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OBSERVATION AND PLAYBACK OF CDROM SEARCHES WITH TOTAL RECALL

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Imagine being able to unobtrusively record CDROM database searches in order to discern common pitfalls of CDROM searching! Imagine being able to playback a search in real time on the CDROM search software in order to observe an enduser search session unfold! Imagine being able to conduct a prerecorded CDROM database demonstration during a bibliographic instruction session! TOTAL RECALL software from Computer Foundations can do all of these by functioning as a keystroke recorder, editor, and playback software for a CDROM microcomputer. TOTAL RECALL (TR) records into a file which keystrokes were typed by the CDROM searcher. TR can view, edit, and play back this keystroke file on the CDROM search software. TR will also transform the recorded keystrokes into a more readable transcript file in ASCII.

Once activated, TR records an unlimited number of keystrokes into a disk file. TR does this unobtrusively and the only evidence of its activity is the occasional blinking of the activity light of the microcomputer's hard disk. TR offers flexibility in its use; it can be loaded (started) from the DOS prompt, upon bootup from within the AUTOEXEC.BAT file, or as part of a batch file that loads a software (eg CDROM search software). To load TR from the AUTOEXEC.BAT or a batch file, this simple command line is added:

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RECALL R=\filename.*
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This command line will load TR and start recording into a file named "filename" with a file extension ".001". If a file named "filename.001" already exists, then a file named "filename.002" will be started. If a file named "filename.002" already exists, then extension ".003" is used and so on. TR can be unloaded after the CDROM search software is unloaded (exited) with another command line: RCUTIL T. With TR'S loading and unloading capability, TR can either constantly monitor everything typed on the keyboard or

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can watch only what is typed when a particular software is being used.

TR's main menu (figure 1) is accessed by a hot key combination which can be changed. A selected menu option is highlighted in reverse video and a short description of that option displays. From TR's main menu, keystroke recording can begin or end (this can also be accomplished from the DOS command line or a batch file without using TR's main menu). The file name into which the keystrokes are recorded is specified from the main menu (or from the DOS command line or from a batch file). From TR's main menu, the frequency with which the keystrokes will be recorded is set. Playback can also be controlled from TR's main menu.

TR's playback feature automatically retypes the recorded keystrokes. Thus CDROM demonstration searches can be prerecorded for playback during an instructional session. Playback of a recorded keystroke file can be started from a batch file or started, suspended, or stopped from TR's main menu (accessed by a hot key). With batch file playback, a TR-driven CDROM search can be integrated into a slide show driven by batch files. By starting playback from a batch file, textual screens (or graphic "slide show" screens) can be displayed before and after the playback of the CDROM search. Thus several screens of introductory information about CDROM searching can be displayed before actually playing back a demonstration CDROM search. After playback of the CDROM search, more screens can be displayed in order to summarize the CDROM searching.

Playback can also be used to simply watch enduser CDROM search sessions unfold. During playback, a CDROM search session can be examined in real time in order to see what actually transpired. This capability of TR is similar to the feature of some online catalogs and services wherein usage can be observed in order to support improvements. A greater understanding of the pitfalls of enduser searching can be gained if one can unobtrusively watch an enduser search. Instructional materials or sessions can be designed to address specific problems that are observed to occur frequently. TR would also be an excellent vehicle to support research on enduser searching of a CDROM product. Since TR will playback search sessions in real time, one can gain a tangible understanding of what someone actually does while CDROM searching. There can be considerable floundering about and TR will reveal it!

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The "Browse" option on TR's main menu opens a Browse menu which supports viewing and editing of a recorded keystroke file (figure 2). A recorded file shows every single keystroke. Nothing is left out; typing errors and backspaces are included! With TR's editing capabilities, a recorded file can be trimmed into a tighter playback file. The Browse menu has options for inserting, replacing, and deleting keystrokes. Keystrokes can be tagged to set the beginning and end points for playback. Keystrokes can be marked so that playback will pause when the keystroke is reached; playback will resume when the space bar is pressed. Thus a demonstration CDROM search can halt automatically at prespecified points to allow verbal explanation. When playback is paused (when a marked keystroke is reached), TR will beep every eight seconds with a low-frequency tone as a reminder that playback has paused. The beeping is optional and can be removed by reconfiguring TR. The delay between playback of specific or all keystrokes can be set in tenths of a second. The overall playback speed can be altered. CDROM searches can be set to playback in real time or faster. Playback can also be stepped wherein playback will pause after each keystroke and resume with a press of the space bar. Playback can be temporarily suspended; press the escape key and live keyboard interaction is allowed. When live keyboard interaction is finished, playback can be resumed by typing the hot key to access TR's main menu and restarting playback. With all of these editing features, a prerecorded CDROM demonstration search can be easily fabricated and tested. Obviously several edit and playback iterations will be necessary to set up a smooth dog-and-pony show. Playback can be run once or repeated a specified number of times or run continuously. Thus unattended continuous CDROM demonstrations can run during an open house. The keyboard can be removed or unplugged so that TR can playback demonstration searches without interruption (otherwise, a press of the escape key would stop it).

Using a conversion utility supplied with TR, the recorded keystroke file can be converted into an ASCII file (figure 3). In a more readable format, this converted file shows everything typed: letters, numbers, shift keys, cursor keys, backspace, space bar, function keys, escape key, etc. This ASCII keystroke file can be opened with wordprocessing software and edited down into a more readable transcript of CDROM searching activity. For example, the ASCII keystroke file can be trimmed with a wordprocessing software's "search and replace" function in order to remove the cursor and shift keystrokes or any other keystrokes that do not provide useful

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information for analysis (figure 4). In the Figure 4 example for Compact Cambridge Aquatic Sciences and Fisheries Abstracts, part of the full transcript was trimmed to leave just a few search strategies, the display "d" command for viewing the results of those searches, and the "print" (F10) command for printing specific references viewed.

As a RAM resident utility software, TR loads into and remains functional within the CDROM microcomputer's conventional RAM memory. While RAM resident, TR consumes approximately 65K of RAM memory. As a point of caution, potential TR users should be familiar with the RAM memory resources of their CDROM microcomputer and the memory requirement of their CDROM search software. Some CDROM search software may have a substantial RAM memory requirement but 65K can usually be spared if few other RAM resident utilities (print spooler, screensaver, etc) are already loaded on the CDROM microcomputer. For DOS 3.1, approx 66K of RAM will also be committed to DOS' usage. The main concern is whether a specific CDROM software can coexist with another software needing 65K RAM; an informed technical support person for the CDROM vendor would know. If RAM memory resources are limited due to less than 640K being initially installed or due to the presence of other RAM resident utilities, then loading TR may conflict with the CDROM software's RAM memory requirement. In this situation, an RAM allocation decision will have to be made and not all RAM resident software can be loaded. Of course, TR can be unloaded from RAM when not in use (using a TR utility or rebooting the microcomputer) but then it will not be functional.

Experimentation may be necessary if the CDROM microcomputer has an unusual configuration. TR is sold with a 30 day guarantee and should be tested within 30 days of receipt in order to ascertain its adaptability to your CDROM microcomputer environment. Computer Foundations advises that TR may not work properly with other software that utilizes the keyboard improperly (stealing keyboard interrupts). Installed keyboard accelerator software may also interfere with TR. TOTAL RECALL is an elegantly simple software to learn and use. The manual is 30 well-written pages long and is a model of clarity. TR has a built-in help system so that the manual rarely has to be referred to after an initial learning period. TR runs on an IBM PC/XT/AT or compatible with floppy or hard disks under DOS 2.1, 3.0, 3.1, and 3.2. No mention was made of DOS 3.3 in the product literature or the manual (printed in 1987); therefore call the vendor for advice if DOS 3.3 or later is being used. TR supports

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monochrome monitors, color graphics adaptors (CGA), and enhanced graphics adaptors (EGA). TOTAL RECALL is available for \$79 from Computer Foundations, 2604 Elmwood Ave, Suite 320, Rochester NY 14618 at (716)586-9756. The author thanks Computer Foundations for provision of a copy for review.

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