

Marking up differences between latex files with *latexdiff*

F.J. Tilmann*

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Preamble

latexdiff is a Perl script, which compares two latex files and marks up significant differences between them. Various options are available for visual markup using standard latex packages such as *color.sty*. Changes not directly affecting visible text, for example in formatting commands, are still marked in the latex source. A rudimentary revision facility is provided by another Perl script, *latexrevise*, which accepts or rejects all changes. Manual editing of the difference file can be used to override this default behaviour and accept or reject selected changes only.

There is no explicit support for annotations as these are trivial to implement. For example, I include the following command definition in the preamble

```
\newcommand{\remark}[1]{\bf [ \footnotesize #1 ]}
```

and mark up annotations as follows

```
... The roadrunner is the fastest running bird \remark{Check this  
again with a zoologist!}. The most famous roadrunner ...
```

Alternatively, instead of a command like `\remark` in the example just given, an equivalent annotation environment could be defined. *latexrevise* can remove such comments or environments from the text body.

On the following pages you find the *man* pages for *latexdiff* and *latexrevise* and a simple example.

*tilmann@gfz-potsdam.de

1 NAME

latexdiff - determine and markup differences between two latex files

2 SYNOPSIS

latexdiff [OPTIONS] *old.tex new.tex > diff.tex*

3 DESCRIPTION

Briefly, *latexdiff* is a utility program to aid in the management of revisions of latex documents. It compares two valid latex files, here called `old.tex` and `new.tex`, finds significant differences between them (i.e., ignoring the number of white spaces and position of line breaks), and adds special commands to highlight the differences. Where visual highlighting is not possible, e.g. for changes in the formatting, the differences are nevertheless marked up in the source. Note that `old.tex` and `new.tex` need to be real files (not pipes or similar) as they are opened twice (unless `--encoding` option is used)

The program treats the preamble differently from the main document. Differences between the preambles are found using line-based differencing (similarly to the Unix `diff` command, but ignoring white spaces). A comment, `"%DIF >"` is appended to each added line, i.e. a line present in `new.tex` but not in `old.tex`. Discarded lines are deactivated by prepending `"%DIF <"`. Changed blocks are preceded by comment lines giving information about line numbers in the original files. Where there are insignificant differences, the resulting file `diff.tex` will be similar to `new.tex`. At the end of the preamble, the definitions for *latexdiff* markup commands are inserted. In differencing the main body of the text, *latexdiff* attempts to satisfy the following guidelines (in order of priority):

1. If both `old.tex` and `new.tex` are valid LaTeX, then the resulting `diff.tex` should also be valid LaTeX. (NB If a few plain TeX commands are used within `old.tex` or `new.tex` then `diff.tex` is not guaranteed to work but usually will).
2. Significant differences are determined on the level of individual words. All significant differences, including differences between comments should be clearly marked in the resulting source code `diff.tex`.
3. If a changed passage contains text or text-producing commands, then running `diff.tex` through LaTeX should produce output where added and discarded passages are highlighted.
4. Where there are insignificant differences, e.g. in the positioning of line breaks, `diff.tex` should follow the formatting of `new.tex`

For differencing the same algorithm as *diff* is used but words instead of lines are compared. An attempt is made to recognize blocks which are completely changed such that they can be marked up as a unit. Comments are differenced line by line but the number of spaces within comments is ignored. Commands including all their arguments are generally compared as one unit, i.e., no markup is inserted into the arguments of commands. However, for a selected number of commands (for example, `\caption` and all sectioning commands) the last argument is known to be text. This text is split into words and differenced just as ordinary text (use options to show and change the list of text commands, see below). As the algorithm has no detailed knowledge of LaTeX, it assumes all pairs of curly braces immediately following a command (i.e. a sequence of letters beginning with a backslash) are arguments for that command. As a restriction to condition 1 above it is thus necessary to surround all arguments with curly braces, and to not insert extraneous spaces. For example, write

```
\section{\textem{This is an emphasized section title}}
```

and not

```
\section {\textem{This is an emphasized section title}}
```

or

```
\section\textem{This is an emphasized section title}
```

even though all varieties are the same to LaTeX (but see `--allow-spaces` option which allows the second variety).

For environments whose content does not conform to standard LaTeX or where graphical markup does not make sense all markup commands can be removed by setting the `PICTUREENV` configuration variable, set by default to `picture` and `DIFnomarkup` environments; see `--config` option). The latter environment (`DIFnomarkup`) can be used to protect parts of the latex file where the markup results in illegal markup. You have to surround the offending passage in both the old and new file by `\begin{DIFnomarkup}` and `\end{DIFnomarkup}`. You must define the environment in the preambles of both old and new documents. I prefer to define it as a null-environment,

```
\newenvironment{DIFnomarkup}{}{}
```

but the choice is yours. Any markup within the environment will be removed, and generally everything within the environment will just be taken from the new file.

It is also possible to difference files which do not have a preamble. In this case, the file is processed in the main document mode, but the definitions of the markup commands are not inserted.

All markup commands inserted by *latexdiff* begin with `"\DIF"`. Added blocks containing words, commands or comments which are in `new.tex` but not in `old.tex` are marked by `\DIFaddbegin` and `\DIFaddend`. Discarded blocks are marked by `\DIFdelbegin` and `\DIFdelend`. Within added blocks all text is

highlighted with `\DIFadd` like this: `\DIFadd{Added text block}` Selected ‘safe’ commands can be contained in these text blocks as well (use options to show and change the list of safe commands, see below). All other commands as well as braces “{” and ”}” are never put within the scope of `\DIFadd`. Added comments are marked by prepending “%DIF > ”.

Within deleted blocks text is highlighted with `\DIFdel`. Deleted comments are marked by prepending “%DIF < ”. Non-safe command and curly braces within deleted blocks are commented out with “%DIFDELCMD < ”.

4 OPTIONS

Preamble

The following options determine the visual markup style by adding the appropriate command definitions to the preamble. See the end of this section for a description of available styles.

--type=markupstyle or -t markupstyle

Add code to preamble for selected markup style. This option defines `\DIFadd` and `\DIFdel` commands. Available styles:

UNDERLINE CTRADITIONAL TRADITIONAL CFONT FONTSTRIKE INVISIBLE
CHANGEBAR CCHANGEBAR CULINECHBAR CFONTCHBAR BOLD PDFCOMMENT

[Default: UNDERLINE]

--subtype=markstyle or -s markstyle

Add code to preamble for selected style for bracketing commands (e.g. to mark changes in margin). This option defines `\DIFaddbegin`, `\DIFaddend`, `\DIFdelbegin` and `\DIFdelend` commands. Available styles: `SAFE MARGIN COLOR DVIPSCOL ZLABEL ONLYCHANGEDPAGE (LABEL)*`

[Default: SAFE] * Subtype LABEL is deprecated

--floatype=markstyle or -f markstyle

Add code to preamble for selected style which replace standard marking and markup commands within floats (e.g., marginal remarks cause an error within floats so marginal marking can be disabled thus). This option defines all `\DIF...FL` commands. Available styles: `FLOATSAFE TRADITIONALSAFE IDENTICAL`

[Default: FLOATSAFE]

--encoding=enc or -e enc

Specify encoding of `old.tex` and `new.tex`. Typical encodings are `ascii`, `utf8`, `latin1`, `latin9`. A list of available encodings can be obtained by executing

```
perl -MEncode -e 'print join ("\n",Encode-encodings("all"));' >
```

If this option is used, then `old.tex`, `new.tex` are only opened once. [Default encoding is `utf8` unless the first few lines of the preamble contain an invocation `\usepackage[.]{inputenc}` in which case the encoding chosen by this command is assumed. Note that ASCII (standard latex) is a subset of `utf8`]

--preamble=file or -p file

Insert file at end of preamble instead of generating preamble. The preamble must define the following commands `\DIFaddbegin`, `\DIFaddend`, `\DIFadd{.}`, `\DIFdelbegin`, `\DIFdelend`, `\DIFdel{.}`, and varieties for use within floats `\DIFaddbeginFL`, `\DIFaddendFL`, `\DIFaddFL{.}`, `\DIFdelbeginFL`, `\DIFdelendFL`, `\DIFdelFL{.}` (If this option is set `-t`, `-s`, and `-f` options are ignored.)

--packages=pkg1,pkg2,..

Tell `latexdiff` that `.tex` file is processed with the packages in list loaded. This is normally not necessary if the `.tex` file includes the preamble, as the preamble is automatically scanned for `\usepackage` commands. Use of the `--packages` option disables automatic scanning, so if for any reason package specific parsing needs to be switched off, use `--packages=none`. The following packages trigger special behaviour:

amsmath

Configuration variable `MATHARRREPL` is set to `align*` (Default: `eqnarray*`). (Note that many of the `amsmath` array environments are already recognised by default as such)

endfloat

Ensure that `\begin{figure}` and `\end{figure}` always appear by themselves on a line.

hyperref

Change name of `\DIFadd` and `\DIFdel` commands to `\DIFaddtex` and `\DIFdeltex` and define new `\DIFadd` and `\DIFdel` commands, which provide a wrapper for these commands, using them for the text but not for the link defining command (where any markup would cause errors).

apacite

Redefine the commands recognised as citation commands.

siunitx

Treat `\SI` as equivalent to citation commands (i.e. protect with `\mbox` if markup style uses `ulem` package).

cleveref

Treat `\cref`, `\Cref`, etc as equivalent to citation commands (i.e. protect with `\mbox` if markup style uses `ulem` package).

glossaries

Define most of the glossaries commands as safe, protecting them with `\mbox`'es where needed

mhchem

Treat `\ce` as a safe command, i.e. it will be highlighted (note that `\cee` will not be highlighted in equations as this leads to processing errors)

chemformula or chemmacros

Treat `\ch` as a safe command outside equations, i.e. it will be highlighted (note that `\ch` will not be highlighted in equations as this leads to processing errors)

[Default: scan the preamble for `\usepackage` commands to determine loaded packages.]

--show-preamble

Print generated or included preamble commands to stdout.

Configuration

--exclude-safecmd=exclude-file or -A exclude-file or --exclude-safecmd="cmd1,cmd2,..."

--replace-safecmd=replace-file

--append-safecmd=append-file or -a append-file or --append-safecmd="cmd1,cmd2,..."

Exclude from, replace or append to the list of regular expressions (RegEx) matching commands which are safe to use within the scope of a `\DIFadd` or `\DIFdel` command. The file must contain one Perl-RegEx per line (Comment lines beginning with `#` or `%` are ignored). Note that the RegEx needs to match the whole of the token, i.e., `/^regex$/` is implied and that the initial `"\"` of the command is not included. The **--exclude-safecmd** and **--append-safecmd** options can be combined with the **---replace-safecmd** option and can be used repeatedly to add cumulatively to the lists. **--exclude-safecmd** and **--append-safecmd** can also take a comma separated list as input. If a comma for one of the regex is required, escape it thus `"\,"`. In most cases it will be necessary to protect the comma-separated list from the shell by putting it in quotation marks.

--exclude-textcmd=exclude-file or -X exclude-file or --exclude-textcmd="cmd1,cmd2,..."

--replace-textcmd=replace-file

--append-textcmd=append-file or -x append-file or --append-textcmd="cmd1,cmd2,..."

Exclude from, replace or append to the list of regular expressions matching commands whose last argument is text. See entry for **--exclude-safecmd** directly above for further details.

--replace-context1cmd=replace-file

--append-context1cmd=append-file or

--append-context1cmd="cmd1,cmd2,..."

Replace or append to the list of regex matching commands whose last argument is text but which require a particular context to work, e.g. `\caption` will only work within a figure or table. These commands behave like text commands, except when they occur in a deleted section, when they are disabled, but their argument is shown as deleted text.

--replace-context2cmd=replace-file

--append-context2cmd=append-file or

--append-context2cmd="cmd1,cmd2,..."

As corresponding commands for context1. The only difference is that context2 commands are completely disabled in deleted sections, including their arguments.

context2 commands are also the only commands in the preamble, whose argument will be processed in word-by-word mode (which only works, if they occur no more than once in the preamble). The algorithm currently cannot cope with repeated context2 commands in the preamble, as they occur e.g. for the `\author` argument in some journal styles (not in the standard styles, though). If such a repetition is detected, the whole preamble will be processed in line-by-line mode. In such a case, use `--replace-context2cmd` option to just select the commands, which should be processed and are not used repeatedly in the preamble.

--exclude-mboxsafecmd=exclude-file or --exclude-mboxsafecmd="cmd1,cmd2,..."

--append-mboxsafecmd=append-file or --append-mboxsafecmd="cmd1,cmd2,..."

Define safe commands, which additionally need to be protected by encapsulating in an `\mbox{.}`. This is sometimes needed to get around incompatibilities between external packages and the `ulem` package, which is used for highlighting in the default style `UNDERLINE` as well as `CULINECHBAR` `CFONTSTRIKE`

--config var1=val1,var2=val2,... or -c var1=val1,..

-c configfile

Set configuration variables. The option can be repeated to set different variables (as an alternative to the comma-separated list). Available variables (see below for further explanations):

ARRENV (RegEx)

COUNTERCMD (RegEx)

CUSTODIFCMD (RegEx)
FLOATENV (RegEx)
ITEMCMD (RegEx)
LISTENV (RegEx)
MATHARRENV (RegEx)
MATHARRREPL (String)
MATHENV (RegEx)
MATHREPL (String)
MINWORDSBLOCK (Integer)
PICTUREENV (RegEx)
SCALEDELGRAPHICS (Float)

--add-to-config varenv1=pattern1,varenv2=pattern2,...

For configuration variables, which are a regular expression (essentially those ending in ENV, COUNTERCMD and CUSTODIFCMD, see list above) this option provides an alternative way to modify the configuration variables. Instead of setting the complete pattern, with this option it is possible to add an alternative pattern. `varenv` must be one of the variables listed above that take a regular expression as argument, and `pattern` is any regular expression (which might need to be protected from the shell by quotation). Several patterns can be added at once by using semi-colons to separate them, e.g. `--add-to-config "LISTENV=myitemize;myenumerate,COUNTERCMD=endnote"`

--show-safecmd

Print list of RegEx matching and excluding safe commands.

--show-textcmd

Print list of RegEx matching and excluding commands with text argument.

--show-config

Show values of configuration variables.

--show-all

Combine all `--show` commands.

NB For all `--show` commands, no `old.tex` or `new.tex` file needs to be specified, and no differencing takes place.

Other configuration options:

--allow-spaces

Allow spaces between bracketed or braced arguments to commands. Note that this option might have undesirable side effects (unrelated scope might get lumped with preceding commands) so should only be used if the default produces erroneous results. (Default requires arguments to directly follow each other without intervening spaces).

--math-markup=level

Determine granularity of markup in displayed math environments: Possible values for level are (both numerical and text labels are acceptable):

off or **0**: suppress markup for math environments. Deleted equations will not appear in diff file. This mode can be used if all the other modes cause invalid latex code.

whole or **1**: Differencing on the level of whole equations. Even trivial changes to equations cause the whole equation to be marked changed. This mode can be used if processing in coarse or fine mode results in invalid latex code.

coarse or **2**: Detect changes within equations marked up with a coarse granularity; changes in equation type (e.g. `displaymath` to `equation`) appear as a change to the complete equation. This mode is recommended for situations where the content and order of some equations are still being changed. [Default]

fine or **3**: Detect small change in equations and mark up at fine granularity. This mode is most suitable, if only minor changes to equations are expected, e.g. correction of typos.

--graphics-markup=level

Change highlight style for graphics embedded with `C<\includegraphics>` commands.

Possible values for level:

none, **off** or **0**: no highlighting for figures

new-only or **1**: surround newly added or changed figures with a blue frame [Default if `graphicx` package loaded]

both or **2**: highlight new figures with a blue frame and show deleted figures at reduced scale, and crossed out with a red diagonal cross. Use configuration variable `SCALEDELGRAPHICS` to set size of deleted figures.

Note that changes to the optional parameters will make the figure appear as changed to `latexdiff`, and this figure will thus be highlighted

--disable-citation-markup or **--disable-auto-mbox**

Suppress citation markup and markup of other vulnerable commands in styles using ulem (UNDERLINE, FONTSTRIKE, CULINECHBAR) (the two options are identical and are simply aliases)

--enable-citation-markup or --enforce-auto-mbox

Protect citation commands and other vulnerable commands in changed sections with `\mbox` command, i.e. use default behaviour for ulem package for other packages (the two options are identical and are simply aliases)

Miscellaneous

--verbose or -V

Output various status information to stderr during processing. Default is to work silently.

--driver=type

Choose driver for changebar package (only relevant for styles using changebar: CCHANGEBAR CFONTCHBAR CULINECHBAR CHANGEBAR). Possible drivers are listed in changebar manual, e.g. pdftex, dvips, dvitops [Default: dvips]

--ignore-warnings

Suppress warnings about inconsistencies in length between input and parsed strings and missing characters. These warning messages are often related to non-standard latex or latex constructions with a syntax unknown to `latexdiff` but the resulting difference argument is often fully functional anyway, particularly if the non-standard latex only occurs in parts of the text which have not changed.

--label=label or -L label

Sets the labels used to describe the old and new files. The first use of this option sets the label describing the old file and the second use of the option sets the label for the new file, i.e. set both labels like this `-L labelold -L labelnew`. [Default: use the filename and modification dates for the label]

--no-label

Suppress inclusion of old and new file names as comment in output file

--visible-label

Include old and new filenames (or labels set with `--label` option) as visible output.

--flatten

Replace `\input` and `\include` commands within body by the content of the files in their argument. If `\includeonly` is present in the preamble,

only those files are expanded into the document. However, no recursion is done, i.e. `\input` and `\include` commands within included sections are not expanded. The included files are assumed to be located in the same directories as the old and new master files, respectively, making it possible to organise files into old and new directories. `--flatten` is applied recursively, so inputted files can contain further `\input` statements.

Use of this option might result in prohibitive processing times for larger documents, and the resulting difference document no longer reflects the structure of the input documents.

--help or -h

Show help text

--version

Show version number

Internal options

These options are mostly for automated use by `latexdiff-vc`. They can be used directly, but the API should be considered less stable than for the other options.

--no-links

Suppress generation of hyperreferences, used for minimal diffs (option `--only-changes` of `latexdiff-vc`)

Predefined styles

Major types

The major type determine the markup of plain text and some selected latex commands outside floats by defining the markup commands `\DIFadd{...}` and `\DIFdel{...}`.

UNDERLINE

Added text is wavy-underlined and blue, discarded text is struck out and red (Requires `color` and `ulem` packages). Overstriking does not work in displayed math equations such that deleted parts of equation are underlined, not struck out (this is a shortcoming inherent to the `ulem` package).

CTRADITIONAL

Added text is blue and set in sans-serif, and a red footnote is created for each discarded piece of text. (Requires `color` package)

TRADITIONAL

Like **CTRADITIONAL** but without the use of color.

CFONT

Added text is blue and set in sans-serif, and discarded text is red and very small size.

FONTSTRIKE

Added text is set in sans-serif, discarded text small and struck out

CCHANGEBAR

Added text is blue, and discarded text is red. Additionally, the changed text is marked with a bar in the margin (Requires color and changebar packages).

CFONTCHBAR

Like CFONT but with additional changebars (Requires color and changebar packages).

CULINECHBAR

Like UNDERLINE but with additional changebars (Requires color, ulem and changebar packages).

CHANGEBAR

No mark up of text, but mark margins with changebars (Requires changebar package).

INVISIBLE

No visible markup (but generic markup commands will still be inserted).

BOLD

Added text is set in bold face, discarded is not shown.

PDFCOMMENT

The pdfcomment package is used to underline new text, and mark deletions with a PDF comment. Note that this markup might appear differently or not at all based on the pdf viewer used. The viewer with best support for pdf markup is probably acroread. This style is only recommended if the number of differences is small.

Subtypes

The subtype defines the commands that are inserted at the begin and end of added or discarded blocks, irrespectively of whether these blocks contain text or commands (Defined commands: `\DIFaddbegin`, `\DIFaddend`, `\DIFdelbegin`, `\DIFdelend`)

SAFE

No additional markup (Recommended choice)

MARGIN

Mark beginning and end of changed blocks with symbols in the margin nearby (using the standard `\marginpar` command - note that this sometimes moves somewhat from the intended position).

COLOR

An alternative way of marking added passages in blue, and deleted ones in red. (It is recommended to use instead the main types to effect colored markup, although in some cases coloring with `dvipscol` can be more complete, for example with citation commands).

DVIPSCOL

An alternative way of marking added passages in blue, and deleted ones in red. Note that `DVIPSCOL` only works with the `dvips` converter, e.g. not `pdflatex`. (it is recommended to use instead the main types to effect colored markup, although in some cases coloring with `dvipscol` can be more complete).

ZLABEL

can be used to highlight only changed pages, but requires post-processing. It is recommended to not call this option manually but use `latexdiff-vc` with `--only-changes` option. Alternatively, use the script given within preamble of diff files made using this style.

ONLYCHANGEDPAGE

also highlights changed pages, without the need for post-processing, but might not work reliably if there is floating material (figures, tables).

LABEL

is similar to `ZLABEL`, but does not need the `zref` package and works less reliably (deprecated).

Float Types

Some of the markup used in the main text might cause problems when used within floats (e.g. figures or tables). For this reason alternative versions of all markup commands are used within floats. The float type defines these alternative commands.

FLOATSAFE

Use identical markup for text as in the main body, but set all commands marking the begin and end of changed blocks to null-commands. You have to choose this float type if your subtype is `MARGIN` as `\marginpar` does not work properly within floats.

TRADITIONALSAFE

Mark additions the same way as in the main text. Deleted environments are marked by angular brackets `\[` and `\]` and the deleted text is set in `scriptscript` size. This float type should always be used with the `TRADITIONAL` and `CTRADITIONAL` markup types as the `\footnote` command does not work properly in floating environments.

IDENTICAL

Make no difference between the main text and floats.

Configuration Variables

ARRENV

If a match to `ARRENV` is found within an inline math environment within a deleted or added block, then the inlined math is surrounded by `\mbox{...}`. This is necessary as underlining does not work within inlined array environments.

[Default: `ARRENV=(?:array|[pbvBV]matrix)`]

COUNTERCMD

If a command in a deleted block which is also in the `textcmd` list matches `COUNTERCMD` then an additional command `\addtocounter{cntcmd}{-1}`, where `cntcmd` is the matching command, is appended in the diff file such that the numbering in the diff file remains synchronized with the numbering in the new file.

[Default: `COUNTERCMD=(?:footnote|part|section|subsection ... |subsubsection|paragraph|subparagraph)]`]

CUSTOMDIFCMD

This option is for advanced users and allows definition of special versions of commands, which do not work as safe commands.

Commands in `CUSTOMDIFCMD` that occur in added or deleted blocks will be given an `ADD` or `DEL` prefix. The prefixed versions of the command must be defined in the preamble, either by putting them in the preamble of at least the new file, or by creating a custom preamble file (Option `--preamble`). For example the command `\blindtext` (from package `blindtext`) does not interact well with underlining, so that for the standard markup type, it is not satisfactory to define it as a safe command. Instead, a customised versions without underlining can be defined in the preamble:

```
\newcommand{\DELblindtext}{\color{red}\blindtext}
\newcommand{\ADDblindtext}{\color{blue}\blindtext}
```

and then `latexdiff` should be invoked with the option `-c CUSTOMDIFCMD=blindtext`.

[Default: none]

FLOATENV

Environments whose name matches the regular expression in `FLOATENV` are considered floats. Within these environments, the *latexdiff* markup commands are replaced by their FL variaties.

[Default: `(?:figure|table|plate)[\w\d*@]*`]

ITEMCMD

Commands representing new item line with list environments.

[Default: `\item`]

LISTENV

Environments whose name matches the regular expression in `LISTENV` are list environments.

[Default: `(?:itemize|enumerate|description)`]

MATHENV,MATHREPL

If both `\begin` and `\end` for a math environment (environment name matching `MATHENV` or `\[` and `\]`) are within the same deleted block, they are replaced by a `\begin` and `\end` commands for `MATHREPL` rather than being commented out.

[Default: `MATHENV=(?:displaymath|equation)` , `MATHREPL=displaymath`]

MATHARRENV,MATHARRREPL

as `MATHENV,MATHREPL` but for equation arrays

[Default: `MATHARRENV=eqnarray*?` , `MATHARRREPL=eqnarray`]

MINWORDSBLOCK

Minimum number of tokens required to form an independent block. This value is used in the algorithm to detect changes of complete blocks by merging identical text parts of less than `MINWORDSBLOCK` to the preceding added and discarded parts.

[Default: `3`]

PICTUREENV

Within environments whose name matches the regular expression in `PICTUREENV` all *latexdiff* markup is removed (in pathologic cases this might lead to inconsistent markup but this situation should be rare).

[Default: `(?:picture|DIFnomarkup)[\w\d*@]*`]

SCALEDELGRAPHICS

If `--graphics-markup=both` is chosen, `SCALEDELGRAPHICS` is the factor, by which deleted figures will be scaled (i.e. 0.5 implies they are shown at half linear size).

[Default: `0.5`]

VERBATIMENV

RegEx describing environments like `verbatim`, whose contents should be taken verbatim. The content of these environments will not be processed in any way: deleted content is commented out, new content is not marked up

[Default: `comment`]

VERBATIMLINEENV

RegEx describing environments like `verbatim`, whose contents should be taken verbatim. The content of environments described by `VERBATIMLINEENV` are compared in line mode, and changes are marked up using the `listings` package. The markup style is set based on the chosen mains markup type (Option `-t`), or on an analysis of the preamble. Note that `"listings.sty"` must be installed. If this file is not found the fallback solution is to treat `VERBATIMLINEENV` environments treated exactly the same way as `VERBATIMENV` environments.

[Default: `(?:verbatim[*]?|lstlisting)`]

5 COMMON PROBLEMS AND FAQ

Citations result in overfull boxes

There is an incompatibility between the `ulem` package, which `latexdiff` uses for underlining and striking out in the `UNDERLINE` style, the default style, and the way citations are generated. In order to be able to mark up citations properly, they are enclosed with an `\mbox` command. As `mboxes` cannot be broken across lines, this procedure frequently results in overfull boxes, possibly obscuring the content as it extends beyond the right margin. The same occurs for some other packages (e.g., `siunitx`). If this is a problem, you have two possibilities.

1. Use `CFONT` type markup (option `-t CFONT`): If this markup is chosen, then changed citations are no longer marked up with the wavy line (additions) or struck out (deletions), but are still highlighted in the appropriate color, and deleted text is shown with a different font. Other styles not using the `ulem` package will also work.
2. Choose option `--disable-citation-markup` which turns off the marking up of citations: deleted citations are no longer shown, and added citations are shown without markup. (This was the default behaviour of `latexdiff` at versions 0.6 and older)

For custom packages you can define the commands which need to be protected by `\mbox` with `--append-mboxsafecmd` and `--excludemboxsafecmd` options (submit your lists of command as feature request at github page to set the default behaviour of future versions, see section 6)

Changes in complicated mathematical equations result in latex processing errors

Try options `--math-markup=whole`. If even that fails, you can turn off mark up for equations with `--math-markup=off`.

How can I just show the pages where changes had been made

Use options `--s ZLABEL` (some postprocessing required) or `--s ONLYCHANGEDPAGE`. `latexdiff-vc --ps|--pdf` with `--only-changes` option takes care of the post-processing for you (requires `zref` package to be installed).

6 BUGS

Option `allow-spaces` not implemented entirely consistently. It breaks the rules that number and type of white space does not matter, as different numbers of inter-argument spaces are treated as significant.

Please submit bug reports using the issue tracker of the github repository page <https://github.com/ftilmann/latexdiff.git>, or send them to *tilmann -- AT -- gfpotsdam.de*. Include the version number of *latexdiff* (from comments at the top of the source or use `--version`). If you come across latex files that are error-free and conform to the specifications set out above, and whose differencing still does not result in error-free latex, please send me those files, ideally edited to only contain the offending passage as long as that still reproduces the problem. If your file relies on non-standard class files, you must include those. I will not look at examples where I have trouble to latex the original files.

7 SEE ALSO

latexrevise, *latexdiff-vc*

8 PORTABILITY

latexdiff does not make use of external commands and thus should run on any platform supporting Perl 5.6 or higher. If files with encodings other than ASCII or UTF-8 are processed, Perl 5.8 or higher is required.

The standard version of *latexdiff* requires installation of the Perl package `Algorithm::Diff` (available from *www.cpan.org* - <http://search.cpan.org/~nedkonz/Algorithm-Diff-1.15>) but a stand-alone version, *latexdiff-so*, which has this package inlined, is available, too. *latexdiff-fast* requires the *diff* command to be present.

9 AUTHOR

Version 1.3.0 Copyright (C) 2004-2018 Frederik Tilmann

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License Version 3

Contributors of fixes and additions: V. Kuhlmann, J. Paisley, N. Becker, T. Doerges, K. Huebner, T. Connors, Sebastian Gouezel and many others. Thanks to the many people who sent in bug reports, feature suggestions, and other feedback.

1 NAME

latexrevise - selectively remove markup and text from latexdiff output

2 SYNOPSIS

```
latexrevise [ OPTIONS ] [ diff.tex ] > revised.tex
```

3 DESCRIPTION

latexrevise reads a file `diff.tex` (output of *latexdiff*), and remove the markup commands. If no filename is given the input is read from standard input. The command can be used in *ACCEPT*, *DECLINE*, or *SIMPLIFY* mode, or can be used to remove user-defined latex commands from the input (see **-c**, **-e**, **-m**, and **-n** below). In *ACCEPT* mode, all appended text fragments (or preamble lines) are kept, and all discarded text fragments (or preamble lines) are deleted. In *DECLINE* mode, all discarded text fragments are kept, and all appended text fragments are deleted. If you wish to keep some changes, edit the `diff.tex` file in advance, and manually remove those tokens which would otherwise be deleted. Note that *latexrevise* only pays attention to the `\DIFaddbegin`, `\DIFaddend`, `\DIFdelbegin`, and `\DIFdelend` tokens and corresponding FL varieties. All `\DIFadd` and `\DIFdel` commands (but not their contents) are simply deleted. The commands added by *latexdiff* to the preamble are also removed. In *SIMPLIFY* mode, `\DIFaddbegin`, `\DIFaddend`, `\DIFdelbegin`, `\DIFdelend` tokens and their corresponding FL varieties are kept but all other markup (e.g. `\DIFadd` and `<\DIFdel>`) is removed. The result will not in general be valid latex-code but it will be easier to read and edit in preparation for a subsequent run in *ACCEPT* or *DECLINE* mode. In *SIMPLIFY* mode the preamble is left unmodified.

4 OPTIONS

-a or --accept

Run in *ACCEPT* mode (delete all blocks marked by `\DIFdelbegin` and `\DIFdelend`).

-d or --decline

Run in *DECLINE* mode (delete all blocks marked by `\DIFaddbegin` and `\DIFaddend`).

-s or --simplify

Run in *SIMPLIFY* mode (Keep all `\DIFaddbegin`, `\DIFaddend`, `\DIFdelbegin`, `\DIFdelend` tokens, but remove all other *latexdiff* markup from body).

Note that the three mode options are mutually exclusive. If no mode option is given, *latexrevise* simply removes user annotations and markup according to the following four options.

-c cmd or --comment=cmd

Remove `\cmd{...}` sequences. `cmd` is supposed to mark some explicit annotations which should be removed from the file before release.

-e env or --comment-environment=env

Remove explicit annotation environments from the text, i.e. remove

```
\begin{envir}
...
\end{envir}
```

blocks.

-m cmd or --markup=cmd

Remove the markup command `\cmd` but leave its argument, i.e. turn `\cmd{abc}` into `abc`.

-n env or --markup-environment=env

Similarly, remove `\begin{envir}` and `\end{envir}` commands but leave content of the environment in the text.

-V or --verbose

Verbose output

-q or --no-warnings

Do not warn users about `\DIDadd{..}` or `\DIFdel{..}` statements which should have been removed already.

5 BUGS

The current version is a beta version which has not yet been extensively tested, but worked fine locally. Please submit bug reports using the issue tracker of the github repository page <https://github.com/ftilmann/latexdiff.git>, or send them to *tilmann -- AT -- gfz-potsdam.de*. Include the serial number of *latexrevise* (Option `--version`). If you come across latexdiff output which is not processed correctly by *latexrevise* please include the problem file as well as the old and new files on which it is based, ideally edited to only contain the offending passage as long as that still reproduces the problem.

Note that *latexrevise* gets confused by commented `\begin{document}` or `\end{document}` statements

6 SEE ALSO

latexdiff

7 PORTABILITY

latexrevise does not make use of external commands and thus should run on any platform supporting PERL v5 or higher.

8 AUTHOR

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1 NAME

latexdiff-vc - wrapper script that calls latexdiff for different versions of a file under version management (CVS, RCS or SVN)

2 SYNOPSIS

```
latexdiff-vc [ latexdiff-options ] [ latexdiff-vc-options ] -r [rev1] [-r rev2] file1.tex  
[ file2.tex ...]
```

or

```
latexdiff-vc [ latexdiff-options ] [ latexdiff-vc-options ] [ --postscript | --pdf ]  
old.tex new.tex
```

3 DESCRIPTION

latexdiff-vc is a wrapper script that applies *latexdiff* to a file, or multiple files under version control (git, subversion (SVN), mercurial (hg), CVS, RCS), and optionally runs the sequence of `latex` and `dvips` or `pdflatex` commands necessary to produce pdf or postscript output of the difference tex file(s). It can also be applied to a pair of files to automatise the generation of difference file in postscript or pdf format.

4 OPTIONS

--rcs, --svn, --cvs, --git or --hg

Set the version control system used. If no version system is specified, latexdiff-vc will venture a guess.

latexdiff-cvs, latexdiff-rcs etc are variants of latexdiff-vc which default to the respective versioning system. However, this default can still be overridden using the options above.

Note that hg needs to support the `--root` option (version \geq 2.9)

-r, -r *rev* or --revision, --revision=*rev*

Choose revision (under RCS, CVS, SVN, GIT or HG). One or two `-r` options can be specified, and they result in different behaviour:

latexdiff-vc -r *file.tex* ...

compares *file.tex* with the most recent version checked into RCS.

latexdiff-vc -r *rev1* *file.tex* ...

compares *file.tex* with revision *rev1*.

latexdiff-vc -r *rev1* -r *rev2* *file.tex* ...

compares revisions *rev1* and *rev2* of *file.tex*.

Multiple files can be specified for all of the above options. All files must have the extension `.tex`, though.

latexdiff-vc *old.tex* *new.tex*

compares two files.

The name of the difference file is generated automatically and reported to stdout.

-d or --dir -d *path* or --dir=*path*

Rather than appending the string `diff` and optionally the version numbers given to the output-file, this will prepend a directory name `diff` to the original filename, creating the directory and subdirectories should they not exist already. This is particularly useful in order to clone a complete directory hierarchy. Optionally, a pathname *path* can be specified, which is prepended instead of `diff`.

--flatten,--flatten=keep-intermediate

If combined with `--git`, `--svn` or `--hg` option or the corresponding modes, check out the revisions to compare in a separate temporary directory, and then pass on option `--flatten` to `latexdiff`. The directory in which `latexdiff-vc` is invoked defines the subtree which will be checked out. Note that if additional files are needed which are not included in the flatten procedure (package files, included graphics), they need to be accessible in the current directory. If you use `bibtex`, it is recommended to include the `.bbl` file in the version management.

The generic usage of this function is : `latexdiff-vc --flatten -r rev1 [-r rev2] master.tex` where `master.tex` is the project file containing the highest level of includes etc.

With `--flatten=keep-intermediate`, the intermediate revision snapshots are kept in the current directory (Default is to store them in a temporary directory and delete them after generating the diff file.)

--config *var1=val1,var2=val2,...* or -c *var1=val1,..*

--only-changes

Post-process the output such that only pages with changes on them are displayed. This requires the use of subtype `ZLABEL` in `latexdiff`, which will be set automatically, but any manually set `-s` option will be overruled (also requires `zref` package to be installed). (note that this option must be combined with `--ps` or `--pdf` to make sense)

--force

Overwrite existing diff files without asking for confirmation. Default behaviour is to ask for confirmation before overwriting an existing difference file.

--run

run latex command on diff file after generation of diff file.

--dvi

run latex and dvixxx commands after generation of diff file.

-c configfile

Set configuration variables for latexdiff and latexdiff-vc. The option can be repeated to set different variables (as an alternative to the comma-separated list). Available variables for latexdiff-vc:

LATEXDIFF latexdiff command (e.g. latexdiff-fast, latexdiff-so). This command should support the option --interaction=batchmode

LATEX latex command (e.g. pdflatex, lualatex)

DVI2 Command for conversion of dvi file (e.g. dvips, dvipdf)

BIBTEX Command replacing bibtex

All other config variables are passed to latexdiff. Explicitly set configuration changes always override implicit changes by the following shortcut options **--fast**, **--so**, **--ps** and **--pdf**.

--fast or --so

Use **latexdiff-fast** or **latexdiff-so**, respectively (instead of **latexdiff**).

--ps or --postscript

Generate postscript output from difference file. This will run the sequence **latex; latex; dvips** on the difference file (do not use this option in the rare cases, where three **latex** commands are required if you care about correct referencing). If the difference file contains a **\bibliography** tag, run the sequence **latex; bibtex; latex; latex; dvips**.

--pdf

Generate pdf output from difference file using **pdflatex**. This will run the sequence **pdflatex; pdflatex** on the difference file, or **pdflatex; bibtex; pdflatex; pdflatex** for files requiring bibtex. Note that this is not just a shortcut for setting configuration variable but also triggers some special behaviour.

--show-config

Show values of configuration variables.

--help or -h

Show help text

--version

Show version number

All other options are passed on to `latexdiff`.

5 SEE ALSO

latexdiff

6 PORTABILITY

latexdiff-vc uses external commands and is therefore dependent on the system architecture; it has been tested mainly on Unix-like systems. It also requires the a version control system and latex to be installed on the system to make use of all features. Modules from Perl 5.8 or higher are required.

7 BUG REPORTING

Please submit bug reports using the issue tracker of the github repository page <https://github.com/ftilmann/latexdiff.git>, or send them to *tilmann -- AT -- gfs-potsdam.de*. Include the version number of *latexdiff-vc* (option `--version`).

8 AUTHOR

Version 1.2.1 Copyright (C) 2005-2017 Frederik Tilmann

This program is free software; you can redistribute it and/or modify it under the terms of the GNU General Public License Version 3 Contributors: S Utcke, H Bruyninckx; some ideas have been inspired by `git-latexdiff` bash script. C. Junghans: Mercurial Support.

A simple example

We start with a draft text, `example-draft.tex`, listed here in full but also included in the distribution (except that the “verbatim” environment had to be renamed to “Verbatim” for the listing).

```
\documentclass[12pt,a4paper]{article}

\setlength{\topmargin}{-0.2in}
\setlength{\textheight}{9.5in}
\setlength{\oddsidemargin}{0.0in}

\setlength{\textwidth}{6.5in}

\title{latexdiff Example - Draft version}
\author{F Tilmann}

\begin{document}
\maketitle

\section*{Introduction}

This is an extremely simple document that showcases some of latexdiff features.
Type
\begin{Verbatim}
latexdiff -t UNDERLINE example-draft.tex example-rev.tex > example-diff.tex
\end{Verbatim}
to create the difference file. You can inspect this file directly. Then run either
\begin{Verbatim}
pdflatex example-diff.tex
xpdf example-diff.pdf
\end{Verbatim}
or
\begin{Verbatim}
latex example-diff.tex
dvips -o example-diff.ps example-diff.dvi
gv example-diff.ps
\end{Verbatim}
to display the markup. Of course, instead of \verb|xpdf| you can use
\verb|okular, evince, acroread| or any other pdf or postscript viewer.

\section*{Another section title}

A paragraph with a line only in the draft document. More things
could be said were it not for the constraints of time and space.

More things could be said were it not for the constraints of time and space.

And here is a typo.

Here is a table:

\begin{tabular}{ll}
Name & Description \\ \hline
Gandalf & Grey \\
Saruman & White
\end{tabular}

And sometimes a whole paragraph gets completely rewritten. In this
case latexdiff marks up the whole paragraph even if some words in it
are identical.
No change, no markup!
\end{document}
```

We can now edit this text as we would do with any other latex file to create a

new revision of the text, `example-rev.tex`. We should run

```
latex example-rev.tex
```

and look at the resulting `.dvi` file to make sure that all changes are valid. An example revision is listed here:

```
\documentclass[12pt,a4paper]{article}

\setlength{\topmargin}{-0.2in}
\setlength{\textheight}{9.5in}
\setlength{\oddsidemargin}{0.0in}

\setlength{\textwidth}{6in}

\title{latexdiff Example - Revised version}
\author{F Tilmann}
% Note how in the preamble visual markup is never used (even
% if some preamble might eventually end up as visible text.)

\begin{document}
\maketitle

\section*{Introduction}

This is an extremely simple document that showcases some of the latexdiff features.
Type
\begin{Verbatim}
latexdiff -t UNDERLINE example-draft.tex example-rev.tex > example-diff.tex
\end{Verbatim}
to create the difference file. You can inspect this file directly. Then run either
\begin{Verbatim}
pdflatex example-diff.tex
xpdf example-diff.pdf
\end{Verbatim}
or
\begin{Verbatim}
latex example-diff.tex
dvips -o example-diff.ps example-diff.dvi
gv example-diff.ps
\end{Verbatim}
to display the markup.

\section*{Yet another section title}

More things could be said were it not for the constraints of time and space.

A paragraph with a line only in the revised document.
More things could be said were it not for the constraints of time and space.

And here is a typo.

Here is a table:

\begin{tabular}{ll}
Name & Description \\
\hline
Gandalf & White \\
Saruman & Evil
\end{tabular}

And now for something completely different, with not a paragraph in sight.
No change,
no markup!
\end{document}
```

To compare both revisions, type

```
latexdiff -t UNDERLINE example-draft.tex example-rev.tex > example-diff.tex
```

This results in the following difference file (a few newlines have been added in this listing for legibility reasons):

```
\documentclass[12pt,a4paper]{article}

\setlength{\topmargin}{-0.2in}
\setlength{\textheight}{9.5in}
\setlength{\oddsidemargin}{0.0in}

%DIF 7c7
%DIF < \setlength{\textwidth}{6.5in}
%DIF -----
\setlength{\textwidth}{6in} %DIF >
%DIF -----

%DIF 9c9
%DIF < \title{latexdiff Example - Draft version}
%DIF -----
\title{latexdiff Example - Revised version} %DIF >
%DIF -----
\author{F Tilmann}
% Note how in the preamble visual markup is never used (even %DIF >
% if some preamble might eventually end up as visible text.) %DIF >
%DIF PREAMBLE EXTENSION ADDED BY LATEXDIFF
%DIF UNDERLINE PREAMBLE %DIF PREAMBLE
\RequirePackage[normalem]{ulem} %DIF PREAMBLE
\RequirePackage{color} %DIF PREAMBLE
\providecommand{\DIFadd}[1]{\color{blue}\uline{#1}} %DIF PREAMBLE
\providecommand{\DIFdel}[1]{\color{red}\sout{#1}} %DIF PREAMBLE
%DIF SAFE PREAMBLE %DIF PREAMBLE
\providecommand{\DIFaddbegin}{} %DIF PREAMBLE
\providecommand{\DIFaddend}{} %DIF PREAMBLE
\providecommand{\DIFdelbegin}{} %DIF PREAMBLE
\providecommand{\DIFdelend}{} %DIF PREAMBLE
%DIF FLOATSAFE PREAMBLE %DIF PREAMBLE
\providecommand{\DIFaddFL}[1]{\DIFadd{#1}} %DIF PREAMBLE
\providecommand{\DIFdelFL}[1]{\DIFdel{#1}} %DIF PREAMBLE
\providecommand{\DIFaddbeginFL}{} %DIF PREAMBLE
\providecommand{\DIFaddendFL}{} %DIF PREAMBLE
\providecommand{\DIFdelbeginFL}{} %DIF PREAMBLE
\providecommand{\DIFdelendFL}{} %DIF PREAMBLE
%DIF END PREAMBLE EXTENSION ADDED BY LATEXDIFF

\begin{document}
\maketitle

\section*{Introduction}

This is an extremely simple document that showcases some of latexdiff features.
Type
\begin{Verbatim}
latexdiff -t UNDERLINE example-draft.tex example-rev.tex > example-diff.tex
\end{Verbatim}
to create the difference file. You can inspect this file directly. Then run either
\begin{Verbatim}
pdflatex example-diff.tex
xpdf example-diff.pdf
\end{Verbatim}
or
\begin{Verbatim}
latex example-diff.tex
dvips -o example-diff.ps example-diff.dvi
gv example-diff.ps
\end{Verbatim}
to display the markup.
```

```

\section*{\DIFaddbegin \DIFadd{Yet another }\DIFaddend \DIFdelbegin
\DIFdel{Another }\DIFdelend section title}

\DIFdelbegin \DIFdel{A paragraph with a line only in the draft
document. }\DIFdelend More things could
be said were it not for the constraints of time and space.

\DIFaddbegin \DIFadd{A paragraph with a line only in the revised
document. }\DIFaddend More things could be said
were it not for the constraints of time and space.

And here is a \DIFaddbegin \DIFadd{typo}\DIFaddend \DIFdelbegin
\DIFdel{tipo}\DIFdelend .

Here is a table:

\begin{tabular}{ll}
Name & Description \\
\hline
Gandalf & \DIFaddbegin \DIFadd{White }\DIFaddend \DIFdelbegin
\DIFdel{Grey }\DIFdelend \\
Saruman & \DIFaddbegin \DIFadd{Evil
}\DIFaddend \DIFdelbegin \DIFdel{White
}\DIFdelend \end{tabular}

And \DIFaddbegin \DIFadd{now for something completely different, with not
a paragraph in sight}\DIFaddend \DIFdelbegin \DIFdel{sometimes a whole
paragraph gets completely rewritten. In this
case latexdiff marks up the whole paragraph even if some words in it
are identical}\DIFdelend .
No change,
no markup!
\end{document}

```

Type

```

pdflatex example-diff.tex
xpdf example-diff.pdf

```

to make the markup visible. This is what it looks like:

latexdiff Example - ~~Draft~~ Revised version

F Tilmann

October 7, 2018

Introduction

This is an extremely simple document that showcases some of the latexdiff features.
Type

```
latexdiff -t UNDERLINE example-draft.tex example-rev.tex > example-diff.tex
```

to create the difference file. You can inspect this file directly. Then run either

```
pdflatex example-diff.tex  
xpdf example-diff.pdf
```

or

```
latex example-diff.tex  
dvips -o example-diff.ps example-diff.dvi  
gv example-diff.ps
```

to display the markup.

~~Another~~ Yet another section title

~~A paragraph with a line only in the draft document.~~ More things could be said were it not for the constraints of time and space.

A paragraph with a line only in the revised document. More things could be said were it not for the constraints of time and space.

And here is a ~~tip~~otypo.

Here is a table:

Name	Description
Gandalf	Grey <u>White</u>
Saruman	White <u>Evil</u>

And ~~sometimes a whole paragraph gets completely rewritten. In this case latexdiff marks up the whole paragraph even if some words in it are identical~~ now for something completely different. with not a paragraph in sight. No change, no markup!

If you approve of all the changes in the revision, just continue with `example-rev.tex`

for the next revision. If you like to adopt most but not all changes you can use `latexrevise` in the following manner. Simply edit `example-diff.tex` to remove the `\DIFdelbegin` and `\DIFdelend` tags around the text you would like to keep and simply remove the text between `\DIFaddbegin` and `\DIFaddend` tags, if you do not wish to keep them. Say you are happy with all proposed changes for the example above except in the last paragraph where you prefer the original draft. You have to change

```
...
And \DIFaddbegin \DIFadd{now for something completely different, with not
a paragraph in sight}\DIFaddend \DIFdelbegin \DIFdel{sometimes a whole
paragraph gets completely rewritten. In this
case latexdiff marks up the whole paragraph even if some words in it
are identical}\DIFdelend .
...
```

into

```
...
And \DIFdel{sometimes a whole
paragraph gets completely rewritten. In this
case latexdiff marks up the whole paragraph even if some words in it
are identical}.
...
```

and run

```
latexrevise -a example-diff.tex > example-final.tex
```

`example-final.tex` is then almost identical to `example-rev.tex` except for the last paragraph.

External tools

The following is an incomplete list of wrappers written by others providing some added functionality. These are not included with the distribution but need to be downloaded and installed separately.

latexdiffcite (Author: Christer van der Meeren) is a wrapper around `latexdiff` to make citations diff properly. It works by expanding `\cite` type commands using the `bbl` or `bib` file, such that citations are treated just like normal text rather than as atomic in the plain `latexdiff`.
<https://latexdiffcite.readthedocs.org>

git-latexdiff (lead author: Matthieu Moy) is a wrapper (bash script) around `latexdiff` that allows using it to diff two revisions of a LaTeX file under `git` revision control. Similar functionality is provided by `latexdiff-vc --git` with `--flatten` option included with this distribution but `git-latexdiff` allows more fine-grained control on various aspects. (Not to be confused with `latexdiff-git`, which is normally installed as a soft link to `latexdiff-vc`)
<https://gitorious.org/git-latexdiff/>