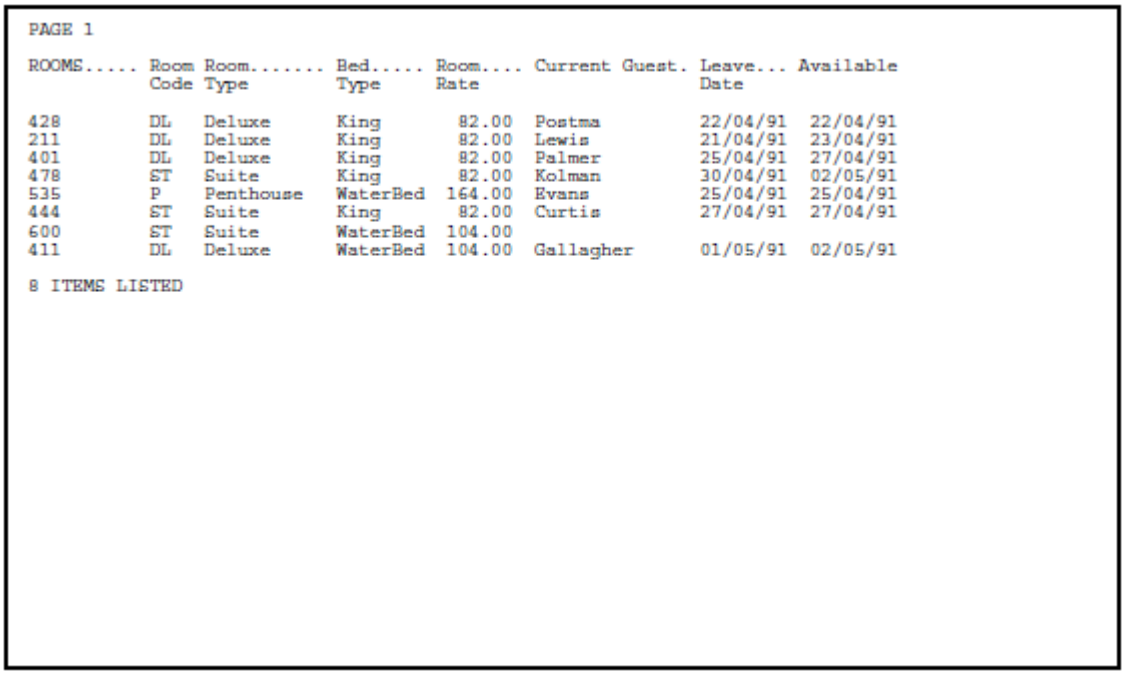
You can also select items by specifying item-IDs using relational operators and connectives.

For example, type,

```
LIST ROOMS > '399' OR = '211'
```

and press RETURN.

The screen displays the following screenshot:



```
PAGE 1

ROOMS..... Room Room..... Bed..... Room.... Current Guest. Leave... Available
           Code Type       Type     Rate                    Date

428        DL   Deluxe     King       82.00  Postma          22/04/91  22/04/91
211        DL   Deluxe     King       82.00  Lewis           21/04/91  23/04/91
401        DL   Deluxe     King       82.00  Palmer          25/04/91  27/04/91
478        ST   Suite      King       82.00  Kolman          30/04/91  02/05/91
535        P    Penthouse  WaterBed  164.00  Evans           25/04/91  25/04/91
444        ST   Suite      King       82.00  Curtis          27/04/91  27/04/91
600        ST   Suite      WaterBed  104.00
411        DL   Deluxe     WaterBed  104.00  Gallagher       01/05/91  02/05/91

8 ITEMS LISTED
```

Notice that the statement has selected the rooms with room numbers higher than 399 and room 211.

6.2 Sorting chosen item-IDs

You can also sort items as you choose them to get information for those rooms. For example, type,

SORT ROOMS '117''354''234''535''211'

and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

ROOMS..... Room Room..... Bed..... Room.... Current Guest. Leave... Available
           Code Type       Type     Rate                    Date

117        D    Double Occ. King       72.00  Rizzo          21/04/91  21/04/91
211        DL   Deluxe      King       82.00  Lewis          21/04/91  23/04/91
234        ST   Suite       King       82.00  McSweeney      27/04/91  28/04/91
354        ST   Suite       King       82.00  Taylor         28/04/91  28/04/91
535        P    Penthouse   WaterBed  164.00  Evans          25/04/91  25/04/91

5 ITEMS LISTED
```

Notice that the room numbers are sorted in ascending order.
If an item you ask for does not exist, the ENGLISH language lets you know. See what happens when you type,

`LIST ROOMS '117''354''234''535''123'`

and press `RETURN`.

The system displays the items it recognizes and displays the message '123' NOT ON FILE for the item it does not have.

6.3 Summary

In this chapter you have learned the following:

- How to choose items from a file by using item-IDs
- How to sort particular items as you select them from the file

Section 7: Making and item-ID list

7.1 The SELECT verb

You can use the SELECT verb to select items from a file and then present them for further processing. For example, type,

```
SELECT ROOMS WITH NO GUEST
```

and press RETURN.

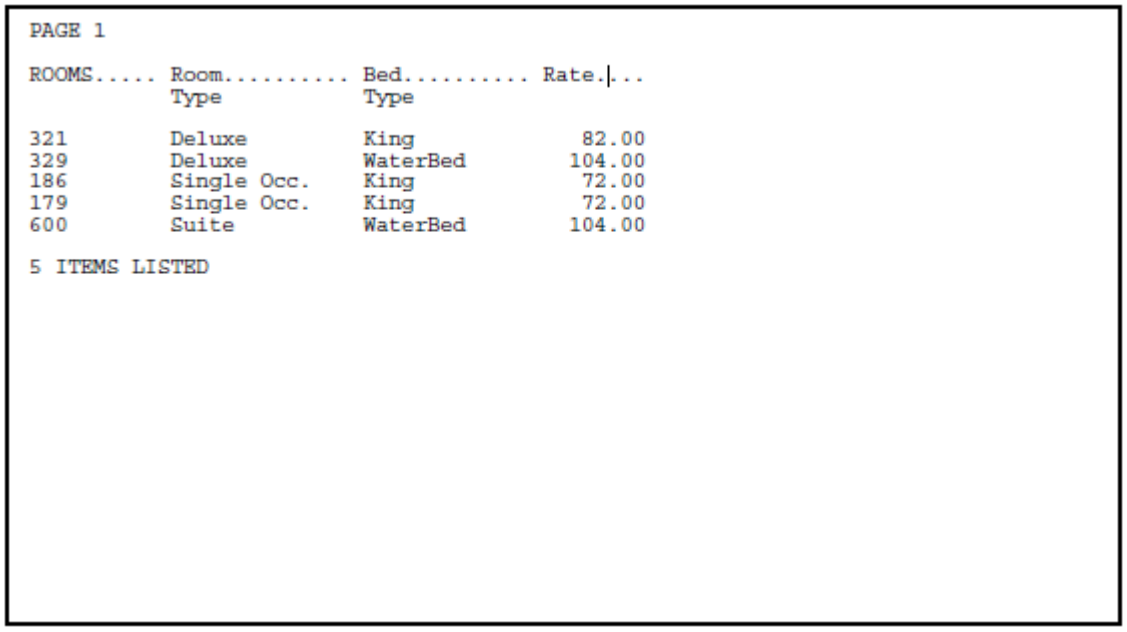
The screen displays the following message:

```
5 ITEMS SELECTED
```
> (This indicates that the next statement will act on the selected items)

Now type,

```
LIST ROOMS ROOM-TYPE BED-TYPE RATE
```
and press RETURN. Note that the selected items, those with no guests, are listed.

The screen displays the following screenshot:



7.2 The SAVE-LIST verb

If you anticipate that you will want to use the selected items many times then you can save them as a list. To do this, type the following:

```
SELECT ROOMS WITH NO GUEST
```

and press RETURN.

The screen displays the following message:

```
5 ITEMS SELECTED
>
```

You can now save the selected items under a name of your choice. DecIDe upon a name (your first name perhaps) and substitute this for 'XYZ' when you type,

SAVE-LIST XYZ

and press RETURN.

The screen displays the following:

```
[241] 'XYZ' CATALOGED; 1 FRAMES USED
```

The list is now filed and available for use at any time.

Note

1. A list formed using the SELECT verb comprises item-IDs only.
2. If 'XYZ' is not specified when the list is saved, then the item-list is saved. as the default-list (which destroys any previous default list). In any subsequent LIST verbs (GET-LIST, DELETE-LIST, etc) the default list is assumed if none is specified.

7.3 The GET-LIST verb

Now to retrieve the list you saved using SAVE-LIST, type,

GET-LIST XYZ
substituting the list name, you chose for XYZ, and press RETURN.

The screen displays the following:

```
5 ITEMS SELECTED
>
```

Notice that the prompt '>' is the same as that displayed by the SELECT verb. Now type

LIST ROOMS WITH ROOM-TYPE = "Single Occ." BED-TYPE RATE

and press RETURN.

Remember to release the CAPS LOCK key to type the value "Single Occ." in lower case with initial capital, then press the CAPS LOCK key again. The room-type values are stored in this form in the Hotel database files and that is how the ENGLISH processor recognises them.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.....  Bed..........  Rate....
            Type

186         King             72.00
179         King             72.00

2 ITEMS LISTED.
```

Notice that the selection WITH ROOM-TYPE = "Single Occ." is only applied to the five rooms in the save-list.

7.3 The DELETE-LIST verb

Now that you have finished with your save list you can delete it. Type the following:

DELETE-LIST XYZ

substituting your list name for XYZ, and press RETURN.

The screen displays the following message:

```
[242] 'XYZ' DELETED
```

7.4 Summary

In this chapter you have learned the following:

- How to form a SELECT list
- How to save a SELECT list
- How to retrieve a saved list
- How to delete a saved list

Section 8: Printing or formatting a report

8.1 Printing output

Until now, ENGLISH has displayed the information you requested on your terminal's screen. When you have typed a new command and pressed RETURN, ENGLISH has cleared the screen and displayed the new information. You may However, want to produce a printed report. To do this you type LPTR at the end of the ENGLISH statement. This sends the output to the printer.
For example, type,

```
SORT GUESTS BY ROOM NAME ARRIVAL-DATE LEAVE-DATE LPTR
```

and press RETURN.

This time you only see the TCL prompt on the next line of the screen. Now go to the printer attached to your system which should print the information you requested.

Note that if your report is very long, the TCL colon prompt may not appear on the screen for a few seconds. This is because when you send a report to the printer, the system first loads the information into a temporary storage area before sending it to the printer.

8.2 Printing a heading message

You may want to print a heading at the top of your printout. Type the following:

```
SORT GUESTS BY ROOM NAME ARRIVAL-DATE LEAVE-DATE HEADING
"TODAYS GUEST LIST" LPTR
```

and press RETURN.

Remember, always enclose the heading string in double quotes " ".

The output should look like the following screenshot:

```
TODAYS GUEST LIST
GUESTS...  Guest Name.........     Arrival.  Leave Date
                                   Date

117        Loretta Rizzo           16/04/91  21/04/91
119        Barry R. Scott          21/04/91  22/04/91
122        Richard T. Anderson     20/04/91  03/05/91
140        Susan P. Lynch          17/04/91  21/04/91
142        Jerry D. Madison        18/04/91  26/04/91
143        William Hennessey       17/04/91  30/04/91
144        Mr. & Mrs. H. Irving    15/04/91  27/04/91
147        Loretta T. Janson       19/04/91  02/05/91
194        Mr. & Mrs. J. Hynes     18/04/91  30/04/91
211        David M. Lewis          15/04/91  21/04/91
222        Michael T. O'Brien      15/04/91  24/04/91
234        Michael McSweeney       18/04/91  27/04/91
289        Mr. & Mrs. S.           19/04/91  02/05/91
           Fennelly
309        Robert S. Mendell       17/04/91  21/04/91
318        Janis M. Petrillo       15/04/91  23/04/91
354        D. Taylor               15/04/91  28/04/91
355        S. Taylor               20/04/91  23/04/91
365        Marilyn T. Ferguson     19/04/91  30/04/91
```

To check that the heading string is generated without having to use the printer, omit the 'LPTR' from the end of the statement. The screen then displays the output shown above.

If you do not use HEADING, a default heading is displayed consisting of the page number, time and date at the top of each page and an ITEMS LISTED message at the end of the report. When you use HEADING, the ENGLISH language deletes the default heading and the ITEMS LISTED message.

HEADING allows you to add your heading specifications to a LIST or SORT statement. ENGLISH displays the heading at the top of each page of printout. "TODAYS GUEST LIST" is called the "heading string".

8.3 Inserting blank lines

You may want to insert blank lines below your heading. The ENGLISH Retrieval Language recognizes the letter L as a line feed command. For example, type **SORT GUESTS BY ROOM NAME ARRIVAL-DATE LEAVE-DATE HEADING "TODAYS GUEST LIST 'LLL'" LPTR** and press RETURN.

Remember to enclose print options such as 'L' in single quotes ' ' within your heading string.

Notice that this time the printout shows the heading, three blank lines and the information you requested.

'LLL' is a "print option" that tells the system to skip three lines between the heading and the rest of the text. Each 'L' represents a line feed. If you want to skip four lines, type 'LLLL'; if you want to skip five lines, type 'LLLLL', and so on.

Do not include double quotes in the heading. You can include a single quote or an apostrophe by typing two single quotes '' each time you want a single quote or apostrophe in the output. For example, if you type **"TODAY''S GUEST LIST"** with two single quotes between the Y and the S of TODAYS, the ENGLISH language will show **TODAY'S GUEST LIST** as the heading.

8.4 Printing a footing message

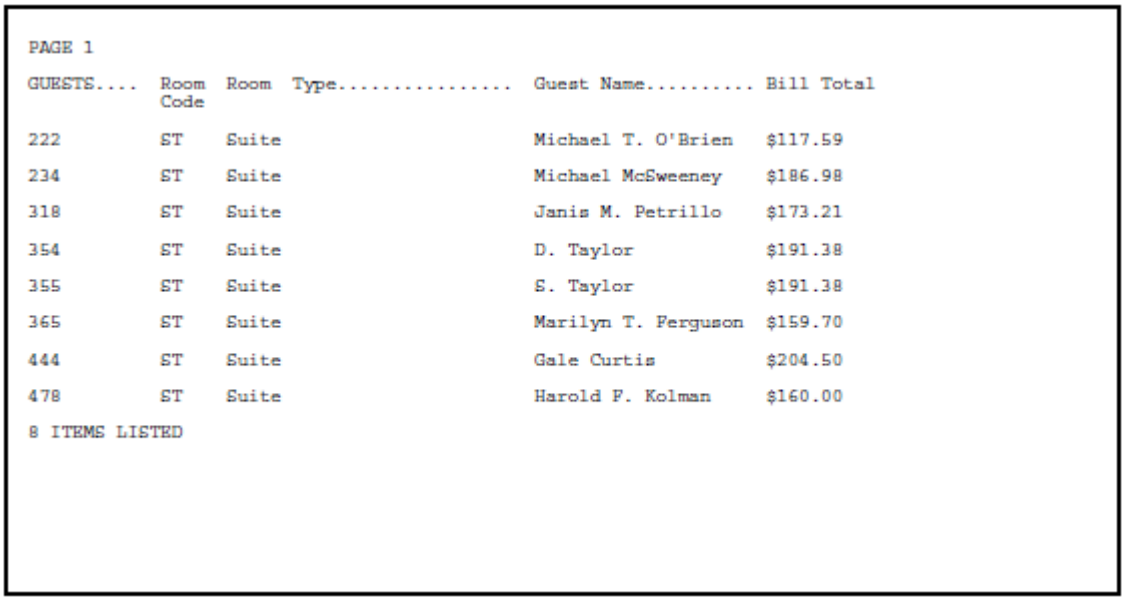
You can also specify a FOOTING, to appear at the bottom of each page. To do this, type, **LIST ROOMS WITH ROOM-CODE "S" ROOM-TYPE RATE AVAILABLE FOOTING "SINGLE ROOM AVAILABILITY" LPTR** and press RETURN.

FOOTING performs just like HEADING except that it does not delete the default heading or the ITEMS LISTED message.

8.5 Double-spacing output

You can use the DBL-SPC command to get a double-spaced screen display or printout. For example, type, **SORT GUESTS WITH ROOM-CODE "ST" BY ROOM ROOM-CODE ROOM-TYPE NAME BILL-TOTAL DBL-SPC** and press RETURN.

The screen displays the following screenshot:



```
PAGE 1
GUESTS....  Room Code  Room  Type.................  Guest Name.....  Bill Total

222         ST         Suite                       Michael T. O'Brien   $117.59
234         ST         Suite                       Michael McSweeney    $186.98
318         ST         Suite                       Janis M. Petrillo    $173.21
354         ST         Suite                       D. Taylor            $191.38
355         ST         Suite                       S. Taylor            $191.38
365         ST         Suite                       Marilyn T. Ferguson  $159.70
444         ST         Suite                       Gale Curtis          $204.50
478         ST         Suite                       Harold P. Kolman     $160.00
8 ITEMS LISTED
```

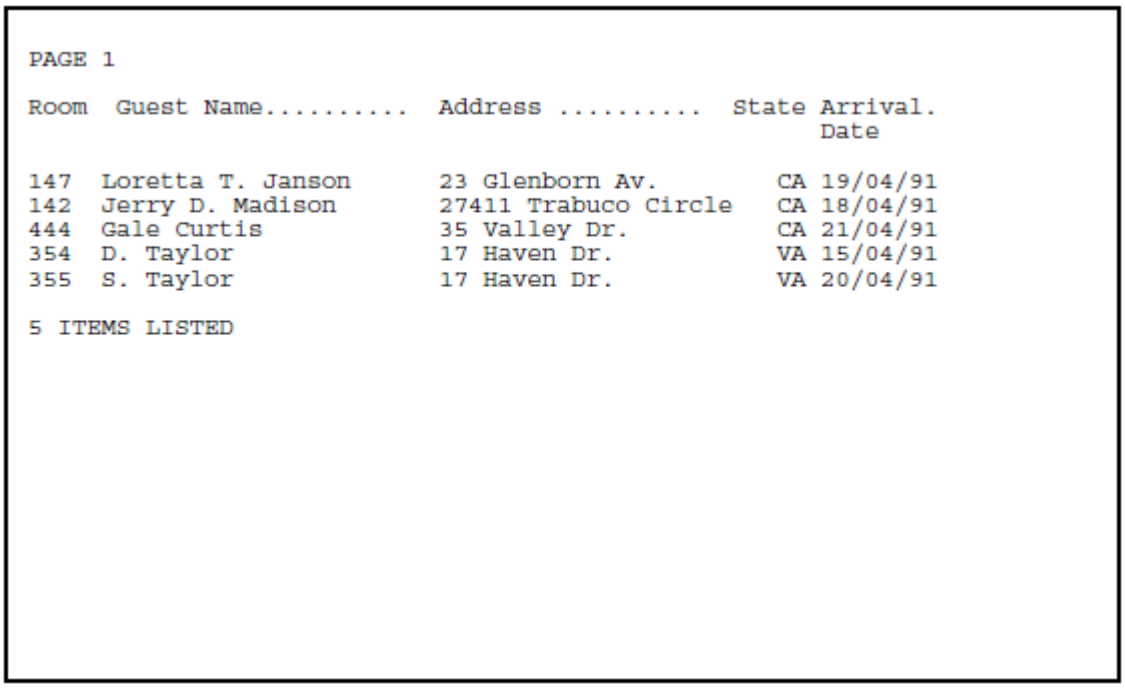
To get a printout of this screen display, type the print option LPTR at the end of your statement.

8.6 Suppressing output of item-IDs

Up to now the screen or printout has always shown the file name and a list of item-IDs in the left-hand column. However, you may want a report without the file name and item-ID. Type **LIST GUESTS WITH LAST-NAME "Taylor" OR WITH STATE "CA" ROOM NAME ADDRESS STATE ARRIVAL-DATE ID-SUPP** and press RETURN.

Remember to release the CAPS LOCK key to type the name "Taylor" in upper and lower case letters and press the CAPS LOCK key again, afterwards. Names are stored in this form in the Hotel database files and that is how ENGLISH recognizes them.

The screen displays the following screenshot:



```
PAGE 1

Room  Guest Name.....  Address .....  State Arrival.
                                           Date

147   Loretta T. Janson     23 Glenborn Av.        CA 19/04/91
142   Jerry D. Madison      27411 Trabuco Circle   CA 18/04/91
444   Gale Curtis           35 Valley Dr.          CA 21/04/91
354   D. Taylor             17 Haven Dr.           VA 15/04/91
355   S. Taylor             17 Haven Dr.           VA 20/04/91

5 ITEMS LISTED
```

ID-SUPP is a modifier which suppresses output of both the item-ID and the column heading.

In the example given above, the file name ROOMS would normally form the lefthand column heading with item-IDs (same as room numbers) listed below. These are suppressed by ID-SUPP.

For a printout without the column heading and item-ID, type ID-SUPP and one of the print options at the end of your ENGLISH language statement.

8.7 More print options

Use print options to format your report. Type **`LIST ROOMS WITH ROOM-CODE "ST" ROOM-TYPE RATE AVAILABLE HDRSUPP FOOTING "'LLLLL' SUITE AVAILABILITY REPORT 'T'" DBL-SPC LPTR`** and press `RETURN`.

The screen displays the following screenshot:

```
ROOMS.....  Room.........  Rate....   Available
            Type

365         Suite           104.00   01/05/91

478         Suite            82.00   02/05/91

318         Suite           104.00   24/04/91

234         Suite            82.00   28/04/91

444         Suite            82.00   27/04/91

354         Suite            82.00   28/04/91

600         Suite           104.00

222         Suite           104.00   25/04/91

355         Suite            82.00   23/04/91
```

HDR-SUPP suppresses the default heading line at the top of the page, that is, in the example, page number and date are suppressed.

DBL-SPC, as described earlier, double-spaces the report output (that is, it inserts a blank line after every detail line in the report).

'T' prints the date and time at the bottom of the page. Type 'D' in your FOOTING string if you want to print the date without the time.

Note

1. The date at the bottom of your printout will be different from the sample printout shown here because the system is updated to the current date.
2. Remember to enclose your FOOTING string in double quotes " " and to enclose print options such as 'T', 'D' and 'L' in single quotes.
3. Each 'L' represents a line feed.

8.8 Summary

In this chapter you have learned the following:

- How to print information
- How to print a heading for your report
- How to insert blank lines within the headings/footings of your report
- How to print a footing for your report
- How to double-space your report
- How to suppress the column heading and item-ID column from your report
- How to suppress the default heading
- How to insert the current time and date

Section 9: Character string searching

9.1 Using a right-hand bracket

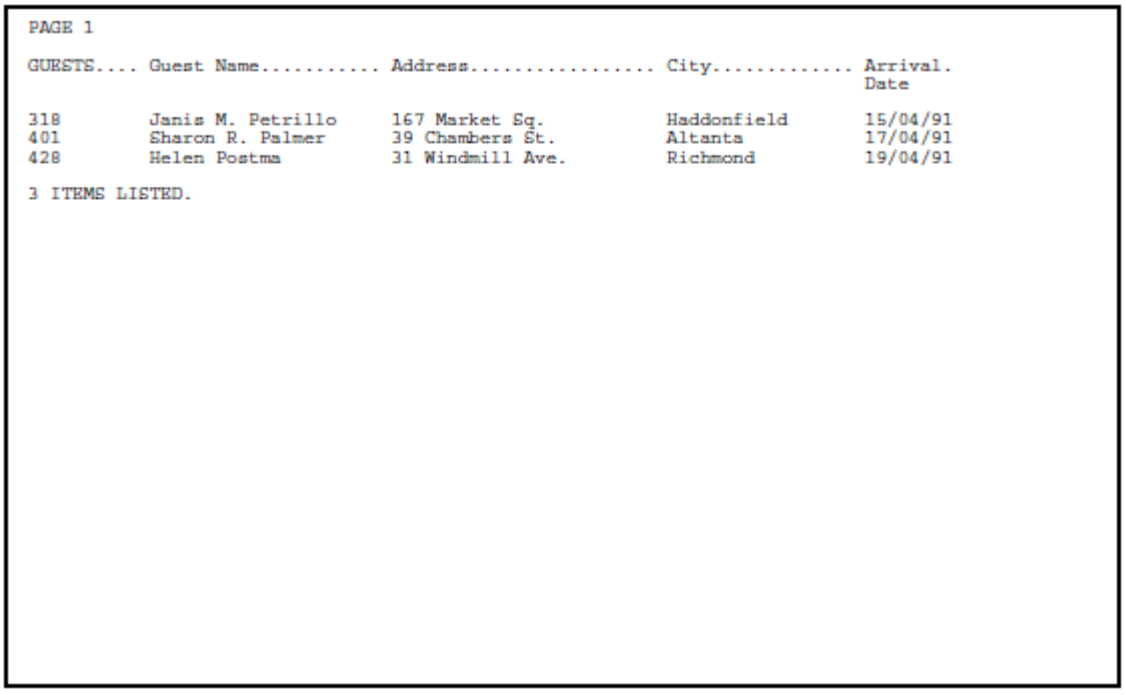
You may want to retrieve information with a specification which is more general than a full name or number. For example, you might want information about items containing attributes that begin with a certain letter or number, or group of letters or numbers called a character string. A character string followed by a right bracket ']' specifies that the attribute name must begin with the specified character(s).

For example, type **SORT GUESTS WITH LAST-NAME "P]" NAME ADDRESS CITY ARRIVALDATE** and press RETURN.

Note

1. Always enclose the character string and bracket(s) in double quotes " " when searching on an attribute.
2. The brackets key is to the right of the P key on most keyboards.

The screen displays the following screenshot:



```
PAGE 1

GUESTS.... Guest Name..... Address..... City..... Arrival.
                                                    Date

318        Janis M. Petrillo   167 Market Sq.       Haddonfield     15/04/91
401        Sharon R. Palmer    39 Chambers St.      Altanta         17/04/91
428        Helen Postma        31 Windmill Ave.     Richmond        19/04/91

3 ITEMS LISTED.
```

The ENGLISH statement has chosen guests with last names beginning with "P". A single right bracket] chooses text of any length, beginning with the letter(s) you specify.

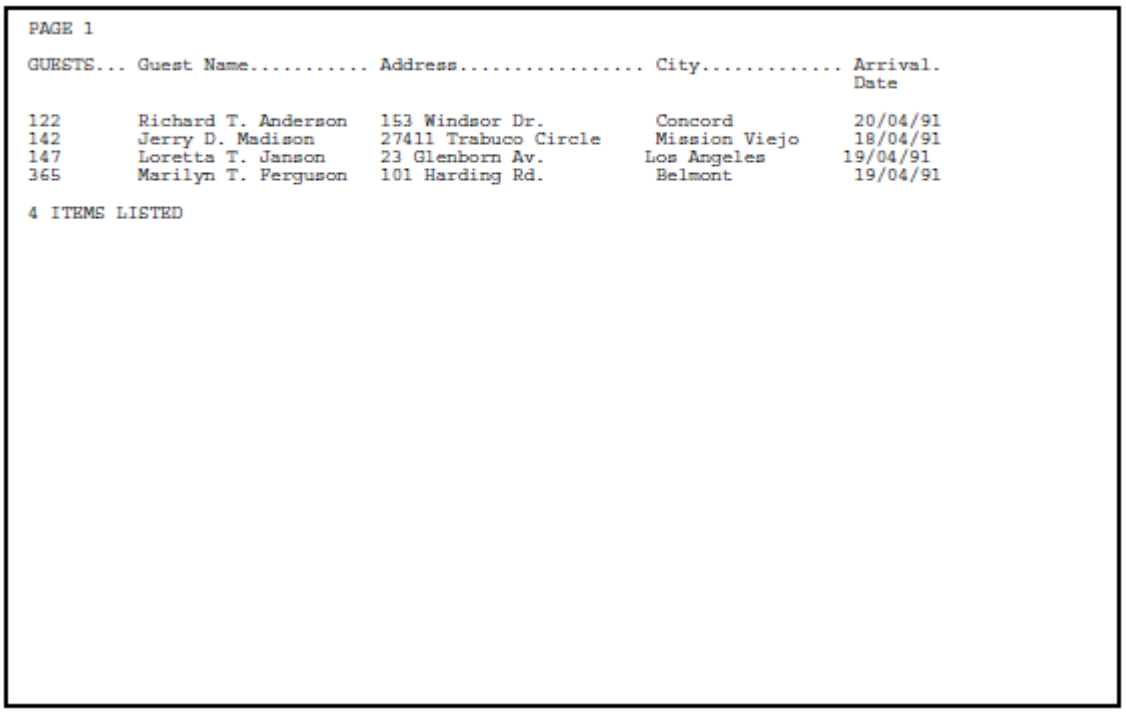
It is also possible to search on item-ID and in this case the character string and bracket(s) must be enclosed in single quotes ' '.

9.2 Using a left-hand bracket

A left bracket [followed by a character string specifies that the attribute name must end with the specified character(s).
For example, type **SORT GUESTS WITH LAST-NAME "[son" NAME ADDRESS CITY ARRIVAL-DATE** and press RETURN.

Remember to type the character string in the same combination of upper and lower case letters as the names to be searched.

The screen displays the following screenshot:



Notice that the ENGLISH statement has chosen Guests with last names ending with "son." A single left bracket '[' selects text of any length, ending with the letter(s) you specify.

9.3 Using a left and right-hand bracket

You can specify a character string enclosed in the left and right brackets to choose character(s) that may appear anywhere in the attribute name.

For example, type **SORT ROOMS < '500' WITH ROOM "[5]" AVAILABLE RATE** and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.....     Available       Rate.......

354            28/04/91             82.00
355            23/04/91             82.00
365            01/05/91            104.00

3 ITEMS LISTED.
```

Notice that this time the ENGLISH statement has chosen all the rooms below the fifth floor that have a 5 somewhere in the room number.

9.4 Using the caret

You can use a caret '^' to search a file for attributes (or item-IDs) of a certain size or format with one or more characters which are unknown or may be anything.

For example, type **SORT GUESTS WITH LAST-NAME "M^^^^^^" NAME ADDRESS CITY ARRIVAL-DATE** and press RETURN.

Note
The caret or up-arrow key is SHIFT+6 on most keyboards and SHIFT+N on others.

The screen displays the following screenshot:

```
PAGE 1

GUESTS... Guest Name.......... Address.....|.. City.............. Arrival.
                                                                   Date

142       Jerry D. Madison     27411 Trabuco Circle     Mission Viejo     18/04/91
309       Robert S. Mendell    545 Parker Ave.          New York          17/04/91

2 ITEMS LISTED
```

Notice that the ENGLISH statement has chosen guests with seven-letter Last-Names beginning with "M".

9.5 Summary

In this chapter you have learned the following:

- How to search attributes (or item-IDs) for text of any length defined by a beginning character
- How to search attributes (or item-IDs) for text of any length defined by an ending group of characters
- How to search attributes (or item-IDs) for text of any length defined by a group of characters that can appear anywhere in a value
- How to search attributes (or item-IDs) for text defined by length and any number of specified characters

Section 10: Displaying totals

10.1 Getting a total

In addition to displaying the numerical value of a specified attribute for each indivIDual item in a file. You may wish to calculate and display the total of the specified attribute values of all items in the file. You can do this using the TOTAL connective.

For example, type **`LIST GUESTS WITH ROOM-CODE "S" NAME LEAVE-DATE BILL-TOTAL`** and press `RETURN`.

The screen displays the following screenshot:

```
PAGE 1

GUESTS.... Guest Name.......... Leave Date Bill Total

140        Susan P. Lynch         21/04/91    $125.71
122        Richard T. Anderson    03/05/91     $86.45
143        William Hennessey      30/04/91     $46.35

3 ITEMS LISTED.
```

Now type **`LIST GUESTS WITH ROOM-CODE "S" NAME LEAVE-DATE TOTAL BILLTOTAL`** and press `RETURN`.

The screen displays the following screenshot:

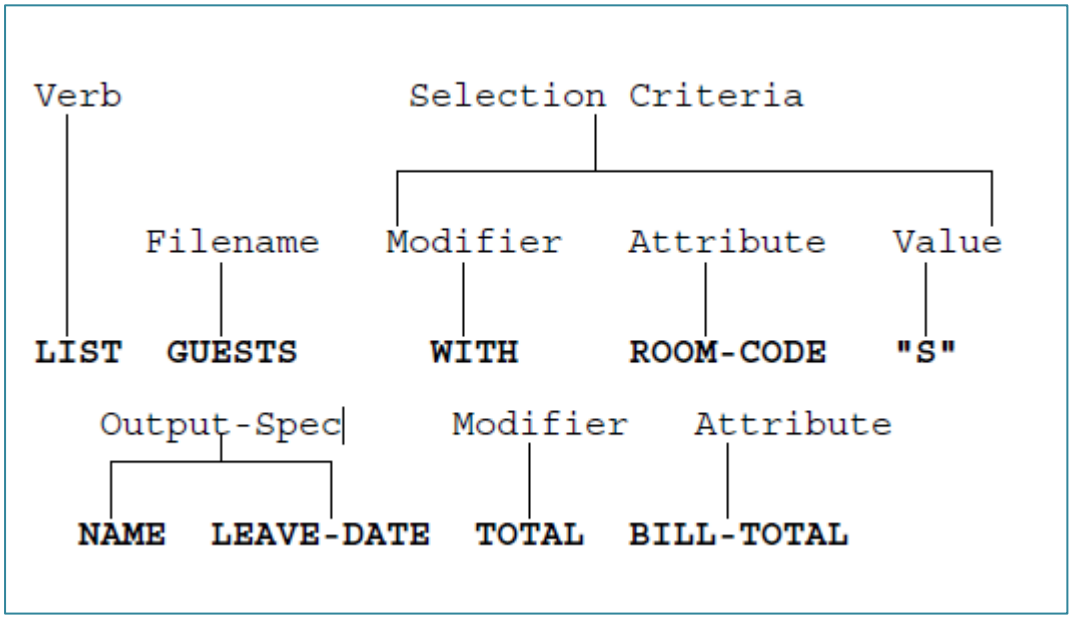
```
PAGE 1

GUESTS.... Guest Name.......... Leave Date Bill Total

140        Susan P. Lynch       21/04/91      $125.71
122        Richard T. Anderson  03/05/91       $86.45
143        William Hennessey    30/04/91       $46.35

***                                           $258.51

3 ITEMS LISTED.
```

Notice that typing TOTAL before the attribute BILL-TOTAL tells ENGLISH to display a total at the bottom of the BILL-TOTAL column.

Remember always type the attribute name you want TOTALled, immediately after TOTAL.

The TOTALled attribute name appears in the output in the order you typed it. In the example, TOTAL BILL-TOTAL was at the end of your statement; therefore, BILL-TOTAL is the last column of your output.

Here is a diagram of the statement you have just typed to clarify the different elements:



10.2 Changing the position of the totalled column

You can change the position of TOTAL in the ENGLISH statement to get the TOTALled attribute in the position you want it to appear in the output.

For example, type **LIST GUESTS WITH ROOM-CODE "DL" NAME TOTAL BILL-TOTAL ROOMCODE LEAVE-DATE** and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

GUESTS.... Guest Name.......... Bill Total Room Leave Date
                                           Code

428        Helen Postma           $152.50 DL     22/04/91
309        Robert S. Mendell      $195.87 DL     21/04/91
211        David M. Lewis         $241.68 DL     21/04/91
401        Sharon R. Palmer       $149.25 DL     25/04/91
289        Mr. & Mrs. S.          $157.90 DL     02/05/91
           Fennelly
411        Alyson Gallagher       $249.76 DL     01/05/91

***                              $1,146.96

6 ITEMS LISTED.
```

This time the BILL-TOTAL column is second in the display.

10.3 Using GRAND-TOTAL to label output

You can use GRAND-TOTAL with TOTAL to add a label to the bottom of the left-hand column of output. For example, type **LIST GUESTS WITH ROOM-CODE "DL" NAME TOTAL BILL-TOTAL ROOMCODE LEAVE-DATE GRAND-TOTAL "RECEIPTS FROM DELUXES"** and press RETURN.

Remember to enclose your GRAND-TOTAL label in double quotes " ".

The screen displays the following screenshot:

```
PAGE 1

GUESTS.... Guest Name.......... Bill Total Room Leave Date
                                           Code

428        Helen Postma            $152.50 DL     22/04/91
309        Robert S. Mendell       $195.87 DL     21/04/91
211        David M. Lewis          $241.68 DL     21/04/91
401        Sharon R. Palmer        $149.25 DL     25/04/91
289        Mr. & Mrs. S.           $157.90 DL     02/05/91
           Fennelly
411        Alyson Gallagher        $249.76 DL     01/05/91

RECEIPTS FROM DELUXES            $1,146.96

6 ITEMS LISTED.
```

Notice that GRAND-TOTAL causes the text following it in double quotes to appear next to the grand total.

10.4 Summary

In this chapter you have learned the following:

- How to get a TOTAL for a numerical attribute
- How to specify the position of the TOTALled column
- How to label output with GRAND-TOTAL

Section 11: Grouping items

11.1 Grouping information with BREAK-ON connective

You can use the connective BREAK-ON, together with the SORT verb, to group information by the value of one or more attributes. The inclusion of BREAK-ON in a SORT command statement causes a blank line, each time the value of the specified attribute(s) changes.

For example, type **SORT ROOMS BY ROOM-TYPE ROOM-CODE BREAK-ON ROOM-TYPE RATE GUEST-NAME LEAVE-DATE** and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.....  Room  Room.........  Rate..... Current Guest..    Leave...
            Code  Type                                       Date

211         DL    Deluxe             82.00 Lewis              21/04/91
289         DL    Deluxe             82.00 Fennelly           02/05/91
309         DL    Deluxe             82.00 Mendell            21/04/91
321         DL    Deluxe             82.00
329         DL    Deluxe            104.00
401         DL    Deluxe             82.00 Palmer             25/04/91
411         DL    Deluxe            104.00 Gallagher          01/05/91
428         DL    Deluxe             82.00 Postma             22/04/91

                  ***

117         D     Double Occ.        72.00 Rizzo              21/04/91
119         D     Double Occ.        64.00 Scott              22/04/91
142         D     Double Occ.        72.00 Madison            26/04/91
144         D     Double Occ.        68.00 Irving             27/04/91
147         D     Double Occ.        72.00 Janson             02/05/91
194         D     Double Occ.        64.00 Hynes              30/04/91

                  ***
```

Press RETURN to display subsequent pages.

Notice the following:

- The rooms are grouped by type.
- The groups are in alphabetical order.
- Three lines separate groups.
- *** appears after every group in the column of the attribute name for which you specified the BREAK-ON.
- BREAK-ON is a connective that always shows the attribute you are breaking on in the output. You do not have to type this attribute again as output-spec.

11.2 BREAK-ON with text option

You can replace the three asterisks '***', normally inserted in the space between the groups, by text of your choice.

For example, to replace them with the text string 'END OF GROUP', type **SORT ROOMS BY ROOM-TYPE ROOM-CODE BREAK-ON ROOM-TYPE "END OF GROUP" RATE GUEST-NAME LEAVE-DATE** and press RETURN.

Remember that text to replace the asterisks is enclosed in double quotes.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.....  Room  Room.........  Rate..... Current Guest..   Leave...
            Code  Type                                      Date

211         DL    Deluxe             82.00 Lewis            21/04/91
289         DL    Deluxe             82.00 Fennelly         02/05/91
309         DL    Deluxe             82.00 Mendell          21/04/91
321         DL    Deluxe             82.00
329         DL    Deluxe            104.00
401         DL    Deluxe             82.00 Palmer           25/04/91
411         DL    Deluxe            104.00 Gallagher        01/05/91
428         DL    Deluxe             82.00 Postma           22/04/91

                  END OF GROUP

117         D     Double Occ.        72.00 Rizzo            21/04/91
119         D     Double Occ.        64.00 Scott            22/04/91
142         D     Double Occ.        72.00 Madison          26/04/91
144         D     Double Occ.        68.00 Irving           27/04/91
147         D     Double Occ.        72.00 Janson           02/05/91
194         D     Double Occ.        64.00 Hynes            30/04/91

                  END OF GROUP
```

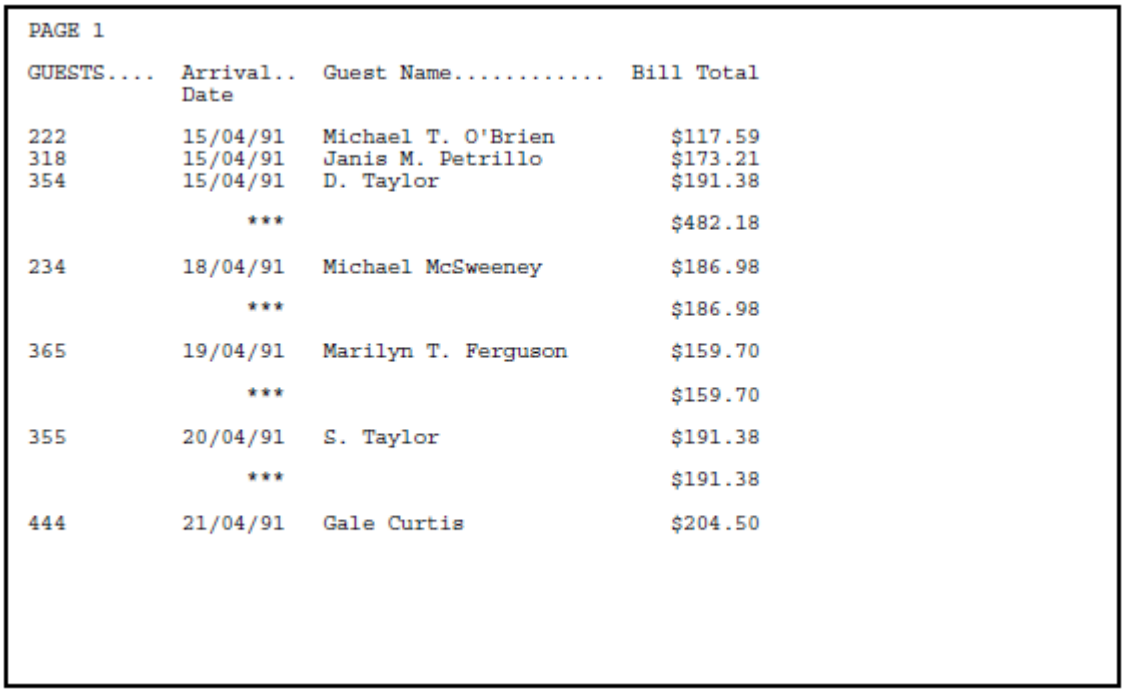
Press RETURN to display subsequent pages.

11.3 BREAK-ON with TOTAL option

When you use BREAK-ON with TOTAL, ENGLISH gives you a subtotal for the TOTALled attribute in each group and a grand total for all the groups.

For example, type **LIST GUESTS WITH ROOM-CODE "ST" BY ARRIVAL-DATE BREAK-ON ARRIVAL-DATE NAME TOTAL BILL-TOTAL** and press RETURN.

The screen displays the following screenshot:



```
PAGE 1

GUESTS....  Arrival..  Guest Name.............  Bill Total
            Date

222         15/04/91   Michael T. O'Brien          $117.59
318         15/04/91   Janis M. Petrillo           $173.21
354         15/04/91   D. Taylor                   $191.38

                ***                                $482.18

234         18/04/91   Michael McSweeney           $186.98

                ***                                $186.98

365         19/04/91   Marilyn T. Ferguson         $159.70

                ***                                $159.70

355         20/04/91   S. Taylor                   $191.38

                ***                                $191.38

444         21/04/91   Gale Curtis                 $204.50
```

Press RETURN to display subsequent pages.

11.4 BREAK-ON with 'D' option

You can use the 'D' option to omit one blank line and the asterisk/text line, if the category you are BREAKing-ON has only one item.

For example, type **SORT ROOMS BY ROOM-TYPE ROOM-CODE BREAK-ON ROOM-TYPE "END OF GROUP 'D'" RATE GUEST-NAME LEAVE-DATE** and press RETURN. Then press RETURN, again to display the second page.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.....  Room  Room.........  Rate..... Current Guest..    Leave...
            Code  Type                                       Date

211         DL    Deluxe            82.00 Lewis              21/04/91
289         DL    Deluxe            82.00 Fennelly           02/05/91
309         DL    Deluxe            82.00 Mendell            21/04/91
321         DL    Deluxe            82.00
329         DL    Deluxe           104.00
401         DL    Deluxe            82.00 Palmer             25/04/91
411         DL    Deluxe           104.00 Gallagher          01/05/91
428         DL    Deluxe            82.00 Postma             22/04/91

                  END OF GROUP

117         D     Double Occ.       72.00 Rizzo              21/04/91
119         D     Double Occ.       64.00 Scott              22/04/91
142         D     Double Occ.       72.00 Madison            26/04/91
144         D     Double Occ.       68.00 Irving             27/04/91
147         D     Double Occ.       72.00 Janson             02/04/91
194         D     Double Occ.       64.00 Hynes              30/04/91

                  END OF GROUP
```

Press RETURN to display subsequent pages.

Notice that the information is grouped as in the example using the text option, but that the text string 'END OF GROUP' and one blank line are omitted between the single 'Penthouse' item and 'Single Occ. This is because there is only one Penthouse item and you typed the 'D' BREAK-ON label option in the statement.

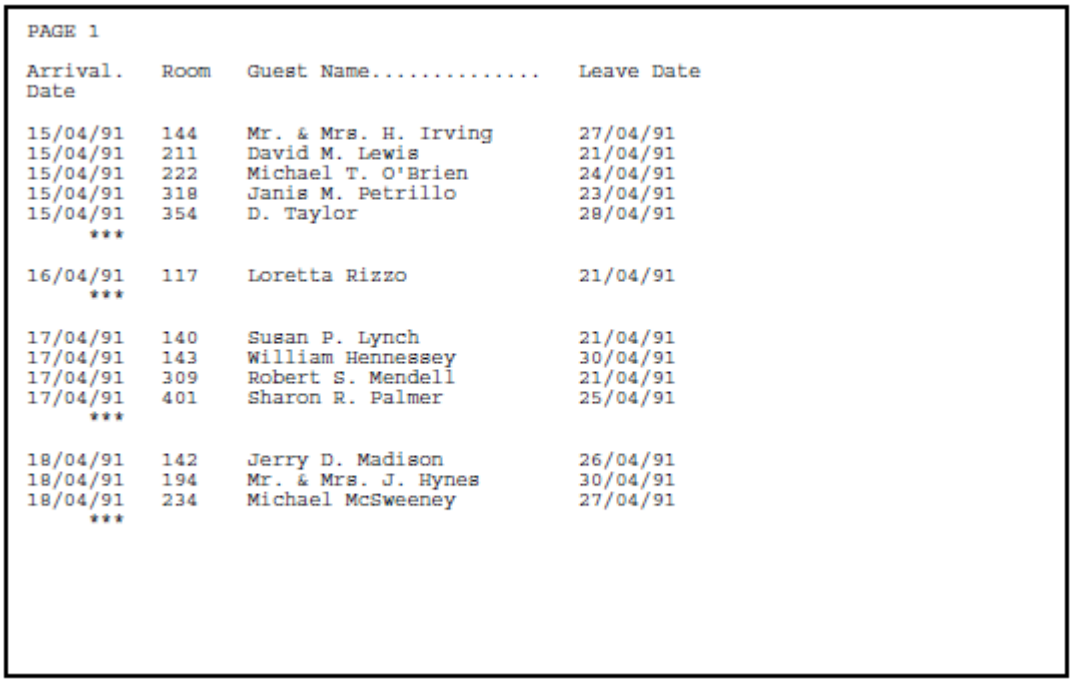
11.5 BREAK-ON with 'L' option

You can use the 'L' option to suppress the blank line immediately preceding the BREAK-ON data line.

For example, type **SORT GUESTS BY ARRIVAL-DATE BREAK-ON ARRIVAL-DATE "'L'" ROOM NAME LEAVE-DATE ID-SUPP** and press RETURN.

Notice that, although no text is included in this example, the option (L in this case) is still enclosed within single quotes, then within double quotes.

The screen displays the following screenshot:



```
PAGE 1

Arrival.    Room    Guest Name.............    Leave Date
Date

15/04/91    144     Mr. & Mrs. H. Irving       27/04/91
15/04/91    211     David M. Lewis             21/04/91
15/04/91    222     Michael T. O'Brien         24/04/91
15/04/91    318     Janis M. Petrillo          23/04/91
15/04/91    354     D. Taylor                  28/04/91
      ***

16/04/91    117     Loretta Rizzo              21/04/91
      ***

17/04/91    140     Susan P. Lynch             21/04/91
17/04/91    143     William Hennessey          30/04/91
17/04/91    309     Robert S. Mendell          21/04/91
17/04/91    401     Sharon R. Palmer           25/04/91
      ***

18/04/91    142     Jerry D. Madison           26/04/91
18/04/91    194     Mr. & Mrs. J. Hynes        30/04/91
18/04/91    234     Michael McSweeney          27/04/91
      ***
```

Press RETURN to display subsequent pages.

Note that if you use the 'L' label option, you cannot, at the same time, underline with the 'U' label option, described over the page, as 'L' overrIDes 'U'.

11.6 BREAK-ON with 'U' option

You can use the 'U' option to underline subtotalled columns in a report. For example, type **SORT GUESTS WITH BILL-TOTAL < "150.00" BY LEAVE-DATE BREAKON LEAVE-DATE "SUBTOTAL 'U'" NAME ROOM TOTAL BILL-TOTAL IDSUPP** and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

Leave Date    Guest Name.............Room      Bill Total

  02/05/91    Loretta T. Janson      147          $122.82
                                                ----------
SUBTOTAL                                         $122.82

  03/05/91    Richard T. Anderson    122           $86.45
                                                ----------
SUBTOTAL                                          $86.45

  21/04/91    Loretta Rizzo          117           $88.71
  21/04/91    Susan P. Lynch         140          $125.71
                                                ----------
SUBTOTAL                                         $214.42

  22/04/91    Barry R. Scott         119           $97.93
                                                ----------
SUBTOTAL                                          $97.93

  24/04/91    Michael T. O'Brien     222          $117.59
                                                ----------
SUBTOTAL                                         $117.59
```

Press RETURN to display subsequent pages.

11.7 BREAK-ON with 'V' option

You can use the 'V' option to display a BREAK-ON label for each grouping of the BREAK-ON attribute. The label is displayed in the break at the bottom of each grouping. For example, type **SORT ROOMS BY ROOM-TYPE BREAK-ON ROOM-TYPE "'V'Rooms" RATE** and press RETURN.

The screen displays the following screenshot:

```
PAGE 1

ROOMS.....   Room..... Rate......
             Type

211          Deluxe          82.00
289          Deluxe          82.00
309          Deluxe          82.00
321          Deluxe          82.00
329          Deluxe         104.00
401          Deluxe          82.00
411          Deluxe         104.00
428          Deluxe          82.00

             Deluxe Rooms

117          Double Occ.     72.00
119          Double Occ.     64.00
142          Double Occ.     72.00
144          Double Occ.     68.00
147          Double Occ.     72.00
194          Double Occ.     64.00

             Double Occ.
             Rooms
```

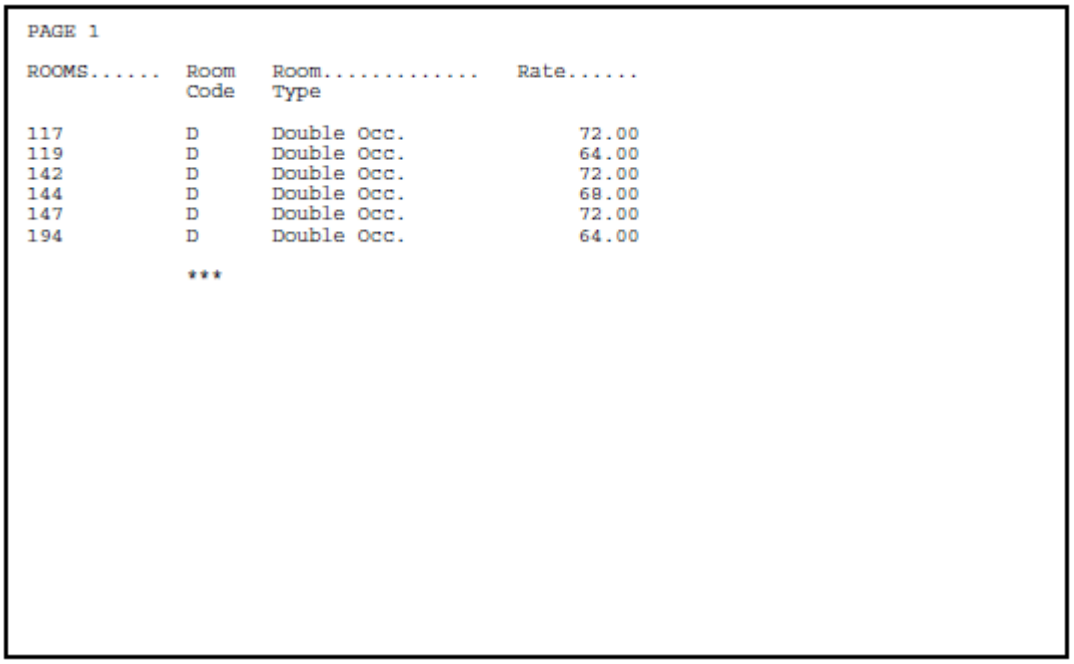
Press RETURN to display subsequent pages.

Notice that "'V' Rooms" causes the addition of the word 'Rooms' to the attribute value to form the label. Similarly, using the apostrophe, any other character or string of characters can be added to the BREAK-ON attribute value to form the label footing in the break space.

11.8 BREAK-ON with 'P' option

You can use the 'P' option in a BREAK-ON command to display each category grouped by BREAK-ON on separate pages. For example, type **`LIST ROOMS BY ROOM-CODE BREAK-ON ROOM-CODE "'P'" ROOM-TYPE RATE`** and press `RETURN`.

The screen displays the following screenshot:



```
PAGE 1

ROOMS.....  Room   Room.............   Rate......
            Code   Type

117         D      Double Occ.            72.00
119         D      Double Occ.            64.00
142         D      Double Occ.            72.00
144         D      Double Occ.            68.00
147         D      Double Occ.            72.00
194         D      Double Occ.            64.00

            ***
```

Press `RETURN` to display subsequent pages.

Notice that each group of rooms, separated by ROOM-CODE, appears on its own page.

11.9 BREAK-ON with GRAND-TOTAL and label options

Now you can put together all the pieces you've just learned to design a report with categories, labels, subtotals, and a grand total. Type **`SORT GUESTS BY ROOM-TYPE BREAK-ON ROOM-TYPE "TOTAL ('VU' Rooms)" LAST-NAME TOTAL BILL-TOTAL GRAND-TOTAL "GRAND TOTAL"`** and press `RETURN`.

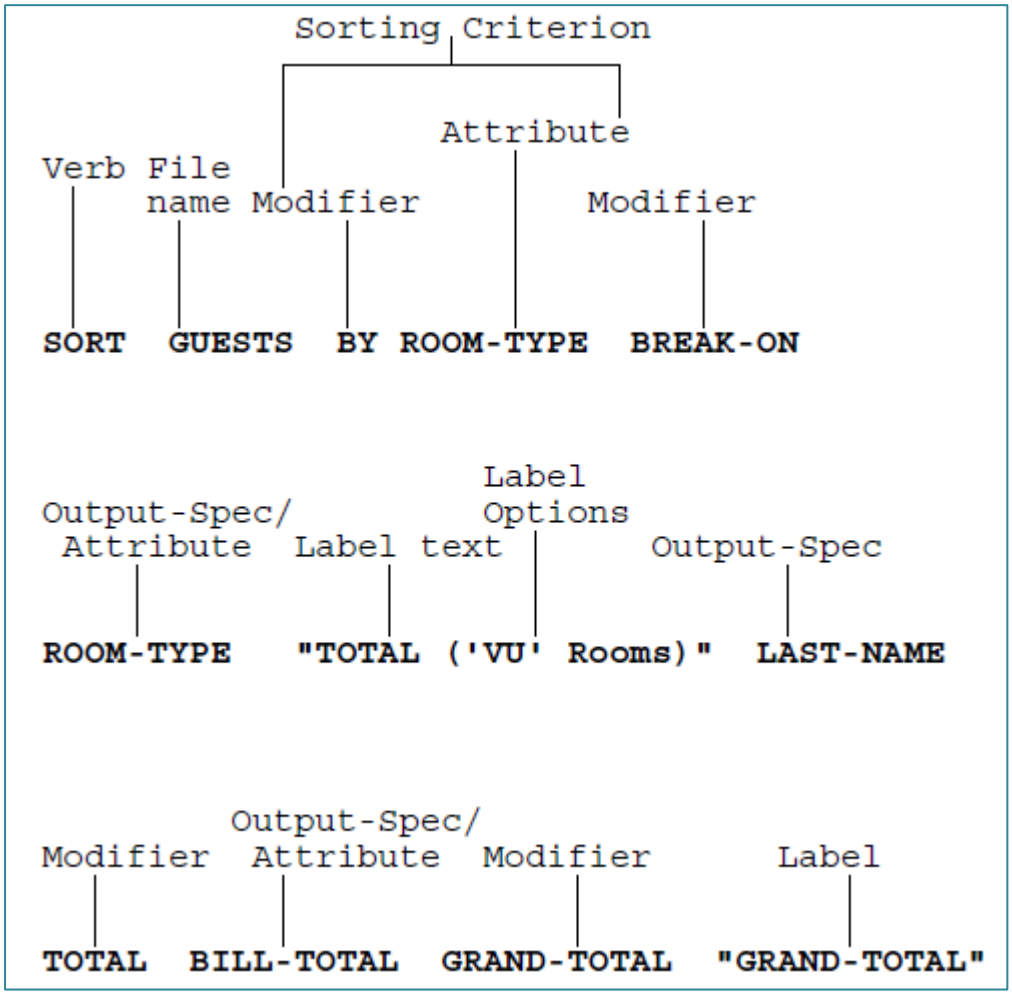
The screen displays the following screenshot:

```
PAGE 1

GUESTS....   Room Type.................  Last Name.    Bill Total

211          Deluxe                     Lewis            $241.68
289          Deluxe                     Fennelly         $157.90
309          Deluxe                     Mendell          $195.87
401          Deluxe                     Palmer           $149.25
411          Deluxe                     Gallagher        $249.76
428          Deluxe                     Postma           $152.50
                                                         ----------
             TOTAL (Deluxe Rooms)                       $1,146.96

117          Double Occ.                Rizzo             $88.71
119          Double Occ.                Scott             $97.93
142          Double Occ.                Madison          $138.60
144          Double Occ.                Irving            $47.95
147          Double Occ.                Janson           $122.82
194          Double Occ.                Hynes             $72.35
                                                         ----------
             TOTAL (Double Occ. Rooms)                    $568.36

535          Penthouse                  Evans            $281.42
                                                         ----------
             TOTAL (Penthouse Rooms)                      $281.42
```

Press RETURN to display subsequent pages. Notice that the rooms are grouped by room-type in alphabetical order and a "TOTAL (Room type)s" label appears at the bottom of each group of rooms. Guests' current balances appear in the right-hand column; each group of balances is underlined and subtotalled. The grand total with a "GRAND TOTAL" label appears at the bottom of the report.

Remember, if you use more than one BREAK-ON label option, like VU in the example, enclose them together in single quotes ' ', then within double quotes " ".

The diagram which follows IDentifies the various elements of the ENGLISH language BREAK-ON statement used in this example with GRAND-TOTAL and Label options.



11.10 Summary

In this chapter you have learned the following:

- How to use BREAK-ON to group information
- How to get subtotals by using BREAK-ON and TOTAL in the same statement
- How to use the BREAK-ON label options 'D', 'L', 'U', 'V', 'P', and the connective GRAND-TOTAL, to format your report and label output

Section 12: Printing labels

12.1 Printing with LIST-LABEL

You can use LIST-LABEL to output items in label format (usually to produce address labels). When producing labels, the page number and time/date heading, the 'ITEMS LISTED' message and column headings are not normally required and may be suppressed using the output modifier COL-HDR-SUPP.

For example, type **`LIST-LABEL GUESTS NAME ADDRESS CITY STATE ID-SUPP COL-HDRSUPP`** and press `RETURN`.

The ENGLISH retrieval language responds with a prompt for more formatting Information.

```
COL,ROW,SKIP,INDNT,SIZ,SPACE(,C):
```

At the prompt, type **`2,4,3,0,25,8,C`** and press `RETURN`.

The screen displays the following screenshot:

```
Barry R. Scott                  Susan P. Lynch
90 Alpine St.                   55 Hale Rd.
Harrison                        Waltham
CT                              NM

Loretta T. Janson               Helen Postma
23 Glenborn Av.                 31 Windmill Ave.
Los Angeles                     Richmond
CA                              Va

Robert S. Mendell               Marilyn T. Ferguson
545 Parker Ave.                 101 Harding Rd.
New York                        Belmont
NY                              TX

David M. Lewis                  Sharon R. Palmer
40 Lakeview Dr.                 39 Chambers St.
Alpha                           Atlanta
NJ                              GA
```

Continue pressing `RETURN` to scroll the screen to see all the labels.

The meaning of the letters in the prompt for formatting information is as follows:

- COL (set to 2, in the example) is the number of labels you want across each page.
- ROW (set to 4, in the example) is the number of rows or lines of information in each label.
- SKIP (set to 3, in the example) is the number of lines to skip between labels down the page.

- INDNT (set to 0, in the example) is the number of spaces to indent from the left margin.
- SIZ (set to 25, in the example) is the number of spaces to allow for each label across the page.
- SPACE (set to 8, in the example) is the number of blank spaces between labels across the page.
- (,C) specifies that missing line(s) are to be ignored and remaining lines closed up. If you do not specify C, the ENGLISH language leaves blank lines whenever it cannot find information.

Thus 2,4,3,0,25,8,C, the "label-specifications", tell the ENGLISH processor to arrange the output in two label columns with four rows of information on each, three line-skips between labels going down the page, no indent on the left margin, up to 25 characters on each line of each label and eight spaces between each label, left to right.

You can change the label-specifications to meet your needs. For example, if you want six rows in each label, type 6 in the second position (ROW) of the label specification statement; if you want to print up to 30 characters in each row, type 30 in the fifth position(SPACE), and so on.

Note that if you type anything except 0 in response to the INDNT prompt (the fourth position in the label-specification statement), ENGLISH responds with the following prompt:

```
HEADER:
```

You must then type a heading, remembering to keep it within the indent limit you set in the label-specification statement, and press RETURN. ENGLISH asks you for a heading for each row of output. If you want a heading on only one row, just press RETURN.

Review the labels on the screen before you send them to the printer and change the label-specifications until you are satisfied with the way the output looks.

Note that the screen can accommodate up to 80 characters across; most printers can take up to 132 characters. If your label specifications call for an output that exceeds these limits, the following error message gets displayed:

```
[290] THE RANGE OF THE PARAMETER "N" IS NOT ACCEPTABLE
```

If this message appears re-enter the LIST-LABEL statement and adjust the label-specifications to fit the display, either screen or printer.

If your label specifications call for more than 80 characters, send the output to the printer for review where you can print the output, provIDed it does not exceed the limits of the printer, usually 132 characters.

12.2 Printing with SORT-LABEL

SORT-LABEL allows you to sort items before printing them in label format. For example, type **`SORT-LABEL GUESTS WITH STAY BETWEEN "1" AND "7" ARRIVAL-DATE LEAVE-DATE NAME ADDRESS CITY STATE ID-SUPP COL-HDR-SUPP LPTR`** and press `RETURN`.

The ENGLISH processor responds with the label-specifications prompt:

```
COL,ROW,SKIP,INDNT,SIZ,SPACE(,C):
```

Type **2,6,3,15,25,6,C** and press RETURN.

You will see the prompt HEADER:, type **ARRIVE** and press RETURN.

Now in response to each succeeding HEADER: prompt, type **LEAVE**, **NAME**, **ADDRESS**, **CITY**, **STATE**, respectively, and press RETURN after each.

Your printout will look like the following:

```
ARRIVE      16/04/91            17/04/91
LEAVE       21/04/91            21/04/91
NAME        Loretta Rizzo       Susan P. Lynch
ADDRESS     10 Webster St.      55 Hale Rd.
CITY        Harrington          Waltham
STATE       TX                  NM

ARRIVE      15/04/91            17/04/91
LEAVE       21/04/91            21/04/91
NAME        David M. Lewis      Robert S. Mendell
ADDRESS     40 Lakeview Dr.     545 Parker Ave.
CITY        Alpha               New York
STATE       NJ                  NY

ARRIVE      20/04/91            19/04/91
LEAVE       23/04/91            22/04/91
NAME        S. Taylor           Helen Postma
ADDRESS     17 Haver Dr.        31 Windmill Ave.
CITY        Bennington          Richmond
STATE       VA                  VA
```

Notice that the ENGLISH statement has chosen the guests staying between one and seven nights and displays the information in the label format you specified, with your headers. The order of the SORT here is by room number (item-ID), with increasing values across the rows and down the columns.

12.3 Summary

In this chapter you have learned the following:

- How to use LIST-LABEL to get output in label format
- How to specify label formats
- How to include headings in label output
- How to use SORT-LABEL to sort information and arrange it in label format

Section 13: Sorting information in multivalued attributes

13.1 Multivalued attributes

More than one value can be stored in a single attribute, per item. This type of attribute is called a "multivalued attribute". For example, a hotel guest (one item) may incur multiple charges in one day or on different days and for a variety of services such as, room, restaurant, telephone, bar, and so on. To store and retrieve this information the accounts department creates four multivalued attributes. They are as follows:

- BILL-DESC to contain the Description of services provIDed to each guest, such as Room, Restaurant, Telephone, Bar
- BILL-CODE to contain the Bill Codes specified for each of the above services
- BILL-DATE to contain the dates on which the various services were received by each guest
- BILL-AMOUNT to contain the charges made for each service.

Note that for each attribute per guest there may be several values.

13.2 Using the BY-EXP connective

You can use the BY-EXP connective to sort guests by one or more of these multivalued attributes in ascending order. BY-EXP is like BY, but treats the multiple values in a multivalued attribute separately, that is, when you use BYEXP in an ENGLISH statement followed by a multivalued attribute name, ENGLISH sorts an item BY each value in the attribute, not just by the first value.

For example, type **`SORT GUESTS WITH ROOM < '200' BY-EXP BILL-DATE BY-EXP BILLCODE BILL-DESC BREAK-ON BILL-DATE BILL-CODE BILL-AMOUNT ROOM NAME ID-SUPP`** and press `RETURN`.

The screen displays the following screenshot:

```
PAGE 1

Description..  Bill  Bill Date  Amount..  Room  Guest Name........
               Code
                     *           *
Room              2   17/04/91    $62.00  117   Loretta Rizzo
Room              2   17/04/91    $55.00  140   Susan P. Lynch
Breakfast         4   17/04/91    $12.95  144   Mr. & Mrs. H. Irving

                          ***

Dinner            6   18/04/91    $34.95  140   Susan P. Lynch
Telephone        15   18/04/91    $12.95  143   William Hennessey

                          ***

Room              2   19/04/91    $79.00  142   Jerry D. Madison
Room              2   19/04/91    $56.00  147   Loretta T. Janson
Restaurant       20   19/04/91    $45.50  142   Jerry D. Madison

                          ***

Dinner            6   20/04/91    $17.95  117   Loretta Rizzo
Rest. (wine)      9   20/04/91    $17.00  140   Susan P. Lynch
```

Notice that ENGLISH displays a line for each service charge incurred by each guest. Lines contain the same guest name but different service descriptions, Bill Codes and Amounts. In this example, BY-EXP is used to sort guests by Bill Date in ascending order and then by Bill Code also in ascending order. The charges for each Bill Date are grouped together using BREAK-ON.

Note

The * at the top left of the multivalued attribute columns, Bill Date and Amount, indicate that BILL-DATE and BILL-AMOUNT are "dependent associative attributes" which are linked to the "controlling associative attribute" BILL-CODE. This means that the bill dates and amounts are only displayed by ENGLISH when the bill codes are displayed. If BILLCODE is omitted from the statement's output specification, BILL-DATE and BILL-AMOUNT will not be reported, even when they are included in the statement. Also, when Bill Date and Amount are displayed with Bill Code they are displayed in a pre-defined order, controlled by BILLCODE, irrespective of their order within the ENGLISH statement.

You can use BY-EXP with LIST or SORT on any multivalued attribute name. To display an exploded sort in descending order you can use BY-EXP-DSND.

13.3 Summary

In this chapter you have learned the following:

- What a multivalued attribute is
- How to use BY-EXP to display an exploded sort of a multivalued attribute
- What happens when you specify associative attributes in a BY-EXP statement

Section 14: Additional features

14.1 Listing a non-default data section

So far, you have retrieved data from two files, GUESTS and ROOMS, each with a different set of attributes; GUESTS with attributes such as Name, Address, City, Arrival Date, Room Number, and so on, and ROOMS with attributes such as Room Type, Bed Type, Room Rate, Guest's Name and Leave Date.

It may be, however, that you will have two or more files on your database, each requiring the same set of attributes, but with different data.

For example, as well as the GUESTS data file which contains current information about hotel guests, the database also contains another file containing data about guests from the previous February. This is called FEB.

This introduces the feature of REALITY Release 7.0 called "multiple data sections". The two file, GUESTS and FEB, are data sections, sharing the same dictionary file GUESTS that defines the attributes of both. GUESTS is the default data section and FEB is a non-default data section defined by the dictionary GUESTS.

To list information in FEB, you type **`LIST GUESTS,FEB`** and press `RETURN`.

The screen displays the following screenshot:

```
PAGE 1

GUESTS,FEB  Guest Name.....  Address.....    City.......    Arrival.
                                                            Date

209         Lee Gonzales     30 Vreeland Rd.  Floraham Park  14/02/91
265         Ian Denney       1201 Augusta Dr. Springfield    22/02/91
153         Marilyn J. Wilson 501 Pinemont Dr. Murray        23/02/091
140         Mr & Mrs J. Hynes 90 Harlow Ct.   Stanton        22/02/91
105         Patti Wilson     3700 Ashdown Dr. Cincinnati     23/02/91
120         Loretta T. Janson 23 Glenborn Ave. Los Angeles    21/02/91
295         Susan P. Lynch   55 Hale Rd.      Waltham        07/02/91
155         Chuck Carter     3100 Spring Forest Raleigh      13/02/91
127         Pat Dolan        12 Alpine St.    Harrison       27/02/91
107         Ada V. Lewis     30 Lakeview Dr.  Alpha          24/02/91
289         Brenda S. Hughes 6200 Odana Rd.   Madison        18/02/91
205         Joni Conway      10410 Progress Way Cypress      03/02/91
220         Glen Scott       112 Ridings Rd.  Syracuse       16/02/91
199         Nancy Graham     390 East Capitol St. Louis      15/02/91
101         Len Smith        102 Erieview Plaza Cleveland    08/02/91
248         Richard T. Anderson 153 Windsor Ave. Concord     10/02/91
276         Gill Evans       8910 Complex Dr. San Diego      04/02/91
270         Sophia Taylor    9 Commerce Dr.   Cranford       03/02/91
201         Craig Arnold     105 State St.    Harrisburg     04/02/91
250         Paul T. Storey   7050 Parkway Dr. Hanover        12/02/91

20 ITEMS LISTED
```

In the example given, the ENGLISH statement consists of the following:

- The verb, LIST
- The dictionary filename, GUESTS which defines the attributes
- Then a comma,
- Then the name of the non-default data section you have listed, FEB

You can SORT and SELECT information in multiple data sections in the same way.

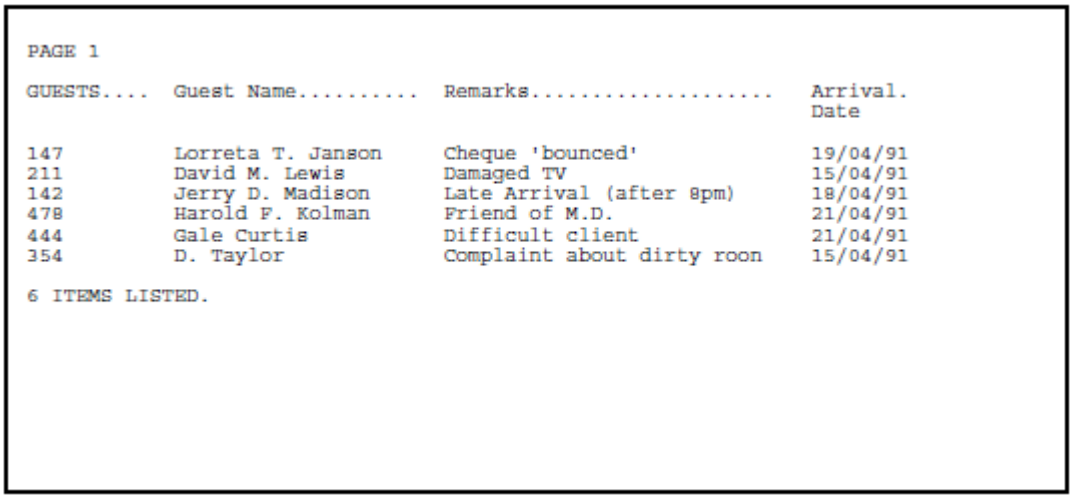
14.2 Use of the USING clause

You can redefine the attributes of a data section like GUESTS by using a different

dictionary file, for example DICT MANAGER instead of the normal default dictionary, DICT GUESTS. You do this by linking the data section GUESTS with the file DICT MANAGER by the USING clause.

For example, type **LIST GUESTS USING DICT MANAGER WITH REMARKS NAME REMARKS ARRIVAL-DATE**.

The screen displays the following screenshot:



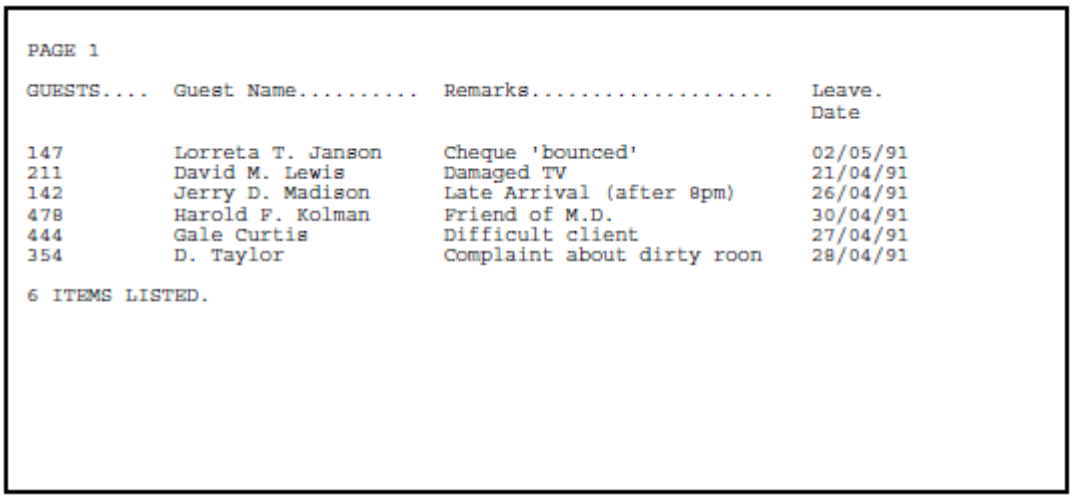
```
PAGE 1

GUESTS....  Guest Name.........  Remarks.....................  Arrival.
                                                             Date

147         Lorreta T. Janson    Cheque 'bounced'             19/04/91
211         David M. Lewis       Damaged TV                   15/04/91
142         Jerry D. Madison     Late Arrival (after 8pm)     18/04/91
478         Harold F. Kolman     Friend of M.D.               21/04/91
444         Gale Curtis          Difficult client             21/04/91
354         D. Taylor            Complaint about dirty roon   15/04/91

6 ITEMS LISTED.
```

Note that if the REMARKS attribute definition is not present in DICT GUESTS (but present in DICT MANAGER) the REMARKS information becomes inaccessible to the user unless the MANAGER dictionary is present in his or her account. This provIDes a useful security feature whereby access to certain information can be restricted.

14.3 Using a macro

Now type **LIST GUESTS COMMENTS**.

The screen displays the following screenshot:



```
PAGE 1

GUESTS....  Guest Name.........  Remarks.....................  Leave.
                                                             Date

147         Lorreta T. Janson    Cheque 'bounced'             02/05/91
211         David M. Lewis       Damaged TV                   21/04/91
142         Jerry D. Madison     Late Arrival (after 8pm)     26/04/91
478         Harold F. Kolman     Friend of M.D.               30/04/91
444         Gale Curtis          Difficult client             27/04/91
354         D. Taylor            Complaint about dirty roon   28/04/91

6 ITEMS LISTED.
```

Then type **LIST GUESTS USING DICT MANAGER WITH REMARKS NAME REMARKS ARRIVAL-DATE.**

Notice that the two statements retrieve the same information, but the word COMMENTS replaces the elements as displayed below:

USING DICT MANAGER WITH REMARKS NAME REMARKS ARRIVAL-DATE

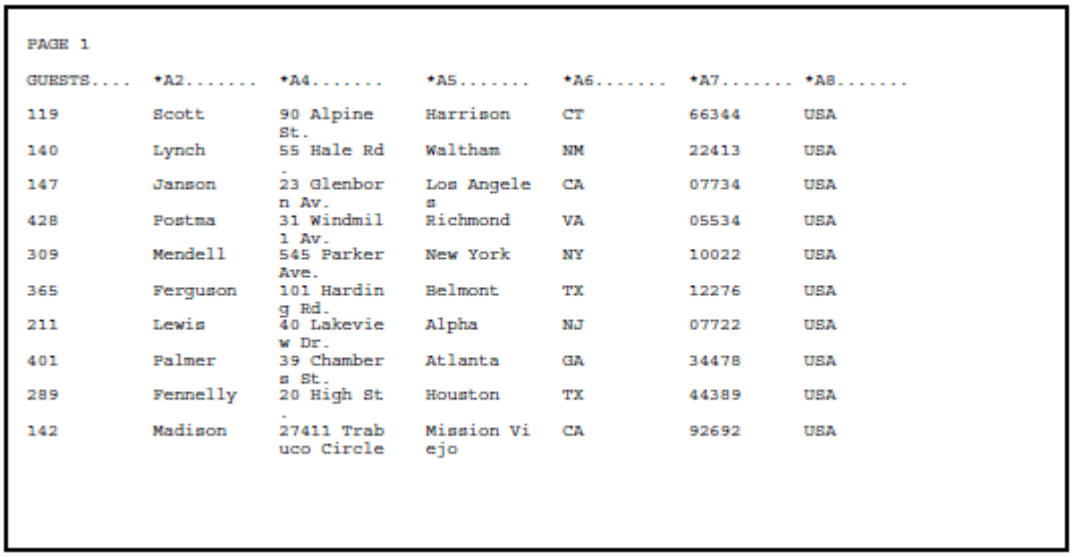
COMMENTS is the name of a macro which combines the functions of all the elements. Once created, you can use the macro name like any other element of an ENGLISH statement, following the file name.

14.3.1 Predefined attributes in the master dictionary

You can use "predefined attribute definitions" contained in the master dictionary of an account to retrieve data from a data section that does not have appropriate attributes defined for it, and therefore cannot otherwise be retrieved. These attributes are named *A0, *A1, *A2, *A3, and so on.

Although attributes for GUESTS are already defined in DICT GUESTS you will now use the data section GUESTS to show the sort of output you see when you use these predefined attributes.

When you type, **LIST GUESTS *A2 *A4 *A5 *A6 *A7 *A8** the following output gets displayed in the screenshot:



PAGE 1

GUESTS....	*A2.....	*A4.....	*A5.....	*A6.....	*A7.....	*A8.....
119	Scott	90 Alpine St.	Harrison	CT	66344	USA
140	Lynch	55 Hale Rd.	Waltham	NM	22413	USA
147	Janson	23 Glenborn Av.	Los Angeles	CA	07734	USA
428	Postma	31 Windmill Av.	Richmond	VA	05534	USA
309	Mendell	545 Parker Ave.	New York	NY	10022	USA
365	Ferguson	101 Harding Rd.	Belmont	TX	12276	USA
211	Lewis	40 Lakeview Dr.	Alpha	NJ	07722	USA
401	Palmer	39 Chambers St.	Atlanta	GA	34478	USA
289	Fennelly	20 High St.	Houston	TX	44389	USA
142	Madison	27411 Trabuco Circle	Mission Viejo	CA	92692	USA

Notice that the screen displays six attribute data columns, but incorrectly formatted. This is because the column wIDth defaults to 10 characters for each attribute.

You can use this facility to make a preliminary check on information in a data section where its attributes are not yet defined.

14.4 Summary

In this chapter you have learned the following:

- How to inquire from multiple data sections.
- How to use the USING clause.
- How to use a macro.
- How to list data using the predefined attributes defined in the master dictionary

Section 15: Commands reference

15.1 Introducing the chapter

This chapter contains a brief description of most of the ENGLISH command elements, divIDed into groups and arranged alphabetically within each group. The purpose of each element is described and for some verbs an example is given. For full details and the complete set of elements, refer to the *ENGLISH Reference Manual*.

15.2 Common ENGLISH verbs

15.2.1 BSELECT

Use: Forms a SELECT list of any data (not just item-IDs) which is defined by an ENGLISH attribute definition item. Presents the '>' prompt for further processing.

Example: **BSELECT GUESTS '211' '144' STAY**

15.2.2 COPY-LIST

Use: Allows you to rename a saved item list or copy it to a file. Alternatively, a list may be copied to the terminal or printer.

Example: **COPY-LIST EMPTY**
TO: **EMPTY1**

15.2.3 COUNT

Use: Counts the items that meet your specification and displays the total.

Example: **COUNT GUESTS WITH BILL-TOTAL > "200.00"**

15.2.4 DELETE-LIST

Use: Deletes a previously saved item list.

Example: **DELETE-LIST EMPTY1**

15.2.5 EDIT-LIST

Use: Allows you to create, modify, merge or delete an item list. Presents the EDITOR prompt (.) for further processing.

Example: **EDIT-LIST EMPTY**

15.2.6 ESEARCH

Use: Searches all or selected items in a file for any occurrence, or non-occurrence, of a string or strings. Forms an item-list of chosen items and presents the '>' prompt for further processing.

Example: **ESEARCH GUESTS**
STRING: **alm**
STRING:

15.2.7 FORM-LIST

Use: Forms an item-list from a set of item-IDs stored in a file item (formed using EDITOR, DATA/BASIC, PROC or COPYLIST to a file). Presents the '>' prompt for further processing.

15.2.8 GET-LIST

Use: Retrieves a previously saved item list and presents the '>' prompt for further processing.

Example: **GET-LIST EMPTY**

15.2.9 LIST

Use: Retrieves information from a file according to your specifications.

Example: **LIST GUESTS NAME ADDRESS CITY ARRIVAL-DATE**

15.2.10 LIST-ITEM

Use: Lists all the attributes, one per line, of all or selected items in a file.

Example: **LIST-ITEM GUESTS WITH CITY = "Bennington"**

15.2.11 LIST-LABEL

Use: Arranges items in a label format.

15.2.12 SAVE-LIST

Use: Saves an item list just created using SELECT, SSELECT or FORM-LIST (SAVE-LIST is entered at the '>' prompt).

Example: **SAVE-ITEM PARTS**

15.2.13 SELECT

Use: Selects items from a file and then presents the '>' prompt at which you can specify further processing to be carried out on the selected items. If you want to use the same set of items several times then they may be saved as an item list using the SAVE-LIST verb.

Example: **SELECT ROOMS WITH NO GUEST**

15.2.14 SORT

Use: Organises items into alphabetical or numerical order according to item-ID or the criteria you specify.

Example: **SORT GUESTS NAME ADDRESS**

15.2.15 SORT-ITEM

Use: As LIST-ITEM except that items are sorted before being listed.

15.2.16 SORT-LABEL

Use: Organises items into alphabetical or numerical order according to item-ID or the criteria you specify, and then arranges them in label format.

15.2.17 SORT-LIST

Use: Sorts a previously saved item list.

Example: **SORT-LIST EMPTY**

15.2.18 SSELECT

Use: As SELECT except that items are sorted as they are selected.

Example: **SSELECT ROOMS WITH NO GUEST**

15.2.19 STAT

Use: Presents a total sum, an average value and a count for the specified numeric attribute.

Example: **STAT GUESTS BILL-TOTAL**

15.2.20 SUM

Use: Outputs a total for the specified numeric attribute.
The following verbs are for use by those persons familiar with the use of the system who also have access to the system's tape unit(s).

15.3 ENGLISH tape verbs

15.3.1 ST-DUMP

Use: Sorts and dumps selected dictionaries and data files to magnetic tape.

15.3.2 T-DUMP

Use: As ST-DUMP except that items are not sorted.

15.3.2 T-LOAD

Use: Loads specified files from magnetic tape.

15.4 Administrator's ENGLISH verbs

The following verbs are provIDed for use by the administrator of the system or other person responsible for organising or supervising its use.

15.4.1 HASH-TEST

Use: Allows you to see the effect on data distribution of using a different modulo value for a file.

15.4.2 I-DUMP

Use: Dumps selected dictionaries and data files to the terminal.

15.4.3 ISTAT

Use: Determines how many bytes and items are in a file and how they are distributing within the file.

15.4.4 S-DUMP

Use: As I-DUMP except that items are sorted by item-ID or sort criteria.

15.5 Relational operators

Relational operators	Definition
BETWEEN	Between but not equal to
EQ or =	Equal to
GE or >=	Greater than or equal to
GT or > or AFTER	Greater than (or 'after')
LT or <or BEFORE	Less than (or 'before')
NE or #	Not equal to

15.6 Modifiers

Modifiers	Definition
COL-HDR-SUPP	Suppresses output of page number, time/date, ITEMS LISTED message and column headings.
DBL-SPC	Double-spaces output.
DET-SUPP	Suppresses detail in line output (meaningful only when used with TOTAL or BREAK-ON).
DICT	Specifies that the dictionary file is to be used.
EACH or EVERY	Specifies that every value in a multivalued attribute must meet your specifications.
FOOTING	Outputs specified message at the bottom of every page.
GRAND-TOTAL	Outputs specified message on grand total line
HDR-SUPP	Suppresses output of page number, time/date and ITEMS LISTED message.
HEADING	Outputs specified message at the top of every page.
ID-SUPP	Suppresses output of item-IDs and file name.
LPTR or (P)	Outputs to printer.
NO, NOT	Tests for the absence of data.

Modifiers	Definition
NOPAGE	For terminal output suppresses pause at end of each page.
ONLY	Suppresses output of default attributes when output-spec is not specified.
TAPE	Specifies a tape file.
WITHIN	Specifies items which are sub-items of a specified item.

15.7 Connectives

Connectives	Definition
BREAK-ON	Causes a break when value of specified attribute changes.
BY	Specifies ascending sort attribute.
BY-DSND	Specifies descending sort attribute.
BY-EXP	As BY but treats each value in a multivalued attribute independently.
BY-EXP-DSND	As BY-DSND but treats each value in a multivalued attribute independently.
IF/WITH	Designates the selection criteria.
TOTAL	Specifies total value required for numeric attribute.
USING	Specifies that the filename immediately following is to be used as the source for the attribute definitions in the statement.

15.8 Logical connectives

Logical connectives	Definition
AND	Specifies that both connected parts must be true.
OR	Specifies that either or both connected parts must be true.

If a logical connective is not specified, OR is assumed.

15.9 Heading and Footing options

Heading and Footing options	Definition
B	Specifies display of the attribute value you choose to BREAK-ON in the HEADING/FOOTING message when B is also specified in the BREAK-ON specification.
D	Displays the current (system) date.
F	Inserts the name of the file.
L	Specifies a blank line feed.
N	Specifies expanded print.
P	Inserts the current page number.
PP	Right justifies the current page number in a field of three characters.
T	Inserts the current (system) date and time.

15.9.1 Note on options syntax

When a single Heading/Footing or BREAK-ON option is specified, it must be enclosed in single quotes. When more than one option is specified, they may be grouped together (with no separator) and enclosed in one set of single quotes, for example, 'LLT' or 'DU'.

15.10 BREAK-ON options

BREAK-ON options	Definition
B	Specifies display of the attribute value you choose to BREAK-ON in the HEADING/FOOTING message when B is also specified in the EADING/FOOTING specification.
D	Suppresses one blank line and the asterisk/text line when the attribute name you BREAK-ON has only one item; subtotals are also suppressed.
L	Suppresses the blank line immediately following a group of items.
P	Specifies that each group of items is to appear on a separate page.
U	Underlines subtotalled columns in a report.
V	Displays the value of the BREAK-ON attribute in the BREAK-ON text.

Section 16: Making a data file (Tutorial two: Dictionaries)

16.1 Creating a data section

Let's suppose that you want to make a personnel file for your company comprising, for each employee, name, address, home phone number, department and start date.

Data is contained in data sections each of which is IDentified by the file name, followed by a comma, then the data section name, except for the default data section which is IDentified by the file name only. Within a data section, data is held in units called items and each item is referenced by an item-ID.

If you have worked through Tutorial One, you will have seen that in the ROOMS file data section each item contains information about a single room in the hotel and has an item-ID consisting of the room number. In the GUESTS file data sections, each item contains information about a single guest and again has the room number as the item-ID. Each item-ID must be unique within a file.

For your personnel file it is logical to make each person's details a separate item.
A logical choice for item-ID is employee number, as this is unique for each employee.

Before you can enter data, you must create a data section to contain the data. For the purpose of this exercise, make the name of the file your initials, represented in this document by XYZ. For your file simply substitute two, three or four of your initials in upper case.

Type **`CREATE-FILE XYZ 1 11`** with spaces exactly as shown, and then press `RETURN`.

The screen displays a message of the form as follows:

```
[417] FILE 'XYZ' CREATED:
D/CODE =DL, BASE =1210837, MODULO =1, SEPAR =1

[417] FILE 'XYZ' CREATED:
D/CODE DL, BASE =1210838, MODULO =11, SEPAR =1
```

The second part confirms that a data section has been created. This is the default data section identified by file name XYZ. The first part will be explained later in the next chapter.

If you get a message of the form, `[82] YOUR SYSTEM PRIVILEGE LEVEL IS NOT SUFFICIENT FOR THIS STATEMENT`, ask your supervisor to check that you have SYS1 privileges and 127 frames of additional workspace. (Attribute 8 of Account Definition Item ENGLISHTUTORIAL in SYSTEM should contain SYS1 (127), some earlier releases of software did not have this.)

16.2 Entering data using EDITOR

You are now ready to enter data into your newly created data section.

Type **`ED XYZ 1`** and press `RETURN`.

The '1' specifies the item-ID (which is an employee number) of the item you are creating.

The screen displays the following:

```
NEW ITEM
TOP
.
```

The full stop (.) at the left of the screen indicates that you are in the EDITOR.

Note

1. It is not the intention of this document to teach you the facilities available within EDITOR and so only those commands which are needed are covered here.
2. If you make a mistake while entering data and you notice it before pressing RETURN, you can correct it immediately using the BACKSPACE key. However, if you press RETURN before noticing a mistake, continue entering data until you've completed the first six items, then you will be shown how to make corrections.

Now type **I** and press RETURN to indicate that you want to insert data.

The screen displays the following:

```
001
```

001 is the number of the first attribute or line within the item. This attribute is to contain the last name of the employee.

Type **Andrews** and press RETURN. Use upper- or lower-case letters as required in any output.

The screen displays the following:

```
002
```

The second attribute is to contain the first name of the employee.

Type **John** and press RETURN.

The screen then displays the following:

```
003
```

This attribute is to contain the address of the person.

Type **86, Crouchfield Road, Stevenage, Herts** and press RETURN.

The screen displays the following:

```
004
```

This attribute is to contain the telephone number.

Type **(0992) 63721** and press RETURN.

The screen displays the following:

```
005
```

This attribute is to contain the department.

Type **Marketing** and press RETURN.

The screen displays the following:

```
006
```

The only piece of data still to be entered is the Start Date. Dates are normally stored in a special way and we will come back to this later in this tutorial. There is no more information to enter now, so press RETURN, again. The screen then displays the EDITOR prompt (.).

Now type **FI** and press RETURN. This files the item and returns you to the TCL prompt. The screen displays the following:

```
:
```

Create item 2 (for employee number 2) in the same way. Type **ED XYZ 2** and press RETURN.

At the EDITOR prompt (.), type **I** and press RETURN.

At attribute number 001, type **Sutton**.

At attribute number 002, type **Peter** and press RETURN.

At attribute number 003, type **76, Churchills, Hertford, Herts** and press RETURN.

At attribute number 004, type **(0761) 5739** and press RETURN.

At attribute number 005, type **Development** and press RETURN.

At attribute number 006, press RETURN.

At the EDITOR prompt, type **FI** and press RETURN.

Create items 3 to 6 in the same way using details of your choice. Then type **LIST XYZ** followed by RETURN.

This displays the item-ids of the items you have just created, as follows:

```
PAGE      1

XYZ .......
1
2
3
4
5
6

6 ITEM LISTED
```

Although for the purposes of this exercise you inserted data into the file using the EDITOR, you would normally write a DATA/BASIC program or an ALL function to prompt for the data and then automatically write it into the file. The result is the same but DATA/BASIC allows each entry, such as Surname, Address, and so on…. to be prompted for and therefore enables a person who is not familiar with the system to enter data.

Note

The word 'ALL', mentioned above, refers to a fourth-generation programming facility supported by REALITY systems.

16.3 Correcting mistakes using Editor

If you make a mistake while entering data into your new file XYZ, use the following EDITOR procedures to correct it.

16.3.1 Deleting and re-entering an item

Type **ED XYZ *item-id*** where item-ID is the name identity of the item you wish to edit. Then press RETURN.

Type FD and press RETURN.
The system responds with a prompt
```
FD? SURE (Y/N)
```

Type **Y**
This deletes the item.

Now enter the item again, as described earlier in the chapter.

16.3.2 Replacing a line with new text

Type **ED XYZ item-id** and press RETURN.

The screen displays the following:
```
TOP
.
```

Type **P** and press RETURN, to list the chosen item.

In the listing, identify the first line number to be changed and type the number followed by RETURN.

The system responds by displaying the line requested.

Type **R** to commence replacing the line.

The system responds with the same line number followed by a blank.

Now type in the new text to replace the line to be changed.

Work down the attribute lines in numerical order, making changes as required using the same procedure as follows:

1. Enter line number, or just RETURN for next line.
2. Type **R** to replace text.
3. Enter new text.

You must continue in numerical order from the first line you change down to line 6. If a second correction is needed in the current line, after you press RETURN, or if you miss a correction in a previous line, don't return to it in the current 'R' sequence, but leave it for a further group of changes to the item.

When you have completed the current group of changes to the item, type **FS** to store the amended version.

Type P to display the amended item, and check that it is correct. If you wish to make further changes, repeat the procedure 1. to 3. described above, or you can delete or insert lines using the procedures described later in the chapter, before exiting the EDITOR.

When you are satisfied that the item is correct, type **FI** to store the current version and exit the EDITOR.

16.3.3 Inserting a line

Type **ED XYZ item-id** where item-id is the identity of the item you wish to edit then press RETURN.

The screen displays the following:
```
TOP
.
```

Type **P** and press RETURN, to list the first 22 lines of the chosen item.

Identify the number of the line immediately before the place where you want to insert a new line, and type that line number.

The system responds by displaying the line entered.

Type **I** to insert the line.
The system responds with the same line number and a plus (+) sign or if you're starting at the top of the item, 001-.

Type in the new text to be inserted and press RETURN.

If you wish to insert further lines, repeat the procedure described as follows:

1. Enter the number of the line which is immediately before the place where the new line is to be inserted.
2. Type I to insert text.
3. Enter new text.

When you have completed the current group of changes to the item, type **FS** to store the amended item.

Type **P** to display the amended item, and check that it is correct. If you wish to make further changes, repeat the procedure 1 to 3 described above.

When you are satisfied that the item is correct, type **FI** to store the current version and exit the EDITOR.

16.3.4 Deleting a line

Type **ED XYZ *item-id*** where *item-id* is the identity of the item you wish to edit, then press RETURN.

The screen displays the following:
```
TOP
.
```

Type **P** and press RETURN, to list the first 22 lines of the chosen item.

In the listing identify the line you wish to delete and type its line number followed by RETURN.

The system responds by displaying the line entered.
Type **DE** to delete the line.

If you want to delete several consecutive lines type **DEn** where n is the number of lines from and including the current line to be deleted.

The system responds with the EDITOR prompt (.).

If you wish to delete further lines, repeat the procedure described overleaf, as follows:

1. Enter the number of the line to be deleted
2. Type **DE** to replace text.

When you've completed the current group of changes to the item, type **FS** to store the amended item.

Type **P** to display the amended item, and check that its correct. If you wish to make further changes, repeated the procedure 1. to 2. described above.

You can also continue by inserting a line or replacing a line using the procedures described previously, before exiting the EDITOR.

When you are satisfied that the item is correct, type **FI** to store the current version and exit the EDITOR.

16.4 Summary

In this chapter you have learned the following:

- How to create a data file using the CREATE-FILE verb
- How to enter data via the EDITOR
- How to correct mistakes with the EDITOR

Section 17: Making a dictionary file

17.1 Creating a dictionary

So far you can only request the output of item-ids in the file. You cannot make an inquiry such as the following:

```
LIST XYZ WITH LAST.NAME = "Sutton" FIRST.NAME ADDRESS PHONE
```

This is because the system does not know that the first attribute within each of the items of the data section contains the last name, the second attribute contains the first name, the third attribute contains the address, the fourth attribute contains the phone number and the fifth attribute contain the department. This can be rectified by defining each of the attributes to ENGLISH.

Attributes are defined in a dictionary file. You created a dictionary file while you created the data section. This was confirmed by the message displayed when you entered the CREATE-FILE command:

```
[417] FILE 'XYZ' CREATED:
D/CODE=DL BASE=1210837, MODULO=1, SEPAR=1
```

A dictionary file is simply another file which is also made up of items. Each item can define an attribute in the items of the data section.

17.2 Entering data definition items

To enter attribute definition items into the dictionary file, type **ED DICT XYZ LAST.NAME** remembering to substitute your initials for XYZ as before, and press RETURN.

This specifies that you are going to define the LAST.NAME attribute of the items in your file using the EDITOR.

The screen displays the following:

```
NEW ITEM
TOP
.
```

To insert text in the new item `LAST.NAME`, type I and press `RETURN`.

The screen displays the following:

```
001
```

The structure of items within a dictionary file is fixed. The first attribute always defines the type of item.

At 001 type **A** and press `RETURN`. This indicates a data definition item - that is an item which describes an attribute.

The screen displays the following:

```
002
```

The second attribute (known as the attribute mark count, amc) specifies which attribute within the items of the data file is being defined.

At 002 type **1** and press RETURN. This indicates that the LAST.NAME is attribute 1 of the data items.

The screen displays the following:
003

The third attribute contains the column heading to be displayed when the data attribute is output. Type Last name and press RETURN.

The screen displays the following:
004

This attribute is not used. For reasons which will be given shortly, type **Z** and press RETURN.

The screen displays the following:
005

This attribute is not used. Type **Z** and press RETURN.

The screen displays the following:
006

This attribute is not used. Type **Z** and press RETURN.

The screen displays the following:
007

This attribute contains any conversion code - more about this later. No conversion is needed here and so type **Z** and press RETURN.

The screen displays the following:
008

This attribute contains any correlative code - more about this later. No correlative is needed here and so type **Z** and press RETURN.

The screen displays the following:
009

This attribute defines the position of output text within the column, type **T** and press RETURN. 'T' specifies text data left justified within the column.

The screen displays the following:
010

This attribute specifies the width of the column in which the file attribute values will be output. In the case of the LAST.NAME attribute you need only count the number of letters in the longest name. Type the number you have worked out, and press RETURN.

The screen displays the following:
011

You have now entered all the necessary information. Press RETURN.

The screen displays the following:

```
TOP
.
```

To list the item, type P and press RETURN.

The screen displays the following:

```
001 A
002 1
003 Last name
004 Z
005 Z
006 Z
007 Z
008 Z
009 T
010 10
```

We now come back to the reason for putting a Z in attributes lines 004 to 008, even though these attributes are not used in this case. This is done because it is not possible to enter a null in an attribute line simply by entering a RETURN; you have seen that pressing RETURN only takes you back to the EDITOR prompt. One way round this is to enter a character and then replace that character with a null; using a little-used character such as Z allows a global change to be done to replace all Zs with nulls rather than having to do it a line at a time. There are other ways to enter a null attribute. These are dealt with in the EDITOR Reference Manual.

Before you can replace the Zs with nulls using EDITOR, you must go back to the top of the item. Changes can only be made to the lines following the current line, that is, the last line displayed. So, type **T** and press RETURN.

The screen displays the following:

```
TOP
.
```

This indicates you are back at the top.

To replace all Z's in the item with nulls type **R99/Z//** and press RETURN.

The screen displays the following:

```
004
005
006
007
008
EOI 010
```

To confirm that the changes have been made.

Type **F** and press RETURN.

Type **P** and press RETURN, so that you can now see the complete item.

The screen displays the following:

```
001 A
002 1
003 Last name
```

```
004
005
006
007
008
009 T
010 10
```

Now type **FI** and press RETURN to file the item and exit EDITOR returning to TCL.

To try out your LAST.NAME dictionary definition, type **LIST XYZ LAST.NAME** remembering to replace XYZ with your initials, and press RETURN.

The screen displays something like the following:

```
XYZ Last name
1 Andrews
2 Sutton
3 Jones
4 Adams
5 Kellers
6 ITEMS LISTED
```

You have now defined the first attribute within each of the data items. Carry out a similar procedure to define the second attribute (FIRST.NAME) as follows:

Type **ED DICT XYZ FIRST.NAME** and press RETURN.

To insert data in the new item FIRST.NAME type **I** and press RETURN.

At 001 type A and press RETURN.

At 002 type 2 and press RETURN.

At 003 type **First name** and press RETURN.

At 004, 005, 006, 007 and 008 type **Z** and press RETURN.

At 009 type **T** and press RETURN.

At 010 type **12** or another number representing the number of characters in the longest first name and press RETURN.

At 011 just press RETURN. This completes the insert mode.

To take EDITOR back to the top of the item, type **T** and press RETURN.

The screen displays the following:

```
TOP
```

Now replace all the 'Z's with nulls type **R99/Z//** and press RETURN.

Type **F** and press RETURN.

To check that the item is now correct, type **P** and press RETURN.

The screen displays the following:

```
001 A
002 1
003 First name
004
005
006
007
008
009 T
010 12
```

To file the item and return to the colon prompt, type **FI** and press RETURN.

Try out your FIRST.NAME dictionary definition (together with LAST.NAME) by typing **LIST XYZ FIRST.NAME LAST.NAME** remembering to replace XYZ with your initials, and press RETURN.

Carry out a similar procedure to define the ADDRESS, PHONE and DEPT attributes so that the dictionary definitions are as follows:

```
         ADDRESS  PHONE  DEPT
001      A        A      A
002      3        4      5
003      Address  Phone
                  No.    Dept.
004
005
006
007
008
009      T        T      T
010      30       12     10
```

Try these out with statements such as

```
LIST XYZ FIRST.NAME LAST.NAME ADDRESS

SORT XYZ BY LAST.NAME LAST.NAME FIRST.NAME
```

and others of your choice.

17.3 Summary

In this chapter you have learned the following:

- How to create a file dictionary
- How to enter data definition items

Section 18: Storing and outputting dates

18.1 Internal date format

The start date is the next piece of information to enter your XYZ file. You could enter dates as pieces of text, for example, 12 AUG 1986 or 4 March 1985. This would allow you to list dates, but would not enable you to do a selection such as:

```
LIST XYZ WITH START.DATE AFTER "30 SEP 1984" FIRST.NAME
LAST.NAME START.DATE
```

This is because the system does not understand the date in the form shown (30 SEP 1984) and although it will process the information and come up with some answers, they cannot be relied upon to be correct.

The way in which a date is stored on the system is as the number of days (plus or minus) from 31 December 1967. For example,

22 September 1967	is stored as 100
31 December 1967	is stored as 0
28 October 1985	is stored as 6511

Although this may seem complicated it is the most efficient way of storing dates. You would not be expected to work these numbers out yourself; you would simply incorporate the appropriate conversion statement (ICONV) in your DATA/BASIC input program.

However, just for the purposes of this exercise we will get you to insert some dates, in the internal format, directly into your data file.

Note

You learned how to correct mistakes, made during editing, in the tutorial on 'Making a Data File' (Chapter 16). You can use the same methods to correct dates and conversion codes entered during the following procedures.

Type **ED XYZ 1** remembering to substitute your initials for XYZ and press RETURN.

At the EDITOR prompt (.) type **B** and press RETURN to take you to the bottom of the item and then type **I** and press RETURN to insert a new line.

The screen displays 005+ to indicate that the new line to be inserted will follow 005; it will be correctly numbered when the item is filed using FI.

Type **6726** and press RETURN. 6726 is the internal format of 31 MAY 1986.

Press RETURN, again and then at the EDITOR prompt type **FI** and press RETURN to file the changed item and return to colon (:) prompt.

Insert a start date in item 2 in the same way. Type **ED XYZ 2** and press RETURN.

At the EDITOR prompt type **B** and press RETURN and then type **I** and press RETURN.

At 005+ type **6496** and press RETURN (6496 = 13 OCT 1985)

Press RETURN, again and at the EDITOR prompt (.) type **FI** and press RETURN.
Repeat the procedure for items 3 to 6 using dates as follows:

item 3 6612 (= 06 FEB 1986)
item 4 5953 (= 18 APR 1984)
item 5 6017 (= 21 JUN 1984)
item 6 6153 (= 04 NOV 1984)

18.2 'D' conversion code

You will, of course, also need to define the start date attribute in the dictionary. However, one more point needs to be considered in relation to the start date – the dates are stored in the internal format and are meaningless to users of the system. To convert the internal format to a recognisable date format for output, a conversion code must be specified in attribute 007 of the attribute definition item. There are several different date conversion codes which may be used but for this tutorial we will use the code 'D' which converts to a date of the form 27 MAY 1975.

Create the attribute definition item for START.DATE in DICT XYZ so that it looks like the following:

```
001 S
002 6
003 Start date
004
005
006
007 D
008
009 T
010 12
```

When you have done this and are back at the colon prompt try it out with statements such as the follows:

```
LIST XYZ WITH START.DATE AFTER "30 SEP 1984" FIRST.NAME
LAST.NAME START.DATE

SORT XYZ BY START.DATE FIRST.NAME LAST.NAME START.DATE
```

Note that dates specified in an ENGLISH statement must be in the same form as dates that are output. This is because the system performs a reverse of the conversion process (specified by D in this case) to produce an internal date format for comparison purposes.

For example, in response to the following statement,

```
LIST XYZ WITH START.DATE AFTER "30 SEP 1984" FIRST.NAME
LAST.NAME START.DATE
```

the system performs an inverse conversion of 30 SEP 1984 to the internal format 6118. Each of the start dates in XYZ are stored in internal format, for example, 06 FEB 1986 is stored as 6612. AFTER "30 SEP 1984" causes the system to look for numbers greater than 6118. 6612 is greater than 6118, therefore the item with start date 06 FEB 1986 is listed. The effect of using a conversion can, therefore, be represented as follows:

```
                Conversion
internal value ------------> output value
(e.g. 06 FEB 1986)
                Inverse Conversion
                (if calculable)
                value in-------->      internal value
                ENGLISH                (e.g. 6118)
                statement
                (e.g. 30 SEP 1984)
```

18.3 Summary

In this chapter you have learned the following:

- How dates are stored.
- How to use a conversion code to convert an internal value into a form suitable for output.

Section 19: Concatenating attributes

19.1 'C' code

So far, if you have wanted to output full names you have had to include both FIRST.NAME and LAST.NAME in your ENGLISH statement. One way around this would be to input full names as additional attributes in the data items and set up an appropriate data definition item in the dictionary.

There is, however, a simpler method which only involves the creation of another data definition item. Just as for the date you used a conversion code to convert internal format to a suitable output form, so in this case, you can use a conversion code to join (concatenate) the FIRST.NAME and LAST.NAME values for output.

Create the NAME data definition item in the dictionary (DICT XYZ) as follows:
001 S
002 0 <----- This item is not defining a single data attribute, but the
003 Name concatenation of two attributes
004
005
006
007 C2 1 <-- Concatenate data attributes 2 and 1 leaving a space between
008 them. (FIRST.NAME LAST.NAME)
009 T
010 15

When you have done this try using it with the following statement:
LIST XYZ NAME ADDRESS

The screen displays the following screenshot:

```
PAGE 1

XYZ.....    Name.....    Address.....................

1           John Andrews 86, Crouchfield Road,
                         Stevenage, Herts
2           Peter Sutton 76, Churchills Hertford, Herts
3           James Scott  11, Stanely Drive, Wadesmill,
                         Herts
4           Joe Compton  31, Cranfield Road, Aylesbury,
                         Bucks
5           Jill Adams   2a, Hartland Court, Hitchin
                         Herts
6           Joan Keller  15, Haddon Gardens, Tring,
                         Herts

6 ITEMS LISTED.
```

The NAME data definition item with C2 1 in attribute 7 thus appears to work satisfactorily. Now enter the following statement:

```
LIST XYZ WITH NAME = "Peter Sutton" ADDRESS START.DATE
```

The screen displays the following message:

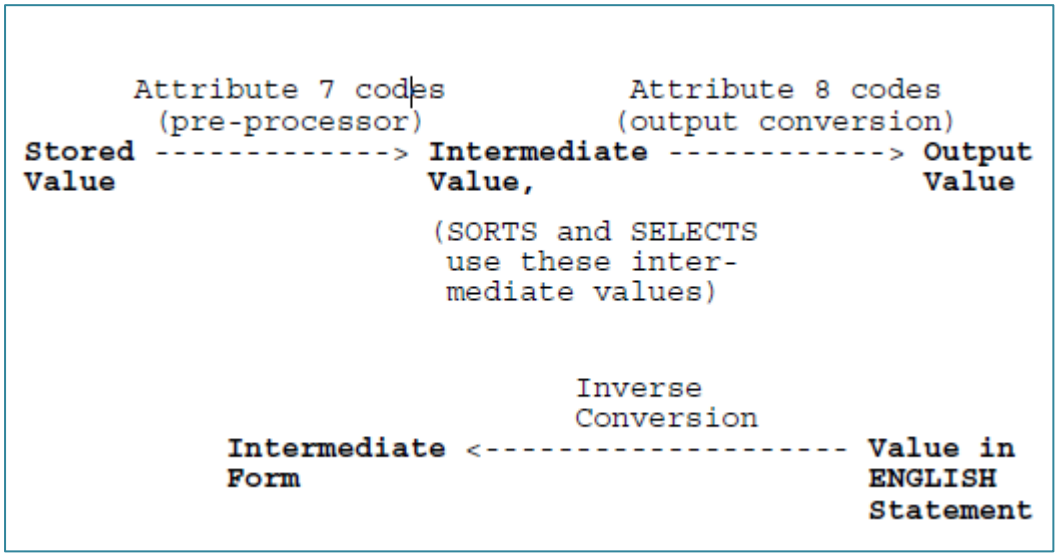
```
[401] NO ITEMS PRESENT
```

There is obviously a problem when doing a selection rather than just outputting names. The reason for this is that any codes in attribute 7 of a data definition item are applied just prior to output - after any selection procedure has been carried out.

19.2 'C' code in attribute 8

Although this is what was required in the case of the start dates it is obviously not correct for the NAME attribute.

What is needed here is a conversion code in attribute 8 of the data definition item, which is like a code in attribute 7 but is actioned before a selection is carried out. The following diagram illustrates this:



Attribute 8 codes are like attribute 7 codes and all that needs to be done with the NAME dictionary data definition item is to move code C2 1 from line 007 to line 008.

Type **ED DICT XYZ NAME** and press RETURN. The screen displays the EDITOR prompt.

Type **7** and press RETURN to display attribute line 007, then type **R/C2 1//** and press RETURN to replace C2 1 with a null on line 007.

Type **8** and press RETURN to display attribute 008 line, then type **R//C2 1/** and press RETURN to replace the null with C2 1 on line 008.

Type **FI** and press RETURN to file the changed item and return to TCL.

Now retry the statement **LIST XYZ WITH NAME = "Peter Sutton" ADDRESS START.DATE**

The screen displays the following screenshot:

```
PAGE 1
XYZ.........   Address...................       Start Date..
2              76, Churchills Hertford, Herts  31 MAY 1986
ONE ITEM LISTED.
```

19.3 Summary

In this chapter you have learned the following:

- How to concatenate attributes
- How to use an attribute 8 (pre-processor) code to convert an internal value into an intermediate value suitable for selection purposes

Section 20: Specifying default attributes

20.1 Defining default attributes

Default attributes are those which are output automatically in response to an ENGLISH statement, such as LIST XYZ, which does not specify attributes to be output. You have not yet specified any default attributes and so entering LIST XYZ simply displays the item-ids.

Default attributes have data definition item-ids which are numeric and sequential (i.e. 1, 2, 3....). You will, therefore, need to make copies of the relevant data definition items under the item-ids 1, 2, 3.... (A default attribute therefore normally has two data definition items associated with it).

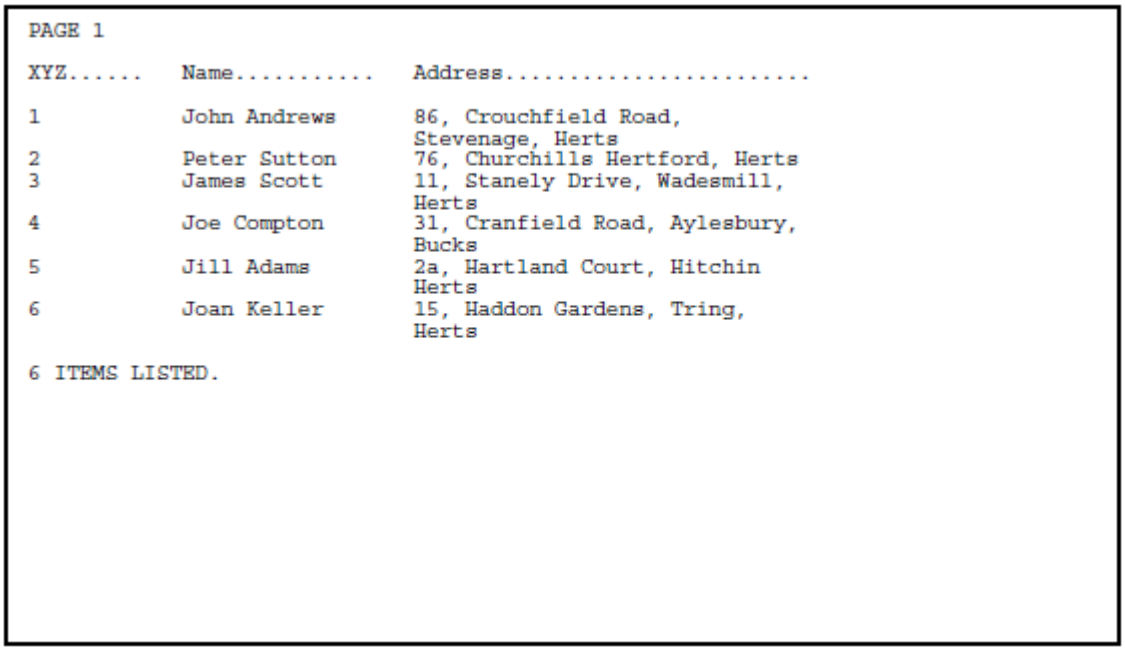
20.2 Example of default attributes

Suppose that you want to make NAME and ADDRESS default attributes. At the TCL prompt type **COPY DICT XYZ NAME ADDRESS** and press RETURN. You are prompted for the new item-ids (TO:).

Type **1 2** that is, 1, a space, then 2, and press RETURN. The message '2 ITEMS COPIED' is displayed.

Now type **LIST XYZ** and press RETURN.

The screen displays the following screenshot:



20.3 Summary

In this chapter you have learned the following:

- How to specify default attributes

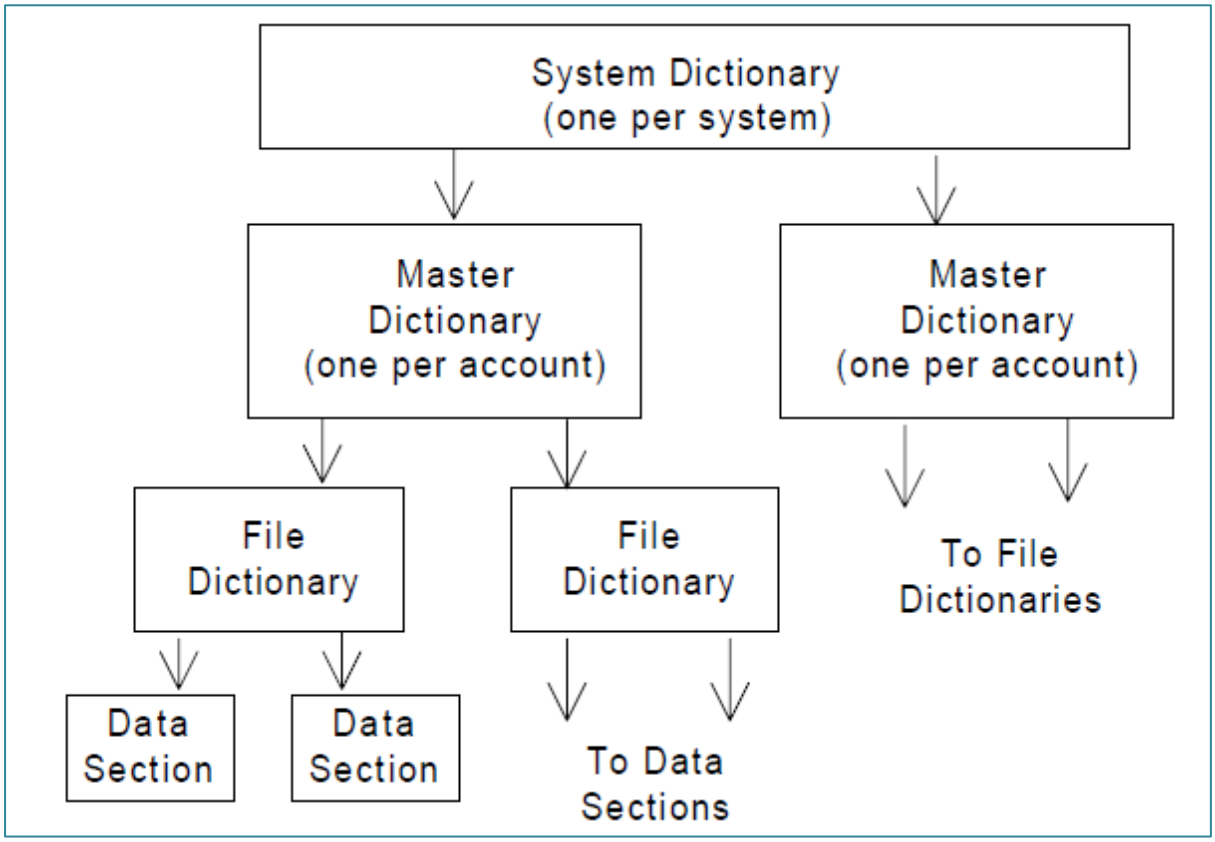
Section 21: Dictionaries reference

21.1 Introducing this chapter

This chapter contains a brief description of the overall file structure of a REALITY system or database and short descriptions of some of the conversion codes which you can use within a data definition item. This is intended only to give you an idea of the facilities available, not how to use them. For full details you should refer to the ENGLISH Reference Manual.

21.2 File system structure

The file system is arranged in four levels; three upper levels formed by Dictionary Files and the lowest level formed by Data Sections. Each Dictionary level defines the next lowest level. A File Dictionary defines one or more associated Data Sections. The diagram below illustrates how the system is organised.



21.3 System and master dictionaries

Each REALITY database has one System Dictionary called SYSTEM. SYSTEM defines several Master Dictionaries (MD), one for each account on the database. It contains encrypted passwords, specifies the primary size of each account's MD, and includes other information used by the database.

A Master Dictionary defines the Dictionary Files belonging to the associated account. It also includes the ENGLISH verbs and connectives that can be used within the account together with other verbs and items.

SYSTEM and its Master Dictionaries are covered in detail in system documentation (see References in Chapter 1).

21.4 File dictionary

Every Data Section which is to be accessed using ENGLISH must have a File Dictionary associated with it.

Each File Dictionary contains Data Level Descriptors which specify the Data Sections associated with it and Data Definition Items which describe the data in the Data Sections.

21.4.1 Data definition item

The structure of a Data Definition Item (DDI) is as follows:

Attribute	Description
001	Attribute name. Used by ENGLISH to reference the attribute.
002	A, S, or X. 'A' marks the item as a Data Definition Item. 'S' also marks a Data Definition Item but suppresses the default column heading (the DDI item-id) when attribute 3 is blank. 'X' marks the item as a Data Definition Item, the same way as the 'A' code item, except when the attribute is part of an implied output specification (for example, LIST GUESTS), in which case, the attribute is skipped by the ENGLISH processor.
003	Attribute Mark Count (AMC). This is the number of the attribute line described by the Data Definition Item.
004-006	Column heading. The heading specified here is displayed in an ENGLISH report at the top of the attribute column. If a heading is not specified, the column heading defaults to the item-id if attribute 1 is A. If attribute 1 is 'S' the column heading is a series of dots. If a single backslash (\) is shown in this attribute, and attribute 1 is A, the column heading is again a series of dots.
007	Not used and reserved.
008	Input/output conversion code(s). See next section.
009	Pre-processing code(s). See next section.
	Code indicating the position of attribute data in the column.

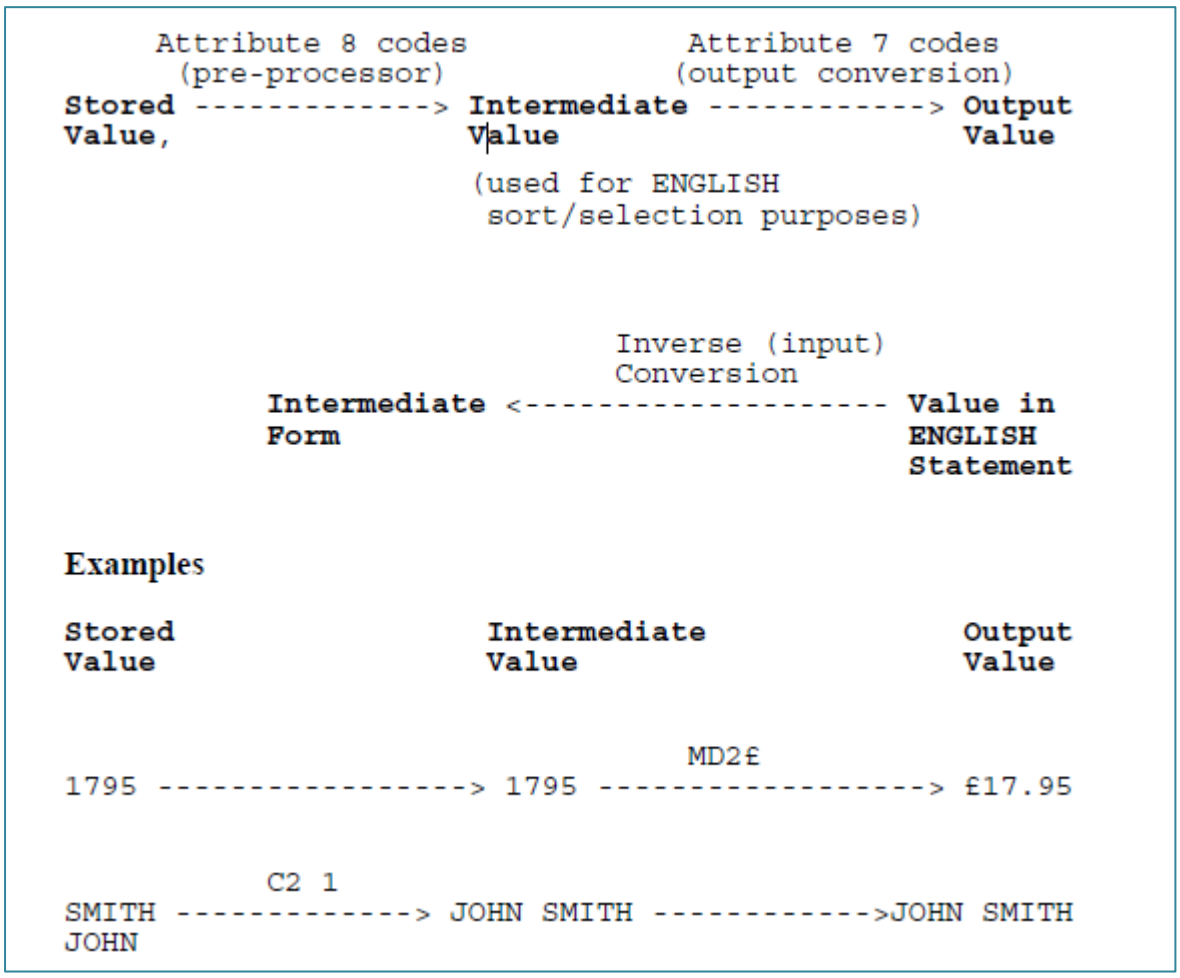
<table>
<tr><th>Attribute</th><th colspan="2">Description</th></tr>
<tr><td rowspan="6"></td><td colspan="2">A code is mandatory and must be one of the following:</td></tr>
<tr><td>Code</td><td>Explanation</td></tr>
<tr><td>I</td><td>Indented; Left justified with all lines after the first line indented one space relative to the left edge of wrapped text.</td></tr>
<tr><td>L</td><td>Left justified; wrap to left edge of column if length of text exceeds attribute 10.</td></tr>
<tr><td>R</td><td>Right justified; wrap to right edge of column if length of text exceeds attribute 10.</td></tr>
<tr><td>T</td><td>Text data; left justified, text folds back to left edge at each blank (space) character.</td></tr>
<tr><td></td><td>U</td><td>Left justified; print entire value online, ignoring column boundaries.</td></tr>
<tr><td>010</td><td colspan="2">Maximum width of the attribute data column displayed or printed by ENGLISH. A numeric value is mandatory.
If this value is less than the column heading width specified in attribute 3, the width of the column heading determines the column width, overriding this attribute.</td></tr>
<tr><td>011-020</td><td colspan="2">Not used and reserved.</td></tr>
</table>

21.5 Conversion codes

Conversion codes in DDI attribute 8 are applied to a stored data value to produce an intermediate value which ENGLISH uses for sort and selection purposes.

Conversion codes in attribute 7 of the DDI are applied to the intermediate value to produce the required output form, and, where appropriate, an inverse conversion is applied to a value in an ENGLISH statement to produce a value suitable for comparison with an intermediate value.

Note
Multiple codes may be specified separated by value marks (CTRL+]); they are processed from left to right.



21.5.1 A – Algebraic functions

Use: Performs mathematic and logic operations.

Example: Consider two attributes named STAY (number of nights) and RATE (charge per night), a conversion A;N(STAY)*N(RATE) produces a total room charge.

21.5.2 C – Concatenation

Use: Links together two or more attributes and/or user specified strings.

Example: C3 2
Concatenates attributes 3 and 2 leaving a space between them.

21.5.3 D – Date format

Comment: Usually specified as an output conversion.

Use: To save system space and produce values suitable for processing. Dates are stored as integers - the number of days (plus or minus) from 31 December 1967.
The D code reformats dates into a form suitable for output.

Example: Consider a stored value 6511, a conversion D produces 28 OCT 1985.

Note

The D code also allows you to specify dates in a recognisable form in your ENGLISH statements - it performs an inverse conversion to produce an integer for comparison with stored dates.

21.5.4 DD, DJ, DM, DMA, DQ, DW, DWA, DY - Additional date codes

Comment: Usually specified as output conversions.

Use: For dates stored in internal format, each of these codes returns a single piece of date information as follows:

- DD - Day of the month
- DJ - Julian day of the year
- DM - Number of the month
- DMA - Name of the month
- DQ - Number of the quarter
- DW - Numeric day of the week
- DWA - Name of the day of the week
- DY - The year

Example: Consider a stored value 6511, a conversion DM produces the number 10.

21.5.5 DI – Internal format

Use: For dates stored in external format, returns the internal format.

Example: Consider a stored value 28 OCT 1985, a code DI produces 6511.

21.5.6 D1 and D2 - Associative attributes

Use: Specifies two or more attributes to be considered as a set. One attribute is specified as a primary (D1) attribute and the remaining attribute(s) are specified as secondary (D2) attributes.

21.5.7 G - Group extraction

Use: Selects one or more contiguous segments of an attribute where the segments are separated by a common non-numeric character.

Example: Consider an attribute ST*WB*WATERBED a code. G1*1 produces WB.

21.5.8 MC - Mask character

Use: Perform character extractions and conversions.

21.5.9 MD - Mask decimal

Use: To save system space and produce values suitable for processing. Values are stored as integers - stripped of decimal points, commas, monetary signs, and so on.
The MD code reformats values into a form suitable for output.

Example: Consider a stored value 1234567, a conversion. MD2,£ produces £12,345.67.

Note

The MD code also allows you to specify values in a recognisable form in your ENGLISH statements - it performs an inverse conversion to product an integer for comparison with stored values.

21.5.10 MF - Mask field

Comment: Usually specified as an output conversion.

Use: Like MD (Mask Decimal) codes for specifying monetary signs, decimal points and negative value indicators. MF also allows text to be inserted.

Example: Consider a stored value 1234, a conversion MF2"Current Balance" produces 12.34 Current Balance.

21.5.11 ML - Mask decimal left justification

Comment: Usually specified as an output conversion.

Use: Like MD (Mask Decimal), the ML code reformats values into a form suitable for output and justified left.

Example: Consider a stored value 1234567, a conversion.

```
ML2,£
produces
Output Field
(Column width = 15)
123456789012345
---------------------------
£12,345.67
```

Note

The ML code also allows you to specify values in a recognisable form in your ENGLISH statements - it performs an inverse conversion to produce an integer for comparison with stored values.

21.5.12 MP - Packed decimals

Comment: Usually specified as an output conversion.

Use: To save system space decimal numbers are normally 'packed' for storage. The MP code reformats decimal numbers into a form suitable for output.

Note

The MP code also allows you to specify decimals in a recognisable form in your ENGLISH statements - it performs an inverse conversion to produce a packed decimal for comparison with stored values.

21.5.13 MR - Mask decimal right justification

Comment: Usually specified as an output conversion.

Use: Like MD (Mask Decimal), the MR code reformats values into a form suitable for output and justified right.

Example: Consider a stored value 1234567, a conversion.
MR2,£
produces
Output Field
(Column width = 15)
123456789012345

£12,345.67

Note
The MR code also allows you to specify values in a recognisable form in your ENGLISH statements - it performs an inverse conversion to produce an integer for comparison with stored values.

21.5.14 MT - Time format

Comment: Usually specified as an output conversion.

Use: To save system space and produce values suitable for processing. Times are stored as integers - the number of seconds from midnight.
The MT code reformats time into a form suitable for output.

Example: Consider a stored value 21600, a conversion
MTH
produces 06:00AM.

Note
The MT code also allows you to specify times in a recognisable form in your ENGLISH statements - it performs an inverse conversion to produce an integer for comparison with stored values.

21.5.15 MX – ASCII

Comment: Usually specified as an output conversion.

Use: Converts a character string to its hexadecimal ASCII equivalent.

21.5.16 T - Text extraction

Use: Selects a specified number of characters from an attribute value.

This can be used to save space in file items by allowing an attribute to contain more than one fixed length value.

Example: Consider a stored value 117201, a code of T4,3 produces 201.

21.5.17 Tfile - File translation

Use: Provides a cross-referencing capability whereby you can store just one copy of data and access it from other files.