

LaTeX2HTML-FU

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Abstract

This describes fixes to the LaTeX2HTML program that allow it to produce professionally looking web pages from LaTeX sources. There is an easy install package for Windows, based on emTeX, and also for recent versions of MiKTeX, fpTeX, and XEmTeX. There is also an easy install package for Linux on x86 boxes. LaTeX2HTML also runs correctly after manual install on Unix (using the csh).

1 Recent news

The easy linux install now also works if your home directory is not /root. Gee. Current versions of Perl no longer support the multiline matching used in LaTeX2HTML. Some minor fixes have therefor been made to latex2html.pin¹. They are not yet included in the Windows l2hfu3.exe, since they seem inconsequential. (Nov 09).

As far as is known, everything works just fine. (Mar 08)

There is now an easy install package for Linux running on x86 (Intel) machines. (Sep 07).

LaTeX2HTML should now no longer get confused between figures with similar but different html code. It will now also properly remake figures that have changed in their back slashes or white space. However, you will want to remake old documents from scratch, using the `clr12h all` command to get rid of the old gif images. (Old images will no longer be recognized.) (Sep 07).

Minor fixes for changes in the hyperref package. (Sep 07).

Automated jpeg support is now available through setting `L2H_JPGQ`. (Late August 06)

The Wiz. Allows you to change basic properties such as colors, font size, headers and footers, etcetera, without delving into the details of html, style sheets, init files, and gif conversions. Just enter “wiz”. (Early August 06)

Style-sheet alignment. This allows the use of a single set of web pages for all browsers. (Unless you are very picky.) In particular, the large vertical alignment errors that could occur with Internet Explorer are gone. And that in turn allowed me to greatly clean up the user interface: just say `l2h` and good web pages will be made! To get this new alignment you will have to install the latest version of LaTeX2HTML, then recreate your web pages from scratch. (Early July 06)

The easy installation scripts now accomodate MiKTeX, fpTeX, and XEmTeX installed in other than the default location, by prompting the user for the location if needed. There are now easy uninstall scripts too. (Early June 06).

A dvips/ghostscript bug in new versions of TeX that left underlines below some formulae was fixed. (April 06)

¹../zips/latex2html.pin

2 Absence of Warranty, Presence of Copyrights, Licenses

The L^AT_EX2HTML-FU fixes, and the other software needed to run L^AT_EX2HTML, including L^AT_EX2HTML itself, come with *absolutely no warranty*.

You cannot copy or share your installation with others. Selling it is illegal.

Except for the L^AT_EX2HTML-FU *fixes*, *nothing else* is public domain, but protected by copyright laws, licenses, and the occasional patent. You are responsible for reading, and abiding by, the legal notices in *every archive* involved in the installation. I put the central legal notices of the packages involved in directory C:\l2hsup\copyright.

The file l2hfu3.exe contains the full original L^AT_EX2HTML 99.2 distribution, but when you run any of my installation scripts, you will replace files in this distribution. Run l2hfu3.exe in a temporary folder to obtain the unmodified distribution.

I am not aware of any patents that are still current on the netpbm software involved. Then again, I may be wrong.

Possibly, some netpbm software may require the source code to be distributed with the binaries. Only the source code I wrote myself is included (in the C:\l2hsup\doc directory.) Sources or the netpbm programs may be obtained from the netpbm homepage.² I assume this satisfies the spirit of those pre-web requirements. Otherwise let me know.

emTeX is a very good, but no longer maintained version of T_EX written by Eberhard Mattes. I may be violating the requirement to distribute all files listed in README.ENG in archive l2hmtx.exe, but again, the full source can be obtained from the T_EX Users Group³. It is essential you do not redistribute the personal-use version intended to work with L^AT_EX2HTML. There is also a large number of packages written by a variety of authors included, for which copyright notices can again be found at the T_EX Users Group⁴.

Tomas Rokicki wrote dvips, and Guido Sawade adapted it to emTeX. I made some small edits to the configuration files to get postscript fonts to work. The copyright situation is unknown to me. Just don't redistribute.

I think that summarizes all software involved, except the ones you install yourself, such as perl and ghostscript.

3 Lack of support

The only support I can provide is with the L^AT_EX2HTML fixes and the scripts I added to it. I cannot answer questions on normal L^AT_EX2HTML usage, since all I can do is the same as you can; look in the online manual⁵, (a copy of which is in the docs subdirectory of your l2hsup folder), and maybe refresh my memory about the various additional trouble shooting solutions in the manual you are reading, which I wrote myself. In fact, I know very little about the inner workings of latex2html beyond what was not working correctly in it.

However, bugs in my scripts and installation procedures I will fix immediately. The Windows scripts for emTeX, MiKTeX, fpTeX, and XEmTeX should work out-of-the-box if you correctly installed a current perl.exe in C:\Perl\bin, and a ghostscript gswin32c.exe somewhere below C:\gs. If they do not work as advertised, let me know what is the problem and we will get it fixed promptly.

Similarly, for other installations, I will clarify anything in the instructions that you may find unclear or ambiguous. I may be able to give you some suggestions too, but don't be offended if I tell you to install the emTeX/ LaTeX2HTML bundle that is guaranteed to work (with Windows) if it gets too much. I do have an

²<http://netpbm.sourceforge.net/doc/>

³<http://www.tug.org>

⁴<http://www.tug.org>

⁵<http://www.eng.fsu.edu/~dommelen/l2hman>

interest in providing better installation instructions for other current operating systems besides Sun Solaris. (The Unix installation instructions are tested only on Solaris.) I do not have a Mac, but if you want to work together to create a documented installation procedure for them, I am willing.

If L^AT_EX2HTML does not work correctly on some document, let me know that too, with enough info so that I can reproduce the bug, and I will try to find a fix or work-around.

To contact me with questions, e-mail me at l2h_support@dommelen.net. Put something meaningful in the subject line, since, as you might guess, I get a lot of SPAM at this publicly posted address. If you leave the subject blank, I will probably never see your message.

4 Credits

Countless authors have contibuted to L^AT_EX2HTML. The originating author was Nikos Drakos, and in the later versions, Ross Moore took a leading coordinating role. Please see the online manual⁶ for a proper review of all credits.

Netpbm is based on the Pbmplus package by Jef Poskanzer, first distributed in 1988 and maintained by him until 1991. But the package contains work by countless other authors, added since Jef's original work. In fact, the name is derived from the fact that the work was contributed by people all over the world via the Internet, when such collaboration was still novel enough to merit naming the package after it. Bryan Henderson has been maintaining Netpbm since 1999. In addition to packaging work by others, Bryan has also written a significant amount of new material for the package. For detailed credits of the pnm package, please see the netpbm homepage.⁷

Eberhard Mattes wrote the excellent T_EX implementation emT_EX. Of course, T_EX itself was originated by Donald E. Knuth, and L^AT_EX by Leslie Lamport, and countless others have contributed to these.

Dvips was written by Tomas Rokicki, and the emT_EX implementation was done by Guido Sawade.

5 Introduction

The L^AT_EX2HTML program was written to convert L^AT_EX into web pages. This program was written by a large number of authors, starting with Nikos Drakos, as detailed in its official online manual⁸, written by Drakos and Ross Moore.

L^AT_EX2HTML-FU is my distribution, fixing many bugs (described in Appendix A), improving the appearances, and simplifying installation and usage. The result is a tool that can reliably convert L^AT_EX documents into professional looking web pages.

Such web pages provide a much more powerful document distribution system than converting them into pdf, because

- the web pages can be browsed without downloading the full document;
- the web pages are massively hyperlinked;
- the web pages can use all the power of the web such as interactive forms, linked search engines, cgi-bin scripts, etcetera.

⁶<http://www.eng.fsu.edu/~dommelen/l2hman/>

⁷<http://netpbm.sourceforge.net/doc/>

⁸<http://www-texdev.ics.mq.edu.au/l2h/docs/manual/>

6 Example Documents

The web pages and images in the examples below were produced by \LaTeX 2HTML-FU from the latex source, with absolutely no manual editing of the produced web pages or their images.

1. This document. Not much of a challenge.

However, I used the `wiz`'s headers and footers option to put my name to the left in the top bar and the FAMU and FSU logos to the right in the bottom bar. I swiped these logos from the college web site, but unfortunately, they were made against a white background, not blue like the default bottom bar. So, I used the color scheme option of the `wiz` to change the color of the bottom bar to white. This did however not give any visual separation between the bottom navigation buttons and the logos, so I used the headers and footers option to append the html code `
<HR>` (line break and horizontal ruler) to the bottom left and right button rows. (In Firefox, you can see that the two rulers miss each other by a pixel. Maybe, someday I will create a separate template.html with a single ruler.) For the rest, colors, font sizes, icons, etcetera are all \LaTeX 2HTML-FU defaults.

I process this document from Unix (where I keep it) using `teTeX` and `make12h`, which I personally continue to prefer over `12h`: it is less of a mess if the web pages are in a separate folder. Processing takes a couple of minutes.

2. Quantum Mechanics for Engineers⁹. Almost any section demonstrates the capability of \LaTeX 2HTML to convert math, figures, and tables to a browser format, and to massively hyperlink it all. A section like 5.1¹⁰ has a bit of everything. Sections 6-4 through 6-6 have some roll-over moving gif animations, implemented through the `rawhtml` environment. The exercises in the early chapters have been hyperlinked to the answers in a separate solution manual.

I also made a colorized version of this document¹¹ using the `wiz`. (I am indebted to the Anry Color Picker¹² for suggesting a more pleasing color scheme than the blue/yellow I had initially come up with.)

This is a larger document, well over 300 printed pages. Over 2000 different math images, 100 figures, 10 or so animations (using `rawhtml` inside the tex document,) a table of contents, an index, lists of figures and tables. All not including the hyperlinked solution manual.

The main problem I encountered in this document was that in the original document, I had put some figures as “`displaymath`” to prevent \LaTeX from moving them. (The “`h`” option of the \LaTeX figure environment does not mean put the figure “here”. It means, please, please, put the figure here if you really cannot find a place that you think better of.) Unfortunately, the figure quality produced by \LaTeX 2HTML was completely unacceptable to me due to the failure of Ghostview to properly anti-alias embedded bitmaps. So I had to use the extrascale trick described in subsection 9.13.14, but that only works in figure environments, not `displaymath` ones. So \LaTeX again started putting my figures where they should not be, (in the pdf version of the document,) requiring manual insertion of page breaks in the \LaTeX source. Eventually I discovered the “`H`” option of the float package to fix this. You learn something new about \LaTeX every day.

Versions of this document have been created using `teTeX` on Unix, using `emTeX` on an Windows XP machine, and using `MiKTeX 2.5 final`, with `hyperref` turned off as described in subsection 9.13.7, on another Windows XP machine. Earlier `MiKTeX` version (2.5 beta and 2.4), `fpTeX`, and `XEmTeX` were also successfully tested on this document. Initial version were produced on Windows 98, but I do not do that anymore because of the speed difference. Processing from scratch on my single processor Windows XP portable takes about 20 minutes, almost all of which goes into creating the 2200 images. Processing on the Unix cluster takes considerable longer, maybe twice, probably because the many thousands of files involved must be transferred over the network. Processing minor changes that do not require many images to be remade takes only a few minutes.

⁹<http://www.eng.fsu.edu/~dommelen/research/nano/quantum/>

¹⁰http://www.eng.fsu.edu/~dommelen/research/nano/quantum/style_a/node45.html

¹¹<http://www.dommelen.net/quantum2/index.html>

¹²<http://www.anryhome.com/>

The wiz was used to set the font size to 19px, (L^AT_EX document font size was 12pt), to swap the textual “next” link to the right side of the page, and to set the web page splitting level to -2. For the colored versions, the wiz was also used to change the colors, generating the recolored navigation buttons automatically from the blue ones. The background was set to FFF0A6, the bar colors to FF5500, and the title colors to 660000. The text in the bars was separately set, using the individual properties item of the wiz, to FFF8D2, since I thought the default black too unimpressive.

Since I wanted to add stuff to the format selection screen, (such as links to the colored version,) I copied over `select.html` from the `files` subfolder of the `l2hsup` folder to the `index.tex` folder, renaming it `select0.html`, and made the additions to it manually.

No document segmenting was used in this or any other example; I find that even a large document like this processes perfectly fine from a single L^AT_EX source on all machines I tried. At 2200 images, 325 printed pages, and 3200 hyperlinks, I still need to see things crash.

3. A PhD Thesis¹³. The earlier chapters demonstrate again the capability to handle complex math displays, for example section 2.2¹⁴ (Firefox can be off by a pixel occasionally, press refresh.) Chapter 8 has a lot of figures, which I implemented as full-size thumbnails, for example section 8.2.4¹⁵. Click a thumbnail and you get a double-size image to examine more closely. In total about 250 printed pages, 474 different math images, and 70 figures.

This was the thesis from hell, L^AT_EX2HTML-wise. Used a proprietary “FSU_DISS” style that widely deviates from standard L^AT_EX conventions. The figures have been pushed together by trial and error from separate .eps fragments, big and small, using a mixture of `\special`, `\vspace`, and `\hspace` commands, and paragraph breaks, all in a document with a nonstandard line spacing. It had two abstracts, created using some special `\abstract` command. It included title pages, signature pages, and other required forms.

Converting “as is” was hopeless, so I converted it to the standard L^AT_EX “book” class for the web version. That was a very quick process, but unfortunately, the book format has no abstract. So I ended up turning the (single) abstract into a `\chapter*`. Not elegant, but it seemed the best I could do.

I also put the contents, and lists of figures and tables at the end instead of at the start, where I found them distracting in the web pages.

Another problem was that the “FSU_DISS” style uses different line-spacings and fonts than the book class, (and I did not know which ones). So, with the figures pushed together from fragments using paragraph breaks, various labels were not properly centered on their graphics in the book version. Also, some bounding boxes did not include all of the figure. One was even completely off the page. This could be fixed by using the no-EPS version of L^AT_EX2HTML, but that still left the labels in the wrong place. So, I ended up turning 14 of the 70 figures into proper single .eps files with the Ghostview procedure described in subsection 9.13.6 (using the FSU_DISS version of the document that had the right linebreaks.)

One figure environment had two figures with separate captions. I had to split it into two figure environments to keep L^AT_EX2HTML from including the first caption in the image. (I believe another way to handle these things may be through the `htmlimage` command, but I did not try.)

Continued figures had the text “continued” in their figure environment. I had to put this into a caption to prevent it from ending up as part of the image, and use a `\addtocounter{figure}{-1}` in front of the figure environment to keep the figure number from increasing.

I made the navigation icons manually with MS Paint, using the Monotype Corsiva font, and converted these bmps to gifs using the `bmptogif` script found in the `l2hsup` folder. I then swapped them in using the wiz. Feel free to swipe them off the web page and swap them in with the wiz if you like them. I also used the wiz to put the navigation icons at one side of the page, and the textual “next” link to the other side, which I think works pretty well. A one point border was added around the bars to make them look less flat; the procedure is in subsection 9.17. The font size was set using the wiz to 21px.

¹³<http://www.eng.fsu.edu/~dommelen/papers/subram/>

¹⁴http://www.eng.fsu.edu/~dommelen/papers/subram/style_a/node16.html

¹⁵http://www.eng.fsu.edu/~dommelen/papers/subram/style_a/node56.html

I overspecified the document font size as 13.2pt (true value in the \LaTeX source was 12pt,) since the math seemed a little bit bigger than the normal text to me. (Maybe I shouldn't have? The point is that math capitals are disproportionately big compared to math lower case, you cannot get both to match the browser font size. Overall, I think the true value, as in the quantum text above, may be preferable.)

In August, 2006, I used the newly enhanced jpeg support to replace the previous small gif figure thumbnails into full size jpegs, at a size that you can still download over a phone line. I put a

```
\htmlimage{thumbnail=1,extrascale=3}
```

or

```
\htmlimage{thumbnail=1}
```

command in each figure environment, depending on whether they contained a bitmap image like the color figures or just vector graphics like the plots. Then I used the `wiz` to set the figure scale factor to 2. The net effect is that the figures appear in the document as full size thumbnails, and if you click them, you get a double size image to study more closely.

I got rid of the old gif figures using `clr12h all`, and set the jpeg quality to a high value using

```
set L2H_JPGQ=85
```

since I did not want to skimp on quality in someone else's thesis. (Unix users use `setenv` instead of `set` and a space instead of an equals sign.) The jpegs are still much smaller than the corresponding gifs; some of the streamline gifs topped out at almost a megabyte! Finally, I processed with `make12h`.

4. A copy of the online manual¹⁶ as written by Drakos and Ross Moore. More an impressive demo of the capability of $\LaTeX2HTML$ to automatically create hyperlinked
 - table of contents,
 - index,
 - glossary,
 - lists of figures and tables,

with not much contribution from my FU stuff. Still, the FU version does fix a few problems in the official version¹⁷, as detailed in item 58 in the resolved problems section.

Note that this document is *not* a good example of how $\LaTeX2HTML$ -FU normally handles math, (unlike the quantum mechanics text and the Ph.D. thesis above.) Some math¹⁸ is build out of text and images, not just images, by loading the math extension. Supposedly, if you have the Century Schoolbook font installed, the math text and image symbols will be consistent, and download time will likely be reduced. $\LaTeX2HTML$ -FU assumes that few browsers have that font, so by default it does not load the math extension. Also, some math looks fuzzy since it is oversized to allow higher quality printing. $\LaTeX2HTML$ -FU does not by default do that, it assumes that you will provide a pdf version for high quality printing instead. $\LaTeX2HTML$ -FU normally does a better job at aligning eqnarrays, but the math extension disables that, as well as some white space around the formulae.

I also created a grey scale version¹⁹. In this version, I used the `wiz` to swap back in the 3D icons that come with the original $\LaTeX2HTML$ and to set the background color to the 75% grey page color for which these icons were made. I do think the grey background makes the document pleasurable to read on screen; I suspect it reduces eye strain. The title and bar colors were suggested by the Anry Color Picker.

¹⁶<http://www.eng.fsu.edu/~dommelen/12hman>

¹⁷<http://www-texdev.ics.mq.edu.au/12h/docs/manual/>

¹⁸http://www.eng.fsu.edu/~dommelen/12hman/style_a/node31.html

¹⁹<http://www.eng.fsu.edu/~dommelen/12hmang>

I did take some cosmetic liberties with the source document here. In particular, I used an `extrascale` in the `htmlimage` command to anti-alias the embedded image. See subsection 9.13.14 for more details. If you compare this figure²⁰ with the version above²¹, you will see that it does make a difference. Also, normally `LATEX2HTML-FU` would expand the caption of the figure to at least 75% of the page width, but since the figure has been given a border, it cannot do that. (Browsers would expand the border along with the caption.) So I moved the figure to the side of the web page, again using the `htmlimage` command, to avoid all the empty blank space around it. (It would have been even better if the figure would not have ended up next to nonwrappable verbatim text, but I could not help that.) I also replaced the pink and purple balls in the itemized lists with other colors since they clashed badly with the grey background. I find that white balls work quite well²². And I updated the bibliography images.

I included links to the setup files that are in the `index.tex` folder to get you started if you like this format. However, you can easily create them yourself using the `wiz` and change whatever you like. Specify the background color as `BFBFBF`, the title color as `660000`, the ruler colors as `3F3F3F`, the bar backgrounds as `3F3F3F` and foregrounds as `BFBFBF`, including the bar link colors. Add a four point border around the bars as described in subsection 9.17.

In addition, I recreated the frames version²³. This allowed me to test the frames generation mechanism (and fix a few bugs there too.) For example, you can click on the `index` button²⁴ and easily examine, say, the parts where figures are discussed. Also note the footnotes frame. See subsection 9.19 if you want to put your own documents as frames like this.

In processing the original segmented document, the provided makefiles did not work even under Unix, for which they were supposedly designed. I made some attempts to try to figure them out, but just got hopelessly confused. So I simply combined all document fragments together into a standard single `LATEX` source and processed that normally using `make12h`. Needless to say, this 110 page document too processes just fine without segmenting.

These case studies show that `LATEX2HTML-FU` can reliably process proper `LATEX` documents into professionally looking, massively hyperlinked web pages. It is however not uncommon that some adjusting of the `LATEX` document is needed, especially for nonstandard `LATEX` usage.

7 Installation

This section describes how to install `LATEX2HTML` on Windows or Unix.

7.1 Windows Installation

Continued availability of this installation procedure will depend on whether the various people who wrote the software involved complain about this distribution procedure.

7.1.1 Required for Windows 95, 98, ME

(Please skip this subsection if you have Windows NT or XP!)

You will need to edit the file `CONFIG.SYS` in the top directory of the `C:\` disk to assure that you have reasonable resources for DOS programs. Before doing so, use Windows Explorer to put a backup copy of your original `CONFIG.SYS` file to another location, in case something goes wrong.

²⁰http://www.eng.fsu.edu/~dommelen/12hmang/style_a/node33.html

²¹http://www.eng.fsu.edu/~dommelen/12hman/style_a/node33.html

²²http://www.eng.fsu.edu/~dommelen/12hmang/style_a/node66.html

²³<http://www.eng.fsu.edu/~dommelen/12hmanf>

²⁴http://www.eng.fsu.edu/~dommelen/12hmanf/style_a/node18_id.html

Editing `CONFIG.SYS` can be done with Notepad or a better editor, but it must be done *very carefully*. If you use Notepad, do “File” / “Open”, and select “All Files” behind “Files of Type:”, or you will never see the `CONFIG.SYS` file. If `CONFIG.SYS` does not yet exist, just use “File”/“New” in Notepad and save the new file as `CONFIG.SYS` in the `C:\` top directory. Your `CONFIG.SYS` file should contain lines like:

```
SHELL=C:\WINDOWS\COMMAND.COM C:\WINDOWS\ /E:2048 /P
FILES=60
BUFFERS=30,0
STACKS=9,256
DOS=HIGH,UMB
```

If you already have such lines (same first word), make sure that the numbers are at least as big as shown above. If you do not have such lines, insert the lines as above, at the *end* of the `CONFIG.SYS` file. Carefully check that everything is fine, watching out for typos, points instead of commas, semi-colons instead of colons, slashes instead of backslashes, etcetera, (cut and paste from above is recommended), then save. If the file is new, be sure you save as `CONFIG.SYS` in the `C:\` folder. If you use Notepad, select “All Files” behind “Save as Type”, or it may save it as `CONFIG.SYS.TXT` instead of as `CONFIG.SYS`. You may want to check it did not pull this trick on you anyway. (If so, try enclosing the name in double quotes when saving.) Do not mess around with other lines in the `CONFIG.SYS` file. Later, when you are confident that all works well, you might be able to reduce the various values a bit by trial and error.

You will need to reboot now so that the new `CONFIG.SYS` can be made active. Return to this point after the reboot. If the reboot produced problems, restore your original `CONFIG.SYS` file and consult someone familiar with `CONFIG.SYS`.

7.1.2 Required for everybody

Whether you want the easy install, or need to configure manually, everybody needs to follow the steps below:

1. Log in with administrative privileges if you are on Windows NT or XP.
2. Install ActiveState Perl²⁵. Be sure to install to the default directory `C:\Perl`. File `perl.exe` must be in directory `C:\Perl\bin`. Perl does not have to be added to your path: \LaTeX 2HTML-FU will add it at run time if needed.

Yes, some versions of TeX come with some limited perl, but they do not seem to work with \LaTeX 2HTML; not enough packages. The 50 Mb for Active State perl is nowadays not a point, so just install it, OK? You do not need to add Perl to your path during install unless you plan to use it yourself. I do not.

If you want to ignore this word of advice, Perl anywhere except at `C:\Perl\bin` will require manual configuration. Perl versions below version 5.002 will absolutely not work. Use `perl -v` to check.)

3. Install Ghostscript²⁶. I have version 8.14, at work we have 8.0. Both work fine. The manual lists 5.1 or later to avoid problems. I recommend 8.14 since I know that that one works, and you must put it below `C:\gs` like the installation should give as default.

If you ignore this word of advice, Ghostscript anywhere except below `C:\gs` will require manual install, or at least modification of `C:\12hsup\init.bat`.

4. Go to the access page²⁷ to get file `12hfu3.exe` (5 Mb). Put it in the top folder of your `C:` disk, below My Computer.

People without TeX, or who have problem running their own TeX with \LaTeX 2HTML should also get `12hmtx.exe`, emTeX, the best version of TeX ever produced. Lean and fast. However, note that emTeX

²⁵<http://www.activestate.com/Products/ActivePerl/>

²⁶<http://www.cs.wisc.edu/~ghost/>

²⁷[../zips/getdump.html](http://www.zips/getdump.html)

is no longer being updated. Also, if you need to add packages, you need to use the 5+3 scheme to save any sty files with long names. For example, to add the verbatimfiles package, `VERBATIMFILES.sty` would have to be copied to `C:\Emtex\TeXinput\Latex2e\Etc` as `VERBALES.STY`. (Verbatimfiles is already installed, however, as is `subfiure.sty` for the subfigure package.)

Go to the access page²⁸ now to get `l2hfu3.exe`, and also `l2hmtx.exe` if needed.

5. Next you need to download a batch file to do the actual installation, depending on your version of $\text{T}_{\text{E}}\text{X}$. Save this file again in the top folder of your `C:\` drive by right-clicking the appropriate link below and selecting “Save Target/Link As.” Select the batch file from the following list:

- People who want to use *my* installation of $\text{emT}_{\text{E}}\text{X}$ for $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}2\text{HTML}$ should download `l2hinmtx`²⁹. Don’t forget you should already have downloaded both `l2hfu3.exe` and `l2hmtx.exe` in the previous step. (Do not use this script with your own version of $\text{emT}_{\text{E}}\text{X}$, in that case use `l2hingen` below instead.) This is the “nothing can go wrong, except improper installation of Ghostscript and Perl,” install. But there is always Murphy, of course. If `perl.exe` is in `C:\Perl\bin` and `ghostscript` in `C:\gs\...`, and this install still does not work, contact me, section 3, and I will work with you to fix it as quickly as possible.
- People with any version of MiKTeX should download `l2hinmkt`³⁰. I thank Prof. Rogelio Alcántara for making me aware of the problems in MiKTeX 2.4, and with help fixing them. People with MiKTeX 2.5 downloaded late august 2006 or later please take note of the “html” package problem noted in subsection 9.13.7.
- People with a recent version of fpTeX (now apparently superseded) should download `l2hinfmt`³¹.
- People with a recent version of XEmTeX (as of April 2006) should download `l2hinxtx`³².
- People with other variants or versions of $\text{T}_{\text{E}}\text{X}$, or who experience (unexpected) difficulties with the scripts above, should download `l2hingen`³³. This script will help you as much as possible, but you will probably still have to perform manual configuration, as detailed in the second subsection following. Alternatively, you could elect to go the emTeX route above. If you have a commercial version of TeX and are willing, we can work together to make an easy install script for that version of TeX .

Now in “My Computer,” open the `C:\` drive and double click the `l2hin...bat` batch file you just loaded. Follow the instructions on the screen.

If the batch file terminates with a request to try to process a document, proceed to the next subsection.

If the batch file terminates in a message that installation failed, see what else it says on the screen. Contact me, section 3, if you cannot figure out why it failed, after writing down what it said last on the screen.

Alternatively, you can double-click `l2hfu3.exe` to at least install the $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}2\text{HTML}$ files. That should really be enough to allow you to go to the second subsection following, manual configuration.

Some other potential problems that I can think of:

- Problems with untested Windows versions. I have not tested them, so I am just assuming that if 98 and XP work, everything in between will work, and that 95 and ME are no different from 98. If you have other info, let me know.
- Out of disk space, or files set to read-only.
- No administrator privileges under NT or XP.
- Files put in the wrong folder, not the top `C:\` folder.

²⁸ `../zips/getdump.html`

²⁹ `../zips/scripts/l2hinmtx.bat`

³⁰ `../zips/scripts/l2hinmkt.bat`

³¹ `../zips/scripts/l2hinfmt.bat`

³² `../zips/scripts/l2hinxtx.bat`

³³ `../zips/scripts/l2hingen.bat`

7.1.3 Check installation

You are now ready to process a simple test document and see whether everything is OK. (These instructions are also printed on your screen by the installation script.)

Open the `12hsup` folder on the `C:` disk in My Computer, then

- Windows 95 to ME users should double click the `Windows_98-ME` icon.
- Windows NT to XP users should double click the `Windows_XP` icon.

This creates a command window for running `latex2html`. (You may want to copy the icon to the desktop for easier access in the future.)

You will now use this command window to convert a document to HTML. That document is `index.tex` in the subfolder `check` of the folder `12hsup` on the `C:\` drive. In the command window, enter the following commands to do so:

```
c:
cd \12hsup\check
latex index
latex index
12h
```

Enter a running title when asked. Watch the screen including top window line.

Be sure the `latex` commands correctly process the document. That has nothing to do with $\text{\LaTeX}2\text{HTML}$, just whether your version of \TeX is functioning correctly. (With the exceptions noted in the notes below.) In the `12h` command, Perl may take a minute to start up $\text{\LaTeX}2\text{HTML}$ on an older Windows 98 machine. The `12h` command will complain about “large”, and about having to make images of nonstandard accented characters, this can be ignored.

To examine the created web pages, in “My Computer” open the folder `12hsup`, then the subfolder `check`, and double click `index.html`. Check the web pages to ensure that the math formulae and the figure are there.

If there are any problems, first check out the following additional notes for the installation script you used:

- `emTeX`³⁴
- `fpTeX`³⁵
- `MiKTeX`³⁶
- `XEmTeX`³⁷
- Other³⁸

If that does not solve it, proceed to the next subsection.

However, if everything was OK, proceed to section 8, “Usage”.

³⁴ `../notes/notesmtx.html`

³⁵ `../notes/notesfpt.html`

³⁶ `../notes/notesmkt.html`

³⁷ `../notes/notesctx.html`

³⁸ `../notes/notesgen.html`

7.1.4 Manually configure L^AT_EX 2HTML

As you will see, the installation is not for the unsophisticated, though easier than the original stand-alone L^AT_EX 2HTML. And all I can do is answer questions you may have on the installation procedures, not on your operating system or version of TeX. However, if you have a commercial version of TeX, or another current system, and want to work together to create an easy install procedure for that TeX/operating system, contact me, section 3, and we will mess around until we find out how to do it. If there is an apparent problem in the installation procedure, I will fix it immediately, e-mail me. The same if you have hints or corrections to the installation instructions that may make it easier for others. Ways to deal with different L^AT_EX implementations is one example.

I will try to be complete, in any case. Read through all instructions before doing anything. Don't make changes in the procedure or you will get in trouble. Watch for typos doing the install.

1. Go into "My Computer", and open the C:\ drive, then the `l2hsup` folder in it. (If you do not have the `l2hsup` folder, it is back to the second last subsection.)
2. (You may want to examine a file called `initbin.txt` in this folder. It is supposed to hold a pointer to your T_EX installation location. If it does not, you may want to delete the file; most T_EX installations are already set up to work fine without such a pointer.)
3. Based on your version of Windows, double-click either the Windows_98-ME or Windows_XP icons to create a "command window". Enter the following in this window:

```
DOSKEY /INSERT
```

(This will allow you to correct typos with the arrow keys.) Leave the window as is for now.

4. The crucial thing is to get a file called `latex12h.bat` to function properly. The `l2hingen` script you ran will have selected a best guess for this file. The first thing is to try whether it works out of the box.

To do so, in Windows Explorer, go into the subfolder `test` of `l2hsup`. Double click the file `test.bat` in that folder. If all is well, it will run L^AT_EX a couple of times. The second time there will be an undefined variable `\alliswellthatendswell`. This is intentional, just check that the L^AT_EX identifies itself as "LaTeX2e" and hit return. If execution ends in the message "Test seems fine. Hit any key to continue...", and it ran 2e, with *no* cheating, you have finished the most tricky part of the installation. Proceed with item 5.

If not, you will need to create `latex12h.bat` from scratch. There should be a batch file `setmod.bat` in folder `l2hsup`; double click it to reset `latex12h.bat` to generic form.

Now Right click the file `latex12h.bat` in the same folder, and select "Edit." You will be changing this file to work on your system. Make the Notepad window wide enough.

Leave Notepad alone too for now and go find the documentation that came with your version of L^AT_EX 2e and find:

- (a) The DOS command to run L^AT_EX 2e
- (b) The way to set the TEXINPUTS (or TEXINPUT for some versions of T_EX) variable.

Now if your system uses TEXINPUT instead of TEXINPUTS, at the indicated place REQUIRED CHECK, change the "yes" into "no".

Then, under REQUIRED MODIFICATION 1 you need to set TEXINPUTS correctly for your system, as detailed in your manual, but add to it the `..`; or `;`.. next-higher directory.

Examples of how to do this on various systems can be found in the files `latex12h.mtx` for emT_EX, `latex12h.fpt` for fpT_EX, `latex12h.xtx` for XEmT_EX, and `latex12h.mkt` for MiKTeX.

If you have MiKTeX 2.4, don't bother with TEXINPUTS at all, it will not help. Instead just copy `latex12h.m24` into `latex12h.bat`. You also will need to append the `miktex.ini` file found in the subfolder

local of subfolder m24 of subfolder 12hmods of folder 12hsup to your local miktex.ini file as described in the MiKTeX documentation. (The 12hingen script should have already done all this for you, however.) Next, under REQUIRED MODIFICATION 2, you need to put the command to run latex on your machine, giving it arguments %1 %2 %3 %4 %5 %6 %7 %8 %9 for technical reasons.

After making the above modifications and saving the latex21h.bat file (don't forget to save!), double click the file test.bat in the subfolder test of 12hsup again and see whether it works now. If execution ends in the message "Test seems fine. Hit any key to continue...", and it ran 2e and noticed the undefined string, proceed with item 5

If L^AT_EX says it is LaTeX2e and correctly processes the file in Test 1, but Test 2 comes back with a message that the latex command may be a batch file, use Find from the Windows Start menu to find that batch file. For example, if you used the command latex2e to run L^AT_EX, search for the file named "latex2e.bat". After finding it, open that file in Notepad. The way to actually run L^AT_EX should be inside. Copy that over to latexl2h.bat instead of the batch file name. If you are lucky, it also has the correct way to set TEXINPUT[S]. Just copy that over to latexl2h.bat too and append ";;.." or ";;.." to it. Save and go repeat the test.

If you cannot find your documentation, you might try latex or latex2e for the command line. (Of course followed by %1 %2 %3 %4 %5 %6 %7 %8 %9). Or use Find in the Windows Start menu to search for likely candidate files (search for string "latex" or just "tex", say.) It should have a .exe, .com, or .bat file extension. (If it has a .bat file extension, see above for what to do with that.)

If you cannot find how to set TEXINPUTS, enter the following in the DOS window you opened up earlier:

```
set | find /i "TEXINPU"
```

If you then see a line like, maybe,

```
TEXINPUTS=c:\tex;c:\letters;c:\y&ytex\latex;c:\y&ytex\latex2e;.
```

you are in luck. At the appropriate place under "REM REQUIRED MODIFICATION 1" in latexl2h.bat, add a line

```
set TEXINPUTS=c:\tex;c:\letters;c:\y&ytex\latex;c:\y&ytex\latex2e;.;..
```

In short, put "set " in front of the line and append ";;.." to it. Save latexl2h.bat and repeat the test.

If that does not work either, if you have Y&YTeX, try the line above anyway. If you have T_EXlive/fpT_EX/teT_EX, you should try:

```
set TEXINPUTS=.;..
```

If nothing works and you cannot pass the test according to requirements, restore CONFIG.SYS, delete file folders 12h, 12hsup, and 12hins on the C: disk. Take out your MS Word documentation. L^AT_EX2HTML is not for you. Most people are perfectly happy with the web pages produced by Bill Gates anyway.

5. Now you need to find how to run dvips on your system. In the DOS window:

```
c:
cd \12hsup\test
dvips32 -Ppdf -E index
```

If dvips(32) does not answer, try plain dvips, which is correct for T_EXlive. If that does not work, search for the files as before. If dvips answers but complains about the -E (eps files) option, you want to consider upgrading to version 5.8.3³⁹. If dvips does not know the pdf printer, your formulae are not going to be as sharp as they could be. Consider installing just the dvips part of T_EXlive. Yes, I know. Otherwise leave out "-Ppdf". Anyway, write down how to run dvips on a piece of paper.

³⁹../zips/dvips583.zip

6. You need to find out how to run the $\text{T}_{\text{E}}\text{X}$ executable on your system. In the DOS window, try

```
tex index
```

If $\text{T}_{\text{E}}\text{X}$ answers, and complains about the $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$, all is OK; just enter `x` to exit. Otherwise, search for the executable. It might be the same as the one that runs $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ without the `&latex` or whatever. On my system, it is `tex386`, which is typical for emTeX. If you cannot find it, just write down the same executable as used for $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$ for both $\text{T}_{\text{E}}\text{X}$ and $\text{i}\text{n}\text{i}\text{T}_{\text{E}}\text{X}$ below and don't use the stupid `-ldump` option of $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}2\text{HTML}$. It is *not* going to save any time anyway.

7. You need to figure out how to run $\text{i}\text{n}\text{i}\text{T}_{\text{E}}\text{X}$ on your system. In the DOS window, try

```
initex index
```

On my system, $\text{i}\text{n}\text{i}\text{T}_{\text{E}}\text{X}$ is run by adding a `/i` behind the $\text{T}_{\text{E}}\text{X}$ executable `tex386`. On some systems, that is `-ini` instead.

8. You *do* need to find the way to run ghostscript on your system. In the DOS window you opened earlier, type:

```
gswin32c
```

If ghostscript answers, just enter `quit`. The way to run ghostscript is “`gswin32c`”. Otherwise, use Find in the Start menu to find the file named “`gswin32c.exe`”, and add the full path to the file. (If you only have “`gswin32.exe`”, you must upgrade ghostscript.) For example my `gswin32c` is in folder “`bin`” which is in folder “`gs8.14`” which is in folder “`gs`” on the C drive, so my way of running ghostscript is as

```
C:\gs\gs8.14\bin\gswin32c
```

Your version numbers are likely to be different. Write down how to run ghostscript after you get it to work.

9. You need to find out how to run perl on your system. In the DOS window, try:

```
perl -v
```

If perl answers, the command to run perl is `perl` (without the “`-v`”). On my system, it is `C:\Perl\bin\perl.exe`.

10. Right-click the file `config.bat` in the `12hins` (not `12hsup`) directory and select Edit. Find the line `set PERL=C:\Perl\bin\perl.exe` (or maybe just `set PERL=perl`) and replace `C:\Perl\bin\perl.exe` (or `perl`) with the way to run perl on your system you just found. Save.
11. Edit the file `prefs.pm` in the `12hins` directory using Notepad or better. You want to make the minimum changes you can; *after* everything works correctly, you can always go back and play around.

Do not touch the `$prefs{'TEXLIVE'} = 'no';` line even if you have $\text{T}_{\text{E}}\text{X}\text{live}$.

Find the `TEX` line, starting with `$prefs{'TEX'}` and put the way to run $\text{T}_{\text{E}}\text{X}$ on your system between the single quotes behind the equals sign. Note that you need to double any backslashes in `prefs.pm`.

Change the `INITEX` line a few lines below correspondingly. (If, like on my system, you need to append `/i` or `-ini`, *do not* do that here. Instead open file `12hconf.pin` (not `.pm`) and add the `/i` behind `@INITEX@` a few lines down in that file. Return to `prefs.pm`.)

Change the value of `TEXPATH`, into the folder where you want the `\usepackage` packages that come with $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}2\text{HTML}$ to be put. This can be any of the `TEXINPUTS` directories except the `.` or `..` ones. In the same place as “`article.cls`”, the article-style class file, would be a pretty sure bet. Modern installation

of \TeX tend to use something like `...\texmf\tex\latex\latex2html`, the dots denoting possible higher directories, and the `latex2html` folder to be added during the installation.

Change the value of the DVIPS to what you found.

If you found that the pdf printer did not work, remove `-Ppdf` from the DVIPSOPT pref. In that case you may eventually want to experiment with the next three options to try to improve the quality of math images.

If your dvips did not do eps, set EPS to 0 instead of 1.

Change the GS ghostscript option. Change all three, just to be safe.

Save `prefs.pm`. Just doing a simple save should be OK. Otherwise, make sure to select “All files” when saving, or it may save it as `prefs.pm.txt`. If it still does, enclose `prefs.pm` between double quotes when saving. It’s Microsoft.

12. If you use EmTeX, which uses EMX/RSX, the warning message produced by RSX when dvips runs interferes with the installation procedure. Use `SET RSXOPT=-Re0` to turn it off.
13. In the DOS window, do

```
c:  
cd \l2hins  
del config.log  
config
```

If this terminates in an error message, try to solve it by making appropriate changes in file “`prefs.pm`”. Repeat from `del config.log`.

If you get to the stage where it creates all files from “`cfgcache.pm`” to “`l2hconf.pm`”, carefully examine the log file “`config.log`” in the “`l2hins`” directory using Notepad or better. I have “no”s for `kpsewhich`, `mktexlsr`, and `texhash`, which em \TeX does not use. If you get another “no”, investigate before proceeding to the next item.

14. You are now ready to test for basic operation. In the DOS box, enter:

```
test
```

If it freezes at some stage, have a look at what is in the `C:\Temp` directory for a clue, and try hitting the Return key. If it just complains about aux files, but tells you to view results with your browser, do so. The web pages should look rough, but correct. If not, I recommend pulling a lot on your hair. One thing you could do if you have used all your hair, is to examine whatever is in the “Temp” folder on the C: disk. `Latexl2h.bat` that you modified earlier puts some error info there if errors occur.

15. If the test web pages are correct, in the DOS box, enter

```
install
```

This will create the folder “`l2h`” on the C: disk.

16. Get rid of the junk. In the DOS box:

```
c:  
cd \l2h  
C:\l2hsup\var\deldir texinputs
```

17. If you have an older DOS type \TeX , you might need to rename the `verbatimfiles.sty` file, (use Windows Find to find the one in your `TEXINPUTS` path,) since its name is too long. For em \TeX , I have to rename it to `verbales.sty`.

18. If your dvips version supported the `-E` option, execute the following command to create a non-eps option to deal with the occasional buggy figure, such as some figures using `\special`.

```
C:\12hsup\var\creaneps
```

which is the last thing to do. You probably want to keep installation folder `12hins` in case your system changes.

If you have information that may be helpful to others for installing, e-mail me, section 3, including your flavor and version of `TeX` and I will add it to this document.

If there are errors in the installation procedure, please let me know; I will correct them immediately.

7.1.5 Uninstall

This install does not make significant changes to your system. The scripts do not touch `config.sys`, `autoexec.bat`, or the registry. Simply deleting the folders `12h`, `12hins`, and `12hsup`, `12hold`, and `EMTEX` and `texfonts` if present, pretty much get rid of it.

However, the better method is to double-click the `uninstal.bat` file in the `12hsup` folder on the `C:` drive. This will undo all changes, including remove the style files the installation may have added to your `TeX` installation, and the bug fixes performed for some versions of `MiKTeX`. First make sure that you have closed any DOS window that you may have used to test the installation.

I find that Windows XP may keep open the `12hsup` window even after the folder has disappeared. It's Microsoft. Just check in the `C:` folder. If the install was OK, but the folders are still there, an earlier version was restored. Just keep uninstalling until the earlier versions run out.

What the uninstall script does beyond deleting the folders above can be found in `uninsta2.txt` in the `var` subfolder. Users familiar with DOS can examine this file by right-clicking it and selecting "Edit." The trouble with uninstall scripts is that they are unaware of any relevant changes you may have made to your system after you installed `LaTeX2HTML`. Is `TeX` still there? Have you removed or moved the style files yourself? The script tries to be robust in those matters, but there are limits.

Windows 98-ME users will want to restore their original `CONFIG.SYS` if they changed it.

If you also downloaded `emTeX`, there is an `uninstal.bat` file in the `EMTEX` folder too.

Perl and Ghostscript have their own uninstall procedures.

7.2 Unix Installation Instructions

7.2.1 Easy linux install

Continued availability of this installation procedure will depend on whether the various people who wrote the software involved complain about this distribution procedure.

This install was found to work on Centos 4.4 with `TeXlive 2007`, Debian Etch with `teTeX`, and Debian Lenny with `TeXLive`. It should work on other linux versions running on x86 machines, but *not* on non-Intel hardware. On Lenny 5.0, 5/7/09, I found that I had to install the `libg2c0 g77` library, which is apparently no longer automatically included.

Other versions of `TeX` should be OK as long as they have an `TeXLive` compatible `latex` command and process `TEXINPUTS` the same way. You can also use the easy install as a basis for an incompatible version of `TeX` and take it from there (i.e. then adjust `latex12h` and `prefs.pm` as described in the full installation section and run `configure` and the `make` commands.)

Preparation is to check that you have decent versions of `ghostscript`, 5.1 or later, and `/usr/bin/perl`, 5.002 or higher. In a terminal/xterm/console/command window, try

```
gs -version
perl -v
```

If you do not yet have either program installed, your linux package manager can do it. You also need the Info-ZIP⁴⁰ `unzip` utility or equivalent.

For L^AT_EX you should have the `epsf.sty`⁴¹ and `hyperref` packages installed. If you do not yet have them, TUG⁴² has them in `downloads/CTAN`. From the 2007 TeXlive DVD, you can instead install them using the commands

```
sh install-pkg.sh --package=hyperref --nodoc --nosrc
sh install-pkg.sh --package=epsf --nodoc --nosrc
```

Now go to the access page⁴³ to get file `l2hlnx86.zip` (4 Mb). Put it in your HOME folder.

Open a terminal/xterm/console/command window and enter:

```
tcsch
cd ~
unzip l2hlnx86.zip
cd ~/l2h/l2hins
[read the absence-of-warranty, license, readme, FAQ, and manifests there]
cd ~/l2h/l2hsup/copyright
[read all files there]
```

To install the fixes, continue with:

```
source ~/l2h/l2hsup/init
~/l2h/l2hsup/l2hinstall
```

Now check your installation on an example file. Open a new terminal/xterm/console/command window and enter:

```
tcsch
source ~/l2h/l2hsup/init
cd ~/l2h/l2hsup/check
latex index
latex index
```

If the file does not process correctly under `latex`, it has nothing to do with L^AT_EX2HTML, only with your L^AT_EX installation. See section 9.11 for the most common problems. If the file does process correctly under `latex`, make the web pages as follows:

```
l2h
```

Examine them in your browser to ensure that the math formulae and the figure are there.

Normal usage of L^AT_EX2HTML is similar. Put a copy of your LaTeX document, renamed to `index.tex` in a suitable folder of its own, and add copies of all required figures and files to the same folder. Open a new terminal/xterm/console/command window and enter:

⁴⁰<http://www.info-zip.org/>

⁴¹`../notes/epsf.sty`

⁴²<http://www.tug.org/>

⁴³`../zips/getdumpl.html`

```
tcsH
source ~/l2h/l2hsup/init
cd folder_name_with_index.tex_in_it
latex index
latex index
l2h
```

Now proceed to section 8, “Usage”. Or if your L^AT_EX is incompatible with TeXlive, proceed to the full installation section 7.2.4, point 5 and following.

Uninstall: This install makes *zero* changes to your system. If you want to uninstall, simply delete the l2h directory in HOME and the zip file, and it is completely gone.

To obtain the unmodified L^AT_EX2HTML version 99.2 source, simply unzip without using the l2hinstall script. The unmodified sources are in l2h/l2hins and can be compared to the fixed-up ones found in l2h/l2hsup/-l2hmods.

7.2.2 Introduction to the full install

As you will see, the installation is not for the unsophisticated, though easier than the original stand-alone L^AT_EX2HTML. I am assuming someone using Unix is a lot more sophisticated than a typical Windows user. If you are unexperienced in Unix, get someone to help you.

As detailed in section 3, support is limited. I will gladly explain anything that may be unclear in the installation procedure below, and how it worked for me on Sun Solaris and Centos. But I do not have access to other versions of Unix or Mac OS. I also never figured out Mac OS; it is all too far hidden away. Maybe with OS X, you could use either the DOS or the Unix scripts to run latex2html, since it has a Unix engine and, I believe, a DOS emulator. If you want to work with me to get this stuff working on non-Intel linux or Mac OS X, I am willing. Contact me, section 3.

7.2.3 Prerequisites

Note that your Unix system needs to be set up to run perl on scripts with a perl header line. Apparently, some systems do not. Complain. But not to me.

Before you can install L^AT_EX2HTML and the L^AT_EX2HTML-FU fixes, you need to have the following list of required programs already installed, and running correctly. If your installation is old, upgrade to the latest version. (If you ever run into trouble with one of them, try the version I am using and see whether it resolves the problem.)

Since I do not have system privileges on the Unix cluster that I use (Sun Solaris), I am simply using the versions that are there, with the noted exceptions.

- The Info-ZIP⁴⁴ unzip utility must be in your path to install. We have 5.32. While messy, I guess you could follow the steps of the unzipit script (see below) manually on a Windows machine (binaries in the Windows 98 section above) and transfer the files. Typical installations of linux seem to have unzip already.

There is really no need to do so, however, since there is a big set of ready-to-run binaries for almost any conceivable system here⁴⁵.

You should also have zip in your path for the makezip utility to work, though you can live without this utility.

⁴⁴<http://www.info-zip.org/>

⁴⁵<http://www.info-zip.org/UnZip.html>

- \LaTeX ⁴⁶. I don't know why you are reading this if you do not have \LaTeX , but you probably want version 2e, from 6/95 or later. \LaTeX 2.09 will work for simple documents, with limitations.
- Dvips⁴⁷. If you have \TeX live, you should, reasonably speaking, already have it. The later versions with the pdf "printer" are best, but those are only in \TeX liveand teTeX (which is as of 2007 considered obsolete). You need at least version 5.62, or you will need to make changes to the installation procedure; see the official manual.
- Ghostscript⁴⁸. We have version 8.0. The manual lists 5.1 or later to avoid problems.
- Perl. As far as I know, any decent unix installation should come with a decent perl already installed. Otherwise, have a look at ActiveState Perl⁴⁹. We are using perl v5.6.1, origin unknown, probably not Active State. \LaTeX 2HTML is all perl scripts, you cannot live without perl. Below version 5.002 will absolutely not work. (Use `perl -v` to check.)
- The Netpbm graphics utilities⁵⁰. We seem to have netpbm version 1, dating from 1994! That is *not* the version you want to have. For one thing, you most definitely need the `pnmcolormap` and `pnmremap` programs, which do the reduction in number of colors that allow the gif images to be made of the formulae and figures.

So, I created my own updates of the more essential binaries. Below is a log of my inputs. These are *not* installation instructions, just a basis for comparison. For example, you may have to specify `gmake` instead of `make`.

Also, you may want to install the `l2h` directory tree elsewhere than in your home directory. For example, this would apply for a multi-user setup.

I *do* however recommend that you try to install the same version of the utilities in the same way. It is the only way to have some confidence that the installation will work correctly, and will still work correctly next year. It may duplicate a few netpbm utilities in `/usr/local/bin`, (16 of them, to be exact, all critical to \LaTeX 2HTML), but they are very small files anyway.

Versions that are too early will simply not work correctly. Versions that are later versions than when \LaTeX 2HTML was written also do not work, since the program requires specific behavior, and netpbm is in a constant flux of change. (As far as I know, the current version of netpbm at the time of this writing, 2004-5, does work, but that is only because I fixed the problems. They *do not* work correctly with the official distribution.)

You do not want to come back next year if someone upgraded netpbm in `/usr/local/bin`, or just moved the files or libraries, and do this all again.

For your convenience, a zipped version of the required version netpbm sources is here⁵¹, and the jpeg library is here⁵².

My netpbm install log follows now:

```
tcsH

mkdir $HOME/l2h
mkdir $HOME/l2h/l2hsup

mkdir $HOME/work
cd $HOME/work
```

⁴⁶<http://www.tug.org>

⁴⁷<http://www.tug.org>

⁴⁸<http://www.cs.wisc.edu/~ghost/>

⁴⁹<http://www.activestate.com/Products/ActivePerl/>

⁵⁰<http://netpbm.sourceforge.net/doc/>

⁵¹`../zips/netpbmux.zip`

⁵²`../zips/jpegux.zip`

[put the netpbm.zip and jpegux.zip in this directory]

```
unzip jpegux
tar xvf jpegsrc.v6b.tar
cd jpeg-6b/
more install.doc
./configure
make
[lots of verbosity, but it produces the file]
cp libjpeg.a ~/l2h/l2hsup/
cd ..

unzip netpbmux
tar xvf netpbm-10.18.18.tar
cd netpbm-10.18.18/
more doc/INSTALL
./configure
Platform [?] ==> sun
gcc or cc [gcc] ==>
regular or merge [regular] ==>
static or shared [shared] ==> static
library filename or 'none' [libjpeg.so] ==> /home/e121/dommelen/l2h/l2hsup/libjpeg.a
JPEG header directory [default] ==> /home/e121/dommelen/work/jpeg-6b
library filename or 'none' [libtiff.so] ==> none
library filename or 'none' [libpng.so] ==> none
library filename or 'none' [libz.so] ==> none
Documentation URL [http://netpbm.sourceforge.net/doc/] ==>
cd converter/other
make bmptopnm
make giftopnm
make jpegtopnm
make pnmtojpg
make pnmtops
mv anytopnm jpegtopnm giftopnm pnmtops ~/l2h/l2hsup
mv bmptopnm ~/l2h/l2hsup/bmptoppm
mv pnmtojpeg ~/l2h/l2hsup/ppmtojpeg
cd ../ppm
make ppmtobmp
make ppmtogif
mv ppmtobmp ppmtogif ~/l2h/l2hsup
cd ../../generator
make pbmmake
mv pbmmake ~/l2h/l2hsup/
cd ../editor
make pamflip
make pnmcat
make pnmcrop
make pnmflip
make pnmremap
mv pamflip pnmcat pnmcrop pnmflip pnmremap ~/l2h/l2hsup
cd ../other
make pnmcolormap
mv pnmcolormap ~/l2h/l2hsup/
cd ../analyzer
```

```
make pamfile
mv pamfile ~/l2h/l2hsup/pnmfile
```

I recommend that you back up the created binaries to a safe location to avoid having to do this again later if a disk crashes.

- The Gnu Fortran Compiler⁵³. We have 3.3.2.

(I really think it is quicker to install the compiler if you do not have it, than to adjust the Fortran files in the doc subdirectory to read and write files without new lines and record boundaries (fgetc and fputc in g77), and to accept command line parameters the same way as g77. Though I guess it could be done; Watcom can do it using unformatted I/O with a declared recl of 1 and library functions. You could live without l2hnewer.f if you give up the convenience features. Or use the script version if you have newer from texlive. L2hcomp.exe and l2hcomp.exe are the very core of L^AT_EX2HTML-FU; without them, it is a pretty useless fix.)

7.2.4 Installation

Next, perform the following steps. Note that I am using tcsh, but feel free to use csh instead. Also, use your favorite editor if for some weird reason it is not emacs.

1. You need to decide on a top directory for the L^AT_EX2HTML files. I use \$HOME/l2h, which I created using mkdir. You could just use \$HOME, for a single user setup. For a multiuser setup, /usr/local/l2h springs to mind. In any case, enter:

```
tcsh (or csh)
setenv L2HTOP $HOME/l2h (or whatever)
mkdir $L2HTOP (if you did not already)
cd $L2HTOP
mkdir l2hsup (if you did not already)
mkdir l2hsup/unzip
mkdir temp
setenv PATH "$L2HTOP/l2hsup:$PATH"
rehash
cd l2hsup
```

Make sure that L2HTOP/l2hsup is at the *start* of your path, or you may use the wrong netpbm files from /usr/local/bin or wherever instead of l2hsup. This will interfere with the netpbm capabilities tests during the configuration, causing misconfiguration.

2. I recommend you put copies of the following 16 netpbm utilities into directory l2hsup. (See subsection 7.2.3 on the recommended procedure to build them, but even if you decide to use preexisting ones in /usr/local/bin or wherever, I still recommend to put copies in l2hsup, they are small):

```
anytopnm bmtoppm giftopnm jpegtopnm pamflip pbmmake pnmcat pnmcolormap
pnmcrop pnmfile pnmflip pnmremap pnmtops ppmtobmp ppmtogif ppmtjpeg
```

3. You will now need to put various required files into the created “unzip” subdirectory. Right click the next links to get your browser to save them as files. Of course you need L^AT_EX2HTML, and you need version 99.2. Do not even think of trying another version. For your convenience, I have a zipped version here⁵⁴. And you need my fixes, which are here⁵⁵. Finally, you need a csh script “unzipit” to put various

⁵³<http://gcc.gnu.org/releases.html>

⁵⁴../zips/l2hins.zip

⁵⁵../zips/l2hsupux.zip

things into their right places. It is here⁵⁶. Make sure it is saved with name “unzipit”, not “unzipit.htm”; you may need to put it in quotes.

4. In `tcsh`,

```
cd unzip
chmod a+x unzipit
./unzipit
```

This will check your files and put various things in their right places. If all goes well, it will say so. If you see stars, something is wrong. Any files missing or names mistyped? Examine the `unzipit` script in `emacs`, if needed.

Still in `tcsh`,

```
rehash
```

5. In `tcsh`,

```
cd $L2HTOP/12hsup
emacs latex12h      (or nedit latex12h; may want to append & in X-windows.)
```

You need to add two lines to this file, at the places indicated in the file. First a line that adds “.” to `TEXINPUTS`. See your \LaTeX documentation on how to do this, If you use `teTeX`/`TeXlive`, you might try the following line, which works fine on our `teTeX` system (it is already in the script, just uncomment it):

```
setenv TEXINPUTS :...:      (or, see below, setenv TEXINPUTS :...:$L2HTOP)
```

Second you need to add a line that runs \LaTeX 2e on \$1 \$2 \$3 \$4 \$5 \$6 \$7 \$8 \$9, probably just

```
latex $1 $2 $3 $4 $5 $6 $7 $8 $9
```

See your \LaTeX documentation or the hints in the Windows 98 subsection if you run into trouble with these two lines.

6. in `tcsh`,

```
cd test
./test
```

If all is well, `test` will run \LaTeX a couple of times. The second time there will be an undefined variable `\alliswellthatendswell`. This is intentional, just check that the \LaTeX identifies itself as “`LaTeX2e`” and enter “`x`”. If execution ends in the message “`Test seems fine.`”, and it ran 2e, proceed to the next item. Otherwise, change script `latex12h` (not `test`) until it works as described. Do not move `test2.tex`. See the Windows install section for more if needed.

If \LaTeX 2e is *not* run using the command `latex` on your system, on a piece of paper, write down the command that does run it.

7. Now you need to find how to run `dvips` on your system. In `tcsh`:

```
dvips -Ppdf -E index > tmp.ps
```

You may need to specify an other command than `dvips`. In that case, write it down on a piece of paper. If `dvips` answers but complains about the `-E` (eps files) option, you want to consider upgrading to version 5.8.3. To see the current version number, use

⁵⁶../zips/unzipit

```
dvips -v
```

If dvips does not know the pdf printer, your formulae are not going to be as sharp as they could be. Consider installing just the dvips part of T_EXlive. Yes, I know. Otherwise leave out “-Ppdf”.

8. You need to find out how to run the T_EX executable on your system. In tcsh, try

```
tex index
```

If T_EX answers, and complains about the L^AT_EX, all is OK; just enter x to exit. Otherwise, just write down the same executable as used for L^AT_EX for both T_EX and iniT_EX below and don't use the stupid -ldump option of L^AT_EX2HTML. It is *not* going to save any time anyway.

9. You need to figure out how to run iniT_EX on your system. In tcsh, try

```
initex index
```

Write it down if not `initex`.

10. You *do* need to find the way to run ghostscript on your system. In tcsh, try

```
gs -version
```

If ghostscript answers, the way to run ghostscript is “gs”. We have version 8.00. Otherwise, write it down.

11. You need to find out how to run perl on your system. In tcsh, try:

```
perl -v
```

If perl answers, the command to run perl is `perl`. Otherwise write the correct command down. We have version 5.6.1. Also check that it is a good perl, not the junky one that comes with some version of TeX:

```
where perl
which perl
```

`which perl` should normally return `/usr/bin/perl`, not some TeX version of perl. If necessary, reorder your PATH to move `/usr/bin` in front of TeX directories.

12. In tcsh, do

```
cd ../doc
make
```

This compiles the fortran using g77. There will be some warnings about possible uninitialized variables, but they are in fact correctly initialized. Note that I have set the l2hcrop variable `bufdim` in `l2hcrop.f` to use 2 Mb of memory. The intention is to avoid running the Netpbm utilities `pnmcrop` and `pnmflip` as much as possible, minimizing potential wrong-version problems. However, if this amount of memory use is a problem on your system, you can reduce the value by up to a factor 10 or so, and `pnmcrop` and `pnmflip` will take over for the bigger images.

13. In tcsh, do

```
cd subbin
make
cd ../dojpegs
make
cd ../../wzs
make
```

This creates other needed programs.

14. In `tcsh`, do

```
cd ../../l2hins
```

Read the license and other important documents.

15. In `tcsh`, do

```
more INSTALL (ignore whatever it says in this file, anyway)
emacs prefs.pm
```

You want to make the minimum changes you can; *after* everything works correctly, you can always go back and play around.

Do not touch the `$prefs{'TEXLIVE'} = 'no'`; line even if you have \TeX live.

Find the `TEX` line, starting with `$prefs{'TEX'}` and change `tex` into the way to run the \TeX executable on your system you found earlier, if it was different from `tex`.

Change the `INITEX` line a few lines below correspondingly. (If you need to append an option to the command, *do not* do that here. Instead edit file `l2hconf.pin` and add the option behind `@INITEX@` a few lines down in that file. Return to file `prefs.pm`.) File `prefs.pm` cannot deal with multi-word commands.

Set the value of `TEXPATH` into the folder where you want the `\usepackage` packages that come with \LaTeX 2HTML to be put. This can be any of the `TEXINPUTS` directories except the `.` or `..` ones. In the same place as “`article.cls`”, the article-style class file, would be a pretty sure bet. In teTeX , you may want to leave it blank and configure might figure it out by itself. When in doubt, leave it `$ENV{L2HTOP}` and move the files from there to an appropriate directory in the search path after running the `install` procedure. I leave them in `$ENV{L2HTOP}` since I have no privileges to move files into system directories and set my `TEXINPUTS` to `:$L2HTOP` so that \TeX can find them. Note that this means that the `TEXINPUTS` line in my `latex12h` file, as edited above, is really

```
setenv TEXINPUTS :...:$L2HTOP
```

Change the value of `DVIPS` to what you found.

If you found that the pdf printer did not work, remove `-Ppdf` from the `DVIPSOPT` pref. In that case you may eventually want to experiment with the next three options to try to improve the quality of math images.

If your `dvips` did not do `eps`, set `EPS` to 0 instead of 1.

Change the `GS` `ghostscript` option if different. Change all three, just to be safe.

Set `TMPSPACE` further down to the location where you want temporary files to be put. These can be big.

Save `prefs.pm`.

16. In `tcsh`,

```
chmod a+x configure
./configure -help | more (ignore whatever it says, anyway.)
rm config.log cfigcache.pm
./configure
```

If this terminates in an error message, try to solve it by making appropriate changes in file “`prefs.pm`”. Repeat from `rm config.log cfigcache.pm`.

If your `ghostscript` is recent and it complains about `GS_LIB`, it may be ignorable. Try `gs -h` and see whether `gs` can find the `ppm` device.

If it gives an uninitialized string error combined with the note that it cannot do pict format, I ignore it since I do not use pict graphics.

If you get to the stage where it creates “cfgcache.pm” to “Makefile”, carefully examine the log file “config.log”. If you get “no”s, investigate before proceeding to the next item.

Also examine “cfgcache.pm”.

17. In tcsh,

```
make
make check
```

18. You are now ready to test for basic operation. In the xterm window, enter:

```
make test
```

If it freezes at some stage, have a look at what is in the $\$L2HTOP/temp$ directory for a clue, and try hitting the Return key. If it just complains about aux file l2htest, but tells you to view results with your browser, do so. (You may need to browse down to the file, instead of using the given link.) The web pages should look rough, but correct. If not, I recommend pulling a lot on your hair. One thing you could do if you have used all your hair, is to examine whatever is in the $\$L2HTOP/temp$ directory. Script `latex12h` that you modified earlier puts some error info there if errors occur.

Carefully examine file `l2hconf.pm` for problems.

19. If the test web pages are correct, in tcsh

```
make install
rehash
```

This will put the various \LaTeX 2HTML files in the `l2h` directory, and the style files in the \TeX path.

20. Get rid of the junk. In tcsh

```
cd  $\$L2HTOP$ 
rm -r texinputs
```

21. Move the various `.sty` files into the right locations in the \TeX search path, if it was not specified in `prefs.pm`. Try running \LaTeX on a document with a `\usepackage{html}` in the preamble; it should be able to find that package. Otherwise try moving it in with the `article.cls` file of LaTeX. Or, for `teTeX`, you could leave them in $\$L2HTOP$ and tell the users in their `.login` or `.[t]cshrc` to set

```
setenv TEXINPUTS : $\$L2HTOP$ 
```

In that case, you want to set

```
setenv TEXINPUTS :.:.:.: $\$L2HTOP$ 
```

in file `l2hsup/latex12h`. That is what I do, since I have no privileges to move things into the \TeX directory tree. A good test file is `$\$L2HTOP/l2hsup/check/index.tex$` . If that file processes OK in \LaTeX , try converting it to html using the `l2h` command. If it does not process correctly in \LaTeX , it is a problem in \LaTeX , not \LaTeX 2HTML. You may need to install packages or run `mktextlsr`.

22. (If your `dvips` does not do eps, you can skip this item.) You want to create an option to deal with the occasional buggy figure, such as some figures using `\special`. Execute the command:

```
 $\$L2HTOP/l2hsup/var/creaneps$ 
```

23. In a multiuser setup, remove directory `temp` from `$L2HTOP`, and tell each user to create a directory `temp` (case sensitive) in their HOME directory. Also tell them to `setenv L2HTOP` and to prefix it to their PATH, and if necessary, to `setenv TEXINPUTS`. Tell them the location of this document.
24. Unfortunately, the installation must be repeated from the `./configure` stage if the physical location of `$L2HTOP` changes. This is due to the fact that noninterpolated strings are used deep inside the numerous perl scripts. If you leave `l2hins` as is, this will be easier.
25. You may want to delete the `.zip` files from `l2hsup/unzip` and the `jpeg` and `netpbm` installation trees when all is well to recover disk space.

If you have information that may be helpful to others for installing, e-mail me, section 3, including your flavor and version of $\text{T}_{\text{E}}\text{X}$ and I will add it to this document.

If there are errors in the installation procedure, please let me know; I will correct them immediately.

7.2.5 Warnings for Unix users

Unix users should note the following differences in usage from Windows ones:

- Before running `l2h` for the first time, set the location of the $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}2\text{HTML}$ -FU files and add the executables to your path with:

```
setenv L2HTOP $HOME/l2h
setenv PATH "$L2HTOP/l2hsup:$PATH"
rehash
```

(or substitute wherever the top of the directory tree is if not `l2h` in the home directory.) You probably want to put the first two commands in your `.login` file, so that you do not have to do them manually each time you login to `csh`. Make sure that `L2HTOP/l2hsup` is *before* other parts of the path that may have `netpbm` files of the wrong version number.

- For a multiuser setup, each individual user must have a directory called “temp” in the home directory for the log file to be put (and `$L2HTOP` should *not* have a `temp` directory.)
- Substitute `$L2HTOP/` where Windows users have `C:\` and forward slashes for backward ones. But since you already have `L2HTOP/l2hsup` in your path, you typically can omit this from commands.
- You want to use `setenv` instead of `set`, omit the equals sign, and quote the string, e.g.

```
setenv L2H_BROWSER c
```

- File `.latex2html-init` is a hidden file on Unix. But it is there, just do `ls -a`.
- If `l2h`, `makel2h`, or the `wiz` mess up your terminal (or `xterm` window), use the `l2hexe`, `makel2hexe`, and `wizexe` versions instead. The `exe` versions do not try to use line editing, so will not mess with your terminal screen. Correcting typos will be less convenient: no arrow keys.
- `L2h` will make all files in the `index.tex` directory and below readable to world.

Have a look at `manual.pdf` and `hhtml/index.html` in the `docs` subfolder of `l2h`. Then proceed to usage section 8.

8 Usage

8.1 L^AT_EX file format

Fairly standard format tends to work best.

Equation labels: do *not* put these on a line by themselves. Put them right behind the end of the actual equation and follow them by a % to avoid a blank line being inserted in the equation, causing the conversion of the equation to an image to fail.

For new versions of L^AT_EX, (or rather `hyperref`), follow `htmlimage` commands by an empty pair of braces, like in

```
\htmlimage{extrascale=3}{}
```

T_EX `\defs`: assuming that L^AT_EX2HTML does not process them, put a second copy of the `\def` inside an `imagesonly` environment. (Requires the `html` package to be loaded.)

Captions: do not use the optional argument of a caption, or it will become part of the image, probably with an incorrect figure number. Try to keep math out, and try to avoid captions with the same text save for the math.

Quotes: type left and right quotes as `{\lq}` and `{\rq}`, or they will look poor.

Do not use `\hsize` or `\textwidth` in pictures, it will not conform to your document. Specify actual dimensions in `pt` or `in`.

Watch for two figures or formulae with long identical starting text. L^AT_EX2HTML may not see the difference in the later text. If necessary, put a strut at the start of one of the two to ensure the difference is noted. (That should be fixed in the new versions.)

Input commands: note subsection 9.21.

`\framebox` inside a picture environment: See subsection 9.13.5.

For other problems, see the following listings.

8.2 Elementary usage

Normal operation proceeds as follows: Put (a copy of) your L^AT_EX document in a folder (i.e directory) by itself and rename it `index.tex`. Add copies of the figures or whatever else there may be.

In the command window obtained by double clicking the Windows_XP or Windows_98-ME icon in the `12hsup` folder, (or in an xterm window on Unix), `cd` to the folder with your document. (In Windows XP, you can get some help on the `cd` command using `help cd` or `cd /?`, on Unix, that is `man cd`.)

`latex index` until there are no longer errors. If you want to provide an `index.pdf` pdf version of the document, to allow easy, high quality printing of the entire document, create that now. (If you do not know how to create one using your version of TeX, try `makepdf`.)

Then create the web pages using `12h`. Load `index.html` in your browser to check the results.

Have a look at `manual.pdf` and `hhtml/index.html` in the `docs` subfolder of `12h` to see what is there.

Occasionally, clean out the folder `Temp`.

8.3 The “makel2h” alternative

`Make12h` is an alternative to the `12h` command that puts the web pages in a subfolder. This can be useful if

you want to keep the folder with `index.tex` clean. Also, it allows you to make different web pages for different browsers.

That is important if you are picky about the best possible alignment of the math images with descenders: different browsers are *not* compatible in such alignment. Internet Explorer is not compatible with any of the Mosaic/ Netscape/ Mozilla/ Firefox line, early Firefox is not compatible with later Firefox, etcetera. To create different pages for different browsers, you must use the `make12h` command *instead of* `12h`. Do not mix and match the two. A typical processing sequence would be

```
latex index
latex index
set L2H_BROWSER=c
make12h
set L2H_BROWSER=x
make12h
set L2H_BROWSER=f
make12h
```

This will produce superbly aligned math for Firefox 1.5 and later (and any other browsers that align images correctly, according to agreed-upon international standards, but I know no other browsers like that.) It should also produce, on average, slightly better math alignment in Internet Explorer, though I do not guarantee you will see the difference, if there is one, or that it will be an improvement. (But in any case, the new alignment for Internet Explorer, `make12h` or `12h`, is a vast improvement over earlier versions of `LATEX2HTML`. No longer math hovering above the line.) There will also be web pages for browsers that think the middle of the lower case letter “x” is where the two lines cross (unlike Internet Explorer, which thinks it is 2/3 of the way up.)

Remember that with `make12h`, eps figures must be either in the same directory with the `index.tex` file, or you must give the full path to the eps files in `index.tex`, all the way from the top of the disk.

8.4 Changing the looks with the wiz

You can now make basic changes to headers, colors, font sizes, and much more, of the web pages using the `wiz`.

To do so, `cd` to the folder with the `index.tex` whose web pages you want to customize. You must have run `(make)12h` at least once up to the actual web page generation. Then simply enter “`wiz`”. The `wiz` is menu driven, so just select what you want to do and provide data.

Note that in the majority of cases, you will need to remake the web pages using `(make)12h` after running the `wiz`. And if you have changed the web page background color and your images now have visible ghosting, you will also need to first remove the old images using “`clr12h images`” before running `(make)12h`.

The `wiz` is a quick and easy way to change the appearance of your web pages without getting involved in the details of perl, html, style sheets, and init files. Though the latter is of course much more powerful.

8.5 Using jpeg images

The original `LATEX2HTML` is set up to use gif images. (At least as installed under FU instructions; the original also supports png images.) There are good reasons to use gifs for formulae and line graphs: they allow transparency and can be compact for such images.

However, for pictures, the most popular image format on the web is jpeg (`jpg`). The reasons are that while gifs only allow 256 different colors in the image, jpegs allow millions. In addition, jpegs are usually much more compact, greatly speeding web page access over phone lines.

The disadvantage of jpegs is that they lose some information in the original picture, (but then, so do gifs if the original image has more than 256 colors.) For jpegs, that can show up, for example, as faint artifacts in light regions. Little is ideal in this world.

L^AT_EX2HTML-FU has an added-on capability to create jpeg figures in addition to gifs. To activate this jpeg generation, do the following in the Windows_XP (or 98-ME) window:

```
set L2H_JPGQ=80
l2h (or make12h)
```

or in a Unix command window, do

```
setenv L2H_JPGQ 80
l2h (or make12h)
```

This will create jpeg duplicates of all gifs it makes with quality 80. (Use 75 for smaller jpegs, or 85 for less ghosting. Don't go over 90. Don't use percent.) You will be asked whether you want to use the gif or jpeg version of each image; look at them in a viewer (your browser would do), and decide which one is best.

Jpegs are only made of images with more than 256 colors, or that have an `\htmlimage{extrascale=...}` within their figure environment. Also, if you want to have jpeg versions made of already existing images, you will need to delete the corresponding gifs first to force them to be remade.

Note that the `ppmtjpeg` executable must be in your path and with `ppmtogif`. This is true for the described installations.

To turn of jpeg generation, in Windows do:

```
set L2H_JPGQ=
```

and in Unix:

```
unsetenv L2H_JPGQ
```

Note that existing jpegs will still continue to be used; simply delete them if you want to get rid of them and rerun `(make)l2h`.

9 Problem Shooting

9.1 What is LaTeX?

L^AT_EX is a high-quality document preparation system that is particularly powerful if you have a lot of math or cross-links in your document. L^AT_EX2HTML is an add-on program to convert these documents into web pages instead of printed hard copies.

Of course, before you can use L^AT_EX2HTML, you need to know how to create documents in L^AT_EX format. There are books like that of Leslie Lamport (see the bibliography of the original online manual⁵⁷). A powerful free resource is the web page of the TeX Users Group⁵⁸. In my opinion, the current dominant free implementation of L^AT_EX for Windows is MiKTeX⁵⁹. It has a useful manual, and there is an easy install script to add L^AT_EX2HTML-FU to it.

⁵⁷<http://www.eng.fsu.edu/~dommelen/l2hmang>

⁵⁸<http://www.tug.org>

⁵⁹<http://www.miktex.org>

But let me give a *really really* basic intro first if you are really clueless about it all. On MS Windows, download and install the emTeX/L^AT_EX2HTML-FU bundle using the easy install script; on Unix, install TeXLive from the TeX Users Group and add L^AT_EX2HTML-FU according to instructions. Also add the ghostview and perl programs. Create a folder for your first document; avoid spaces and points in the folder name, they are just trouble. On Windows, you might create a new folder `myfirsttry` in the top `C:` disk. Open Windows Notepad, or your favorite Unix editor (pico, nedit, ...). In it, type in the following text, case-sensitive, avoid typos, wrong brackets:

```
\documentclass{article}
\begin{document}
Hello world.
\end{document}
```

Now save this to the folder `myfirsttry` that you created, naming the saved file `index.tex`. Windows users beware! You have to specify the name between double quotes as "`index.tex`", or Notepad will save it as `index.tex.txt` instead. It's Microsoft.

Now on Windows double-click the Windows_XP (or 98-ME icon for older Windows) in the "12hsup" folder in the top `C:` drive, or on Unix open an xterm or telnet command window. In the created window, cd to the folder with the `index.tex` file you just created (for example, in Windows use `cd \myfirsttry`). Enter the following commands:

```
latex index
makepdf
```

Then examine the created pdf file `index.pdf` in the folder `myfirsttry`; It should show the text "Hello World", as shown here⁶⁰.

To make web pages instead of a pdf file, use:

```
latex index
l2h
```

and examine the created web page `index.html`. It should look like this⁶¹.

Like HTML, L^AT_EX is a "mark-up language", which means that you type in formatting information instead of pick it from menus. For example, a more realistic document would look like:

```
\documentclass{article}

\begin{document}

\title{My Second Document}
\author{J. Doe}
\maketitle

\section{Quadratic equations}
\label{sec:quad}

The general quadratic equation
\begin{equation}
a x^2 + b x + c = 0 \quad \label{eq:quad}
\end{equation}
```

⁶⁰../basic1/index.pdf

⁶¹../basic1/index.html

```

\end{equation}
has two solutions given by
\begin{equation}
x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad \label{eq:quadsol}
\end{equation}

\section{Numerical solution}
\label{sec:numsol}

In section \ref{sec:quad}, we gave the solution of the quadratic
equation. This solution can be put in a computer program as is, but
is then likely to suffer from round-off error problems.

The better way to do it is to find only one solution, call it  $x_1$ ,
from the given formulae (\ref{eq:quadsol}), selecting  $x_1$  as {\em
the solution for which the two term in the top of the ratio have the
same sign.} Then compute the other solution from
\begin{equation}
x_2 = \frac{c}{a x_1} \quad \label{eq:altsol}
\end{equation}

\end{document}

```

Note that fractions and square root signs are obtained by typing them in. If you do a lot of math, you will find that this is actually much quicker and more reliable than picking items from menus. Also note that I use mnemonics instead of actual section and equation numbers. That avoids having to do do extensive renumberings in large documents if you insert a new section or equation number somewhere, and it cuts down tremendously on incorrect numbers. \LaTeX 2HTML likes the equation labels to be following the math. There seems to be a lot of other typing involved, but a \LaTeX -aware editor like Emacs will put it in for you.

Process as:

```

latex index
latex index
makepdf
12h

```

The pdf file so produced is here⁶² and the web pages are here⁶³.

See the sources mentioned above to get more in depth info. The FAQ on tug.org is especially useful.

9.2 General

If you get into trouble processing documents with latex2html-FU, the first thing you have to make sure of is that your index.tex file processes correctly under latex (and dvips). If not, everything stops right there.

Browsers are buggy too. Try hitting “reload” or “refresh”.

If the document is correct, the next thing to ask is whether it is fairly standard \LaTeX . \LaTeX 2HTML has extensive translation capability, but there are very definite limits. If necessary, create a very standard form index.tex to convert into web pages.

If you made *elective* changes from my installation procedure, however seemingly minor, repeat installation and don't.

⁶²../basic2/index.pdf

⁶³../basic2/index.html

Check the log file `C:\Temp\l2h.log` (in the Temp directory of the C: disk) for clues. (For Unix users, the log file is in either `$L2HTOP/temp` or `$HOME/temp`.)

If you specify “-debug” behind “l2h”, you will get much more error information on the screen and in `C:\Temp\l2h.log`. It will also leave the ghostscript files in a subdirectory of “Temp”, and their conversions. You can look at the .ps files using Ghostview, and at the pnm files using an image viewer like CompuPic. Alternatively, you can convert them to .bmp using the Netpbm utilities you installed and look at them with Paint.

To slow down the screen a bit, in the DOS window use:

```
set L2H_SLEEP=1
```

(or 2) before running l2h. Do *not* try output redirection.

If there were problems processing `images.tex`, see section 9.13.1 for more.

If you are familiar with Perl, try setting -d option behind `perl.exe` and `$PERL` in `latex2html.bat` and stepping with n, s, and r.

Unix users should make sure that the L2HTOP name is set and that its l2hsup directory is in their PATH. If not, use

```
setenv L2HTOP "$HOME/l2h" (or where the LaTeX2HTML files have been installed)
setenv PATH "$L2HTOP/l2hsup:$PATH"
rehash
```

Make sure that `L2HTOP/l2hsup` is *before* other parts of the path that may have netpbm files of the wrong version number, or strange things may happen.

If that does not solve it, the next subsections are some solutions to various potential problems that I am aware of, sorted by type.

The official online manual⁶⁴ also has a list of known problems and solutions in Chapter 6 that you also want to read through.

You can also have a look at the sample documents in section 6 for examples.

Good luck.

9.3 Problems not covered here

The official online manual⁶⁵ also has a list of known problems and solutions in Chapter 6 that you should read through.

The manual list some sources of support for the official version of L^AT_EX2HTML. I do not know how active they are. There is a T_EXusergroup⁶⁶, which includes a very useful FAQ and much software.

E-mail me problems, section 3, and I will add them to the list. If they are due to my stuff, or if they are important enough to me, I will fix them or devise a work-around.

9.4 Installation

All I know is in the respective installation section. When people send me corrections or additions, I add it there. Or weird stuff maybe here.

⁶⁴<http://www-texdev.ics.mq.edu.au/l2h/docs/manual/>

⁶⁵<http://www-texdev.ics.mq.edu.au/l2h/docs/manual/>

⁶⁶<http://www.tug.org>

9.5 Uninstall

See item 4 of the installation instructions.

9.6 Weird problems

There are some potential problems that cause symptoms that are just weird. If you are baffled, try each of them and see whether it solves the problem. None of them can hurt:

1. You may be short on disk space. Unfortunately, L^AT_EX2HTML uses big temporary files, so you should have a fair amount of free space on your C: disk. Right-click the C: disk in “My Computer” and select “Properties” to see available disk space. While you are at it, check folder “Temp” and make sure there is no garbage from previous runs left.
2. DOS has a limited environment space. If you see any message “No environment space!” flashing by, you are in trouble. In the DOS window, enter the following:

```
command /e:3072
```

Now try again. This will give you 3072 bytes of environment space, for this DOS window only. (This goes at the expense of other DOS memory. You also lose additional memory from now having two copies of command.com running, so if you have to do this frequently, consider increasing the corresponding value in file CONFIG.SYS.)

3. Windows loses file handles, causing it to corrupt itself over time. Especially if you get pop-up boxes that “l2hcrop.exe” has performed an illegal operation, do *not* contact the vendor. It is reboot time. Spend the time it takes to reboot by calling Bill Gates, preferably at 2 am Pacific, demanding a refund for Windows.
4. Unix users should make sure that the L2HTOP name is set and that its l2hsup directory is in their PATH. If not, use

```
setenv L2HTOP "$HOME/l2h" (or where the LaTeX2HTML files have been installed)
setenv PATH "$L2HTOP/l2hsup:$PATH"
rehash
```

Make sure that L2HTOP/l2hsup is *before* other parts of the path that may have netpbm files of the wrong version number, or strange things may happen.

Browsers are buggy too. Try hitting “reload” or “refresh”.

For your comparison, I have full copies of my own Windows 98 CONFIG.SYS⁶⁷ and AUTOEXEC.SYS⁶⁸ files. Do not use such files on Windows XP.

The official online manual⁶⁹ includes some other potential problems.

9.7 Freezing

If the screen freezes, and there are notices on the screen that .tex and .log files are being moved to the Temp folder, a problem occurred in latexl2h.bat. Examine the log files moved into the Temp folder for the problem. Also have a look at rb.err. Then hit Return. L2h should continue.

If the DOS window freezes solidly, see section 9.6 on weird problems.

⁶⁷../notes/config.txt

⁶⁸../notes/autoexec.txt

⁶⁹<http://www-texdev.ics.mq.edu.au/l2h/docs/manual/>

9.8 Abnormal termination

See section 9.2 on how to use the debug option and the log file.

See section 9.6 for random DOS problems.

Review the Installation section for potential installation problems.

9.9 L2hcrop performs illegal operations

No, it does not. Reboot time.

If it still occurs, make sure the FILES value in CONFIG.SYS is big enough. L2hcrop opens three files.

9.10 I do not want to use l2h/makel2h

L^AT_EX2HTML works normally, (or rather, as it should.) Run as `C:\l2h\bin\latex2html` or `$L2HTOP/bin/latex2html`, using options as in the manual in the `C:\l2hsup\l2hdocs` folder.

The original `.latex2html-init` file that comes with the unmodified L^AT_EX2HTML can be found in the `l2h` directory under name `dot.latex2html-init`. Copy the file to the directory with your `index.tex` file and rename it to `.latex2html-init`; in other words, *remove* `dot`. (This will make the file invisible on Unix.) L^AT_EX2HTML has its own style sheet `index.css` hard-coded.

However, do make sure that `html4_0.pl` is loaded. Various fixes have only been implemented for that version (and *not* for the default `html3_2.pl`).

9.11 Missing/crashing packages/style files

The critical `html` package (file `html.sty`⁷⁰) should have been installed with your installation. If not, try putting a copy of it in with your document.

You need to have the `epsf.sty`⁷¹ and `hyperref` packages installed in your version of T_EX. If you do not yet have them, TUG⁷² has them in `downloads/CTAN`.

However, as of 2005 or so, `hyperref` is no longer backward compatible with the `htmlimage` command as described in the L^AT_EX2HTML manual. The solution is to follow every `htmlimage` command with an empty pair of braces, `{}`.

However, as of 2006 or so, `hyperref` is no longer backward compatible with `html.sty`. The solution is to load `hyperref` before `html.sty`:

```
\usepackage[draft]{hyperref}
\usepackage{html}
```

However, as of 2007 or so, `hyperref` needs package `kvoptions`, and TeXlive 2007 does not seem to include `kvoptions`. You can find the `kvoptions` on TUG⁷³ in `downloads/CTAN`. (Or you can just put `kvoptions.sty`⁷⁴ in with your file.)

However, as of 2008 or so, ...

⁷⁰ `../notes/html.sty`

⁷¹ `../notes/epsf.sty`

⁷² <http://www.tug.org/>

⁷³ <http://www.tug.org/>

⁷⁴ `../notes/kvoptions.sty`

9.12 Definitions do not work

If definitions do not work in image environments or similar, they may be missing in `images.tex`. Try putting a copy of the definition in an “imagesonly” environment.

9.13 Figures and formulae

9.13.1 General

Problems with images (figures and mathematical formulae) are varied. Images are made through the following steps:

- A file `images.tex` is created with the \TeX code for the figures extracted from `index.tex`.
- This file is run through batch file `latexl2h.bat` you created. (If errors occurred, you should still find `images.log` in the Temp folder. If not, you did not create `latexl2h.bat` correctly. But if you did the test fairly, I do not know why not.)
- The `images.dvi` file is run through `dvips` to create the postscript versions of the images.
- Inside the subprogram `pstoing.bat` of `latex2html`, the postscript versions are run through `ghostscript` to produce `.ppm` versions.
- The `.ppm` version is run through program `l2hcrop.exe` to crop away undesirable parts. (`L2hcrop` leaves a `.log` file for each image if the debug option is used.) If the image is very large, `l2hcrop.exe` may run out of memory, and its task will be done by programs `pnmcrop.exe` and `pnmflip.exe` instead. The log file will note that. (If `l2hcrop` returned an exit status 2560, it may be that the image given to it was completely empty, so it cropped everything.)
- If there are too many colors for a `.gif` file, batch file `ppmquant.bat` is run to reduce them. It runs `pnmcolormap.exe` and `pnmremap.exe` in sequence.
- The final `.ppm` files are converted into `.gif` files by program `ppmtogif.exe`.
- `Latex2html` includes references to these gifs in the web pages it makes.

Obviously, any of the above steps can cause problems. Your best bet is then to specify the debug option and examine the log file and images as in section 9.2.

If there were problems processing `images.tex`, you can create a temporary subfolder “tmp” in the same folder as `index.tex`, move `images.tex` to that subfolder, and then process it from the DOS window like:

```
C:  
cd \My Documents\mydoc\tmp  
C:\l2hsup\latexl2h images
```

This should give you a better view of \LaTeX error messages and problems.

Unix users should make sure that `L2HTOP/l2hsup` is in their `PATH` *before* other parts that may have `netpbm` files of the wrong version number, or strange things may happen. Their log file is in either `$L2HTOP/temp` or `$HOME/temp`.

Note that some web graphics used through the `graphics` or `graphicx` packages might conceivably not be converted correctly since `ppmquant` no longer exists. Solution if this would actually happen: convert the figures to `eps`, or edit `l2h/styles/graphics-support.perl` and replace `ppmquant` by an equivalent current utility.

9.13.2 Do not put labels on empty lines

Do not put labels of equations on further empty lines. It will cause L^AT_EX to shout a lot when it processes `images.tex`. The reason is that L^AT_EX2HTML removes the label, leaving a blank line in the formula.

It is recommended that you put the label immediately following the math and hide the end-of-line by following it with a percent sign.

9.13.3 No figures or mathematics images are made at all

This sounds like an installation problem. Review the installation procedure.

Review the general notes on images in subsection 9.13.1

See section 9.2 on how to use the debug option and the log file.

See section 9.6 for random DOS problems.

9.13.4 Misaligned eps figures

If you use emTeX, eps file names must be 8 characters or less (excluding the .eps), or the bounding box will not be read. Rename or add the bounding box explicitly to the epsfile command.

9.13.5 Problems with frameboxes in pictures

L^AT_EX2HTML does not know that frameboxes in pictures are different.

The following is cheating, but it works for me. In the preamble. define:

```
\def\picfrbox(#1,#2){\framebox(#1,#2)}
\begin{imagesonly}
  \def\picfrbox(#1,#2){\framebox(#1,#2)}
\end{imagesonly}
```

then use `\picfrbox` instead of `\framebox` in your pictures.

9.13.6 Some figures are not being made (correctly)

If you misspell “transparent” as “transparant” inside `\htmlimage`, the figure is going to fail. Take it from me.

Do not use `\hsize` or `\textwidth` in pictures, `images.tex` may not conform to your document. Specify actual dimensions in `pt` or `in`.

If a picture has too much empty space around it, it may cause a problem if `\resizebox` is used. Try reducing the declared the picture size to closer conform to the actual size.

Make sure `.eps` files have proper bounding boxes. Use `ps2eps -1 -B`. Don't think commercial software puts out correct postscript files; most do not. If the bounding box is wrong, the picture may only show up half or not at all.

In picture environments, a circle at the far left may show up as half a circle, as only the center is considered as area that is written to. To fix it up, put a tiny `\rule{.2pt}{.2pt}` on the leftmost perimeter point of the circle.

Plain T_EX `\def` definitions in the preamble may not always be correctly transferred to the `images.tex` file, causing figures using them to fail. One fix to this bug is to add the line

```
$TEXDEFS=1;
```

to your `.latex2html-init` file. Alternately, the `-notex_defs` command line option could be used with `(make)l2h`. (The `.latex2html-init` file is hidden on Unix.) More simply, add the definitions explicitly to `images.tex` using the `imagesonly` environment.

Examine the `images.log` file and check that the figures can be found. Note that image processing takes place in a subdirectory, so, for example `\epsffile{myfigs/myfig.eps}` would fail to find the figure. Use a complete path, or simply put the figures in with `index.tex` and get rid of `myfigs/`.

If they are figures using `\special` commands or other complex graphics procedures, and your `dvips` supports the `-E` option, delete the bad figures, if they were made at all, and try the following in the DOS window:

```
set L2H_NOEPS=s
l2h (or makel2h)
set L2H_NOEPS=
```

This uses the non-eps version of `latex2html`, which may more robust. (Unix users use `setenv` and `unsetenv`, with no equals signs.) However, I find this trick no longer works on at least some new versions of \TeX ; it will make things worse. It works fine with the `emTeX` version, though. Sorry, I do not know why, the headers of the postscript versions seem equivalent except for the `dvips` version number and I am using the same `gswin32c` for both. So, do not set `L2H_NOEPS` as the default!

Alternatively, and better, convert the figure into a proper eps file. Copy `index.tex` to folder `Temp`, in the preamble set `\pagestyle{empty}`, and remove the caption(s) and any other text and headers on the page(s) of the bad figure(s). In the DOS window:

```
c:
cd Temp
dvips -Ppdf -E -p XXX -n 1 -o index.ps index
```

where `XXX` is the page number with a bad figure. Load the generated `index.ps` file into Ghostview, turning OFF "EPS Clip" under options. From the "File" menu, select "PS to EPS". Use automatic bounding box, and save the file under name `figpXXX.eps`. Open that file using Ghostview and check that it now has a proper bounding box. Move the file back to the original `index.tex` document folder, and replace the specials garbage in `index.tex` there with `\epsffile{figpXXX.eps}` (if you use the `epsf` package.) Repeat with the other bad figures.

Some additional items for the sophisticated: There are some perl scripts in folder `l2hsup` that are supposed to do much the same thing without ghostview. If in DOS you

```
set L2H_PUTPS=1
```

the postscript files generated by `latex2html` will be moved to the `temp` folder for messing around with. If you

```
set L2H_GETPNM=1
```

`pstoimg` will import matching `pnm` files from the `Temp` folder, bypassing normal conversions.

9.13.7 LaTeX problems near `htmlimage` command

MiKTeX 2.5, and probably any other LaTeX loading the Aug 2006 `hyperref` package, produces random cryptic errors in figure environments with an `htmlimage` command in it, typically complaints about 'extra }' or 'Missing `\endcsname` inserted.' Some problems go beyond the figure environment.

The problem appears to be incompatibility of the `html` package with the new `hyperref` package loaded by MiKTeX 2.5. To fix the problem, *before* loading the `html` package, turn off `hyperref` using the line:

```
\usepackage[draft]{hyperref}
```

If this is not possible for some reason, put an empty pair of brackets behind the `htmlimage` command, for example:

```
\htmlimage{extrascale=3}{}
```

It is in fact recommended that you use such an empty pair of braces with recent versions of L^AT_EX whether you have problems or not.

9.13.8 Background color is shining through my figure

Put `\htmlimage{nottransparent}` in the figure environment. Do not misspell this!

9.13.9 Figure colors seem limited

Gif files have only 256 different colors, unlike jpeg ones which have 16 million. You can create jpeg versions of the figures. Unfortunately, jpeg files might have a bit of visible “ghosting”. Little is ideal is this world.

9.13.10 Figure file sizes are excessive

Jpeg files are typically smaller than gif ones. Try using them, with a `L2H_JPGQ` of 75.

There are also utilities on the web that compress images to the maximum, letting you see the effects while doing it.

9.13.11 Ghosting around my formulae

If you change the background color from white, this is likely to happen. You need to get ghostscript to use a different background color in its anti-aliasing, by changing the `pagecolor` in the preamble of `index.tex` or in `.latex2html-init` (set `WHITE_BACKGROUND` to 0 and the `LATEX_COLOR` to appropriate RGB fractions.) (The `.latex2html-init` file is hidden on Unix.)

Delete the bad images and remake.

9.13.12 Missing added whitespace, maybe in eqnarrays

At the image state, there is no way for L^AT_EX2HTML to know about whitespace that extends beyond the area with ink on it. Ignore it, rewrite it not to have leading or trailing whitespace, or if it is a real problem, put a tiny dot (ruler) in front or behind the whitespace to extend the area with ink on it.

9.13.13 Missing lines in formula on Firefox/Mozilla

A browser problem. Press refresh.

9.13.14 Incomplete or missing lines or text in figures

This is really a Ghostscript problem. Ghostscript does not anti-alias embedded bit maps in the postscript files it processes. Delete the bad gif file. Inside the figure environment of the bad figure, put the command `\htmlimage{extrascale=3}`. (Make sure that you are using the `html` package.) Rerun `l2h` or `makel2h`.

Unfortunately, this only works for figure environments. If you are using `displaymath` to force a figure in a given place (What is this with L^AT_EX changing [h] into [ht]?? If a user with a brain says [h], some stupid program with none should not second-guess that), you will need to use figures and strategically placed `\newpage` commands instead. Or use the float package and specify the figure location as “[H]”.

9.13.15 I changed the latex of a figure/formula and it is not remade

The first step is to press “Refresh” or “Reload” on your browser, to check that you are really see the latest version and not a cache one. Also, in Mozilla, use “Edit” / “Preferences” / click on the plus sign in front of “Advanced”, select “Cache”, and select “Every time I view the page”.

The following problem no longer exists for versions of L^AT_EX2HTML-FU downloaded after Sep. 20, 2007. For older version only: Unfortunately, L^AT_EX2HTML is not very observant about changes in figures and math. Just delete the image (use “Properties” or “View Image” in your browser to find its name). It will be remade according to the new latex code next application of `l2h` or `makel2h`.

9.13.16 Figures and/or formulae are all mixed up

The first step is to press “Refresh” or “Reload” on your browser, to check that you are really see the latest version and not a cache one. Also, in Mozilla, use “Edit” / “Preferences” / click on the plus sign in front of “Advanced”, select “Cache”, and select “Every time I view the page”.

Sometimes, `latex2html` gets all mixed up about what image goes where. The only thing to do then is `clr12h all` (keep the user-modifiable files!) and start from scratch.

The following problem no longer exists for versions of L^AT_EX2HTML-FU downloaded after Sep. 20, 2007. For older version only: Two formula or figures starting with the same long L^AT_EX string may be considered equal even though the L^AT_EX is eventually different. Put a `\strut` at the start of one of the formulae to make them different.

9.13.17 Bars below or to the left of images

Pestilential critters.

If a sidebar occurs for a figure or formulae in which you do tricky things like lowering and raising items, or where you write outside of bounds in a picture, putting a suitably sized `\rule[.]{.}{0pt}` strut at the start may help. The idea is to make the formatter recognize what the size of the image really is.

I had a sidebar in a big `makeimage` that could be fixed by moving a `renew` of `arraystretch` outside, in front, of it.

Otherwise, make sure you have the latest and greatest version of the alignment bar fixes, posted Sep 8, 2006 or later.

If so, to have me fix this, e-mail me the corresponding:

- `index.tex` file, cut down to just a single example of the math that creates an image with an extra bar.
- `.latex2html-init` file (hidden on unix)
- `index.css` (the one in the folder with the web pages if using `makel2h`)
- The version of T_EX you are using with L^AT_EX2HTML

To try to fix it yourself, edit `C:\12hsup\doc\12hcrop.f` and try increasing the `barthb` and `barths` values a unit. Recompile `12hcrop` with `g77` according to instructions in the file.

Make sure, in `l2h.log`, that `GraphicsAlphaBits` is not used by Ghostscript in processing the images.

9.13.18 Incorrect figure numbers

See section 9.20.3

9.13.19 A caption has become part of the image

Do not use two captions in the same figure environment. Use two figure environments.

Do not use the optional argument of a caption. `latex2html` needs to see a curly bracket behind caption.

9.13.20 Text has become part of the image

It will. To avoid this, put the text in a caption, and use `\addtocounter{figure}{-1}` in front of the figure environment.

Or live with the text being graphics.

You may be able to play around with the `makeimage` command described in the `LATEX2HTML` manual.

9.13.21 Images not correctly aligned in Explorer

This issue is obsolete. Using the “e” browser, Internet Explorer changes the vertical positioning of inline images if there are other images in the same line. Since that depends on the browser width setting, there is nothing `LATEX2HTML` can do.

However, nowadays `L2H_BROWSER` is by default “a”, which has little alignment error. Switching to “x” *may* improve alignment even more.

9.13.22 I do not know how to include my figure in latex

The best way to include figures is as `.eps` files, typically using the `epsf` package. Unfortunately, much graphics software does not, or not correctly, produce `.eps` files. Use your `netpbm` files to convert from the existing picture format to `.pnm`, and then to `eps`.

If your figure is a Windows `.bmp`, as produced by MS Paint, you can use `C:\l2hsup\bmptoeps`. (It will tell you how to use it when called.)

If `latex` processes the figure correctly, consider using `dvips` to create an `eps` file of it, by putting the figure by itself on a page with an empty page style. Use the `-p` and `-n` options of `dvips` to select the page.

9.13.23 How do I move figures to the side of the web page?

Inside the figure environment, use a command like

```
\htmlimage{align=left}           (normal image, left aligned)
\htmlimage{thumbnail=0.5,align=right} (thumbnail of the image, at the right)
```

Be sure to use lower case.

Put the figure at a place where there is some following text to flow around it, not right at the end of the web page.

9.13.24 How do I include animations and rollovers?

Use the “rawhtml” environment. Quantum Mechanics for Engineers⁷⁵ has examples of animations, activated by a roll-over, in the sections on wave packets and following (search for “animation”).

(The animation themselves were made using a Fortran program to generate the curve data, a plotting program to convert them into postscript curves, the netpbm libraries to convert them into pnm, l2hcrop.exe to crop them to the frame, l2hcomp.exe to compress them in size, ppmquant to reduce the colors to 256, netpbm to convert them into gifs, and “gifsicle” to combine them into a moving gif. But all that has nothing to do with L^AT_EX₂HTML.)

The navigation panels are not readily modified to include rollovers. You would have to go into the perl, I think.

9.14 Lists

9.14.1 general

If you try to customize lists such as itemize, enumerate, and list, maybe decrease the font size of the entire list or so, you will find it does not work. While you are encapsulating the list in your font size or whatever, L^AT_EX₂HTML unencapsulates the list just as quickly. This is obviously deliberately, though the reason is unknown.

The only solution I have is to put in the html yourself. To create quoted small, bold, italic lists in the preamble define:

```
\def\listsheader{
\latexhtml{\begin{quote}\small\bf\em}{
\begin{rawhtml}
<blockquote><small class="small"><b><em>
\end{rawhtml}
}}
\def\listsfooter{
\latexhtml{\end{quote}}{
\begin{rawhtml}
</em></b></small></blockquote>
\end{rawhtml}
}}
```

Feel free to leave out some of the blockquote, small, b, or em <...> tags if you like your tables less garish. But do not change indentation or line breaks, they must be as shown.

Then in your document, use them as:

```
\listsheader
\begin{itemize}
  \item Item a.
  \item Item b.
\end{itemize}
\listsfooter
```

If L^AT_EX₂HTML may not reset counters to zero if you define a list and use it a second time. The following works:

⁷⁵<http://www.eng.fsu.edu/~dommelen/research/nano/quantum/>

```
% questions list environment
\newenvironment{questions}[1]
{\setcounter{enumiv}{0}\listbeg\centerline{\bf #1 Review Questions}
 \begin{list}{{\bf \arabic{enumiv}}}{\usecounter{enumiv}
 \settowidth{\labelwidth}{\bf 99}}
 \setlength{\leftmargin}{\labelwidth}\addtolength{\leftmargin}{\labelsep}}
{\end{list}\listend}
```

Note the explicitly added `\setcounter{enumiv}{0}` before the list.

9.14.2 Counters

If you define new counters, `LATEX2HTML` puts their definition twice in the `images.tex` file, leading to nasty error messages. It will not hurt anything, but if it drives you crazy like it does me, don't define new counters but simply use `enumiv`.

9.15 How do I change the navigation icons

Use `C:\l2hsup\giftobmp next` to turn the "next" icon `next.gif` into bitmap `next.bmp`. Load that in MS Paint and edit away. (If you change the icon size using attributes, you must also edit the `.latex2html-init` file to put in the new size; the `.latex2html-init` file is hidden on Unix.)

After completion, use `C:\l2hsup\bmptogif next FFFFFFF` to convert back, making the color white (FFFFFF) transparent.

It is not a good idea to use "New" in MS Paint instead of `C:\l2hsup\giftobmp`, since Paint will mess up your colors on saving.

To make changed icons available to all future documents, use the DOS commands

```
c:
cd \l2hsup
xcopy iconsby myicons
```

and answer "D" when prompted. Now edit the icons in subfolder "myicons" of folder "l2hsup" at will. They can be included in future documents by editing `.latex2html-init` in subfolder "files" of folder "l2hsup". (The `.latex2html-init` file is hidden on Unix.)

9.16 How do I add my logo?

The easiest is to do it with the `wiz`. Also use it to change the bar colors to match your logo. But if you need special customizations, here is the manual process.

Edit file `.latex2html-init`, (hidden on Unix), in the `files` subdirectory of the `l2hsup` directory and locate the line

```
"<TD><TABLE WIDTH=\ "100\%" BORDER=0 CELLPADDING=2 CELLSPACING=0><TR>\n" .
```

This line exists at two locations; the first is for the header, the second for the footer. Immediately behind the line, add a line

```
"<TD COLSPAN=3 ALIGN=\ "aaa\"><IMG SRC=\ "uuu\"></TD></TR><TR>\n" .
```

substituting for “aaa” the desired alignment, `left`, `middle`, or `right`, and substituting for “uuu” the url of the image, e.g. `mylogo.jpg`. Don’t forget the trailing point.

To make the logo clickable, use instead

```
"<TD COLSPAN=3 ALIGN=\"aaa\"><A HREF=\"ccc\"><IMG\n"
" SRC=\"uuu\" BORDER=0></A></TD></TR><TR>" .
```

substituting for “ccc” the desired target url, e.g. `http://www.mycompany.com`. Don’t forget the trailing points.

You may need to also play around with the `TD.runner` colors in file `index.css` to get it to match your logo’s text and background colors.

To make the changes retroactive for existing documents, make the same changes to `.latex2html-init` in the directory with the `index.tex` file and `index.css` in the directory with the web pages. Putting the image itself in the directory with the `index.tex` file is strongly recommended, in case somebody decides to move a centrally located image file.

9.17 How do I change the running bars?

Most changes are best made with the `wiz`, but here is some more.

To add a border around the bars, copy files `template.html` and `select.html` in the `files` subfolder of `l2hsup` over to the folder with your `index.tex` file, renaming `select.html` into `select0.html`. Edit these files and find the

```
BORDER="0" CELLPADDING="0"
```

`TABLE` tag pairs (two occurrences per file). Change the border value from zero to the desired border size in pixels, say 5. Run the `wiz` and select “change headers and footers”. No changes need to be made, they just must be rebuilt. Rerun `(make)l2h`.

Other changes to the HTML code can be made similarly, within reason. If the changes you make are too big for the `wiz` to implement, the actual code that is used is in file `.latex2html-init`.

If the style changes that the `wiz` can do are not sufficient, edit `index.css` (current document) and/or `index.css` in subfolder “files” of folder “l2hsup” (future documents) and change the values of `TD.runner(b)` to change bar colors, font, etcetera. Change the `a.runner(b)` values to change the appearance of active links in the bars. (B stands for bottom.)

Remake the web pages with `(make)l2h`.

9.18 Colors

9.18.1 How do I change the background color from white

(Without using the `wiz`, that is.)

Edit `.latex2html-init` in the folder of the current document and/or `.latex2html-init` in subfolder “files” of folder “l2hsup” (for future documents) and set `WHITE_BACKGROUND` to zero and the desired color, in RGB fractions, in `LATEX_COLOR`. (The `.latex2html-init` files are hidden on Unix.)

Also edit `index.css` (current document) and/or `index.css` in subfolder “files” of folder “l2hsup” (future documents). Put in the desired color in the `BODY` style.

Editing `index.css` and then reloading a web page in that directory is a good way to experiment with possible background colors.

Existing images not made on the correct background color should be deleted so that they can be remade on the right color, or ghosting will result.

As far as your figures are concerned, they should be at least one of the following:

- Figures already made with the correct background color.
- Postscript figures using vector drawing only (no bitmaps).
- Figures never anti-aliased.

Otherwise, if you rely on transparency to change the background color, you will either end up with ghosting or with aliasing errors. The only way around that is to make the figures nontransparent, using `\htmlimage{nottransparent}` in the figure environment. This will show the background color of the figures on which they were created.

Before running `l2h` or `makel2h`, in the DOS box enter:

```
set TRANSPARENT_COLOR=#123456
```

where 123456 is the hex specification of your background color.

9.18.2 How do I give each page a separate color

I do not know an automatic way of doing that. Given time, you could start your document with section one, in the right background color as described above. Process. Add section two to `index.tex`, and process giving it the right background color (ignoring that web page one will now also assume that color.) Repeat until all sections have been added. Now edit `index.css` and remove the background-color line from the BODY tag. Edit `index.html` and each `node...html` and change `<BODY >` into `<BODY BGCOLOR="#CCCCCC">`, where CCCCCC is the desired color of that page.

Try to ensure that images from one page are not being used on another, or they will show ghosting on the later pages. Maybe put in a small strut of varying vertical size?

To correct an error, reprocess in the color of the corrected web page and repeat the editing of the html files.

9.18.3 How do I specify colors

In \LaTeX 's rgb model, (also used near the end in `.latex2html-init`.) you specify the amount of red, green, and blue, separated by commas. Each is on a scale from 0 to 1, so `{0.23, 0.23, 0}` is 23% red, 23% green, no blue: in other words, a dark yellow.

In HTML, and in `index.css`, you scale these numbers up by a factor 255, so in the example above you get 59, 59, 0. Each is then converted in a two "digit" hex number as follows: divide by 16 to find the first digit; the division remainder is the second. For example $59/16=3.68$, so the first digit is 3. The second digit is $59 - 3 \times 16 = 11$. Now the hex system takes digit 10 to be "A", digit 11 to be "B", etcetera, until 15 is "F". So 59 is 3B and the full example color specification is 3B3B00.

Remember that 000000 is black (all colors off) and FFFFFFFF is white (all digits to the max.) Also remember that the color in html is preceded by #, e.g. #FFFFFF for white.

9.19 I must have frames

For your dose of prison bars, follow the example of the manual⁷⁶. Note that you will not see much frames unless you click on the contents or index buttons.

Use `clr12h all` in the folder with your `index.tex` file to clean up any old web pages you may have made. Then download the `.latex2html-init` file, (this is a hidden file on Unix,) and the `index.css` file and put them in with your document. Run `latex index` and `l2h` or `make12h` to process.

Frames are *not* compatible with the `wiz`. In particular, you will need to edit `.latex2html-init` to change colors. Font sizes and styles can still be changed with the `wiz`, though.

9.20 Text conversion problems

9.20.1 Incorrectly processed environments

Rewrite `index.tex` to use more standard L^AT_EX. Or use the `htmlonly/latexonly` environment described in the manual.

9.20.2 Html package crashes while latexing index.tex

The Proceedings of the Royal Society style does not define `\paragraph`, causing the `html` package to crash. I used `\newcommand{\paragraph}{\subsubsection}` before loading `html`.

9.20.3 Incorrect numbers

The procedure that L^AT_EX2HTML uses to determine the correct section, figure, and table numbers can fail. The results are unsightly, with missing or wrong numbers. I reduced its likelihood of this occurring very much, but nothing is perfect.

Avoid discretionary hyphens in captions and section names. Embedded math or accents may also cause problems; try to rewrite it without.

Remove duplicate caption or section titles that give problems. For example, if you have two sections called “Introduction”, rename one “Introduction to ...”

Examine the log file `C:\Temp\l2h.log`; it often shows why L^AT_EX2HTML did not find the latex caption matching the html one. Try rephrasing the part that does not match.

Or, if you are not afraid of a bit of Perl, edit file `C:\l2h\bin\latex2html.bat`, and find the string “leon: use brute force now”. The last-resort number search is below it. For example, the statement `$cap_key_s =~ s/\\'/é/g`; makes the latex `\'` match the html e-acute symbol.

9.20.4 Addcontentsline is not supported

No. But by default the titles of starred chapters and sections are added to the contents web page, so try to make use of that. You might be able to do some tricks with `\htmlonly` (see the manual) too.

9.20.5 Numbering changes are ignored

This may not be as bad as it sounds. Check the output.

Otherwise, try to avoid the need to explicitly change chapter numbers or whatever.

⁷⁶<http://www.eng.fsu.edu/~dommelen/l2hmanf>

9.20.6 Line spacing is not consistent

This happens if there are inline images, especially big ones, and more for Internet Explorer than Mozilla. It is due to the need for additional whitespace around the images to get them at the right height in the line.

Relatively small images with a vertical ink-region center about half-way the letter “a” are least susceptible. Consider turning big inline mathematics into `displaymath`.

9.20.7 Lousy quotes

Use `{\lq}` for left quotes, `{\rq}` for right ones.

9.20.8 Accented characters not vertically aligned

Some accented characters are unknown to $\text{\LaTeX}2\text{HTML}$ and represented by images. To get the character to align well, put it in an `mbox` in a math environment. For example, use `\mbox{\.p}` instead of `\.p`.

9.20.9 I want different whitespace

Play around with `index.css`.

9.20.10 I want a different font

To change the font size of the current document, edit the `index.css` file in the directory of the web pages and set the desired body font size. Do not put a blank before “px”. You also want to change the sizes of the headings H1 through H6, captions, small and large styles, table cells, and verbatim stuff correspondingly.

In addition, edit the file `.latex2html-init` in the directory with the `index.tex` file and change the value of `$MATH_SCALE_FACTOR` according to the formula given there. (The `.latex2html-init` file is hidden on Unix.)

Delete all images in the directory with the web pages and rerun `l2h` or `make12h`. Repeat for the web page directory of the second browser, if any, copying the `index.css` file over from the first.

To make the changes apply to future documents, instead edit `index.css` and `.latex2html-init` in the directory `C:\l2h\sup\files`.

Note that if you make the font size much less than 15px, subscripts may become ink spots, and at about 8px, ordinary text becomes spots.

The vertical alignment of inline images is computed based on data for the Arial font family. If you select a body font that is very different from Arial, you might have to play games with the scaling factor used to compute font size in `C:\l2h\bin\pstoimg`. Alternatively, you can force the font size being passed to `l2hcrop` directly by setting the environment variable `L2H_FONT_SIZE` equal to the desired font size in px.

9.20.11 Problems with the verb command

The online manual notes that double quotes should not be used as terminators of verbs.

9.20.12 Problems with tildes

If you are using tildes in a url, you probably want to use the `hhtml` package instead. Documentation is in the `docs` directory of `l2h`.

The online manual notes to use `\~{}` to put in tildes.

9.20.13 Definitions run out of bounds

\LaTeX 2HTML is not very strong on redefinitions. Try to contain them within an environment or within curly braces. Or just redefine the variable back to the original value after the need for the change is gone.

In general, encapsulating redefinitions within math environments or other environments send to \LaTeX for processing seems to keep them out of the main loop.

9.20.14 Font changes run over

The end of an environment may not end a font change as it does in \LaTeX . Simply put additional curly brackets around the font change and its text.

9.20.15 Math mode font changes

The online manual notes that the font change in `{\LARGE a_b}` does not work, since the surrounding text is not included in math processing. So, put it inside the math: `{\mbox{\LARGE a_b}}`.

9.20.16 Optional arguments in description environments

The manual notes that you may sometimes need to enclose the argument in the square brackets also with curly brackets.

9.21 Problems near input commands

Somehow, \LaTeX 2HTML confuses `\input{...}` with `\begin{...}`, so make sure that your input file names do not look anything like latex environments. You will see [the start of] all your input file names show up in the "unrecognized commands" listing at the end. They will have been faithfully read, however. To cut down on the error messages, try starting each input file name with a z.

9.22 Image alignment

9.22.1 I must know about image alignment

Once upon a time, on a world far, far, away from you and me, the wise men of the entire world came together to establish how web pages should understand the words of their designers. They talked much, and thought many deep thoughts, about what the designer would mean with saying that an image should be aligned in the middle of the line, vertically speaking. And their thoughts allowed them to conclude that aligning with the middle of the line clearly should be understood to mean, aligning with the *bottom* of the line, rather than the middle of it. And so it was done.

But a small band of malcontents thought their browsers might grab a bigger audience if it would align the middle of images with the middle of the line, instead of its bottom. And so they did it. And so they grabbed pretty much all of the audience.

Still, not everybody was happy. A very rich, but not very bright, kid noticed that everyone was having a good time with browsers, and that he did not have any piece of the action, having been unaware that something was up earlier. He thought long about how he could get in on the action, which did not help. He designed his own browser, but it was not very good, since he did not understand well where the middle of a

line is supposed to be, and people did not like it. And he became very angry and decided to use his riches to give away his browser for free. He hired thugs to ensure that even people who did not want his browser got one for free or by force. And he paid for vast amounts of web pages to be created with poor formatting. This was really pretty clever, if you think of it, since while it did not improve his browser's appearance, it made other browsers look bad too. So people no longer bothered with the browsers that were not free.

And in this way the rich little kid made web pages mediocre for everyone with his browser, which was a pretty good feeling. But it got pretty boring soon, so the rich little kid went on to spread mediocrity elsewhere.

And new, more interesting browsers were then created by people who still liked their images to be centered in the middle of the line. And some poor kids got all excited about improving the new browsers. And one of them noticed the words the wise men had spoken many years ago. She saw it all. "Aligning images in the middle of the line means aligning them to the bottom of the line!", she exclaimed to her friends, "The wise men have decreed it!"

And so it came about that half a score of years after the wise men had spoken, their words of wisdom were finally heard and adhered to. And it was established all over that world that the middle is the bottom. Just like for people.

9.22.2 I mean, of course, understand all those browsers

Ahem. I now see what you mean. Since the capabilities of HTML, even its derivatives, in producing good math formulae, are abysmal, $\text{\LaTeX}2\text{HTML}$ uses \LaTeX to create proper formulae, and then converts them to images. A great idea, but of course, those images have to be put in the right place in the web page. No big deal if they are displayed formulae, but tricky if the math appears in the middle of a sentence. Horizontally speaking, it is still not much of a problem; browsers simply put them in the place where $\text{\LaTeX}2\text{HTML}$ says to put them.

The difficulty is the vertical position of the image compared to the surrounding line. For a math symbol such as α this is not much of a problem; when properly directed, the browser will align the bottom of α with the bottom of the line. Or rather, with the "baseline"; the bottom of letters such as a, b, and c, that don't have appendages sticking down. Definitely, bottom alignment with the baseline is not a problem. (Except under some conditions for Internet Explorer, which is another story.)

While α is OK, where should the browser put an image of the letter β , descending below the baseline? The browser does not understand the meaning of the image, and so has no clue what part of it should be at the height of the baseline if it is not the bottom. The original $\text{\LaTeX}2\text{HTML}$ cleverly solved this conundrum by adding enough blank space so that if the image is properly *centered* vertically (instead of bottom-aligned), the image will be at the right height in the line.

Unfortunately, browsers do not manage to properly center images vertically in the line. The way to do it was specified in international standards, but they were ignored by all browsers I have seen.

My own initial take on the matter was that of a realist; I just measured where the various leading browsers *did* put the image vertically, and then sized the image so that it would end up at about the right height. Which was a significant improvement.

Yet there was a difficulty. The practical standard of where to vertically center images was set by Mosaic and Netscape. Yet, when Microsoft entered the browser market with Internet Explorer, they did not just ignore the internationally agreed upon standards, like everyone else, they also ignored the reigning standard established by Mosaic and Netscape. I have the suspicion that the real reason was that the Microsoft software designers did not really know where the baselines of their lines were. It appears that they only kept track of where the overall highest and lowest points in their lines were, and that they averaged the two to get some sort of approximate "baseline". Of course, for very large images, the highest and lowest points are the image itself, and those images are aligned with *their own center*, a singular problem that led Microsoft to a "baseline" that is the center of the image. Gee, just like the international standard stipulate! Unfortunately, this is only true for very large images. Realistically, if the image is at the right height in Internet Explorer, it is not in

Mosaic, Netscape, Mozilla, or Firefox, and vice versa.

So I set things to create middle-aligned images of two different sizes, one for Explorer, and one for the rest of the world. Not ideal, but it seemed the best I could do. Then Firefox 1.5 threw a monkey wrench into that idea too, by deciding out-of-the-blue to suddenly follow the international standards. A good idea, but much, much, too late in my view. I had now ended up with the need of sizing math images *three* different ways.

It got me to think about style sheet alignment. Style sheets are a later development in HTML, specifying in greater detail the visual appearance of web pages. In other words, style sheets appeared when browser designers might have developed a vague clue what was going on and might have gotten some of it right. And indeed, it turns out that style sheet alignment is much more uniform among browsers than the normal version. Enough to create a single size of images and have them OK for all browsers.

In fact, the international standard for style sheet alignment is very clear: the center of the image must be aligned with the center of the lower case letter “x”. True, Internet Explorer thinks the middle of the letter x is two third of the way up, instead of where the lines cross; they probably got confused with the capital letter X. But still, the differences between browsers remain small if you average them. So, I switched back to one type of images for all, though you can still generate the other versions if you want alignment to be more precise.

9.22.3 So, how about all those browsers??

Right. So, as explained in the last section, optimal vertical alignment of math images requires different size images for different browsers. The following sizings are available:

- m** (Mosaic) Math images are sized to properly align vertically when viewed in Mosaic, Netscape, Mozilla, and early-version Firefox browsers. Their market share is small, except maybe early Firefox.
- e** (Explorer, obsolete) Math images are sized to properly align vertically when viewed in Internet Explorer, but only if *they are the only image in the line*. If there is, say, a big bottom-aligned image in the same line, the image will hover way above the line it is supposed to be part of. Remember what I told you the previous subsection? Explorer takes the baseline as the middle between the highest and the lowest point of the line (without putting the text there.) A big image can raise that way up. For that reason, the “e” alignment is obsolete. If you have to size for explorer, use the advanced (a) or explorer (x) style sheet alignments below.
- c** (Correct) Math images are sized for their middle to align with the baseline. This is how it should be. But only late versions of Firefox do it. (1.0 does not, 1.5 does.)
- g** (Generic, obsolete) Used to be an average of m and e, now an average of c and e.
- a** (Advanced) This is a style-sheet based alignment. Reasonably accurate for most browsers. At the default font size of 15 pixels, more accurate for Internet Explorer than x below! In general, an average of x and f below, with an alignment that is not likely to be much more than a pixel too high or low for whatever browser.
- x** (Explorer) This is also an style-sheet based alignment, but optimized for Internet Explorer. Note that IE seems to perform all alignment computations in integer arithmetic, producing large rounding errors (frequently, when the font size goes *up*, the center of the line goes *down* according to IE.)
- f** (Firefox) Another style-sheet alignment. This one optimized for the Mosaic/ Netscape/ Mozilla/ Firefox line. Works better at the default font size of 15 pixels than a. Unfortunately, browsers in this line have a random variation of about a pixel in vertical image alignment that cannot be removed.

A Appendix: problems resolved

Here is a list of problems I found in L^AT_EX2HTML 99.2 and corresponding FU fixes.

- Problem:* It crashes, requiring a Ctrl-Alt-Del removal of the DOS box, and fairly soon a complete reboot.
Reason: DOS has only very marginal redirection capabilities. pstoimg.bat does three redirections to reduce screen output. Each of them by itself is enough to crash the DOS box.
Solution: I removed all three. My l2hcrop does less output anyway.
- Problem:* Commands executed through batch files, such as L^AT_EX, crash
Reason: Perl does not pass the parameters to batch files. L^AT_EX cannot process images.tex if it does not know the file name.
Solution: Create a Gnu 77 Fortran program rb.exe, (for run bat), and run all batch files through that executable.
- Problem:* Batch files do not return error status.
Reason: DOS.
Solution: Make a batch file, latexl2h.bat, that returns a pointer, C:\Temp\rb.err, if an error occurs, and then make rb.exe return an error status to Perl.
- Problem:* Messages go off the screen before they can be read.
Reason: DOS boxes do not have a buffer, and output redirection of stderr would be very difficult even without all the other redirection already there.
Solution: Create a log file C:\Temp\l2h.log and copy all the output, of at least in latex2html.bat, pstoimg.bat, and texexpand.bat, to that file. Allow an environment variable L2H_SLEEP to be set with a delay. (Note that reading from the keyboard tends to fail with all the input redirection being done.)
- Problem:* There is a roughly 95% chance that the program does not work even with the crashes removed.
Reason: It tries to accomodate every possible version and variation of about 30 different external utilities not under the authors' control.
Solution: Specify specific version numbers for the netpbm utilities in a constant state of flux. Ignore alternate possibilities to freely available programs, and specify the latest version of the more consistent ghostscript, dvips, and perl utilities.
- Problem:* Netpbm 10.18 has compatibility problems, including with the vital pnncrop, which does not work correctly in latex2html.
Reason: latex2html was written a long time ago.
Solution: Switch to the earliest I could find, Netpbm 10.6.
- Problem:* Various utilities in netpbm 10.6 do not work properly, such as the jpeg ones.
Reason: It is an old version.
Solution: Get those from the last version, 10.18.
- Problem:* Anytopnm is a unix shell script.
Reason: Netpbm was not really designed for Windows.
Solution: Substitute a batch file as a crude fix.
- Problem:* Some Netpbm utilities miss the .exe file extension.
Reason: Seems to be an indication that they are obsolete.
Solution: Rename them.

10. *Problem:* Gifs turn out with horrible, completely wrong colors.
Reason: A known bug in PPMQUANT.
Solution: Substitute a batch file that runs pnmmap and pnmremap instead.
11. *Problem:* Latex2html.bat fails renaming existing images, to be reused, back from .old to .gif.
Reason: DOS cannot keep up with the amount of files being renamed.
Solution: On failure, put in a one second delay, and then try again.
12. *Problem:* The installation procedure insists on a html checker.
Reason: Beats me.
Solution: Provide a fake one, chckhtml.bat, doing nothing. You can always put one in there, following the lines of latexl2h.bat.
13. *Problem:* Insists on making png instead of gif images if png is enabled.
Reason: Beats me.
Solution: Change prefs.pm to get rid of png completely.
14. *Problem:* You get an address in your web pages even if you blank out the variable.
Reason: Whatever you set address to, it is redefined in latex2html.bat.
Solution: Change latex2html to not set address if it is already defined.
15. *Problem:* The configuration procedure cannot handle required switches and arguments of executables.
Reason: The authors did not put it in.
Solution: Put suitable switches and parameters in the pin files.
16. *Problem:* Seems to be an aliasing problem. Text is varying thickness.
Reason: Page color is set to grey scale in l2hconf.
Solution: Set page color to the more general white.
17. *Problem:* The -E dvips option is set twice, once unconditionally in l2hconf.
Reason: A new line after a comment symbol.
Solution: Remove the new line.
18. *Problem:* Almost all latex2html web pages on the net have missing icons, including a number of old ones of my own.
Reason: An insane idea to have the icons placed on some central location on the web server, rather than safely with each document. You have to be a system administrator yourself to trust they will keep these icons safe for eternity. If these system administrators are still working here next year, and still remember what the icons were for in the first place, and are willing to figure out whether someone is still using them instead of simply deleting and waiting for complaints, that is.
Solution: Set the local icons option as default.
19. *Problem:* HTML 3.2 is used.
Reason: For historical reasons, it says.
Solution: Use HTML 4.
20. *Problem:* Web pages drive you crazy with some having a navigation panel at their bottom and some not.
Reason: Beats me.
Solution: Set default options to enable bottom panels on all pages.

21. *Problem:* You cannot just click the forward and backward icons to scroll through the web pages. Also, part of the upcoming section name is lost. The order of the icons is counter-intuitive. Navigation panels visually dominate the web page.
- Reason:* Putting section names between the icons causes them to flip back and forth from one page to the next. With all the text, there is not enough space for full titles.
- Solution:* Get rid of the text except that of the upcoming section, and put that behind the icons. Put them in an intuitive order. Move the navigation panel formatting to `.latex2html-init` to make it easier to customize.
22. *Problem:* Navigation icons look unimpressive and dominantly big.
- Reason:* Beats me.
- Solution:* Remade the icons. Still not very impressive, but better. Added some support for people to make their own.
23. *Problem:* There is no utility to make figures with MS Paint and convert them to eps.
- Reason:* Authors do not use MS Paint?
- Solution:* Add `bmptopnm.exe` from `netpbm` and create a batch file `bmptoeeps.bat`.
24. *Problem:* Usage is not very user-friendly.
- Reason:* Not designed that way.
- Solution:* Provide a batch file `makel2h.bat` to do the usage overhead and a utility `l2hnewer.exe` to check file dates.
25. *Problem:* The manual is not easy to process and the segmented document you are asked to produce cannot be created.
- Reasons:* Use of special style files, some with file names over 8 characters long. Use of a makefile, which simply does not work, for one reason since DOS batch files do not return error codes.
- Addition: the two poorly documented makefiles do not work under Unix, either. Half the manual is not processed.
- The official online manual⁷⁷ is not that great either. For example, what to make from figure 3?
- Solution:* Provide the processed manual in pdf form, and the hhtml page in html form and just zip the rest.
26. *Problem:* Style file `verbatimfiles.sty` does not work since its name is more than eight characters. The same for `changebar.sty`.
- Reason:* No account is taken of older TeX versions.
- Solution:* Make a note to the users to rename it.
27. *Problem:* Installation creates weird error messages if an executable is missing.
- Reason:* Beats me.
- Solution:* Make sure none is missing.
28. *Problem:* Inline mathematics is a completely different font size than the rest. On some pages on the web, it is three times bigger.
- Reason:* The font sizes are not fixed, depending on options and user browser setting.
- Solution:* If you represent math by images, you no longer have a choice about font size. So, set the chosen font size for the nonmath to the same fixed size using style sheets. (Note however that web page readers may set their browser to ignore style sheet font sizes. That is up to them. Their math will still be the same size.)

⁷⁷<http://www-texdev.ics.mq.edu.au/12h/docs/manual/>

29. *Problem:* Inline images are not aligned correctly vertically.
- Reasons:* Mozilla and Internet Explorer do not vertically align images at the same height. Also, for both browsers, image alignment depends on font size. Raised images are not correctly aligned by the latex2html pnmcrop procedure. If there is more than one image in the same line, Internet Explorer will mess up the alignment of one because of the presence of the other.
- Solutions:* Provide separate web pages for Mozilla and Internet Explorer. Provide an older version of pnmcrop instead of the latest which does not work correctly. Provide a program, l2hcrop.exe, that crops more reliably. Fix the font size, and make l2hcrop compute the correct alignment for that font size. L2hcrop will correctly crop raised images. The IE problem with multiple images in the same line cannot be resolved, but l2hcrop minimizes it by cropping the images to the minimum size required.
30. *Problem:* Weird black bars show up below or to the left of math images.
- Reasons:* Sometimes latex2html produces alignment bars that are too short. In that case, pnmcrop will leave this artifact in the image. In addition, pnmcrop may be a wrong, too recent, version.
- Solution:* Use l2hcrop, and make it check and correct for the possibility that the alignment bars are too short. Ensure a compatible version of pnmcrop for the rare case that l2hcrop runs out of memory.
31. *Problem:* Line spacing is widely varying from one line to the next.
- Reason:* The whitespace put in to vertically align images.
- Solution:* Let l2hcrop cut the images to the smallest size possible to minimize the problem.
32. *Problem:* Figures have incomplete characters and missing lines.
- Reason:* Ghostscript does not anti-alias embedded bitmaps.
- Solution:* Appropriate the extrascale option, ignored by latex2html for figures, to let ghostscript oversize the figures, then provide l2hcomp.exe to put them back to size with proper anti-aliasing.
33. *Problem:* Excessive white space around formulae.
- Reason:* Apparently the authors want to simulate mathsurround, even if it just looks funny on a screen with much less real estate than a printed page.
- Solution:* Class the whitespace, and use style sheets to get rid of it.
34. *Problem:* Navigation panels are not easily customized beyond simple changes.
- Reason:* Icons are hard coded, even with their links and file names.
- Solution:* None.
35. *Problem:* Left quotes look lousy.
- Reason:* Seems to be intentional, probably a bug fix for something else.
- Solution:* Tell users to use `{\lq}` and `{\rq}`.
36. *Problem:* Creating 500 images is very slow.
- Reason:* Well, what do you expect.
- Solution:* L2hcrop provides a partial solution, because one invocation of l2hcrop replaces about four invocations of pnmcrop, one of pnmquant, as well potentially a pnmflip one. Also, l2hcrop reads the image file only once, keeping it in memory. The Quantum Mechanics for Engineers⁷⁸ web pages, with well over 500 images, take 15 minutes to create, per browser, on my four or five year old Windows 98 laptop.
- I do find that it runs many times more slowly (though correctly) on my desktop at work, also a 98, but with 128 Mb memory instead of 256, and slower disks. Neither disk or memory is the problem, however. The problem is that the processor is maxed out to 100% while running. It however, is virtually the same processor as my laptop's. If anyone can solve this complete mystery for me..?

⁷⁸<http://www.eng.fsu.edu/~dommelen/research/nano/quantum/>

37. *Problem:* Images are not always remade.
Reason: The algorithm ignores changes in spaces, as well as missing backslashes and brackets that you correct.
Solution: Warn the user to delete the image. Also note to try browser refresh.
38. *Problem:* In debug mode, intermediate images are not kept as promised.
Reason: They are named by process ID. DOS reuses process IDs.
Solution: Use time instead of process id for the name.
39. *Problem:* Ridiculous long HTML name tags for section starts.
Reason: I don't know.
Solution: None.
40. *Problem:* Somehow, the document, part, chapter, and section titles are all set the exact same way, and in the same font size.
Reason: They are all converted into classless H1 tags, because really important divisions such as subparagraph need their own tag, and html has only 6.
Solution: Let subparagraph suffer.
41. *Problem:* The style file is *hardcoded* in latex2html, and incomplete.
Reason: Beats me.
Solution: Let makel2h move in a style file before latex2html gets the chance.
42. *Problem:* Small images are not being created.
Reason: ppmtogif crashes trying to interlace gifs that are only 3 pixels or so high.
Solution: Let l2hcrop return a warning if the image is less than 16 pixels high, and turn off interlace if it is.
43. *Problem:* Images.tex tends to fail to process.
Reason: It is pushed in a subdirectory. I don't know why this file could not be processed in the original directory and then moved down, but anyway.
Solution: Warn the users more clearly about .. in texinputs, providing a test for it, and about not having relative path names. Pause the screen if latex returns a warning on images.tex and copy the files to the Temp directory for examination.
44. *Problem:* Html.sty does not account for the possibility that paragraph is not defined.
Reason: Beats me.
Solution: Warn the user.
45. *Problem:* Sections/figures/tables are not correctly numbered.
Reason: The numbers are retrieved from latex for the given title. Unfortunately, Latex and html do not always agree on what is the title.
Solution: (1) Added a last resort search that first removes embedded mathematics from the titles, that makes the tex and html agree on the &, (very common in legends because of references), and that prints to the log file to show why the search fails, if it still does. (2) If this last resort fails too, increment the previous number by one, which works most of the time. Warn the user, anyway. Also add a warning to problem shooting not to use discretionary hyphens, they cannot be fixed without also affecting true hyphens.
46. *Problem:* It tries to process `\input{abstract}` as `\begin{abstract}`, making a mess.
Reason: Unknown. It does input the file.
Solution: Warn the user to not make input file names look like environments.

47. *Problem:* Addcontentsline is not supported.
Reason: Don't know.
Fix: Set default to have starred section titles go to toc.
48. *Problem:* Resetting section numbers does not work.
Reason: Unknown.
Solution: None. (This does not seem to be much of a problem since it gets its numbers from latex anyway.)
49. *Problem:* Thumbnails are not cropped.
Reason: The crop option is not passed to pstoming.
Solution: Add it.
50. *Problem:* Captions of figures have each word on a separate line.
Reason: The figure and caption are put in a html table. The browsers then make the table as wide as the figure, which can be very small.
Solution: Specify the table to be 65% of the page width.
51. *Problem:* Code is very hard to figure out.
Reason: Perl asks for messy code, and not providing full comments in the code does not help. The code is also full of adhoc fixes, not just mine.
Solution: None.
52. *Problem:* Figure environments with two captions are made into a single image.
Reason: That is how it is.
Solution: Warn the user to split it into two figure environments.
53. *Problem:* Text in figure environments ends up as part of the figure.
Reason: Yes.
Solution: Warn the user to put it in a caption, or live with it.
54. *Problem:* Pnmflip does not work.
Reason: It is a unix script running Perl running pamflip.
Solution: Provide the earlier netpbm utility for Windows, include pamflip in Unix.
55. *Problem:* Config.pl searches through directories in the wrong order.
Reason: Seems to be subroutine that removes duplicate entries.
Solution: Removed.
56. *Problem:* Two files in versions/ had crashing perl.
Reason: Unknown
Solution: Commented out the lines, which should not be needed anyway.
57. *Problem:* L^AT_EX₂HTML is not able to correctly process its own manual, using the versions required by the manual. Weird marks are put behind various equation.
Reason: A sharp is missing in the end of equation marker in versions/math.pl, so these markers stay in. How was the manual on the web made??
Solution: Added the sharp.

58. *Problem:* The official online L^AT_EX2HTML manual⁷⁹ has figure 3 messed up (wrong image is displayed). The same for figure 1. This is unfortunate since these figures were supposed to make specific points. Its table of figures is in the wrong order. The Installation and Further Support section is out of date compared to the manual accompanying the distribution. For example, the Windows instructions are missing. (But the ones in the distribution are not right either.) The graphic could have been anti-aliased a bit. The pictures in the bibliography are external references and have, of course, long disappeared. So have most of the links in the exemplary documents section.
- Reason:* Unknown.
- Solution:* The L^AT_EX2HTML-FU remake⁸⁰ fixes some of the problems. Nothing can be done about links that have disappeared.
59. *Problem:* The frame version overwrites the user's definition of the navigation buttons.
- Reason:* Incorrect perl.
- Solution:* Renamed the subroutine `notto` to overwrite the user's.
60. *Problem:* The frames do not disappear even when completely leaving the document.
- Reason:* The Up link out of the document is loaded into a frame.
- Solution:* Maintain the external link at `TARGET="_top"`
61. *Problem:* Config fails under Windows XP.
- Reason:* Windows XP returns a bit set instead of a bit-cleared status.
- Solution:* Took out the status test.
62. *Problem:* Defs with arguments to `complex` are not added to the preamble.
- Reason:* Unknown.
- Solution:* Added a note to the problem solving section to `unset TEXDEFS`.
63. *Problem:* Error message that PPMQUANT cannot be found if the `graphics` or `graphicx` packages are loaded.
- Reason:* `graphics_support.perl` wants it, but the true version no longer exists.
- Solution:* It seems unlikely to be of much importance unless you include non eps graphics. I just added a note in the graphics problem solving section.
64. *Problem:* MiKTeX 2.4 cannot find the input files.
- Reason:* The authors of MiKTeX 2.4 lost the entire environment, including `TEXINPUTS`. They plan to fix it in 2.5, out some time in summer 2006.
- Solution:* Install script `l2hinm24` creates a local `miktex.ini` that points `dvips` to the files. `Latexl2h.m24` (.bat) uses a command line option to do the same with `latex`.
65. *Problem:* Newer TeX versions leave underlines below some formulae. I am grateful to Prof. Rogelio Alcántara for pointing this out and helping me get it fixed.
- Reason:* Another alignment bar bug. Probably due to the newer `dvips`. Ghostscript produces a sidebar that is too long.
- Solution:* Fixed that one too in `l2hcrop`.
66. *Problem:* MiKTeX 2.5, beta 7 or earlier, cannot find the input files.
- Reason:* While TeX was fixed, `dvips` was not. This was fixed in beta 8.
- Solution:* Install script `l2hinmkt` appends to `dvips.ini` in the main config directory for the earlier versions of 2.5.

⁷⁹<http://www-texdev.ics.mq.edu.au/l2h/docs/manual/>

⁸⁰<http://www.eng.fsu.edu/~dommelen/l2hman>

67. *Problem:* Firefox 1.5 image alignment is incorrect.
Reason: Firefox seems to have switched to w3c recommended alignment.
Solution: Added this cropping too to l2hcrop. Made it the default instead of the Mozilla alignment.
68. *Problem:* I found my implementation of NOEPS on Windows was excessive (only two files were truly different, and I created an entire new directory), and it was simply wrong on Unix.
Reason: My stupidity and/or lack of careful examination of the differences.
Solution: Both versions of the two files are now provided in a single L^AT_EX₂HTML directory, and l2h and makel2h swap in the appropriate versions.
69. *Problem:* The NOEPS option does not work correctly with newer versions of TeX like MiKTeX.
Reason: Unknown. I am guessing an internal difference between dvips 5.83 and 5.85. Pstoimg.bat cannot find the page dimensions in the new version. But they are there the same way.
Solution: NOEPS is only used as a fix for problem figures. Noted that it does not work in new versions of TeX in the corresponding problem shooting subsection. The other, better, solution will have to be used. A solution of the pstoimg problem goes on the wishlist.
70. *Problem:* L^AT_EX₂HTML arbitrarily removes all attributes from empty table cells.
Reason: Unknown.
Solution: Curse. Put in a few s.
71. *Problem:* L^AT_EX₂HTML loses \$TITLE on its way to the navigation panels.
Reason: Unknown.
Solution: Curse. Copy it over into \$RUNNING_TITLE.
72. *Problem:* Jpegs are no longer created.
Reason: A test that ppmtjpeg was an executable file. Sometime after Shankar's thesis, I took out the path from the executables.
Solution: Drop this test. When installed according to instructions, ppmtjpeg is there. Otherwise, do not use L2H_JPGQ.
73. *Problem:* Thumbnails are not anti-aliased.
Reason: I guess it did not seem important to me at the time.
Solution: Added.
74. *Problem:* Jpegs of thumbnails are not correctly processed.
Reason: I did not think that thumbnail entries in images.pl would be different.
Solution: Fixed.
75. *Problem:* Floating point numbers are not correctly read by the wiz.
Reason: I am teaching math??
Solution: Fixed.
76. *Problem:* Eqnarrays alignment is lousy in html 3.2, marginal in html 4.0.
Reason: This is an html table limitation. Html 4.0 used a dirty trick to improve things a bit.
Solution: Put in a better dirty trick.

77. *Problem:* Left or right align in the `htmlimage` command does not do what you would normally want it to do.
- Reason:* The obvious reason is that it is applied to the image itself, not to the table containing it. Whether there is a deeper reason for this??
- Solution:* Copied it to the containing table, if `align=right` or `align=left` is specified in `htmlimage` in lower case, with no quotes. If that is interfering with something I do not know about, just change case.
78. *Problem:* Return of the dreaded underlines!!
- Reason:* The alignment bar thickness for larger magnifications increases beyond the limits used in `l2hcrop`.
- Solution:* Made the bar thicknesses `fontsize` dependent.
79. *Problem:* `LATEX2HTML` will not remake figures or equations that change by whitespace, braces, or backslashes, and will put the wrong figures where the latex source code of two figures is the same for the first 80 or so characters.
- Reason:* By design, `LATEX2HTML` only looks at the first 80 characters of the latex source code of a figure or equation to see whether it is different from another. In addition, while doing so it will completely ignore all whitespace, braces, backslashes and more. (Look at the keys in an `images.pl` file to see what I mean.)
- Solution:* As of Sep. 2007, the keys now include a 32 bit CRC check sum of the *entire* latex source code of the figure or equation.
80. *Problem:* Excessive whitespace behind `eqnarray*` environments.
- Reason:* For reasons unknown to mankind, these environments were terminated by three line breaks and additionally three blank paragraphs!
- Solution:* Eliminated two breaks and two empty paragraphs.

B Appendix: History

Jan 6, 05. Version 1. Files installed on Unix and Windows 98 without problems.

Jan 7, 05. Directory protections were not set to allow outside access in Unix. The H5 and H6 heading styles were not obvious enough.

Jan 10, 05. The font size can now be set without losing correct vertical image alignments. Also, the default font is now 15 px, not 19. Installed the distribution from scratch on Unix and Windows 98 without problems.

Jan 11, 05. `html.pl` bug fix added.

May 11, 05. Updated section on animations. Reposted.

Aug 23, 05. Added “I do not want to use `makel2h`” subsection.

April 23, 06. Created easy-install scripts for MiKTeX 2.4, fpTeX and XEmTeX, and simplified full install. Fixed another alignment bar bug using `l2hcrop`.

June 12, 06. Improved the scripts to accomodate nonstandard TeX locations, fix a new bug in MikTeX 2.5 up to beta 7, and added `uninstall` scripts. Added notes about `epsf.sty`. Added support for Firefox 1.5 image alignment and made it the default.

June 30, 06. Added style alignment, and a much simpler interface to use it. Just say `l2h` and the web pages are created. Style alignment allows much better alignment of images in Internet Explorer and a single set of web pages for all browsers. Added `clrl2h`.

July 13, 06. Fixed the no-eps variant, which was incorrect on Unix and overkill on Windows. The `l2hs` directory is gone. The templates in folder “files” are now simply called `index.css` and `.latex2html-init`, like the target, which simplifies the idea and makes them *wiz ready*.

Aug 17, 06. Added the wiz, redid various sample web pages. Added a “What is LaTeX” subsection to the problem shooting section.

Aug 23, 06. Added improved jpeg support.

Aug 28, 06. Improved eqnarray alignment. Must be using html 4.0. Other small improvements based on redoing Shankar’s thesis. Some minor wiz changes.

Sep 4, 06. The left align and right align of htmlimage now actually do something for figures.

Sep 8, 06. Made the bug fixes in l2hcrop fontsize dependent. Rewrote the corresponding problem shooting subsubsection.

Sep 20, 07. Easy install version for linux. Finally fixed the annoying figure identification deficiencies.

Mar 22, 08. The excess white space behind `eqnarray*` environments has been eliminated. For the rest, everything works fine for me, so I try to leave things alone.

Nov 11, 09. The easy linux install now also works if your home directory is not /root. Gee. Current versions of Perl no longer support the multiline matching used in `LATEX2HTML`. Some minor fixes have therefor been made to `latex2html.pin`⁸¹. They are not yet included in the Windows `l2hfu3.exe`, since they seem inconsequential.

⁸¹../zips/latex2html.pin

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A Appendix: problems resolved

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