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Five CP/M Word Processing Packages Reviewed

I have read too many reviews of word processing. Friends have often told me that the basic problem is that the more powerful a word processing package is, the more commands it will have, and the longer it will take to learn all its features. Given the nearly three years experience using my computers for writing original manuscripts and operating a word processing bureau for a year. Copy processed by my business, changes in type font, to financial statements, have ranged from custom tutoring for unemployed people gain computer skills, and Wordstar. For each program, I will discuss the power of its editing commands, the ease with which it is controlled from the home key, and the ergonomics of its command structure. Various problems encountered among them will also be discussed, and application where it is clearly better than the others. A little attention to how they interact with the "user-friendliness" are industry standards, and carefully before selecting any computer system, and economic use of human energy. Ergonomic systems allow the operator to work with minimum physical or mental strain. Traditionally, examples of bad ergonomic design have been commonly used characters away from the home keys on a mechanical typewriter to slow typing. A more specific, fault of the CP/M operating system and many word processing programs running under it make heavy use of the control key (where the control key is held down) keystroking patterns. Touch-typing primarily involves the fingers' normal resting position. Any keying operation which breaks this, e.g., like those of entering a control character, the <CTRL> key because it normally requires the other hand. Shifting is also facilitated by the design which allows one hand to hold the control key, an incredibly bad design decision on the part of the designers of the shift key.) By contrast, the <CTRL> key is located far away from the home keys

systems written by people with only limited experience in the area of word processing. That XYZ word processor won't handle a particular problem well, and the time to learn to use all its features. Let's face it, the more flexible a word processor is, the more commands it will have, and the longer it will take to learn all its features. I thought it was for me to offer my experiences of the several word processing packages I have used over nearly three years experience using my computers for writing original manuscripts and operating a word processing bureau. I also have taught word processing for a number of years, and have written technical theses requiring many complex formulas, tables and diagrams, and the merge printing of standard business documents. Our courses have ranged from custom tutoring for unemployed people gain computer skills, and Wordstar. For each program, I will discuss the power of its editing commands, the ease with which it is controlled from the home key, and the ergonomics of its command structure. Various problems encountered among them will also be discussed, and application where it is clearly better than the others. A little attention to how they interact with the "user-friendliness" are industry standards, and carefully before selecting any computer system, and economic use of human energy. Ergonomic systems allow the operator to work with minimum physical or mental strain. Traditionally, examples of bad ergonomic design have been commonly used characters away from the home keys on a mechanical typewriter to slow typing. A more specific, fault of the CP/M operating system and many word processing programs running under it make heavy use of the control key (where the control key is held down) keystroking patterns. Touch-typing primarily involves the fingers' normal resting position. Any keying operation which breaks this, e.g., like those of entering a control character, the <CTRL> key because it normally requires the other hand. Shifting is also facilitated by the design which allows one hand to hold the control key, an incredibly bad design decision on the part of the designers of the shift key.) By contrast, the <CTRL> key is located far away from the home keys

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Five CP/M word processing packages

In a two-part series, Dr William Hall reviews
Wordstar, Select, The Final Word, Perfect Writer and Spellbinder

Introduction:

I HAVE read too many reviews of word processing systems written by people with only limited experience in the area of word processing. Friends have also told me that XYZ word processor won't handle a particular problem well, when the basic problem is that they haven't taken the time to learn to use all its features.

Let's face it — the more flexible and powerful a word processing system is, the more commands it will have, and the longer it will take to learn all its commands effectively.

Given these circumstances, I thought it was time for me to offer my experiences on the several packages I have used.

My opinions are based on nearly three years experience using my computers for writing original manuscripts and operating a part-time word processing bureau. I also have taught word processing for a year.

Copy processed by my bureau ranges from technical theses requiring many complex formulas, tables and changes in type font, to financial accounts and the merge printing of standard business documents.

Our courses have ranged from custom tutorials for single executives to month-long training programs designed to help unemployed people gain computer skills.

In this article I survey Perfect Writer, Select, Spellbinder, The Final Word, and Wordstar.

For each program, I pay particular attention to the ease with which it can be learned, the scope and power of its editing commands, its capabilities for formatting the output, the ergonomics of its command structure: as controlled from the home keys or programmable function keys, and special advantages for particular kinds of typing.

Various problems encountered in installing the programs for various printers

and in transferring text files among them will also be discussed. No one program is superior for all applications, and each has at least one application where it is clearly better than the others.

Before reviewing the programs individually, I offer some general comments on aspects of the interface between these programs and the user. To date, most users have paid far too little attention to how they interact with the computer once the program has been mastered.

Ergonomics

"Ergonomics" and "user-friendliness" are industry buzz words referring to important characteristics which should be examined carefully before selecting any computer or word processing system. "Ergonomics" is concerned with the efficient and economic use of human energy in achieving specific tasks.

When applied to word processing, ergonomic systems allow the operator to process a given text with maximum speed while reducing keystrokes, errors and physical or mental strain.

Traditional computer keyboards (and typewriters before them) offer two excellent examples of bad ergonomic design: One is the QWERTY layout of the alphabetic keys which deliberately places commonly used characters away from home keys and under weak fingers (this was done early in the history of the mechanical typewriter to slow typists down to what were then the limited capabilities of the mechanism).

The other, and more specific, fault of the computer is placement of the control <CTRL> key. In the review I note how each program exacerbates or improves these faults.

The CP/M operating system and many word processing programs running it make heavy use of <CTRL-CHAR> where <CHAR> is the alphabetic key pressed while the control key is held down) keystroking patterns to distinguish commands to the computer from keystrokes to be entered into text.

Touch-typing primarily involves a linear sequence of single finger keystrokes based on short reaches away from the fingers' normal resting positions on the "home" keys (A,S,D,F) for the left hand, and (J,K,L,;) for the right. Any keying operation which breaks this sequence of single short keystrokes will substantially reduce typing speed, eg, like those of entering a control character or using the shift key for capitals.

Shifting is less disruptive than using the <CTRL> key because it normally occurs just after the end of a sentence, coinciding with a natural pause in thought. Shifting is also facilitated by the shift keys' large size, duplication, and placement close to the home keys, which allows one hand to hold shift while the other hand types the shifted character.

(In passing, I note IBM's incredibly bad design decision on the PC to place an additional character key between the left hand home keys and the shift key.)

By contrast, the <CTRL> key is usually one of the smallest keys on the board and is placed at the left edge far away from the home keys. This guarantees that the left little finger — normally the weakest and least controllable — is the only one that can reach it unless one or both hands are taken away from the home keys.

Programs like Wordstar make this bad ergonomics even worse by using <CTRL-CHAR> commands and requiring awkward extensions like <CTRL-P>, <CTRL-Q>, <CTRL-K> and <CTRL-O> as prefixes for many commands.

User friendliness

"User-friendliness" refers to the conceptual (as compared to ergonomic) ease with which users can interact with a computer program. Several components are important.

■ **Documentation:** Every word processing system comes with supporting documents to explain how to install it on

the host computer, and provide details on its features. The documentation is extensive and complex for all programs reviewed here. How accessible and understandable is this documentation?

■ **Tutorial material:** Most people who use computers learnt to use a keyboard on a typewriter, yet WP operators must interact with the system in a totally new way. Typists execute most formatting operations using eye and muscle co-ordination to physically move the paper around in the machine before pressing keys to type the characters.

The only "function" keys are the mechanical ones of shifting, tabbing and using the carriage return to advance the paper. By contrast, computers work with encoded instructions.

This requires typists to make conceptual shifts in the way they control formats — and given that no two WP systems encode their instructions in the same way, even shifting between different WP systems can be difficult. An important component of user-friendliness is how much help the packages' training and tutorial materials provide towards learning the commands.

■ **Online help:** WP systems require a wide range of commands to perform functions typists used to do manually. Thus, even after they are understood, memorising the commands well enough for speed typing can take some time.

The packages reviewed all offer online "help" — from memory joggers optionally or permanently displayed on-screen to fairly extensive explanations that can be readily called up from the keyboard. How much help do these provide and how easy are they to use?

■ **Command structure:** Are commands logically organised on the keyboard or do they work in ways contrary to intuitive thought processes?

Some examples illustrate what I mean:

- All the programs except Select place at least one cursor movement key next to a delete key, virtually ensuring that a missed cursor stroke will delete portions of text. Unfriendly.

- Perfect Writer and The Final Word both use highly verbose formatting instructions. Some require up to 15 or more keystrokes — which must be 100 per cent accurate to be recognised.

That is bad enough — but neither program gives the operator any hint while typing as to what effect (if any) the instruction will have on the output. The document must be saved to disk, then formatted and printed with different program modules before the effects of

the instructions can be tested to see if they were entered correctly.

- Select, Spellbinder and The Final Word have alternate modes — a text entry mode and at least one kind of command mode. The computer is left in the specified mode until specifically instructed to change.

The same keys are used for sometimes very different functions in different modes. If one forgets which mode is operational, quite unexpected or catastrophic results can ensue.

I prefer those systems where a given sequence of key strokes always does the same thing. With these I can concentrate fully on my work at hand and let my reflexes handle the typing on their own.

- Perfect Writer offers another example of unfriendly organisation. Aside from the verbosity of its formatting instructions, commands use five quite different keystroking patterns: <CTRL-X> <CHAR>, <CTRL-X> <CTRL-CHAR>, <ESC-CHAR> and <ESC> <CTRL-CHAR>.

Similar functions are usually grouped according to the SECOND keystroke, and not according to the prefixed strokes — making them much harder to memorise.

Confusing codes are exacerbated by differences in the keystroking dynamics: <ESC> sequences require the escape key to be released before making the following keystroke, while <CTRL> sequences require both keys to be held down simultaneously.

Software may be brilliant in conception, but most people prefer programs that make work flow more easily and smoothly — not a brilliant one that unexpectedly deletes blocks of text because a keystroke is missed or an unhelpful program that has a difficult-to-master command structure. Programmers and marketing people please take note.

■ **Function keys:** Some programs and/or computers offer opportunities to alter an ergonomically bad command structure by programming at least some commands onto labelled function keys. This customisation is usually left to the end-user, and requires more technical understanding of the computer hardware-software system than most new users would have.

In some cases, the hardware supplier or dealer already has done it — not necessarily considering the ergonomics. I include some comments on how I have set up those programs which benefit most from customisation.

The test environment

My experience with the five word processing programs varies. I obtained Wordstar with my first CP/M computer in November 1981, Spellbinder in April 1982, and Perfect Writer and Select with a Kay Pro II in January 1983. The Final Word was provided recently for incorporation in this review. Where there are significant differences between versions of the programs — I have used, these are noted.

All programs except The Final Word have been used on Kay Pro transportable computers (II and IV). All except Perfect Writer have also been run on an older single-board computer based on the Ferguson Big Board. Both computers use the 8-bit CP/M 2.2 operating system and offer 64K-bytes memory, two disk drives and an 80-col by 24 line screen display offering no highlighting or character enhancements.

Both emulate the popular and uncomplicated ADM3A terminal. The Kay Pro offers 18 programmable function keys which easily can be configured to improve the ergonomics of several of the word processors.

All programs have been used to drive a C. Itoh daisywheel printer and various dot-matrix printers. The C. Itoh emulates the Diablo series of daisywheel printers, and provides for fractional spacing of lines (1/48in) and characters (1/120in).

The dot-matrix printers used include two different C. Itoh models plus several brands emulating the Epson MX80. I have encountered several other printers working with one or more of these programs in custom tutorial situations.

The software

To emphasise functional similarities, I treat the five packages in three groups: The Final Word and Perfect Writer are similar in many ways and share an obvious common ancestry as well as an unjustified egotism about their capabilities as expressed in their names (I understand that they are both scaled-down versions of a mainframe editing program).

Select and Spellbinder both use a mode shifted command structure, but differ in many other ways. Wordstar has the longest history of usage on personal computers and is still the program against which the other are compared, so I will begin with this.

All of the programs use disk space for virtual memory to allow much longer files to be handled than will fit in the available random access memory. Some handle this better than others.

WORDSTAR

Wordstar, one of the oldest and most popular word processing packages for CP/M computers, is published by MicroPro, and is distributed in Australia by Imagineering as well as being bundled with particular brands of computers. Associated programs integrated with Wordstar include Mailmerge and Spellstar.

Several other Micropro packages are reasonably compatible: Datastar (a sophisticated data entry program), Supersort (a powerful sorting utility), Infostar, and Calcstar (a spreadsheet program). Despite considerable experience with three of the other packages under review, Wordstar is still my preferred program for general use and would certainly be the first choice for any statistical or technical typing involving tables, formulas or other complex formatting problems.

Wordstar's major strengths are in ergonomics, user friendliness and user control over all printer functions except proportional printing.

The package

The basic package includes three modules which must be accessible on disk to operate properly:

- WS.COM (if already installed for a particular computer such as the Kaypro) or WSU.COM (uninstalled version) — the master program;
- WSOVLY1.OVR — machine language subroutines for less frequently used functions (read into memory as needed but otherwise leaving space available in a 64K RAM for a large amount of text — about 24,000 characters or about 10 pages).
- WSMSG.S.OVR — text files for the extensive help messages.

The current package includes at least two installation files, WINSTAL.COM and WS.INS which allow even inexperienced users to install WS.COM for a wide range of different hardware and default conditions. Older packages include a much more compact and less user friendly INSTALL.COM.

These can be removed from the working disk once installation is complete. Wordstar optionally includes MAILMERG.OVR to enable merge printing and various files associated with Spellstar.

Mailmerge is a powerful utility which can be used for a wide variety of functions beyond simple merge

printing. I have little experience with Spellstar, since other proof reading systems such as the WORD+ work with Wordstar, are easier to use and more powerful.

Versions

The three versions I have used (2.10, 3.00, 3.30) differ considerably in their capabilities: Version 2.10 lacks the ability to move columns of text (a disadvantage) and does not offer horizontal scrolling (I regard this as a major asset — I still use 2.10 for all but tabular typing in preference to the newer versions). Text lines displaying more than 79 characters are wrapped around onto the next screen line so that all characters held within the file space displayed on the screen are visible at once.

The maximum length of a text line is 240 chars.

All Wordstar's flags in column 80 are also displayed. These indicate the type of line ending (soft return, hard return, line wrap, or screen lines before or after the file space) or whether Wordstar's formatting instructions are to be recognised.

Version 3.00 offers horizontal scrolling (lines do not wrap around if longer than 79 characters — they simply disappear off the edge of the screen). Lines of more than 80 characters may be typed or followed with the cursor to force horizontal scrolling in 20 character jumps.

When one is working with text lines of more than 79 characters, it is impossible to see all of the text at once. Also, when the line ending is off screen, the only flag displayed for that line is the '+' which indicates the line is continued offscreen.

Horizontal scrolling is advantageous only for tabular typing. For most other kinds of editing it is quite detrimental to have parts of the text invisible off screen.

Ideally, horizontal scrolling should be an on-screen formatting option. An important addition to 3.00 is the provision of a column move capability.

Installation

Installation and documentation for 2.10 and 3.00 are similar in style with the addition of a training manual in the later version. Version 3.30 differs from 3.00 primarily in that its installation program is far more sophisticated than the earlier versions.

New users will find it far easier to install a wide range of printers and set a

variety of default parameters for printout style and operation of the program. It also offers another improvement I would very happily do without.

The version distributed with Kaypro automatically patches the Kaypro operating system with its own cursor control codes. As discussed below, Kaypro's own keypad configuration program allows even inexperienced users to set up a better ergonomic key stroking pattern which uses the linear row of four cursor keys to put <CTRL-CHAR> prefixes within touch typing range of the keyboard and transfers cursor control to a more logical diamond shaped pattern on the numeric keypad. Spatial relationships of the cursor keys should correspond to the direction of cursor movement. The new version defeats this — at least as far as the four cursor keys are concerned.

As installed, Wordstar occupies between 67 (version 2.10) and 81 (version 3.30) kilobytes of disk space, depending on the version. Unlike Perfect Writer and The Final Word, Wordstar requires no reserved disk space for text files that overflow the available memory space.

One or more scratch files are created automatically, only as needed — and their size depends entirely on the size of the text being edited. Next to Spellbinder, Wordstar uses the smallest amount of disk space of the five systems.

The user interface

A new user may choose to interact with Wordstar through a complete heirarchy of menus with a NO FILE or OPENING menu, MAIN EDITING MENU and PREFIX MENU summarising five sets of commands which take prefixes and a variety of additional help messages for commands requiring extra specifications before acting.

If this isn't enough, optional explanations and help may be called up independently of the execution of particular commands. In Wordstar *all* options available to the user at any given point in processing a document or executing a particular command are displayed — every step of the way.

Experienced users may dispense with some or all of this help, and type in commands with no delay in action.

Opening menu

When Wordstar is loaded into memory, the 'NO FILE' or 'OPENING' menu is displayed after the initial installation and copyright notices are displayed to the screen.

One also returns to this menu when

editing is completed. The Opening Menu offers a choice of two editing modes that differ in initial settings for onscreen style, but use the same main editing menu commands;

The document mode assumes that fractional space justification, soft returns, variable tabs, line wrap, automatic hyphenation, etc. will all be used;

The non-document mode enters only standard Ascii tabs and characters into the file being typed. The Opening Menu also gives access to other functions and housekeeping utilities: displaying the disk directory; logging another disk drive; deleting, renaming or

copying disk files; setting the initial help level; normal or merge printing; running another program (Wordstar saves user style settings while running other programs); and exiting to the operating system.

Main menu

The main editing menu offers about 20 prompt commands and access to five extra menus of commands beginning with a prefix. Wordstar uses only two types of instructions:

- Prompt commands for cursor movement, deleting, other editing operations, and for manipulating other files.
- Instructions inserted into the text to

control the printout. All prompt commands are entered as one or two <CHAR>s.

Instructions for print enhancement (e.g., different pitch, bolding, underlining, ribbon color, etc.) are typed into the text as <CTRL-P> <CTRL-@> which inserts the designated control code into the text (i.e., hexadecimal codes 01 through 1A, which display on the screen as 'Cont X' where X is an Ascii letter character). Dot commands are typed in as text lines beginning with a '.' (full stop) in Column 1, followed by two letters and (optionally) a modifying number or word.

There are no major mode shifts. The Opening Menu offers access to non-editing utility functions.

In the Main Editing Menu, once a control code is entered it may be aborted or must be carried to a conclusion. A given keystroke command always means the same thing in Wordstar.

The only function resembling a mode shift is the insert toggle, <CTRL-V>. When insert is toggled on (the normal situation), any characters typed are simply inserted into the text at the cursor position.

When toggled off, they replace existing characters in the text —useful in some editing situations. Single mode systems are best for composing text.

One can concentrate on writing the text without having to stop and think about what mode one is in or how this effects the meaning of command keystrokes.

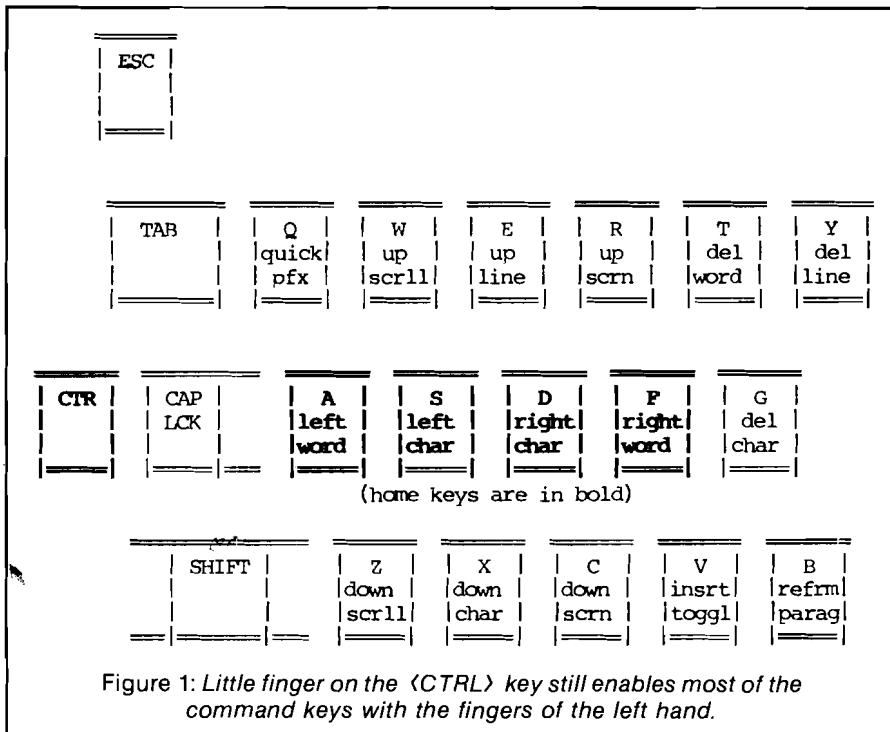


Figure 1: Little finger on the <CTRL> key still enables most of the command keys with the fingers of the left hand.

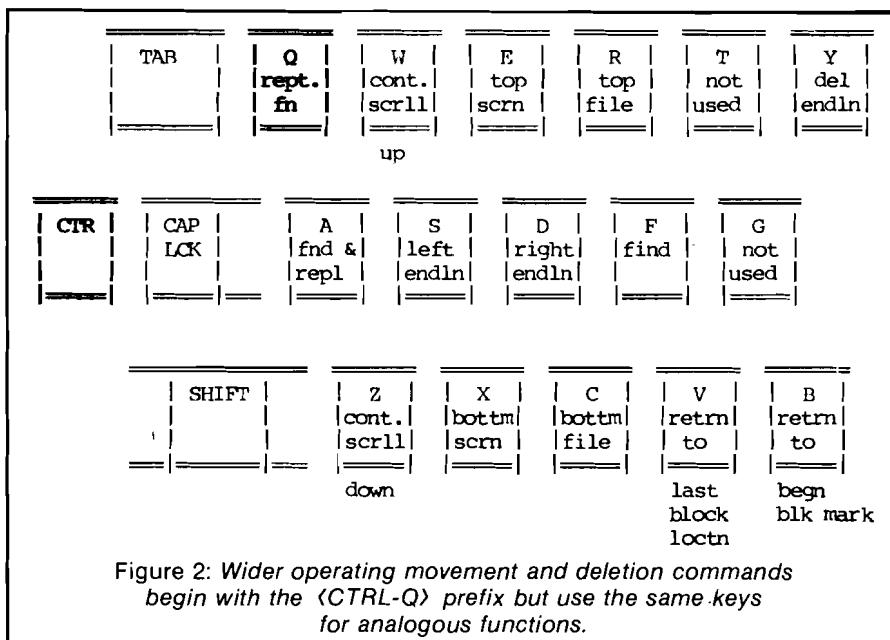


Figure 2: Wider operating movement and deletion commands begin with the <CTRL-Q> prefix but use the same keys for analogous functions.

Ergonomics

MicroPro has given considerable attention to organising Wordstar's commands into ergonomic and intuitively logical groupings. The other packages have all taken what I would call a sales-oriented approach to their command structures, by picking keys that use initial letters of command names.

These may be easier for a new user to remember, but the keystroking is usually quite unergonomic and does nothing to help an experienced user get the work done faster, no matter how easily remembered the commands may be. Wordstar's commands aren't easy to remember, so, to compensate, it offers by far the best onscreen help to the user.

Keystroking without dedicated function keys

In Wordstar, the most commonly used cursor and editing commands are executed as a single <CTRL-@>. Many

more, but less frequently used commands require a <CTRL-@> prefix. These are grouped under five prefixes:

- <CTRL-O> commands are generally quicker or more extensive versions of single keystroke cursor movement, deletion plus finding and replacing and quick access to various kinds of place markers (e.g., more sophisticated cursor movement commands).

- <CTRL-O> gives access to <O,n=> screen formatting commands and toggles — most of which are reflected in the printout (e.g., toggling word-wrap, hyphenation, etc., and using and setting margins, tabs, line spacing, etc.)

- <CTRL-K> commands cover blocks of text and other files (eg., inserting other files; marking, moving, writing and deleting blocks of text; copying and deleting other files, etc.).

- <CTRL-P> enters various <P>rint enhancements into the text (eg, bold-facing, underlining, overstriking, etc.).

- <CTRL-J> allows users to determine how much of Wordstar's extensive on-screen help facilities are displayed, and access to the detailed explanations.

Wordstar accepts upper and lower case letters and <CTRL> as the second keystroke in prefix commands. This is advantageous when one is using cursor controls to scan text.

The cursor key is simply held down while the appropriate first and second keys are struck. At other times it may be easier not to hold the cursor key down through a sequence of commands. Similarly, the state of the shift key has no effect on the meaning of control commands.

Given the awkward location of the <CTRL> key on most keyboards, Wordstar's control of cursor movement and deletion is very well designed. Most primary editing functions are placed on the left hand keys and can be reached with the index finger while the little finger holds down the <CTRL> key, as illustrated in figure 1.

The diamond-shaped arrangement of the keys E, S, D and X serve as directional arrows for single character cursor movements.

These directional relationships are maintained in other more extensive commands. A finger motion upward on the keyboard corresponds to up on the screen, left to left, and so on.

More powerful or longer reaching movement and deletion commands begin with <CTRL-Q> prefix, but in general they use the same letter keys for functions analogous to those entered as single <CTRL-@> commands:

<ESC> <CTRLQ,N> — where N is a number 0 through 9 moves cursor to one of 10 different non-printing place markers which may be placed in the text.

Even without dedicated function keys, typing and correcting with Wordstar is very easy. Text is entered naturally without consideration of alternate modes, and movements and deletions for corrections are easily made with the single <CTRL-@> commands on the left hand — thus requiring only minimal movements away from the home keys.

Keystroking with dedicated function keys:

Many computers provide special keys which can be programmed to generate control codes or strings of characters used as commands by applications software packages. These 'dedicated function keys' can be configured to further improve the ergonomics of Wordstar's keystroking patterns. Kaypro provides a configuration program (CONFIG.COM) which readily allows the user to set the four cursor keys and 14 keys of the number pad to generate any Ascii character.

The configuration is patched into the computer's operating system, not into the WP program.

Since the control characters <CTRL-A> through <CTRL-Z> occur alphabetically in the hexadecimal sequence 01 through 1A, any user can easily set Kaypro's numeric and cursor keys to generate any @ combination, as illustrated in figure 3 for my configuration of Wordstar.

In this configuration, most control functions can be executed by striking a single key (or a sequence of two single keys) rather than the sometimes very awkward two finger reaches required for <CTRL-@> strokes.

Cursor keys are set for three main prefixes plus <CTRL-B> <CTRL-B> alone is the command for reforming paragraphs to new margins, while when typed after the <CTRL> prefix it marks the beginning of a block of text. On the numeric keypad, the quick prefix key is placed on <5>, with <4>, <8>, <6> and <2> representing the four directions of cursor movement, with other commands similarly placed according to their direction of action.

If the Quick prefix key <CTRL-Q> is pressed the functions on the number pad become:

User friendliness

Wordstar offers a number of advantages for a new user. Undoubtedly, its

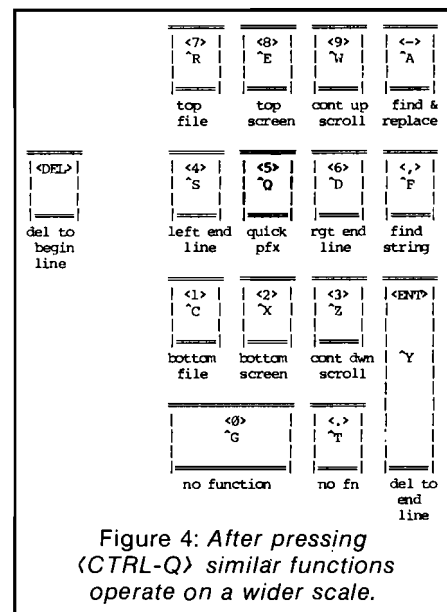
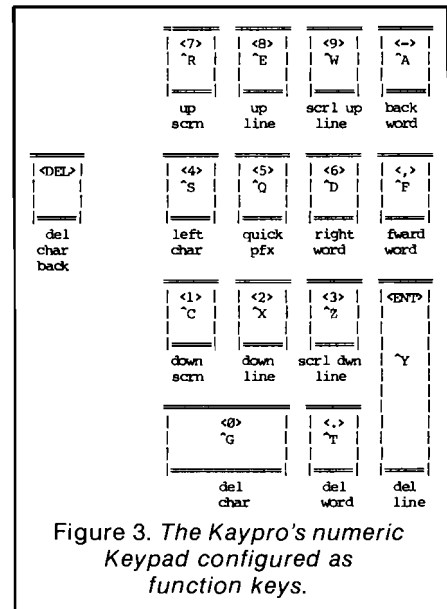
extensive command structure is not easy to memorise.

Keystroking patterns chosen because of their ergonomic utility do not correspond to the initial letter of the function they execute.

On the other hand, Wordstar offers the most extensive and informative on-screen help facility of any of the programs. How much of this help is actually displayed is entirely under user control.

Experienced users can turn off the help to display the maximum amount of text on the screen. On the other hand, new users can request the display of menus summarising every command which can be executed at any point in the text entry, editing or printing stages.

More detailed explanations of many functions and applications, and a summary of Wordstar's many dot commands are also available through the



help menu. Wordstar's technical manuals offer a great deal of information about the programs, but are not readily understandable by people without computer experience.

Wordstar also offers a training manual of exercises, which provides a good introductory tutorial to the system. Two excellent books by independent publishers provide better introductions to use of this program (Sybex and Osborne-McGraw Hill).

Another aspect of user friendliness Wordstar offers is that the display of text being edited on-screen closely reflects the printed page. Wordstar advertises that "what you see is what you get".

Although not precisely true, if page formats are not changed with dot commands in the middle of the document, the screen will accurately display line and page breaks. Of the other programs, only Select provides this information during editing.

Print editing and formatting:

Wordstar's tabbing functions are superior to those of the other programs.

Margins and tab stops are easily set and changed with <CTRL-O> commands much as they are on a typewriter.

Lines may be up to 240 characters long, with any number of tabs set anywhere in this length. Tabbed text may be either aligned on the initial character or on a decimal point, depending on the character entered into the ruler line which displays on screen the current tabs and margins.

To save the tabs and margins along with particular file, the ruler line may be typed into the top line of text and saved to disk as a non-printing comment line.

When the text is read back into memory, and the cursor moved to the ruler line, the margins and tabs can be transferred to the computer's ruler line by using the onscreen command <CTRL-O> <F> ("margins/tabs from file line").

Tabs and margins can also be entered <CTRL-O> <I> <column#> — or <CTRL-O> <N> <ESC> for the cursor column or all at once <CTRL-O> <N> <A>. Wordstar's block and

other file commands are powerful and easy to use.

Block commands

During editing, up to 10 place markers may be inserted as desired into the text by typing <CTRL-K> <#> where #=0,1,...,9 (these display on the screen as <#>). The cursor can be quickly returned to a place mark by typing <CTRL-Q> <#>.

Place marks are not saved when text is written to disk. Only one block can be marked at a time.

<CTRL-K> (displaying as in the text) and <CTRL-K> <K> (displaying as <K>) respectively mark the block's beginning and end (on computers that offer highlighting or inverse video, the marked block is shown highlighted or rather this is indicated with the block markers). Once the block is marked it may be moved, deleted, written to a disk file, or copied within the text using other commands from the <CTRL-K> menu.

There is no size limit for blocks to be erased or written to disk, but only about

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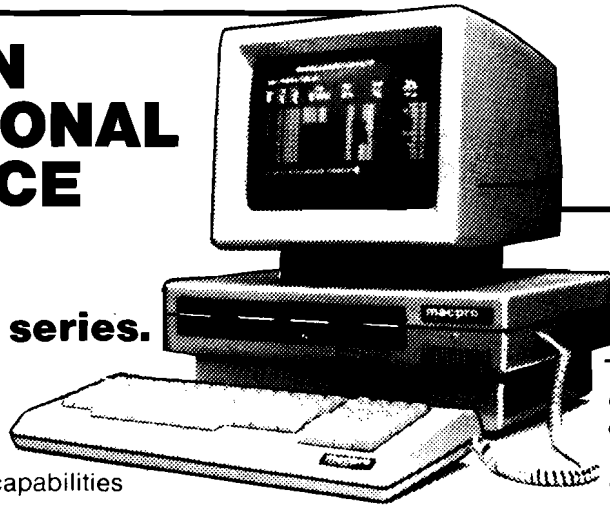
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- 1 floppy disk + 1 winchester hard disk. 10 M Byte
- 1 floppy disk + 1 winchester hard disk. 115 M Byte
- MP/M operating system

4000 characters can be moved or copied as a block within memory. (If you want to move a larger block, write it to disk, then read it back into the text being edited at the destination.)

In Wordstar Version 2.xx the block must include all text between the beginning and end markers. Version 3.xx offers an alternate column mode for moving, deleting or copying columns of text (a column cannot be written to disk).

With respect to columnar texts, the only feature Wordstar 3.xx lacks that can be found on the better dedicated word processing systems is the ability to centre text within designated columns. Wordstar also has the capacity to manage other files and other disks during the editing process.

The block prefix menu provides additional utilities for changing the logged disk drive, reading disk directories, reading into text from other files, copying other files, renaming them, or erasing them, and saving or abandoning the file currently being edited. In fact, the only functions which cannot be executed while editing a file are running another program or simultaneously editing another file.

Search and replace

Search and replace functions in Wordstar are also excellent. <CTRL-Q> finds, while <CTRL-Q> <A> finds and replaces. Search and replace strings may be up to 30 characters long.

The search string may also include Wordstar's special find characters: <CTRL-A> (match any character), <CTRL-S> (match any non-alpha character), <CTRL-O> (match any character other than 'x') and <CTRL-N> (match end of line).

About the only oversight in Wordstar's outstanding on-screen help is the failure to include any help on the special find characters. Options include ignore case (prior capitalisation is also ignored in the replace operation); global, forward or backward search; replace without asking, repeat # of times; and limit search to whole words.

<CTRL-L> repeats the previous search and replace operation. The only features which might be added to future versions of Wordstar would be:

- An ability to ignore the unpredictable number of spaces or carriage returns that are inserted between words when text is right justified.
- To sense existing capitalisation and replace accordingly.
- A search elipsis function that can find a string given beginning and ending

characters, irrespective of the number of intervening characters.

Filenames or character strings used in previous file management commands or search and replace functions can be restored to the command line simply by typing <CTRL-R> after typing the control characters for the command itself. Printing can be executed from either the Opening Menu directly or in background from within the Block Menu.

Printing

Printing is always from a disk file and can be carried out on a time share basis while another file is being edited. Keyboard input has priority over printer output, which means that simultaneous printing and editing is quite practical on serial printers, with the proviso that some input characters may be lost if typing continues while the disk is being read for printing (Wordstar displays a WAIT message).

(Serial printers accept characters on a serial basis; ie, one by one — not to be confused with the RS-232 serial interface. Most daisywheel printers are serial printers.) Background printing on "line" printers is more problematical.

Line printers are those that accept a whole line of input at once.

Many dot-matrix printers are line printers where, it takes a significant time to output the line to the printer, and printer output retains priority until the output is complete.

It becomes possible to overflow the input buffer and the unpredictably long delays in screen updates can be exceedingly distracting.

Page formatting

Output formatting and print enhancements are controlled through the <CTRL-O> <Q> <n> Screen and <CTRL-P> <P> Print Menu, plus a variety of "dot commands".

Using the <O> <n> screen menu command <CTRL-O> <S> <#> (# = 1,2,...9), line spacing can be set for anything from one to 9 spaces between lines. Height of a single line can be changed anywhere in the text with the dot command, '.LHn', where n is the number of 1/48in desired between lines.

Print formatting and page breaks are adjusted accordingly on the printout, but, unfortunately, page breaks displayed on screen are not recalculated for line height changes made within the text. (Wordstar displays a warning to this effect whenever a dot command is entered that would affect the page breaks).

But, many of the same effects may be achieved with a proper display of page breaks if the line height is set to the smallest increment used at the start of the file and <CTRL-O> <S> <#> used to vary the line spacing as desired. For instance, in manuscript typing the main text is usually typed double-spaced, with long quotations set at 1½ spacing.

To enable this without confusing the page breaks, set .LH = 4 (½ the usual line height) and type the main text quadruple spaced <CTRL-OX> <SXX4> and quotes in triple spacing <CTRL-O> <S> <3>. This procedure works well with other word processing systems that allow one to set line heights independently of line spacing.

Dot commands may be used to force page breaks either absolutely (.pa) or conditionally if less than n lines remain before the natural page break (eg, to prevent only one line of a paragraph continuing on the following page).

Character formatting

Character spacing can be changed even within a line by the <P> Print menu commands, <CTRL-P> <CTRL-A> (alternate pitch) or <CTRL-P> <CTRL-N> (<N> normal pitch).

The pitch (or character width) determined by each command is adjustable using the dot command '.CWn', where n is the desired width in 1/12in. Underlining, double striking, boldfacing (=shadow printing), ribbon color and various overstrike or strike-out enhancements of the print are controlled with various <CTRL-P> toggle functions.

The effect of each toggle can be overlapped with effects of any other toggles. For instance, neither double striking or boldfacing alone make a character sufficiently dark to remain obviously bold in a photocopy of the original printout.

But, overlapping the two functions achieves the desired degree of bolding. For example "<CTRL-B> <CTRL-D>" will print double bold and "<CTRL-B> <CTRL-D>" will print the phrase indicated in heavy boldface.

Wordstar also offers four user-definable print enhancement functions that can be specified as the program is being installed. These give the user easy access to the various type fonts available on a dot matrix printer like the Epson.

One important function Wordstar has that seems to be lacking in the other packages is the ability to halt a daisy-wheel printer in the middle of a text to

allow the type font to be changed. An annoying deficiency in the print enhancements, is that Wordstar provides only one mode of underlining. All printed characters and no spaces are underline.

But, if a continuous underlining is desired, XCTRL-PX XRETURNX will enter an overprinting line into the text and the continuous underlining can then be typed in on the overprint line. This achieves the desired effect, with the caution that registration of the underlining with the text on the line being overprinted cannot be assured if the text is printed with justified right hand margins.

With printers capable of incremental spacing, Wordstar's justification is by inserting microspaces more or less uniformly along the line, with some preference being given in inserting them after punctuation marks, in the spaces between words.

Merge printing

Although merge printing is not a part of the basic Wordstar package, anyone using Wordstar should obtain the Mailmerge option.

(I have it for versions 2.10 and 3.00 only — I have not yet seen the option for version 3.30). Mailmerge has many useful functions beyond the obvious ones used in preparing customised form letters. Inserted information may be variables drawn from individual fields of the records comprising a data file or it may be the entire contents of a named disk file.

In either case, the inserted information will automatically be formatted according to the style parameters of the master document. Data files normally are structured using variable length fields and carriage return delimited records.

Field separators are normally commas, but other delimiters may be set using Wordstar's installation program.

If a delimiter is to be used within a field, it is only necessary to enclose it in quotes. Data files may be created directly with Wordstar, or with the Datastar package.

With Datastar an extra empty field must be created at the end of the form to place a comma after the last data field. Mailmerge requires this comma, and Datastar does not ordinarily create it.

If left out, Mailmerge will skip printing every other record in the data file.

Data files may also be created using Mailmerge.

The add variable option can send

keyboard input directly to a disk file formatted according to the appropriate record structure rather than to the printer. Creation of the data file is facilitated by Mailmerge's screen formatting capabilities and its ability to limit input for given fields to a specified number of characters.

The maximum number of characters that can be input through the add variable option is determined by the line length remaining on the screen. Merge printed documents can use Wordstar's entire repertoire of formatting options.

In printing addresses or other similar blocks with varying numbers of lines, the printing of blank lines may be suppressed if the variable contains no information.

australian
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Software Report Card

Wordstar

	Poor	Fair	Good	Excellent
Performance	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Ease of Use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Error Handling	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

System requirements:

■ CP/M-80 or CP/M-86

Price: \$A666.00

Distributor:

Imagineering,
3/579 Harris Street,
Ultimo 2007.
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I have found no upper limit to the number of different variables that may be formatted within a single form document — it is well over 100, each filled with 79 characters. Also, there is no limit to the number of times a given variable may be used.

Once variable names are defined by dot commands within the form document they may be used in any order or not used at all. Mailmerge also may be used to chain a series of files to the printer.

One disadvantage is that merge printing cannot be done in background, while normal printing can be.

Conclusion

To conclude the survey of Wordstar, I will summarise the major assets and deficiencies:

If one is a touch typist or intends to do enough word processing to become a touch typist, Wordstar's ergonomics is so much superior to the other four systems reviewed that I would recommend using Wordstar for ALL text entry.

There are many commands and most of them are on keys that have no mnemonic relationship with the functions they generate. On the other hand, Wordstar's on-screen help is far superior to that offered by any of the other systems, and is organised in a way which readily helps the user towards a painless memorisation. If one needs output features of one of the other systems, type the text with Wordstar and then massage it as required, before printing with the other packages.

Wordstar also excels in its tabbing functions and its ability to handle complex tables. Through its dot commands, it provides the user with the most complete control over a printer's character and line spacing functions of any of the systems, and it offers the facility of sending halt codes to the printer to allow type fonts to be changed in the middle of a document.

The one feature I miss most with Wordstar is its lack of support for true proportional printing through user modifiable correspondence and spacing tables. Correspondence tables are needed because many proportionally printing daisywheels have non-standard sequences of characters on the spokes. Spacing tables are needed to allow the user to print from any font in a proportional mode.

It is the only system I would recommend for technical typing on a daisy-wheel printer. Some users may prefer programs like Perfect Writer and The Final Word, which have many automatic formatting functions.

Wordstar has none. The typist must explicitly control essentially all formatting decisions.

For me this is an advantage — Wordstar formats the text the way I or my customers want it to — not the way some programmer anticipated I might like. For others not so concerned with stylistic details, the automatic formatting provided by some of the programs will produce far more professional looking documents than they would do themselves.

Part II next issue.