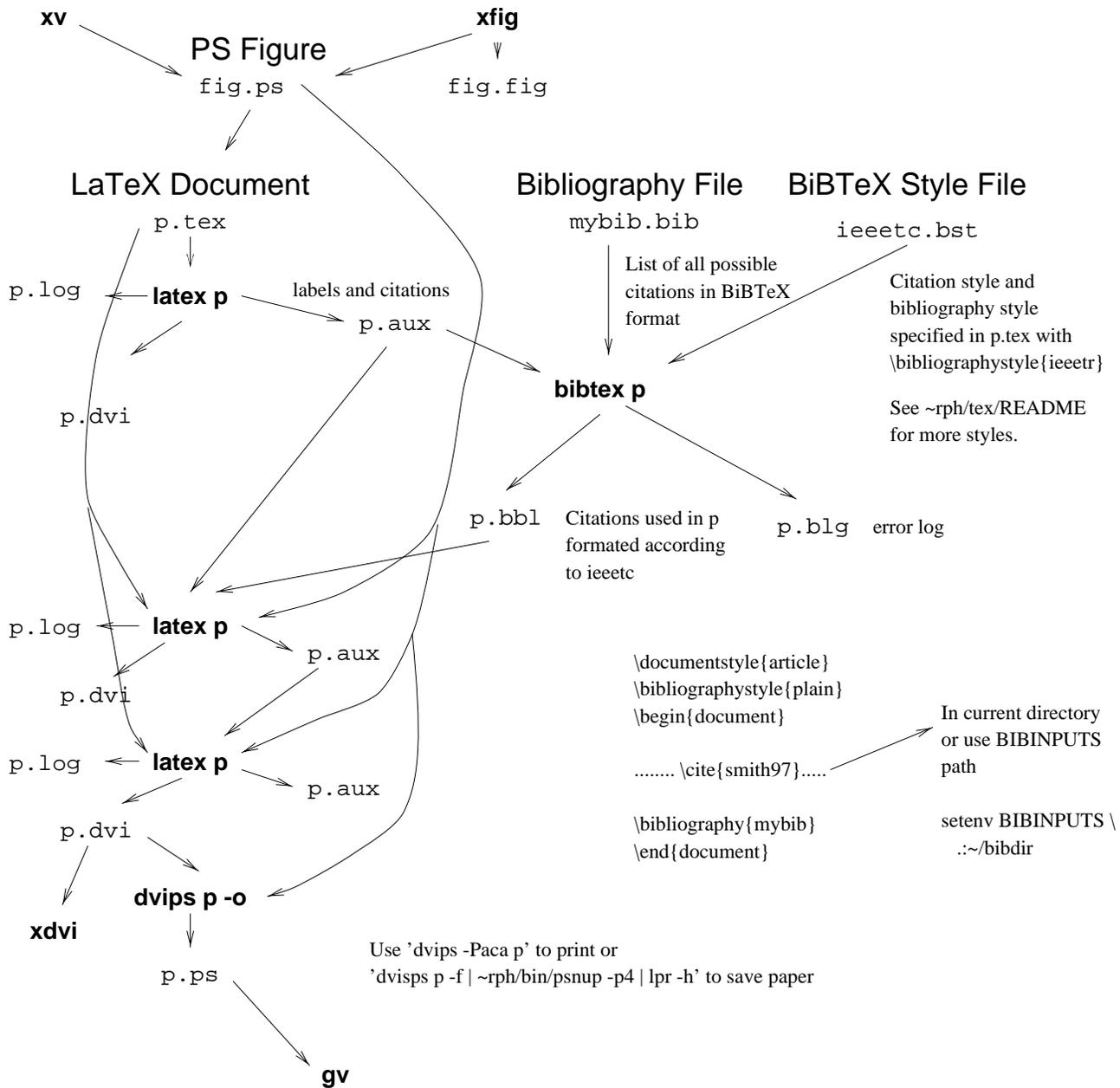


# TeX, BiBTeX, and Figures



Common Styles (`/usr/local/texTeX/texmf/bibtex/bst/base/`)

- plain — numbered references, sorted alphabetically
- alpha — 3-characters plus year, sorted alphabetically
- ieetr — numbered, concise (first initials), order of reference

Want more — see `~rph/tex/README` or post questions to grad newsgroup.

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`.bib` files

- Takes a bit of work to maintain
- In the long run, very much worth the effort
- Write citation key on the paper (I use first author and year)
- Many citation databases use bibtex (others use refer)
- See, for example, <http://www.cs.indiana.edu/cstr/search>



What is a bib file?

Entries of form...

```
@article{smith92,  
    title = "Important stuff",  
    author= "John Smith",  
    year  = 1992,  
    month = jan,  
    volume= 5,  
    number= 7,  
    pages = "111--112",  
    journal = "Highly technical stuff"}
```

In tex file, use `\cite{smith92}` to produce citation and add it into references, as in Smith talks about important stuff `\cite{smith92}`.

- BibTeX will do uncapitalization of article names
  - "Important Stuff in {VLSI}"



- Cites are not nouns
- Use `\cite{smith92,smith93}` for mutiple cites
  - No space between items!
- Some abbreviations are defined in bst files, such as months and some journal names
- `@string{icpp="Proc. Int. Conf. Par. Proc."}` in the `.bib` will define a new one.
- Read about the `crossref` field — great for proceedings with many cited aritcles...



```
@string{crc="CRC Press"}
@string{crc-a="New York"}
@inproceedings{smith91,
    title = "Great stuff",
    pages = "112--113",
    note = "//www.cse.ucsc.edu/great_stuff.html",
    crossref="icpp91"}
@book{icpp91,
    booktitle=icpp,
    title = icpp,
    year = 1991,
    publisher= crc,
    address = crc-a,
    editor = "C.-L. Wu"}
```

Book definition must be after crossref — split bibliography into `mynonbooks.bib` and `mybooks.bib`.



Generating:

- Drawing program — xfig with .fig (figure file) and .eps (postscript) output.
- From some other source — xv can translate many formats into postscript
- Plotting program — matlab, gnuplot:  

```
set term postscript eps monochrome dashed "Helvetica" 22  
set output plot.ps
```
- For algorithmic pictures, it may be worthwhile to learn LaTeX picture environments and extensions (epic, eepic).



## Figures

---

Figure in a document...

```
\begin{figure}    % or \begin{table}
\centerline{\psfig{figure=fig.ps,width=0.9\textwidth}}
\caption{Great picture!}
\label{fig_great} % Label after caption!!!!
\end{figure}
```

The great picture (Figure~\ref{fig\_great}) is great!

Table and figures are floating — LaTeX will place them where they fit.

For postscript figures, must include the psfig package in your document, so in old LaTeX, have a `\input{psfig}` before `\begin{document}` or `[psfig]{article}` if you have a copy of `psfig.sty` (there's one in my tex directory).

You can set height, width, or both (which can give non-uniform scaling) to absolute numbers or in terms of `textwidth` and `textheight`.



- Rotated figures can be fixed with  
`\psfig{figure=fig.ps,angle=90}`
- In xfig, if figure is larger than standard size on screen, may have to reduce in the ‘xfig’ menu. Also, export in portrait mode to have figure unrotated.
- Figures that are in postscript rather than encapsulate postscript can cause a problem.
  - Postscript figures include the “showpage” command for printing a figure and moving on to the next page.
  - Encapsulated figures do not as they are on a single page.
  - Sometimes, this can be fixed with some postscript hacking.
- Figures sometimes have a bounding box that is too large or small or non-existence. In the postscript file, there should be a comment line:

```
%%Bounding Box: llx lly urx ury
```

You can use ghostview to find picture coordinates to change or create the bounding box line.



## Math in figures: How to include T<sub>E</sub>X

- Use `xfig` to draw the figure
- In figure, place text such as:

`$$\sum_{i=1}^j x_i$`

- In `xfig` ‘Edit Object’ menu
  - Set ‘Text Flag’ to ‘Special’
- Export into `eepic`
- You can fine tune the `fig.eepic` that `xfig` generates.



## Figures

---

- In 2-column documents, `figure*` is a 2-column figure, and `columnwidth` is a single column (for use with `psfig`).
- For side-by-side figures,

```
\begin{figure}
\begin{tabular}{cc}
\psfig{figure=fig1.ps,width=0.45\textwidth}&
\psfig{figure=fig2.ps,width=0.45\textwidth} \\
(a)&(b)
\end{tabular}
\caption{First figure (a) and second figure (b).}
\label{fig1-2}
\end{figure}
```

Or add a middle column to the table to increase spacing

- Learn to use `\newcommand` or `\def` to avoid typing
- Use a good emacs style to avoid typing



## *Generating Other Formats*

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PS: `dvips mydoc -o`

HTML: `latex2html`

- Creates menus, and links
- Can create a flat file with

`latex2html -split 0 -info 0`

- See `html.sty` in my tex directory for useful macros that, for example, create a URL footnote in TeX and a URL link in HTML.

PDF: `distill`

- Only on the solaris machines
- Much better than `dvi2pdf`

PDF: `pdflatex`

- Direct conversion
- Better than distill if usable
- Does NOT understand `psfig`
- Does understand `epic`



List of commands/styles in `~rph/tex`. At the end is a summary of bibtex style files in this directory and in `/usr/local/TeX/lib/inputs`.

Many of these files have documentation in the form of comments at their top.

<code>~rph/bin/btexa</code>	Bibtex entry: asks for apropos keys. If 2 files are specified on the command line, all books and proceedings are put in the second. This is useful to make crossrefs work better. (ie have books after things in them). Format is in <code>~rph/bib/btexa.dat</code> , the program could be changed to have dat file specified on the command line.
<code>~rph/bin/twopage</code> <code>fourpage</code> <code>sixpage</code>	Filters for printing multiple logical pages on one page. Twopage and sixpage should be used with page reversal. Ie., <code>dvips -f -r foo   twopage   lpr</code>
<code>~rph/tex</code>	
<code>10pt.sty</code>	A null file
<code>alpha3.bst</code>	Alpha w/ first 3 char regardless of et.al.
<code>alpha3c.bst</code>	Alpha3, no capitalization changes
<code>alpha4.bst</code>	Alpa w/ first 4 char
<code>alphanc.bst</code>	Alpha w/o capitalization changes
<code>annotate.bst</code>	Uses annotate field of bibtex
<code>annotatea.bst</code>	Annotate, cite as key, sort by author etc
<code>annotatek.bst</code>	Annotate, cite as key, sort by key.
<code>verbatim.sty</code>	A small verbatim environment. Loads a 7pt tt font, and fixes underscore.
<code>biblist.tex</code>	For printing full bibliographies.
<code>brownphd.sty</code>	Like it says. Original by jts, revisions by rjc, rpg, and rph.
<code>cfloat.sty</code>	Centered floats (see <code>archive/float.sty</code> )
<code>chapters.tex</code>	Modified, from kgk, look for file numbers in directories (i.e. <code>ch1/ch1.tex</code> , <code>ch2/ch2.tex</code> ...)
<code>cite.bst</code>	Include citation numbers in entries.
<code>citenotes.sty</code>	Superscripted citation numbers for everything, taken from the <code>aip.sty</code>

	file.
cprog.sty	From comp.text.tex: routines to read c programs directly into LaTeX (or TeX) documents.
directories.sty	Modify \include to include chapters as directories. Calling this causes a redefinition of \input to first look in that directory for the given file. Also, \include will attempt to input a file macros.tex in that directory and scope the entire file (ie no global defs). Also uses modified kgk \chapters macro to include a set of directories. Using \includeonly with \chapters generates ignorable error messages.
endnotes.sty	Endnotes instead of footnotes. Used by ieesubmit.sty
fcite.sty	Provides \citefnote and \citenorm to switch between cites as footnotes and cites as bracketed refs. Useful for minipaged tables, in which cites are numbers and footnotes are letters.
ftsame.sty	Use same counter for figures and tables. This numbers them separately but places them on the same float list so order is preserved.
ieeecross.bst	IEEE style but w/o using citation for cross references.
ieesubmit.sty	Submissions to IEEE tr. c
ieeetr.sty	more ieee stuff.
largepage.sty	Not so full as fullpage....
IEEEtran.sty	IEEE transaction style file from the IEEE (doc included in style file). Obtained from help@ep.ieee.org.
Letter2.sty	UCSC letterhead with name etc. in foot. Documentation is at the top of the style file. See old/Lettertest.tex for an example.
mput.sty	For figures, put something at a list of points.
myslide.sty	Like it says.
newout.sty	A vastly improved output routine from rar that that correctly handles large headers and footers.
noncite.sty	Turn of citing and footnotes (e.g.,

	when doing toc, lof, and lot).
nonote.sty	Turn off \note{} of draftnote.
nsf.sty	Some parameters for nsf grants. It has a commented-out reduction of baselinestretch.
numques.sty	How to turn ? into a numeric space filler.
page.tex	Some commented-out page settings.
plaincross.sty	Plain bibliography w/ expanded cross references.
problems.sty	A problems environment with its own counter that resets in each chapter.
psfig.sty	The psfig.tex package in a sty file. **Needed for latex2html** Latex2html will not load the psfig.perl package unless psfig.sty is loaded as a document option.
push.sty	Help for tabular and array environments, to push items up and down. Defines \push (push up), \dpush (push down), \apush (push up and down), \rowspan (span 2 rows), and \mpush in array (mbox & push).
resume.sty	Like it says...
rfloat.sty	Rotated floats (\tagrddiagram, etc) Requires rotbox.sty
rotbox.sty	From rar for rotated boxes.
rsuperfloat.sty	Rotated super tables (requires rotbox.sty) (\tagrsupertable etc and \begin{rfsupertabular}
sectionfig.sty	Include section numbers in figures.
sieeb.st	Sorted bib, but with ieetr type entries.
sieeocr.bst	As sieee, expand crossrefs.
sieeocrnotitle.bst	Perfect for extended abstracts!
smallsection.sty	Smaller headings for report.sty, snarfed from ucsc-report.sty.
subeqnarray.sty	Numbered Subeqnarrays.
superfloat.sty	Supports \tagsupertable (see float.sty), which sets up information for a multipage \begin{fsupertabular}, acting much like supertabular, but allowing continued of the table on future pages. Use \nextline and \breakline in the table. Does not require the

	input of supertab.sty, but does require captcont, for the continuation of captions.
supertab.sty	Multipage tables.
tablenotes.sty	Change minipage footnotes to be written as a line across the bottom of the page, w/o a rule, and in \scriptsize font. Good for footnoted tables.
theorem.sty	Add several theorems and a proof environment, SIAM format.
tightenum.sty	Less free space in enum environment.
underscore.sty	Use a real underscore in text. For some unknown reason, \_ is a rule rather than the appropriate font's underscore

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~rph/tex/archive:	Mostly from the clarkson archive, many have been modified for my own uses.
biihead.sty	Underlined page headings like Latex man.
bsf.sty, bsl.sty	Bold sf and slanted. bsf.sty is from the clarkson archive.
captcont.sty	Continuation of a caption (no number etc) for multi-figure diagrams. Additionally, redefines \caption so that \caption{[List of Figures]{Caption}} will work. Useful for \tag routines which do not have optional caption argument. thanks to rar.
cite.sty	Compress lists of numbers in citations to ranges, and allow linebreaks with difficulty
doublespace.sty	
draftnote.sty	Adds draft header & date to pages \renewcommand{\versiontag} for version labels. Uses data and time. Draft used at bottom of page.
\pagestyle{reprint}	Similar to plain pagestyle in draft mode
\note	Margin par (turn off with nonote.sty)
drop.sty	Dropped letters for opening chapters.
float.sty:	Extraction from clarkson lcustom.tex needs captcont.sty (cf) which will allow optional caption args for lof and lot. See cfloat.
\inputverbatim	Like it says...

<code>\tagfigure*[FLOAT]{FILE}{CAPTION}{LABEL}</code>	<code>\input figureFILE, execute \box\graph, give it caption and label (TPIC output). FLOAT is float options (tbhp).</code>
<code>\tagdiagram*[FLOAT]{FILE}{CAPTION}{LABEL}</code>	<code>\input Dfile, a LaTeX input file with caption and label</code>
<code>\tagverbatim*[FLOAT]{FILE}{CAPTION}{LABEL}</code>	<code>\inputverbatim of FILE</code>
<code>\tagtable*[FLOAT]{FILE}{CAPTION}{LABEL}</code>	<code>\input Tfile into a table</code>
<code>multibox.sty</code>	Multiple box puts for figures.
<code>myfootings.sty</code>	
<code>\pagestyle{myfootings}</code>	Like myheadings
<code>\markleftfoot{l_foot}</code>	Odd numbered pages
<code>\markrightfoot{r_foot}</code>	Even numbered pages
<code>overcite.sty</code>	Give superscript numbers for citations, compressing lists to ranges, and move past punctuation
<code>portland.sty</code>	protrait and landscape mode. use <code>dvips -t landscape</code> . see <code>rotate.sty</code>
<code>showlabels.sty</code>	Show <code>\label</code> , <code>\ref</code> , <code>\pageref</code> commands explicitly. Good for drafts
<code>tabls.sty</code>	Modify tabular environment to not let hlines collide with text. Takes longer to set tables, but is a great feature.

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 Bibstyle summary....

~rph/tex....

<code>alpha3.bst</code>	Alpha w/ first 3 char regardless of et.al.
<code>alpha3c.bst</code>	Alpha3, no capitalization changes
<code>alpha4.bst</code>	Alpa w/ first 4 char
<code>alphanc.bst</code>	Alpha w/o capitalization changes
<code>annotate.bst</code>	Uses annotate field of bibtex
<code>annotatea.bst</code>	Annotate, cite as key, sort by author etc
<code>annotatek.bst</code>	Annotate, cite as key, sort by key.
<code>cite.bst</code>	Include citation numbers in entries.
<code>ieeecross.bst</code>	IEEE style but w/o using citation for cross references (ie, cross references are filled in).
<code>jmb.[bst,sty]</code>	In /usr/local/TeX/lib/inputs. Full

	author's name and date. The .sty file changes \cite to use parens instead of [].
jmbcr.bst	Jmb, but filling in crossreferences in the bibliography.
sieee.bst	Sorted bib, but with ieetr type entries.
sieeecr.bst	As sieee, expand crossrefs.
overcite.sty	Give superscript numbers for citations, compressing lists to ranges, and move past punctuation

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~rph/tex/old --- Things removed as being no longer useful.

Letter.sty	Better letterheads, with Brown CS logo in foot.
outline.sty	Define \enumerate to have outline labels (I,A,1,a,i)
biobib.sty	Mods to resume.sty for biobib.

-----  
~rph/tex/doc --- Gems if information

README -> ../README	This file
anti_mouse	More to do with X and twm than tex, but this is my answers repository.
decpoints	How to get decimal points to line up.
draftacross	dvips hack to print 'draft' accross a page.
environment	Pointers in TEXINPUTS and BIBINPUTS
figurereplacement	Why figures move around so much, and solutions.
fonts	News postings on fonts from me and Wesley Mackey, in particular, how to get bold italics.
hboxmessage	Adjusting parameters for fewer hbox error messages.
info-tex.archive	Where Info-TeX is archived (an e-journal).
latexfigcaptions	One way of getting small figure captions.
latexfonts	Defining latex fonts for loaded TeX fonts.
Lettertest.tex	Test of Letter2.
lists	How to make a list of, eg, captions.
mathfigures	How to get math mode in xfig.
metafonts.Z	And old FAQ on where to find fonts.
pagenumbers	Some comments on page numbers & how to remove.
pctex	Tex for the PC
psfig.ps	Psfig documentation
put	A way to put things in specific places.
smalltt	Comments on getting a small tt font.

texaddress	Some sites for tex stuff.
texhax.archive	The TeXHax archive.
texinfo	What to do with a .texi or .texinfo file.
texserve.Z	Another FAQ on tex-related addresses
titleson	How to turn things on/off in a bib file.
twofigures	How to get 2 figures next to each other.
whybtexa	Why I use btexa rather than emacs bibtex.
writing.tex	Things that bug me in writing.

~/rph/tex/doc/bibtex

README -> ../README

bibtexinfo.Z	A bunch of bib maint routines from the net.
btxdoc.[tex,dvi]	"Bibtexing" -- how to use the current version of bibtex (the LaTeX manual discusses the old version).
btxhak.[tex,dvi]	How to hack bibtex .bst files.
btxbst.doc	Commented standard .bst style files.

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/usr/local/TeX/lib/inputs/\*.bst

aaai-named.bst	Requires other aaai styles. Citation is full last name and year.
abbrv.bst	Cite by number, sort alphabetic, wordy (ie, 'editors' vs 'eds.'). Author initials and last names.
acm.bst	Similar to abbrv, author names in small caps, less wordy.
alpha.bst	Cite keys are 3 characters of single author or conglomeration of last initials ('+' for et al), year, and possibly lower case letter. Complete author name as given. Wordy.
amsalpha.bst	Full names, more italics than alpha, keys like alpha, less wordy.
amsplain.bst	As above, numbers for keys, sorted.
apalike.bst	1 or 2 author names (or 1 + et.al) and full year as key. First initials in reference list. Wordy.
ieeetr.bst	Very compact. Numbers as keys, in order of reference.
plain.bst	Numbers as keys, full names, wordy.
siam.bst	Sorted number as key, like ieeetr but with author names in small caps.
unsrt.bst	plain.bst with order by reference.