16. The **Get Definitions...** button 1

21.   The **Save Definitions...** button.

This button allows you to save the record building instruction sets that you have just finished defining. They are saved as an ascii text file, and you get standard file dialog which allows you to place the file wherever you like. The best place for it is with the other control files.

Because it is an ascii text tile, it is theoretically editable. DON'T DO IT! There is no harm in you inspecting it, just don't change anything.

22.   The **Get Definitions...** button

This is the converse of the preceding button. You get a standard file dialog which allows you to locate your definitions control file for doing a reversal, and it is loaded in, parsed, and sets all the parameters in the Define Reversed Records dialog without you having to enter that particular dialog.

If you like, you can go into that dialog and change the instruction sets in any way you please. MacLex will use whatever instructions are in effect when you press the **Begin** button. Up to that point you are free to change them as often as you like.

17. The **Preview...** button   1

23.   The **Preview...** button

At any time as you a defining your instruction sets for doing reversals, you can press the **Done** button and come back to the Setup Reversal dialog. From there you can press the **Preview...** button in order to try out the effect of your instructions on actual lexicon records.

You will see an empty window, and a dialog with some buttons at the bottom. Press the **Get a File...** button and you will get a standard file dialog. Use it to locate a lexicon file on which you want to try out the effect of your changes. When the file is loaded, your screen may look something like the following:
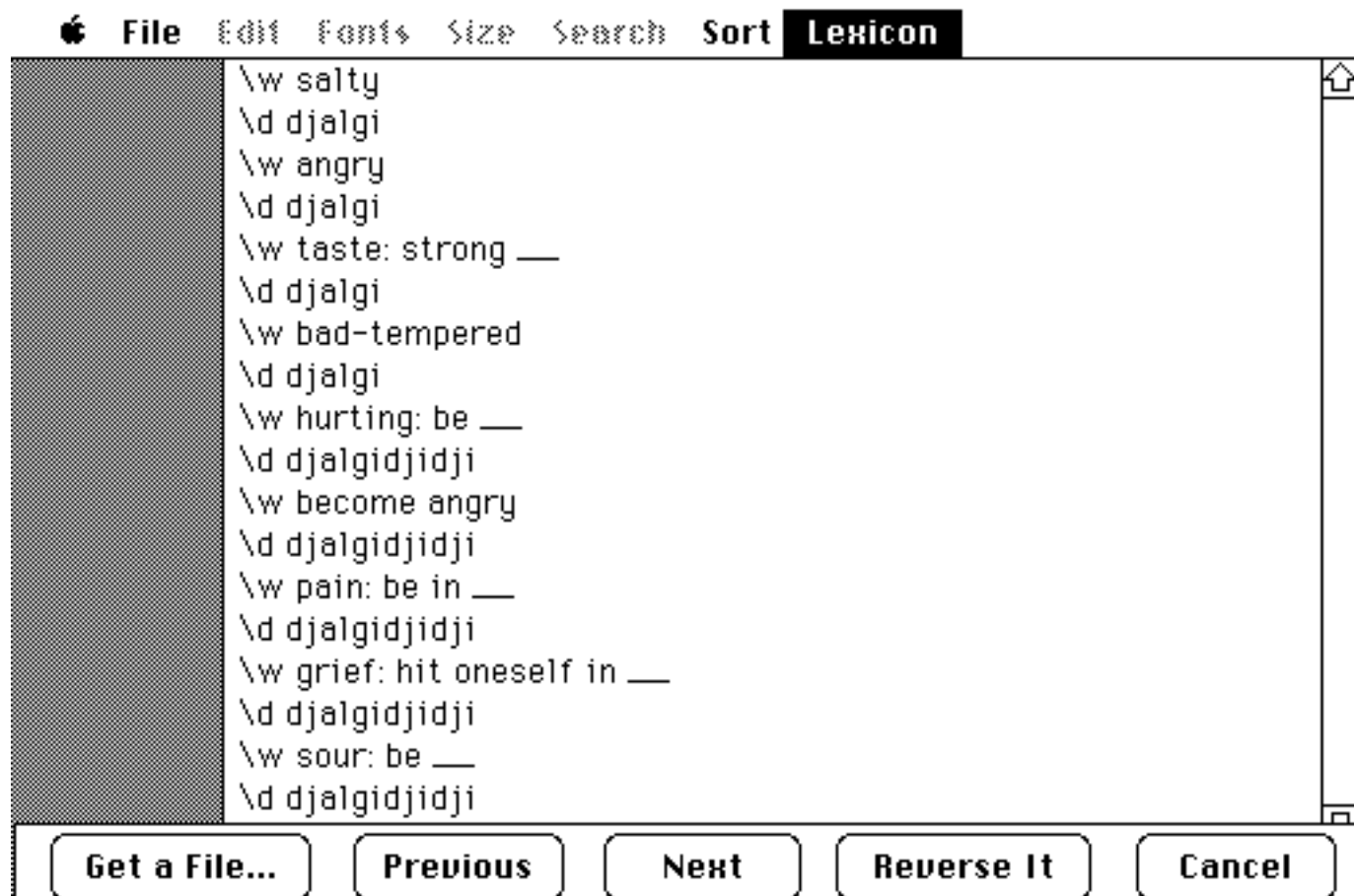

You are now ready to play. Use the **Previous** and **Next** buttons to go to the previous or next record in the file; they beep if you try to go beyond the file's boundaries.

When you press the **Reverse It** button, MacLex will use your instructions, as defined at that point of time, to build output records. The output records will be displayed in the window. If there are more

of them than can be seen, just click on the window and use the scroll bar to view the ones below the bottom of the window[1].

The two 2-line instruction sets for Djinang that I mentioned earlier in a footnote would produce the following display:

```
 File   Edit  Fonts  Size  Search  Sort  Lexicon
   \w salty
   \d djalgi
   \w angry
   \d djalgi
   \w taste: strong __
   \d djalgi
   \w bad-tempered
   \d djalgi
   \w hurting: be __
   \d djalgidjidji
   \w become angry
   \d djalgidjidji
   \w pain: be in __
   \d djalgidjidji
   \w grief: hit oneself in __
   \d djalgidjidji
   \w sour: be __
   \d djalgidjidji

 [ Get a File... ]  [ Previous ]  [ Next ]  [ Reverse It ]  [ Cancel ]
```

If you want to look at the original input record again, just refresh the window by pressing **Next** followed by **Previous**, or vise versa.

If the output is not what you want, press the **Cancel** button and then the **Define Reversed Records...** button. Edit or add to your instruction sets, and then return to preview mode. When the preview dialog comes up again, it will be showing the same record of the same file, ready for you to immediately try out your changes.

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[1]You may freely modify or add to either the reversed records, or to the source file's (unreversed) record. Doing the latter is useful if you want to try out a very specific type of reversal and there is no suitable record in the file to use for the test. You can just type the record the way you want it to be, then hit the Reverse It button, and MacLex will reverse that modified record. Since MacLex does not save your changes, this does not affect your files on disk, and so is completely safe. However, if you modify a record and then reverse it, your typed changes will be lost when the reversed records overwrite the window's contents. You can modify the record as many times as you want, however.

17. The **Preview...** button 3

16. The **Get Definitions...** button 4

You can flip backwards and forwards from previewing to defining instructions as often as you like, until you are satisfied with what you are getting. Your lexicon data is in no way affected by previewing (nor, for that matter, by the reversal process), so there is no possibility of you fouling something up. The output will either be what you want, or not want you want, but in either case you can't do any damage to your lexicon.

One thing to note. If you get an empty window when you press the **Reverse It** button, there is nothing wrong - or at least nothing wrong with MacLex. What has happened is that MacLex was unable to produce any output records from the currently viewed input record. Perhaps you have an obligatory field specified, and it is not in the input, and so causes all the output records to be abandoned.

A blank window is not necessarily bad; you might be trying out a tentative instruction set which you want to use in order to build records in very tightly controlled circumstances, and you want to check out by previewing that only certain input records produce some output. In this kind of situation the blank window give you the visual feedback you need in order for you to know that your instructions are doing what you want.

Finally, when you are satisfied, you can save your definitions as discussed above, and then press the **Begin Reversal** button to get a full reversal of the whole lexicon.

17. The **Preview...** button 4

24. Searching and Replacing in your lexicon

MacLex allows you to search for a string anywhere in the lexicon, and to limit the search to certain fields, or to exclude it from certain fields. You can also do replacements, and under controlled conditions automatic replacements are also possible.

An additional feature is that you can have MacLex compile a list of records which meet some string-matching criterion; or which have been altered in some way (including new ones input); or both of these options. A menu choice then allows you to 'trace' through the lexicon, going only to the records included in the 'trace list'.

First, the **Find** dialog, which is on the **Search** menu.

The items mostly should be self explanatory. Type the string to be searched for in the top edit text box. Click **Whole word** if the matching must match a whole word, and exclude matches of just part of a word. Click **Ignore case** if you want upper and lower case to be treated as equivalent (remember, the latter does not apply to special characters defined in a custom font - MacLex has no way of knowing which ones are upper and lower case pairs).

You may specify a range of records for the searching; do it in one of the following three ways.
(1)   type a record number in each of the edit text boxes. For example, 66 in the first box and 99 in the second box would limit the search to records 66 to 99 inclusive.

17. The **Preview...** button   5

(2)   type a record header in each of the edit text boxes. For example, *nyani* in the first box and *wurpi* in the second box would limit the search to the records from *nyani* up to, but not including, *wurpi*. (In the case of a typed header, the end of the range is a bound, rather than part of the range.)

(3)   combine (1) and (2) - for example, 66 in the first box, *wurpi* in the second box; or *nyani* in the first, and 99 in the second. What you type is regarded as a number if the first character is a digit.

If you use a range, but leave one or both edit text boxes blank, MacLex uses record 1 as the start of the range, and the last record as the end of the range (and the last record is included in the range).

Note: typing something in these boxes does not make MacLex use the range so defined. You have to 'turn it on'. To do this, click the **From range start** checkbox. The range will stay in effect thereafter, until you **Disable** it. However, searching will start at the start of the range only when you click the **From range start** button immediately beforehand; otherwise it starts from wherever you currently are in the lexicon. If you are outside the range, then it will be confined to the record currently on the screen.

The lowest text box is where you can specify one or more tokens of fields. What you type here will have an effect only if one the checkboxes **In listed field(s)** or **In all except listed field(s)** is turned on. In the former instance, searching will take place only in the fields having tokens matching those in the box. In the latter instance, searching will take place in every field which is not one of those typed in the box.

The checkbox **In header only** allows you to search just the headers. This is fast, but it searches the index table in memory rather than the lexicon files. The index table's header entries will be clipped at the right hand end if too long, so this search might fail to make some matches. (For a 16-byte sort key, the table entries will be 16 + 2 + 12 bytes long - long enough for most purposes.)

If none of the above three checkboxes is turned on, then searching takes place in the whole of each record.

The checkbox **From record start** allows you to start the searching from the start of the record without having to exit the dialog and place the cursor there - if the current selection happens not to be at the start of the record.

17. The **Preview...** button   6

16. The **Get Definitions...** button 7

The checkbox **From lexicon start** allows you to start the search from the first record of the lexicon without having first to get it up on the screen.

These three checkboxes on the left do not stay checked - they revert to unchecked as soon as their function has been performed.

When you hit the **Find** button, the searching begins. MacLex does not close the dialog box, it just sends it behind all other windows. It is quite safe to leave it there - which keeps its settings current in case you want to use them often. It gets closed automatically if you exit the lexicon. To do a **Find Again**, you can use either the menu item of that name, or its command key equivalent (Command + A). Matched text is shown <u>selected</u>, and the record is scrolled if necessary so that you can see it. Editing is not possible, however, unless you first hit the **Edit** key.

The final feature to be discussed is the 'trace list'. Its controls are at the bottom right of the Find and Change dialogs. The trace list is just a list of record numbers which MacLex keeps track of.

You can erase the list's contents by using the **Erase Compiled List** button - the space for the list stays in memory, but there will be no entries in it. The list can only be cleared by using this button; or by repeated use of the **Delete From Trace List** menu item in the **Search** menu.

MacLex adds record numbers to the list, (ie. it 'compiles them') in several ways. The important thing to note is that this compilation process only takes place while the **Compile trace list** checkbox is turned on. When this checkbox is off, <u>no records can be added to the list under any circumstances</u> (although deletion of records, or complete erasure of the list, is still possible).

The **Search** menu also has an item called **Add To Trace List** which allows you to manually specify that the currrently displayed record should be added to the list. If the **Compile trace list** checkbox is on, this menu item will be enabled; but it will be disabled if the checkbox is currently off.

The previous paragraph tells you about one way to have a record added to the trace list. There are two other ways. One way is to hit the **Find All** button in the **Search** (or **Change**) dialog. This button tells MacLex to go and find all possible matches, given the current search string, range, and other constraints as specified by the checkboxes and edit text boxes in the dialog. It does not have any of the matched records

17. The **Preview...** button 7

displayed. Instead, every time a valid match is made, that record's number is added to the trace list.

The final way records can be added to the trace list is for a record to be changed - either by editing, or by the **Replace** function of the **Change** dialog., or by adding a new record to the lexicon. So, when compilation is active, then any time something happens which changes the lexicon's files, then the particular record concerned will have its number added to the trace list.

If you don't want a certain record to be in the list, you can delete it from the list (note, it stays in the lexicon however) by using the menu item **Delete From Trace List** in the Search menu. You first get the record displayed on the screen, then choose the above menu item, and MacLex will immediately remove it from the list.

Some further facts about the trace list:
1.   It is impossible to have a record entered more than once in the list. If you try, MacLex simply rejects the attempt. It <u>always</u> checks to see if a record is already in the list before adding a new entry.
2.   The list is kept in ascending order of record numbers at all times.
3.   If a record is deleted from the lexicon, it will automatically be deleted from the trace list if it hapened to be in the list. This is true regardless of whether compiling is currently on or not, or whether tracing (see 4. below) is on or not.
4.   The Search menu has an item **Turn Tracing On** which allows you to switch to tracing mode. If tracing mode is current, the item will become **Turn Tracing Off**. In tracing mode, the 'next' and 'previous' arrow keys take you to the next or previous record in the trace list. When you are in this mode, the record number in the command bar will be displayed in reverse video if the displayed record is in the list. If the displayed record is not in the list, the number will be displayed with a black box around it. Only these two keys are altered in their function when tracing mode is active. The divisions buttons, and the edit text box in the command bar, work in their normal ways.
5.   MacLex does not 'wrap' when you trace to the start or end of the list.

What use is the trace list? Well, it is currently supported by the **Export...** function; and gives you a convenient way to specify certain records for exporting. It will also be supported by the **Merge** functions when I implement them at a later date. You might find other uses for it as well.

We now come to the **Change** dialog. This is identical to the **Find** dialog except for the addition of an edit text box in which you type the replacement string, a few extra buttons, and a bit of rearranging of the dialog's items to fit the extra ones. The dialog is as follows:

The extra buttons do not need explaining. They are duplicated as menu items in the **Search** menu, so you can invoke them from there, or by their command equivalents, when the dialog is behind other windows.

You may notice that the **Replace All** button is sometimes disabled for no apparent reason. This is not an accident or a bug. That button (and the equivalent menu item) is enabled only <u>provided that the target string is not contained within the replacement string</u>. That is; if you had MacLex search for the string <u>art</u> and told it to replace this string with the string <u>article</u>, then the **Replace All** button would be disabled.

There is an important reason for this restriction. Certain types of replacements in a header could become recursive in certain circumstances. That is, the changed header might require moving the record to another location in the lexicon - and that location might be ahead of where it formerly was, and the replaced string might be able to be matched in the same header once again. This combination of circumstances would result in the same record's header being made larger an indefinitely large number of times - or at least until MacLex chokes and dies! However, the **Replace** button and the **Replace then**

16. The **Get Definitions...** button 10

Find button will be active, allowing you to do the replacements manually. Also, if you exclude the header from taking part in the replacements, then the **Replace All** button, and its menu item equivalent, will be enabled - since in this circumstance recursion is not possible.

You need to be aware of some special behaviour. When a record with a changed header is saved, the new spelling of the header might cause the record to be relocated elsewhere in the lexicon - either earlier or later than where it was.

If the modified record was resorted earlier, then subsequent **Find** operations will search through records that were searched before, and which possibly have changes in them already - but this is not a problem unless the target string can be matched again in the same record's headers as before. Since MacLex won't let you do a **Replace All** in such circumstances, uncontrolled recursive changes will not take place.

If the modified record was resorted later in the lexicon, then MacLex detects this and does not continue searching in the record, instead it backtracks to the start of whatever record was moved down to the location formerly occupied by the record just saved. This ensures that no records get skipped if a replacement in a header results in the record being saved with a higher record number. However, not all the changes might have been completed in that record when MacLex skips back. This is not a problem since it will eventually reach that record again and complete the changes. The thing to bear in mind is that this behaviour could mean that you see the same record on the screen more than once - <u>this is not a bug</u>, MacLex is just doing its job correctly.

Finally, the 'trace list' dialog items are duplicates of those in the **Find** dialog. You can use them from either dialog with identical effects.
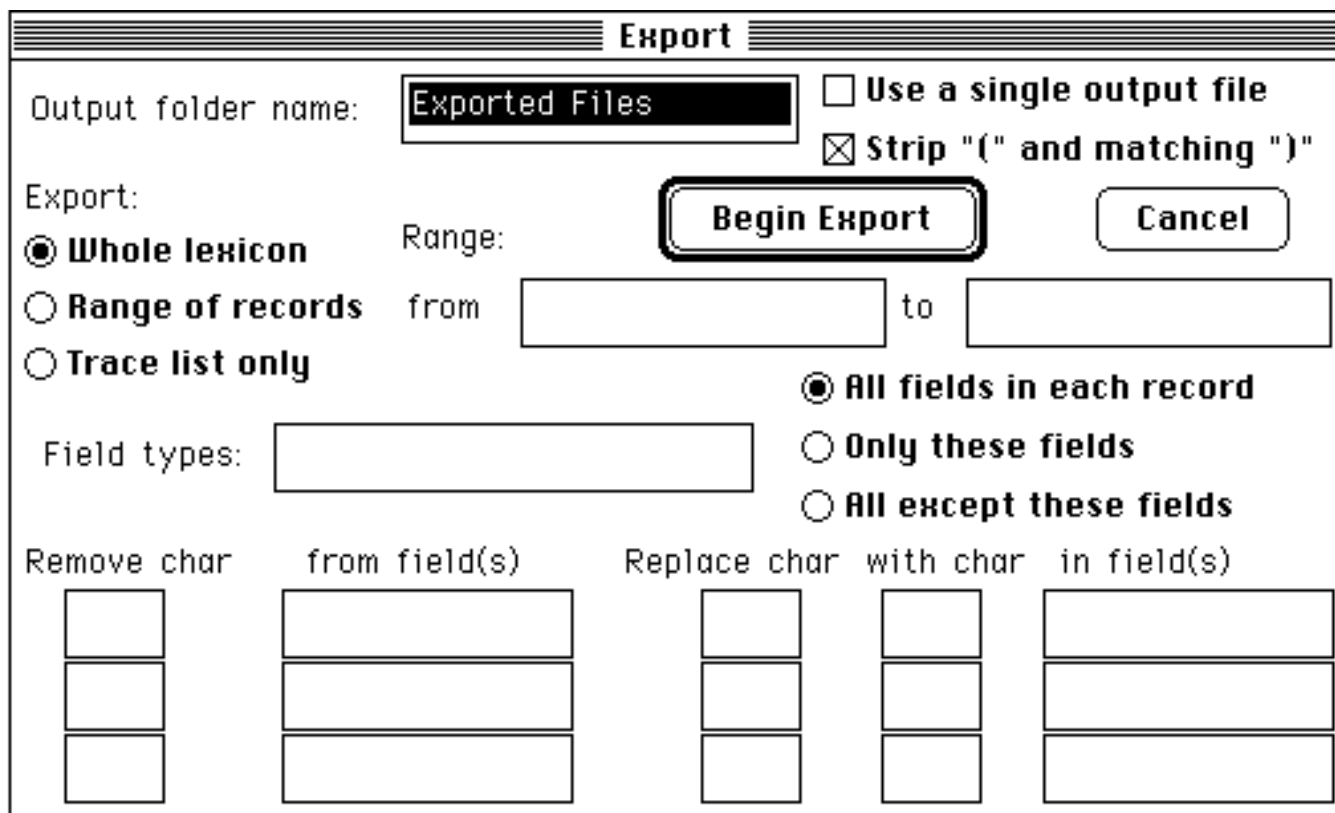
Cancelling Prematurely

The **Replace All** operation can be prematurely cancelled, safely, by typing the period (.) key while holding down the command key.

17. The **Preview...** button 10

25. Exporting data

MacLex has an **Export...** item on the **File** menu. It allows you to export records to one or more output files. It brings up the following dialog:

The first thing to note is that the output records are sent to a file or files in a folder which you can name using the topmost edit text box. The default name is Export Files. You can make it anything you like. It works like the output function of reversal mode - a folder of the name specified is created in the folder containing the lexicon files, and the exported data is then sent to files in this nested folder. If a folder of that name already exists, then its contents are cleared out before the new output data is sent.

The checkbox **Use a single output file** allows you to have all the exported records collected in one file - its filename will depend on which record is output first. If this checkbox is off, then MacLex will open a new output file every time a record comes from a different input file - and just use the same filenames as for the input files. Since the files are in a different folder than the input files, the duplicate names are no problem.

The checkbox **Strip "(" and matching ")"** allows you to have an open parenthesis, provided it occurs at the start of a field's data, stripped

16. The **Get Definitions...** button 12

off. And its matching closing parenthesis, if one is found, will also be stripped off.

Some things to note:
1. The stripping is done only provided the opening parenthesis is the very first character of the data - that is, the character immediately following the single token delimiter character.
2. An open parenthesis occurring anywhere else is ignored, and so too is its matching closing parenthesis.
3. If this feature is selected, then every field which is a candidate for output will be scanned - and stripping will be done if an open parenthesis meets the above conditions.[2]
4. To strip all parentheses, regardless of position, use the removal features discussed below. Removal (or replacement) is done earlier than the parentheses stripping turned on by the above checkbox. So if you use the removal function to strip parentheses, then you will save time if you have the checkbox turned off.

The range edit text boxes work like their equivalents in the **Find** and **Change** dialogs. They accept header text strings, or record numbers. One difference is that to use the range you must turn it on by the **Range of records** radio button. When this button is not selected, the range is not used. Choosing one of the other radio buttons therefore disables the range. Range defaults, if nothing is typed in a box, are the same as for the **Find** and **Change** dialogs.

The set of radio buttons
All fields in each record,
Only these fields, and
All except these fields
work as expected from the discussion of the **Find** and **Change** dialogs. The top button of these three causes any tokens in the text box to the left to be ignored. MacLex will just output every field in a record. To control which fields get output, use the second or third buttons.

The text boxes at the bottom allow you to specify that a certain character be removed from the output, whenever it is encountered; or that it be replaced by another character. Removals are specified with the box pairs on the bottom left. Replacements are specified with the sets of three boxes on the bottom right. You are allowed three different removals; and three different replacements.

You can use any set of boxes, you don't have to start with the top ones.

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[2]This might be too powerful. If users prefer, I can change it to allow stripping only on header fields.

17. The **Preview...** button   12

16. The **Get Definitions...** button 13

You must specify which fields the replacements are to be done in; likewise for removals. So, the **from field(s)** boxes must have tokens typed in them, and if not so then MacLex will flag the error. If a **Remove char** box is empty, then nothing is done, even if its adjacent **from field(s)** box has one or more tokens in it. Similarly for the **Replace char** boxes.

Finally, settings which you specify to the dialog are not remembered after the dialog is closed.

<u>Cancelling Prematurely</u>

The export operation can be prematurely cancelled, safely, by typing the period (.) key while holding down the command key. Any completed files of exported data will remain on disk in the folder MacLex has created for them. You can delete them manually if you wish.

17. The **Preview...** button 13