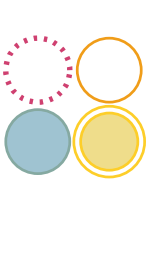
latexindent.pl

Version 3.23.2



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`latexindent.pl` is a `Perl` script that indents `.tex` (and other) files according to an indentation scheme that the user can modify to suit their taste. Environments, including those with alignment delimiters (such as `tabular`), and commands, including those that can split braces and brackets across lines, are *usually* handled correctly by the script. Options for `verbatim`-like environments and commands, together with indentation after headings (such as `chapter`, `section`, etc) are also available. The script also has the ability to modify line breaks, and to add comment symbols and blank lines; furthermore, it permits string or regex-based substitutions. All user options are customisable via the switches and the YAML interface.

tl;dr, a quick start guide is given in Section 1.3 on page 5.

Contents

*and contributors! See Section 11.5 on page 153. For all communication, please visit [35].

SECTION 1

Introduction

1.1 Thanks

I first created `latexindent.pl` to help me format chapter files in a big project. After I blogged about it on the TEX stack exchange [28] I received some positive feedback and follow-up feature requests. A big thank you to Harish Kumar [2] who helped to develop and test the initial versions of the script.

The `YAML`-based interface of `latexindent.pl` was inspired by the wonderful `arara` tool; any similarities are deliberate, and I hope that it is perceived as the compliment that it is. Thank you to Paulo Cereda and the team for releasing this awesome tool; I initially worried that I was going to have to make a GUI for `latexindent.pl`, but the release of `arara` has meant there is no need.

There have been several contributors to the project so far (and hopefully more in the future!); thank you very much to the people detailed in Section 11.5 on page 153 for their valued contributions, and thank you to those who report bugs and request features at [35].

1.2 License

`latexindent.pl` is free and open source, and it always will be; it is released under the GNU General Public License v3.0.

Before you start using it on any important files, bear in mind that `latexindent.pl` has the option to overwrite your `.tex` files. It will always make at least one backup (you can choose how many it makes, see page 28) but you should still be careful when using it. The script has been tested on many files, but there are some known limitations (see Section 10). You, the user, are responsible for ensuring that you maintain backups of your files before running `latexindent.pl` on them. I think it is important at this stage to restate an important part of the license here:

> *This program is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU General Public License for more details.*

There is certainly no malicious intent in releasing this script, and I do hope that it works as you expect it to; if it does not, please first of all make sure that you have the correct settings, and then feel free to let me know at [35] with a complete minimum working example as I would like to improve the code as much as possible.

Warning!

Before you try the script on anything important (like your thesis), test it out on the sample files in the `test-case` directory [35].

If you have used any version 2. of `latexindent.pl`, there are a few changes to the interface; see appendix L on page 175 and the comments throughout this document for details.*

1.3 Quick start

If you'd like to get started with `latexindent.pl` then simply type

```
cmh:~$ latexindent.pl myfile.tex
```

from the command line.

We give an introduction to `latexindent.pl` using Listing 1; there is no explanation in this section, which is deliberate for a quick start. The rest of the manual is more verbose.

LISTING 1: quick-start.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A quick start
    demonstration for latexindent.pl.
    \begin{myenv}
      The body of environments and
      other code blocks
        receive indentation.
    \end{myenv}
\end{document}
```

Running

```
cmh:~$ latexindent.pl quick-start.tex
```

gives Listing 2.

LISTING 2: quick-start-default.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A quick start
demonstration for latexindent.pl.
\begin{myenv}
   The body of environments and
   other code blocks
   receive indentation.
\end{myenv}
\end{document}
```

example 1 Running

```
cmh:~$ latexindent.pl -l quick-start1.yaml quick-start.tex
```

gives Listing 3.

LISTING 3: quick-start-mod1.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A␣quick␣start
demonstration␣for␣latexindent.pl.
\begin{myenv}
␣The␣body␣of␣environments␣and
␣other␣code␣blocks
␣receive␣indentation.
\end{myenv}
\end{document}
```

LISTING 4: quick-start1.yaml

```
defaultIndent: " "
```

See Section 5.4. ■

example 2 Running

```
cmh:~$ latexindent.pl -l quick-start2.yaml quick-start.tex
```

gives Listing 5.

LISTING 5: quick-start-mod2.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A␣quick␣start
demonstration␣for␣latexindent.pl.
\begin{myenv}
␣␣␣␣The␣body␣of␣environments␣and
␣␣␣␣other␣code␣blocks
␣␣␣␣receive␣indentation.
\end{myenv}
\end{document}
```

LISTING 6: quick-start2.yaml

```
indentRules:
  myenv: "    "
```

See Section 5.8. ■

example 3 Running

```
cmh:~$ latexindent.pl -l quick-start3.yaml quick-start.tex
```

gives Listing 7.

LISTING 7: quick-start-mod3.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A quick start
demonstration for latexindent.pl.
\begin{myenv}
The body of environments and
other code blocks
receive indentation.
\end{myenv}
\end{document}
```

LISTING 8: quick-start3.yaml

```
noAdditionalIndent:
  myenv: 1
```

See Section 5.8. ■

example 4 Running

```
cmh:~$ latexindent.pl -m -l quick-start4.yaml quick-start.tex
```

gives Listing 9.

LISTING 9: quick-start-mod4.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A quick start
demonstration for latexindent.pl.
\begin{myenv}
   The body of environments and
   other code blocks
   receive indentation.
\end{myenv}
\end{document}
```

LISTING 10: quick-start4.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: 20
```

Full details of text wrapping in Section 6.1. ■

example 5 Running

```
cmh:~$ latexindent.pl -m -l quick-start5.yaml quick-start.tex
```

gives Listing 11.

LISTING 11: quick-start-mod5.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A quick start
demonstration for latexindent.pl.
\begin{myenv}
   The body of
   environments and
   other code blocks
   receive
   indentation.
\end{myenv}
\end{document}
```

LISTING 12: quick-start5.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: 20
        blocksFollow:
           other: '\\begin\{myenv\}'
```

Full details of text wrapping in Section 6.1. ■

example 6 Running

```
cmh:~$ latexindent.pl -m -l quick-start6.yaml quick-start.tex
```

gives Listing 13.

LISTING 13: quick-start-mod6.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}\begin{document}
A quick start
demonstration for
     latexindent.pl.\begin{myenv}
   The body of environments and
   other code blocks
   receive indentation.
\end{myenv}
\end{document}
```

LISTING 14: quick-start6.yaml -m

```
modifyLineBreaks:
    environments:
        BeginStartsOnOwnLine: -1
```

This is an example of a *poly-switch*; full details of *poly-switches* are covered in Section 6.3. ■

example 7 Running

```
cmh:~$ latexindent.pl -m -l quick-start7.yaml quick-start.tex
```

gives Listing 15.

LISTING 15: quick-start-mod7.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
A quick start
demonstration for latexindent.pl.
\begin{myenv}
   The body of environments and
   other code blocks
   receive
    indentation.\end{myenv}\end{document}
```

LISTING 16: quick-start7.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: -1
```

Full details of *poly-switches* are covered in Section 6.3. ■

example 8 Running

```
cmh:~$ latexindent.pl -l quick-start8.yaml quick-start.tex
```

gives Listing 17; note that the *preamble* has been indented.

LISTING 17: quick-start-mod8.tex

```
\documentclass{article}
\usepackage[
   inner=2.5cm,
]{geometry}
\begin{document}
A quick start
demonstration for latexindent.pl.
\begin{myenv}
   The body of environments and
   other code blocks
   receive indentation.
\end{myenv}
\end{document}
```

LISTING 18: quick-start8.yaml

```
indentPreamble: 1
```

See Section 5.3. ■

example 9 Running

```
cmh:~$ latexindent.pl -l quick-start9.yaml quick-start.tex
```

gives Listing 19.

LISTING 19: quick-start-mod9.tex

```
\documentclass{article}
\usepackage[
inner=2.5cm,
]{geometry}
\begin{document}
   A quick start
   demonstration for latexindent.pl.
   \begin{myenv}
      The body of environments and
      other code blocks
      receive indentation.
   \end{myenv}
\end{document}
```

LISTING 20: quick-start9.yaml

```
noAdditionalIndent:
  document: 0
```

See Section 5.8. ■

1.4 Required perl modules

If you receive an error message such as that given in Listing 21, then you need to install the missing perl modules.

LISTING 21: Possible error messages

```
Can't␣locate␣File/HomeDir.pm␣in␣@INC␣(@INC␣contains:␣
    /Library/Perl/5.12/darwin-thread-multi-2level␣/Library/Perl/5.12␣
    /Network/Library/Perl/5.12/darwin-thread-multi-2level␣
    /Network/Library/Perl/5.12␣
    /Library/Perl/Updates/5.12.4/darwin-thread-multi-2level␣
    /Library/Perl/Updates/5.12.4␣
    /System/Library/Perl/5.12/darwin-thread-multi-2level␣/System/Library/Perl/5.12␣
    /System/Library/Perl/Extras/5.12/darwin-thread-multi-2level␣
    /System/Library/Perl/Extras/5.12␣.)␣at␣helloworld.pl␣line␣10.
BEGIN␣failed--compilation␣aborted␣at␣helloworld.pl␣line␣10.
```

`latexindent.pl` ships with a script to help with this process; if you run the following script, you should be prompted to install the appropriate modules.

```
cmh:~$ perl latexindent-module-installer.pl
```

You might also like to see https://stackoverflow.com/questions/19590042/error-cant-locate-file-homedir-pm-in-inc, for example, as well as appendix A on page 155.

1.5 About this documentation

As you read through this documentation, you will see many listings; in this version of the documentation, there are a total of 615. This may seem a lot, but I deem it necessary in presenting the various different options of `latexindent.pl` and the associated output that they are capable of producing.

The different listings are presented using different styles:

LISTING 22: demo-tex.tex

```
demonstration .tex file
```

This type of listing is a `.tex` file.

LISTING 23: fileExtensionPreference

```
47 fileExtensionPreference:
48     .tex: 1
49     .sty: 2
50     .cls: 3
51     .bib: 4
```

This type of listing is a `.yaml` file; when you see line numbers given (as here) it means that the snippet is taken directly from `defaultSettings.yaml`, discussed in detail in Section 5 on page 27.

LISTING 24: modifyLineBreaks -m

```
501 modifyLineBreaks:
502     preserveBlankLines: 1                  # 0/1
503     condenseMultipleBlankLinesInto: 1      # 0/1
```

This type of listing is a `.yaml` file, but it will only be relevant when the `-m` switch is active; see Section 6 on page 78 for more details.

LISTING 25: replacements -r

```
621 replacements:
622   -
623     amalgamate: 1
624   -
625     this: latexindent.pl
626     that: pl.latexindent
627     lookForThis: 0
628     when: before
```

This type of listing is a `.yaml` file, but it will only be relevant when the `-r` switch is active; see Section 7 on page 128 for more details.

N: 2017-06-25

You will occasionally see dates shown in the margin (for example, next to this paragraph!) which detail the date of the version in which the feature was implemented; the 'N' stands for 'new as of the date shown' and 'U' stands for 'updated as of the date shown'. If you see ✨, it means that the feature is either new (N) or updated (U) as of the release of the current version; if you see ✨ attached to a listing, then it means that listing is new (N) or updated (U) as of the current version. If you have not read this document before (and even if you have!), then you can ignore every occurrence of the ✨; they are simply there to highlight new and updated features. The new and updated features in this documentation (V3.23.2) are on the following pages:

1.6 A word about regular expressions

As you read this documentation, you may encounter the term *regular expressions*. I've tried to write this documentation in such a way so as to allow you to engage with them or not, as you prefer. This documentation is not designed to be a guide to regular expressions, and if you'd like to read about them, I recommend [34].

SECTION 2

Demonstration: before and after

Let's give a demonstration of some before and after code – after all, you probably won't want to try the script if you don't much like the results. You might also like to watch the video demonstration I made on youtube [48]

As you look at Listings 26 to 31, remember that `latexindent.pl` is just following its rules, and there is nothing particular about these code snippets. All of the rules can be modified so that you can personalise your indentation scheme.

In each of the samples given in Listings 26 to 31 the 'before' case is a 'worst case scenario' with no effort to make indentation. The 'after' result would be the same, regardless of the leading white space at the beginning of each line which is stripped by `latexindent.pl` (unless a `verbatim`-like environment or `noIndentBlock` is specified – more on this in Section 5).

LISTING 26: `filecontents1.tex`

```
\begin{filecontents}{mybib.bib}
@online{strawberryperl,
title="Strawberry Perl",
url="http://strawberryperl.com/"}
@online{cmhblog,
title="A Perl script ...
url="...
}
\end{filecontents}
```

LISTING 27: `filecontents1.tex` default output

```
\begin{filecontents}{mybib.bib}
   @online{strawberryperl,
      title="Strawberry Perl",
      url="http://strawberryperl.com/"}
   @online{cmhblog,
      title="A Perl script ...
      url="...
   }
\end{filecontents}
```

LISTING 28: `tikzset.tex`

```
\tikzset{
shrink inner sep/.code={
\pgfkeysgetvalue...
\pgfkeysgetvalue...
}
}
```

LISTING 29: `tikzset.tex` default output

```
\tikzset{
   shrink inner sep/.code={
         \pgfkeysgetvalue...
         \pgfkeysgetvalue...
      }
}
```

LISTING 30: `pstricks.tex`

```
\def\Picture#1{%
\def\stripH{#1}%
\begin{pspicture}[showgrid}
\psforeach{\row}{%
{{3,2.8,2.7,3,3.1}},%
{2.8,1,1.2,2,3},%
...
}{%
\expandafter...
}
\end{pspicture}}
```

LISTING 31: `pstricks.tex` default output

```
\def\Picture#1{%
   \def\stripH{#1}%
   \begin{pspicture}[showgrid}
      \psforeach{\row}{%
         {{3,2.8,2.7,3,3.1}},%
         {2.8,1,1.2,2,3},%
         ...
      }{%
         \expandafter...
      }
   \end{pspicture}}
```

SECTION 3

How to use the script

`latexindent.pl` ships as part of the TEXLive distribution for Linux and Mac users; `latexindent.exe` ships as part of the TEXLive for Windows users. These files are also available from github [35] should you wish to use them without a TEX distribution; in this case, you may like to read appendix B on page 159 which details how the `path` variable can be updated.

In what follows, we will always refer to `latexindent.pl`, but depending on your operating system and preference, you might substitute `latexindent.exe` or simply `latexindent`.

There are two ways to use `latexindent.pl`: from the command line, and using `arara`; we discuss these in Section 3.2 and Section 3.3 respectively. We will discuss how to change the settings and behaviour of the script in Section 5 on page 27.

3.1 Requirements

3.1.1 Perl users

N: 2018-01-13

Perl users will need a few standard Perl modules – see appendix A on page 155 for details; in particular, note that a module installer helper script is shipped with `latexindent.pl`.

3.1.2 Windows users without perl

`latexindent.pl` ships with `latexindent.exe` for Windows users, so that you can use the script with or without a Perl distribution.

`latexindent.exe` is available from [35].

MiKTeX users on Windows may like to see [38] for details of how to use `latexindent.exe` without a Perl installation.

3.1.3 Ubuntu Linux users without perl

`latexindent.pl` ships with `latexindent-linux` for Ubuntu Linux users, so that you can use the script with or without a Perl distribution.

N: 2022-10-30

`latexindent-linux` is available from [35].

3.1.4 macOS users without perl

`latexindent.pl` ships with `latexindent-macos` for macOS users, so that you can use the script with or without a Perl distribution.

N: 2022-10-30

`latexindent-macOS` is available from [35].

3.1.5 conda users

Users of `conda` should see the details given in appendix E.

3.1.6 docker users

Users of `docker` should see the details given in appendix F.

3.2 From the command line

`latexindent.pl` has a number of different switches/flags/options, which can be combined in any way that you like, either in short or long form as detailed below. `latexindent.pl` produces a `.log` file, `indent.log`, every time it is run; the name of the log file can be customised, but we will refer to the log file as `indent.log` throughout this document. There is a base of information that is written to `indent.log`, but other additional information will be written depending on which of the following options are used.

N: 2017-06-25

`-v, -version`

```
cmh:~$ latexindent.pl -v
cmh:~$ latexindent.pl --version
```

This will output only the version number to the terminal.

N: 2022-01-08

`-vv, -vversion`

```
cmh:~$ latexindent.pl -vv
cmh:~$ latexindent.pl --vversion
```

This will output *verbose* version details to the terminal, including the location of `latexindent.pl` and `defaultSettings.yaml`.

`-h, -help`

```
cmh:~$ latexindent.pl -h
cmh:~$ latexindent.pl --help
```

As above this will output a welcome message to the terminal, including the version number and available options.

```
cmh:~$ latexindent.pl myfile.tex
```

This will operate on `myfile.tex`, but will simply output to your terminal; `myfile.tex` will not be changed by `latexindent.pl` in any way using this command.

N: 2022-03-25

You can instruct `latexindent.pl` to operate on multiple (batches) of files, for example

```
cmh:~$ latexindent.pl myfile1.tex myfile2.tex
```

Full details are given in appendix C on page 161.

`-w, -overwrite`

```
cmh:~$ latexindent.pl -w myfile.tex
cmh:~$ latexindent.pl --overwrite myfile.tex
cmh:~$ latexindent.pl myfile.tex --overwrite
```

This *will* overwrite `myfile.tex`, but it will make a copy of `myfile.tex` first. You can control the name of the extension (default is `.bak`), and how many different backups are made – more on this in Section 5, and in particular see `backupExtension` and `onlyOneBackUp`.

Note that if `latexindent.pl` can not create the backup, then it will exit without touching your original file; an error message will be given asking you to check the permissions of the backup file.

N: 2022-03-25

`-wd, -overwriteIfDifferent`

```
cmh:~$ latexindent.pl -wd myfile.tex
cmh:~$ latexindent.pl --overwriteIfDifferent myfile.tex
cmh:~$ latexindent.pl myfile.tex --overwriteIfDifferent
```

This *will* overwrite `myfile.tex` but only *if the indented text is different from the original*. If the indented text is *not* different from the original, then `myfile.tex` will *not* be overwritten.

All other details from the `-w` switch are relevant here. If you call `latexindent.pl` with both the `-wd` and the `-w` switch, then the `-w` switch will be deactivated and the `-wd` switch takes priority.

`-o=output.tex,-outputfile=output.tex`

```
cmh:~$ latexindent.pl -o=output.tex myfile.tex
cmh:~$ latexindent.pl myfile.tex -o=output.tex
cmh:~$ latexindent.pl --outputfile=output.tex myfile.tex
cmh:~$ latexindent.pl --outputfile output.tex myfile.tex
```

This will indent `myfile.tex` and output it to `output.tex`, overwriting it (`output.tex`) if it already exists[1].

Note that if `latexindent.pl` is called with both the `-w` and `-o` switches, then `-w` will be ignored and `-o` will take priority (this seems safer than the other way round). The same is true for the `-wd` switch, and the `-o` switch takes priority over it.

Note that using `-o` as above is equivalent to using

```
cmh:~$ latexindent.pl myfile.tex > output.tex
```

N: 2017-06-25

You can call the `-o` switch with the name of the output file *without* an extension; in this case, `latexindent.pl` will use the extension from the original file. For example, the following two calls to `latexindent.pl` are equivalent:

```
cmh:~$ latexindent.pl myfile.tex -o=output
cmh:~$ latexindent.pl myfile.tex -o=output.tex
```

N: 2017-06-25

You can call the `-o` switch using a `+` symbol at the beginning; this will concatenate the name of the input file and the text given to the `-o` switch. For example, the following two calls to `latexindent.pl` are equivalent:

```
cmh:~$ latexindent.pl myfile.tex -o=+new
cmh:~$ latexindent.pl myfile.tex -o=myfilenew.tex
```

N: 2017-06-25

You can call the `-o` switch using a `++` symbol at the end of the name of your output file; this tells `latexindent.pl` to search successively for the name of your output file concatenated with $0, 1, \ldots$ while the name of the output file exists. For example,

```
cmh:~$ latexindent.pl myfile.tex -o=output++
```

tells `latexindent.pl` to output to `output0.tex`, but if it exists then output to `output1.tex`, and so on.

Calling `latexindent.pl` with simply

```
cmh:~$ latexindent.pl myfile.tex -o=++
```

[1] Users of version 2.* should note the subtle change in syntax

tells it to output to `myfile0.tex`, but if it exists then output to `myfile1.tex` and so on.

The `+` and `++` feature of the `-o` switch can be combined; for example, calling

```
cmh:~$ latexindent.pl myfile.tex -o=+out++
```

tells `latexindent.pl` to output to `myfileout0.tex`, but if it exists, then try `myfileout1.tex`, and so on.

There is no need to specify a file extension when using the `++` feature, but if you wish to, then you should include it *after* the `++` symbols, for example

```
cmh:~$ latexindent.pl myfile.tex -o=+out++.tex
```

See appendix L on page 175 for details of how the interface has changed from Version 2.2 to Version 3.0 for this flag.

`-s, -silent`

```
cmh:~$ latexindent.pl -s myfile.tex
cmh:~$ latexindent.pl myfile.tex -s
```

Silent mode: no output will be given to the terminal.

`-t, -trace`

```
cmh:~$ latexindent.pl -t myfile.tex
cmh:~$ latexindent.pl myfile.tex -t
```

Tracing mode: verbose output will be given to `indent.log`. This is useful if `latexindent.pl` has made a mistake and you're trying to find out where and why. You might also be interested in learning about `latexindent.pl`'s thought process – if so, this switch is for you, although it should be noted that, especially for large files, this does affect performance of the script.

`-tt, -ttrace`

```
cmh:~$ latexindent.pl -tt myfile.tex
cmh:~$ latexindent.pl myfile.tex -tt
```

More detailed tracing mode: this option gives more details to `indent.log` than the standard `trace` option (note that, even more so than with `-t`, especially for large files, performance of the script will be affected).

`-l, -local[=myyaml.yaml,other.yaml,...]`

```
cmh:~$ latexindent.pl -l myfile.tex
cmh:~$ latexindent.pl -l=myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l first.yaml,second.yaml,third.yaml myfile.tex
cmh:~$ latexindent.pl -l=first.yaml,second.yaml,third.yaml myfile.tex
cmh:~$ latexindent.pl myfile.tex -l=first.yaml,second.yaml,third.yaml
```

`latexindent.pl` will always load `defaultSettings.yaml` (rhymes with camel) and if it is called with the `-l` switch and it finds `localSettings.yaml` in the same directory as `myfile.tex`, then, if not found, it looks for `localSettings.yaml` (and friends, see Section 4.2 on page 24) in the current working directory, then these settings will be added to the indentation scheme. Information will be given in `indent.log` on the success or failure of loading `localSettings.yaml`.

U: 2021-03-14

The `-l` flag can take an *optional* parameter which details the name (or names separated by commas) of a YAML file(s) that resides in the same directory as `myfile.tex`; you can use this option if you would like to load a settings file in the current working directory that is *not* called `localSettings.yaml`. In fact, you can specify both *relative* and *absolute paths* for your YAML files; for example

U: 2017-08-21

```
cmh:~$ latexindent.pl -l=../../myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l=/home/cmhughes/Desktop/myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l=C:\Users\cmhughes\Desktop\myyaml.yaml myfile.tex
```

You will find a lot of other explicit demonstrations of how to use the `-l` switch throughout this documentation,

N: 2017-06-25

You can call the `-l` switch with a '+' symbol either before or after another YAML file; for example:

```
cmh:~$ latexindent.pl -l=+myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l "+␣myyaml.yaml" myfile.tex
cmh:~$ latexindent.pl -l=myyaml.yaml+  myfile.tex
```

which translate, respectively, to

```
cmh:~$ latexindent.pl -l=localSettings.yaml,myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l=localSettings.yaml,myyaml.yaml myfile.tex
cmh:~$ latexindent.pl -l=myyaml.yaml,localSettings.yaml myfile.tex
```

Note that the following is *not* allowed:

```
cmh:~$ latexindent.pl -l+myyaml.yaml myfile.tex
```

and

```
cmh:~$ latexindent.pl -l + myyaml.yaml myfile.tex
```

will *only* load `localSettings.yaml`, and `myyaml.yaml` will be ignored. If you wish to use spaces between any of the YAML settings, then you must wrap the entire list of YAML files in quotes, as demonstrated above.

N: 2017-06-25

You may also choose to omit the `yaml` extension, such as

```
cmh:~$ latexindent.pl -l=localSettings,myyaml myfile.tex
```

`-y, -yaml=yaml settings`

```
cmh:~$ latexindent.pl myfile.tex -y="defaultIndent:␣'␣'"
cmh:~$ latexindent.pl myfile.tex -y="defaultIndent:␣'␣',maximumIndentation:'␣'"
cmh:~$ latexindent.pl myfile.tex -y="indentRules:␣one:␣'\t\t\t\t'"
cmh:~$ latexindent.pl myfile.tex
    -y='modifyLineBreaks:environments:EndStartsOnOwnLine:3' -m
cmh:~$ latexindent.pl myfile.tex
    -y='modifyLineBreaks:environments:one:EndStartsOnOwnLine:3' -m
```

N: 2017-08-21

You can specify YAML settings from the command line using the `-y` or `-yaml` switch; sample demonstrations are given above. Note, in particular, that multiple settings can be specified by separating them via commas. There is a further option to use a `;` to separate fields, which is demonstrated in Section 4.3 on page 25.

Any settings specified via this switch will be loaded *after* any specified using the `-l` switch. This is discussed further in Section 4.4 on page 25.

`-d, -onlydefault`

```
cmh:~$ latexindent.pl -d myfile.tex
```

Only `defaultSettings.yaml`: you might like to read Section 5 before using this switch. By default, `latexindent.pl` will always search for `indentconfig.yaml` or `.indentconfig.yaml` in your home directory. If you would prefer it not to do so then (instead of deleting or renaming `indentconfig.yaml` or `.indentconfig.yaml`) you can simply call the script with the `-d` switch; note that this will also tell the script to ignore `localSettings.yaml` even if it has been called with the `-l` switch; `latexindent.pl` will also ignore any settings specified from the `-y` switch.

U: 2017-08-21

`-c, -cruft=<directory>`

```
cmh:~$ latexindent.pl -c=/path/to/directory/ myfile.tex
```

If you wish to have backup files and `indent.log` written to a directory other than the current working directory, then you can send these 'cruft' files to another directory. Note the use of a trailing forward slash.

If the cruft directory does not exist, `latexindent.pl` will attempt to create it.

`-g, -logfile=<name of log file>`

```
cmh:~$ latexindent.pl -g=other.log myfile.tex
cmh:~$ latexindent.pl -g other.log myfile.tex
cmh:~$ latexindent.pl --logfile other.log myfile.tex
cmh:~$ latexindent.pl myfile.tex -g other.log
```

By default, `latexindent.pl` reports information to `indent.log`, but if you wish to change the name of this file, simply call the script with your chosen name after the `-g` switch as demonstrated above.

N: 2021-05-07

If `latexindent.pl` can not open the log file that you specify, then the script will operate, and no log file will be produced; this might be helpful to users who wish to specify the following, for example

```
cmh:~$ latexindent.pl -g /dev/null myfile.tex
```

`-sl, -screenlog`

```
cmh:~$ latexindent.pl -sl myfile.tex
cmh:~$ latexindent.pl -screenlog myfile.tex
```

N: 2018-01-13

Using this option tells `latexindent.pl` to output the log file to the screen, as well as to your chosen log file.

`-m, -modifylinebreaks`

```
cmh:~$ latexindent.pl -m myfile.tex
cmh:~$ latexindent.pl -modifylinebreaks myfile.tex
```

One of the most exciting developments in Version 3.0 is the ability to modify line breaks; for full details see Section 6 on page 78

`latexindent.pl` can also be called on a file without the file extension, for example

```
cmh:~$ latexindent.pl myfile
```

and in which case, you can specify the order in which extensions are searched for; see Listing 36 on page 27 for full details.

`STDIN`

```
cmh:~$ cat myfile.tex | latexindent.pl
cmh:~$ cat myfile.tex | latexindent.pl -
```

N: 2018-01-13

`latexindent.pl` will allow input from STDIN, which means that you can pipe output from other commands directly into the script. For example assuming that you have content in `myfile.tex`, then the above command will output the results of operating upon `myfile.tex`.

If you wish to use this feature with your own local settings, via the `-l` switch, then you should finish your call to `latexindent.pl` with a `-` sign:

```
cmh:~$ cat myfile.tex | latexindent.pl -l=mysettings.yaml -
```

U: 2018-01-13

Similarly, if you simply type `latexindent.pl` at the command line, then it will expect (STDIN) input from the command line.

```
cmh:~$ latexindent.pl
```

Once you have finished typing your input, you can press

- `CTRL+D` on Linux
- `CTRL+Z` followed by `ENTER` on Windows

to signify that your input has finished. Thanks to [9] for an update to this feature.

`-r, -replacement`

```
cmh:~$ latexindent.pl -r myfile.tex
cmh:~$ latexindent.pl -replacement myfile.tex
```

N: 2019-07-13

You can call `latexindent.pl` with the `-r` switch to instruct it to perform replacements/substitutions on your file; full details and examples are given in Section 7 on page 128.

`-rv, -replacementrespectverb`

```
cmh:~$ latexindent.pl -rv myfile.tex
cmh:~$ latexindent.pl -replacementrespectverb myfile.tex
```

N: 2019-07-13

You can instruct `latexindent.pl` to perform replacements/substitutions by using the `-rv` switch, but will *respect verbatim code blocks*; full details and examples are given in Section 7 on page 128.

`-rr, -onlyreplacement`

```
cmh:~$ latexindent.pl -rr myfile.tex
cmh:~$ latexindent.pl -onlyreplacement myfile.tex
```

N: 2019-07-13

You can instruct `latexindent.pl` to skip all of its other indentation operations and *only* perform replacements/substitutions by using the `-rr` switch; full details and examples are given in Section 7 on page 128.

`-k, -check`

```
cmh:~$ latexindent.pl -k myfile.tex
cmh:~$ latexindent.pl -check myfile.tex
```

N: 2021-09-16

You can instruct `latexindent.pl` to check if the text after indentation matches that given in the original file.

The `exit` code of `latexindent.pl` is 0 by default. If you use the `-k` switch then

- if the text after indentation matches that given in the original file, then the exit code is 0;
- if the text after indentation does *not* match that given in the original file, then the exit code is 1.

The value of the exit code may be important to those wishing to, for example, check the status of the indentation in continuous integration tools such as GitHub Actions. Full details of the exit codes of `latexindent.pl` are given in Table 1.

A simple `diff` will be given in `indent.log`.

`-kv, -checkv`

```
cmh:~$ latexindent.pl -kv myfile.tex
cmh:~$ latexindent.pl -checkv myfile.tex
```

N: 2021-09-16

The `check verbose` switch is exactly the same as the `-k` switch, except that it is *verbose*, and it will output the (simple) diff to the terminal, as well as to `indent.log`.

`-n, -lines=MIN-MAX`

```
cmh:~$ latexindent.pl -n 5-8 myfile.tex
cmh:~$ latexindent.pl -lines 5-8 myfile.tex
```

N: 2021-09-16

The `lines` switch instructs `latexindent.pl` to operate only on specific line ranges within `myfile.tex`.

Complete demonstrations are given in Section 8.

`-GCString`

```
cmh:~$ latexindent.pl --GCString myfile.tex
```

N: 2022-03-25

instructs `latexindent.pl` to load the `Unicode::GCString` module. This should only be necessary if you find that the alignment at ampersand routine (described in Section 5.5) does not work for your language. Further details are given in appendix A.3.

3.3 From arara

Using `latexindent.pl` from the command line is fine for some folks, but others may find it easier to use from `arara`; you can find the arara rule for `latexindent.pl` and its associated documentation at [1].

3.4 Summary of exit codes

Assuming that you call `latexindent.pl` on `myfile.tex`

```
cmh:~$ latexindent.pl myfile.tex
```

then `latexindent.pl` can exit with the exit codes given in Table 1.

TABLE 1: Exit codes for `latexindent.pl`

exit code	indentation	status
0	✔	success; if `-k` or `-kv` active, indented text matches original
0	✖	success; if `-version`, `-vversion` or `-help`, no indentation performed
1	✔	success, and `-k` or `-kv` active; indented text *different* from original
2	✖	failure, `defaultSettings.yaml` could not be read
3	✖	failure, myfile.tex not found
4	✖	failure, myfile.tex exists but cannot be read
5	✖	failure, `-w` active, and back-up file cannot be written
6	✖	failure, `-c` active, and cruft directory could not be created

SECTION 4

indentconfig.yaml, local settings and the -y switch

The behaviour of `latexindent.pl` is controlled from the settings specified in any of the YAML files that you tell it to load. By default, `latexindent.pl` will only load `defaultSettings.yaml`, but there are a few ways that you can tell it to load your own settings files.

We focus our discussion on `indentconfig.yaml`, but there are other options which are detailed in appendix H.

N: 2023-01-01

4.1 indentconfig.yaml and .indentconfig.yaml

`latexindent.pl` will always check your home directory for `indentconfig.yaml` and `.indentconfig.yaml` (unless it is called with the `-d` switch), which is a plain text file you can create that contains the *absolute* paths for any settings files that you wish `latexindent.pl` to load. There is no difference between `indentconfig.yaml` and `.indentconfig.yaml`, other than the fact that `.indentconfig.yaml` is a 'hidden' file; thank you to [5] for providing this feature. In what follows, we will use `indentconfig.yaml`, but it is understood that this could equally represent `.indentconfig.yaml`. If you have both files in existence then `indentconfig.yaml` takes priority.

For Mac and Linux users, their home directory is `/username` while Windows (Vista onwards) is `C:\Users\username`[2] Listing 32 shows a sample `indentconfig.yaml` file.

LISTING 32: `indentconfig.yaml` (sample)

```
# Paths to user settings for latexindent.pl
#
# Note that the settings will be read in the order you
# specify here- each successive settings file will overwrite
# the variables that you specify

paths:
- /home/cmhughes/Documents/yamlfiles/mysettings.yaml
- /home/cmhughes/folder/othersettings.yaml
- /some/other/folder/anynameyouwant.yaml
- C:\Users\chughes\Documents\mysettings.yaml
- C:\Users\chughes\Desktop\test spaces\more spaces.yaml
```

Note that the `.yaml` files you specify in `indentconfig.yaml` will be loaded in the order in which you write them. Each file doesn't have to have every switch from `defaultSettings.yaml`; in fact, I recommend that you only keep the switches that you want to *change* in these settings files.

To get started with your own settings file, you might like to save a copy of `defaultSettings.yaml` in another directory and call it, for example, `mysettings.yaml`. Once you have added the path to `indentconfig.yaml` you can change the switches and add more code-block names to it as you see fit – have a look at Listing 33 for an example that uses four tabs for the default indent, adds the `tabbing` environment/command to the list of environments that contains alignment delimiters; you might also like to refer to the many YAML files detailed throughout the rest of this documentation.

[2] If you're not sure where to put `indentconfig.yaml`, don't worry `latexindent.pl` will tell you in the log file exactly where to put it assuming it doesn't exist already.

LISTING 33: `mysettings.yaml` (example)

```
# Default value of indentation
defaultIndent: "\t\t\t\t"

# environments that have tab delimiters, add more
# as needed
lookForAlignDelims:
    tabbing: 1
```

You can make sure that your settings are loaded by checking `indent.log` for details – if you have specified a path that `latexindent.pl` doesn't recognise then you'll get a warning, otherwise you'll get confirmation that `latexindent.pl` has read your settings file [3].

Warning!

When editing `.yaml` files it is *extremely* important to remember how sensitive they are to spaces. I highly recommend copying and pasting from `defaultSettings.yaml` when you create your first `whatevernameyoulike.yaml` file.

If `latexindent.pl` can not read your `.yaml` file it will tell you so in `indent.log`.

N: 2021-06-19

If you find that `latexindent.pl` does not read your YAML file, then it might be as a result of the default commandline encoding not being UTF-8; normally this will only occur for Windows users. In this case, you might like to explore the `encoding` option for `indentconfig.yaml` as demonstrated in Listing 34.

LISTING 34: The `encoding` option for `indentconfig.yaml`

```
encoding: GB2312
paths:
- D:\cmh\latexindent.yaml
```

Thank you to [15] for this contribution; please see appendix J on page 173 and details within [42] for further information.

4.2 localSettings.yaml and friends

U: 2021-03-14

The `-l` switch tells `latexindent.pl` to look for `localSettings.yaml` and/or friends in the *same directory* as `myfile.tex`. For example, if you use the following command

```
cmh:~$ latexindent.pl -l myfile.tex
```

then `latexindent.pl` will search for and then, assuming they exist, load each of the following files in the following order:

1. localSettings.yaml
2. latexindent.yaml
3. .localSettings.yaml
4. .latexindent.yaml

These files will be assumed to be in the same directory as `myfile.tex`, or otherwise in the current working directory. You do not need to have all of the above files, usually just one will be sufficient. In what follows, whenever we refer to `localSettings.yaml` it is assumed that it can mean any of the four named options listed above.

If you'd prefer to name your `localSettings.yaml` file something different, (say, `mysettings.yaml` as in Listing 33) then you can call `latexindent.pl` using, for example,

[3] Windows users may find that they have to end `.yaml` files with a blank line

```
cmh:~$ latexindent.pl -l=mysettings.yaml myfile.tex
```

Any settings file(s) specified using the `-l` switch will be read *after* `defaultSettings.yaml` and, assuming they exist, any user setting files specified in `indentconfig.yaml`.

Your settings file can contain any switches that you'd like to change; a sample is shown in Listing 35, and you'll find plenty of further examples throughout this manual.

LISTING 35: `localSettings.yaml` (example)

```
#  verbatim environments - environments specified
#  here will not be changed at all!
verbatimEnvironments:
    cmhenvironment: 0
    myenv: 1
```

You can make sure that your settings file has been loaded by checking `indent.log` for details; if it can not be read then you receive a warning, otherwise you'll get confirmation that `latexindent.pl` has read your settings file.

4.3 The -y|yaml switch

N: 2017-08-21

You may use the `-y` switch to load your settings; for example, if you wished to specify the settings from Listing 35 using the `-y` switch, then you could use the following command:

```
cmh:~$ latexindent.pl -y="verbatimEnvironments:cmhenvironment:0;myenv:1" myfile.tex
```

Note the use of `;` to specify another field within `verbatimEnvironments`. This is shorthand, and equivalent, to using the following command:

```
cmh:~$ latexindent.pl
    -y="verbatimEnvironments:cmhenvironment:0,verbatimEnvironments:myenv:1"
    myfile.tex
```

You may, of course, specify settings using the `-y` switch as well as, for example, settings loaded using the `-l` switch; for example,

```
cmh:~$ latexindent.pl -l=mysettings.yaml
    -y="verbatimEnvironments:cmhenvironment:0;myenv:1" myfile.tex
```

Any settings specified using the `-y` switch will be loaded *after* any specified using `indentconfig.yaml` and the `-l` switch.

If you wish to specify any regex-based settings using the `-y` switch, it is important not to use quotes surrounding the regex; for example, with reference to the 'one sentence per line' feature (Section 6.2 on page 94) and the listings within Listing 373 on page 97, the following settings give the option to have sentences end with a semicolon

```
cmh:~$ latexindent.pl -m
    --yaml='modifyLineBreaks:oneSentencePerLine:sentencesEndWith:other:\;'
```

4.4 Settings load order

`latexindent.pl` loads the settings files in the following order:

1. `defaultSettings.yaml` is always loaded, and can not be renamed;
2. `anyUserSettings.yaml` and any other arbitrarily-named files specified in `indentconfig.yaml`;

3. `localSettings.yaml` but only if found in the same directory as `myfile.tex` and called with `-l` switch; this file can be renamed, provided that the call to `latexindent.pl` is adjusted accordingly (see Section 4.2). You may specify both relative and absolute paths to other YAML files using the `-l` switch, separating multiple files using commas;

U: 2017-08-21

4. any settings specified in the `-y` switch.

N: 2017-08-21

A visual representation of this is given in Figure 1.

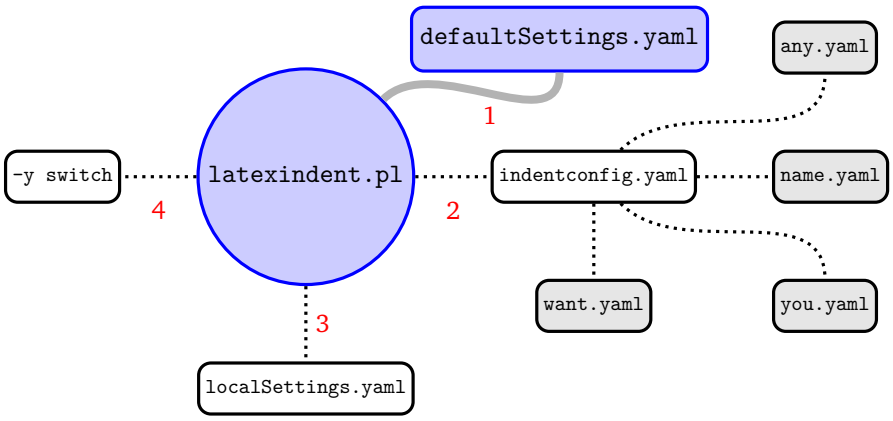


FIGURE 1: Schematic of the load order described in Section 4.4; solid lines represent mandatory files, dotted lines represent optional files. `indentconfig.yaml` can contain as many files as you like. The files will be loaded in order; if you specify settings for the same field in more than one file, the most recent takes priority.

SECTION 5

defaultSettings.yaml

`latexindent.pl` loads its settings from `defaultSettings.yaml`. The idea is to separate the behaviour of the script from the internal working – this is very similar to the way that we separate content from form when writing our documents in LaTeX.

If you look in `defaultSettings.yaml` you'll find the switches that govern the behaviour of `latexindent.pl`. If you're not sure where `defaultSettings.yaml` resides on your computer, don't worry as `indent.log` will tell you where to find it. `defaultSettings.yaml` is commented, but here is a description of what each switch is designed to do. The default value is given in each case; whenever you see *integer* in *this* section, assume that it must be greater than or equal to `0` unless otherwise stated.

For most of the settings in `defaultSettings.yaml` that are specified as integers, then we understand `0` to represent 'off' and `1` to represent 'on'. For fields that allow values other than `0` or `1`, it is hoped that the specific context and associated commentary should make it clear which values are allowed.

`fileExtensionPreference`: ⟨*fields*⟩

`latexindent.pl` can be called to act on a file without specifying the file extension. For example we can call

```
cmh:~$ latexindent.pl myfile
```

in which case the script will look for `myfile` with the extensions specified in `fileExtensionPreference` in their numeric order. If no match is found, the script will exit. As with all of the fields, you should change and/or add to this as necessary.

LISTING 36: `fileExtensionPreference`

```
47  fileExtensionPreference:
48      .tex: 1
49      .sty: 2
50      .cls: 3
51      .bib: 4
```

Calling `latexindent.pl myfile` with the (default) settings specified in Listing 36 means that the script will first look for `myfile.tex`, then `myfile.sty`, `myfile.cls`, and finally `myfile.bib` in order[4].

5.1 Backup and log file preferences

`backupExtension`: ⟨*extension name*⟩

If you call `latexindent.pl` with the `-w` switch (to overwrite `myfile.tex`) then it will create a backup file before doing any indentation; the default extension is `.bak`, so, for example, `myfile.bak0` would be created when calling `latexindent.pl myfile.tex` for the first time.

By default, every time you subsequently call `latexindent.pl` with the `-w` to act upon `myfile.tex`, it will create successive back up files: `myfile.bak1`, `myfile.bak2`, etc.

[4] Throughout this manual, listings shown with line numbers represent code taken directly from `defaultSettings.yaml`.

`onlyOneBackUp`: ⟨*integer*⟩

If you don't want a backup for every time that you call `latexindent.pl` (so you don't want `myfile.bak1`, `myfile.bak2`, etc) and you simply want `myfile.bak` (or whatever you chose `backupExtension` to be) then change `onlyOneBackUp` to `1`; the default value of `onlyOneBackUp` is `0`.

`maxNumberOfBackUps`: ⟨*integer*⟩

Some users may only want a finite number of backup files, say at most 3, in which case, they can change this switch. The smallest value of `maxNumberOfBackUps` is 0 which will *not* prevent backup files being made; in this case, the behaviour will be dictated entirely by `onlyOneBackUp`. The default value of `maxNumberOfBackUps` is `0`.

`cycleThroughBackUps`: ⟨*integer*⟩

Some users may wish to cycle through backup files, by deleting the oldest backup file and keeping only the most recent; for example, with `maxNumberOfBackUps: 4`, and `cycleThroughBackUps` set to `1` then the `copy` procedure given below would be obeyed.

```
cmh:~$ copy myfile.bak1 to myfile.bak0
cmh:~$ copy myfile.bak2 to myfile.bak1
cmh:~$ copy myfile.bak3 to myfile.bak2
cmh:~$ copy myfile.bak4 to myfile.bak3
```

The default value of `cycleThroughBackUps` is `0`.

`logFilePreferences`: ⟨*fields*⟩

`latexindent.pl` writes information to `indent.log`, some of which can be customized by changing `logFilePreferences`; see Listing 37. If you load your own user settings (see Section 4 on page 23) then `latexindent.pl` will detail them in `indent.log`; you can choose not to have the details logged by switching `showEveryYamlRead` to `0`. Once all of your settings have been loaded, you can see the amalgamated settings in the log file by switching `showAmalgamatedSettings` to `1`, if you wish.

LISTING 37: `logFilePreferences`

```
91  logFilePreferences:
92      showEveryYamlRead: 1
93      showAmalgamatedSettings: 0
94      showDecorationStartCodeBlockTrace: 0
95      showDecorationFinishCodeBlockTrace: 0
96      endLogFileWith: '--------------'
97      showGitHubInfoFooter: 1
98      Dumper:
99        Terse: 1
100       Indent: 1
101       Useqq: 1
102       Deparse: 1
103       Quotekeys: 0
104       Sortkeys: 1
105       Pair: " => "
```

N: 2018-01-13

When either of the `trace` modes (see page 17) are active, you will receive detailed information in `indent.log`. You can specify character strings to appear before and after the notification of a found code block using, respectively, `showDecorationStartCodeBlockTrace` and `showDecorationFinishCodeBlockTra` A demonstration is given in appendix I on page 172.

The log file will end with the characters given in `endLogFileWith`, and will report the `GitHub` address of `latexindent.pl` to the log file if `showGitHubInfoFooter` is set to `1`.

U: 2021-03-14 Note: `latexindent.pl` no longer uses the `log4perl` module to handle the creation of the logfile.

U: 2021-06-19 Some of the options for Perl's `Dumper` module can be specified in Listing 37; see [33] and [32] for more information. These options will mostly be helpful for those calling `latexindent.pl` with the `-tt` option described in Section 3.2.

5.2 Verbatim code blocks

`verbatimEnvironments`: ⟨*fields*⟩

A field that contains a list of environments that you would like left completely alone – no indentation will be performed on environments that you have specified in this field, see Listing 38.

LISTING 38: `verbatimEnvironments`

```
verbatimEnvironments:
    verbatim: 1
    lstlisting: 1
    minted: 1
```

LISTING 39: `verbatimCommands`

```
verbatimCommands:
    verb: 1
    lstinline: 1
```

Note that if you put an environment in `verbatimEnvironments` and in other fields such as `lookForAlignDelims` or `noAdditionalIndent` then `latexindent.pl` will *always* prioritize `verbatimEnvironments`.

N: 2021-10-30 You can, optionally, specify the `verbatim` field using the `name` field which takes a regular expression as its argument; thank you to [18] for contributing this feature.

example 10 For demonstration, then assuming that your file contains the environments `latexcode`, `latexcode*`, `pythoncode` and `pythoncode*`, then the listings given in Listings 40 and 41 are equivalent.

LISTING 40: `nameAsRegex1.yaml`

```
verbatimEnvironments:
    latexcode: 1
    latexcode*: 1
    pythoncode: 1
    pythoncode*: 1
```

LISTING 41: `nameAsRegex2.yaml`

```
verbatimEnvironments:
    nameAsRegex:
      name: '\w+code\*?'
      lookForThis: 1
```

With reference to Listing 41:

- the `name` field as specified here means *any word followed by the word code, optionally followed by **;
- we have used `nameAsRegex` to identify this field, but you can use any description you like;
- the `lookForThis` field is optional, and can take the values 0 (off) or 1 (on); by default, it is assumed to be 1 (on).

■

`verbatimCommands`: ⟨*fields*⟩

A field that contains a list of commands that are verbatim commands, for example `\lstinline`; any commands populated in this field are protected from line breaking routines (only relevant if the `-m` is active, see Section 6 on page 78).

With reference to Listing 39, by default `latexindent.pl` looks for `\verb` immediately followed by another character, and then it takes the body as anything up to the next occurrence of the character; this means that, for example, `\verb!x+3!` is treated as a `verbatimCommands`.

N: 2021-10-30 You can, optionally, specify the `verbatimCommands` field using the `name` field which takes a regular expression as its argument; thank you to [18] for contributing this feature.

example 11 For demonstration, then assuming that your file contains the commands `verbinline`, `myinline` then the listings given in Listings 42 and 43 are equivalent.

LISTING 42: nameAsRegex3.yaml

```
verbatimCommands:
    verbinline: 1
    myinline: 1
```

LISTING 43: nameAsRegex4.yaml

```
verbatimCommands:
    nameAsRegex:
      name: '\w+inline'
      lookForThis: 1
```

With reference to Listing 43:

- the `name` field as specified here means *any word followed by the word inline*;
- we have used `nameAsRegex` to identify this field, but you can use any description you like;
- the `lookForThis` field is optional, and can take the values 0 (off) or 1 (on); by default, it is assumed to be 1 (on).

■

`noIndentBlock`: ⟨*fields*⟩

If you have a block of code that you don't want `latexindent.pl` to touch (even if it is *not* a verbatim-like environment) then you can wrap it in an environment from `noIndentBlock`; you can use any name you like for this, provided you populate it as demonstrate in Listing 44.

LISTING 44: noIndentBlock

```
122 noIndentBlock:
123     noindent: 1
124     cmhtest: 1
```

Of course, you don't want to have to specify these as null environments in your code, so you use them with a comment symbol, %, followed by as many spaces (possibly none) as you like; see Listing 45 for example.

LISTING 45: noIndentBlock.tex

```
% \begin{noindent}
some before text
        this code
                won't
     be touched
                    by
             latexindent.pl!
some after text
% \end{noindent}
```

Important note: it is assumed that the `noindent` block statements specified in this way appear on their own line.

example 12 The `noIndentBlock` fields can also be specified in terms of `begin` and `end` fields. We use the code in Listing 46 to demonstrate this feature.

N: 2021-06-19

LISTING 46: noIndentBlock1.tex

```
some before text
        this code
                won't
     be touched
                    by
             latexindent.pl!
some after text
```

The settings given in Listings 47 and 48 are equivalent:

LISTING 47: noindent1.yaml

```
noIndentBlock:
    demo:
        begin: 'some\hbefore'
        body: '.*?'
        end: 'some\hafter\htext'
        lookForThis: 1
```

LISTING 48: noindent2.yaml

```
noIndentBlock:
    demo:
        begin: 'some\hbefore'
        end: 'some\hafter\htext'
```

LISTING 49: noindent3.yaml

```
noIndentBlock:
    demo:
        begin: 'some\hbefore'
        body: '.*?'
        end: 'some\hafter\htext'
        lookForThis: 0
```

Upon running the commands

```
cmh:~$ latexindent.pl -l noindent1.yaml noindent1
cmh:~$ latexindent.pl -l noindent2.yaml noindent1
```

then we receive the output given in Listing 50.

LISTING 50: noIndentBlock1.tex using Listing 47 or Listing 48

```
some before text
        this code
                won't
     be touched
                    by
             latexindent.pl!
some after text
```

The begin, body and end fields for noIndentBlock are all *regular expressions*. If the body field is not specified, then it takes a default value of .*? which is written explicitly in Listing 47. In this context, we interpret .*? in words as *the fewest number of characters (possibly none) until the 'end' field is reached*.

The lookForThis field is optional, and can take the values 0 (off) or 1 (on); by default, it is assumed to be 1 (on).

example 13 Using Listing 49 demonstrates setting lookForThis to 0 (off); running the command

```
cmh:~$ latexindent.pl -l noindent3.yaml noindent1
```

gives the output in Listing 51.

LISTING 51: noIndentBlock1.tex using Listing 49

```
some before text
this code
won't
be touched
by
latexindent.pl!
some after text
```

We will demonstrate this feature later in the documentation in Listing 580.

N: 2021-10-30

You can, optionally, specify the noIndentBlock field using the name field which takes a regular expression as its argument; thank you to [18] for contributing this feature.

example 14 For demonstration, then assuming that your file contains the environments testnoindent, testnoindent* then the listings given in Listings 52 and 53 are equivalent.

LISTING 52: nameAsRegex5.yaml

```
noIndentBlock:
    mytest:
      begin: '\\begin\{testnoindent\*?\}'
      end: '\\end\{testnoindent\*?\}'
```

LISTING 53: nameAsRegex6.yaml

```
noIndentBlock:
    nameAsRegex:
      name: '\w+noindent\*?'
      lookForThis: 1
```

With reference to Listing 53:

- the `name` field as specified here means *any word followed by the word noindent, optionally followed by **;
- we have used `nameAsRegex` to identify this field, but you can use any description you like;
- the `lookForThis` field is optional, and can take the values 0 (off) or 1 (on); by default, it is assumed to be 1 (on).

■

5.3 filecontents and preamble

`fileContentsEnvironments`: ⟨*field*⟩

Before `latexindent.pl` determines the difference between preamble (if any) and the main document, it first searches for any of the environments specified in `fileContentsEnvironments`, see Listing 54. The behaviour of `latexindent.pl` on these environments is determined by their location (preamble or not), and the value `indentPreamble`, discussed next.

LISTING 54: fileContentsEnvironments

```
128 fileContentsEnvironments:
129     filecontents: 1
130     filecontents*: 1
```

`indentPreamble`: **0**|**1**

The preamble of a document can sometimes contain some trickier code for `latexindent.pl` to operate upon. By default, `latexindent.pl` won't try to operate on the preamble (as `indentPreamble` is set to 0, by default), but if you'd like `latexindent.pl` to try then change `indentPreamble` to 1.

`lookForPreamble`: ⟨*fields*⟩

Not all files contain preamble; for example, `sty`, `cls` and `bib` files typically do *not*. Referencing Listing 55, if you set, for example, `.tex` to 0, then regardless of the setting of the value of `indentPreamble`, preamble will not be assumed when operating upon `.tex` files.

LISTING 55: lookForPreamble

```
136 lookForPreamble:
137     .tex: 1
138     .sty: 0
139     .cls: 0
140     .bib: 0
```

`preambleCommandsBeforeEnvironments`: **0**|**1**

Assuming that `latexindent.pl` is asked to operate upon the preamble of a document, when this switch is set to 0 then environment code blocks will be sought first, and then command code blocks. When this switch is set to 1, commands will be sought first. The example that first motivated this switch contained the code given in Listing 56.

LISTING 56: Motivating preambleCommandsBeforeEnvironments

```
...
preheadhook={\begin{mdframed}[style=myframedstyle]},
postfoothook=\end{mdframed},
...
```

5.4 Indentation and horizontal space

defaultIndent: ⟨*horizontal space*⟩

This is the default indentation used in the absence of other details for the code block with which we are working. The default value is `\t` which means a tab; we will explore customisation beyond `defaultIndent` in Section 5.8 on page 54.

If you're interested in experimenting with `latexindent.pl` then you can *remove* all indentation by setting `defaultIndent: ""`.

removeTrailingWhitespace: ⟨*fields*⟩

Trailing white space can be removed both *before* and *after* processing the document, as detailed in Listing 57; each of the fields can take the values 0 or 1. See Listings 468 to 470 on page 115 for before and after results. Thanks to [3] for providing this feature.

LISTING 57: removeTrailingWhitespace

```
153 removeTrailingWhitespace:
154     beforeProcessing: 0
155     afterProcessing: 1
```

LISTING 58: removeTrailingWhitespace (alt)

```
removeTrailingWhitespace: 1
```

N: 2017-06-28

You can specify `removeTrailingWhitespace` simply as 0 or 1, if you wish; in this case, `latexindent.pl` will set both `beforeProcessing` and `afterProcessing` to the value you specify; see Listing 58.

5.5 Aligning at delimiters

lookForAlignDelims: ⟨*fields*⟩

This contains a list of code blocks that are operated upon in a special way by `latexindent.pl` (see Listing 59). In fact, the fields in `lookForAlignDelims` can actually take two different forms: the *basic* version is shown in Listing 59 and the *advanced* version in Listing 62; we will discuss each in turn.

LISTING 59: lookForAlignDelims (basic)

```
lookForAlignDelims:
   tabular: 1
   tabularx: 1
   longtable: 1
   array: 1
   matrix: 1
   ...
```

Specifying code blocks in this field instructs `latexindent.pl` to try and align each column by its alignment delimiters. It does have some limitations (discussed further in Section 10), but in many cases it will produce results such as those in Listings 60 and 61; running the command

```
cmh:~$ latexindent.pl tabular1.tex
```

gives the output given in Listing 61.

LISTING 60: tabular1.tex

```
\begin{tabular}{cccc}
1& 2 &3       &4\\
5& &6        &\\
\end{tabular}
```

LISTING 61: tabular1.tex default output

```
\begin{tabular}{cccc}
   1 & 2 & 3 & 4 \\
   5 &   & 6 &   \\
\end{tabular}
```

If you find that `latexindent.pl` does not perform satisfactorily on such environments then you can set the relevant key to 0, for example `tabular: 0`; alternatively, if you just want to ignore *specific* instances of the environment, you could wrap them in something from `noIndentBlock` (see Listing 44 on page 30).

If, for example, you wish to remove the alignment of the \\ within a delimiter-aligned block, then the advanced form of `lookForAlignDelims` shown in Listing 62 is for you.

LISTING 62: lookForAlignDelims (advanced)

```
158 lookForAlignDelims:
159    tabular:
160       delims: 1
161       alignDoubleBackSlash: 1
162       spacesBeforeDoubleBackSlash: 1
163       multiColumnGrouping: 0
164       alignRowsWithoutMaxDelims: 1
165       spacesBeforeAmpersand: 1
166       spacesAfterAmpersand: 1
167       justification: left
168       alignFinalDoubleBackSlash: 0
169       dontMeasure: 0
170       delimiterRegEx: (?<!\\)(&)
171       delimiterJustification: left
172       lookForChildCodeBlocks: 1
173       alignContentAfterDoubleBackSlash: 0
174       spacesAfterDoubleBackSlash: 1
175    tabularx:
176       delims: 1
```

Note that you can use a mixture of the basic and advanced form: in Listing 62 `tabular` and `tabularx` are advanced and `longtable` is basic. When using the advanced form, each field should receive at least 1 sub-field, and *can* (but does not have to) receive any of the following fields:

- `delims`: binary switch (0 or 1) equivalent to simply specifying, for example, `tabular: 1` in the basic version shown in Listing 59. If `delims` is set to 0 then the align at ampersand routine will not be called for this code block (default: 1);
- `alignDoubleBackSlash`: binary switch (0 or 1) to determine if \\ should be aligned (default: 1);

U: 2018-01-13

- `spacesBeforeDoubleBackSlash`: optionally, specifies the number (integer ≥ 0) of spaces to be inserted before \\ (default: 1);

N: 2017-06-19

- `multiColumnGrouping`: binary switch (0 or 1) that details if `latexindent.pl` should group columns above and below a `\multicolumn` command (default: 0);

N: 2017-06-19

- `alignRowsWithoutMaxDelims`: binary switch (0 or 1) that details if rows that do not contain the maximum number of delimiters should be formatted so as to have the ampersands aligned (default: 1);

N: 2018-01-13

- `spacesBeforeAmpersand`: optionally specifies the number (integer ≥ 0) of spaces to be placed *before* ampersands (default: 1);

N: 2018-01-13

- `spacesAfterAmpersand`: optionally specifies the number (integer ≥ 0) of spaces to be placed *After* ampersands (default: 1);

N: 2018-01-13
- `justification`: optionally specifies the justification of each cell as either *left* or *right* (default: left);

N: 2020-03-21
- alignFinalDoubleBackSlash optionally specifies if the *final* double backslash should be used for alignment (default: 0);

N: 2020-03-21
- dontMeasure optionally specifies if user-specified cells, rows or the largest entries should *not* be measured (default: 0);

N: 2020-03-21
- delimiterRegEx optionally specifies the pattern matching to be used for the alignment delimiter (default: `'(?<!\\)(&)'`);

N: 2020-03-21
- delimiterJustification optionally specifies the justification for the alignment delimiters (default: left); note that this feature is only useful if you have delimiters of different lengths in the same column, discussed in Section 5.5.4;

N: 2021-12-13
- lookForChildCodeBlocks optionally instructs `latexindent.pl` to search for child code blocks or not (default: 1), discussed in Section 5.5.5;

N: 2023-05-01
- alignContentAfterDoubleBackSlash optionally instructs `latexindent.pl` to align content *after* double back slash (default: 0), discussed in Section 5.5.6;

N: 2023-05-01
- spacesAfterDoubleBackSlash optionally specifies the number (integer ≥ 0) of spaces to be placed *after* the double back slash *when alignContentAfterDoubleBackSlash is active*; demonstrated in Section 5.5.6.

example 15 We will explore most of these features using the file `tabular2.tex` in Listing 63 (which contains a `\multicolumn` command), and the YAML files in Listings 64 to 70; we will explore `alignFinalDoubleBackSlash` in Listing 91; the `dontMeasure` feature will be described in Section 5.5.3, and `delimiterRegEx` in Section 5.5.4.

LISTING 63: tabular2.tex

```
\begin{tabular}{cccc}
A&    B & C       &D\\
AAA&    BBB & CCC       &DDD\\
  \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading}\\
one&    two & three       &four\\
five& &six      &\\
seven & \\
\end{tabular}
```

LISTING 64: tabular2.yaml

```
lookForAlignDelims:
   tabular:
      multiColumnGrouping: 1
```

LISTING 65: tabular3.yaml

```
lookForAlignDelims:
   tabular:
      alignRowsWithoutMaxDelims: 0
```

LISTING 66: tabular4.yaml

```
lookForAlignDelims:
   tabular:
      spacesBeforeAmpersand: 4
```

LISTING 67: tabular5.yaml

```
lookForAlignDelims:
   tabular:
      spacesAfterAmpersand: 4
```

LISTING 68: tabular6.yaml

```
lookForAlignDelims:
   tabular:
      alignDoubleBackSlash: 0
```

LISTING 69: tabular7.yaml

```
lookForAlignDelims:
   tabular:
      spacesBeforeDoubleBackSlash: 0
```

LISTING 70: tabular8.yaml

```
lookForAlignDelims:
   tabular:
      justification: "right"
```

On running the commands

```
cmh:~$ latexindent.pl tabular2.tex
cmh:~$ latexindent.pl tabular2.tex -l tabular2.yaml
cmh:~$ latexindent.pl tabular2.tex -l tabular3.yaml
cmh:~$ latexindent.pl tabular2.tex -l tabular2.yaml,tabular4.yaml
cmh:~$ latexindent.pl tabular2.tex -l tabular2.yaml,tabular5.yaml
cmh:~$ latexindent.pl tabular2.tex -l tabular2.yaml,tabular6.yaml
cmh:~$ latexindent.pl tabular2.tex -l tabular2.yaml,tabular7.yaml
cmh:~$ latexindent.pl tabular2.tex -l tabular2.yaml,tabular8.yaml
```

we obtain the respective outputs given in Listings 71 to 78.

LISTING 71: tabular2.tex default output

```
\begin{tabular}{cccc}
   A                                 & B                                 & C     & D    \\
   AAA                               & BBB                               & CCC   & DDD  \\
   \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading}                 \\
   one                               & two                               & three & four \\
   five                              &                                   & six   &      \\
   seven                             &                                   &               \\
\end{tabular}
```

LISTING 72: tabular2.tex using Listing 64

```
\begin{tabular}{cccc}
   A     & B                         & C     & D                         \\
   AAA   & BBB                       & CCC   & DDD                       \\
   \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
   one   & two                       & three & four                      \\
   five  &                           & six   &                           \\
   seven &                                                               \\
\end{tabular}
```

LISTING 73: tabular2.tex using Listing 65

```
\begin{tabular}{cccc}
   A     & B   & C     & D                                               \\
   AAA   & BBB & CCC   & DDD                                             \\
   \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
   one   & two & three & four                                            \\
   five  &     & six   &                                                 \\
   seven &                                                               \\
\end{tabular}
```

LISTING 74: tabular2.tex using Listings 64 and 66

```
\begin{tabular}{cccc}
   A        & B                          & C        & D                          \\
   AAA      & BBB                        & CCC      & DDD                        \\
   \multicolumn{2}{c}{first heading}     & \multicolumn{2}{c}{second heading} \\
   one      & two                        & three    & four                       \\
   five     &                            & six      &                            \\
   seven    &                                                                    \\
\end{tabular}
```

LISTING 75: tabular2.tex using Listings 64 and 67

```
\begin{tabular}{cccc}
   A     &    B                       &    C     &    D                       \\
   AAA   &    BBB                     &    CCC   &    DDD                     \\
   \multicolumn{2}{c}{first heading} &    \multicolumn{2}{c}{second heading} \\
   one   &    two                     &    three &    four                    \\
   five  &                            &    six   &                            \\
   seven &                                                                    \\
\end{tabular}
```

LISTING 76: tabular2.tex using Listings 64 and 68

```
\begin{tabular}{cccc}
   A     & B                          & C     & D \\
   AAA   & BBB                        & CCC   & DDD \\
   \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
   one   & two                        & three & four \\
   five  &                            & six   & \\
   seven & \\
\end{tabular}
```

LISTING 77: tabular2.tex using Listings 64 and 69

```
\begin{tabular}{cccc}
   A     & B                          & C     & D                          \\
   AAA   & BBB                        & CCC   & DDD                        \\
   \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading}\\
   one   & two                        & three & four                       \\
   five  &                            & six   &                            \\
   seven &                                                                 \\
\end{tabular}
```

LISTING 78: tabular2.tex using Listings 64 and 70

```
\begin{tabular}{cccc}
                              A &   B &                              C &    D \\
                            AAA & BBB &                            CCC &  DDD \\
   \multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
                            one & two &                          three & four \\
                           five &     &                            six &      \\
                          seven &                                        \\
\end{tabular}
```

Notice in particular:

- in both Listings 71 and 72 all rows have been aligned at the ampersand, even those that do not contain the maximum number of ampersands (3 ampersands, in this case);
- in Listing 71 the columns have been aligned at the ampersand;
- in Listing 72 the \multicolumn command has grouped the 2 columns beneath *and* above it,

because `multiColumnGrouping` is set to 1 in Listing 64;

- in Listing 73 rows 3 and 6 have *not* been aligned at the ampersand, because `alignRowsWithoutMaxDelims` has been to set to 0 in Listing 65; however, the `\\` *have* still been aligned;
- in Listing 74 the columns beneath and above the `\multicolumn` commands have been grouped (because `multiColumnGrouping` is set to 1), and there are at least 4 spaces *before* each aligned ampersand because `spacesBeforeAmpersand` is set to 4;
- in Listing 75 the columns beneath and above the `\multicolumn` commands have been grouped (because `multiColumnGrouping` is set to 1), and there are at least 4 spaces *after* each aligned ampersand because `spacesAfterAmpersand` is set to 4;
- in Listing 76 the `\\` have *not* been aligned, because `alignDoubleBackSlash` is set to 0, otherwise the output is the same as Listing 72;
- in Listing 77 the `\\` *have* been aligned, and because `spacesBeforeDoubleBackSlash` is set to 0, there are no spaces ahead of them; the output is otherwise the same as Listing 72;
- in Listing 78 the cells have been *right*-justified; note that cells above and below the `\multicol` statements have still been group correctly, because of the settings in Listing 64.

■

5.5.1 lookForAlignDelims: spacesBeforeAmpersand

U: 2021-06-19

The `spacesBeforeAmpersand` can be specified in a few different ways. The *basic* form is demonstrated in Listing 66, but we can customise the behaviour further by specifying if we would like this value to change if it encounters a *leading blank column*; that is, when the first column contains only zero-width entries. We refer to this as the *advanced* form.

example 16 We demonstrate this feature in relation to Listing 79; upon running the following command

```
cmh:~$ latexindent.pl aligned1.tex -o=+-default
```

then we receive the default output given in Listing 80.

LISTING 79: aligned1.tex

```
\begin{aligned}
& a & b, \\
& c & d.
\end{aligned}
```

LISTING 80: aligned1-default.tex

```
\begin{aligned}
    & a & b, \\
    & c & d.
\end{aligned}
```

The settings in Listings 81 to 84 are all equivlanent; we have used the not-yet discussed `noAdditionalIndent` field (see Section 5.8 on page 54) which will assist in the demonstration in what follows.

LISTING 81: sba1.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned: 1
```

LISTING 82: sba2.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned:
      spacesBeforeAmpersand: 1
```

LISTING 83: sba3.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned:
      spacesBeforeAmpersand:
        default: 1
```

LISTING 84: sba4.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned:
      spacesBeforeAmpersand:
        leadingBlankColumn: 1
```

Upon running the following commands

```
cmh:~$ latexindent.pl aligned1.tex -l sba1.yaml
cmh:~$ latexindent.pl aligned1.tex -l sba2.yaml
cmh:~$ latexindent.pl aligned1.tex -l sba3.yaml
cmh:~$ latexindent.pl aligned1.tex -l sba4.yaml
```

then we receive the (same) output given in Listing 85; we note that there is *one space* before each ampersand.

LISTING 85: aligned1-mod1.tex

```
\begin{aligned}
 & a & b, \\
 & c & d.
\end{aligned}
```

We note in particular:

- Listing 81 demonstrates the *basic* form for `lookForAlignDelims`; in this case, the default values are specified as in Listing 62 on page 34;
- Listing 82 demonstrates the *advanced* form for `lookForAlignDelims` and specified `spacesBeforeAmpersand`. The default value is `1`;
- Listing 83 demonstrates the new *advanced* way to specify `spacesBeforeAmpersand`, and for us to set the `default` value that sets the number of spaces before ampersands which are *not* in leading blank columns. The default value is `1`.

  We note that `leadingBlankColumn` has not been specified in Listing 83, and it will inherit the value from `default`;
- Listing 84 demonstrates spaces to be used before amperands for *leading blank columns*. We note that *default* has not been specified, and it will be set to `1` by default.

■

example 17 We can customise the space before the ampersand in the *leading blank column* of Listing 85 by using either of Listings 86 and 87, which are equivalent.

LISTING 86: sba5.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned:
      spacesBeforeAmpersand:
        leadingBlankColumn: 0
```

LISTING 87: sba6.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned:
      spacesBeforeAmpersand:
        leadingBlankColumn: 0
        default: 1
```

Upon running

```
cmh:~$ latexindent.pl aligned1.tex -l sba5.yaml
cmh:~$ latexindent.pl aligned1.tex -l sba6.yaml
```

then we receive the (same) output given in Listing 88. We note that the space before the ampersand in the *leading blank column* has been set to `0` by Listing 87.

We can demonstrated this feature further using the settings in Listing 90 which give the output in Listing 89.

LISTING 88: aligned1-mod5.tex

```
\begin{aligned}
& a & b, \\
& c & d.
\end{aligned}
```

LISTING 89: aligned1.tex using Listing 90

```
\begin{aligned}
   & a& b, \\
   & c& d.
\end{aligned}
```

LISTING 90: sba7.yaml

```
noAdditionalIndent:
  aligned: 1
lookForAlignDelims:
   aligned:
      spacesBeforeAmpersand:
        leadingBlankColumn: 3
        default: 0
```

5.5.2 lookForAlignDelims: alignFinalDoubleBackSlash

There may be times when a line of a code block contains more than \\, and in which case, you may want the *final* double backslash to be aligned.

example 18 We explore the alignFinalDoubleBackSlash feature by using the file in Listing 91. Upon running the following commands

N: 2020-03-21

```
cmh:~$ latexindent.pl tabular4.tex -o=+-default
cmh:~$ latexindent.pl tabular4.tex -o=+-FDBS
    -y="lookForAlignDelims:tabular:alignFinalDoubleBackSlash:1"
```

then we receive the respective outputs given in Listing 92 and Listing 93.

LISTING 91: tabular4.tex

```
\begin{tabular}{lc}
    Name & \shortstack{Hi \\ Lo} \\
    Foo  & Bar            \\
\end{tabular}
```

LISTING 92: tabular4-default.tex

```
\begin{tabular}{lc}
   Name & \shortstack{Hi \\ Lo} \\
   Foo  & Bar            \\
\end{tabular}
```

LISTING 93: tabular4-FDBS.tex

```
\begin{tabular}{lc}
   Name & \shortstack{Hi \\ Lo} \\
   Foo  & Bar                   \\
\end{tabular}
```

We note that in:

- Listing 92, by default, the *first* set of double back slashes in the first row of the tabular environment have been used for alignment;
- Listing 93, the *final* set of double backslashes in the first row have been used, because we specified alignFinalDoubleBackSlash as 1.

As of Version 3.0, the alignment routine works on mandatory and optional arguments within commands, and also within 'special' code blocks (see specialBeginEnd on page 47).

example 19 Assuming that you have a command called \matrix and that it is populated within lookForAlignDelims (which it is, by default), and that you run the command

```
cmh:~$ latexindent.pl matrix1.tex
```

then the before-and-after results shown in Listings 94 and 95 are achievable by default.

LISTING 94: matrix1.tex

```
\matrix [
   1&2   &3\\
4&5&6]{
7&8   &9\\
10&11&12
}
```

LISTING 95: matrix1.tex default output

```
\matrix [
   1 & 2 & 3 \\
   4 & 5 & 6]{
   7  & 8  & 9  \\
   10 & 11 & 12
}
```

If you have blocks of code that you wish to align at the & character that are *not* wrapped in, for example, \begin{tabular} ... \end{tabular}, then you can use the mark up illustrated in Listing 96; the default output is shown in Listing 97. Note that the %* must be next to each other, but that there can be any number of spaces (possibly none) between the * and \begin{tabular}; note also that

you may use any environment name that you have specified in `lookForAlignDelims`.

LISTING 96: `align-block.tex`

```
%* \begin{tabular}
   1 & 2 & 3 & 4 \\
   5 &   & 6 &   \\
  %* \end{tabular}
```

LISTING 97: `align-block.tex` default output

```
%* \begin{tabular}
   1 & 2 & 3 & 4 \\
   5 &   & 6 &   \\
%* \end{tabular}
```

With reference to Table 2 on page 55 and the, yet undiscussed, fields of `noAdditionalIndent` and `indentRules` (see Section 5.8 on page 54), these comment-marked blocks are considered `environments`.

5.5.3 lookForAlignDelims: the dontMeasure feature

N: 2020-03-21

The `lookForAlignDelims` field can, optionally, receive the `dontMeasure` option which can be specified in a few different ways.

example 20 We will explore this feature in relation to the code given in Listing 98; the default output is shown in Listing 99.

LISTING 98: `tabular-DM.tex`

```
\begin{tabular}{cccc}
  aaaaaa&bbbbb&ccc&dd\\
  11&2&33&4\\
  5&66&7&8
\end{tabular}
```

LISTING 99: `tabular-DM.tex` default output

```
\begin{tabular}{cccc}
   aaaaaa & bbbbb & ccc & dd \\
   11     & 2     & 33  & 4  \\
   5      & 66    & 7   & 8
\end{tabular}
```

The `dontMeasure` field can be specified as `largest`, and in which case, the largest element will not be measured; with reference to the YAML file given in Listing 101, we can run the command

```
cmh:~$ latexindent.pl tabular-DM.tex -l=dontMeasure1.yaml
```

and receive the output given in Listing 100.

LISTING 100: `tabular-DM.tex` using Listing 101

```
\begin{tabular}{cccc}
   aaaaaa & bbbbb & ccc & dd \\
   11 & 2  & 33 & 4          \\
   5  & 66 & 7  & 8
\end{tabular}
```

LISTING 101: `dontMeasure1.yaml`

```
lookForAlignDelims:
   tabular:
      dontMeasure: largest
```

We note that the *largest* column entries have not contributed to the measuring routine. ■

example 21 The `dontMeasure` field can also be specified in the form demonstrated in Listing 103. On running the following commands,

```
cmh:~$ latexindent.pl tabular-DM.tex -l=dontMeasure2.yaml
```

we receive the output in Listing 102.

LISTING 102: tabular-DM.tex using Listing 103 or Listing 105

```
\begin{tabular}{cccc}
   aaaaaa & bbbbb & ccc & dd \\
   11 & 2  & 33 & 4          \\
   5  & 66 & 7  & 8
\end{tabular}
```

LISTING 103: dontMeasure2.yaml

```
lookForAlignDelims:
   tabular:
      dontMeasure:
        - aaaaaa
        - bbbbb
        - ccc
        - dd
```

We note that in Listing 103 we have specified entries not to be measured, one entry per line. ■

example 22 The `dontMeasure` field can also be specified in the forms demonstrated in Listing 105 and Listing 106. Upon running the commands

```
cmh:~$ latexindent.pl tabular-DM.tex -l=dontMeasure3.yaml
cmh:~$ latexindent.pl tabular-DM.tex -l=dontMeasure4.yaml
```

we receive the output given in Listing 104

LISTING 104: tabular-DM.tex using Listing 105 or Listing 105

```
\begin{tabular}{cccc}
   aaaaaa & bbbbb & ccc & dd \\
   11 & 2  & 33 & 4          \\
   5  & 66 & 7  & 8
\end{tabular}
```

LISTING 105: dontMeasure3.yaml

```
lookForAlignDelims:
   tabular:
      dontMeasure:
        -
          this: aaaaaa
          applyTo: cell
        -
          this: bbbbb
        - ccc
        - dd
```

LISTING 106: dontMeasure4.yaml

```
lookForAlignDelims:
   tabular:
      dontMeasure:
        -
          regex: [a-z]
          applyTo: cell
```

We note that in:

- Listing 105 we have specified entries not to be measured, each one has a *string* in the `this` field, together with an optional specification of `applyTo` as `cell`;
- Listing 106 we have specified entries not to be measured as a *regular expression* using the `regex` field, together with an optional specification of `applyTo` as `cell` field, together with an optional specification of `applyTo` as `cell`.

In both cases, the default value of `applyTo` is `cell`, and does not need to be specified. ■

example 23 We may also specify the `applyTo` field as `row`, a demonstration of which is given in Listing 108; upon running

```
cmh:~$ latexindent.pl tabular-DM.tex -l=dontMeasure5.yaml
```

we receive the output in Listing 107.

LISTING 107: tabular-DM.tex using Listing 108

```
\begin{tabular}{cccc}
   aaaaaa & bbbbb & ccc & dd \\
   11 & 2  & 33 & 4          \\
   5  & 66 & 7  & 8
\end{tabular}
```

LISTING 108: dontMeasure5.yaml

```
lookForAlignDelims:
   tabular:
      dontMeasure:
        -
          this: aaaaaa&bbbbb&ccc&dd\\
          applyTo: row
```

■

example 24 Finally, the `applyTo` field can be specified as `row`, together with a `regex` expression. For example, for the settings given in Listing 110, upon running

```
cmh:~$ latexindent.pl tabular-DM.tex -l=dontMeasure6.yaml
```

we receive the output in Listing 109.

LISTING 109: `tabular-DM.tex` using Listing 110

```
\begin{tabular}{cccc}
   aaaaaa & bbbbb & ccc & dd \\
   11 & 2  & 33 & 4          \\
   5  & 66 & 7  & 8
\end{tabular}
```

LISTING 110: `dontMeasure6.yaml`

```
lookForAlignDelims:
   tabular:
      dontMeasure:
        -
          regex: [a-z]
          applyTo: row
```

■

5.5.4 lookForAlignDelims: the delimiterRegEx and delimiterJustification feature

N: 2020-03-21

The delimiter alignment will, by default, align code blocks at the ampersand character. The behaviour is controlled by the `delimiterRegEx` field within `lookForAlignDelims`; the default value is `'(?<!\\)(&)'`, which can be read as: *an ampersand, as long as it is not immediately preceded by a backslash*.

Warning!

Important: note the 'capturing' parenthesis in the `(&)` which are necessary; if you intend to customise this field, then be sure to include them appropriately.

example 25 We demonstrate how to customise this with respect to the code given in Listing 111; the default output from `latexindent.pl` is given in Listing 112.

LISTING 111: `tabbing.tex`

```
\begin{tabbing}
    aa \=   bb \= cc \= dd \= ee \\
    \>2\> 1 \> 7 \> 3 \\
    \>3 \> 2\>8\> 3 \\
    \>4 \>2 \\
\end{tabbing}
```

LISTING 112: `tabbing.tex` default output

```
\begin{tabbing}
   aa \=   bb \= cc \= dd \= ee \\
   \>2\> 1 \> 7 \> 3 \\
   \>3 \> 2\>8\> 3 \\
   \>4 \>2 \\
\end{tabbing}
```

Let's say that we wish to align the code at either the `\=` or `\>`. We employ the settings given in Listing 114 and run the command

```
cmh:~$ latexindent.pl tabbing.tex -l=delimiterRegEx1.yaml
```

to receive the output given in Listing 113.

LISTING 113: `tabbing.tex` using Listing 114

```
\begin{tabbing}
   aa \= bb \= cc \= dd \= ee \\
      \> 2  \> 1  \> 7  \> 3  \\
      \> 3  \> 2  \> 8  \> 3  \\
      \> 4  \> 2              \\
\end{tabbing}
```

LISTING 114: `delimiterRegEx1.yaml`

```
lookForAlignDelims:
   tabbing:
    delimiterRegEx: '(\\(?:=|>))'
```

We note that:

- in Listing 113 the code has been aligned, as intended, at both the `\=` and `\>`;

- in Listing 114 we have heeded the warning and captured the expression using grouping parenthesis, specified a backslash using \\ and said that it must be followed by either = or >.

■

example 26 We can explore `delimiterRegEx` a little further using the settings in Listing 116 and run the command

```
cmh:~$ latexindent.pl tabbing.tex -l=delimiterRegEx2.yaml
```

to receive the output given in Listing 115.

LISTING 115: tabbing.tex using Listing 116

```
\begin{tabbing}
   aa \=   bb \= cc \= dd \= ee \\
    \> 2 \> 1 \> 7 \> 3         \\
    \> 3 \> 2 \> 8 \> 3         \\
    \> 4 \> 2                   \\
\end{tabbing}
```

LISTING 116: delimiterRegEx2.yaml

```
lookForAlignDelims:
   tabbing:
    delimiterRegEx: '(\\>)'
```

We note that only the \> have been aligned.

■

example 27 Of course, the other lookForAlignDelims options can be used alongside the `delimiterRegEx`; regardless of the type of delimiter being used (ampersand or anything else), the fields from Listing 62 on page 34 remain the same; for example, using the settings in Listing 118, and running

```
cmh:~$ latexindent.pl tabbing.tex -l=delimiterRegEx3.yaml
```

to receive the output given in Listing 117.

LISTING 117: tabbing.tex using Listing 118

```
\begin{tabbing}
   aa\=bb\=cc\=dd\=ee \\
     \>2 \>1 \>7 \>3  \\
     \>3 \>2 \>8 \>3  \\
     \>4 \>2          \\
\end{tabbing}
```

LISTING 118: delimiterRegEx3.yaml

```
lookForAlignDelims:
   tabbing:
    delimiterRegEx: '(\\(?:=|>))'
    spacesBeforeAmpersand: 0
    spacesAfterAmpersand: 0
```

■

example 28 It is possible that delimiters specified within `delimiterRegEx` can be of different lengths. Consider the file in Listing 119, and associated YAML in Listing 121. Note that the Listing 121 specifies the option for the delimiter to be either # or \>, *which are different lengths*. Upon running the command

```
cmh:~$ latexindent.pl tabbing1.tex -l=delimiterRegEx4.yaml -o=+-mod4
```

we receive the output in Listing 120.

LISTING 119: tabbing1.tex

```
\begin{tabbing}
    1#22\>333\\
    xxx#aaa#yyyyy\\
    .##&\\
\end{tabbing}
```

LISTING 120: tabbing1-mod4.tex

```
\begin{tabbing}
   1   # 22  \> 333   \\
   xxx # aaa #  yyyyy \\
   .   #     #  &     \\
\end{tabbing}
```

LISTING 121: delimiterRegEx4.yaml

```
lookForAlignDelims:
   tabbing:
    delimiterRegEx: '(#|\\>)'
```

■

example 29 You can set the *delimiter* justification as either `left` (default) or `right`, which will only have effect when delimiters in the same column have different lengths. Using the settings in Listing 123 and running the command

```
cmh:~$ latexindent.pl tabbing1.tex -l=delimiterRegEx5.yaml -o=+-mod5
```

gives the output in Listing 122.

LISTING 122: tabbing1-mod5.tex

```
\begin{tabbing}
   1   # 22  \> 333   \\
   xxx # aaa  # yyyyy \\
   .   #      # &     \\
\end{tabbing}
```

LISTING 123: delimiterRegEx5.yaml

```
lookForAlignDelims:
   tabbing:
    delimiterRegEx: '(#|\\>)'
    delimiterJustification: right
```

Note that in Listing 122 the second set of delimiters have been *right aligned* – it is quite subtle! ■

5.5.5 lookForAlignDelims: lookForChildCodeBlocks

N: 2021-12-13

There may be scenarios in which you would prefer to instruct `latexindent.pl` *not* to search for child blocks; in which case setting `lookForChildCodeBlocks` to 0 may be a good way to proceed.

example 30 Using the settings from Listing 101 on page 41 on the file in Listing 124 and running the command

```
cmh:~$ latexindent.pl tabular-DM-1.tex -l=dontMeasure1.yaml -o=+-mod1
```

gives the output in Listing 125.

LISTING 124: tabular-DM-1.tex

```
\begin{tabular}{cc}
1&2\only<2->{\\
3&4}
\end{tabular}
```

LISTING 125: tabular-DM-1-mod1.tex

```
\begin{tabular}{cc}
   1 & 2\only<2->{ \\
      3 & 4}
\end{tabular}
```

We can improve the output from Listing 125 by employing the settings in Listing 127

```
cmh:~$ latexindent.pl tabular-DM-1.tex -l=dontMeasure1a.yaml -o=+-mod1a
```

which gives the output in Listing 127.

LISTING 126: tabular-DM-1-mod1a.tex

```
\begin{tabular}{cc}
   1 & 2\only<2->{ \\
   3 & 4}
\end{tabular}
```

LISTING 127: dontMeasure1a.yaml

```
lookForAlignDelims:
   tabular:
      dontMeasure: largest
      lookForChildCodeBlocks: 0
```

■

5.5.6 lookForAlignDelims: alignContentAfterDoubleBackSlash

N: 2023-05-01

You can instruct `latexindent` to align content after the double back slash. See also Section 6.3.2 on page 117.

example 31 We consider the file in Listing 128, and the default output given in Listing 129.

LISTING 128: tabular5.tex

```
\begin{tabular}{cc}
  1 & 2
  \\ aa & bbb
  \\ ccc&ddd
\end{tabular}
```

LISTING 129: tabular5-default.tex

```
\begin{tabular}{cc}
   1 & 2
   \\ aa & bbb
   \\ ccc&ddd
\end{tabular}
```

Using the settings given in Listing 131 and running

```
cmh:~$ latexindent.pl -s tabular5.tex -l alignContentAfterDBS1 -o=+-mod1
```

gives the output in Listing 130.

LISTING 130: tabular5-mod1.tex

```
\begin{tabular}{cc}
      1   & 2
   \\ aa  & bbb
   \\ ccc & ddd
\end{tabular}
```

LISTING 131: alignContentAfterDBS1.yaml

```
lookForAlignDelims:
   tabular:
      alignContentAfterDoubleBackSlash: 1
```

■

example 32 When using the `alignContentAfterDoubleBackSlash` feature, then you can also specify how many spaces to insert after the double backslash; the default is 1.

N: 2023-05-01

Starting from Listing 128 and using the the settings given in Listing 133

```
cmh:~$ latexindent.pl -s tabular5.tex -l alignContentAfterDBS2 -o=+-mod2
```

gives the output in Listing 132.

LISTING 132: tabular5-mod2.tex

```
\begin{tabular}{cc}
        1   & 2
   \\   aa  & bbb
   \\   ccc & ddd
\end{tabular}
```

LISTING 133: alignContentAfterDBS2.yaml

```
lookForAlignDelims:
   tabular:
      alignContentAfterDoubleBackSlash: 1
      spacesAfterDoubleBackSlash: 3
```

■

5.6 Indent after items, specials and headings

`indentAfterItems`: ⟨*fields*⟩

The environment names specified in `indentAfterItems` tell `latexindent.pl` to look for `\item` commands; if these switches are set to 1 then indentation will be performed so as indent the code after each `item`. A demonstration is given in Listings 135 and 136

LISTING 134: indentAfterItems

```
indentAfterItems:
    itemize: 1
    itemize*: 1
    enumerate: 1
    enumerate*: 1
    description: 1
    description*: 1
    list: 1
```

LISTING 135: items1.tex

```
\begin{itemize}
\item some text here
some more text here
some more text here
\item another item
some more text here
\end{itemize}
```

LISTING 136: items1.tex default output

```
\begin{itemize}
   \item some text here
         some more text here
         some more text here
   \item another item
         some more text here
\end{itemize}
```

`itemNames`: ⟨*fields*⟩

If you have your own `item` commands (perhaps you prefer to use `myitem`, for example) then you can put populate them in `itemNames`. For example, users of the `exam` document class might like to add `parts` to `indentAfterItems` and `part` to `itemNames` to their user settings (see Section 4 on page 23 for details of how to configure user settings, and Listing 33 on page 24 in particular .)

LISTING 137: `itemNames`

```
252 itemNames:
253     item: 1
254     myitem: 1
```

`specialBeginEnd`: ⟨*fields*⟩

U: 2017-08-21

The fields specified in `specialBeginEnd` are, in their default state, focused on math mode begin and end statements, but there is no requirement for this to be the case; Listing 138 shows the default settings of `specialBeginEnd`.

LISTING 138: `specialBeginEnd`

```
258 specialBeginEnd:
259     displayMath:
260         begin: (?<!\\)\\\[            # \[ but *not* \\[
261         end:   \\\]                   # \]
262         lookForThis: 1
263     inlineMath:
264         begin: (?<!\$)(?<!\\)\$(?!\$) # $ but *not* \$ or $$
265         body:  [^$]*?                 # anything *except* $
266         end:   (?<!\\)\$(?!\$)        # $ but *not* \$ or $$
267         lookForThis: 1
268     displayMathTeX:
269         begin: \$\$                   # $$
270         end:   \$\$                   # $$
271         lookForThis: 1
272     specialBeforeCommand: 0
```

The field `displayMath` represents `\[...\]`, `inlineMath` represents `$...$` and `displayMathTex` represents `$$...$$`. You can, of course, rename these in your own YAML files (see Section 4.2 on page 24); indeed, you might like to set up your own special begin and end statements.

example 33 A demonstration of the before-and-after results are shown in Listings 139 and 140; explicitly, running the command

```
cmh:~$ latexindent.pl special1.tex -o=+-default
```

gives the output given in Listing 140.

LISTING 139: special1.tex before

```
The function $f$ has formula
\[
f(x)=x^2.
\]
If you like splitting dollars,
$
g(x)=f(2x)
$
```

LISTING 140: special1.tex default output

```
The function $f$ has formula
\[
   f(x)=x^2.
\]
If you like splitting dollars,
$
   g(x)=f(2x)
$
```

For each field, `lookForThis` is set to 1 by default, which means that `latexindent.pl` will look for this pattern; you can tell `latexindent.pl` not to look for the pattern, by setting `lookForThis` to 0.

N: 2017-08-21

There are examples in which it is advantageous to search for `specialBeginEnd` fields *before* searching for commands, and the `specialBeforeCommand` switch controls this behaviour.

example 34 For example, consider the file shown in Listing 141.

LISTING 141: specialLR.tex

```
\begin{equation}
\left[
\sqrt{
a+b
}
\right]
\end{equation}
```

Now consider the YAML files shown in Listings 142 and 143

LISTING 142: specialsLeftRight.yaml

```
specialBeginEnd:
    leftRightSquare:
        begin: '\\left\['
        end: '\\right\]'
        lookForThis: 1
```

LISTING 143: specialBeforeCommand.yaml

```
specialBeginEnd:
    specialBeforeCommand: 1
```

Upon running the following commands

```
cmh:~$ latexindent.pl specialLR.tex -l=specialsLeftRight.yaml
cmh:~$ latexindent.pl specialLR.tex -l=specialsLeftRight.yaml,specialBeforeCommand.yaml
```

we receive the respective outputs in Listings 144 and 145.

LISTING 144: specialLR.tex using Listing 142

```
\begin{equation}
   \left[
      \sqrt{
         a+b
      }
      \right]
\end{equation}
```

LISTING 145: specialLR.tex using Listings 142 and 143

```
\begin{equation}
   \left[
      \sqrt{
         a+b
      }
   \right]
\end{equation}
```

Notice that in:

- Listing 144 the `\left` has been treated as a *command*, with one optional argument;
- Listing 145 the `specialBeginEnd` pattern in Listing 142 has been obeyed because List-

ing 143 specifies that the `specialBeginEnd` should be sought *before* commands.

N: 2018-04-27

You can,optionally, specify the `middle` field for anything that you specify in `specialBeginEnd`.

example 35 For example, let's consider the `.tex` file in Listing 146.

LISTING 146: `special2.tex`

```
\If
something 0
\ElsIf
something 1
\ElsIf
something 2
\ElsIf
something 3
\Else
something 4
\EndIf
```

Upon saving the YAML settings in Listings 148 and 150 and running the commands

```
cmh:~$ latexindent.pl special2.tex -l=middle
cmh:~$ latexindent.pl special2.tex -l=middle1
```

then we obtain the output given in Listings 147 and 149.

LISTING 147: `special2.tex` using Listing 148

```
\If
   something 0
\ElsIf
   something 1
\ElsIf
   something 2
\ElsIf
   something 3
   \Else
   something 4
\EndIf
```

LISTING 148: `middle.yaml`

```
specialBeginEnd:
    If:
        begin: '\\If'
        middle: '\\ElsIf'
        end: '\\EndIf'
        lookForThis: 1
```

LISTING 149: `special2.tex` using Listing 150

```
\If
   something 0
\ElsIf
   something 1
\ElsIf
   something 2
\ElsIf
   something 3
\Else
   something 4
\EndIf
```

LISTING 150: `middle1.yaml`

```
specialBeginEnd:
    If:
        begin: '\\If'
        middle:
          - '\\ElsIf'
          - '\\Else'
        end: '\\EndIf'
        lookForThis: 1
```

We note that:

- in Listing 147 the bodies of each of the `Elsif` statements have been indented appropriately;
- the `Else` statement has *not* been indented appropriately in Listing 147 – read on!

- we have specified multiple settings for the `middle` field using the syntax demonstrated in Listing 150 so that the body of the `Else` statement has been indented appropriately in Listing 149.

■

N: 2018-08-13

You may specify fields in `specialBeginEnd` to be treated as verbatim code blocks by changing `lookForThis` to be `verbatim`.

example 36 For example, beginning with the code in Listing 151 and the YAML in Listing 152, and running

```
cmh:~$ latexindent.pl special3.tex -l=special-verb1
```

then the output in Listing 151 is unchanged.

LISTING 151: special3.tex and output using Listing 152

```
\[
  special code
blocks
    can be
  treated
    as verbatim\]
```

LISTING 152: special-verb1.yaml

```
specialBeginEnd:
    displayMath:
        lookForThis: verbatim
```

■

We can combine the `specialBeginEnd` with the `lookForAlignDelims` feature.

example 37 We begin with the code in Listing 153.

LISTING 153: special-align.tex

```
\begin{tikzpicture}
  \path (A) edge node {0,1,L}(B)
  edge node {1,1,R} (C)
  (B) edge [loop above]node {1,1,L}(B)
  edge node {0,1,L}(C)
  (C) edge node {0,1,L}(D)
  edge [bend left]node {1,0,R}(E)
  (D) edge[loop below] node {1,1,R}(D)
  edge node {0,1,R}(A)
  (E) edge[bend left] node {1,0,R} (A);
\end{tikzpicture}
```

Let's assume that our goal is to align the code at the `edge` and `node` text; we employ the code given in Listing 155 and run the command

```
cmh:~$ latexindent.pl special-align.tex -l edge-node1.yaml -o=+-mod1
```

to receive the output in Listing 154.

LISTING 154: special-align.tex using Listing 155

```
\begin{tikzpicture}
   \path (A) edge              node {0,1,L}(B)
             edge              node {1,1,R} (C)
         (B) edge [loop above] node {1,1,L}(B)
             edge              node {0,1,L}(C)
         (C) edge              node {0,1,L}(D)
             edge [bend left]  node {1,0,R}(E)
         (D) edge [loop below] node {1,1,R}(D)
             edge              node {0,1,R}(A)
         (E) edge [bend left]  node {1,0,R} (A);
\end{tikzpicture}
```

LISTING 155: edge-node1.yaml

```
specialBeginEnd:
    path:
        begin: '\\path'
        end: ';'
        lookForThis: 1
    specialBeforeCommand: 1

lookForAlignDelims:
   path:
      delimiterRegEx: '(edge|node)'
```

The output in Listing 154 is not quite ideal. We can tweak the settings within Listing 155 in order to improve the output; in particular, we employ the code in Listing 157 and run the command

```
cmh:~$ latexindent.pl special-align.tex -l edge-node2.yaml -o=+-mod2
```

to receive the output in Listing 156.

LISTING 156: special-align.tex using Listing 157

```
\begin{tikzpicture}
   \path (A) edge               node {0,1,L} (B)
             edge               node {1,1,R} (C)
         (B) edge [loop above]  node {1,1,L} (B)
             edge               node {0,1,L} (C)
         (C) edge               node {0,1,L} (D)
             edge [bend left]   node {1,0,R} (E)
         (D) edge [loop below]  node {1,1,R} (D)
             edge               node {0,1,R} (A)
         (E) edge [bend left]   node {1,0,R} (A);
\end{tikzpicture}
```

LISTING 157: edge-node2.yaml

```
specialBeginEnd:
    path:
        begin: '\\path'
        end: ';'
    specialBeforeCommand: 1

lookForAlignDelims:
   path:
      delimiterRegEx:
    '(edge|node\h*\{[0-9,A-Z]+\})'
```

U: 2021-06-19

The `lookForThis` field can be considered optional; by default, it is assumed to be 1, which is demonstrated in Listing 157.

N: 2023-09-23

Referencing Listing 138 on page 47 we see that each of the `specialBeginEnd` fields can *optionally* accept the `body` field. If the `body` field is omitted, then `latexindent.pl` uses a value that means

> anything except one of the begin statements from `specialBeginEnd`.

In general, it is usually *not* necessary to specify the `body` field, but let's detail an example just for reference.

example 38 We begin with the example in Listing 158

LISTING 158: special-body.tex

```
$
a
+
(
b + c
-
(
    d
)
)
=
e
$
and
$
f + g = h
$
```

Using the settings in Listing 160 and running the command

```
cmh:~$ latexindent.pl special-body.tex -l=special-body1.yaml
```

gives the output in Listing 159.

LISTING 159: special-body.tex using Listing 160

```
$
  a
  +
  (
    b + c
    -
    (
      d
    )
  )
  =
  e
$
and
$
  f + g = h
$
```

LISTING 160: special-body1.yaml

```
defaultIndent: "  "
specialBeginEnd:
  specialBeforeCommand: 1
  parentheses:
    begin: \(
    end: \)
```

We note that the output in Listing 159 is as we would expect, even *without* the body field specified.

Another option (purely for reference) that leaves the output in Listing 159 unchanged is shown in Listing 161.

LISTING 161: special-body2.yaml

```
defaultIndent: "  "
specialBeginEnd:
  specialBeforeCommand: 1
  parentheses:
    begin: \(
    body: [^()]*?
    end: \)
```

The body field in Listing 161 means *anything except (or)*. ■

indentAfterHeadings: ⟨*fields*⟩

This field enables the user to specify indentation rules that take effect after heading commands such as \part, \chapter, \section, \subsection*, or indeed any user-specified command written in this field.[5]

LISTING 162: indentAfterHeadings

```
282 indentAfterHeadings:
283     part:
284         indentAfterThisHeading: 0
285         level: 1
286     chapter:
287         indentAfterThisHeading: 0
288         level: 2
289     section:
290         indentAfterThisHeading: 0
291         level: 3
```

The default settings do *not* place indentation after a heading, but you can easily switch them on by changing indentAfterThisHeading from 0 to 1. The level field tells latexindent.pl the hierarchy of the heading structure in your document. You might, for example, like to have both section and subsection set with level: 3 because you do not want the indentation to go too

[5] There is a slight difference in interface for this field when comparing Version 2.2 to Version 3.0; see appendix L on page 175 for details.

deep.

You can add any of your own custom heading commands to this field, specifying the `level` as appropriate. You can also specify your own indentation in `indentRules` (see Section 5.8 on the following page); you will find the default `indentRules` contains `chapter: " "` which tells `latexindent.pl` simply to use a space character after `chapter` headings (once `indent` is set to 1 for `chapter`).

example 39 For example, assuming that you have the code in Listing 164 saved into `headings1.yaml`, and that you have the text from Listing 163 saved into `headings1.tex`.

LISTING 163: `headings1.tex`

```
\subsection{subsection title}
subsection text
subsection text
\paragraph{paragraph title}
paragraph text
paragraph text
\paragraph{paragraph title}
paragraph text
paragraph text
```

LISTING 164: `headings1.yaml`

```
indentAfterHeadings:
    subsection:
       indentAfterThisHeading: 1
       level: 1
    paragraph:
       indentAfterThisHeading: 1
       level: 2
```

If you run the command

```
cmh:~$ latexindent.pl headings1.tex -l=headings1.yaml
```

then you should receive the output given in Listing 165.

LISTING 165: `headings1.tex` using Listing 164

```
\subsection{subsection title}
    subsection text
    subsection text
    \paragraph{paragraph title}
        paragraph text
        paragraph text
    \paragraph{paragraph title}
        paragraph text
        paragraph text
```

LISTING 166: `headings1.tex` second modification

```
\subsection{subsection title}
    subsection text
    subsection text
\paragraph{paragraph title}
    paragraph text
    paragraph text
\paragraph{paragraph title}
    paragraph text
    paragraph text
```

■

Now say that you modify the YAML from Listing 164 so that the `paragraph` `level` is 1; after running

```
cmh:~$ latexindent.pl headings1.tex -l=headings1.yaml
```

you should receive the code given in Listing 166; notice that the `paragraph` and `subsection` are at the same indentation level.

`maximumIndentation`: ⟨*horizontal space*⟩

N: 2017-08-21

You can control the maximum indentation given to your file by specifying the `maximumIndentation` field as horizontal space (but *not* including tabs). This feature uses the `Text::Tabs` module [46], and is *off* by default.

example 40 For example, consider the example shown in Listing 167 together with the default output shown in Listing 168.

LISTING 167: mult-nested.tex

```
\begin{one}
one
\begin{two}
    two
\begin{three}
     three
\begin{four}
       four
\end{four}
\end{three}
\end{two}
\end{one}
```

LISTING 168: mult-nested.tex default output

```
\begin{one}
␣␣␣one
␣␣␣\begin{two}
␣␣␣␣␣␣two
␣␣␣␣␣␣\begin{three}
␣␣␣␣␣␣␣␣␣␣three
␣␣␣␣␣␣␣␣␣␣\begin{four}
␣␣␣␣␣␣␣␣␣␣␣␣␣␣four
␣␣␣␣␣␣␣␣␣␣\end{four}
␣␣␣␣␣␣\end{three}
␣␣␣\end{two}
\end{one}
```

example 41 Now say that, for example, you have the `max-indentation1.yaml` from Listing 170 and that you run the following command:

```
cmh:~$ latexindent.pl mult-nested.tex -l=max-indentation1
```

You should receive the output shown in Listing 169.

LISTING 169: mult-nested.tex using Listing 170

```
\begin{one}
␣one
␣\begin{two}
␣two
␣\begin{three}
␣three
␣\begin{four}
␣four
␣\end{four}
␣\end{three}
␣\end{two}
\end{one}
```

LISTING 170: max-indentation1.yaml

```
maximumIndentation: " "
```

Comparing the output in Listings 168 and 169 we notice that the (default) tabs of indentation have been replaced by a single space.

In general, when using the `maximumIndentation` feature, any leading tabs will be replaced by equivalent spaces except, of course, those found in `verbatimEnvironments` (see Listing 38 on page 29) or `noIndentBlock` (see Listing 44 on page 30).

5.7 The code blocks known latexindent.pl

As of Version 3.0, `latexindent.pl` processes documents using code blocks; each of these are shown in Table 2.

N: 2019-07-13

We will refer to these code blocks in what follows. Note that the fine tuning of the definition of the code blocks detailed in Table 2 is discussed in Section 9 on page 143.

5.8 noAdditionalIndent and indentRules

`latexindent.pl` operates on files by looking for code blocks, as detailed in Section 5.7; for each type of code block in Table 2 on the following page (which we will call a ⟨*thing*⟩ in what follows) it searches YAML fields for information in the following order:

1. `noAdditionalIndent` for the *name* of the current ⟨*thing*⟩;
2. `indentRules` for the *name* of the current ⟨*thing*⟩;

TABLE 2: Code blocks known to `latexindent.pl`

Code block	characters allowed in name	example

environments	`a-zA-Z@\*0-9_\\`	`\begin{myenv}`
		`body of myenv`
		`\end{myenv}`

optionalArguments	*inherits* name from parent (e.g environment name)	`[`
		`opt arg text`
		`]`

mandatoryArguments	*inherits* name from parent (e.g environment name)	`{`
		`mand arg text`
		`}`

commands	`+a-zA-Z@\*0-9_\:`	`\mycommand`⟨*arguments*⟩
keyEqualsValuesBracesBrackets	`a-zA-Z@\*0-9_\/.\h\{\}:\#-`	`my key/.style=`⟨*arguments*⟩
namedGroupingBracesBrackets	`0-9\.a-zA-Z@\*><`	`in`⟨*arguments*⟩
UnNamedGroupingBracesBrackets	*No name!*	`{` or `[` or `,` or `\&` or `)` or `(` or `$` followed by ⟨*arguments*⟩

ifElseFi	`@a-zA-Z` but must begin with either `\if` of `\@if`	`\ifnum...`
		`...`
		`\else`
		`...`
		`\fi`

items	User specified, see Listings 134 and 137 on page 46 and on page 47	`\begin{enumerate}`
		`  \item ...`
		`\end{enumerate}`

specialBeginEnd	User specified, see Listing 138 on page 47	`\[`
		`  ...`
		`\]`

afterHeading	User specified, see Listing 162 on page 52	`\chapter{title}`
		`  ...`
		`\section{title}`

filecontents	User specified, see Listing 54 on page 32	`\begin{filecontents}`
		`...`
		`\end{filecontents}`

3. `noAdditionalIndentGlobal` for the *type* of the current ⟨*thing*⟩;
4. `indentRulesGlobal` for the *type* of the current ⟨*thing*⟩.

Using the above list, the first piece of information to be found will be used; failing that, the value of `defaultIndent` is used. If information is found in multiple fields, the first one according to the list above will be used; for example, if information is present in both `indentRules` and in `noAdditionalIndentGlobal`, then the information from `indentRules` takes priority.

We now present details for the different type of code blocks known to `latexindent.pl`, as detailed in Table 2 on the previous page; for reference, there follows a list of the code blocks covered.

5.8.1 Environments and their arguments

There are a few different YAML switches governing the indentation of environments; let's start with the code shown in Listing 171.

LISTING 171: `myenv.tex`

```
\begin{outer}
\begin{myenv}
  body of environment
body of environment
     body of environment
\end{myenv}
\end{outer}
```

`noAdditionalIndent`: ⟨*fields*⟩

example 42 If we do not wish `myenv` to receive any additional indentation, we have a few choices available to us, as demonstrated in Listings 172 and 173.

LISTING 172: `myenv-noAdd1.yaml`

```
noAdditionalIndent:
    myenv: 1
```

LISTING 173: `myenv-noAdd2.yaml`

```
noAdditionalIndent:
    myenv:
        body: 1
```

On applying either of the following commands,

```
cmh:~$ latexindent.pl myenv.tex -l myenv-noAdd1.yaml
cmh:~$ latexindent.pl myenv.tex -l myenv-noAdd2.yaml
```

we obtain the output given in Listing 174; note in particular that the environment myenv has not received any *additional* indentation, but that the outer environment *has* still received indentation.

LISTING 174: myenv.tex output (using either Listing 172 or Listing 173)

```
\begin{outer}
   \begin{myenv}
   body of environment
   body of environment
   body of environment
   \end{myenv}
\end{outer}
```

■

example 43 Upon changing the YAML files to those shown in Listings 175 and 176, and running either

```
cmh:~$ latexindent.pl myenv.tex -l myenv-noAdd3.yaml
cmh:~$ latexindent.pl myenv.tex -l myenv-noAdd4.yaml
```

we obtain the output given in Listing 177.

LISTING 175: myenv-noAdd3.yaml

```
noAdditionalIndent:
    myenv: 0
```

LISTING 176: myenv-noAdd4.yaml

```
noAdditionalIndent:
    myenv:
        body: 0
```

LISTING 177: myenv.tex output (using either Listing 175 or Listing 176)

```
\begin{outer}
   \begin{myenv}
      body of environment
      body of environment
      body of environment
   \end{myenv}
\end{outer}
```

■

example 44 Let's now allow myenv to have some optional and mandatory arguments, as in Listing 178.

LISTING 178: myenv-args.tex

```
\begin{outer}
\begin{myenv}[%
  optional argument text
        optional argument text]%
  { mandatory argument text
 mandatory argument text}
  body of environment
body of environment
     body of environment
\end{myenv}
\end{outer}
```

Upon running

```
cmh:~$ latexindent.pl -l=myenv-noAdd1.yaml myenv-args.tex
```

we obtain the output shown in Listing 179; note that the optional argument, mandatory argument and body *all* have received no additional indent. This is because, when `noAdditionalIndent` is specified in 'scalar' form (as in Listing 172), then *all* parts of the environment (body, optional and mandatory arguments) are assumed to want no additional indent.

LISTING 179: `myenv-args.tex` using Listing 172

```
\begin{outer}
   \begin{myenv}[%
   optional argument text
   optional argument text]%
   { mandatory argument text
   mandatory argument text}
   body of environment
   body of environment
   body of environment
   \end{myenv}
\end{outer}
```

example 45 We may customise `noAdditionalIndent` for optional and mandatory arguments of the `myenv` environment, as shown in, for example, Listings 180 and 181.

LISTING 180: `myenv-noAdd5.yaml`

```
noAdditionalIndent:
    myenv:
        body: 0
        optionalArguments: 1
        mandatoryArguments: 0
```

LISTING 181: `myenv-noAdd6.yaml`

```
noAdditionalIndent:
    myenv:
        body: 0
        optionalArguments: 0
        mandatoryArguments: 1
```

Upon running

```
cmh:~$ latexindent.pl myenv.tex -l myenv-noAdd5.yaml
cmh:~$ latexindent.pl myenv.tex -l myenv-noAdd6.yaml
```

we obtain the respective outputs given in Listings 182 and 183. Note that in Listing 182 the text for the *optional* argument has not received any additional indentation, and that in Listing 183 the *mandatory* argument has not received any additional indentation; in both cases, the *body* has not received any additional indentation.

LISTING 182: `myenv-args.tex` using Listing 180

```
\begin{outer}
   \begin{myenv}[%
      optional argument text
      optional argument text]%
      { mandatory argument text
         mandatory argument text}
      body of environment
      body of environment
      body of environment
   \end{myenv}
\end{outer}
```

LISTING 183: `myenv-args.tex` using Listing 181

```
\begin{outer}
   \begin{myenv}[%
         optional argument text
         optional argument text]%
      { mandatory argument text
      mandatory argument text}
      body of environment
      body of environment
      body of environment
   \end{myenv}
\end{outer}
```

`indentRules`: ⟨*fields*⟩

example 46 We may also specify indentation rules for environment code blocks using the `indentRules` field; see, for example, Listings 184 and 185.

LISTING 184: `myenv-rules1.yaml`

```
indentRules:
    myenv: "    "
```

LISTING 185: `myenv-rules2.yaml`

```
indentRules:
    myenv:
        body: "    "
```

On applying either of the following commands,

```
cmh:~$ latexindent.pl myenv.tex -l myenv-rules1.yaml
cmh:~$ latexindent.pl myenv.tex -l myenv-rules2.yaml
```

we obtain the output given in Listing 186; note in particular that the environment `myenv` has received one tab (from the `outer` environment) plus three spaces from Listing 184 or 185.

LISTING 186: `myenv.tex` output (using either Listing 184 or Listing 185)

```
\begin{outer}
___\begin{myenv}
___␣␣␣body␣of␣environment
___␣␣␣body␣of␣environment
___␣␣␣body␣of␣environment
___\end{myenv}
\end{outer}
```

■

If you specify a field in `indentRules` using anything other than horizontal space, it will be ignored.

example 47 Returning to the example in Listing 178 that contains optional and mandatory arguments. Upon using Listing 184 as in

```
cmh:~$ latexindent.pl myenv-args.tex -l=myenv-rules1.yaml
```

we obtain the output in Listing 187; note that the body, optional argument and mandatory argument of `myenv` have *all* received the same customised indentation.

LISTING 187: `myenv-args.tex` using Listing 184

```
\begin{outer}
___\begin{myenv}[%
___␣␣␣␣␣␣␣optional␣argument␣text
___␣␣␣␣␣␣␣optional␣argument␣text]%
___␣␣␣{␣mandatory␣argument␣text
___␣␣␣␣␣␣␣mandatory␣argument␣text}
___␣␣␣body␣of␣environment
___␣␣␣body␣of␣environment
___␣␣␣body␣of␣environment
___\end{myenv}
\end{outer}
```

■

example 48 You can specify different indentation rules for the different features using, for example, Listings 188 and 189

LISTING 188: myenv-rules3.yaml

```
indentRules:
    myenv:
        body: "    "
        optionalArguments: " "
```

LISTING 189: myenv-rules4.yaml

```
indentRules:
    myenv:
        body: "    "
        mandatoryArguments:
    "\t\t"
```

After running

```
cmh:~$ latexindent.pl myenv-args.tex -l myenv-rules3.yaml
cmh:~$ latexindent.pl myenv-args.tex -l myenv-rules4.yaml
```

then we obtain the respective outputs given in Listings 190 and 191.

LISTING 190: myenv-args.tex using Listing 188

```
\begin{outer}
    \begin{myenv}[%
        optional argument text
        optional argument text]%
        {mandatory argument text
            mandatory argument text}
        body of environment
        body of environment
        body of environment
    \end{myenv}
\end{outer}
```

LISTING 191: myenv-args.tex using Listing 189

```
\begin{outer}
    \begin{myenv}[%
        optional argument text
            optional argument text]%
        {mandatory argument text
            mandatory argument text}
        body of environment
        body of environment
        body of environment
    \end{myenv}
\end{outer}
```

Note that in Listing 190, the optional argument has only received a single space of indentation, while the mandatory argument has received the default (tab) indentation; the environment body has received three spaces of indentation.

In Listing 191, the optional argument has received the default (tab) indentation, the mandatory argument has received two tabs of indentation, and the body has received three spaces of indentation. ■

noAdditionalIndentGlobal: ⟨*fields*⟩

Assuming that your environment name is not found within neither `noAdditionalIndent` nor `indentRules`, the next place that `latexindent.pl` will look is `noAdditionalIndentGlobal`, and in particular *for the environments* key (see Listing 192).

LISTING 192: noAdditionalIndentGlobal

```
340 noAdditionalIndentGlobal:
341     environments: 0                    # 0/1
```

example 49 Let's say that you change the value of `environments` to `1` in Listing 192, and that you run

```
cmh:~$ latexindent.pl myenv-args.tex -l env-noAdditionalGlobal.yaml
cmh:~$ latexindent.pl myenv-args.tex -l myenv-rules1.yaml,env-noAdditionalGlobal.yaml
```

The respective output from these two commands are in Listings 193 and 194; in Listing 193 notice that *both* environments receive no additional indentation but that the arguments of `myenv` still *do* receive indentation. In Listing 194 notice that the *outer* environment does not receive additional indentation, but because of the settings from `myenv-rules1.yaml` (in Listing 184 on the preceding page), the `myenv` environment still *does* receive indentation.

LISTING 193: myenv-args.tex using Listing 192

```
\begin{outer}
\begin{myenv}[%
   optional argument text
   optional argument text]%
{ mandatory argument text
   mandatory argument text}
body of environment
body of environment
body of environment
\end{myenv}
\end{outer}
```

LISTING 194: myenv-args.tex using Listings 184 and 192

```
\begin{outer}
\begin{myenv}[%
      optional argument text
      optional argument text]%
   { mandatory argument text
      mandatory argument text}
   body of environment
   body of environment
   body of environment
\end{myenv}
\end{outer}
```

■

example 50 In fact, `noAdditionalIndentGlobal` also contains keys that control the indentation of optional and mandatory arguments; on referencing Listings 195 and 196

LISTING 195: opt-args-no-add-glob.yaml

```
noAdditionalIndentGlobal:
    optionalArguments: 1
```

LISTING 196: mand-args-no-add-glob.yaml

```
noAdditionalIndentGlobal:
    mandatoryArguments: 1
```

we may run the commands

```
cmh:~$ latexindent.pl myenv-args.tex -local opt-args-no-add-glob.yaml
cmh:~$ latexindent.pl myenv-args.tex -local mand-args-no-add-glob.yaml
```

which produces the respective outputs given in Listings 197 and 198. Notice that in Listing 197 the *optional* argument has not received any additional indentation, and in Listing 198 the *mandatory* argument has not received any additional indentation.

LISTING 197: myenv-args.tex using Listing 195

```
\begin{outer}
   \begin{myenv}[%
      optional argument text
      optional argument text]%
      { mandatory argument text
         mandatory argument text}
      body of environment
      body of environment
      body of environment
   \end{myenv}
\end{outer}
```

LISTING 198: myenv-args.tex using Listing 196

```
\begin{outer}
   \begin{myenv}[%
         optional argument text
         optional argument text]%
      { mandatory argument text
      mandatory argument text}
      body of environment
      body of environment
      body of environment
   \end{myenv}
\end{outer}
```

■

`indentRulesGlobal`: ⟨*fields*⟩

The final check that `latexindent.pl` will make is to look for `indentRulesGlobal` as detailed in Listing 199.

LISTING 199: indentRulesGlobal

```
356 indentRulesGlobal:
357     environments: 0                  # 0/h-space
```

example 51 If you change the `environments` field to anything involving horizontal space, say `" "`, and then run the following commands

```
cmh:~$ latexindent.pl myenv-args.tex -l env-indentRules.yaml
cmh:~$ latexindent.pl myenv-args.tex -l myenv-rules1.yaml,env-indentRules.yaml
```

then the respective output is shown in Listings 200 and 201. Note that in Listing 200, both the environment blocks have received a single-space indentation, whereas in Listing 201 the `outer` environment has received single-space indentation (specified by `indentRulesGlobal`), but `myenv` has received `"  "`, as specified by the particular `indentRules` for `myenv` Listing 184 on page 59.

LISTING 200: `myenv-args.tex` using Listing 199

```
\begin{outer}
␣\begin{myenv}[%
␣␣␣␣␣optional␣argument␣text
␣␣␣␣␣optional␣argument␣text]%
␣␣{␣mandatory␣argument␣text
␣␣␣␣␣mandatory␣argument␣text}
␣␣body␣of␣environment
␣␣body␣of␣environment
␣␣body␣of␣environment
␣\end{myenv}
\end{outer}
```

LISTING 201: `myenv-args.tex` using Listings 184 and 199

```
\begin{outer}
␣\begin{myenv}[%
␣␣␣␣␣␣␣optional␣argument␣text
␣␣␣␣␣␣␣optional␣argument␣text]%
␣␣␣␣{␣mandatory␣argument␣text
␣␣␣␣␣␣␣mandatory␣argument␣text}
␣␣␣␣body␣of␣environment
␣␣␣␣body␣of␣environment
␣␣␣␣body␣of␣environment
␣\end{myenv}
\end{outer}
```

■

example 52 You can specify `indentRulesGlobal` for both optional and mandatory arguments, as detailed in Listings 202 and 203

LISTING 202: `opt-args-indent-rules-glob.yaml`

```
indentRulesGlobal:
    optionalArguments: "\t\t"
```

LISTING 203: `mand-args-indent-rules-glob.yaml`

```
indentRulesGlobal:
    mandatoryArguments: "\t\t"
```

Upon running the following commands

```
cmh:~$ latexindent.pl myenv-args.tex -local opt-args-indent-rules-glob.yaml
cmh:~$ latexindent.pl myenv-args.tex -local mand-args-indent-rules-glob.yaml
```

we obtain the respective outputs in Listings 204 and 205. Note that the *optional* argument in Listing 204 has received two tabs worth of indentation, while the *mandatory* argument has done so in Listing 205.

LISTING 204: `myenv-args.tex` using Listing 202

```
\begin{outer}
___\begin{myenv}[%
___ ___ ___ ___optional argument text
___ ___ ___ ___optional argument text]%
___ ___{ mandatory argument text
___ ___ ___mandatory argument text}
___ ___body of environment
___ ___body of environment
___ ___body of environment
___\end{myenv}
\end{outer}
```

LISTING 205: `myenv-args.tex` using Listing 203

```
\begin{outer}
___\begin{myenv}[%
___ ___ ___optional argument text
___ ___ ___optional argument text]%
___ ___{ mandatory argument text
___ ___ ___ ___mandatory argument text}
___ ___body of environment
___ ___body of environment
___ ___body of environment
___\end{myenv}
\end{outer}
```

■

5.8.2 Environments with items

With reference to Listings 134 and 137 on page 46 and on page 47, some commands may contain `item` commands; for the purposes of this discussion, we will use the code from Listing 135 on page 46.

Assuming that you've populated `itemNames` with the name of your `item`, you can put the item name into `noAdditionalIndent` as in Listing 206, although a more efficient approach may be to change the relevant field in `itemNames` to `0`.

example 53 Similarly, you can customise the indentation that your `item` receives using `indentRules`, as in Listing 207

LISTING 206: `item-noAdd1.yaml`

```yaml
noAdditionalIndent:
    item: 1
# itemNames:
#   item: 0
```

LISTING 207: `item-rules1.yaml`

```yaml
indentRules:
    item: " "
```

Upon running the following commands

```
cmh:~$ latexindent.pl items1.tex -local item-noAdd1.yaml
cmh:~$ latexindent.pl items1.tex -local item-rules1.yaml
```

the respective outputs are given in Listings 208 and 209; note that in Listing 208 that the text after each `item` has not received any additional indentation, and in Listing 209, the text after each `item` has received a single space of indentation, specified by Listing 207.

LISTING 208: `items1.tex` using Listing 206

```
\begin{itemize}
   \item some text here
   some more text here
   some more text here
   \item another item
   some more text here
\end{itemize}
```

LISTING 209: `items1.tex` using Listing 207

```
\begin{itemize}
␣␣␣\item␣some␣text␣here
␣␣␣␣some␣more␣text␣here
␣␣␣␣some␣more␣text␣here
␣␣␣\item␣another␣item
␣␣␣␣some␣more␣text␣here
\end{itemize}
```

■

example 54 Alternatively, you might like to populate `noAdditionalIndentGlobal` or `indentRulesGlobal` using the `items` key, as demonstrated in Listings 210 and 211. Note that there is a need to 'reset/remove' the `item` field from `indentRules` in both cases (see the hierarchy description given on page 54) as the `item` command is a member of `indentRules` by default.

LISTING 210: `items-noAdditionalGlobal.yaml`

```yaml
indentRules:
    item: 0
noAdditionalIndentGlobal:
    items: 1
```

LISTING 211: `items-indentRulesGlobal.yaml`

```yaml
indentRules:
    item: 0
indentRulesGlobal:
    items: " "
```

Upon running the following commands,

```
cmh:~$ latexindent.pl items1.tex -local items-noAdditionalGlobal.yaml
cmh:~$ latexindent.pl items1.tex -local items-indentRulesGlobal.yaml
```

the respective outputs from Listings 208 and 209 are obtained; note, however, that *all* such `item` commands without their own individual `noAdditionalIndent` or `indentRules` settings would behave as in these listings.

■

5.8.3 Commands with arguments

example 55 Let's begin with the simple example in Listing 212; when `latexindent.pl` operates on this file, the default output is shown in Listing 213. [a]

LISTING 212: `mycommand.tex`

```
\mycommand
{
mand arg text
mand arg text}
[
opt arg text
opt arg text
]
```

LISTING 213: `mycommand.tex` default output

```
\mycommand
{
   mand arg text
   mand arg text}
[
   opt arg text
   opt arg text
]
```

As in the environment-based case (see Listings 172 and 173 on page 56) we may specify `noAdditionalIndent` either in 'scalar' form, or in 'field' form, as shown in Listings 214 and 215

LISTING 214: `mycommand-noAdd1.yaml`

```
noAdditionalIndent:
    mycommand: 1
```

LISTING 215: `mycommand-noAdd2.yaml`

```
noAdditionalIndent:
    mycommand:
        body: 1
```

After running the following commands,

```
cmh:~$ latexindent.pl mycommand.tex -l mycommand-noAdd1.yaml
cmh:~$ latexindent.pl mycommand.tex -l mycommand-noAdd2.yaml
```

we receive the respective output given in Listings 216 and 217

LISTING 216: `mycommand.tex` using Listing 214

```
\mycommand
{
mand arg text
mand arg text}
[
opt arg text
opt arg text
]
```

LISTING 217: `mycommand.tex` using Listing 215

```
\mycommand
{
   mand arg text
   mand arg text}
[
   opt arg text
   opt arg text
]
```

Note that in Listing 216 that the 'body', optional argument *and* mandatory argument have *all* received no additional indentation, while in Listing 217, only the 'body' has not received any additional indentation. We define the 'body' of a command as any lines following the command name that include its optional or mandatory arguments.

[a] The command code blocks have quite a few subtleties, described in Section 5.9 on page 72.

■

example 56 We may further customise `noAdditionalIndent` for `mycommand` as we did in Listings 180 and 181 on page 58; explicit examples are given in Listings 218 and 219.

LISTING 218: mycommand-noAdd3.yaml

```
noAdditionalIndent:
    mycommand:
        body: 0
        optionalArguments: 1
        mandatoryArguments: 0
```

LISTING 219: mycommand-noAdd4.yaml

```
noAdditionalIndent:
    mycommand:
        body: 0
        optionalArguments: 0
        mandatoryArguments: 1
```

After running the following commands,

```
cmh:~$ latexindent.pl mycommand.tex -l mycommand-noAdd3.yaml
cmh:~$ latexindent.pl mycommand.tex -l mycommand-noAdd4.yaml
```

we receive the respective output given in Listings 220 and 221.

LISTING 220: mycommand.tex using Listing 218

```
\mycommand
{
   mand arg text
   mand arg text}
[
opt arg text
opt arg text
]
```

LISTING 221: mycommand.tex using Listing 219

```
\mycommand
{
mand arg text
mand arg text}
[
   opt arg text
   opt arg text
]
```

■

example 57 Attentive readers will note that the body of mycommand in both Listings 220 and 221 has received no additional indent, even though body is explicitly set to 0 in both Listings 218 and 219. This is because, by default, noAdditionalIndentGlobal for commands is set to 1 by default; this can be easily fixed as in Listings 222 and 223.

LISTING 222: mycommand-noAdd5.yaml

```
noAdditionalIndent:
    mycommand:
        body: 0
        optionalArguments: 1
        mandatoryArguments: 0
noAdditionalIndentGlobal:
    commands: 0
```

LISTING 223: mycommand-noAdd6.yaml

```
noAdditionalIndent:
    mycommand:
        body: 0
        optionalArguments: 0
        mandatoryArguments: 1
noAdditionalIndentGlobal:
    commands: 0
```

After running the following commands,

```
cmh:~$ latexindent.pl mycommand.tex -l mycommand-noAdd5.yaml
cmh:~$ latexindent.pl mycommand.tex -l mycommand-noAdd6.yaml
```

we receive the respective output given in Listings 224 and 225.

LISTING 224: mycommand.tex using Listing 222

```
\mycommand
   {
      mand arg text
      mand arg text}
   [
   opt arg text
   opt arg text
   ]
```

LISTING 225: mycommand.tex using Listing 223

```
\mycommand
   {
   mand arg text
   mand arg text}
   [
      opt arg text
      opt arg text
   ]
```

■

Both `indentRules` and `indentRulesGlobal` can be adjusted as they were for *environment* code blocks, as in Listings 188 and 189 on page 60 and Listings 199, 202 and 203 on pages 61–62.

5.8.4 ifelsefi code blocks

example 58 Let's use the simple example shown in Listing 226; when `latexindent.pl` operates on this file, the output as in Listing 227; note that the body of each of the `\if` statements have been indented, and that the `\else` statement has been accounted for correctly.

LISTING 226: `ifelsefi1.tex`

```
\ifodd\radius
\ifnum\radius<14
\pgfmathparse{100-(\radius)*4};
\else
\pgfmathparse{200-(\radius)*3};
\fi\fi
```

LISTING 227: `ifelsefi1.tex` default output

```
\ifodd\radius
   \ifnum\radius<14
      \pgfmathparse{100-(\radius)*4};
   \else
      \pgfmathparse{200-(\radius)*3};
   \fi\fi
```

It is recommended to specify `noAdditionalIndent` and `indentRules` in the 'scalar' form only for these type of code blocks, although the 'field' form would work, assuming that `body` was specified. Examples are shown in Listings 228 and 229.

LISTING 228: `ifnum-noAdd.yaml`

```
noAdditionalIndent:
    ifnum: 1
```

LISTING 229: `ifnum-indent-rules.yaml`

```
indentRules:
    ifnum: "  "
```

After running the following commands,

```
cmh:~$ latexindent.pl ifelsefi1.tex -local ifnum-noAdd.yaml
cmh:~$ latexindent.pl ifelsefi1.tex -l ifnum-indent-rules.yaml
```

we receive the respective output given in Listings 230 and 231; note that in Listing 230, the `ifnum` code block has *not* received any additional indentation, while in Listing 231, the `ifnum` code block has received one tab and two spaces of indentation.

LISTING 230: `ifelsefi1.tex` using Listing 228

```
\ifodd\radius
   \ifnum\radius<14
   \pgfmathparse{100-(\radius)*4};
   \else
   \pgfmathparse{200-(\radius)*3};
   \fi\fi
```

LISTING 231: `ifelsefi1.tex` using Listing 229

```
\ifodd\radius
␣␣␣\ifnum\radius<14
␣␣␣␣␣␣\pgfmathparse{100-(\radius)*4};
␣␣␣\else
␣␣␣␣␣␣\pgfmathparse{200-(\radius)*3};
␣␣␣\fi\fi
```

■

example 59 We may specify `noAdditionalIndentGlobal` and `indentRulesGlobal` as in Listings 232 and 233.

LISTING 232: `ifelsefi-noAdd-glob.yaml`

```
noAdditionalIndentGlobal:
    ifElseFi: 1
```

LISTING 233: `ifelsefi-indent-rules-global.yaml`

```
indentRulesGlobal:
    ifElseFi: " "
```

Upon running the following commands

```
cmh:~$ latexindent.pl ifelsefi1.tex -local ifelsefi-noAdd-glob.yaml
cmh:~$ latexindent.pl ifelsefi1.tex -l ifelsefi-indent-rules-global.yaml
```

we receive the outputs in Listings 234 and 235; notice that in Listing 234 neither of the `ifelsefi` code blocks have received indentation, while in Listing 235 both code blocks have received a single space of indentation.

LISTING 234: `ifelsefi1.tex` using Listing 232

```
\ifodd\radius
\ifnum\radius<14
\pgfmathparse{100-(\radius)*4};
\else
\pgfmathparse{200-(\radius)*3};
\fi\fi
```

LISTING 235: `ifelsefi1.tex` using Listing 233

```
\ifodd\radius
␣\ifnum\radius<14
␣␣\pgfmathparse{100-(\radius)*4};
␣\else
␣␣\pgfmathparse{200-(\radius)*3};
␣\fi\fi
```

example 60 U: 2018-04-27

We can further explore the treatment of `ifElseFi` code blocks in Listing 236, and the associated default output given in Listing 237; note, in particular, that the bodies of each of the 'or statements' have been indented.

LISTING 236: `ifelsefi2.tex`

```
\ifcase#1
zero%
\or
one%
\or
two%
\or
three%
\else
default
\fi
```

LISTING 237: `ifelsefi2.tex` default output

```
\ifcase#1
   zero%
\or
   one%
\or
   two%
\or
   three%
\else
   default
\fi
```

5.8.5 specialBeginEnd code blocks

Let's use the example from Listing 139 on page 48 which has default output shown in Listing 140 on page 48.

example 61

It is recommended to specify `noAdditionalIndent` and `indentRules` in the 'scalar' form for these type of code blocks, although the 'field' form would work, assuming that `body` was specified. Examples are shown in Listings 238 and 239.

LISTING 238: `displayMath-noAdd.yaml`

```
noAdditionalIndent:
    displayMath: 1
```

LISTING 239: `displayMath-indent-rules.yaml`

```
indentRules:
    displayMath: "\t\t\t"
```

After running the following commands,

```
cmh:~$ latexindent.pl special1.tex -local displayMath-noAdd.yaml
cmh:~$ latexindent.pl special1.tex -l displayMath-indent-rules.yaml
```

we receive the respective output given in Listings 240 and 241; note that in Listing 240, the `displayMath` code block has *not* received any additional indentation, while in Listing 241, the `displayMath` code block has received three tabs worth of indentation.

LISTING 240: special1.tex using Listing 238

```
The function $f$ has formula
\[
f(x)=x^2.
\]
If you like splitting dollars,
$
   g(x)=f(2x)
$
```

LISTING 241: special1.tex using Listing 239

```
The function $f$ has formula
\[
___f(x)=x^2.
\]
If you like splitting dollars,
$
___g(x)=f(2x)
$
```

■

example 62 We may specify `noAdditionalIndentGlobal` and `indentRulesGlobal` as in Listings 242 and 243.

LISTING 242: special-noAdd-glob.yaml

```
noAdditionalIndentGlobal:
    specialBeginEnd: 1
```

LISTING 243: special-indent-rules-global.yaml

```
indentRulesGlobal:
   specialBeginEnd: " "
```

Upon running the following commands

```
cmh:~$ latexindent.pl special1.tex -local special-noAdd-glob.yaml
cmh:~$ latexindent.pl special1.tex -l special-indent-rules-global.yaml
```

we receive the outputs in Listings 244 and 245; notice that in Listing 244 neither of the `special` code blocks have received indentation, while in Listing 245 both code blocks have received a single space of indentation.

LISTING 244: special1.tex using Listing 242

```
The function $f$ has formula
\[
f(x)=x^2.
\]
If you like splitting dollars,
$
g(x)=f(2x)
$
```

LISTING 245: special1.tex using Listing 243

```
The␣function␣$f$␣has␣formula
\[
␣f(x)=x^2.
\]
If␣you␣like␣splitting␣dollars,
$
␣g(x)=f(2x)
$
```

■

5.8.6 afterHeading code blocks

Let's use the example Listing 246 for demonstration throughout this Section. As discussed on page 53, by default `latexindent.pl` will not add indentation after headings.

LISTING 246: headings2.tex

```
\paragraph{paragraph
title}
paragraph text
paragraph text
```

example 63 On using the YAML file in Listing 248 by running the command

```
cmh:~$ latexindent.pl headings2.tex -l headings3.yaml
```

we obtain the output in Listing 247. Note that the argument of `paragraph` has received (default) indentation, and that the body after the heading statement has received (default) indentation.

LISTING 247: headings2.tex using Listing 248

```
\paragraph{paragraph
      title}
   paragraph text
   paragraph text
```

LISTING 248: headings3.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
```

If we specify `noAdditionalIndent` as in Listing 250 and run the command

```
cmh:~$ latexindent.pl headings2.tex -l headings4.yaml
```

then we receive the output in Listing 249. Note that the arguments *and* the body after the heading of `paragraph` has received no additional indentation, because we have specified `noAdditionalIndent` in scalar form.

LISTING 249: headings2.tex using Listing 250

```
\paragraph{paragraph
title}
paragraph text
paragraph text
```

LISTING 250: headings4.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
noAdditionalIndent:
    paragraph: 1
```

■

example 64 Similarly, if we specify `indentRules` as in Listing 252 and run analogous commands to those above, we receive the output in Listing 251; note that the *body*, *mandatory argument* and content *after the heading* of `paragraph` have *all* received three tabs worth of indentation.

LISTING 251: headings2.tex using Listing 252

```
\paragraph{paragraph
_____title}
___paragraph text
___paragraph text
```

LISTING 252: headings5.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
indentRules:
    paragraph: "\t\t\t"
```

■

example 65 We may, instead, specify `noAdditionalIndent` in 'field' form, as in Listing 254 which gives the output in Listing 253.

LISTING 253: headings2.tex using Listing 254

```
\paragraph{paragraph
   title}
paragraph text
paragraph text
```

LISTING 254: headings6.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
noAdditionalIndent:
    paragraph:
        body: 0
        mandatoryArguments: 0
        afterHeading: 1
```

■

example 66 Analogously, we may specify `indentRules` as in Listing 256 which gives the output in Listing 255; note that mandatory argument text has only received a single space of indentation, while the body after the heading has received three tabs worth of indentation.

LISTING 255: headings2.tex using Listing 256

```
\paragraph{paragraph
␣␣␣␣␣ title}
␣␣␣␣␣paragraph text
␣␣␣␣␣paragraph text
```

LISTING 256: headings7.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
indentRules:
    paragraph:
        mandatoryArguments: " "
        afterHeading: "\t\t\t"
```

example 67 Finally, let's consider `noAdditionalIndentGlobal` and `indentRulesGlobal` shown in Listings 258 and 260 respectively, with respective output in Listings 257 and 259. Note that in Listing 258 the *mandatory argument* of `paragraph` has received a (default) tab's worth of indentation, while the body after the heading has received *no additional indentation*. Similarly, in Listing 259, the *argument* has received both a (default) tab plus two spaces of indentation (from the global rule specified in Listing 260), and the remaining body after `paragraph` has received just two spaces of indentation.

LISTING 257: headings2.tex using Listing 258

```
\paragraph{paragraph
   title}
paragraph text
paragraph text
```

LISTING 258: headings8.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
noAdditionalIndentGlobal:
    afterHeading: 1
```

LISTING 259: headings2.tex using Listing 260

```
\paragraph{paragraph
␣␣␣title}
␣␣paragraph␣text
␣␣paragraph␣text
```

LISTING 260: headings9.yaml

```
indentAfterHeadings:
    paragraph:
       indentAfterThisHeading: 1
       level: 1
indentRulesGlobal:
    afterHeading: "  "
```

5.8.7 The remaining code blocks

Referencing the different types of code blocks in Table 2 on page 55, we have a few code blocks yet to cover; these are very similar to the `commands` code block type covered comprehensively in Section 5.8.3 on page 64, but a small discussion defining these remaining code blocks is necessary.

5.8.7.1 keyEqualsValuesBracesBrackets

`latexindent.pl` defines this type of code block by the following criteria:

- it must immediately follow either `{` OR `[` OR `,` with comments and blank lines allowed.
- then it has a name made up of the characters detailed in Table 2 on page 55;
- then an = symbol;
- then at least one set of curly braces or square brackets (comments and line breaks allowed throughout).

N: 2019-07-13 See the `keyEqualsValuesBracesBrackets: follow` and `keyEqualsValuesBracesBrackets: name` fields of the fine tuning section in Listing 564 on page 143

example 68 An example is shown in Listing 261, with the default output given in Listing 262.

LISTING 261: pgfkeys1.tex

```
\pgfkeys{/tikz/.cd,
start coordinate/.initial={0,
\vertfactor},
}
```

LISTING 262: pgfkeys1.tex default output

```
\pgfkeys{/tikz/.cd,
    start coordinate/.initial={0,
        \vertfactor},
}
```

In Listing 262, note that the maximum indentation is three tabs, and these come from:

- the `\pgfkeys` command's mandatory argument;
- the `start coordinate/.initial` key's mandatory argument;
- the `start coordinate/.initial` key's body, which is defined as any lines following the name of the key that include its arguments. This is the part controlled by the *body* field for `noAdditionalIndent` and friends from page 54.

■

5.8.7.2 namedGroupingBracesBrackets

This type of code block is mostly motivated by tikz-based code; we define this code block as follows:

- it must immediately follow either *horizontal space* OR *one or more line breaks* OR `{` OR `[` OR `$` OR `)` OR `(`
- the name may contain the characters detailed in Table 2 on page 55;
- then at least one set of curly braces or square brackets (comments and line breaks allowed throughout).

See the `NamedGroupingBracesBrackets: follow` and `NamedGroupingBracesBrackets: name` fields of the fine tuning section in Listing 564 on page 143

N: 2019-07-13

example 69 A simple example is given in Listing 263, with default output in Listing 264.

LISTING 263: child1.tex

```
\coordinate
child[grow=down]{
edge from parent [antiparticle]
node [above=3pt] {$C$}
}
```

LISTING 264: child1.tex default output

```
\coordinate
child[grow=down]{
    edge from parent [antiparticle]
    node [above=3pt] {$C$}
}
```

In particular, `latexindent.pl` considers `child`, `parent` and `node` all to be `namedGroupingBracesBrackets`[a]. Referencing Listing 264, note that the maximum indentation is two tabs, and these come from:

- the `child`'s mandatory argument;
- the `child`'s body, which is defined as any lines following the name of the `namedGroupingBracesBrackets` that include its arguments. This is the part controlled by the *body* field for `noAdditionalIndent` and friends from page 54.

[a] You may like to verify this by using the `-tt` option and checking `indent.log`!

■

5.8.7.3 UnNamedGroupingBracesBrackets

occur in a variety of situations; specifically, we define this type of code block as satisfying the following criteria:

- it must immediately follow either `{` OR `[` OR `,` OR `&` OR `)` OR `(` OR `$`;
- then at least one set of curly braces or square brackets (comments and line breaks allowed throughout).

See the `UnNamedGroupingBracesBrackets: follow` field of the fine tuning section in Listing 564 on page 143

N: 2019-07-13

example 70 An example is shown in Listing 265 with default output give in Listing 266.

LISTING 265: psforeach1.tex

```
\psforeach{\row}{%
{
{3,2.8,2.7,3,3.1}},%
{2.8,1,1.2,2,3},%
}
```

LISTING 266: psforeach1.tex default output

```
\psforeach{\row}{%
___{
_____{3,2.8,2.7,3,3.1}},%
___{2.8,1,1.2,2,3},%
}
```

Referencing Listing 266, there are *three* sets of unnamed braces. Note also that the maximum value of indentation is three tabs, and these come from:

- the `\psforeach` command's mandatory argument;
- the *first* un-named braces mandatory argument;
- the *first* un-named braces *body*, which we define as any lines following the first opening `{` or `[` that defined the code block. This is the part controlled by the *body* field for `noAdditionalIndent` and friends from page 54.

■

Users wishing to customise the mandatory and/or optional arguments on a *per-name* basis for the `UnNamedGroupingBracesBrackets` should use `always-un-named`.

5.8.7.4 filecontents

code blocks behave just as `environments`, except that neither arguments nor items are sought.

5.8.8 Summary

Having considered all of the different types of code blocks, the functions of the fields given in Listings 267 and 268 should now make sense.

LISTING 267: noAdditionalIndentGlobal

```
noAdditionalIndentGlobal:
    environments: 0                  # 0/1
    commands: 1                      # 0/1
    optionalArguments: 0             # 0/1
    mandatoryArguments: 0            # 0/1
    ifElseFi: 0                      # 0/1
    items: 0                         # 0/1
    keyEqualsValuesBracesBrackets: 0 # 0/1
    namedGroupingBracesBrackets: 0   # 0/1
    UnNamedGroupingBracesBrackets: 0 # 0/1
    specialBeginEnd: 0               # 0/1
    afterHeading: 0                  # 0/1
    filecontents: 0                  # 0/1
```

LISTING 268: indentRulesGlobal

```
indentRulesGlobal:
    environments: 0                  # 0/h-space
    commands: 0                      # 0/h-space
    optionalArguments: 0             # 0/h-space
    mandatoryArguments: 0            # 0/h-space
    ifElseFi: 0                      # 0/h-space
    items: 0                         # 0/h-space
    keyEqualsValuesBracesBrackets: 0 # 0/h-space
    namedGroupingBracesBrackets: 0   # 0/h-space
    UnNamedGroupingBracesBrackets: 0 # 0/h-space
    specialBeginEnd: 0               # 0/h-space
    afterHeading: 0                  # 0/h-space
    filecontents: 0                  # 0/h-space
```

5.9 Commands and the strings between their arguments

The `command` code blocks will always look for optional (square bracketed) and mandatory (curly braced) arguments which can contain comments, line breaks and 'beamer' commands `<.*?>` between

them. There are switches that can allow them to contain other strings, which we discuss next.

`commandCodeBlocks`: ⟨*fields*⟩

U: 2018-04-27

The `commandCodeBlocks` field contains a few switches detailed in Listing 269.

LISTING 269: `commandCodeBlocks`

```
371 commandCodeBlocks:
372     roundParenthesesAllowed: 1
373     stringsAllowedBetweenArguments:
374       -
375         amalgamate: 1
376       - node
377       - at
378       - to
379       - decoration
380       - \+\+
381       - \-\-
382       - \#\#\d
383     commandNameSpecial:
384       -
385         amalgamate: 1
386       - '@ifnextchar\['
```

`roundParenthesesAllowed`: **0|1**

example 71 The need for this field was mostly motivated by commands found in code used to generate images in `PSTricks` and `tikz`; for example, let's consider the code given in Listing 270.

LISTING 270: `pstricks1.tex`

```
\defFunction[algebraic]{torus}(u,v)
{(2+cos(u))*cos(v+\Pi)}
{(2+cos(u))*sin(v+\Pi)}
{sin(u)}
```

LISTING 271: `pstricks1` default output

```
\defFunction[algebraic]{torus}(u,v)
{(2+cos(u))*cos(v+\Pi)}
{(2+cos(u))*sin(v+\Pi)}
{sin(u)}
```

Notice that the `\defFunction` command has an optional argument, followed by a mandatory argument, followed by a round-parenthesis argument, (u, v).

By default, because `roundParenthesesAllowed` is set to 1 in Listing 269, then `latexindent.pl` will allow round parenthesis between optional and mandatory arguments. In the case of the code in Listing 270, `latexindent.pl` finds *all* the arguments of `defFunction`, both before and after `(u,v)`.

The default output from running `latexindent.pl` on Listing 270 actually leaves it unchanged (see Listing 271); note in particular, this is because of `noAdditionalIndentGlobal` as discussed on page 65.

Upon using the YAML settings in Listing 273, and running the command

```
cmh:~$ latexindent.pl pstricks1.tex -l noRoundParentheses.yaml
```

we obtain the output given in Listing 272.

LISTING 272: pstricks1.tex using Listing 273

```
\defFunction[algebraic]{torus}(u,v)
{(2+cos(u))*cos(v+\Pi)}
   {(2+cos(u))*sin(v+\Pi)}
   {sin(u)}
```

LISTING 273: noRoundParentheses.yaml

```
commandCodeBlocks:
    roundParenthesesAllowed: 0
```

Notice the difference between Listing 271 and Listing 272; in particular, in Listing 272, because round parentheses are *not* allowed, `latexindent.pl` finds that the `\defFunction` command finishes at the first opening round parenthesis. As such, the remaining braced, mandatory, arguments are found to be `UnNamedGroupingBracesBrackets` (see Table 2 on page 55) which, by default, assume indentation for their body, and hence the tabbed indentation in Listing 272. ■

example 72 Let's explore this using the YAML given in Listing 275 and run the command

```
cmh:~$ latexindent.pl pstricks1.tex -l defFunction.yaml
```

then the output is as in Listing 274.

LISTING 274: pstricks1.tex using Listing 275

```
\defFunction[algebraic]{torus}(u,v)
␣{(2+cos(u))*cos(v+\Pi)}
␣{(2+cos(u))*sin(v+\Pi)}
␣{sin(u)}
```

LISTING 275: defFunction.yaml

```
indentRules:
    defFunction:
        body: " "
```

Notice in Listing 274 that the *body* of the `defFunction` command i.e, the subsequent lines containing arguments after the command name, have received the single space of indentation specified by Listing 275. ■

`stringsAllowedBetweenArguments`: ⟨*fields*⟩

example 73 `tikz` users may well specify code such as that given in Listing 276; processing this code using `latexindent.pl` gives the default output in Listing 277.

LISTING 276: tikz-node1.tex

```
\draw[thin]
(c) to[in=110,out=-90]
++(0,-0.5cm)
node[below,align=left,scale=0.5]
```

LISTING 277: tikz-node1 default output

```
\draw[thin]
(c) to[in=110,out=-90]
++(0,-0.5cm)
node[below,align=left,scale=0.5]
```

With reference to Listing 269 on the previous page, we see that the strings

to, node, ++

are all allowed to appear between arguments; importantly, you are encouraged to add further names to this field as necessary. This means that when `latexindent.pl` processes Listing 276, it consumes:

- the optional argument `[thin]`
- the round-bracketed argument `(c)` because `roundParenthesesAllowed` is 1 by default
- the string `to` (specified in `stringsAllowedBetweenArguments`)
- the optional argument `[in=110,out=-90]`
- the string `++` (specified in `stringsAllowedBetweenArguments`)

- the round-bracketed argument `(0,-0.5cm)` because `roundParenthesesAllowed` is 1 by default
- the string `node` (specified in `stringsAllowedBetweenArguments`)
- the optional argument `[below,align=left,scale=0.5]`

■

example 74 We can explore this further, for example using Listing 279 and running the command

```
cmh:~$ latexindent.pl tikz-node1.tex -l draw.yaml
```

we receive the output given in Listing 278.

LISTING 278: `tikz-node1.tex` using Listing 279

```
\draw[thin]
␣␣(c)␣to[in=110,out=-90]
␣␣++(0,-0.5cm)
␣␣node[below,align=left,scale=0.5]
```

LISTING 279: `draw.yaml`

```
indentRules:
    draw:
        body: "  "
```

Notice that each line after the `\draw` command (its 'body') in Listing 278 has been given the appropriate two-spaces worth of indentation specified in Listing 279.

Let's compare this with the output from using the YAML settings in Listing 281, and running the command

```
cmh:~$ latexindent.pl tikz-node1.tex -l no-strings.yaml
```

given in Listing 280.

LISTING 280: `tikz-node1.tex` using Listing 281

```
\draw[thin]
(c) to[in=110,out=-90]
++(0,-0.5cm)
node[below,align=left,scale=0.5]
```

LISTING 281: `no-strings.yaml`

```
commandCodeBlocks:

    stringsAllowedBetweenArguments:
    0
```

In this case, `latexindent.pl` sees that:

- the `\draw` command finishes after the `(c)`, as `stringsAllowedBetweenArguments` has been set to 0 so there are no strings allowed between arguments;
- it finds a `namedGroupingBracesBrackets` called `to` (see Table 2 on page 55) *with* argument `[in=110,out=-90]`
- it finds another `namedGroupingBracesBrackets` but this time called `node` with argument `[below,align=left,scale=0.5]`

■

U: 2018-04-27

Referencing Listing 269 on page 73, , we see that the first field in the `stringsAllowedBetweenArguments` is `amalgamate` and is set to `1` by default. This is for users who wish to specify their settings in multiple YAML files. For example, by using the settings in either Listing 282 orListing 283 is equivalent to using the settings in Listing 284.

LISTING 282: amalgamate-demo.yaml

```
commandCodeBlocks:

    stringsAllowedBetweenArguments:
      - 'more'
      - 'strings'
      - 'here'
```

LISTING 283: amalgamate-demo1.yaml

```
commandCodeBlocks:

    stringsAllowedBetweenArguments:
      -
        amalgamate: 1
      - 'more'
      - 'strings'
      - 'here'
```

LISTING 284: amalgamate-demo2.yaml

```
commandCodeBlocks:

    stringsAllowedBetweenArguments:
      -
        amalgamate: 1
      - 'node'
      - 'at'
      - 'to'
      - 'decoration'
      - '\+\+'
      - '\-\-'
      - 'more'
      - 'strings'
      - 'here'
```

We specify `amalgamate` to be set to `0` and in which case any settings loaded prior to those specified, including the default, will be overwritten. For example, using the settings in Listing 285 means that only the strings specified in that field will be used.

LISTING 285: amalgamate-demo3.yaml

```
commandCodeBlocks:
    stringsAllowedBetweenArguments:
      -
        amalgamate: 0
      - 'further'
      - 'settings'
```

It is important to note that the `amalgamate` field, if used, must be in the first field, and specified using the syntax given in Listings 283 to 285.

example 75 We may explore this feature further with the code in Listing 286, whose default output is given in Listing 287.

LISTING 286: for-each.tex

```
\foreach \x/\y in {0/1,1/2}{
body of foreach
}
```

LISTING 287: for-each default output

```
\foreach \x/\y in {0/1,1/2}{
      body of foreach
   }
```

Let's compare this with the output from using the YAML settings in Listing 289, and running the command

```
cmh:~$ latexindent.pl for-each.tex -l foreach.yaml
```

given in Listing 288.

LISTING 288: for-each.tex using Listing 289

```
\foreach \x/\y in {0/1,1/2}{
   body of foreach
}
```

LISTING 289: foreach.yaml

```
commandCodeBlocks:

    stringsAllowedBetweenArguments:
      -
        amalgamate: 0
      - '\\x\/\\y'
      - 'in'
```

You might like to compare the output given in Listing 287 and Listing 288. Note,in particular, in

Listing 287 that the `foreach` command has not included any of the subsequent strings, and that the braces have been treated as a `namedGroupingBracesBrackets`. In Listing 288 the `foreach` command has been allowed to have `\x/\y` and `in` between arguments because of the settings given in Listing 289. ■

`commandNameSpecial`: ⟨*fields*⟩

U: 2018-04-27

There are some special command names that do not fit within the names recognised by `latexindent.pl`, the first one of which is `\@ifnextchar[`. From the perspective of `latexindent.pl`, the whole of the text `\@ifnextchar[` is a command, because it is immediately followed by sets of mandatory arguments. However, without the `commandNameSpecial` field, `latexindent.pl` would not be able to label it as such, because the `[` is, necessarily, not matched by a closing `]`.

example 76 For example, consider the sample file in Listing 290, which has default output in Listing 291.

LISTING 290: `ifnextchar.tex`

```
\parbox{
\@ifnextchar[{arg 1}{arg 2}
}
```

LISTING 291: `ifnextchar.tex` default output

```
\parbox{
   \@ifnextchar[{arg 1}{arg 2}
}
```

Notice that in Listing 291 the `parbox` command has been able to indent its body, because `latexindent.pl` has successfully found the command `\@ifnextchar` first; the pattern-matching of `latexindent.pl` starts from *the inner most <thing> and works outwards*, discussed in more detail on page 126.

For demonstration, we can compare this output with that given in Listing 292 in which the settings from Listing 293 have dictated that no special command names, including the `\@ifnextchar[` command, should not be searched for specially; as such, the `parbox` command has been *unable* to indent its body successfully, because the `\@ifnextchar[` command has not been found.

LISTING 292: `ifnextchar.tex` using Listing 293

```
\parbox{
\@ifnextchar[{arg 1}{arg 2}
}
```

LISTING 293: `no-ifnextchar.yaml`

```
commandCodeBlocks:
    commandNameSpecial: 0
```

■

The `amalgamate` field can be used for `commandNameSpecial`, just as for `stringsAllowedBetweenArguments`. The same condition holds as stated previously, which we state again here:

Warning!

It is important to note that the `amalgamate` field, if used, in either `commandNameSpecial` or `stringsAllowedBetweenArguments` must be in the first field, and specified using the syntax given in Listings 283 to 285.

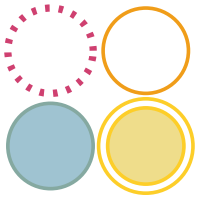
SECTION 6

The -m (modifylinebreaks) switch

All features described in this section will only be relevant if the `-m` switch is used.

`modifylinebreaks`: ⟨*fields*⟩

As of Version 3.0, `latexindent.pl` has the `-m` switch, which permits `latexindent.pl` to modify line breaks, according to the specifications in the `modifyLineBreaks` field. *The settings in this field will only be considered if the `-m` switch has been used*. A snippet of the default settings of this field is shown in Listing 294.



LISTING 294: `modifyLineBreaks` `-m`

```
modifyLineBreaks:
    preserveBlankLines: 1                 # 0/1
    condenseMultipleBlankLinesInto: 1     # 0/1
```

Having read the previous paragraph, it should sound reasonable that, if you call `latexindent.pl` using the `-m` switch, then you give it permission to modify line breaks in your file, but let's be clear:

Warning!

If you call `latexindent.pl` with the `-m` switch, then you are giving it permission to modify line breaks. By default, the only thing that will happen is that multiple blank lines will be condensed into one blank line; many other settings are possible, discussed next.

`preserveBlankLines`: **0|1**

This field is directly related to *poly-switches*, discussed in Section 6.3. By default, it is set to `1`, which means that blank lines will be *protected* from removal; however, regardless of this setting, multiple blank lines can be condensed if `condenseMultipleBlankLinesInto` is greater than `0`, discussed next.

`condenseMultipleBlankLinesInto`: ⟨*positive integer*⟩

Assuming that this switch takes an integer value greater than `0`, `latexindent.pl` will condense multiple blank lines into the number of blank lines illustrated by this switch.

example 77 As an example, Listing 295 shows a sample file with blank lines; upon running

```
cmh:~$ latexindent.pl myfile.tex -m -o=+-mod1
```

the output is shown in Listing 296; note that the multiple blank lines have been condensed into one blank line, and note also that we have used the `-m` switch!

LISTING 295: mlb1.tex

```
before blank line


after blank line


after blank line
```

LISTING 296: mlb1-mod1.tex

```
before blank line

after blank line

after blank line
```

■

6.1 Text Wrapping

N: 2022-03-13

The text wrapping routine has been over-hauled as of V3.16; I hope that the interface is simpler, and most importantly, the results are better.

The complete settings for this feature are given in Listing 297.

LISTING 297: textWrapOptions -m

```
531  textWrapOptions:
532      columns: 0
533      multipleSpacesToSingle: 1
534      removeBlockLineBreaks: 1
535      when: before                        # before/after
536      comments:
537         wrap: 0                          # 0/1
538         inheritLeadingSpace: 0           # 0/1
539      blocksFollow:
540         headings: 1                      # 0/1
541         commentOnPreviousLine: 1         # 0/1
542         par: 1                           # 0/1
543         blankLine: 1                     # 0/1
544         verbatim: 1                      # 0/1
545         filecontents: 1                  # 0/1
546         other: \\\]|\\item(?:\h|\[)      # regex
547      blocksBeginWith:
548         A-Z: 1                           # 0/1
549         a-z: 1                           # 0/1
550         0-9: 0                           # 0/1
551         other: 0                         # regex
552      blocksEndBefore:
553         commentOnOwnLine: 1              # 0/1
554         verbatim: 1                      # 0/1
555         filecontents: 1                  # 0/1
556         other: \\begin\{|\\\[|\\end\{    # regex
557      huge: overflow                      # forbid mid-word line breaks
558      separator: ""
```

6.1.1 Text wrap: overview

An overview of how the text wrapping feature works:

1. the default value of `columns` is 0, which means that text wrapping will *not* happen by default;
2. it happens *after* verbatim blocks have been found;
3. it happens *after* the oneSentencePerLine routine (see Section 6.2);

N: 2023-01-01

4. it can happen *before* or *after* all of the other code blocks are found and does *not* operate on a per-code-block basis; when using `before` this means that, including indentation, you may receive a column width wider than that which you specify in `columns`, and in which case you probably wish to explore `after` in Section 6.1.7;
5. code blocks to be text wrapped will:

(a) *follow* the fields specified in `blocksFollow`

(b) *begin* with the fields specified in `blocksBeginWith`

(c) *end* before the fields specified in `blocksEndBefore`

6. setting `columns` to a value > 0 will text wrap blocks by first removing line breaks, and then wrapping according to the specified value of `columns`;
7. setting `columns` to -1 will *only* remove line breaks within the text wrap block;
8. by default, the text wrapping routine will remove line breaks within text blocks because `removeBlockLineBreak` is set to 1; switch it to 0 if you wish to change this;
9. about trailing comments within text wrap blocks:
   (a) trailing comments that do *not* have leading space instruct the text wrap routine to connect the lines *without* space (see Listing 335);
   (b) multiple trailing comments will be connected at the end of the text wrap block (see Listing 339);
   (c) the number of spaces between the end of the text wrap block and the (possibly combined) trailing comments is determined by the spaces (if any) at the end of the text wrap block (see Listing 341);

N: 2023-01-01

10. trailing comments can receive text wrapping ; examples are shown in Section 6.1.8 and Section 6.2.9.

We demonstrate this feature using a series of examples.

6.1.2 Text wrap: simple examples

example 78 Let's use the sample text given in Listing 298.

LISTING 298: `textwrap1.tex`

```
Here  is a line of text that will be wrapped by latexindent.pl.

Here is  a line of text that will be wrapped by latexindent.pl.
```

We will change the value of `columns` in Listing 300 and then run the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml textwrap1.tex
```

then we receive the output given in Listing 299.

LISTING 299: `textwrap1-mod1.tex`

```
Here is a line of
text that will be
wrapped by
latexindent.pl.

Here is a line of
text that will be
wrapped by
latexindent.pl.
```

LISTING 300: `textwrap1.yaml` `-m`

```
modifyLineBreaks:
    textWrapOptions:
        columns: 20
```

■

example 79 If we set `columns` to -1 then `latexindent.pl` remove line breaks within the text wrap block, and will *not* perform text wrapping. We can use this to undo text wrapping.

Starting from the file in Listing 299 and using the settings in Listing 301

LISTING 301: textwrap1A.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: -1
```

and running

```
cmh:~$ latexindent.pl -m -l textwrap1A.yaml textwrap1-mod1.tex
```

gives the output in Listing 302.

LISTING 302: textwrap1-mod1A.tex

```
Here is a line of text that will be wrapped by latexindent.pl.

Here is a line of text that will be wrapped by latexindent.pl.
```

■

example 80 By default, the text wrapping routine will convert multiple spaces into single spaces. You can change this behaviour by flicking the switch `multipleSpacesToSingle` which we have done in Listing 304

Using the settings in Listing 304 and running

```
cmh:~$ latexindent.pl -m -l textwrap1B.yaml textwrap1-mod1.tex
```

gives the output in Listing 303.

LISTING 303: textwrap1-mod1B.tex

```
Here␣␣is␣a␣line␣of
text␣that␣will␣be
wrapped␣by
latexindent.pl.

Here␣is␣␣␣a␣line␣of
text␣that␣will␣be
wrapped␣by
latexindent.pl.
```

LISTING 304: textwrap1B.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: 20
        multipleSpacesToSingle: 0
```

We note that in Listing 303 the multiple spaces have *not* been condensed into single spaces. ■

6.1.3 Text wrap: `blocksFollow` examples

We examine the `blocksFollow` field of Listing 297.

example 81 Let's use the sample text given in Listing 305.

LISTING 305: tw-headings1.tex

```
\section{my heading}\label{mylabel1}
text to
    be
 wrapped from the first section
\subsection{subheading}
text to
    be
 wrapped from the first section
```

We note that Listing 305 contains the heading commands `section` and `subsection`. Upon running the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-headings1.tex
```

then we receive the output given in Listing 306.

LISTING 306: tw-headings1-mod1.tex

```
\section{my heading}\label{mylabel1}
text to be wrapped
from the first
section
\subsection{subheading}
text to be wrapped
from the first
section
```

We reference Listing 297 on page 80 and also Listing 162 on page 52:

- in Listing 297 the `headings` field is set to `1`, which instructs `latexindent.pl` to read the fields from Listing 162 on page 52, *regardless of the value of indentAfterThisHeading or level*;
- the default is to assume that the heading command can, optionally, be followed by a `label` command.

If you find scenarios in which the default value of `headings` does not work, then you can explore the `other` field.

We can turn off `headings` as in Listing 308 and then run

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bf-no-headings.yaml tw-headings1.tex
```

gives the output in Listing 307, in which text wrapping has been instructed *not to happen* following headings.

LISTING 307: tw-headings1-mod2.tex

```
\section{my heading}\label{mylabel1}
text to
be
wrapped from the first section
\subsection{subheading}
text to
be
wrapped from the first section
```

LISTING 308: bf-no-headings.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        blocksFollow:
            headings: 0
```

■

example 82 Let's use the sample text given in Listing 309.

LISTING 309: tw-comments1.tex

```
% trailing comment
text to
    be
 wrapped following first comment
% another comment
text to
    be
 wrapped following second comment
```

We note that Listing 309 contains trailing comments. Upon running the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-comments1.tex
```

then we receive the output given in Listing 310.

LISTING 310: tw-comments1-mod1.tex

```
% trailing comment
text to be wrapped
following first
comment
% another comment
text to be wrapped
following second
comment
```

With reference to Listing 297 on page 80 the `commentOnPreviousLine` field is set to `1`, which instructs `latexindent.pl` to find text wrap blocks after a comment on its own line.

We can turn off `comments` as in Listing 312 and then run

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bf-no-comments.yaml tw-comments1.tex
```

gives the output in Listing 311, in which text wrapping has been instructed *not to happen* following comments on their own line.

LISTING 311: tw-comments1-mod2.tex

```
% trailing comment
text to
be
wrapped following first comment
% another comment
text to
be
wrapped following second comment
```

LISTING 312: bf-no-comments.yaml

-m

```
modifyLineBreaks:
    textWrapOptions:
        blocksFollow:
           commentOnPreviousLine: 0
```

■

Referencing Listing 297 on page 80 the `blocksFollow` fields `par`, `blankline`, `verbatim` and `filecontents` fields operate in analogous ways to those demonstrated in the above.

The `other` field of the `blocksFollow` can either be `0` (turned off) or set as a regular expression. The default value is set to `\\\]|\\item(?:\h|\[)` which can be translated to *backslash followed by a square bracket* or *backslash item followed by horizontal space or a square bracket*, or in other words, *end of display math* or an item command.

example 83 Let's use the sample text given in Listing 313.

LISTING 313: tw-disp-math1.tex

```
text to
    be
 wrapped before display math
 \[ y = x\]
text to
    be
 wrapped after display math
```

We note that Listing 313 contains display math. Upon running the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-disp-math1.tex
```

then we receive the output given in Listing 314.

LISTING 314: tw-disp-math1-mod1.tex

```
text to be wrapped
before display math
\[ y = x\]
text to be wrapped
after display math
```

With reference to Listing 297 on page 80 the `other` field is set to `\\\]`, which instructs `latexindent.pl` to find text wrap blocks after the end of display math.

We can turn off this switch as in Listing 316 and then run

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bf-no-disp-math.yaml tw-disp-math1.tex
```

gives the output in Listing 315, in which text wrapping has been instructed *not to happen* following display math.

LISTING 315: tw-disp-math1-mod2.tex

```
text to be wrapped
before display math
\[ y = x\]
text to
be
wrapped after display math
```

LISTING 316: bf-no-disp-math.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        blocksFollow:
            other: 0
```

Naturally, you should feel encouraged to customise this as you see fit. ■

The `blocksFollow` field *deliberately* does not default to allowing text wrapping to occur after `begin environment` statements. You are encouraged to customize the `other` field to accommodate the environments that you would like to text wrap individually, as in the next example.

example 84 Let's use the sample text given in Listing 317.

LISTING 317: tw-bf-myenv1.tex

```
text to
    be
 wrapped before myenv environment
 \begin{myenv}
text to
    be
 wrapped within myenv environment
 \end{myenv}
text to
    be
 wrapped after myenv environment
```

We note that Listing 317 contains `myenv` environment. Upon running the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-bf-myenv1.tex
```

then we receive the output given in Listing 318.

LISTING 318: tw-bf-myenv1-mod1.tex

```
text to be wrapped
before myenv
environment
\begin{myenv}
   text to
   be
   wrapped within myenv environment
\end{myenv}
text to
be
wrapped after myenv environment
```

We note that we have *not* received much text wrapping. We can turn do better by employing Listing 320 and then run

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,tw-bf-myenv.yaml tw-bf-myenv1.tex
```

which gives the output in Listing 319, in which text wrapping has been implemented across the file.

LISTING 319: tw-bf-myenv1-mod2.tex

```
text to be wrapped
before myenv
environment
\begin{myenv}
   text to be wrapped
   within myenv
   environment
\end{myenv}
text to be wrapped
after myenv
environment
```

LISTING 320: tw-bf-myenv.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        blocksFollow:
           other: |-
             (?x)
                \\\]
                |
                \\item(?:\h|\[)
                |
                \\begin\{myenv\} # <--- new bit
                |                # <--- new bit
                \\end\{myenv\}   # <--- new bit
```

6.1.4 Text wrap: blocksBeginWith examples

We examine the blocksBeginWith field of Listing 297 with a series of examples.

example 85 By default, text wrap blocks can begin with the characters a-z and A-Z.

If we start with the file given in Listing 321

LISTING 321: tw-0-9.tex

```
123 text to
    be
 wrapped before display math
 \[ y = x\]
456 text to
    be
 wrapped after display math
```

and run the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-0-9.tex
```

then we receive the output given in Listing 322 in which text wrapping has *not* occurred.

LISTING 322: tw-0-9-mod1.tex

```
123 text to
be
wrapped before display math
\[ y = x\]
456 text to
be
wrapped after display math
```

We can allow paragraphs to begin with 0-9 characters by using the settings in Listing 324 and running

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bb-0-9-yaml tw-0-9.tex
```

gives the output in Listing 323, in which text wrapping *has* happened.

LISTING 323: tw-0-9-mod2.tex

```
123 text to be
wrapped before
display math
\[ y = x\]
456 text to be
wrapped after
display math
```

LISTING 324: bb-0-9.yaml.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        blocksBeginWith:
            0-9: 1
```

■

example 86 Let's now use the file given in Listing 325

LISTING 325: tw-bb-announce1.tex

```
% trailing comment
\announce{announce text}
    and text
    to be
 wrapped before
  goes here
```

and run the command

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-bb-announce1.tex
```

then we receive the output given in Listing 326 in which text wrapping has *not* occurred.

LISTING 326: tw-bb-announce1-mod1.tex

```
% trailing comment
\announce{announce text}
and text
to be
wrapped before
goes here
```

We can allow \announce to be at the beginning of paragraphs by using the settings in Listing 328 and running

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,tw-bb-announce.yaml tw-bb-announce1.tex
```

gives the output in Listing 327, in which text wrapping *has* happened.

LISTING 327: tw-bb-announce1-mod2.tex

```
% trailing comment
\announce{announce
   text} and text to
be wrapped before
goes here
```

LISTING 328: tw-bb-announce.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        blocksBeginWith:
            other: '\\announce'
```

6.1.5 Text wrap: blocksEndBefore examples

We examine the blocksEndBefore field of Listing 297 with a series of examples.

example 87 Let's use the sample text given in Listing 329.

LISTING 329: tw-be-equation.tex

```
before
equation
text
\begin{align}
  1 & 2 \\
  3 & 4
\end{align}
after
equation
text
```

We note that Listing 329 contains an environment. Upon running the command

```
cmh:~$ latexindent.pl -m -l textwrap1A.yaml tw-be-equation.tex
```

then we receive the output given in Listing 330.

LISTING 330: tw-be-equation-mod1.tex

```
before equation text
\begin{align}
   1 & 2 \\
   3 & 4
\end{align}
after
equation
text
```

With reference to Listing 297 on page 80 the other field is set to \\begin\{|\\\[|\\end\{, which instructs latexindent.pl to *stop* text wrap blocks before begin statements, display math, and end statements.

We can turn off this switch as in Listing 331 and then run

```
cmh:~$ latexindent.pl -m -l textwrap1A.yaml,tw-be-equation.yaml tw-be-equation.tex
```

gives the output in Listing 332, in which text wrapping has been instructed *not* to stop at these statements.

LISTING 331: tw-be-equation.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        blocksEndBefore:
           other: 0
```

LISTING 332: tw-be-equation-mod2.tex

```
before equation text \begin{align} 1 & 2 \\ 3 & 4 \end{align} after equation text
```

Naturally, you should feel encouraged to customise this as you see fit. ■

6.1.6 Text wrap: trailing comments and spaces

We explore the behaviour of the text wrap routine in relation to trailing comments using the following examples.

example 88 The file in Listing 333 contains a trailing comment which *does* have a space infront of it.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc1.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output given in Listing 334.

LISTING 333: tw-tc1.tex

```
foo␣%
bar
```

LISTING 334: tw-tc1-mod1.tex

```
foo bar%
```

■

example 89 The file in Listing 335 contains a trailing comment which does *not* have a space infront of it.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc2.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 336.

LISTING 335: tw-tc2.tex

```
foo%
bar
```

LISTING 336: tw-tc2-mod1.tex

```
foobar%
```

We note that, because there is *not* a space before the trailing comment, that the lines have been joined *without* a space. ■

example 90 The file in Listing 337 contains multiple trailing comments.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc3.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 338.

LISTING 337: tw-tc3.tex

```
foo %1
bar%2
three
```

LISTING 338: tw-tc3-mod1.tex

```
foo barthree%1%2
```

■

example 91 The file in Listing 339 contains multiple trailing comments.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc4.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 340.

LISTING 339: tw-tc4.tex

```
foo %1
bar%2
three%3
```

LISTING 340: tw-tc4-mod1.tex

```
foo barthree%1%2%3
```

■

example 92 The file in Listing 341 contains multiple trailing comments.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc5.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 342.

LISTING 341: tw-tc5.tex

```
foo%1
bar%2
three␣%3
```

LISTING 342: tw-tc5-mod1.tex

```
foobarthree␣%1%2%3
```

The space at the end of the text block has been preserved. ■

example 93 The file in Listing 343 contains multiple trailing comments.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc6.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 344.

LISTING 343: tw-tc6.tex

```
foo%1
bar
```

LISTING 344: tw-tc6-mod1.tex

```
foobar␣%1
```

The space at the end of the text block has been preserved. ■

6.1.7 Text wrap: when before/after

N: 2023-01-01

The text wrapping routine operates, by default, `before` the code blocks have been found, but this can be changed to `after`:

- `before` means it is likely that the columns of wrapped text may *exceed* the value specified in `columns`;
- `after` means it columns of wrapped text should *not* exceed the value specified in `columns`.

We demonstrate this in the following examples. See also Section 6.2.8.

example 94 Let's begin with the file in Listing 345.

LISTING 345: textwrap8.tex

```
This paragraph
has line breaks throughout its paragraph;
we would like to combine
the textwrapping
and paragraph removal routine.
\begin{myenv}
This paragraph
has line breaks throughout its paragraph;
we would like to combine
the textwrapping
and paragraph removal routine.
\end{myenv}
```

Using the settings given in Listing 347 and running the command

```
cmh:~$ latexindent.pl textwrap8.tex -o=+-mod1.tex -l=tw-before1.yaml -m
```

gives the output given in Listing 346.

LISTING 346: textwrap8-mod1.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
  This paragraph has line breaks
  throughout its paragraph; we would
  like to combine the textwrapping
  and paragraph removal routine.
\end{myenv}
----|----|----|----|----|----|----|----|
    5    10    15    20    25    30    35    40
```

LISTING 347: tw-before1.yaml -m

```
defaultIndent: '  '

modifyLineBreaks:
    textWrapOptions:
        columns: 35
        when: before  # <!-------
        blocksFollow:
          other: \\begin\{myenv\}
```

We note that, in Listing 346, that the wrapped text has *exceeded* the specified value of `columns` (35) given in Listing 347. We can affect this by changing `when`; we explore this next. ■

example 95 We continue working with Listing 345.

Using the settings given in Listing 349 and running the command

```
cmh:~$ latexindent.pl textwrap8.tex -o=+-mod2.tex -l=tw-after1.yaml -m
```

gives the output given in Listing 348.

LISTING 348: textwrap8-mod2.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
  This paragraph has line breaks
  throughout its paragraph; we
  would like to combine the
  textwrapping and paragraph
  removal routine.
\end{myenv}
----|----|----|----|----|----|----|----|
    5    10    15    20    25    30    35    40
```

LISTING 349: tw-after1.yaml -m

```
defaultIndent: '  '

modifyLineBreaks:
    textWrapOptions:
        columns: 35
        when: after   # <!-------
        blocksFollow:
          other: \\begin\{myenv\}
```

We note that, in Listing 348, that the wrapped text has *obeyed* the specified value of `columns` (35) given in Listing 349. ■

6.1.8 Text wrap: wrapping comments

N: 2023-01-01

You can instruct `latexindent.pl` to apply text wrapping to comments ; we demonstrate this with examples, see also Section 6.2.9.

example 96 We use the file in Listing 350 which contains a trailing comment block.

LISTING 350: textwrap9.tex

```
My first sentence
% first comment
%   second
%third comment
%     fourth
```

Using the settings given in Listing 352 and running the command

```
cmh:~$ latexindent.pl textwrap9.tex -o=+-mod1.tex -l=wrap-comments1.yaml -m
```

gives the output given in Listing 351.

LISTING 351: textwrap9-mod1.tex

```
My first sentence
% first comment second third
% comment fourth
----|----|----|----|----|----|----|----|
    5    10    15    20    25    30    35    40
```

LISTING 352: wrap-comments1.yaml -m

```
modifyLineBreaks:
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1  #<!-------
```

We note that, in Listing 351, that the comments have been *combined and wrapped* because of the annotated line specified in Listing 352. ■

example 97 We use the file in Listing 353 which contains a trailing comment block.

LISTING 353: textwrap10.tex

```
My first sentence
%    first comment
%   second
%third comment
%     fourth
```

Using the settings given in Listing 355 and running the command

```
cmh:~$ latexindent.pl textwrap10.tex -o=+-mod1.tex -l=wrap-comments1.yaml -m
```

gives the output given in Listing 354.

LISTING 354: textwrap10-mod1.tex

```
My first sentence
% first comment second third
% comment fourth
----|----|----|----|----|----|----|----|
   5    10   15   20   25   30   35   40
```

LISTING 355: wrap-comments1.yaml -m

```
modifyLineBreaks:
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1  #<!-------
```

We note that, in Listing 354, that the comments have been *combined and wrapped* because of the annotated line specified in Listing 355, and that the space from the leading comment has not been inherited; we will explore this further in the next example. ■

example 98 We continue to use the file in Listing 353.

Using the settings given in Listing 357 and running the command

```
cmh:~$ latexindent.pl textwrap10.tex -o=+-mod2.tex -l=wrap-comments2.yaml -m
```

gives the output given in Listing 356.

LISTING 356: textwrap10-mod2.tex

```
My first sentence
%    first comment second third
%    comment fourth
----|----|----|----|----|----|----|----|
   5    10   15   20   25   30   35   40
```

LISTING 357: wrap-comments2.yaml -m

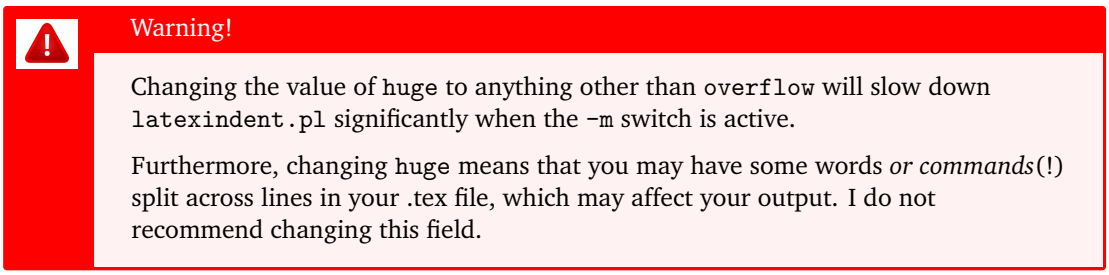
```
modifyLineBreaks:
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1                  #<!-------
      inheritLeadingSpace: 1 #<!-------
```

We note that, in Listing 356, that the comments have been *combined and wrapped* and that the leading space has been inherited because of the annotated lines specified in Listing 357. ■

6.1.9 Text wrap: huge, tabstop and separator

U: 2021-07-23

The default value of `huge` is `overflow`, which means that words will *not* be broken by the text wrapping routine, implemented by the `Text::Wrap` [47]. There are options to change the `huge` option for the `Text::Wrap` module to either `wrap` or `die`. Before modifying the value of `huge`, please bear in mind the following warning:



example 99 For example, using the settings in Listings 359 and 361 and running the commands

```
cmh:~$    latexindent.pl -m textwrap4.tex -o=+-mod2A -l textwrap2A.yaml
cmh:~$    latexindent.pl -m textwrap4.tex -o=+-mod2B -l textwrap2B.yaml
```

gives the respective output in Listings 358 and 360.

LISTING 358: textwrap4-mod2A.tex

```
He
re
is
a
li
ne
of
te
xt
.
```

LISTING 359: textwrap2A.yaml -m

```
modifyLineBreaks:
  textWrapOptions:
    columns: 3
    huge: wrap
```

LISTING 360: textwrap4-mod2B.tex

```
Here
is
a
line
of
text.
```

LISTING 361: textwrap2B.yaml -m

```
modifyLineBreaks:
  textWrapOptions:
    columns: 3
```

■

N: 2020-11-06

You can also specify the `tabstop` field as an integer value, which is passed to the text wrap module; see [47] for details.

example 100 Starting with the code in Listing 362 with settings in Listing 363, and running the command

```
cmh:~$     latexindent.pl -m textwrap-ts.tex -o=+-mod1 -l tabstop.yaml
```

gives the code given in Listing 364.

LISTING 362: textwrap-ts.tex

```
x       y
```

LISTING 363: tabstop.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: 80
        tabstop: 9
        multipleSpacesToSingle: 0
```

LISTING 364: textwrap-ts-mod1.tex

```
x       y
```

■

You can specify `separator`, `break` and `unexpand` options in your settings in analogous ways to those demonstrated in Listings 361 and 363, and they will be passed to the `Text::Wrap` module. I have not found a useful reason to do this; see [47] for more details.

6.2 oneSentencePerLine: modifying line breaks for sentences

N: 2018-01-13

You can instruct `latexindent.pl` to format your file so that it puts one sentence per line. Thank you to [7] for helping to shape and test this feature. The behaviour of this part of the script is controlled by the switches detailed in Listing 365, all of which we discuss next.

LISTING 365: oneSentencePerLine -m

```
504     oneSentencePerLine:
505         manipulateSentences: 0              # 0/1
506         removeSentenceLineBreaks: 1         # 0/1
507         multipleSpacesToSingle: 1           # 0/1
508         textWrapSentences: 0                # 1 disables main textWrap
509         sentenceIndent: ""
510         sentencesFollow:
511             par: 1                          # 0/1
512             blankLine: 1                    # 0/1
513             fullStop: 1                     # 0/1
514             exclamationMark: 1              # 0/1
515             questionMark: 1                 # 0/1
516             rightBrace: 1                   # 0/1
517             commentOnPreviousLine: 1        # 0/1
518             other: 0                        # regex
519         sentencesBeginWith:
520             A-Z: 1                          # 0/1
521             a-z: 0                          # 0/1
522             other: 0                        # regex
523         sentencesEndWith:
524             basicFullStop: 0                # 0/1
525             betterFullStop: 1               # 0/1
526             exclamationMark: 1              # 0/1
527             questionMark: 1                 # 0/1
528             other: 0                        # regex
529         sentencesDoNOTcontain:
530             other: \\begin                  # regex
```

6.2.1 oneSentencePerLine: overview

An overview of how the oneSentencePerLine routine feature works:

1. the default value of `manipulateSentences` is 0, which means that oneSentencePerLine will *not* happen by default;
2. it happens *after* verbatim blocks have been found;
3. it happens *before* the text wrapping routine (see Section 6.1);
4. it happens *before* the main code blocks have been found;
5. sentences to be found:
   (a) *follow* the fields specified in `sentencesFollow`
   (b) *begin* with the fields specified in `sentencesBeginWith`
   (c) *end* with the fields specified in `sentencesEndWith`
6. by default, the oneSentencePerLine routine will remove line breaks within sentences because `removeBlockLineBreaks` is set to 1; switch it to 0 if you wish to change this;
7. sentences can be text wrapped according to `textWrapSentences`, and will be done either `before` or `after` the main indentation routine (see Section 6.2.8);
8. about trailing comments within text wrap blocks:
   (a) multiple trailing comments will be connected at the end of the sentence;
   (b) the number of spaces between the end of the sentence and the (possibly combined) trailing comments is determined by the spaces (if any) at the end of the sentence.

We demonstrate this feature using a series of examples.

`manipulateSentences`: **0|1**

This is a binary switch that details if `latexindent.pl` should perform the sentence manipulation routine; it is *off* (set to 0) by default, and you will need to turn it on (by setting it to 1) if you want the script to modify line breaks surrounding and within sentences.

`removeSentenceLineBreaks`: **0|1**

When operating upon sentences `latexindent.pl` will, by default, remove internal line breaks as `removeSentenceLineBreaks` is set to 1. Setting this switch to 0 instructs `latexindent.pl` not to do so.

example 101 For example, consider `multiple-sentences.tex` shown in Listing 366.

LISTING 366: `multiple-sentences.tex`

```
This is the first
sentence. This is the; second, sentence. This is the
third sentence.

This is the fourth
sentence! This is the fifth sentence? This is the
sixth sentence.
```

If we use the YAML files in Listings 368 and 370, and run the commands

```
cmh:~$ latexindent.pl multiple-sentences -m -l=manipulate-sentences.yaml
cmh:~$ latexindent.pl multiple-sentences -m -l=keep-sen-line-breaks.yaml
```

then we obtain the respective output given in Listings 367 and 369.

LISTING 367: `multiple-sentences.tex` using Listing 368

```
This is the first sentence.
This is the; second, sentence.
This is the third sentence.

This is the fourth sentence!
This is the fifth sentence?
This is the sixth sentence.
```

LISTING 368: `manipulate-sentences.yaml` `-m`

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
```

LISTING 369: `multiple-sentences.tex` using Listing 370

```
This is the first
sentence.
This is the; second, sentence.
This is the
third sentence.

This is the fourth
sentence!
This is the fifth sentence?
This is the
sixth sentence.
```

LISTING 370: `keep-sen-line-breaks.yaml` `-m`

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        removeSentenceLineBreaks: 0
```

Notice, in particular, that the 'internal' sentence line breaks in Listing 366 have been removed in Listing 367, but have not been removed in Listing 369. ■

`multipleSpacesToSingle`: **0|1**

U: 2022-03-25

By default, the one-sentence-per-line routine will convert multiple spaces into single spaces. You can change this behaviour by changing the switch `multipleSpacesToSingle` to a value of `0`.

The remainder of the settings displayed in Listing 365 on page 95 instruct `latexindent.pl` on how to define a sentence. From the perspective of `latexindent.pl` a sentence must:

- *follow* a certain character or set of characters (see Listing 371); by default, this is either `\par`, a blank line, a full stop/period (.), exclamation mark (!), question mark (?) right brace (}) or a comment on the previous line;
- *begin* with a character type (see Listing 372); by default, this is only capital letters;
- *end* with a character (see Listing 373); by default, these are full stop/period (.), exclamation mark (!) and question mark (?).

In each case, you can specify the `other` field to include any pattern that you would like; you can specify anything in this field using the language of regular expressions.

LISTING 371: `sentencesFollow` -m

```
sentencesFollow:
    par: 1                          # 0/1
    blankLine: 1                    # 0/1
    fullStop: 1                     # 0/1
    exclamationMark: 1              # 0/1
    questionMark: 1                 # 0/1
    rightBrace: 1                   # 0/1
    commentOnPreviousLine: 1        # 0/1
    other: 0                        # regex
```

LISTING 372: `sentencesBeginWith` -m

```
sentencesBeginWith:
    A-Z: 1                          # 0/1
    a-z: 0                          # 0/1
    other: 0                        # regex
```

LISTING 373: `sentencesEndWith` -m

```
sentencesEndWith:
    basicFullStop: 0                # 0/1
    betterFullStop: 1               # 0/1
    exclamationMark: 1              # 0/1
    questionMark: 1                 # 0/1
    other: 0                        # regex
```

6.2.2 oneSentencePerLine: sentencesFollow

Let's explore a few of the switches in `sentencesFollow`.

example 102 We start with Listing 366 on the preceding page, and use the YAML settings given in Listing 375. Using the command

```
cmh:~$ latexindent.pl multiple-sentences -m -l=sentences-follow1.yaml
```

we obtain the output given in Listing 374.

LISTING 374: `multiple-sentences.tex` using Listing 375

```
This is the first sentence.
This is the; second, sentence.
This is the third sentence.

This is the fourth
sentence!
This is the fifth sentence?
This is the sixth sentence.
```

LISTING 375: `sentences-follow1.yaml` -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesFollow:
            blankLine: 0
```

Notice that, because `blankLine` is set to `0`, `latexindent.pl` will not seek sentences following a blank line, and so the fourth sentence has not been accounted for. ■

example 103 We can explore the `other` field in Listing 371 with the `.tex` file detailed in Listing 376.

LISTING 376: `multiple-sentences1.tex`

```
(Some sentences stand alone in brackets.) This is the first
sentence. This is the; second, sentence. This is the
third sentence.
```

Upon running the following commands

```
cmh:~$ latexindent.pl multiple-sentences1 -m -l=manipulate-sentences.yaml
cmh:~$ latexindent.pl multiple-sentences1 -m -l=manipulate-sentences.yaml,sentences-follow2.yaml
```

then we obtain the respective output given in Listings 377 and 378.

LISTING 377: `multiple-sentences1.tex` using Listing 368 on page 96

```
(Some sentences stand alone in brackets.) This is the first
sentence.
This is the; second, sentence.
This is the third sentence.
```

LISTING 378: `multiple-sentences1.tex` using Listing 379

```
(Some sentences stand alone in brackets.)
This is the first sentence.
This is the; second, sentence.
This is the third sentence.
```

LISTING 379: `sentences-follow2.yaml` `-m`

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesFollow:
            other: "\)"
```

Notice that in Listing 377 the first sentence after the) has not been accounted for, but that following the inclusion of Listing 379, the output given in Listing 378 demonstrates that the sentence *has* been accounted for correctly. ■

6.2.3 oneSentencePerLine: sentencesBeginWith

By default, `latexindent.pl` will only assume that sentences begin with the upper case letters `A-Z`; you can instruct the script to define sentences to begin with lower case letters (see Listing 372), and we can use the `other` field to define sentences to begin with other characters.

example 104 We use the file in Listing 380.

LISTING 380: `multiple-sentences2.tex`

```
This is the first
sentence.

$a$ can
represent a
number. 7 is
at the beginning of this sentence.
```

Upon running the following commands

```
cmh:~$ latexindent.pl multiple-sentences2 -m -l=manipulate-sentences.yaml
cmh:~$ latexindent.pl multiple-sentences2 -m -l=manipulate-sentences.yaml,sentences-begin1.yaml
```

then we obtain the respective output given in Listings 381 and 382.

LISTING 381: multiple-sentences2.tex using Listing 368 on page 96

```
This is the first sentence.

$a$ can
represent a
number. 7 is
at the beginning of this sentence.
```

LISTING 382: multiple-sentences2.tex using Listing 383

```
This is the first sentence.

$a$ can represent a number.
7 is at the beginning of this sentence.
```

LISTING 383: sentences-begin1.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesBeginWith:
            other: "\$|[0-9]"
```

Notice that in Listing 381, the first sentence has been accounted for but that the subsequent sentences have not. In Listing 382, all of the sentences have been accounted for, because the `other` field in Listing 383 has defined sentences to begin with either `$` or any numeric digit, `0` to `9`. ■

6.2.4 oneSentencePerLine: sentencesEndWith

example 105 Let's return to Listing 366 on page 96; we have already seen the default way in which `latexindent.pl` will operate on the sentences in this file in Listing 367 on page 96. We can populate the `other` field with any character that we wish; for example, using the YAML specified in Listing 385 and the command

```
cmh:~$ latexindent.pl multiple-sentences -m -l=sentences-end1.yaml
cmh:~$ latexindent.pl multiple-sentences -m -l=sentences-end2.yaml
```

then we obtain the output in Listing 384.

LISTING 384: multiple-sentences.tex using Listing 385

```
This is the first sentence.
This is the;
second, sentence.
This is the third sentence.

This is the fourth sentence!
This is the fifth sentence?
This is the sixth sentence.
```

LISTING 385: sentences-end1.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesEndWith:
          other: "\:|\;|\,"
```

LISTING 386: multiple-sentences.tex using Listing 387

```
This is the first sentence.
This is the;
second,
sentence.
This is the third sentence.

This is the fourth sentence!
This is the fifth sentence?
This is the sixth sentence.
```

LISTING 387: sentences-end2.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesEndWith:
          other: "\:|\;|\,"
        sentencesBeginWith:
          a-z: 1
```

There is a subtle difference between the output in Listings 384 and 386; in particular, in Listing 384 the word `sentence` has not been defined as a sentence, because we have not instructed `latexindent.pl` to begin sentences with lower case letters. We have changed this by using the settings in Listing 387, and the associated output in Listing 386 reflects this. ■

Referencing Listing 373 on page 97, you'll notice that there is a field called `basicFullStop`, which is set to `0`, and that the `betterFullStop` is set to `1` by default.

example 106 Let's consider the file shown in Listing 388.

LISTING 388: url.tex

```
This sentence, \url{tex.stackexchange.com/} finishes here. Second sentence.
```

Upon running the following commands

```
cmh:~$ latexindent.pl url -m -l=manipulate-sentences.yaml
```

we obtain the output given in Listing 389.

LISTING 389: url.tex using Listing 368 on page 96

```
This sentence, \url{tex.stackexchange.com/} finishes here.
Second sentence.
```

Notice that the full stop within the url has been interpreted correctly. This is because, within the `betterFullStop`, full stops at the end of sentences have the following properties:

- they are ignored within `e.g.` and `i.e.`;
- they can not be immediately followed by a lower case or upper case letter;
- they can not be immediately followed by a hyphen, comma, or number. ■

N: 2019-07-13

If you find that the `betterFullStop` does not work for your purposes, then you can switch it off by setting it to `0`, and you can experiment with the `other` field. You can also seek to customise the `betterFullStop` routine by using the *fine tuning*, detailed in Listing 564 on page 143.

The `basicFullStop` routine should probably be avoided in most situations, as it does not accommodate the specifications above.

example 107 For example, using the following command

```
cmh:~$ latexindent.pl url -m -l=alt-full-stop1.yaml
```

and the YAML in Listing 391 gives the output in Listing 390.

LISTING 390: url.tex using Listing 391

```
This sentence, \url{tex.
   stackexchange.com/} finishes here.Second sentence.
```

LISTING 391: alt-full-stop1.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesEndWith:
            basicFullStop: 1
            betterFullStop: 0
```

Notice that the full stop within the URL has not been accommodated correctly because of the non-default settings in Listing 391. ■

6.2.5 oneSentencePerLine: sentencesDoNOTcontain

N: 2023-09-09

You can specify patterns that sentences do *not* contain using the field in Listing 392.

LISTING 392: sentencesDoNOTcontain -m

```
529         sentencesDoNOTcontain:
530             other: \\begin                  # regex
```

If sentences run across environments then, by default, they will *not* be considered a sentence by `latexindent.pl`.

U: 2023-09-09

example 108 For example, if we use the `.tex` file in Listing 393

LISTING 393: multiple-sentences4.tex

```
This sentence
\begin{itemize}
  \item continues
\end{itemize}
across itemize
and finishes here.
```

and run the command

```
cmh:~$ latexindent.pl multiple-sentences4 -m -l=manipulate-sentences.yaml
```

then the output is unchanged, because the default value of `sentencesDoNOTcontain` says, *sentences do NOT contain*

This means that, by default, `latexindent.pl` does *not* consider the file in Listing 393 to have a sentence. `\\begin` ■

example 109 We can customise the `sentencesDoNOTcontain` field with anything that we do *not* want sentences to contain.

We begin with the file in Listing 394.

LISTING 394: sentence-dnc1.tex

```
This should not be a sentence \cmh{?} and should not change.
But this
one should.
```

Upon running the following commands

```
cmh:~$ latexindent.pl sentence-dnc1.tex -m -l=dnc1.yaml
```

then we obtain the output given in Listing 395.

LISTING 395: sentence-dnc1-mod1.tex

```
This should not be a sentence \cmh{?} and should not change.
But this one should.
```

LISTING 396: dnc1.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesDoNOTcontain:
            other: |-
              (?x)
              \\begin
              |
              \\cmh
```

The settings in Listing 396 say that sentences do *not* contain `\begin` and that they do not contain `\cmh` ■

example 110 We can implement case insensitivity for the `sentencesDoNOTcontain` field.

We begin with the file in Listing 397.

LISTING 397: sentence-dnc2.tex

```
This should not be a sentence \cmh{?} and should not change.
This should not be a sentence \CMH{?} and should not change.
But this
one should.
```

Upon running the following commands

```
cmh:~$ latexindent.pl sentence-dnc2.tex -m -l=dnc2.yaml
```

then we obtain the output given in Listing 398.

LISTING 398: sentence-dnc2-mod2.tex

```
This should not be a sentence \cmh{?} and should not change.
This should not be a sentence \CMH{?} and should not change.
But this one should.
```

LISTING 399: dnc2.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesDoNOTcontain:
            other: |-
              (?xi)    #<!----
              \\begin
              |
              \\cmh
```

The settings in Listing 399 say that sentences do *not* contain `\begin` and that they do not contain *case insensitive* versions of `\cmh` ■

example 111 We can turn off `sentenceDoNOTcontain` by setting it to `0` as in Listing 400.

LISTING 400: dnc-off.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        sentencesDoNOTcontain: 0
```

The settings in Listing 400 mean that sentences can contain any character. ■

6.2.6 Features of the oneSentencePerLine routine

The sentence manipulation routine takes place *after* verbatim environments, preamble and trailing comments have been accounted for; this means that any characters within these types of code blocks will not be part of the sentence manipulation routine.

example 112 For example, if we begin with the `.tex` file in Listing 401, and run the command

```
cmh:~$ latexindent.pl multiple-sentences3 -m -l=manipulate-sentences.yaml
```

then we obtain the output in Listing 402.

LISTING 401: multiple-sentences3.tex

```
The first sentence continues after the verbatim
\begin{verbatim}
  there are sentences within this. These
  will not be operated
  upon by latexindent.pl.
\end{verbatim}
and finishes here. Second sentence % a commented full stop.
contains trailing comments,
which are ignored.
```

LISTING 402: multiple-sentences3.tex using Listing 368 on page 96

```
The first sentence continues after the verbatim \begin{verbatim}
  there are sentences within this. These
  will not be operated
  upon by latexindent.pl.
\end{verbatim} and finishes here.
Second sentence contains trailing comments, which are ignored.
% a commented full stop.
```

■

6.2.7 oneSentencePerLine: text wrapping and indenting sentences

N: 2018-08-13

The oneSentencePerLine can be instructed to perform text wrapping and indentation upon sentences.

example 113 Let's use the code in Listing 403.

LISTING 403: multiple-sentences5.tex

```
A distincao entre conteudo \emph{real} e conteudo \emph{intencional} esta
relacionada, ainda, a distincao entre o conceito husserliano de
\emph{experiencia} e o uso popular desse termo. No sentido comum,
o \term{experimentado} e um complexo de eventos exteriores,
e o \term{experimentar} consiste em percepcoes (alem de julgamentos e outros
atos) nas quais tais eventos aparecem como objetos, e objetos frequentemente
to the end.
```

Referencing Listing 405, and running the following command

```
cmh:~$ latexindent.pl multiple-sentences5 -m -l=sentence-wrap1.yaml
```

we receive the output given in Listing 404.

LISTING 404: multiple-sentences5.tex using Listing 405

```
A distincao entre conteudo \emph{real} e conteudo
  \emph{intencional} esta relacionada, ainda, a
  distincao entre o conceito husserliano de
  \emph{experiencia} e o uso popular desse termo.
No sentido comum, o \term{experimentado} e um
  complexo de eventos exteriores, e o
  \term{experimentar} consiste em percepcoes (alem
  de julgamentos e outros atos) nas quais tais
  eventos aparecem como objetos, e objetos
  frequentemente to the end.
```

LISTING 405: sentence-wrap1.yaml -m

```
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        removeSentenceLineBreaks: 1
        textWrapSentences: 1
        sentenceIndent: "  "
    textWrapOptions:
        columns: 50
```

■

If you specify `textWrapSentences` as 1, but do *not* specify a value for `columns` then the text wrapping will *not* operate on sentences, and you will see a warning in `indent.log`.

example 114 The indentation of sentences requires that sentences are stored as code blocks. This means that you may need to tweak Listing 373 on page 97. Let's explore this in relation to Listing 406.

LISTING 406: multiple-sentences6.tex

```
Consider the following:
\begin{itemize}
        \item firstly.
        \item secondly.
\end{itemize}
```

By default, `latexindent.pl` will find the full-stop within the first `item`, which means that, upon running the following commands

```
cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml
cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml
    -y="modifyLineBreaks:oneSentencePerLine:sentenceIndent:''"
```

we receive the respective output in Listing 407 and Listing 408.

LISTING 407: multiple-sentences6-mod1.tex using Listing 405

```
Consider the following:
\begin{itemize}
   \item firstly.
   \item secondly.
\end{itemize}
```

LISTING 408: multiple-sentences6-mod2.tex using Listing 405 and no sentence indentation

```
Consider the following:
\begin{itemize}
   \item firstly.
   \item secondly.
\end{itemize}
```

We note that Listing 407 the `itemize` code block has *not* been indented appropriately. This is because the oneSentencePerLine has been instructed to store sentences (because Listing 405); each sentence is then searched for code blocks.

■

example 115 We can tweak the settings in Listing 373 on page 97 to ensure that full stops are not followed by `item` commands, and that the end of sentences contains `\end{itemize}` as in Listing 409. This setting is actually an appended version of the `betterFullStop` from the `fineTuning`, detailed in Listing 564 on page 143.

LISTING 409: itemize.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: 45
    oneSentencePerLine:
        sentencesEndWith:
            betterFullStop: 0
            other: |-
                (?x)
                (?:                                 # new
                 (?:\R|\h)*\\item                   # new
                )                                   # new
                |
                (?:
                  \.\)
                  (?!\h*[a-z])
                )
                |
                (?:
                  (?<!
                    (?:
                      (?:[eE]\.[gG])
                      |
                      (?:[iI]\.[eE])
                      |
                      (?:etc)
                    )
                  )
                )
                \.
                (?:\h*\R*(?:\\end\{itemize\})?) # new
                (?!
                  (?:
                    [a-zA-Z0-9-~,]
                    |
                    \),
                    |
                    \)\.
                  )
                )
```

Upon running

```
cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml,itemize.yaml
```

we receive the output in Listing 410.

LISTING 410: multiple-sentences6-mod3.tex using Listing 405 and Listing 409

```
Consider the following:
\begin{itemize}
   \item firstly.
   \item secondly.
\end{itemize}
```

Notice that the sentence has received indentation, and that the `itemize` code block has been found and indented correctly. ■

U: 2022-04-04

Text wrapping when using the `oneSentencePerLine` routine determines if it will remove line breaks while text wrapping, from the value of `removeSentenceLineBreaks`.

6.2.8 oneSentencePerLine: text wrapping and indenting sentences, when before/after

N: 2023-01-01

The text wrapping routine operates, by default, `before` the code blocks have been found, but this can be changed to `after`:

- `before` means it is likely that the columns of wrapped text may *exceed* the value specified in `columns`;
- `after` means it columns of wrapped text should *not* exceed the value specified in `columns`.

We demonstrate this in the following examples. See also Section 6.1.7.

example 116 Let's begin with the file in Listing 411.

LISTING 411: multiple-sentences8.tex

```
This paragraph
has line breaks throughout its paragraph;
we would like to combine
the textwrapping
and paragraph removal routine.
\begin{myenv}
This paragraph
has line breaks throughout its paragraph;
we would like to combine
the textwrapping
and paragraph removal routine.
\end{myenv}
```

Using the settings given in Listing 413 and running the command

```
cmh:~$ latexindent.pl multiple-sentences8 -o=+-mod1.tex -l=sentence-wrap2 -m
```

gives the output given in Listing 412.

LISTING 412: multiple-sentences8-mod1.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
   This paragraph has line breaks
   throughout its paragraph; we would
   like to combine the textwrapping
   and paragraph removal routine.
\end{myenv}
----|----|----|----|----|----|----|----|
   5    10    15    20    25    30    35    40
```

LISTING 413: sentence-wrap2.yaml -m

```
defaultIndent: '   '
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        textWrapSentences: 1
    textWrapOptions:
        columns: 35
        when: before  # <!-------
```

We note that, in Listing 412, that the wrapped text has *exceeded* the specified value of `columns` (35) given in Listing 413. We can affect this by changing `when`; we explore this next. ■

example 117 We continue working with Listing 411.

Using the settings given in Listing 415 and running the command

```
cmh:~$ latexindent.pl multiple-sentences8.tex -o=+-mod2.tex -l=sentence-wrap3 -m
```

gives the output given in Listing 414.

LISTING 414: multiple-sentences8-mod2.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
   This paragraph has line breaks
   throughout its paragraph; we
   would like to combine the
   textwrapping and paragraph
   removal routine.
\end{myenv}
----|----|----|----|----|----|----|----|
   5    10    15    20    25    30    35    40
```

LISTING 415: sentence-wrap3.yaml -m

```
defaultIndent: '    '
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        textWrapSentences: 1
    textWrapOptions:
        columns: 35
        when: after  # <!-------
```

We note that, in Listing 414, that the wrapped text has *obeyed* the specified value of `columns` (35) given in Listing 415. ■

6.2.9 oneSentencePerLine: text wrapping sentences and comments

We demonstrate the one sentence per line routine with respect to text wrapping *comments*. See also Section 6.1.8.

example 118 Let's begin with the file in Listing 416.

LISTING 416: multiple-sentences9.tex

```
This paragraph% first comment
has line breaks throughout its paragraph;% second comment
we would like to combine% third comment
the textwrapping% fourth comment
and paragraph removal routine. % fifth comment
```

Using the settings given in Listing 418 and running the command

```
cmh:~$ latexindent.pl multiple-sentences9 -o=+-mod1.tex -l=sentence-wrap4 -m
```

gives the output given in Listing 417.

LISTING 417: multiple-sentences9-mod1.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
% first comment second comment
% third comment fourth comment
% fifth comment
----|----|----|----|----|----|----|----|
   5    10    15    20    25    30    35    40
```

LISTING 418: sentence-wrap4.yaml -m

```
defaultIndent: '    '
modifyLineBreaks:
    oneSentencePerLine:
        manipulateSentences: 1
        textWrapSentences: 1
    textWrapOptions:
        columns: 35
        comments:
          wrap: 1  #<!-------
```

We note that, in Listing 417, that the sentences have been wrapped, and so too have the comments because of the annotated line in Listing 418. ■

6.3 Poly-switches

U: 2017-08-21

Every other field in the `modifyLineBreaks` field uses poly-switches, and can take one of the following integer values:

−1 *remove mode*: line breaks before or after the *<part of thing>* can be removed (assuming that `preserveBlankLines` is set to 0);

0 *off mode*: line breaks will not be modified for the *<part of thing>* under consideration;

1 *add mode*: a line break will be added before or after the *<part of thing>* under consideration, assuming that there is not already a line break before or after the *<part of thing>*;

2 *comment then add mode*: a comment symbol will be added, followed by a line break before or after the *<part of thing>* under consideration, assuming that there is not already a comment and line break before or after the *<part of thing>*;

N: 2017-08-21

3 *add then blank line mode*: a line break will be added before or after the *<part of thing>* under consideration, assuming that there is not already a line break before or after the *<part of thing>*, followed by a blank line;

N: 2019-07-13

4 *add blank line mode*; a blank line will be added before or after the *<part of thing>* under consideration, even if the *<part of thing>* is already on its own line.

In the above, *<part of thing>* refers to either the *begin statement*, *body* or *end statement* of the code blocks detailed in Table 2 on page 55. All poly-switches are *off* by default; `latexindent.pl` searches first of all for per-name settings, and then followed by global per-thing settings.

6.3.1 Poly-switches for environments

We start by viewing a snippet of `defaultSettings.yaml` in Listing 419; note that it contains *global* settings (immediately after the `environments` field) and that *per-name* settings are also allowed – in the case of Listing 419, settings for `equation*` have been specified for demonstration. Note that all poly-switches are *off* (set to 0) by default.

LISTING 419: `environments` -m

```
560     environments:
561         BeginStartsOnOwnLine: 0           # -1,0,1,2,3,4
562         BodyStartsOnOwnLine: 0            # -1,0,1,2,3,4
563         EndStartsOnOwnLine: 0             # -1,0,1,2,3,4
564         EndFinishesWithLineBreak: 0       # -1,0,1,2,3,4
565         ## equation*:
566         ##     BeginStartsOnOwnLine: 0       # -1,0,1,2,3,4
567         ##     BodyStartsOnOwnLine: 0        # -1,0,1,2,3,4
568         ##     EndStartsOnOwnLine: 0         # -1,0,1,2,3,4
569         ##     EndFinishesWithLineBreak: 0   # -1,0,1,2,3,4
```

Let's begin with the simple example given in Listing 420; note that we have annotated key parts of the file using ♠, ♡, ♢ and ♣, these will be related to fields specified in Listing 419.

LISTING 420: `env-mlb1.tex`

```
before words♠ \begin{myenv}♡body of myenv♢\end{myenv}♣ after words
```

6.3.1.1 Adding line breaks: BeginStartsOnOwnLine and BodyStartsOnOwnLine

example 119 Let's explore `BeginStartsOnOwnLine` and `BodyStartsOnOwnLine` in Listings 421 and 422, and in particular, let's allow each of them in turn to take a value of 1.

LISTING 421: `env-mlb1.yaml` -m

```
modifyLineBreaks:
    environments:
        BeginStartsOnOwnLine: 1
```

LISTING 422: `env-mlb2.yaml` -m

```
modifyLineBreaks:
    environments:
        BodyStartsOnOwnLine: 1
```

After running the following commands,

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb1.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb2.yaml
```

the output is as in Listings 423 and 424 respectively.

LISTING 423: env-mlb.tex using Listing 421

```
before words
\begin{myenv}body of myenv\end{myenv} after words
```

LISTING 424: env-mlb.tex using Listing 422

```
before words \begin{myenv}
   body of myenv\end{myenv} after words
```

There are a couple of points to note:

- in Listing 423 a line break has been added at the point denoted by ♠ in Listing 420; no other line breaks have been changed;
- in Listing 424 a line break has been added at the point denoted by ♡ in Listing 420; furthermore, note that the *body* of myenv has received the appropriate (default) indentation. ■

example 120 Let's now change each of the 1 values in Listings 421 and 422 so that they are 2 and save them into env-mlb3.yaml and env-mlb4.yaml respectively (see Listings 425 and 426).

LISTING 425: env-mlb3.yaml -m

```
modifyLineBreaks:
    environments:
        BeginStartsOnOwnLine: 2
```

LISTING 426: env-mlb4.yaml -m

```
modifyLineBreaks:
    environments:
        BodyStartsOnOwnLine: 2
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb3.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb4.yaml
```

we obtain Listings 427 and 428.

LISTING 427: env-mlb.tex using Listing 425

```
before words%
\begin{myenv}body of myenv\end{myenv} after words
```

LISTING 428: env-mlb.tex using Listing 426

```
before words \begin{myenv}%
   body of myenv\end{myenv} after words
```

Note that line breaks have been added as in Listings 423 and 424, but this time a comment symbol has been added before adding the line break; in both cases, trailing horizontal space has been stripped before doing so. ■

example 121 N: 2017-08-21 Let's now change each of the 1 values in Listings 421 and 422 so that they are 3 and save them into env-mlb5.yaml and env-mlb6.yaml respectively (see Listings 429 and 430).

LISTING 429: env-mlb5.yaml -m

```
modifyLineBreaks:
    environments:
        BeginStartsOnOwnLine: 3
```

LISTING 430: env-mlb6.yaml -m

```
modifyLineBreaks:
    environments:
        BodyStartsOnOwnLine: 3
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb5.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb6.yaml
```

we obtain Listings 431 and 432.

LISTING 431: env-mlb.tex using Listing 429

```
before words

\begin{myenv}body of myenv\end{myenv} after words
```

LISTING 432: env-mlb.tex using Listing 430

```
before words \begin{myenv}

    body of myenv\end{myenv} after words
```

Note that line breaks have been added as in Listings 423 and 424, but this time a *blank line* has been added after adding the line break. ■

example 122

N: 2019-07-13

Let's now change each of the 1 values in Listings 429 and 430 so that they are 4 and save them into env-beg4.yaml and env-body4.yaml respectively (see Listings 433 and 434).

LISTING 433: env-beg4.yaml -m

```
modifyLineBreaks:
    environments:
        BeginStartsOnOwnLine: 4
```

LISTING 434: env-body4.yaml -m

```
modifyLineBreaks:
    environments:
        BodyStartsOnOwnLine: 4
```

We will demonstrate this poly-switch value using the code in Listing 435.

LISTING 435: env-mlb1.tex

```
before words
\begin{myenv}
body of myenv
\end{myenv}
after words
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-beg4.yaml
cmh:~$ latexindent.pl -m env-mlb.1tex -l env-body4.yaml
```

then we receive the respective outputs in Listings 436 and 437.

LISTING 436: env-mlb1.tex using Listing 433

```
before words

\begin{myenv}
   body of myenv
\end{myenv}
after words
```

LISTING 437: env-mlb1.tex using Listing 434

```
before words
\begin{myenv}

   body of myenv
\end{myenv}
after words
```

We note in particular that, by design, for this value of the poly-switches:

1. in Listing 436 a blank line has been inserted before the \begin statement, even though the \begin statement was already on its own line;
2. in Listing 437 a blank line has been inserted before the beginning of the *body*, even though it already began on its own line.

■

6.3.1.2 Adding line breaks: EndStartsOnOwnLine and EndFinishesWithLineBreak

example 123

Let's explore EndStartsOnOwnLine and EndFinishesWithLineBreak in Listings 438 and 439, and in particular, let's allow each of them in turn to take a value of 1.

LISTING 438: env-mlb7.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: 1
```

LISTING 439: env-mlb8.yaml -m

```
modifyLineBreaks:
    environments:
        EndFinishesWithLineBreak: 1
```

After running the following commands,

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb7.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb8.yaml
```

the output is as in Listings 440 and 441.

LISTING 440: env-mlb.tex using Listing 438

```
before words \begin{myenv}body
    of myenv
\end{myenv} after words
```

LISTING 441: env-mlb.tex using Listing 439

```
before words \begin{myenv}body
    of myenv\end{myenv}
after words
```

There are a couple of points to note:

- in Listing 440 a line break has been added at the point denoted by ♢ in Listing 420 on page 108; no other line breaks have been changed and the \end{myenv} statement has *not* received indentation (as intended);
- in Listing 441 a line break has been added at the point denoted by ♣ in Listing 420 on page 108.

■

example 124 Let's now change each of the 1 values in Listings 438 and 439 so that they are 2 and save them into env-mlb9.yaml and env-mlb10.yaml respectively (see Listings 442 and 443).

LISTING 442: env-mlb9.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: 2
```

LISTING 443: env-mlb10.yaml -m

```
modifyLineBreaks:
    environments:
        EndFinishesWithLineBreak: 2
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb9.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb10.yaml
```

we obtain Listings 444 and 445.

LISTING 444: env-mlb.tex using Listing 442

```
before words \begin{myenv}body of myenv%
\end{myenv} after words
```

LISTING 445: env-mlb.tex using Listing 443

```
before words \begin{myenv}body of myenv\end{myenv}%
after words
```

Note that line breaks have been added as in Listings 440 and 441, but this time a comment symbol has been added before adding the line break; in both cases, trailing horizontal space has been stripped before doing so.

■

example 125 Let's now change each of the 1 values in Listings 438 and 439 so that they are 3 and save them into env-mlb11.yaml and env-mlb12.yaml respectively (see Listings 446 and 447).

N: 2017-08-21

LISTING 446: env-mlb11.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: 3
```

LISTING 447: env-mlb12.yaml -m

```
modifyLineBreaks:
    environments:
        EndFinishesWithLineBreak: 3
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb11.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb12.yaml
```

we obtain Listings 448 and 449.

LISTING 448: env-mlb.tex using Listing 446

```
before words \begin{myenv}body of myenv

\end{myenv} after words
```

LISTING 449: env-mlb.tex using Listing 447

```
before words \begin{myenv}body of myenv\end{myenv}

after words
```

Note that line breaks have been added as in Listings 440 and 441, and that a *blank line* has been added after the line break. ■

example 126

N: 2019-07-13

Let's now change each of the 1 values in Listings 446 and 447 so that they are 4 and save them into `env-end4.yaml` and `env-end-f4.yaml` respectively (see Listings 450 and 451).

LISTING 450: env-end4.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: 4
```

LISTING 451: env-end-f4.yaml -m

```
modifyLineBreaks:
    environments:
        EndFinishesWithLineBreak: 4
```

We will demonstrate this poly-switch value using the code from Listing 435 on page 110.

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-end4.yaml
cmh:~$ latexindent.pl -m env-mlb.1tex -l env-end-f4.yaml
```

then we receive the respective outputs in Listings 452 and 453.

LISTING 452: env-mlb1.tex using Listing 450

```
before words
\begin{myenv}
   body of myenv

\end{myenv}
after words
```

LISTING 453: env-mlb1.tex using Listing 451

```
before words
\begin{myenv}
   body of myenv
\end{myenv}

after words
```

We note in particular that, by design, for this value of the poly-switches:

1. in Listing 452 a blank line has been inserted before the `\end` statement, even though the `\end` statement was already on its own line;
2. in Listing 453 a blank line has been inserted after the `\end` statement, even though it already began on its own line.

■

6.3.1.3 poly-switches 1, 2, and 3 only add line breaks when necessary

If you ask `latexindent.pl` to add a line break (possibly with a comment) using a poly-switch value of 1 (or 2 or 3), it will only do so if necessary.

example 127 For example, if you process the file in Listing 454 using poly-switch values of 1, 2, or 3, it will be left unchanged.

LISTING 454: env-mlb2.tex

```
before words
\begin{myenv}
  body of myenv
\end{myenv}
after words
```

LISTING 455: env-mlb3.tex

```
before words
\begin{myenv}  %
  body of myenv%
\end{myenv}%
after words
```

■

Setting the poly-switches to a value of 4 instructs `latexindent.pl` to add a line break even if the *<part of thing>* is already on its own line; see Listings 436 and 437 and Listings 452 and 453.

example 128 In contrast, the output from processing the file in Listing 455 will vary depending on the poly-switches used; in Listing 456 you'll see that the comment symbol after the `\begin{myenv}` has been moved to the next line, as `BodyStartsOnOwnLine` is set to `1`. In Listing 457 you'll see that the comment has been accounted for correctly because `BodyStartsOnOwnLine` has been set to 2, and the comment symbol has *not* been moved to its own line. You're encouraged to experiment with Listing 455 and by setting the other poly-switches considered so far to 2 in turn.

LISTING 456: env-mlb3.tex using Listing 422 on page 108

```
before words
\begin{myenv}
   %
   body of myenv%
\end{myenv}%
after words
```

LISTING 457: env-mlb3.tex using Listing 426 on page 109

```
before words
\begin{myenv}  %
   body of myenv%
\end{myenv}%
after words
```

■

The details of the discussion in this section have concerned *global* poly-switches in the `environments` field; each switch can also be specified on a *per-name* basis, which would take priority over the global values; with reference to Listing 419 on page 108, an example is shown for the `equation*` environment.

6.3.1.4 Removing line breaks (poly-switches set to −1)

Setting poly-switches to −1 tells `latexindent.pl` to remove line breaks of the *<part of the thing>*, if necessary.

example 129 We will consider the example code given in Listing 458, noting in particular the positions of the line break highlighters, ♠, ♡, ♢ and ♣, together with the associated YAML files in Listings 459 to 462.

LISTING 458: env-mlb4.tex

```
before words♠
\begin{myenv}♡
body of myenv♢
\end{myenv}♣
after words
```

LISTING 459: env-mlb13.yaml -m

```
modifyLineBreaks:
    environments:
        BeginStartsOnOwnLine: -1
```

LISTING 460: env-mlb14.yaml -m

```
modifyLineBreaks:
    environments:
        BodyStartsOnOwnLine: -1
```

LISTING 461: env-mlb15.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: -1
```

LISTING 462: env-mlb16.yaml -m

```
modifyLineBreaks:
    environments:
        EndFinishesWithLineBreak:
    -1
```

After running the commands

```
cmh:~$ latexindent.pl -m env-mlb4.tex -l env-mlb13.yaml
cmh:~$ latexindent.pl -m env-mlb4.tex -l env-mlb14.yaml
cmh:~$ latexindent.pl -m env-mlb4.tex -l env-mlb15.yaml
cmh:~$ latexindent.pl -m env-mlb4.tex -l env-mlb16.yaml
```

we obtain the respective output in Listings 463 to 466.

LISTING 463: env-mlb4.tex using Listing 459

```
before words\begin{myenv}
   body of myenv
\end{myenv}
after words
```

LISTING 464: env-mlb4.tex using Listing 460

```
before words
\begin{myenv}body of myenv
\end{myenv}
after words
```

LISTING 465: env-mlb4.tex using Listing 461

```
before words
\begin{myenv}
   body of myenv\end{myenv}
after words
```

LISTING 466: env-mlb4.tex using Listing 462

```
before words
\begin{myenv}
   body of myenv
\end{myenv}after words
```

Notice that in:

- Listing 463 the line break denoted by ♠ in Listing 458 has been removed;
- Listing 464 the line break denoted by ♡ in Listing 458 has been removed;
- Listing 465 the line break denoted by ♢ in Listing 458 has been removed;
- Listing 466 the line break denoted by ♣ in Listing 458 has been removed.

We examined each of these cases separately for clarity of explanation, but you can combine all of the YAML settings in Listings 459 to 462 into one file; alternatively, you could tell `latexindent.pl` to load them all by using the following command, for example

```
cmh:~$
    latexindent.pl -m env-mlb4.tex -l env-mlb13.yaml,env-mlb14.yaml,env-mlb15.yaml,env-mlb16.yaml
```

which gives the output in Listing 420 on page 108.

6.3.1.5 About trailing horizontal space

Recall that on page 33 we discussed the YAML field `removeTrailingWhitespace`, and that it has two (binary) switches to determine if horizontal space should be removed `beforeProcessing` and `afterProcessing`. The `beforeProcessing` is particularly relevant when considering the `-m` switch.

example 130 We consider the file shown in Listing 467, which highlights trailing spaces.

LISTING 467: env-mlb5.tex

```
before␣words␣␣␣♠
\begin{myenv}␣␣␣␣␣␣␣␣␣␣♡
body␣of␣myenv␣␣␣␣␣␣◇
\end{myenv}␣␣␣␣␣♣
after␣words
```

LISTING 468: removeTWS-before.yaml

```
removeTrailingWhitespace:
    beforeProcessing: 1
```

The output from the following commands

```
cmh:~$ latexindent.pl -m env-mlb5.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16
cmh:~$ latexindent.pl -m env-mlb5.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16,removeTWS-before
```

is shown, respectively, in Listings 469 and 470; note that the trailing horizontal white space has been preserved (by default) in Listing 469, while in Listing 470, it has been removed using the switch specified in Listing 468.

LISTING 469: env-mlb5.tex using Listings 463 to 466

```
before␣words␣␣␣\begin{myenv}␣␣␣␣␣␣␣␣␣␣body␣of␣myenv␣␣␣␣␣␣\end{myenv}␣␣␣␣␣after␣words
```

LISTING 470: env-mlb5.tex using Listings 463 to 466 *and* Listing 468

```
before␣words\begin{myenv}body␣of␣myenv\end{myenv}after␣words
```

6.3.1.6 poly-switch line break removal and blank lines

example 131 Now let's consider the file in Listing 471, which contains blank lines.

LISTING 471: env-mlb6.tex

```
before words♠


\begin{myenv}♡


body of myenv◇


\end{myenv}♣

after words
```

LISTING 472: UnpreserveBlankLines.yaml `-m`

```
modifyLineBreaks:
    preserveBlankLines: 0
```

Upon running the following commands

```
cmh:~$ latexindent.pl -m env-mlb6.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16
cmh:~$
    latexindent.pl -m env-mlb6.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16,UnpreserveBlankLines
```

we receive the respective outputs in Listings 473 and 474. In Listing 473 we see that the multiple blank lines have each been condensed into one blank line, but that blank lines have *not* been removed by the poly-switches – this is because, by default, `preserveBlankLines` is set to 1. By contrast, in Listing 474, we have allowed the poly-switches to remove blank lines because, in Listing 472, we have set `preserveBlankLines` to 0.

LISTING 473: env-mlb6.tex using Listings 463 to 466

```
before words

\begin{myenv}

   body of myenv

\end{myenv}

after words
```

LISTING 474: env-mlb6.tex using Listings 463 to 466 *and* Listing 472

```
before words\begin{myenv}body of myenv\end{myenv}after words
```

■

example 132 We can explore this further using the blank-line poly-switch value of 3; let's use the file given in Listing 475.

LISTING 475: env-mlb7.tex

```
\begin{one} one text \end{one} \begin{two} two text \end{two}
```

Upon running the following commands

```
cmh:~$ latexindent.pl -m env-mlb7.tex -l env-mlb12.yaml,env-mlb13.yaml
cmh:~$
    latexindent.pl -m env-mlb7.tex -l env-mlb13,env-mlb14,UnpreserveBlankLines
```

we receive the outputs given in Listings 476 and 477.

LISTING 476: env-mlb7-preserve.tex

```
\begin{one} one text \end{one}

\begin{two} two text \end{two}
```

LISTING 477: env-mlb7-no-preserve.tex

```
\begin{one} one text \end{one} \begin{two} two text \end{two}
```

Notice that in:

- Listing 476 that `\end{one}` has added a blank line, because of the value of `EndFinishesWithLineBreak` in Listing 447 on page 112, and even though the line break ahead of `\begin{two}` should have been removed (because of `BeginStartsOnOwnLine` in Listing 459 on page 114), the blank line has been preserved by default;
- Listing 477, by contrast, has had the additional line-break removed, because of the settings in Listing 472.

■

6.3.2 Poly-switches for double backslash

N: 2019-07-13

With reference to `lookForAlignDelims` (see Listing 59 on page 33) you can specify poly-switches to dictate the line-break behaviour of double backslashes in environments (Listing 61 on page 34), commands (Listing 95 on page 40), or special code blocks (Listing 140 on page 48). [6]

Consider the code given in Listing 478.

LISTING 478: `tabular3.tex`

```
\begin{tabular}{cc}
 1 & 2 ★\\□ 3 & 4 ★\\□
\end{tabular}
```

Referencing Listing 478:

- DBS stands for *double backslash*;
- line breaks ahead of the double backslash are annotated by ★, and are controlled by `DBSStartsOnOwnLine`;
- line breaks after the double backslash are annotated by □, and are controlled by `DBSFinishesWithLineBreak`.

Let's explore each of these in turn.

6.3.2.1 Double backslash starts on own line

example 133 We explore `DBSStartsOnOwnLine` (★ in Listing 478); starting with the code in Listing 478, together with the YAML files given in Listing 480 and Listing 482 and running the following commands

```
cmh:~$ latexindent.pl -m tabular3.tex -l DBS1.yaml
cmh:~$ latexindent.pl -m tabular3.tex -l DBS2.yaml
```

then we receive the respective output given in Listing 479 and Listing 481.

LISTING 479: `tabular3.tex` using Listing 480

```
\begin{tabular}{cc}
   1 & 2
   \\ 3 & 4
   \\
\end{tabular}
```

LISTING 480: `DBS1.yaml` `-m`

```
modifyLineBreaks:
    environments:
        DBSStartsOnOwnLine: 1
```

LISTING 481: `tabular3.tex` using Listing 482

```
\begin{tabular}{cc}
   1 & 2 %
   \\ 3 & 4%
   \\
\end{tabular}
```

LISTING 482: `DBS2.yaml` `-m`

```
modifyLineBreaks:
    environments:
        tabular:
            DBSStartsOnOwnLine: 2
```

We note that

- Listing 480 specifies `DBSStartsOnOwnLine` for *every* environment (that is within `lookForAlignDelims`, Listing 62 on page 34); the double backslashes from Listing 478 have been moved to their own line in Listing 479;
- Listing 482 specifies `DBSStartsOnOwnLine` on a *per-name* basis for `tabular` (that is within `lookForAlignDelims`, Listing 62 on page 34); the double backslashes from Listing 478 have been moved to their own line in Listing 481, having added comment symbols before

[6] There is no longer any need for the code block to be specified within `lookForAlignDelims` for DBS poly-switches to activate.

U: 2023-01-01

moving them. ■

example 134 We can combine DBS poly-switches with, for example, the `alignContentAfterDoubleBackSlash` in Section 5.5.6 on page 45.

For example, starting with the file Listing 483, and using the settings in Listings 131 and 133 on page 46 and running

```
cmh:~$ latexindent.pl -s -m -l alignContentAfterDBS1.yaml,DBS1.yaml tabular6.tex -o=+-mod1
cmh:~$ latexindent.pl -s -m -l alignContentAfterDBS2.yaml,DBS1.yaml tabular6.tex -o=+-mod2
```

gives the respective outputs shown in Listings 484 and 485.

LISTING 483: tabular6.tex

```
\begin{tabular}{cc}
 1&22\\333&4444\\55555&666666
\end{tabular}
```

LISTING 484: tabular6-mod1.tex

```
\begin{tabular}{cc}
      1     & 22
   \\ 333   & 4444
   \\ 55555 & 666666
\end{tabular}
```

LISTING 485: tabular6-mod2.tex

```
\begin{tabular}{cc}
      1     & 22
   \\   333   & 4444
   \\   55555 & 666666
\end{tabular}
```

We note that:

- in Listing 484 the content *after* the double back slash has been aligned;
- in Listing 485 we see that 3 spaces have been added after the double back slash. ■

6.3.2.2 Double backslash finishes with line break

example 135 Let's now explore `DBSFinishesWithLineBreak` (□ in Listing 478); starting with the code in Listing 478, together with the YAML files given in Listing 487 and Listing 489 and running the following commands

```
cmh:~$ latexindent.pl -m tabular3.tex -l DBS3.yaml
cmh:~$ latexindent.pl -m tabular3.tex -l DBS4.yaml
```

then we receive the respective output given in Listing 486 and Listing 488.

LISTING 486: tabular3.tex using Listing 487

```
\begin{tabular}{cc}
   1 & 2 \\
   3 & 4 \\
\end{tabular}
```

LISTING 487: DBS3.yaml -m

```
modifyLineBreaks:
    environments:
        DBSFinishesWithLineBreak: 1
```

LISTING 488: tabular3.tex using Listing 489

```
\begin{tabular}{cc}
   1 & 2 \\%
   3 & 4 \\
\end{tabular}
```

LISTING 489: DBS4.yaml -m

```
modifyLineBreaks:
    environments:
        tabular:
            DBSFinishesWithLineBreak:
    2
```

We note that

- Listing 487 specifies `DBSFinishesWithLineBreak` for *every* environment (that is within `lookForAlignDelims`, Listing 62 on page 34); the code following the double backslashes from Listing 478 has been moved to their own line in Listing 486;

- Listing 489 specifies `DBSFinishesWithLineBreak` on a *per-name* basis for `tabular` (that is within `lookForAlignDelims`, Listing 62 on page 34); the first double backslashes from Listing 478 have moved code following them to their own line in Listing 488, having added comment symbols before moving them; the final double backslashes have *not* added a line break as they are at the end of the body within the code block.

■

6.3.2.3 Double backslash poly-switches for specialBeginEnd

example 136 Let's explore the double backslash poly-switches for code blocks within `specialBeginEnd` code blocks (Listing 138 on page 47); we begin with the code within Listing 490.

LISTING 490: special4.tex

```
\< a& =b  \\ & =c\\ & =d\\ & =e \>
```

Upon using the YAML settings in Listing 492, and running the command

```
cmh:~$ latexindent.pl -m special4.tex -l DBS5.yaml
```

then we receive the output given in Listing 491.

LISTING 491: special4.tex using Listing 492

```
\<
   a & =b \\
     & =c \\
     & =d \\
     & =e %
\>
```

LISTING 492: DBS5.yaml -m

```
specialBeginEnd:
    cmhMath:
        lookForThis: 1
        begin: '\\<'
        end: '\\>'
lookForAlignDelims:
    cmhMath: 1
modifyLineBreaks:
    specialBeginEnd:
        cmhMath:
            DBSFinishesWithLineBreak: 1
            SpecialBodyStartsOnOwnLine: 1
            SpecialEndStartsOnOwnLine: 2
```

There are a few things to note:

- in Listing 492 we have specified `cmhMath` within `lookForAlignDelims`; without this, the double backslash poly-switches would be ignored for this code block;
- the `DBSFinishesWithLineBreak` poly-switch has controlled the line breaks following the double backslashes;
- the `SpecialEndStartsOnOwnLine` poly-switch has controlled the addition of a comment symbol, followed by a line break, as it is set to a value of 2.

■

6.3.2.4 Double backslash poly-switches for optional and mandatory arguments

For clarity, we provide a demonstration of controlling the double backslash poly-switches for optional and mandatory arguments.

example 137 We use with the code in Listing 493.

LISTING 493: mycommand2.tex

```
\mycommand [
   1&2   &3\\ 4&5&6]{
7&8   &9\\ 10&11&12
}
```

Upon using the YAML settings in Listings 495 and 497, and running the command

```
cmh:~$ latexindent.pl -m mycommand2.tex -l DBS6.yaml
cmh:~$ latexindent.pl -m mycommand2.tex -l DBS7.yaml
```

then we receive the output given in Listings 494 and 496.

LISTING 494: mycommand2.tex using Listing 495

```
\mycommand [
   1 & 2 & 3 %
   \\%
   4 & 5 & 6]{
   7 & 8 & 9 \\ 10&11&12
}
```

LISTING 495: DBS6.yaml -m

```
lookForAlignDelims:
    mycommand: 1
modifyLineBreaks:
    optionalArguments:
        DBSStartsOnOwnLine: 2
        DBSFinishesWithLineBreak: 2
```

LISTING 496: mycommand2.tex using Listing 497

```
\mycommand [
   1&2   &3\\ 4&5&6]{
   7  & 8  & 9  %
   \\%
   10 & 11 & 12
}
```

LISTING 497: DBS7.yaml -m

```
lookForAlignDelims:
    mycommand: 1
modifyLineBreaks:
    mandatoryArguments:
        DBSStartsOnOwnLine: 2
        DBSFinishesWithLineBreak: 2
```

■

6.3.2.5 Double backslash optional square brackets

The pattern matching for the double backslash will also, optionally, allow trailing square brackets that contain a measurement of vertical spacing, for example `\\[3pt]`.

example 138 For example, beginning with the code in Listing 498

LISTING 498: pmatrix3.tex

```
\begin{pmatrix}
1 & 2 \\[2pt] 3 & 4 \\ [ 3 ex] 5&6\\[    4  pt   ] 7 & 8
\end{pmatrix}
```

and running the following command, using Listing 487,

```
cmh:~$ latexindent.pl -m pmatrix3.tex -l DBS3.yaml
```

then we receive the output given in Listing 499.

LISTING 499: pmatrix3.tex using Listing 487

```
\begin{pmatrix}
   1 & 2 \\[2pt]
   3 & 4 \\ [ 3 ex]
   5 & 6 \\[    4  pt   ]
   7 & 8
\end{pmatrix}
```

■

You can customise the pattern for the double backslash by exploring the *fine tuning* field detailed in Listing 564 on page 143.

6.3.3 Poly-switches for other code blocks

Rather than repeat the examples shown for the environment code blocks (in Section 6.3.1 on page 108), we choose to detail the poly-switches for all other code blocks in Table 3; note that each and every one of these poly-switches is *off by default*, i.e, set to `0`.

U: 2019-05-05

Note also that, by design, line breaks involving, `filecontents` and 'comment-marked' code blocks (Listing 96 on page 41) can *not* be modified using `latexindent.pl`. However, there are two poly-switches available for `verbatim` code blocks: environments (Listing 38 on page 29), commands (Listing 39 on page 29) and `specialBeginEnd` (Listing 152 on page 50).

TABLE 3: Poly-switch mappings for all code-block types

Code block	Sample		Poly-switch mapping
environment	`before words`♠ `\begin{myenv}`♡ `body of myenv`♢ `\end{myenv}`♣ `after words`	♠ ♡ ♢ ♣	BeginStartsOnOwnLine BodyStartsOnOwnLine EndStartsOnOwnLine EndFinishesWithLineBreak
ifelsefi	`before words`♠ `\if...`♡ `body of if/or statement`▲ `\or`▼ `body of if/or statement`★ `\else`□ `body of else statement`♢ `\fi`♣ `after words`	♠ ♡ ▲ ▼ ★ □ ♢ ♣	IfStartsOnOwnLine BodyStartsOnOwnLine OrStartsOnOwnLine OrFinishesWithLineBreak ElseStartsOnOwnLine ElseFinishesWithLineBreak FiStartsOnOwnLine FiFinishesWithLineBreak

optionalArguments	`...`♠
	`[`♡
	`value before comma`★`,`
	□
	`end of body of opt arg`♢
	`]`♣
	`...`
		♠
		♡
		★
		□
		♢
		♣
			LSqBStartsOnOwnLine[7]
			OptArgBodyStartsOnOwnLine
			CommaStartsOnOwnLine
			CommaFinishesWithLineBreak
			RSqBStartsOnOwnLine
			RSqBFinishesWithLineBreak

mandatoryArguments	`...`♠
	`{`♡
	`value before comma`★`,`
	□
	`end of body of mand arg`♢
	`}`♣
	`...`
		♠
		♡
		★
		□
		♢
		♣
			LCuBStartsOnOwnLine[8]
			MandArgBodyStartsOnOwnLine
			CommaStartsOnOwnLine
			CommaFinishesWithLineBreak
			RCuBStartsOnOwnLine
			RCuBFinishesWithLineBreak

commands	`before words`♠ `\mycommand`♡ ⟨*arguments*⟩	♠ ♡	CommandStartsOnOwnLine CommandNameFinishesWithLineBr
namedGroupingBracesBrackets	before words♠ myname♡ ⟨*braces/brackets*⟩	♠ ♡	NameStartsOnOwnLine NameFinishesWithLineBreak
keyEqualsValuesBracesBrackets	before words♠ key•=♡ ⟨*braces/brackets*⟩	♠ • ♡	KeyStartsOnOwnLine EqualsStartsOnOwnLine EqualsFinishesWithLineBreak
items	before words♠ `\item`♡ `...`	♠ ♡	ItemStartsOnOwnLine ItemFinishesWithLineBreak
specialBeginEnd	before words♠ `\[`♡ `body of special/middle`★ `\middle`□ body of special/middle ♢ `\]`♣ after words	♠ ♡ ★ □ ♢ ♣	SpecialBeginStartsOnOwnLine SpecialBodyStartsOnOwnLine SpecialMiddleStartsOnOwnLine SpecialMiddleFinishesWithLineBrea SpecialEndStartsOnOwnLine SpecialEndFinishesWithLineBreak
verbatim	before words♠`\begin{verbatim}`	♠	VerbatimBeginStartsOnOwnLine

N: 2018-04-27

N: 2019-07-13

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N: 2018-04-27

[7] LSqB stands for Left Square Bracket
[8] LCuB stands for Left Curly Brace

N: 2019-05-05

body of verbatim \end{verbatim}♣ ♣ VerbatimEndFinishesWithLineBreak
after words

6.3.4 Partnering BodyStartsOnOwnLine with argument-based poly-switches

Some poly-switches need to be partnered together; in particular, when line breaks involving the *first* argument of a code block need to be accounted for using both `BodyStartsOnOwnLine` (or its equivalent, see Table 3 on the preceding page) and `LCuBStartsOnOwnLine` for mandatory arguments, and `LSqBStartsOnOwnLine` for optional arguments.

example 139 Let's begin with the code in Listing 500 and the YAML settings in Listing 502; with reference to Table 3 on the previous page, the key `CommandNameFinishesWithLineBreak` is an alias for `BodyStartsOnOwnLine`.

LISTING 500: mycommand1.tex

```
\mycommand
{
mand arg text
mand arg text}
{
mand arg text
mand arg text}
```

Upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb1.yaml mycommand1.tex
```

we obtain Listing 501; note that the *second* mandatory argument beginning brace { has had its leading line break removed, but that the *first* brace has not.

LISTING 501: mycommand1.tex using Listing 502

```
\mycommand
{
   mand arg text
   mand arg text}{
   mand arg text
   mand arg text}
```

LISTING 502: mycom-mlb1.yaml -m

```
modifyLineBreaks:
    commands:
        CommandNameFinishesWithLineBreak: 0
    mandatoryArguments:
        LCuBStartsOnOwnLine: -1
```

■

example 140 Now let's change the YAML file so that it is as in Listing 504; upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb2.yaml mycommand1.tex
```

we obtain Listing 503; both beginning braces { have had their leading line breaks removed.

LISTING 503: mycommand1.tex using Listing 504

```
\mycommand{
   mand arg text
   mand arg text}{
   mand arg text
   mand arg text}
```

LISTING 504: mycom-mlb2.yaml -m

```
modifyLineBreaks:
    commands:
        CommandNameFinishesWithLineBreak: -1
    mandatoryArguments:
        LCuBStartsOnOwnLine: -1
```

■

example 141 Now let's change the YAML file so that it is as in Listing 506; upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb3.yaml mycommand1.tex
```

we obtain Listing 505.

LISTING 505: mycommand1.tex using Listing 506

```
\mycommand
{
   mand arg text
   mand arg text}
{
   mand arg text
   mand arg text}
```

LISTING 506: mycom-mlb3.yaml -m

```
modifyLineBreaks:
    commands:
        CommandNameFinishesWithLineBreak: -1
    mandatoryArguments:
        LCuBStartsOnOwnLine: 1
```

■

6.3.5 Conflicting poly-switches: sequential code blocks

It is very easy to have conflicting poly-switches.

example 142 We use the example from Listing 500 on the preceding page, and consider the YAML settings given in Listing 508. The output from running

```
cmh:~$ latexindent.pl -m -l=mycom-mlb4.yaml mycommand1.tex
```

is given in Listing 508.

LISTING 507: mycommand1.tex using Listing 508

```
\mycommand
{
   mand arg text
   mand arg text}{
   mand arg text
   mand arg text}
```

LISTING 508: mycom-mlb4.yaml -m

```
modifyLineBreaks:
    mandatoryArguments:
        LCuBStartsOnOwnLine: -1
        RCuBFinishesWithLineBreak: 1
```

Studying Listing 508, we see that the two poly-switches are at opposition with one another:

- on the one hand, `LCuBStartsOnOwnLine` should *not* start on its own line (as poly-switch is set to −1);
- on the other hand, `RCuBFinishesWithLineBreak` *should* finish with a line break.

So, which should win the conflict? As demonstrated in Listing 507, it is clear that `LCuBStartsOnOwnLine` won this conflict, and the reason is that *the second argument was processed after the first* – in general, the most recently-processed code block and associated poly-switch takes priority.

■

example 143 We can explore this further by considering the YAML settings in Listing 510; upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb5.yaml mycommand1.tex
```

we obtain the output given in Listing 509.

LISTING 509: mycommand1.tex using Listing 510

```
\mycommand
{
   mand arg text
   mand arg text}
{
   mand arg text
   mand arg text}
```

LISTING 510: mycom-mlb5.yaml -m

```
modifyLineBreaks:
    mandatoryArguments:
        LCuBStartsOnOwnLine: 1
        RCuBFinishesWithLineBreak:
    -1
```

As previously, the most-recently-processed code block takes priority – as before, the second (i.e, *last*) argument.

Exploring this further, we consider the YAML settings in Listing 512, and run the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb6.yaml mycommand1.tex
```

which gives the output in Listing 511.

LISTING 511: mycommand1.tex using Listing 512

```
\mycommand
{
   mand arg text
   mand arg text}%
{
   mand arg text
   mand arg text}
```

LISTING 512: mycom-mlb6.yaml -m

```
modifyLineBreaks:
    mandatoryArguments:
        LCuBStartsOnOwnLine: 2
        RCuBFinishesWithLineBreak:
    -1
```

Note that a % *has* been added to the trailing first }; this is because:

- while processing the *first* argument, the trailing line break has been removed (RCuBFinishesWithLineBreak set to −1);
- while processing the *second* argument, latexindent.pl finds that it does *not* begin on its own line, and so because LCuBStartsOnOwnLine is set to 2, it adds a comment, followed by a line break.

■

6.3.6 Conflicting poly-switches: nested code blocks

example 144 Now let's consider an example when nested code blocks have conflicting poly-switches; we'll use the code in Listing 513, noting that it contains nested environments.

LISTING 513: nested-env.tex

```
\begin{one}
one text
\begin{two}
two text
\end{two}
\end{one}
```

Let's use the YAML settings given in Listing 515, which upon running the command

```
cmh:~$ latexindent.pl -m -l=nested-env-mlb1.yaml nested-env.tex
```

gives the output in Listing 514.

LISTING 514: nested-env.tex using Listing 515

```
\begin{one}
   one text
   \begin{two}
      two text\end{two}\end{one}
```

LISTING 515: nested-env-mlb1.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: -1
        EndFinishesWithLineBreak: 1
```

In Listing 514, let's first of all note that both environments have received the appropriate (default) indentation; secondly, note that the poly-switch EndStartsOnOwnLine appears to have won the conflict, as \end{one} has had its leading line break removed. ■

To understand it, let's talk about the three basic phases of latexindent.pl:

1. Phase 1: packing, in which code blocks are replaced with unique ids, working from *the inside to the outside*, and then sequentially – for example, in Listing 513, the two environment is found *before* the one environment; if the -m switch is active, then during this phase:
   - line breaks at the beginning of the body can be added (if BodyStartsOnOwnLine is 1 or 2) or removed (if BodyStartsOnOwnLine is −1);
   - line breaks at the end of the body can be added (if EndStartsOnOwnLine is 1 or 2) or removed (if EndStartsOnOwnLine is −1);
   - line breaks after the end statement can be added (if EndFinishesWithLineBreak is 1 or 2).
2. Phase 2: indentation, in which white space is added to the begin, body, and end statements;
3. Phase 3: unpacking, in which unique ids are replaced by their *indented* code blocks; if the -m switch is active, then during this phase,
   - line breaks before begin statements can be added or removed (depending upon BeginStartsOnOwnLine);
   - line breaks after *end* statements can be removed but *NOT* added (see EndFinishesWithLineBreak).

With reference to Listing 514, this means that during Phase 1:

- the two environment is found first, and the line break ahead of the \end{two} statement is removed because EndStartsOnOwnLine is set to −1. Importantly, because, *at this stage*, \end{two} *does* finish with a line break, EndFinishesWithLineBreak causes no action.
- next, the one environment is found; the line break ahead of \end{one} is removed because EndStartsOnOwnLine is set to −1.

The indentation is done in Phase 2; in Phase 3 *there is no option to add a line break after the* end *statements*. We can justify this by remembering that during Phase 3, the one environment will be found and processed first, followed by the two environment. If the two environment were to add a line break after the \end{two} statement, then latexindent.pl would have no way of knowing how much indentation to add to the subsequent text (in this case, \end{one}).

example 145 We can explore this further using the poly-switches in Listing 517; upon running the command

```
cmh:~$ latexindent.pl -m -l=nested-env-mlb2.yaml nested-env.tex
```

we obtain the output given in Listing 516.

LISTING 516: nested-env.tex using Listing 517

```
\begin{one}
   one text
   \begin{two}
      two text
   \end{two}\end{one}
```

LISTING 517: nested-env-mlb2.yaml -m

```
modifyLineBreaks:
    environments:
        EndStartsOnOwnLine: 1
        EndFinishesWithLineBreak: -1
```

During Phase 1:

- the two environment is found first, and the line break ahead of the \end{two} statement is not changed because EndStartsOnOwnLine is set to 1. Importantly, because, *at this stage*, \end{two} *does* finish with a line break, EndFinishesWithLineBreak causes no action.
- next, the one environment is found; the line break ahead of \end{one} is already present, and no action is needed.

The indentation is done in Phase 2, and then in Phase 3, the one environment is found and processed first, followed by the two environment. *At this stage*, the two environment finds EndFinishesWithLineBreak is −1, so it removes the trailing line break; remember, at this point, latexindent.pl has completely finished with the one environment. ■

Section 7

The -r, -rv and -rr switches

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You can instruct `latexindent.pl` to perform replacements/substitutions on your file by using any of the `-r`, `-rv` or `-rr` switches:

- the `-r` switch will perform indentation and replacements, not respecting verbatim code blocks;
- the `-rv` switch will perform indentation and replacements, and *will* respect verbatim code blocks;
- the `-rr` switch will *not* perform indentation, and will perform replacements not respecting verbatim code blocks.

We will demonstrate each of the `-r`, `-rv` and `-rr` switches, but a summary is given in Table 4.

Table 4: The replacement mode switches

switch	indentation?	respect verbatim?
`-r`	✔	✖
`-rv`	✔	✔
`-rr`	✖	✖

The default value of the `replacements` field is shown in Listing 518; as with all of the other fields, you are encouraged to customise and change this as you see fit. The options in this field will *only* be considered if the `-r`, `-rv` or `-rr` switches are active; when discussing YAML settings related to the replacement-mode switches, we will use the style given in Listing 518.

Listing 518: `replacements` -r

```
621 replacements:
622   -
623     amalgamate: 1
624   -
625     this: latexindent.pl
626     that: pl.latexindent
627     lookForThis: 0
628     when: before
```

The first entry within the `replacements` field is `amalgamate`, and is *optional*; by default it is set to 1, so that replacements will be amalgamated from each settings file that you specify. As you'll see in the demonstrations that follow, there is no need to specify this field.

You'll notice that, by default, there is only *one* entry in the `replacements` field, but it can take as many entries as you would like; each one needs to begin with a `-` on its own line.

7.1 Introduction to replacements

Let's explore the action of the default settings, and then we'll demonstrate the feature with further examples.

example 146 Beginning with the code in Listing 519 and running the command

```
cmh:~$ latexindent.pl -r replace1.tex
```

gives the output given in Listing 520.

LISTING 519: replace1.tex

```
Before text, latexindent.pl,
after text.
```

LISTING 520: replace1.tex default

```
Before text, latexindent.pl,
after text.
```

We note that in Listing 518, because lookForThis is set to 0, the specified replacement has *not* been made, and there is no difference between Listings 519 and 520.

If we *do* wish to perform this replacement, then we can tweak the default settings of Listing 518 on the previous page by changing lookForThis to 1; we perform this action in Listing 522, and run the command

```
cmh:~$ latexindent.pl -r replace1.tex -l=replace1.yaml
```

which gives the output in Listing 521.

LISTING 521: replace1.tex using Listing 522

```
Before text, pl.latexindent,
after text.
```

LISTING 522: replace1.yaml -r

```
replacements:
  -
    amalgamate: 0
  -
    this: latexindent.pl
    that: pl.latexindent
    lookForThis: 1
```

Note that in Listing 522 we have specified amalgamate as 0 so that the default replacements are overwritten. ■

We haven't yet discussed the when field; don't worry, we'll get to it as part of the discussion in what follows.

7.2 The two types of replacements

There are two types of replacements:

1. *string*-based replacements, which replace the string in *this* with the string in *that*. If you specify this and you do not specify that, then the that field will be assumed to be empty.
2. *regex*-based replacements, which use the substitution field.

We will demonstrate both in the examples that follow.

latexindent.pl chooses which type of replacement to make based on which fields have been specified; if the this field is specified, then it will make *string*-based replacements, regardless of if substitution is present or not.

7.3 Examples of replacements

example 147 We begin with code given in Listing 523

LISTING 523: colsep.tex

```
\begin{env}
1 2 3\arraycolsep=3pt
4 5 6\arraycolsep=5pt
\end{env}
```

Let's assume that our goal is to remove both of the arraycolsep statements; we can achieve this in a few different ways.

Using the YAML in Listing 525, and running the command

```
cmh:~$ latexindent.pl -r colsep.tex -l=colsep.yaml
```

then we achieve the output in Listing 524.

LISTING 524: colsep.tex using Listing 523

```
\begin{env}
   1 2 3
   4 5 6
\end{env}
```

LISTING 525: colsep.yaml

```
replacements:
  -
    this: \arraycolsep=3pt
  -
    this: \arraycolsep=5pt
```

Note that in Listing 525, we have specified *two* separate fields, each with their own '*this*' field; furthermore, for both of the separate fields, we have not specified 'that', so the that field is assumed to be blank by latexindent.pl;

We can make the YAML in Listing 525 more concise by exploring the substitution field. Using the settings in Listing 527 and running the command

```
cmh:~$ latexindent.pl -r colsep.tex -l=colsep1.yaml
```

then we achieve the output in Listing 526.

LISTING 526: colsep.tex using Listing 527

```
\begin{env}
   1 2 3
   4 5 6
\end{env}
```

LISTING 527: colsep1.yaml

```
replacements:
  -
    substitution:
    s/\\arraycolsep=\d+pt//sg
```

The code given in Listing 527 is an example of a *regular expression*, which we may abbreviate to *regex* in what follows. This manual is not intended to be a tutorial on regular expressions; you might like to read, for example, [34] for a detailed covering of the topic. With reference to Listing 527, we do note the following:

- the general form of the substitution field is s/regex/replacement/modifiers. You can place any regular expression you like within this;
- we have 'escaped' the backslash by using \\
- we have used \d+ to represent *at least* one digit
- the s *modifier* (in the sg at the end of the line) instructs latexindent.pl to treat your file as one single line;
- the g *modifier* (in the sg at the end of the line) instructs latexindent.pl to make the substitution *globally* throughout your file; you might try removing the g modifier from Listing 527 and observing the difference in output.

You might like to see https://perldoc.perl.org/perlre.html#Modifiers for details of modifiers; in general, I recommend starting with the sg modifiers for this feature. ■

example 148 We'll keep working with the file in Listing 523 on the preceding page for this example.

Using the YAML in Listing 529, and running the command

```
cmh:~$ latexindent.pl -r colsep.tex -l=multi-line.yaml
```

then we achieve the output in Listing 528.

LISTING 528: colsep.tex using Listing 529

```
multi-line!
```

LISTING 529: multi-line.yaml -r

```
replacements:
  -
    this: |-
     \begin{env}
     1 2 3\arraycolsep=3pt
     4 5 6\arraycolsep=5pt
     \end{env}
    that: 'multi-line!'
```

With reference to Listing 529, we have specified a *multi-line* version of `this` by employing the *literal* YAML style `|-`. See, for example, https://stackoverflow.com/questions/3790454/in-yaml-how-do-i-break-a-string-over-multiple-lines for further options, all of which can be used in your YAML file.

This is a natural point to explore the `when` field, specified in Listing 518 on page 128. This field can take two values: *before* and *after*, which respectively instruct `latexindent.pl` to perform the replacements *before* indentation or *after* it. The default value is `before`.

Using the YAML in Listing 531, and running the command

```
cmh:~$ latexindent.pl -r colsep.tex -l=multi-line1.yaml
```

then we achieve the output in Listing 530.

LISTING 530: colsep.tex using Listing 531

```
\begin{env}
   1 2 3\arraycolsep=3pt
   4 5 6\arraycolsep=5pt
\end{env}
```

LISTING 531: multi-line1.yaml -r

```
replacements:
  -
    this: |-
     \begin{env}
     1 2 3\arraycolsep=3pt
     4 5 6\arraycolsep=5pt
     \end{env}
    that: 'multi-line!'
    when: after
```

We note that, because we have specified `when: after`, that `latexindent.pl` has not found the string specified in Listing 531 within the file in Listing 523 on page 129. As it has looked for the string within Listing 531 *after* the indentation has been performed. After indentation, the string as written in Listing 531 is no longer part of the file, and has therefore not been replaced.

As a final note on this example, if you use the `-rr` switch, as follows,

```
cmh:~$ latexindent.pl -rr colsep.tex -l=multi-line1.yaml
```

then the `when` field is ignored, no indentation is done, and the output is as in Listing 528. ■

example 149 An important part of the substitution routine is in *capture groups*.

Assuming that we start with the code in Listing 532, let's assume that our goal is to replace each occurrence of `$$...$$` with `\begin{equation*}...\end{equation*}`. This example is partly motivated by tex stackexchange question 242150.

LISTING 532: displaymath.tex

```
before text $$a^2+b^2=4$$ and $$c^2$$

$$
d^2+e^2 = f^2
$$
and also $$ g^2
$$ and some inline math: $h^2$
```

We use the settings in Listing 534 and run the command

```
cmh:~$ latexindent.pl -r displaymath.tex -l=displaymath1.yaml
```

to receive the output given in Listing 533.

LISTING 533: displaymath.tex using Listing 534

```
before text \begin{equation*}a^2+b^2=4\end{equation*}
    and \begin{equation*}c^2\end{equation*}

\begin{equation*}
   d^2+e^2 = f^2
\end{equation*}
and also \begin{equation*} g^2
\end{equation*} and some inline math: $h^2$
```

LISTING 534: displaymath1.yaml -r

```
replacements:
  -
    substitution: |-
     s/\$\$
       (.*?)
       \$\$/\\begin{equation*}$1\\end{equation*}/sgx
```

A few notes about Listing 534:

1. we have used the x modifier, which allows us to have white space within the regex;
2. we have used a capture group, `(.*?)` which captures the content between the `$$...$$` into the special variable, `$1`;
3. we have used the content of the capture group, `$1`, in the replacement text.

See https://perldoc.perl.org/perlre.html#Capture-groups for a discussion of capture groups.

The features of the replacement switches can, of course, be combined with others from the toolkit of `latexindent.pl`. For example, we can combine the poly-switches of Section 6.3 on page 107, which we do in Listing 536; upon running the command

```
cmh:~$ latexindent.pl -r -m displaymath.tex -l=displaymath1.yaml,equation.yaml
```

then we receive the output in Listing 535.

LISTING 535: displaymath.tex using Listings 534 and 536

```
before text%
\begin{equation*}%
   a^2+b^2=4%
\end{equation*}%
and%
\begin{equation*}%
   c^2%
\end{equation*}

\begin{equation*}
   d^2+e^2 = f^2
\end{equation*}
and also%
\begin{equation*}%
   g^2
\end{equation*}%
and some inline math: $h^2$
```

LISTING 536: equation.yaml -m

```
modifyLineBreaks:
    environments:
        equation*:
            BeginStartsOnOwnLine: 2
            BodyStartsOnOwnLine: 2
            EndStartsOnOwnLine: 2
            EndFinishesWithLineBreak: 2
```

example 150 This example is motivated by tex stackexchange question 490086. We begin with the code in Listing 537.

LISTING 537: phrase.tex

```
phrase 1       phrase 2 phrase 3          phrase 100

phrase 1       phrase 2 phrase 3          phrase 100

phrase 1       phrase 2 phrase 3          phrase 100

phrase 1       phrase 2 phrase 3          phrase 100
```

Our goal is to make the spacing uniform between the phrases. To achieve this, we employ the settings in Listing 539, and run the command

```
cmh:~$ latexindent.pl -r phrase.tex -l=hspace.yaml
```

which gives the output in Listing 538.

LISTING 538: phrase.tex using Listing 539

```
phrase 1 phrase 2 phrase 3 phrase 100

phrase 1 phrase 2 phrase 3 phrase 100

phrase 1 phrase 2 phrase 3 phrase 100

phrase 1 phrase 2 phrase 3 phrase 100
```

LISTING 539: hspace.yaml -r

```
replacements:
  -
    substitution: s/\h+/ /sg
```

The \h+ setting in Listing 539 say to replace *at least one horizontal space* with a single space.

example 151 We begin with the code in Listing 540.

LISTING 540: references.tex

```
equation \eqref{eq:aa} and Figure  \ref{fig:bb}
and table~\ref{tab:cc}
```

Our goal is to change each reference so that both the text and the reference are contained within one hyperlink. We achieve this by employing Listing 542 and running the command

```
cmh:~$ latexindent.pl -r references.tex -l=reference.yaml
```

which gives the output in Listing 541.

LISTING 541: references.tex using Listing 542

```
\hyperref{equation \ref*{eq:aa}} and \hyperref{Figure \ref*{fig:bb}}
and \hyperref{table \ref*{tab:cc}}
```

LISTING 542: reference.yaml -r

```
replacements:
  -
    substitution: |-
      s/(
        equation
        |
        table
        |
        figure
        |
        section
      )
      (\h|~)*
      \\(?:eq)?
      ref\{(.*?)\}/\\hyperref{$1 \\ref\*{$3}}/sgxi
```

Referencing Listing 542, the | means *or*, we have used *capture groups*, together with an example of an *optional* pattern, `(?:eq)?`. ■

example 152 Let's explore the three replacement mode switches (see Table 4 on page 128) in the context of an example that contains a verbatim code block, Listing 543; we will use the settings in Listing 544.

LISTING 543: verb1.tex

```
\begin{myenv}
body of verbatim
\end{myenv}
some verbatim
\begin{verbatim}
    body
        of
      verbatim
 text
\end{verbatim}
text
```

LISTING 544: verbatim1.yaml -r

```
replacements:
  -
    this: 'body'
    that: 'head'
```

Upon running the following commands,

```
cmh:~$ latexindent.pl -r verb1.tex -l=verbatim1.yaml -o=+mod1
cmh:~$ latexindent.pl -rv verb1.tex -l=verbatim1.yaml -o=+-rv-mod1
cmh:~$ latexindent.pl -rr verb1.tex -l=verbatim1.yaml -o=+-rr-mod1
```

we receive the respective output in Listings 545 to 547

LISTING 545: verb1-mod1.tex

```
\begin{myenv}
   head of verbatim
\end{myenv}
some verbatim
\begin{verbatim}
    head
        of
      verbatim
 text
\end{verbatim}
text
```

LISTING 546: verb1-rv-mod1.tex

```
\begin{myenv}
   head of verbatim
\end{myenv}
some verbatim
\begin{verbatim}
    body
        of
      verbatim
 text
\end{verbatim}
text
```

LISTING 547: verb1-rr-mod1.tex

```
\begin{myenv}
head of verbatim
\end{myenv}
some verbatim
\begin{verbatim}
    head
        of
      verbatim
 text
\end{verbatim}
text
```

We note that:

1. in Listing 545 indentation has been performed, and that the replacements specified in Listing 544 have been performed, even within the verbatim code block;
2. in Listing 546 indentation has been performed, but that the replacements have *not* been performed within the verbatim environment, because the `rv` switch is active;
3. in Listing 547 indentation has *not* been performed, but that replacements have been performed, not respecting the verbatim code block.

See the summary within Table 4 on page 128.

example 153 Let's explore the `amalgamate` field from Listing 518 on page 128 in the context of the file specified in Listing 548.

LISTING 548: amalg1.tex

```
one two three
```

Let's consider the YAML files given in Listings 549 to 551.

LISTING 549: amalg1-yaml.yaml -r

```
replacements:
  -
    this: one
    that: 1
```

LISTING 550: amalg2-yaml.yaml -r

```
replacements:
  -
    this: two
    that: 2
```

LISTING 551: amalg3-yaml.yaml -r

```
replacements:
  -
    amalgamate: 0
  -
    this: three
    that: 3
```

Upon running the following commands,

```
cmh:~$ latexindent.pl -r amalg1.tex -l=amalg1-yaml
cmh:~$ latexindent.pl -r amalg1.tex -l=amalg1-yaml,amalg2-yaml
cmh:~$ latexindent.pl -r amalg1.tex -l=amalg1-yaml,amalg2-yaml,amalg3-yaml
```

we receive the respective output in Listings 552 to 554.

LISTING 552: amalg1.tex using Listing 549

```
1 two three
```

LISTING 553: amalg1.tex using Listings 549 and 550

```
1 2 three
```

LISTING 554: amalg1.tex using Listings 549 to 551

```
one two 3
```

We note that:

1. in Listing 552 the replacements from Listing 549 have been used;
2. in Listing 553 the replacements from Listings 549 and 550 have *both* been used, because

the default value of `amalgamate` is 1;

3. in Listing 554 *only* the replacements from Listing 551 have been used, because the value of `amalgamate` has been set to 0.

■

SECTION 8

The –lines switch

N: 2021-09-16

`latexindent.pl` can operate on a *selection* of lines of the file using the `-lines` or `-n` switch.

The basic syntax is `-lines MIN-MAX`, so for example

```
cmh:~$ latexindent.pl --lines 3-7 myfile.tex
cmh:~$ latexindent.pl -n 3-7 myfile.tex
```

will only operate upon lines 3 to 7 in `myfile.tex`. All of the other lines will *not* be operated upon by `latexindent.pl`.

The options for the `lines` switch are:

- line range, as in `-lines 3-7`
- single line, as in `-lines 5`
- multiple line ranges separated by commas, as in `-lines 3-5,8-10`
- negated line ranges, as in `-lines !3-5` which translates to `-lines 1-2,6-N`, where N is the number of lines in your file.

We demonstrate this feature, and the available variations in what follows. We will use the file in Listing 555.

LISTING 555: `myfile.tex`

```
1  Before the environments
2  \begin{one}
3     first block, first line
4     first block, second line
5     first block, third line
6     \begin{two}
7        second block, first line
8        second block, second line
9        second block, third line
10       second block, fourth line
11    \end{two}
12 \end{one}
```

example 154 We demonstrate the basic usage using the command

```
cmh:~$ latexindent.pl --lines 3-7 myfile.tex -o=+-mod1
```

which instructs `latexindent.pl` to only operate on lines 3 to 7; the output is given in Listing 556.

LISTING 556: myfile-mod1.tex

```
Before the environments
\begin{one}
first block, first line
first block, second line
first block, third line
\begin{two}
second block, first line
      second block, second line
      second block, third line
      second block, fourth line
   \end{two}
\end{one}
```

The following two calls to `latexindent.pl` are equivalent

```
cmh:~$ latexindent.pl --lines 3-7 myfile.tex -o=+-mod1
cmh:~$ latexindent.pl --lines 7-3 myfile.tex -o=+-mod1
```

as `latexindent.pl` performs a check to put the lowest number first. ■

example 155 You can call the `lines` switch with only *one number* and in which case only that line will be operated upon. For example

```
cmh:~$ latexindent.pl --lines 5 myfile.tex -o=+-mod2
```

instructs `latexindent.pl` to only operate on line 5; the output is given in Listing 557.

LISTING 557: myfile-mod2.tex

```
Before the environments
\begin{one}
   first block, first line
   first block, second line
first block, third line
   \begin{two}
      second block, first line
      second block, second line
      second block, third line
      second block, fourth line
   \end{two}
\end{one}
```

The following two calls are equivalent:

```
cmh:~$ latexindent.pl --lines 5 myfile.tex
cmh:~$ latexindent.pl --lines 5-5 myfile.tex
```

■

example 156 If you specify a value outside of the line range of the file then `latexindent.pl` will ignore the `lines` argument, detail as such in the log file, and proceed to operate on the entire file.

For example, in the following call

```
cmh:~$ latexindent.pl --lines 11-13 myfile.tex
```

`latexindent.pl` will ignore the `lines` argument, and *operate on the entire file* because List-

ing 555 only has 12 lines.

Similarly, in the call

```
cmh:~$ latexindent.pl --lines -1-3 myfile.tex
```

`latexindent.pl` will ignore the `lines` argument, and *operate on the entire file* because we assume that negatively numbered lines in a file do not exist. ■

example 157 You can specify *multiple line ranges* as in the following

```
cmh:~$ latexindent.pl --lines 3-5,8-10 myfile.tex -o=+-mod3
```

which instructs `latexindent.pl` to operate upon lines 3 to 5 and lines 8 to 10; the output is given in Listing 558.

LISTING 558: `myfile-mod3.tex`

```
1  Before the environments
2  \begin{one}
3  first block, first line
4  first block, second line
5  first block, third line
6     \begin{two}
7        second block, first line
8  second block, second line
9  second block, third line
10 second block, fourth line
11    \end{two}
12 \end{one}
```

The following calls to `latexindent.pl` are all equivalent

```
cmh:~$ latexindent.pl --lines 3-5,8-10 myfile.tex
cmh:~$ latexindent.pl --lines 8-10,3-5 myfile.tex
cmh:~$ latexindent.pl --lines 10-8,3-5 myfile.tex
cmh:~$ latexindent.pl --lines 10-8,5-3 myfile.tex
```

as `latexindent.pl` performs a check to put the lowest line ranges first, and within each line range, it puts the lowest number first. ■

example 158 There's no limit to the number of line ranges that you can specify, they just need to be separated by commas. For example

```
cmh:~$ latexindent.pl --lines 1-2,4-5,9-10,12 myfile.tex -o=+-mod4
```

has four line ranges: lines 1 to 2, lines 4 to 5, lines 9 to 10 and line 12. The output is given in Listing 559.

LISTING 559: myfile-mod4.tex

```
Before the environments
\begin{one}
   first block, first line
   first block, second line
   first block, third line
   \begin{two}
      second block, first line
      second block, second line
   second block, third line
   second block, fourth line
   \end{two}
\end{one}
```

As previously, the ordering does not matter, and the following calls to `latexindent.pl` are all equivalent

```
cmh:~$ latexindent.pl --lines 1-2,4-5,9-10,12 myfile.tex
cmh:~$ latexindent.pl --lines 2-1,4-5,9-10,12 myfile.tex
cmh:~$ latexindent.pl --lines 4-5,1-2,9-10,12 myfile.tex
cmh:~$ latexindent.pl --lines 12,4-5,1-2,9-10 myfile.tex
```

as `latexindent.pl` performs a check to put the lowest line ranges first, and within each line range, it puts the lowest number first. ■

example 159 You can specify *negated line ranges* by using `!` as in

```
cmh:~$ latexindent.pl --lines !5-7 myfile.tex -o=+-mod5
```

which instructs `latexindent.pl` to operate upon all of the lines *except* lines 5 to 7.

In other words, `latexindent.pl` *will* operate on lines 1 to 4, and 8 to 12, so the following two calls are equivalent:

```
cmh:~$ latexindent.pl --lines !5-7 myfile.tex
cmh:~$ latexindent.pl --lines 1-4,8-12 myfile.tex
```

The output is given in Listing 560.

LISTING 560: myfile-mod5.tex

```
Before the environments
\begin{one}
   first block, first line
   first block, second line
   first block, third line
   \begin{two}
      second block, first line
   second block, second line
   second block, third line
   second block, fourth line
   \end{two}
\end{one}
```

■

example 160 You can specify *multiple negated line ranges* such as

```
cmh:~$ latexindent.pl --lines !5-7,!9-10 myfile.tex -o=+-mod6
```

which is equivalent to:

```
cmh:~$ latexindent.pl --lines 1-4,8,11-12 myfile.tex -o=+-mod6
```

The output is given in Listing 561.

LISTING 561: myfile-mod6.tex

```
1  Before the environments
2  \begin{one}
3     first block, first line
4     first block, second line
5     first block, third line
6     \begin{two}
7        second block, first line
8     second block, second line
9        second block, third line
10       second block, fourth line
11    \end{two}
12 \end{one}
```

example 161 If you specify a line range with anything other than an integer, then `latexindent.pl` will ignore the `lines` argument, and *operate on the entire file*.

Sample calls that result in the `lines` argument being ignored include the following:

```
cmh:~$ latexindent.pl --lines 1-x myfile.tex
cmh:~$ latexindent.pl --lines !y-3 myfile.tex
```

example 162 We can, of course, use the `lines` switch in combination with other switches.

For example, let's use with the file in Listing 562.

LISTING 562: myfile1.tex

```
1  Before the environments
2  \begin{one}
3     first block, first line
4     first block, second line
5     first block, third line
6     \begin{two} body \end{two}
7  \end{one}
```

We can demonstrate interaction with the `-m` switch (see Section 6 on page 78); in particular, if we use Listing 454 on page 113, Listing 438 on page 111 and Listing 439 on page 111 and run

```
cmh:~$ latexindent.pl --lines 6 myfile1.tex -o=+-mod1 -m -l env-mlb2,env-mlb7,env-mlb8 -o=+-mod1
```

then we receive the output in Listing 563.

LISTING 563: myfile1-mod1.tex

```
Before the environments
\begin{one}
   first block, first line
   first block, second line
   first block, third line
\begin{two}
   body
\end{two}
\end{one}
```

■

SECTION 9

Fine tuning

N: 2019-07-13

`latexindent.pl` operates by looking for the code blocks detailed in Table 2 on page 55. The fine tuning of the details of such code blocks is controlled by the `fineTuning` field, detailed in Listing 564.

This field is for those that would like to peek under the bonnet/hood and make some fine tuning to `latexindent.pl`'s operating.

Warning!

Making changes to the fine tuning may have significant consequences for your indentation scheme, proceed with caution!

LISTING 564: `fineTuning`

```
fineTuning:
    environments:
      name: [a-zA-Z@\*0-9_\\]+
    ifElseFi:
      name: (?!@?if[a-zA-Z@]*?\{)@?if[a-zA-Z@]*?
    commands:
      name: [+a-zA-Z@\*0-9_\:]+?
    items:
      canBeFollowedBy: (?:\[[^]]*?\])|(?:<[^>]*?>)
    keyEqualsValuesBracesBrackets:
      name: [a-zA-Z@\*0-9_\/.:\#-]+[a-zA-Z@\*0-9_\/.\h\{\}:\#-]*?
      follow: (?:(?<!\\)\{)|,|(?:(?<!\\)\[)
    namedGroupingBracesBrackets:
      name: [0-9\.a-zA-Z@\*><]+?
      follow: \h|\R|\{|\[|\$|\)|\(
    UnNamedGroupingBracesBrackets:
      follow: \{|\[|,|&|\)|\(|\$
    arguments:
      before: (?:#\d\h*;?,?\/?)+|\<.*?\>
      between: _|\^|\*
    trailingComments:
      notPreceededBy: (?<!\\)
      afterComment: .*?
    modifyLineBreaks:
      doubleBackSlash: \\\\(?:\h*\[\h*\d+\h*[a-zA-Z]+\h*\])?
      comma: ','
      betterFullStop: |-
        (?x)                              # ignore spaces in the below
        (?:                               #
          \.\)                            # .)
          (?!\h*[a-z])                    # not *followed by* a-z
        )                                 #
        |                                 # OR
        (?:                               #
          (?<!                            # not *preceded by*
            (?:                           #
              (?:[eE]\.[gG])              # e.g OR E.g OR e.G OR E.G
              |                           #
```

```
670             (?:[iI]\.[eE])              # i.e OR I.e OR i.E OR I.E
671             |                           #
672             (?:etc)                     # etc
673             |                           #
674             (?:[wW]\.[rR]\.[tT])        # w.r.t OR W.r.t OR w.R.t OR w.r.T OR W.R.t OR W.r.T
    OR w.R.T OR W.R.T
675           )                             #
676         )                               #
677       )                                 #
678       \.                                # .
679       (?!                               # not *followed by*
680         (?:                             #
681           [a-zA-Z0-9-~,]                #
682           |                             #
683           \),                           # ),
684           |                             #
685           \)\.                          # ).
686         )                               #
687       )                                 #
```

The fields given in Listing 564 are all *regular expressions*. This manual is not intended to be a tutorial on regular expressions; you might like to read, for example, [34] for a detailed covering of the topic.

We make the following comments with reference to Listing 564:

1. the `environments:name` field details that the *name* of an environment can contain:
   (a) `a-z` lower case letters
   (b) `A-Z` upper case letters
   (c) `@` the `@` 'letter'
   (d) `\*` stars
   (e) `0-9` numbers
   (f) `_` underscores
   (g) `\` backslashes

   The `+` at the end means *at least one* of the above characters.
2. the `ifElseFi:name` field:
   (a) `@?` means that it *can possibly* begin with `@`
   (b) followed by `if`
   (c) followed by 0 or more characters from `a-z`, `A-Z` and `@`
   (d) the `?` the end means *non-greedy*, which means 'stop the match as soon as possible'
3. the `keyEqualsValuesBracesBrackets` contains some interesting syntax:
   (a) `|` means 'or'
   (b) `(?:(?<!\\)\{)` the `(?:...)` uses a *non-capturing* group – you don't necessarily need to worry about what this means, but just know that for the `fineTuning` feature you should only ever use *non*-capturing groups, and *not* capturing groups, which are simply `(...)`
   (c) `(?<!\\)\{)` means a `{` but it can *not* be immediately preceded by a `\`
4. in the `arguments:before` field
   (a) `\d\h*` means a digit (i.e. a number), followed by 0 or more horizontal spaces
   (b) `;?,?` means *possibly* a semi-colon, and possibly a comma
   (c) `\<.*?\>` is designed for 'beamer'-type commands; the `.*?` means anything in between `<...>`

5. the `modifyLineBreaks` field refers to fine tuning settings detailed in Section 6 on page 78. In particular:
   (a) `betterFullStop` is in relation to the one sentence per line routine, detailed in Section 6.2 on page 94
   (b) `doubleBackSlash` is in relation to the `DBSStartsOnOwnLine` and `DBSFinishesWithLineBreak` polyswitches surrounding double backslashes, see Section 6.3.2 on page 117
   (c) `comma` is in relation to the `CommaStartsOnOwnLine` and `CommaFinishesWithLineBreak` polyswitches surrounding commas in optional and mandatory arguments; see Table 3 on page 122

It is not obvious from Listing 564, but each of the `follow`, `before` and `between` fields allow trailing comments, line breaks, and horizontal spaces between each character.

Warning!

For the `fineTuning` feature you should only ever use *non*-capturing groups, such as `(?:...)` and *not* capturing groups, which are `(...)`

example 163 As a demonstration, consider the file given in Listing 565, together with its default output using the command

```
cmh:~$ latexindent.pl finetuning1.tex
```

is given in Listing 566.

LISTING 565: `finetuning1.tex`

```
\mycommand{
    \rule{G -> +H[-G]CL}
    \rule{H -> -G[+H]CL}
    \rule{g -> +h[-g]cL}
    \rule{h -> -g[+h]cL}
}
```

LISTING 566: `finetuning1.tex` default

```
\mycommand{
\rule{G -> +H[-G]CL}
\rule{H -> -G[+H]CL}
\rule{g -> +h[-g]cL}
\rule{h -> -g[+h]cL}
}
```

It's clear from Listing 566 that the indentation scheme has not worked as expected. We can *fine tune* the indentation scheme by employing the settings given in Listing 568 and running the command

```
cmh:~$ latexindent.pl finetuning1.tex -l=fine-tuning1.yaml
```

and the associated (desired) output is given in Listing 567.

LISTING 567: `finetuning1.tex` using Listing 568

```
\mycommand{
   \rule{G -> +H[-G]CL}
   \rule{H -> -G[+H]CL}
   \rule{g -> +h[-g]cL}
   \rule{h -> -g[+h]cL}
}
```

LISTING 568: `finetuning1.yaml`

```
fineTuning:
    arguments:
      between:
     '_|\^|\*|\->|\-|\+|h|H|g|G'
```

■

example 164 Let's have another demonstration; consider the file given in Listing 569, together with its default output using the command

```
cmh:~$ latexindent.pl finetuning2.tex
```

is given in Listing 570.

LISTING 569: finetuning2.tex

```
@misc{ wikilatex,
author = "{Wikipedia contributors}",
title = "LaTeX --- {Wikipedia}{,}",
note = "[Online; accessed 3-March-2020]"
}
```

LISTING 570: finetuning2.tex default

```
@misc{ wikilatex,
author = "{Wikipedia contributors}",
title = "LaTeX --- {Wikipedia}{,}",
note = "[Online; accessed 3-March-2020]"
}
```

It's clear from Listing 570 that the indentation scheme has not worked as expected. We can *fine tune* the indentation scheme by employing the settings given in Listing 572 and running the command

```
cmh:~$ latexindent.pl finetuning2.tex -l=fine-tuning2.yaml
```

and the associated (desired) output is given in Listing 571.

LISTING 571: finetuning2.tex using Listing 572

```
@misc{ wikilatex,
   author = "{Wikipedia contributors}",
   title = "LaTeX --- {Wikipedia}{,}",
   note = "[Online; accessed 3-March-2020]"
}
```

LISTING 572: finetuning2.yaml

```
fineTuning:
    NamedGroupingBracesBrackets:
      follow: '\h|\R|\{|\[|\$|\)|\(|"'
    UnNamedGroupingBracesBrackets:
      follow: '\{|\[|,|&|\)|\(|\$|"'
    arguments:
      between: '_|\^|\*|---'
```

In particular, note that the settings in Listing 572 specify that NamedGroupingBracesBrackets and UnNamedGroupingBracesBrackets can follow " and that we allow --- between arguments. ■

example 165 You can tweak the fineTuning using the -y switch, but to be sure to use quotes appropriately. For example, starting with the code in Listing 573 and running the following command

```
cmh:~$ latexindent.pl -m
    -y='modifyLineBreaks:oneSentencePerLine:manipulateSentences:␣1,␣
    modifyLineBreaks:oneSentencePerLine:sentencesBeginWith:a-z:␣1,␣
    fineTuning:modifyLineBreaks:betterFullStop:␣
    "(?:\.|;|:(?![a-z]))|(?:(?<!(?:(?:e\.g)|(?:i\.e)|(?:etc))))\.(?!(?:[a-z]|[A-Z]|\
    issue-243.tex -o=+-mod1
```

gives the output shown in Listing 574.

LISTING 573: finetuning3.tex

```
We go; you see: this sentence \cite{tex:stackexchange} finishes here.
```

LISTING 574: finetuning3.tex using -y switch

```
We go;
you see:
this sentence \cite{tex:stackexchange} finishes here.
```

■

example 166 We can tweak the fineTuning for how trailing comments are classified. For motivation, let's consider the code given in Listing 575

LISTING 575: finetuning4.tex

```
some before text
 \href{Handbook%20for%30Spoken%40document.pdf}{my document}
some after text
```

We will compare the settings given in Listings 576 and 577.

LISTING 576: href1.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: -1
        blocksEndBefore:
           verbatim: 0
        blocksFollow:
           verbatim: 0

removeTrailingWhitespace:
    beforeProcessing: 1
```

LISTING 577: href2.yaml -m

```
fineTuning:
    trailingComments:
      notPreceededBy:
    '(?:(?<!Handbook)(?<!for)(?<!Spoken))'

modifyLineBreaks:
    textWrapOptions:
        columns: -1
        blocksEndBefore:
           verbatim: 0
        blocksFollow:
           verbatim: 0

removeTrailingWhitespace:
    beforeProcessing: 1
```

Upon running the following commands

```
cmh:~$ latexindent.pl -m finetuning4.tex -o=+-mod1 -l=href1
cmh:~$ latexindent.pl -m finetuning4.tex -o=+-mod2 -l=href2
```

we receive the respective output in Listings 578 and 579.

LISTING 578: finetuning4.tex using Listing 576

```
some before text \href{Handbooksome after text%20for%30Spoken%40document.pdf}{my document}
```

LISTING 579: finetuning4.tex using Listing 577

```
some before text \href{Handbook%20for%30Spoken%40document.pdf}{my document} some after text
```

We note that in:

- Listing 578 the trailing comments are assumed to be everything following the first comment symbol, which has meant that everything following it has been moved to the end of the line; this is undesirable, clearly!
- Listing 579 has fine-tuned the trailing comment matching, and says that % cannot be immediately preceded by the words 'Handbook', 'for' or 'Spoken', which means that none of the % symbols have been treated as trailing comments, and the output is desirable.

■

example 167 Another approach to this situation, which does not use `fineTuning`, is to use `noIndentBlock` which we discussed in Listing 44 on page 30; using the settings in Listing 580 and running the command

```
cmh:~$ latexindent.pl -m finetuning4.tex -o=+-mod3 -l=href3
```

then we receive the same output given in Listing 579.

LISTING 580: href3.yaml -m

```
modifyLineBreaks:
    textWrapOptions:
        columns: -1
        blocksEndBefore:
           verbatim: 0
        blocksFollow:
           verbatim: 0

noIndentBlock:
    href:
        begin: '\\href\{[^}]*?\}\{'
        body: '[^}]*?'
        end: '\}'
```

With reference to the body field in Listing 580, we note that the body field can be interpreted as: the fewest number of zero or more characters that are not right braces. This is an example of character class.

example 168 We can use the fineTuning field to assist in the formatting of bibliography files.

Starting with the file in Listing 581 and running the command

```
cmh:~$ latexindent.pl bib1.tex -o=+-mod1
```

gives the output in Listing 582.

LISTING 581: bib1.bib

```
@online{paulo,
title="arararule,indent.yaml",
author="PauloCereda",
date={2013-05-23},
urldate={2021-03-19},
keywords={contributor},}
```

LISTING 582: bib1-mod1.bib

```
@online{paulo,
   title="arararule,indent.yaml",
   author="PauloCereda",
   date={2013-05-23},
   urldate={2021-03-19},
   keywords={contributor},}
```

Let's assume that we would like to format the output so as to align the = symbols. Using the settings in Listing 584 and running the command

```
cmh:~$ latexindent.pl bib1.bib -l bibsettings1.yaml -o=+-mod2
```

gives the output in Listing 583.

LISTING 583: bib1.bib using Listing 584

```
@online{paulo,
   title    = "arararule,indent.yaml",
   author   = "PauloCereda",
   date     = {2013-05-23},
   urldate  = {2021-03-19},
   keywords = {contributor},}
```

LISTING 584: bibsettings1.yaml

```
lookForAlignDelims:
   online:
      delimiterRegEx: '(=)'

fineTuning:
    keyEqualsValuesBracesBrackets:
      follow:
    '(?:(?<!\\)\{)|(?:(?<!\\)\[)'
    UnNamedGroupingBracesBrackets:
      follow: '\{|\[|,|&|\)|\(|\$|='
```

Some notes about Listing 584:

- we have populated the `lookForAlignDelims` field with the `online` command, and have used the `delimiterRegEx`, discussed in Section 5.5.4 on page 43;
- we have tweaked the `keyEqualsValuesBracesBrackets` code block so that it will *not* be found following a comma; this means that, in contrast to the default behaviour, the lines such as `date={2013-05-23},` will *not* be treated as key-equals-value braces;
- the adjustment to `keyEqualsValuesBracesBrackets` necessitates the associated change to the `UnNamedGroupingBracesBrackets` field so that they will be searched for following = symbols.

■

example 169 We can build upon Listing 584 for slightly more complicated bibliography files.

Starting with the file in Listing 585 and running the command

```
cmh:~$ latexindent.pl bib2.bib -l bibsettings1.yaml -o=+-mod1
```

gives the output in Listing 586.

LISTING 585: bib2.bib

```
@online{cmh:videodemo,
title="Videodemonstrationofpl.latexindentonyoutube",
url="https://www.youtube.com/watch?v=wo38aaH2F4E&spfreload=10",
urldate={2017-02-21},
}
```

LISTING 586: bib2-mod1.bib

```
@online{cmh:videodemo,
   title   = "Videodemonstrationofpl.latexindentonyoutube",
   url     = "https://www.youtube.com/watch?v                = wo38aaH2F4E&spfreload = 10",
   urldate = {2017-02-21},
}
```

The output in Listing 586 is not ideal, as the = symbol within the url field has been incorrectly used as an alignment delimiter.

We address this by tweaking the `delimiterRegEx` field in Listing 587.

LISTING 587: bibsettings2.yaml

```
lookForAlignDelims:
   online:
      delimiterRegEx: '(?<!v)(?<!spfreload)(=)'
```

Upon running the command

```
cmh:~$ latexindent.pl bib2.bib -l bibsettings1.yaml,bibsettings2.yaml -o=+-mod2
```

we receive the *desired* output in Listing 588.

LISTING 588: bib2-mod2.bib

```
@online{cmh:videodemo,
   title   = "Videodemonstrationofpl.latexindentonyoutube",
   url     = "https://www.youtube.com/watch?v=wo38aaH2F4E&spfreload=10",
   urldate = {2017-02-21},
}
```

With reference to Listing 587 we note that the `delimiterRegEx` has been adjusted so that = symbols are used as the delimiter, but only when they are *not preceded* by either `v` or `spfreload`.

■

N: 2023-06-01**mple 170** We can use the `fineTuning` settings to tweak how `latexindent.pl` finds trailing comments.

We begin with the file in Listing 589

LISTING 589: `finetuning5.tex`

```
\chapter{chapter text} % 123
chapter text
\section{section text} % 456
section text
% end
% end
```

Using the settings in Listing 591 and running the command

```
cmh:~$ latexindent.pl finetuning5.tex -l=fine-tuning3.yaml
```

gives the output in Listing 590.

LISTING 590: `finetuning5-mod1.tex`

```
\chapter{chapter text} % 123
   chapter text
   \section{section text} % 456
      section text
   % end
% end
```

LISTING 591: `finetuning3.yaml`

```
fineTuning:
    trailingComments:
      notPreceededBy: (?<!\\)
      afterComment: (?!(?:\hend)).*?

specialBeginEnd:
  customSection:
    begin: \\(?:section|chapter)
    end: \%\h+end
  specialBeforeCommand: 1
```

The settings in Listing 591 detail that trailing comments can *not* be followed by a single space, and then the text 'end'. This means that the `specialBeginEnd` routine will be able to find the pattern `% end` as the `end` part. The trailing comments `123` and `456` are still treated as trailing comments. ■

SECTION 10

Conclusions and known limitations

There are a number of known limitations of the script, and almost certainly quite a few that are *unknown*! The known issues include:

multicolumn alignment when working with code blocks in which multicolumn commands overlap, the algorithm can fail; see Listing 72 on page 36.

textWrap after when operating with `indentRules` (see Section 5.8 on page 54) may not always cooperate with one another; if you have a specific example that does not work, please report it to [35].

efficiency particularly when the `-m` switch is active, as this adds many checks and processes. The current implementation relies upon finding and storing *every* code block (see the discussion on page 126); I hope that, in a future version, only *nested* code blocks will need to be stored in the 'packing' phase, and that this will improve the efficiency of the script.

U: 2019-07-13

You can run `latexindent` on any file; if you don't specify an extension, then the extensions that you specify in `fileExtensionPreference` (see Listing 36 on page 27) will be consulted. If you find a case in which the script struggles, please feel free to report it at [35], and in the meantime, consider using a `noIndentBlock` (see page 30).

I hope that this script is useful to some; if you find an example where the script does not behave as you think it should, the best way to contact me is to report an issue on [35]; otherwise, feel free to find me on the `http://tex.stackexchange.com/users/6621/cmhughes`.

SECTION 11

References

11.1 perl-related links

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11.2 conda-related links

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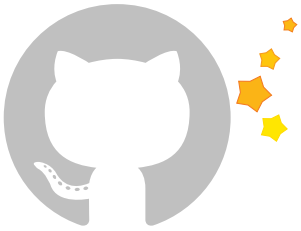

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SECTION A

Required Perl modules

If you intend to use `latexindent.pl` and *not* one of the supplied standalone executable files (`latexindent.exe` is available for Windows users without Perl, see Section 3.1.2), then you will need a few standard Perl modules.

If you can run the minimum code in Listing 592 as in

```
cmh:~$ perl helloworld.pl
```

then you will be able to run `latexindent.pl`, otherwise you may need to install the missing modules; see appendices A.1 and A.2.

LISTING 592: `helloworld.pl`

```
#!/usr/bin/perl

use strict;                          #     |
use warnings;                        #     |
use Encode;                          #     |
use Getopt::Long;                    #     |
use Data::Dumper;                    #  these modules are
use List::Util qw(max);              #  generally part
use PerlIO::encoding;                #  of a default perl distribution
use open ':std', ':encoding(UTF-8)';#     |
use Text::Wrap;                      #     |
use Text::Tabs;                      #     |
use FindBin;                         #     |
use File::Copy;                      #     |
use File::Basename;                  #     |
use File::Path;                      #     |
use File::HomeDir;                   # <--- typically requires install via cpanm
use YAML::Tiny;                      # <--- typically requires install via cpanm

print "hello world";
exit;
```

A.1 Module installer script

N: 2018-01-13

`latexindent.pl` ships with a helper script that will install any missing `perl` modules on your system; if you run

```
cmh:~$ perl latexindent-module-installer.pl
```

or

```
C:\Users\cmh>perl latexindent-module-installer.pl
```

then, once you have answered `Y`, the appropriate modules will be installed onto your distribution.

A.2 Manually installing modules

Manually installing the modules given in Listing 592 will vary depending on your operating system and `Perl` distribution.

A.2.1 Linux

A.2.1.1 perlbrew

Linux users may be interested in exploring Perlbrew [41]; an example installation would be:

```
cmh:~$ sudo apt-get install perlbrew
cmh:~$ perlbrew init
cmh:~$ perlbrew install perl-5.34.0
cmh:~$ perlbrew switch perl-5.34.0
cmh:~$ sudo apt-get install curl
cmh:~$ curl -L http://cpanmin.us | perl - App::cpanminus
cmh:~$ cpanm YAML::Tiny
cmh:~$ cpanm File::HomeDir
```

A.2.1.2 Ubuntu/Debian

For other distributions, the Ubuntu/Debian approach may work as follows

```
cmh:~$ sudo apt install perl
cmh:~$ sudo cpan -i App::cpanminus
cmh:~$ sudo cpanm YAML::Tiny
cmh:~$ sudo cpanm File::HomeDir
```

or else by running, for example,

```
cmh:~$ sudo perl -MCPAN -e'install␣"File::HomeDir"'
```

A.2.1.3 Ubuntu: using the texlive from apt-get

Ubuntu users that install texlive using `apt-get` as in the following

```
cmh:~$ sudo apt install texlive
cmh:~$ sudo apt install texlive-latex-recommended
```

may need the following additional command to work with `latexindent.pl`

```
cmh:~$ sudo apt install texlive-extra-utils
```

A.2.1.4 Ubuntu: users without perl

N: 2022-10-30

`latexindent-linux` is a standalone executable for Ubuntu Linux (and therefore does not require a Perl distribution) and caches copies of the Perl modules onto your system. It is available from [35].

A.2.1.5 Arch-based distributions

First install the dependencies

```
cmh:~$ sudo pacman -S perl cpanminus
```

In addition, install `perl-file-homedir` from AUR, using your AUR helper of choice,

```
cmh:~$ sudo paru -S perl-file-homedir
```

then run the latexindent-module-installer.pl file located at helper-scripts/

A.2.1.6 Alpine

If you are using Alpine, some `Perl` modules are not build-compatible with Alpine, but replacements are available through `apk`. For example, you might use the commands given in Listing 593; thanks to [12] for providing these details.

LISTING 593: `alpine-install.sh`

```
# Installing perl
apk --no-cache add miniperl perl-utils

# Installing incompatible latexindent perl dependencies via apk
apk --no-cache add \
    perl-log-dispatch \
    perl-namespace-autoclean \
    perl-specio \
    perl-unicode-linebreak

# Installing remaining latexindent perl dependencies via cpan
apk --no-cache add curl wget make
ls /usr/share/texmf-dist/scripts/latexindent
cd /usr/local/bin && \
    curl -L https://cpanmin.us/ -o cpanm && \
    chmod +x cpanm
cpanm -n App::cpanminus
cpanm -n File::HomeDir
cpanm -n Params::ValidationCompiler
cpanm -n YAML::Tiny
```

Users of NixOS might like to see https://github.com/cmhughes/latexindent.pl/issues/222 for tips.

A.2.2 Mac

Users of the Macintosh operating system might like to explore the following commands, for example:

```
cmh:~$ brew install perl
cmh:~$ brew install cpanm
cmh:~$
cmh:~$ cpanm YAML::Tiny
cmh:~$ cpanm File::HomeDir
```

Alternatively,

```
cmh:~$ brew install latexindent
```

N: 2022-10-30

`latexindent-macos` is a standalone executable for macOS (and therefore does not require a Perl distribution) and caches copies of the Perl modules onto your system. It is available from [35].

A.2.3 Windows

Strawberry Perl users on Windows might use `CPAN client`. All of the modules are readily available on CPAN [31]. `indent.log` will contain details of the location of the Perl modules on your system.

`latexindent.exe` is a standalone executable for Windows (and therefore does not require a Perl distribution) and caches copies of the Perl modules onto your system; if you wish to see where they are cached, use the `trace` option, e.g

```
C:\Users\cmh>latexindent.exe -t myfile.tex
```

A.3 The GCString switch

N: 2022-03-25

If you find that the `lookForAlignDelims` (as in Section 5.5) does not work correctly for your language, then you may wish to use the `Unicode::GCString` module .

This can be loaded by calling `latexindent.pl` with the `GCString` switch as in

```
cmh:~$ latexindent.pl --GCString myfile.tex
```

In this case, you will need to have the `Unicode::GCString` installed in your `perl` distribution by using, for example,

```
cmh:~$ cpanm Unicode::GCString
```

Note: this switch does *nothing* for `latexindent.exe` which loads the module by default. Users of `latexindent.exe` should not see any difference in behaviour whether they use this switch or not, as `latexindent.exe` loads the `Unicode::GCString` module.

SECTION B

Updating the path variable

`latexindent.pl` has a few scripts (available at [35]) that can update the `path` variables. Thank you to [6] for this feature. If you're on a Linux or Mac machine, then you'll want `CMakeLists.txt` from [35].

B.1 Add to path for Linux

To add `latexindent.pl` to the path for Linux, follow these steps:

1. download `latexindent.pl` and its associated modules, `defaultSettings.yaml`, to your chosen directory from [35] ;
2. within your directory, create a directory called `path-helper-files` and download `CMakeLists.txt` and `cmake_uninstall.cmake.in` from [35]/path-helper-files to this directory;
3. run

   ```
   cmh:~$ ls /usr/local/bin
   ```

   to see what is *currently* in there;
4. run the following commands

   ```
   cmh:~$ sudo apt-get update
   cmh:~$ sudo apt-get install --no-install-recommends cmake make # or any
       other generator
   cmh:~$ mkdir build && cd build
   cmh:~$ cmake ../path-helper-files
   cmh:~$ sudo make install
   ```
5. run

   ```
   cmh:~$ ls /usr/local/bin
   ```

   again to check that `latexindent.pl`, its modules and `defaultSettings.yaml` have been added.

To *remove* the files, run

```
cmh:~$ sudo make uninstall
```

B.2 Add to path for Windows

To add `latexindent.exe` to the path for Windows, follow these steps:

1. download `latexindent.exe`, `defaultSettings.yaml`, `add-to-path.bat` from [35] to your chosen directory;
2. open a command prompt and run the following command to see what is *currently* in your `%path%` variable;

```
C:\Users\cmh>echo %path%
```

3. right click on `add-to-path.bat` and *Run as administrator*;
4. log out, and log back in;
5. open a command prompt and run

   ```
   C:\Users\cmh>echo %path%
   ```

   to check that the appropriate directory has been added to your `%path%`.

To *remove* the directory from your `%path%`, run `remove-from-path.bat` as administrator.

SECTION C

Batches of files

N: 2022-03-25

You can instruct `latexindent.pl` to operate on multiple files. For example, the following calls are all valid

```
cmh:~$ latexindent.pl myfile1.tex
cmh:~$ latexindent.pl myfile1.tex myfile2.tex
cmh:~$ latexindent.pl myfile*.tex
```

We note the following features of the script in relation to the switches detailed in Section 3.

C.1 location of indent.log

If the `-c` switch is *not* active, then `indent.log` goes to the directory of the final file called.

If the `-c` switch *is* active, then `indent.log` goes to the specified directory.

C.2 interaction with -w switch

If the `-w` switch is active, as in

```
cmh:~$ latexindent.pl -w myfile*.tex
```

then files will be overwritten individually. Back-up files can be re-directed via the `-c` switch.

C.3 interaction with -o switch

If `latexindent.pl` is called using the `-o` switch as in

```
cmh:~$ latexindent.pl myfile*.tex -o=my-output-file.tex
```

and there are multiple files to operate upon, then the `-o` switch is ignored because there is only *one* output file specified.

More generally, if the `-o` switch does *not* have a `+` symbol at the beginning, then the `-o` switch will be ignored, and is turned it off.

For example

```
cmh:~$ latexindent.pl myfile*.tex -o=+myfile
```

will work fine because *each* `.tex` file will output to `<basename>myfile.tex`

Similarly,

```
cmh:~$ latexindent.pl myfile*.tex -o=++
```

will work because the 'existence check/incrementation' routine will be applied.

C.4 interaction with lines switch

This behaves as expected by attempting to operate on the line numbers specified for each file. See the examples in Section 8.

C.5 interaction with check switches

The exit codes for `latexindent.pl` are given in Table 1 on page 22.

When operating on multiple files with the check switch active, as in

```
cmh:~$ latexindent.pl myfile*.tex --check
```

then

- exit code 0 means that the text from *none* of the files has been changed;
- exit code 1 means that the text from *at least one* of the files been file changed.

The interaction with `checkv` switch is as in the check switch, but with verbose output.

C.6 when a file does not exist

What happens if one of the files can not be operated upon?

- if at least one of the files does not exist and `latexindent.pl` has been called to act upon multiple files, then the exit code is 3; note that `latexindent.pl` will try to operate on each file that it is called upon, and will not exit with a fatal message in this case;
- if at least one of the files can not be read and `latexindent.pl` has been called to act upon multiple files, then the exit code is 4; note that `latexindent.pl` will try to operate on each file that it is called upon, and will not exit with a fatal message in this case;
- if `latexindent.pl` has been told to operate on multiple files, and some do not exist and some cannot be read, then the exit code will be either 3 or 4, depending upon which it scenario it encountered most recently.

SECTION D

latexindent-yaml-schema.json

N: 2022-01-02

`latexindent.pl` ships with `latexindent-yaml-schema.json` which might help you when constructing your YAML files.

D.1 VSCode demonstration

To use `latexindent-yaml-schema.json` with `VSCode`, you can use the following steps:

1. download `latexindent-yaml-schema.json` from the `documentation` folder of [35], save it in whichever directory you would like, noting it for reference;
2. following the instructions from [36], for example, you should install the VSCode YAML extension [49];
3. set up your `settings.json` file using the directory you saved the file by adapting Listing 594; on my Ubuntu laptop this file lives at `/home/cmhughes/.config/Code/User/settings.json`.

LISTING 594: `settings.json`

```
{
  "yaml.schemas": {
    "/home/cmhughes/projects/latexindent/documentation/latexindent-yaml-schema.json":
    "/home/cmhughes/projects/latexindent/defaultSettings.yaml"
  },
  "redhat.telemetry.enabled": true
}
```

Alternatively, if you would prefer not to download the json file, you might be able to use an adapted version of Listing 595.

LISTING 595: `settings-alt.json`

```
{
  "yaml.schemas": {

    "https://raw.githubusercontent.com/cmhughes/latexindent.pl/main/documentation/latexindent-yaml-schema.json":
    "/home/cmhughes/projects/latexindent/defaultSettings.yaml"
  }
}
```

Finally, if your TeX distribution is up to date, then `latexindent-yaml-schema.json` *should* be in the documentation folder of your installation, so an adapted version of Listing 596 may work.

LISTING 596: `settings-alt1.json`

```
{
  "yaml.schemas": {
    "/usr/local/texlive/2021/texmf-dist/doc/support/latexindent/latexindent-yaml-schema.json":
    "/home/cmhughes/projects/latexindent/defaultSettings.yaml"
  }
}
```

If you have details of how to implement this schema in other editors, please feel encouraged to contribute to this documentation.

SECTION E

Using conda

If you use conda you'll only need

```
cmh:~$ conda install latexindent.pl -c conda-forge
```

This will install the executable and all its dependencies (including perl) in the activate environment. You don't even have to worry about `defaultSettings.yaml` as it included too, you can thus skip appendices A and B.

You can get a conda installation for example from [30] or from [29].

E.1 Sample conda installation on Ubuntu

On Ubuntu I followed the 64-bit installation instructions at [37] and then I ran the following commands:

```
cmh:~$ conda create -n latexindent.pl
cmh:~$ conda activate latexindent.pl
cmh:~$ conda install latexindent.pl -c conda-forge
cmh:~$ conda info --envs
cmh:~$ conda list
cmh:~$ conda run latexindent.pl -vv
```

I found the details given at [44] to be helpful.

SECTION F

Using docker

N: 2022-06-12

If you use docker you'll only need

```
cmh:~$ docker pull ghcr.io/cmhughes/latexindent.pl
```

This will download the image packed `latexindent`'s executable and its all dependencies. Thank you to [19] for contributing this feature; see also [39]. For reference, *ghcr* stands for *GitHub Container Repository*.

F.1 Sample docker installation on Ubuntu

To pull the image and show `latexindent`'s help on Ubuntu:

LISTING 597: `docker-install.sh`

```
# setup docker if not already installed
if ! command -v docker &> /dev/null; then
  sudo apt install docker.io -y
  sudo groupadd docker
  sudo gpasswd -a "$USER" docker
  sudo systemctl restart docker
  newgrp docker
fi

# download image and execute
docker pull ghcr.io/cmhughes/latexindent.pl
docker run ghcr.io/cmhughes/latexindent.pl -h
```

Once I have run the above, on subsequent logins I run

LISTING 598: `docker-install.sh`

```
newgrp docker
docker run ghcr.io/cmhughes/latexindent.pl -h
```

F.2 How to format on Docker

When you use `latexindent` with the docker image, you have to mount target `tex` file like this:

```
cmh:~$ docker run -v /path/to/local/myfile.tex:/myfile.tex
    ghcr.io/cmhughes/latexindent.pl -s -w myfile.tex
```

SECTION G

pre-commit

N: 2022-01-21

Users of `.git` may be interested in exploring the `pre-commit` tool [43], which is supported by `latexindent.pl`. Thank you to [20] for contributing this feature, and to [21] for their contribution to it.

To use the `pre-commit` tool, you will need to install `pre-commit`; sample instructions for Ubuntu are given in appendix G.1. Once installed, there are two ways to use `pre-commit`: using `CPAN` or using `conda`, detailed in appendix G.3 and appendix G.4 respectively.

G.1 Sample pre-commit installation on Ubuntu

On Ubuntu I ran the following command:

```
cmh:~$ python3 -m pip install pre-commit
```

I then updated my path via .bashrc so that it includes the line in Listing 599.

LISTING 599: `.bashrc` update

```
...
export PATH=$PATH:/home/cmhughes/.local/bin
```

G.2 pre-commit defaults

The default values that are employed by `pre-commit` are shown in Listing 600.

LISTING 600: `.pre-commit-hooks.yaml` (default)

```
- id: latexindent
  name: latexindent.pl
  description: Run latexindent.pl (get dependencies using CPAN)
  minimum_pre_commit_version: 2.1.0
  entry: latexindent.pl
  args: ["--overwriteIfDifferent", "--silent", "--local"]
  language: perl
  types: [tex]
- id: latexindent-conda
  name: latexindent.pl
  description: Run latexindent.pl (get dependencies using Conda)
  minimum_pre_commit_version: 2.1.0
  entry: latexindent.pl
  args: ["--overwriteIfDifferent", "--silent", "--local"]
  language: conda
  types: [tex]
- id: latexindent-docker
  name: latexindent.pl
  description: Run latexindent.pl (get dependencies using Docker)
  minimum_pre_commit_version: 2.1.0
  entry: ghcr.io/cmhughes/latexindent.pl
  language: docker_image
  types: [tex]
  args: ["--overwriteIfDifferent", "--silent", "--local"]
```

In particular, the decision has deliberately been made (in collaboration with [21]) to have the default to employ the following switches: `overwriteIfDifferent`, `silent`, `local`; this is detailed in the lines that specify `args` in Listing 600.

Warning!

Users of `pre-commit` will, by default, have the `overwriteIfDifferent` switch employed. It is assumed that such users have version control in place, and are intending to overwrite their files.

G.3 pre-commit using CPAN

To use `latexindent.pl` with `pre-commit`, create the file `.pre-commit-config.yaml` given in Listing 601 in your git-repository.

LISTING 601: `.pre-commit-config.yaml` (cpan)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.2
  hooks:
  - id: latexindent
    args: [-s]
```

Once created, you should then be able to run the following command:

```
cmh:~$ pre-commit run --all-files
```

A few notes about Listing 601:

- the settings given in Listing 601 instruct `pre-commit` to use `CPAN` to get dependencies;
- this requires `pre-commit` and `perl` to be installed on your system;
- the `args` lists selected command-line options; the settings in Listing 601 are equivalent to calling

  ```
  cmh:~$ latexindent.pl -s myfile.tex
  ```

  for each `.tex` file in your repository;
- to instruct `latexindent.pl` to overwrite the files in your repository, then you can update Listing 601 so that `args: [-s, -w]`.

Naturally you can add options, or omit `-s` and `-w`, according to your preference.

G.4 pre-commit using conda

You can also rely on `conda` (detailed in appendix E) instead of `CPAN` for all dependencies, including `latexindent.pl` itself.

LISTING 602: `.pre-commit-config.yaml` (conda)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.2
  hooks:
  - id: latexindent-conda
    args: [-s]
```

Once created, you should then be able to run the following command:

```
cmh:~$ pre-commit run --all-files
```

A few notes about Listing 601:

- the settings given in Listing 602 instruct `pre-commit` to use `conda` to get dependencies;
- this requires `pre-commit` and `conda` to be installed on your system;
- the `args` lists selected command-line options; the settings in Listing 601 are equivalent to calling

```
cmh:~$ conda run latexindent.pl -s myfile.tex
```

  for each `.tex` file in your repository;
- to instruct `latexindent.pl` to overwrite the files in your repository, then you can update Listing 601 so that `args: [-s, -w]`.

G.5 pre-commit using docker

You can also rely on `docker` (detailed in appendix F) instead of `CPAN` for all dependencies, including `latexindent.pl` itself.

LISTING 603: `.pre-commit-config.yaml` (docker)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.2
  hooks:
    - id: latexindent-docker
      args: [-s]
```

Once created, you should then be able to run the following command:

```
cmh:~$ pre-commit run --all-files
```

A few notes about Listing 601:

- the settings given in Listing 603 instruct `pre-commit` to use `docker` to get dependencies;
- this requires `pre-commit` and `docker` to be installed on your system;
- the `args` lists selected command-line options; the settings in Listing 601 are equivalent to calling

```
cmh:~$ docker run -v /path/to/myfile.tex:/myfile.tex
    ghcr.io/cmhughes/latexindent.pl -s myfile.tex
```

  for each `.tex` file in your repository;
- to instruct `latexindent.pl` to overwrite the files in your repository, then you can update Listing 601 so that `args: [-s, -w]`.

G.6 pre-commit example using -l, -m switches

Let's consider a small example, with local `latexindent.pl` settings in `.latexindent.yaml`.

example 171 We use the local settings given in Listing 604.

LISTING 604: `.latexindent.yaml`

```
onlyOneBackUp: 1

modifyLineBreaks:
 oneSentencePerLine:
   manipulateSentences: 1
```

and `.pre-commit-config.yaml` as in Listing 605:

LISTING 605: `.pre-commit-config.yaml` (demo)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.2
  hooks:
  - id: latexindent
    args: [-l, -m, -s, -w]
```

Now running

```
cmh:~$ pre-commit run --all-files
```

is equivalent to running

```
cmh:~$ latexindent.pl -l -m -s -w myfile.tex
```

for each `.tex` file in your repository.

A few notes about Listing 605:

- the `-l` option was added to use the local `.latexindent.yaml` (where it was specified to only create one back-up file, as `git` typically takes care of this when you use `pre-commit`);
- `-m` to modify line breaks; in addition to `-s` to suppress command-line output, and `-w` to format files in place.

■

SECTION H

indentconfig options

N: 2023-01-01

This section describes the possible locations for the main configuration file, discussed in Section 4. Thank you to [22] for this contribution.

The possible locations of `indentconfig.yaml` are read one after the other, and reading stops when a valid file is found in one of the paths.

Before stating the list, we give summarise in Table 5.

TABLE 5: indentconfig environment variable summaries

environment variable	type	Linux	macOS	Windows
LATEXINDENT_CONFIG	full path to file	✔	✔	✔
XDG_CONFIG_HOME	directory path	✔	✖	✖
LOCALAPPDATA	directory path	✖	✖	✔

The following list shows the checked options and is sorted by their respective priority. It uses capitalized and with a dollar symbol prefixed names (e.g. `$LATEXINDENT_CONFIG`) to symbolize environment variables. In addition to that the variable name `$homeDir` is used to symbolize your home directory.

1. The value of the environment variable `$LATEXINDENT_CONFIG` is treated as highest priority source for the path to the configuration file.
2. The next options are dependent on your operating system:
   - Linux:
     (a) The file at `$XDG_CONFIG_HOME/latexindent/indentconfig.yaml`
     (b) The file at `$homeDir/.config/latexindent/indentconfig.yaml`
   - Windows:
     (a) The file at `$LOCALAPPDATA\latexindent\indentconfig.yaml`
     (b) The file at `$homeDir\AppData\Local\latexindent\indentconfig.yaml`
   - Mac:
     (a) The file at `$homeDir/Library/Preferences/latexindent/indentconfig.yaml`
3. The file at `$homeDir/indentconfig.yaml`
4. The file at `$homeDir/.indentconfig.yaml`

H.1 Why to change the configuration location

This is mostly a question about what you prefer, some like to put all their configuration files in their home directory (see `$homeDir` above), whilst some like to sort their configuration. And if you don't care about it, you can just continue using the same defaults.

H.2 How to change the configuration location

This depends on your preferred location, if, for example, you would like to set a custom location, you would have to change the `$LATEXINDENT_CONFIG` environment variable.

Although the following example only covers `$LATEXINDENT_CONFIG`, the same process can be applied to `$XDG_CONFIG_HOME` or `$LOCALAPPDATA` because both are environment variables. You just have to change the path to your chosen configuration directory (e.g. `$homeDir/.config` or `$homeDir\AppData\Loca` on Linux or Windows respectively)

H.2.1 Linux

To change `$LATEXINDENT_CONFIG` on Linux you can run the following command in a terminal after changing the path:

```
cmh:~$ echo 'export␣LATEXINDENT_CONFIG="/home/cmh/latexindent-config.yaml"' >> ~/.profile
```

Context: This command adds the given line to your `.profile` file (which is commonly stored in `$HOME/.profile`). All commands in this file a run after login, so the environment variable will be set after your next login.

You can check the value of `$LATEXINDENT_CONFIG` by typing

```
cmh:~$ echo $LATEXINDENT_CONFIG
cmh:~$ /home/cmh/latexindent-config.yaml
```

Linux users interested in `$XDG_CONFIG_HOME` can explore variations of the following commands

```
cmh:~$ echo $XDG_CONFIG_HOME
cmh:~$ echo ${XDG_CONFIG_HOME:=$HOME/.config}
cmh:~$ echo $XDG_CONFIG_HOME
cmh:~$ mkdir /home/cmh/.config/latexindent
cmh:~$ touch /home/cmh/.config/latexindent/indentconfig.yaml
```

H.2.2 Windows

To change `$LATEXINDENT_CONFIG` on Windows you can run the following command in `powershell.exe` after changing the path:

```
C:\Users\cmh>[Environment]::SetEnvironmentVariable
C:\Users\cmh>    ("LATEXINDENT_CONFIG", "\your\config\path", "User")
```

This sets the environment variable for every user session.

H.2.3 Mac

To change `$LATEXINDENT_CONFIG` on macOS you can run the following command in a terminal after changing the path:

```
cmh:~$ echo 'export␣LATEXINDENT_CONFIG="/your/config/path"' >> ~/.profile
```

Context: This command adds the line to your `.profile` file (which is commonly stored in `$HOME/.profile`). All commands in this file a run after login, so the environment variable will be set after your next login.

SECTION I

logFilePreferences

Listing 37 on page 28 describes the options for customising the information given to the log file, and we provide a few demonstrations here.

example 172 Let's say that we start with the code given in Listing 606, and the settings specified in Listing 607.

LISTING 606: simple.tex

```
\begin{myenv}
  body of myenv
\end{myenv}
```

LISTING 607: logfile-prefs1.yaml

```
logFilePreferences:
    showDecorationStartCodeBlockTrace: "+++++"
    showDecorationFinishCodeBlockTrace: "-----"
```

If we run the following command (noting that `-t` is active)

```
cmh:~$ latexindent.pl -t -l=logfile-prefs1.yaml simple.tex
```

then on inspection of `indent.log` we will find the snippet given in Listing 608.

LISTING 608: indent.log

```
       +++++
TRACE: environment found: myenv
       No ancestors found for myenv
       Storing settings for myenvenvironments
       indentRulesGlobal specified (0) for environments, ...
       Using defaultIndent for myenv
       Putting linebreak after replacementText for myenv
       looking for COMMANDS and key = {value}
TRACE: Searching for commands with optional and/or mandatory arguments AND key =
    {value}
       looking for SPECIAL begin/end
TRACE: Searching myenv for special begin/end (see specialBeginEnd)
TRACE: Searching myenv for optional and mandatory arguments
       ... no arguments found
       -----
```

Notice that the information given about myenv is 'framed' using +++++ and ----- respectively. ■

SECTION J

Encoding indentconfig.yaml

In relation to Section 4 on page 23, Windows users that encounter encoding issues with `indentconfig.yaml`, may wish to run the following command in either `cmd.exe` or `powershell.exe`:

```
C:\Users\cmh>chcp
```

They may receive the following result

```
C:\Users\cmh>Active code page: 936
```

and can then use the settings given in Listing 609 within their `indentconfig.yaml`, where 936 is the result of the `chcp` command.

LISTING 609: `encoding` demonstration for `indentconfig.yaml`

```
encoding: cp936
```

Section K

dos2unix linebreak adjustment

`dos2unixlinebreaks`: ⟨*integer*⟩

N: 2021-06-19

If you use `latexindent.pl` on a dos-based Windows file on Linux then you may find that trailing horizontal space is not removed as you hope.

In such a case, you may wish to try setting `dos2unixlinebreaks` to 1 and employing, for example, the following command.

```
cmh:~$ latexindent.pl -y="dos2unixlinebreaks:1" myfile.tex
```

See [50] for further dertails.

SECTION L

Differences from Version 2.2 to 3.0

There are a few (small) changes to the interface when comparing Version 2.2 to Version 3.0. Explicitly, in previous versions you might have run, for example,

```
cmh:~$ latexindent.pl -o myfile.tex outputfile.tex
```

whereas in Version 3.0 you would run any of the following, for example,

```
cmh:~$ latexindent.pl -o=outputfile.tex myfile.tex
cmh:~$ latexindent.pl -o outputfile.tex myfile.tex
cmh:~$ latexindent.pl myfile.tex -o outputfile.tex
cmh:~$ latexindent.pl myfile.tex -o=outputfile.tex
cmh:~$ latexindent.pl myfile.tex -outputfile=outputfile.tex
cmh:~$ latexindent.pl myfile.tex -outputfile outputfile.tex
```

noting that the *output* file is given *next to* the `-o` switch.

The fields given in Listing 610 are *obsolete* from Version 3.0 onwards.

LISTING 610: Obsolete YAML fields from Version 3.0

```
alwaysLookforSplitBrackets
alwaysLookforSplitBrackets
checkunmatched
checkunmatchedELSE
checkunmatchedbracket
constructIfElseFi
```

There is a slight difference when specifying indentation after headings; specifically, we now write `indentAfterThisHeading` instead of `indent`. See Listings 611 and 612

LISTING 611: `indentAfterThisHeading` in Version 2.2

```
indentAfterHeadings:
    part:
       indent: 0
       level: 1
```

LISTING 612: `indentAfterThisHeading` in Version 3.0

```
indentAfterHeadings:
    part:
       indentAfterThisHeading: 0
       level: 1
```

To specify `noAdditionalIndent` for display-math environments in Version 2.2, you would write YAML as in Listing 613; as of Version 3.0, you would write YAML as in Listing 614 or, if you're using `-m` switch, Listing 615.

LISTING 613: noAdditionalIndent in Version 2.2

```
noAdditionalIndent:
    \[: 0
    \]: 0
```

LISTING 614: noAdditionalIndent for displayMath in Version 3.0

```
specialBeginEnd:
    displayMath:
        begin: '\\\['
        end: '\\\]'
        lookForThis: 0
```

LISTING 615: noAdditionalIndent for displayMath in Version 3.0

```
noAdditionalIndent:
    displayMath: 1
```

End

Listings

Index