

ALEF BIT

Bidirectional, Multilanguage Word Processing and Desktop Publishing Programs for IBM Compatibles and Macintosh Computers*

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Introduction

Over the past few years, my interest in multilingual and multiscript computing has developed simultaneously with that of several organizations and individuals, including some members of the Association of Jewish Libraries. This discussion of multiscript word processing and desktop publishing deals with the bidirectional combination of languages such as Hebrew, Arabic, Yiddish, and English. It is my hope that this paper will engage your imagination by suggesting easier, quicker, and less costly ways to accomplish your work as librarians, whether you are located in a school, synagogue, community center, or research institution.

My focus on foreign language computing had its roots in a visit to the National Yiddish Book Center at Amherst, where its director, Aaron Lansky, showed slides of a "rescue mission" for Yiddish books. There, in full color, were Aaron and crew taking books from the now unused, and soon to be destroyed, library in which I had grown up—a library in which I had sat on the rug, learning to read both Yiddish and English in the children's section, and later at the students' table. After a hard day's work, adults would quietly read or discuss books there in the popular reading circle. Some of these Yiddish books, which had been bought by putting a penny to a penny from weekly paychecks, are such treasures that they are now preserved in the Bodleian Library at Oxford.

The year after my visit to the National Yiddish Book Center, my family's library, containing many Yiddish classics as well as short stories and poems written and published by several family members, came under my care. The task of translating some of my father's short stories began,

as did the tracing of the family genealogy. Together with a cousin from Uruguay, and with the help of a computer program recommended by Eileen Polakoff, a genealogist, we began the latter task. We needed to record what some family members were famous for saying, and they had said it in Yiddish. As we did our work, it became clear that in order for Yiddish as a language, and Yiddish literature as a cultural expression, to be represented at the very least, and to be revived at most, it would be necessary to treat Yiddish on an equal basis with other languages with respect to its existence and support on the personal computer.

So began my search for a Yiddish word processor, one that had the full capabilities that we were used to in English, and that would allow both languages to be printed in the same document. The search began formally with the founding of a Hebrew, English, Yiddish Special Interest Group (SIG), under the aegis of the New York Personal Computer Users Group. For over a year, about 40 people were active in the search for, and evaluation of, bidirectional word processing and desktop publishing programs for both IBM compatible and Macintosh computers.

We found that Hebrew and Arabic were on the "to do" list of major software companies, but that almost all other world languages had a higher priority. At present, the development focus is on languages that relate to the impending merger of the European community in 1992. Only one large company, Letraset, produces a bidirectional version of its desktop publishing software package Ready, Set, Go! for the Macintosh. Relatively small software companies in the U.S. and Israel do, however, address the need for bidirectional computing. (See Table 1.)

In April 1988, Adam Whiteman (who writes a computer column in *Yugntruf*), in conjunction with the aforementioned SIG and the YIVO Institute for Jewish Research, invited Dr. Bella Weinberg and others to address the issue of Yiddish on the computer. With the impetus from that meeting, I involved my company in the development and marketing of bidirectional computing software. Hebrew, English, and Yiddish word processing and/or desktop publishing programs are now being used by the Joseph Papp Yiddish Theatre, YIVO, the League for Yiddish, the Annenberg Research Institute, Fusion Media, the Government of Israel Trade offices in New

Table 1
Multiscript Bidirectional Software

Macintosh	IBM Compatibles
<i>Wordprocessors</i>	<i>Wordprocessors</i>
LaserHebrew Rav K'Tav	Nota Bene MegaWriter Deluxe Pkg.
<i>Desktop Publishing Software</i>	
Mac K'Tav (Ready, Set, Go!) AllPage	

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York, and by other organizations, students, teachers, and individuals.

Multilanguage and Bidirectional Computing

At present, multilanguage programming does *not* refer to translation of one language into another; rather, it refers to the capability of a word processor, desktop publishing program, spreadsheet, or database program to perform its expected functions with data that are entered in any number of languages, with each maintaining its directional and linguistic integrity. The major functions, aside from the cutting and pasting and formatting capabilities associated with word processing, are *sorting* data in each language; *searching* for data in each language; and the *printing* of a combination of these languages, again maintaining the integrity of each. Bidirectional computing encompasses all of these functions with languages that naturally flow in opposite directions, such as English (left to right) and Hebrew, Yiddish or Arabic (right to left).

In this paper, I discuss various ways of entering and printing text in various languages. I then address the difference between word processing and desktop publishing, and describe what each can be expected to accomplish. Finally, with a quick look into the future of multilanguage computing, I turn the matter over to you and your imaginations.

Entering Text into the Computer

Let us assume that your text is primarily in English, but also contains words, phrases, quotes, and even long passages in Hebrew and/or Yiddish. Or, conversely, you may be working with a predominantly Hebrew/Yiddish text containing some English. In either case, you would like to enter this text into a word processing file, so that you can easily edit and then print it. Although you could "paste" the individual Hebrew/Yiddish characters into an English word processor by inserting them backwards, insertion of more than a few characters by this method would be impractical.

At present, there are two ways to work with this type of material. (1) If the English has already been entered into the computer via an English word processor, you can import that file into a bidirectional word processor and insert the Hebrew/Yiddish text. (2) If you are starting with handwritten text, you can enter both languages via a bidirectional word processor. To switch from one language to another, you simply touch the designated key, and then type in the

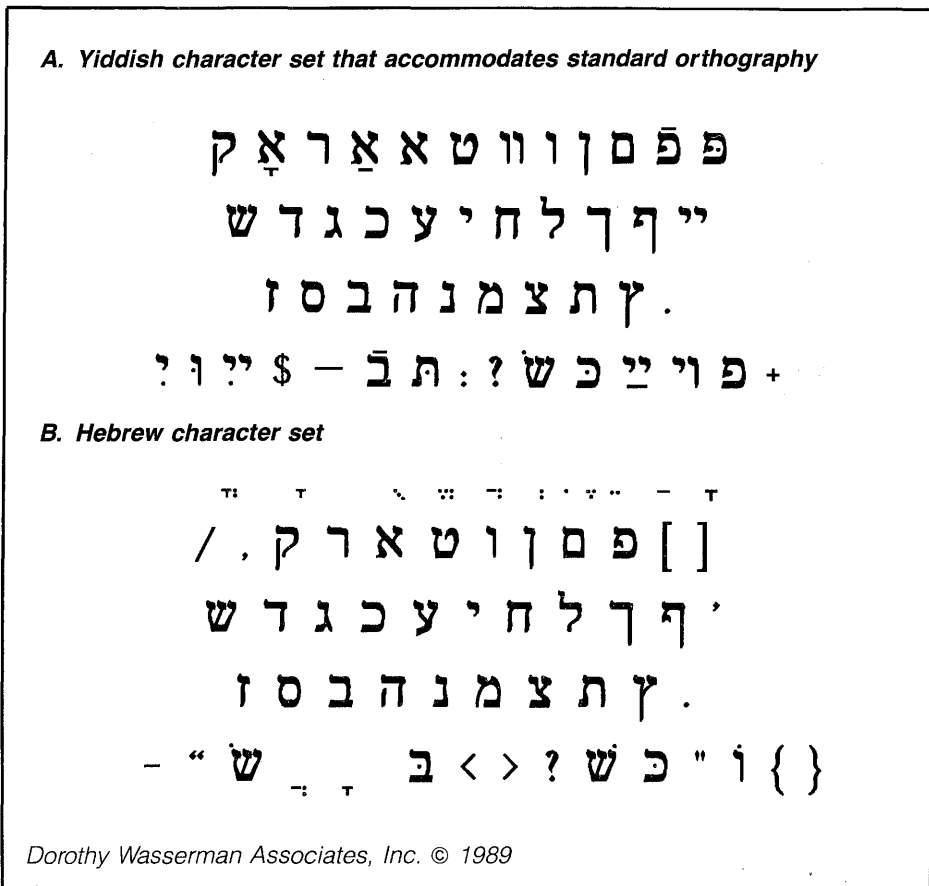


Figure 1. Examples of Hebrew Character Sets on a Laser Printer. The order of characters reflects the keyboard layout.

chosen alphabet and direction. There are any number of keyboard layouts from which you can choose to enter the Hebrew/Yiddish text: the standard Israeli keyboard, the classical layout, a mnemonic layout, or an individualized one (see Figure 1). The *nekudot* (Hebrew vowels) and *dagesh* are also available (see Figure 2).

If your text is already printed, and you now want to store it in a computer for future editing, searching, or reprinting, there are optical character scanning devices that are

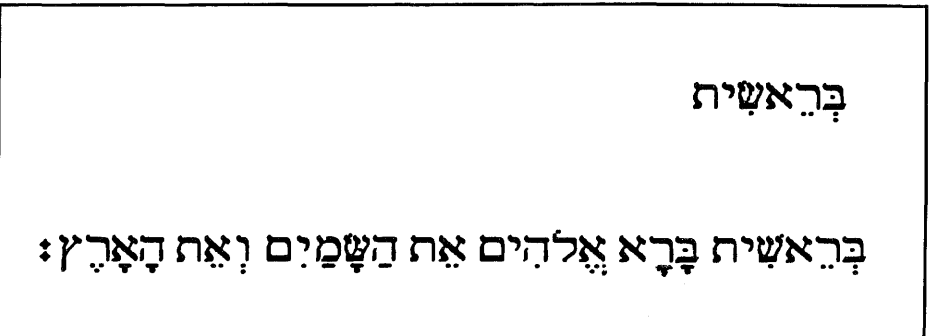


Figure 2. Example of *nikud* (vocalization) in a Hebrew word processing program.

becoming more sophisticated and more accurate in their ability to "read" Hebrew characters. Once stored in a word processing file, text can be manipulated further.

Seeing and Changing the Text on the Screen

A bidirectional word processor has the capability of placing Hebraic or Arabic characters in a right to left direction at the press of a key. In addition, it must have the Hebrew/Yiddish/Arabic character set available on the keyboard, for screen display, and in the printer. The screen should display all the characters, including ascenders (e.g., *lamed*), and descenders (e.g., *khaf sofit*), and vowel points.

For IBM compatible machines, you can have a simple monochrome screen with a Hercules monochrome graphics card, or a screen with a Color Graphics Adaptor (CGA), an Enhanced Graphics Adaptor (EGA), or a Video Graphics Adaptor (VGA). The program will detect which technology is in place, and use the matching screen display fonts.

On the Macintosh computer, the user does not have to consider the screen, graphics card, or printer interfaces. The machine is designed to deal with all of these aspects automatically, as the parent company, Apple, has designed the resources which the application programs use with this hardware. This is one of the reasons why the Macintosh is an easier machine to learn and to use than IBM compatibles.

Depending on the particular bidirectional word processor you choose, the following are some of the things you will be able to do with it: you can mix Hebrew/Yiddish/Arabic with English, Russian, Greek, or any other alphabet that the program stores in the computer, and each script will flow correctly. You can put the characters in boldface, or italicize, underline, outline, and shadow them. You can choose point sizes, from 7 to 127, for text and display. You have formatting abilities, such as setting margins, line spacing, tabs, and columns; page layout options, such as headers, footers, footnotes, and numbering; paragraph options, such as outlining and indenting; and line options: left, center, right, and full justification, along with line spacing (leading). See Figure 3 for examples.

Storage of Foreign Language Characters

How are the characters stored in the computer? And why is it that some IBM-based

programs require chips and others do not? Until recently, the way in which the Hebrew characters were stored was on a chip that needed to be installed in an IBM compatible computer. These chips were available mainly in Israel, and upon installation, the computer became dedicated to the use of a specific piece of software. This negated one of the main features of the PC—its versatility of use. Now, special characters are stored by the program on a graphics card that is easy to install; when you are done with a multilanguage program, other types of information can be stored on this card.

Printing the Text

The multilanguage, bidirectional software discussed in this paper provides programs (drivers) for most of the popular 9-pin and 24-pin dot matrix printers and laser printers. These drivers send the appropriate fonts to the printer. A word about fonts: Times or Helvetica indicates a recognizably different family of characters. Each family in turn contains a variety of sizes and styles. *Times, 10 point, bold, italic specifies a particular font from the Times family, and Helvetica, 12 point, underlined is a particular font from the Helvetica family.* Figure 3 illustrates this variety.

Which Computer is Best?

As of this writing, it costs less money to buy an IBM compatible computer than a Macintosh. There are now ample software applications available for both machines. If you are new to computing and have to learn how to use an IBM compatible computer, you must seriously consider the cost of doing so in terms of time and money. The Macintosh line of computers is easy to learn and easy to use. There are two bidirectional word processors and two desktop publishing programs for the Macintosh. For IBM compatible computers, there are several bidirectional word processors.

Transferring Files between IBM and Macintosh Computers

If you are at a location where both types of machines are used, there are programs that can transfer not only the Roman alphabet files, but files in any alphabet, using any program. So, for instance, if you have a text in Wordperfect on an IBM compatible computer, and you want to add some Hebrew or Yiddish, Arabic or Greek, or even Russian or French to the text, you can import the original into, let's say, Megawriter, add the new text, and then print it out in an article, newsletter, or in

book form. Alternatively, you could take the enhanced text from the Megawriter file and port it over to the Macintosh computer into the bidirectional version of Ready, Set, Go! (a desktop publishing program), and set the text there for printing.

Desktop Publishing

Since bidirectional word processing is generally available, rethinking the traditional process of printing text material is in order. Authors create text, which at some point gets edited and rewritten, and is then sent off to a publisher. The publisher is responsible for taking care of three broad areas: (1) retyping the text into the typesetting machine, editing the text, and then preparing camera-ready copy for the printer; (2) printing the material in magazine or book or other form; and (3) marketing and distributing the printed matter.

It is the first step that is addressed by desktop publishing software. The desktop publishing program that I am now testing will import text from a bidirectional word processor, eliminating the need to rekey the text (see Figure 4). Much human effort and many mistakes will be avoided, and time and money will be saved with this program.

Desktop publishing software is a complicated and powerful tool that requires specialized effort and study, in order to learn the skills that typesetters have been developing over the past 500 years. But making that effort at the work site, or even contracting work out to off-site desktop publishing specialists, will cut the present cost of typesetting considerably, in addition to providing the other benefits enumerated above.

A Look Into the Near Future . . .

Let us take a quick look into what the next year or two may bring for the IBM compatible computer and/or the Macintosh in the area of bidirectional computing. Aside from more sophisticated functions in word processing and desktop publishing programs, we can expect to see programs that will allow us to enter information in Hebrew and Yiddish, as well as in English, into a spreadsheet and database, and perform all file and relational database operations on each language separately. It will be possible to sort, search, and index in several languages. These are features that are now associated only with English programs. Other future scenarios include:

(Text continued on p. 10, col. 1)

A. The text below is left justified in the left-to-right script.

This text is primarily in English, into which Yiddish is placed: מען קען שרייבן ווערטער און אויך פאַראַגראַפֿן אין אַ צווייטער שפראַך. And then, with a press of the mouse on an icon, or with a press on a function key, the language, keyboard, fonts and direction change. איז גוט.

B. The text below is right justified in the right-to-left script.

And then די טעקסט איז איצט אַמערסטנס אין ייִדיש. we switch to English as the second language. איצט קומען מיר צוריק צו ייִדיש ווי די ערשטער שפראַך.

C. The text below is right justified.

אַזוי קען מען שרייבן ווערטער און אויך
פאַראַגראַפֿן אין אַ צווייטער שפראַך.

D. The portion below is centered in both languages.

And then with one press of the mouse on an icon, or with one press on a function key the language, keyboard, fonts and direction change.

אַזוי קען מען שרייבן ווערטער און אויך פאַראַגראַפֿן אין אַ
צווייטער שפראַך.
איז גוט.

Figure 3. Examples Of Text Placement and Word-Wrapping In Multiscript, Bidirectional Word Processing

—Books that are already formatted and ready to be printed on a laser printer will be stored on disk in libraries.

—Programs relating to Biblical studies will continue to grow in sophistication.

—The ability to transport data between Macintosh machines and IBM clones will continue to increase.

—Some interesting programs for teaching Hebrew and Yiddish should become available.

And lastly, progress is expected in making the job of translation a bit easier. Lookup tables of contextually correct word and phrase translations now exist on mainframes—it is only a matter of time before these capabilities will be available for use on your PC, to facilitate language-to-language translation.

Editor's Note: Earlier papers on Hebrew word processing, by Aaron Wolfe Kuperman, appeared in vol. 3 no. 1-2 (1986-1987) and in vol. 4 no. 1 (Fall 1987-Winter 1988) of Judaica Librarianship.

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UNIT 5

אויסזען

I There are a number of letters which appear only in words derived from Hebrew-Aramaic. They are:

English Equivalent	Yiddish Name	Printed Form
V	Veyz	װ
Kh as in Khanukah	Khes	װ
K	Kof	װ
S	Sin	װ
T	Tof	װ
S	Sof	װ

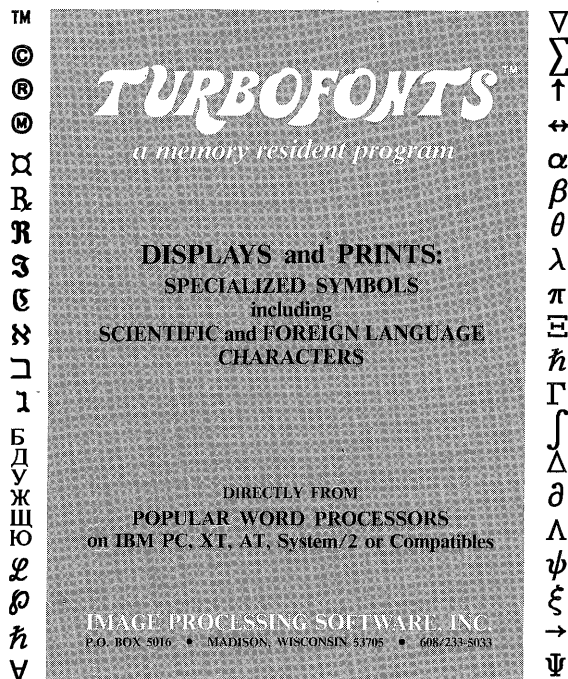
Note that these letters sound the same as other letters you have already learned. Their sound equivalents may be found in words of both Hebrew-Aramaic and other origins:

װ	sounds the same as	וו
װ	sounds the same as	כ
װ	sounds the same as	ק
װ	sounds the same as	ס
װ	sounds the same as	ט
װ	sounds the same as	ט

If you know Hebrew, be careful to note that the same letter may denote different sounds in Yiddish and in Hebrew. For example, in words of non-Hebrew origin:

- א is pronounced short 'a'.
- א is pronounced 'o' and never short 'a' as it is in Hebrew.
- א One vov is pronounced as 'oo' and not as 'v'.
- א Two vovs are pronounced as the consonant 'v'.
- א Ayin is always short 'e' and never short 'a'.

Figure 4. An example of multiscrypt, bidirectional page layout using MacK'Tav.



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