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the *disclaimers and permissions* tab.

The Purposes of This Website

- To entertain offers of employment as a consultant, programmer, or teacher. I'm old enough to be picky about what I work on, but if you have an interesting project and I have the right skills for it we should talk.
- To provide instructional materials to current and prospective students in the course "Reading Classical Hebrew." If you think you might be interested in taking this course, please read about it at the *course description* tab of this web page.
- To promote my published books and make it easier for readers to use them. The royalties have never made me rich, but if you read these books it will make us both happy and that is priceless.
- To share certain of my writings that have not yet been commercially published.
- To share certain parts of my software library.

Documents Not Commercially Published

- *How To Give College the Old College Try*. The *advice to students* tab links to these suggestions about how to succeed in college and graduate school.
- *Introduction to Mathematical Programming*. Two famous textbook publishers were interested in this book, but one wanted to divide it into three volumes and the other wanted to leave out 40%. By the time I finished not selling the book to either of them the final draft had been in use at several universities for several years, so rather than continue the search for a commercial outlet I have made the book available here. If you are a teacher or student who is not already using it, please take a look.
- *Computing Fourier Transforms*. I wrote this book for a course I taught about FFTs because none of the published texts developed the algorithm at the right level of detail.
- Quirky research papers. *Least-Absolute-Value Regression* and *Bilevel Nonlinear Programs* have yet to meet the bar for journal publication, but some of my students in mathematics and engineering have found them interesting and each contains the seeds of several little research projects. The BNLP paper includes a carefully-curated collection of test problems. For my research papers that *have* met the bar for publication, please see the *research publications* tab of this web page.
- *Voicing Hebrew* and *Hannah Senesh Word by Word*. I wrote these books for my Hebrew students. The first plays a role in the course "Reading Classical Hebrew," but you might find both books useful even if you are not currently enrolled.

Reading Documents

Your web browser should open any file having the extension `.pdf`, and from there you can print the document or download it to your computer.

Any file having an extension that is *not* `.pdf`, `.tar.gz`, `.png`, `.tfm`, or `.pk` is plain (non-rich) ASCII text. If your browser does not know what to do with it, you can suggest opening it with `gedit` on Unix, TextEdit on a Mac, or Notepad/Wordpad on Windows. Outside of the browser you can use those programs to open a file that you have downloaded, and in Unix you can also use `more` or `vi` or `emacs` to read it.

Some tabs of this web page might link to a document explaining that the file you asked about is “Under Construction.” This placeholder will eventually be replaced by the content described by the tab, which I might be revising, or preparing, or just hoping to prepare someday. I apologize for any inconvenience the absence of the file might cause.

Software Relevant to Documents

- The `pivot` program is described in §27 of *Introduction to Mathematical Programming* and is used extensively in that book. It will also be of interest to teachers and students who are using *Introduction to Operations Research* as a text, and perhaps to others.
- The Octave codes that appear in *Introduction to Mathematical Programming* are collected for your convenience at that tab, along with several files that enhance the behavior of the `pivot` program if you run it under Unix (see below).
- The raster plotting program mentioned in §7.1 of *Computing Fourier Transforms* and the simulation program mentioned on page 7 of *Least-Absolute-Value Regression* might be useful to students of those topics. The raster plotter might also be useful in other settings, and it illustrates how to generate Postscript code with a Fortran program.
- The Hebrew typesetting programs documented in *Homebrew Hebrew* were indispensable to me in preparing *Voicing Hebrew*, the other course materials for “Reading Classical Hebrew,” and *Hannah Senesh Word by Word*. Anyone undertaking the serious study of Hebrew ought to be able to typeset the language with vowel points, and if you already know how to use L^AT_EX 2_ε this approach is easy and free.
- General-purpose subprograms that are used in these programs are included at the *subprograms* tab, and their manual pages are collected at the *documentation* tab. These archives also include all of the library subprograms from *Classical Fortran*; one of them, `TIMER`, is also used in *Introduction to Mathematical Programming*.

Utility Programs

The *utility programs* tab contains a collection of codes that I wrote for myself but which are sufficiently general to be useful to other Unix users. Some of them are `sh` or `bash` shell scripts and some are Fortran programs. Everything they do can be accomplished in other and perhaps more elegant ways, but you might find that they work well enough. The general-purpose subprograms that are used in the programs are included at the *subprograms* tab, and manual pages for all of this software are included at the *documentation* tab.

- **filelist** This program maintains an annotated list of the files in the current directory, to remind you of what they all contain.
- **dirlist** This script generates a file containing a tabular representation for the tree of subdirectories below the current directory, to remind you of where you are.
- **lst** This script lists the files in the current directory and its subdirectories that have changed today, to remind you of what you have done. It uses the shell variable **COLUMNS** in formatting its output; you can modify the script to use a number instead, or add these commands to your **.bashrc** file: `shopt -s checkwinsize; export COLUMNS`.
- **ltx** This script translates a **.tex** file into a **.dvi** file by running **/usr/bin/latex** once, twice, or three times, as needed to resolve references and correct labels.
- **ftn** This script compiles one or more **.f** files and links them with libraries to produce an executable in **a.out**. It reports input files having lines longer than 68 characters (see *Classical Fortran* page 238) and invokes **gfortran** with the options I prefer and the libraries I use; you can modify the script if you have different preferences or libraries.
- **mymake** This script invokes **/usr/bin/make** on **./Makefile** with more sanity checking and less unnecessary output. If you program in a language other than Fortran you can modify this script to check for a different default compilation rule.
- **makemsg** This program must be used to write an error or informational message to the screen from within a **Makefile** that is processed by **mymake**.
- **myrm** This script invokes **/bin/rm** with additional sanity checking, but it can't be used with options or descent.
- **mycalc** By using this script you can invoke **/usr/bin/bc** with conventional names for the elementary functions, or you can do arithmetic with times in HH:MM format.
- **myspell** This script can check both plain text and **L^AT_EX** source, and reports words that are repeated. It uses my own simple program for removing **L^AT_EX** command sequences, but you can modify the script to use a more sophisticated one.
- **just** This program reads a paragraph from standard-in and writes it to standard-out justified between given columns. It can be used from within **vi** to clean up text whose lines have been broken and rearranged in the course of composition or editing.
- **changeall** This script changes all occurrences of one string to another in each of multiple files. It escapes the characters **-\$&/** in each string specification, and it skips files that are not permitted to write.
- **change** This program reads one file, changes all occurrences of a given string to another string, and writes the result to a new file. Either string can contain characters that are meaningful to the shell and therefore inconvenient to modify with **changeall**.
- **grepand** and **grep-or** From a list of files **grepand** selects those containing all of one or more specified strings; **grep-or** selects those containing any of the specified strings.

Downloading Software

These collections of files are provided as `tar` archives; in the instructions below the name `dir.tar.gz` represents any one of them.

web page tab	file name	contents
<i>Octave source code</i>	<code>impsrc.tar.gz</code>	programs in <i>Introduction to Mathematical Programming</i>
<i>course flashcards</i>	<code>flash.tar.gz</code>	Hebrew course flashcards
<i>redis Hebrew fonts</i>	<code>redis.tar.gz</code>	Hebrew font files
<i>typesetting software</i>	<code>hebpqm.tar.gz</code>	code described in <i>Homebrew Hebrew</i>
<i>utility programs</i>	<code>util.tar.gz</code>	utility programs described above
<i>subprogram library</i>	<code>sub.tar.gz</code>	subprograms used by utility and other programs
<i>documentation</i>	<code>man.tar.gz</code>	manual pages for programs and subprograms

In Unix you can use `tar xvzf dir.tar.gz` to create the directory or you can examine the files by editing `dir.tar.gz` with `vim`. On Mac-OS clicking on the link to a file named `dir.tar.gz` will untar it, creating a folder named `dir` containing the files in the archive. On Windows clicking on the link might allow you to directly access the file you want; if not you can navigate to <https://7-zip.org>, download that application, and use it to unpack the tar archive. (Also see <https://opensource.com/article/17/7/how-unzip-targz-file>.)

The Fortran source of the `pivot` program is a single 5898-line text file (*not* a `tar` archive) and it includes the general-purpose subprograms that it uses, so the program can be installed on any computer in the simple way described in §27.2 of *Introduction to Mathematical Programming*. If you will use the program in a Unix environment you should also consider installing, from the `impsrc.tar.gz` archive, the `pivot.help` file, the `pivotprint` shell script, and the `fixscript` program, and you should copy lines from the `pivot.bashrc` file provided there to modify or replace your `.bashrc` file, all as described in §27.2.2 of the text.

Each other Fortran program includes only the pieces that are particular to it, and might invoke general-purpose subprograms that are not in that file. In a Unix environment you can build a library of the routines provided at the *subprograms* tab, as described in §14.4 of *Classical Fortran*, and link from it to make each application. In other operating systems it is customary to use an application development platform for building a program from its parts (see <https://www.g2.com/categories/application-development-platforms>) but if you do not know how to use one you can copy the routines you need into the source for the application and install the result in the way described for `pivot`.

The Octave functions are discussed in detail in *Introduction to Mathematical Programming*, the FFT codes are described in *Computing Fourier Transforms*, the Hebrew typesetting software is described in *Homebrew Hebrew*, and many of the general-purpose subprograms are described in *Classical Fortran*. Each Fortran program and subprogram is also documented in a manual page. The manual pages in `impsrc.tar.gz` and `man.tar.gz` are in the form of `.pdf` files; if you want `troff` files please email a request to the appropriate address at the *contact* tab.

Some of the shell scripts, programs, and subprograms have embedded file names or path names that must be customized, usually in obvious ways, for your environment; if you have trouble doing that or in using the software please tell me via email and I will try to help.

Summary of Contents

This website consists of an `index.html` file, a file named `img001.png` containing the portrait sketch, and the linked-to files listed below. Files marked D are documents, those marked S are software (including program source or data), and those marked A are tar archives.

file name	type	contents
<code>cons.pdf</code>	D	my consulting areas of competence
<code>prog.pdf</code>	D	my programming skills
<code>teach.pdf</code>	D	my teaching experience
<code>advice.pdf</code>	D	<i>How To Give College the Old College Try</i>
<code>contact.pdf</code>	D	how to contact me
<code>cv.pdf</code>	D	my curriculum vitæ
<code>extracv.pdf</code>	D	my extracurriculum vitæ
<code>rp.pdf</code>	D	my research publications
<code>about.pdf</code>	D	about this website (this file)
<code>disclaim.pdf</code>	D	disclaimers and permissions
<code>toc0R.txt</code>	D	<i>Introduction to Operations Research</i> contents
<code>fix0R.pdf</code>	D	<i>Introduction to Operations Research</i> corrections
<code>imp.pdf</code>	D	<i>Introduction to Mathematical Programming</i> text
<code>pivot44.f</code>	S	tableau pivoting program
<code>impsrc.tar.gz</code>	A	Octave codes in <i>Introduction to Mathematical Programming</i>
<code>lavreg.pdf</code>	D	<i>Least-Absolute-Value Regression</i>
<code>simulation.f</code>	S	program simulates noise in regression data
<code>cft.pdf</code>	D	<i>Computing Fourier Transforms</i>
<code>raster.f</code>	S	raster plotting program
<code>bnlp.pdf</code>	D	<i>Bilevel Nonlinear Programs</i>
<code>fixCF2.pdf</code>	D	<i>Classical Fortran</i> corrections
<code>tocCF2.txt</code>	D	<i>Classical Fortran</i> contents
<code>more.pdf</code>	D	more <i>Classical Fortran</i> exercise solutions
<code>add1.pdf</code>	D	<i>Classical Fortran</i> additional sections
<code>pedersen.pdf</code>	D	a review of <i>Classical Fortran</i>
<code>fixCF1.pdf</code>	D	<i>Classical Fortran</i> first edition corrections
<code>course.pdf</code>	D	syllabus for “Reading Classical Hebrew”
<code>why.pdf</code>	D	Should I take this course?
<code>supp.pdf</code>	D	supplementary materials for “Reading Classical Hebrew”
<code>flash.tar.gz</code>	A	flashcards for “Reading Classical Hebrew”
<code>courseind.pdf</code>	D	index for “Reading Classical Hebrew”
<code>voice.pdf</code>	D	<i>Voicing Hebrew</i>
<code>TOC.primr.pdf</code>	D	<i>The First Hebrew Primer</i> contents
<code>senesh.pdf</code>	D	<i>Hannah Senesh Word by Word</i>
<code>homebrew.pdf</code>	D	how to use the Hebrew textprocessing software
<code>hebrew.tex</code>	S	L ^A T _E X _{2ϵ} Hebrew typesetting commands
<code>redis.tar.gz</code>	A	Hebrew font files
<code>milon.dat</code>	S	editable Hebrew dictionary
<code>hebrew.hsh</code>	S	hashed Hebrew dictionary
<code>hebpqm.tar.gz</code>	A	Hebrew text processing programs
<code>util.tar.gz</code>	A	general-purpose shell scripts and Fortran programs
<code>lib.tar.gz</code>	A	general-purpose Fortran and C subprograms
<code>man.tar.gz</code>	A	manual pages for shell scripts, programs, and subprograms

Maintenance and Revision

I intend to do the following things to perpetuate this website into the foreseeable future: ensure that it remains hosted; restore it if it becomes damaged; fix broken links; and make corrections, improvements, and additions to the content. The trustee of my estate has agreed to assume the first three of these functions if for any reason I become unable to perform them, so it is likely that the site will remain present for many years. However, if you wish to secure any file in its current form you should download it to your computer.

If *Classical Fortran* ever goes out of print I will attempt to recover the copyright and post a downloadable file in place of that link. If you notice a mistake in any of the content posted here, or if you want to suggest an improvement or addition, please tell me by sending email to the appropriate address at the *contact* tab. I will carefully consider every bug report and suggestion.

release date	changes from previous version
08 Jan 24	initial release
10 Jul 24	<p>index.html: add links to why.pdf, flash.tar.gz, TOC.primer.pdf and 3 web sites header files prog.pdf: revise year 1965 to 1966 contact.pdf: make it easier to solve the puzzle extracv.pdf: elaborate on my work at the Yale School of Drama about.pdf: correct typos and describe this release disclaim.pdf: clarify, and update a reference to add1.pdf</p> <p>Numerical Computing tocCF2.txt: correct a typo add1.pdf: provide more additional textbook sections</p> <p>Biblical Hebrew course.pdf: revise and update why.pdf: add tab "Should you take this course?" supp.pdf: correct and enlarge the supplementary material courseind.pdf: revise and improve the course index voice.pdf: revise and improve <i>Voicing Hebrew</i> flash.tar.gz: add tab "course flashcards" TOC.primer.pdf: add tab "table of contents" homebrew.pdf: revise, and add §13 on transliterations hebrew.tex: add website address milon.dat and hebrew.hsh: new versions, corrected and enlarged subprogram library and documentation lib.tar.gz: add several routines man.tar.gz: add several man pages</p>

release date	changes from previous version
10 Oct 24	<p><code>index.html</code>: add links to web pages for Matlab and Octave add links to 2 reviews of <i>Classical Fortran</i> add a link to <code>advice.pdf</code> add a link to <code>pgm.tar.gz</code></p> <p>header files</p> <p><code>cons.pdf</code>: simplify the Technical Writing section <code>advice.pdf</code>: add the tab <i>advice to students</i> <code>extracv.pdf</code>: embed links to Wikipedia reference pages <code>about.pdf</code>: clarify, correct, and elaborate; describe this release update the link to <i>Classical Fortran</i> publisher's web page <code>disclaim.pdf</code>: clarify the orphan copyright status of <i>Hannah Senesh</i> revise the description of "data" files on page 2 Because manual pages are now provided as <code>.pdf</code> files they are covered by the Creative Commons license for documents (formerly they were provided as <code>troff</code> source and were therefore covered under the software license). The <code>hebrew.hsh</code> file and the <code>pivot.help</code> and <code>pivot.bashrc</code> files in <code>impsrc.tar.gz</code> are data, so their extensions are now included under that category.</p> <p>Applied Mathematics</p> <p><code>impsrc.tar.gz</code>: add manual pages for files used with the pivot program rename <code>.bashrc</code> as <code>pivot.bashrc</code></p> <p>Numerical Computing</p> <p><code>fixCF2.pdf</code>: add a correction <code>pedersen.pdf</code>: add this review of <i>Classical Fortran</i> <code>fixCF1.pdf</code>: add a correction</p> <p>Biblical Hebrew</p> <p><code>course.pdf</code>: update and clarify; list new supplementary material <code>supp.pdf</code>: make several additions and corrections <code>flash.tar.gz</code>: delete flashcard input files <code>courseind.pdf</code>: correct and improve; adjust for changes to <code>supp.pdf</code> <code>milon.dat</code> and <code>hebrew.hsh</code>: enlarge and correct <code>hebpqm.tar.gz</code>: improve <code>flashcards.f</code> add 5 routines mentioned in <i>Homebrew Hebrew</i></p> <p>software archives</p> <p><code>util.tar.gz</code>: add the tab <i>utility programs</i> This collection includes a corrected <code>changeall</code> script to replace the one printed in both editions of <i>Classical Fortran</i>.</p> <p><code>lib.tar.gz</code>: add routines used by utility programs <code>man.tar.gz</code>: add and update manual pages provide <code>.pdf</code> files in place of <code>troff</code> source</p>