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.

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*and contributors! See Section 11.5 on page 151. For all communication, please visit [35].
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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 151 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 173 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**

```latex
\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

```bash
$ latexindent.pl quick-start.tex
```

gives Listing 2.

**LISTING 2: quick-start-default.tex**

```latex
\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

```bash
$ latexindent.pl -l quick-start1.yaml quick-start.tex
```

gives Listing 3.
example 2  Running

```
cmh:~$ latexindent.pl -l quick-start2.yaml quick-start.tex
```
gives Listing 5.

example 3  Running

```
cmh:~$ latexindent.pl -l quick-start3.yaml quick-start.tex
```
gives Listing 7.
1.3 Quick start

 Listing 7: quick-start-mod3.tex

```latex
\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

```yaml
noAdditionalIndent:
  myenv: 1
```

See Section 5.8.

**example 4** Running

```bash
$ latexindent.pl -m -l quick-start4.yaml quick-start.tex
```

gives Listing 9.

Listing 9: quick-start-mod4.tex

```latex
\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

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

Full details of text wrapping in Section 6.1.

**example 5** Running

```bash
$ latexindent.pl -m -l quick-start5.yaml quick-start.tex
```

gives Listing 11.
1.3 Quick start

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}

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
\begin{myenv}
The body of
environments and
other code blocks
receive
indentation.
\end{myenv}
\end{document}

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.
1.3 Quick start

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}

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}

See Section 5.3.

example 9  Running

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

gives Listing 19.
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, /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/darwin-thread-multi-2level, /System/Library/Perl/Extras/5.12, /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-inc, for example, as well as appendix A on page 153.

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 606. 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

This type of listing is a .tex file.

Listing 23: fileExtensionPreference

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.
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).

<table>
<thead>
<tr>
<th>LISTING 26: filecontents1.tex</th>
<th>LISTING 27: filecontents1.tex default output</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{filecontents}{mybib.bib}</td>
<td>\begin{filecontents}{mybib.bib}</td>
</tr>
<tr>
<td>@online{strawberryperl,</td>
<td>@online{strawberryperl,</td>
</tr>
<tr>
<td>title=&quot;Strawberry Perl&quot;,</td>
<td>title=&quot;Strawberry Perl&quot;,</td>
</tr>
<tr>
<td>url=&quot;<a href="http://strawberryperl.com/%22%7D">http://strawberryperl.com/&quot;}</a></td>
<td>url=&quot;<a href="http://strawberryperl.com/%22%7D">http://strawberryperl.com/&quot;}</a></td>
</tr>
<tr>
<td>@online{cmhblog,</td>
<td>@online{cmhblog,</td>
</tr>
<tr>
<td>title=&quot;A Perl script ...</td>
<td>title=&quot;A Perl script ...</td>
</tr>
<tr>
<td>url=&quot;...</td>
<td>url=&quot;...</td>
</tr>
<tr>
<td>}</td>
<td>}</td>
</tr>
<tr>
<td>\end{filecontents}</td>
<td>\end{filecontents}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING 28: tikzset.tex</th>
<th>LISTING 29: tikzset.tex default output</th>
</tr>
</thead>
<tbody>
<tr>
<td>\tikzset{</td>
<td>\tikzset{</td>
</tr>
<tr>
<td>shrink inner sep/.code={</td>
<td>shrink inner sep/.code={</td>
</tr>
<tr>
<td>\pgfkeysgetvalue...</td>
<td>\pgfkeysgetvalue...</td>
</tr>
<tr>
<td>\pgfkeysgetvalue...</td>
<td>\pgfkeysgetvalue...</td>
</tr>
<tr>
<td>}</td>
<td>}</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>LISTING 30: pstricks.tex</td>
<td>LISTING 31: pstricks.tex default output</td>
</tr>
<tr>
<td>------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>\def\Picture#1{%</td>
<td>\def\Picture#1{%</td>
</tr>
<tr>
<td>\def\stripH[#1]{%</td>
<td>\def\stripH[#1]{%</td>
</tr>
<tr>
<td>\begin{pspicture}{[showgrid}</td>
<td>\begin{pspicture}{[showgrid}</td>
</tr>
<tr>
<td>\psforeach{\row}{%</td>
<td>\psforeach{\row}{%</td>
</tr>
<tr>
<td>{{3,2.8,2.7,3,3.1}},%</td>
<td>{{3,2.8,2.7,3,3.1}},%</td>
</tr>
<tr>
<td>{2.8,1,1.2,2,3}},%</td>
<td>{2.8,1,1.2,2,3}},%</td>
</tr>
<tr>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>}%</td>
<td>}%</td>
</tr>
<tr>
<td>\expandafter...</td>
<td>\expandafter...</td>
</tr>
<tr>
<td>}</td>
<td>}</td>
</tr>
<tr>
<td>\end{pspicture}</td>
<td>\end{pspicture}</td>
</tr>
</tbody>
</table>
SECTION 3

How to use the script

\texttt{latexindent.pl} ships as part of the \TeX{}Live distribution for Linux and Mac users; \texttt{latexindent.exe} ships as part of the \TeX{}Live 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 157 which details how the \texttt{path} variable can be updated.

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

There are two ways to use \texttt{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

Perl users will need a few standard Perl modules – see appendix A on page 153 for details; in particular, note that a module installer helper script is shipped with \texttt{latexindent.pl}.

3.1.2 Windows users without perl

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

\texttt{latexindent.exe} is available from [35].

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

3.1.3 Ubuntu Linux users without perl

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

\texttt{latexindent-linux} is available from [35].

3.1.4 macOS users without perl

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

\texttt{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.

-v, -version

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

This will output only the version number to the terminal.

-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.

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 159.

-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.

-wd, -overwriteIfDifferent
3.2 From the command line

```
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
```

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

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
```

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
```

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
```

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, … 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=++
```

---

1Users 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

```bash
$ 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

```bash
$ latexindent.pl myfile.tex -o=+out++.tex
```

See appendix l on page 173 for details of how the interface has changed from Version 2.2 to Version 3.0 for this flag.

-s, --silent

```bash
$ latexindent.pl -s myfile.tex
$ latexindent.pl myfile.tex -s
```

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

-t, --trace

```bash
$ latexindent.pl -t myfile.tex
$ 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.

```bash
$ latexindent.pl -tt myfile.tex
$ 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,...]

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

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.
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:

```bash
$ latexindent.pl -l=../myyaml.yaml myfile.tex
$ latexindent.pl -l=~/cmhughes/Desktop/myyaml.yaml myfile.tex
$ 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.

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

```bash
$ latexindent.pl -l=+myyaml.yaml myfile.tex
$ latexindent.pl -l "+myyaml.yaml" myfile.tex
$ latexindent.pl -l=myyaml.yaml+ myfile.tex
```

which translate, respectively, to

```bash
$ latexindent.pl -l=localSettings.yaml,myyaml.yaml myfile.tex
$ latexindent.pl -l=localSettings.yaml,myyaml.yaml myfile.tex
$ latexindent.pl -l=myyaml.yaml,localSettings.yaml myfile.tex
```

Note that the following is not allowed:

```bash
$ latexindent.pl -l+myyaml.yaml myfile.tex
$ 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.

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

```bash
$ latexindent.pl -l=localSettings,myyaml myfile.tex
$ latexindent.pl myfile.tex -y="defaultIndent:␣'␣'"
$ latexindent.pl myfile.tex -y="indentRules:␣one:␣'				'"
$ latexindent.pl myfile.tex -y='modifyLineBreaks:environments:one:EndStartsOnOwnLine:3' -m
```

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 -1 switch. This is discussed further in Section 4.4 on page 25.

-d, -onlydefault

```
$ 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.

-c, -cruft=<directory>

```
$ 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>

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

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

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

-sl, -screenlog

```
$ latexindent.pl -sl myfile.tex
$ latexindent.pl -screenlog myfile.tex
```

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

-m, -modifylinebreaks

```
$ latexindent.pl -m myfile.tex
$ 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 77

latexindent.pl can also be called on a file without the file extension, for example
3.2 From the command line

```bash
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**

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

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:

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

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

```bash
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**

```bash
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 126.

**-rv, --replacementrespectverb**

```bash
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 126.

**-rr, --onlyreplacement**

```bash
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 126.

**-k, --check**
3.3 From arara

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`.

```bash
$ latexindent.pl -k myfile.tex
$ latexindent.pl -check myfile.tex
```

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`.

```bash
$ latexindent.pl -kv myfile.tex
$ latexindent.pl -checkv myfile.tex
```

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

Complete demonstrations are given in Section 8.

```bash
$ latexindent.pl -n 5-8 myfile.tex
$ latexindent.pl -lines 5-8 myfile.tex
```

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`

```bash
$ latexindent.pl myfile.tex
```

then `latexindent.pl` can exit with the exit codes given in Table 1.
### 3.4 Summary of exit codes

Table 1: Exit codes for `latexindent.pl`

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

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. Listing 32 shows a sample indentconfig.yaml file.

```
# 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.
4.2 localSettings.yaml and friends

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,

---

3Windows users may find that they have to end .yaml files with a blank line
4.3 The -y|yaml switch

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:

```
$ 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:

```
$ 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,

```
$ 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 93) and the listings within Listing 369 on page 96, the following settings give the option to have sentences end with a semicolon

```
$ latexindent.pl
   --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;

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

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.

```yaml
fileExtensionPreference: (fields)
```

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

```
$ 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.

```
<table>
<thead>
<tr>
<th>Listing 36: fileExtensionPreference</th>
</tr>
</thead>
<tbody>
<tr>
<td>47 fileExtensionPreference:</td>
</tr>
<tr>
<td>48   .tex: 1</td>
</tr>
<tr>
<td>49   .sty: 2</td>
</tr>
<tr>
<td>50   .cls: 3</td>
</tr>
<tr>
<td>51   .bib: 4</td>
</tr>
</tbody>
</table>
```

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.

5.1 Backup and log file preferences

```yaml
backupExtension: (extension name)
```

If you call latexindent.pl with the \texttt{-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 \texttt{-w} to act upon myfile.tex, it will create successive back up files: myfile.bak1, myfile.bak2, etc.

\footnote{Throughout this manual, listings shown with line numbers represent code taken directly from defaultSettings.yaml.}
onlyOneBackUp: \langle \text{integer} \rangle

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

maxNumberOfBackUps: \langle \text{integer} \rangle

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 \texttt{maxNumberOfBackUps} is 0 which will not prevent backup files being made; in this case, the behaviour will be dictated entirely by \texttt{onlyOneBackUp}. The default value of \texttt{maxNumberOfBackUps} is 0.

cycleThroughBackUps: \langle \text{integer} \rangle

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

```bash
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 \texttt{cycleThroughBackUps} is 0.

logFilePreferences: \langle \text{fields} \rangle

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

<table>
<thead>
<tr>
<th>Listing 37: logFilePreferences</th>
</tr>
</thead>
<tbody>
<tr>
<td>91 logFilePreferences:</td>
</tr>
<tr>
<td>92     showEveryYamlRead: 1</td>
</tr>
<tr>
<td>93     showAmalgamatedSettings: 0</td>
</tr>
<tr>
<td>94     showDecorationStartCodeBlockTrace: 0</td>
</tr>
<tr>
<td>95     showDecorationFinishCodeBlockTrace: 0</td>
</tr>
</tbody>
</table>
| 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: " \Rightarrow " |

When either of the trace modes (see page 17) are active, you will receive detailed information in \texttt{indent.log}. You can specify character strings to appear before and after the notification of a found code block using, respectively, \texttt{showDecorationStartCodeBlockTrace} and \texttt{showDecorationFinishCodeBlockTrace}. A demonstration is given in appendix I on page 170.
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.

Note: latexindent.pl no longer uses the log4perl module to handle the creation of the logfile.

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.

<table>
<thead>
<tr>
<th>Listing 38: verbatimEnvironments</th>
<th>Listing 39: verbatimCommands</th>
</tr>
</thead>
<tbody>
<tr>
<td>109 verbatimEnvironments:</td>
<td>115 verbatimCommands:</td>
</tr>
<tr>
<td>110    verb: 1</td>
<td>116    verb: 1</td>
</tr>
<tr>
<td>111    lstlisting: 1</td>
<td>117    lstinline: 1</td>
</tr>
<tr>
<td>112    minted: 1</td>
<td></td>
</tr>
</tbody>
</table>

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.

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.

<table>
<thead>
<tr>
<th>Listing 40: nameAsRegex1.yaml</th>
<th>Listing 41: nameAsRegex2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbatimEnvironments:</td>
<td>verbatimEnvironments:</td>
</tr>
<tr>
<td>latexcode: 1</td>
<td>nameAsRegex:</td>
</tr>
<tr>
<td>latexcode*: 1</td>
<td>name: '\w+code*?'</td>
</tr>
<tr>
<td>pythoncode: 1</td>
<td>lookForThis: 1</td>
</tr>
<tr>
<td>pythoncode*: 1</td>
<td></td>
</tr>
</tbody>
</table>

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 \em is active, see Section 6 on page 77).

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.

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.

<table>
<thead>
<tr>
<th>Listing 42: nameAsRegex3.yaml</th>
<th>Listing 43: nameAsRegex4.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>verbatimCommands:</td>
<td>verbatimCommands:</td>
</tr>
<tr>
<td>verbinline: 1</td>
<td>nameAsRegex:</td>
</tr>
<tr>
<td>myinline: 1</td>
<td>name: '\w+inline'</td>
</tr>
<tr>
<td></td>
<td>lookForThis: 1</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Listing 44: noIndentBlock</th>
</tr>
</thead>
<tbody>
<tr>
<td>noIndentBlock:</td>
</tr>
<tr>
<td>noindent: 1</td>
</tr>
<tr>
<td>cmhtest: 1</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Listing 45: noIndentBlock.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>% \begin{noindent}</td>
</tr>
<tr>
<td>some before text</td>
</tr>
<tr>
<td>\this code</td>
</tr>
<tr>
<td>won’t</td>
</tr>
<tr>
<td>be touched</td>
</tr>
<tr>
<td>by latexindent.pl!</td>
</tr>
<tr>
<td>some after text</td>
</tr>
<tr>
<td>% \end{noindent}</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Listing 46: noIndentBlock1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>some before text</td>
</tr>
<tr>
<td>\this code</td>
</tr>
<tr>
<td>won’t</td>
</tr>
<tr>
<td>be touched</td>
</tr>
<tr>
<td>by latexindent.pl!</td>
</tr>
<tr>
<td>some after text</td>
</tr>
</tbody>
</table>

The settings given in Listings 47 and 48 are equivalent:
Upon running the commands

\begin{verbatim}
$ latexindent.pl -l noindent1.yaml noindent1
$ latexindent.pl -l noindent2.yaml noindent1
\end{verbatim}

then we receive the output given in Listing 50.

\begin{listing}
\caption{noIndentBlock1.tex using Listing 47 or Listing 48}
\begin{verbatim}
some before text
  this code won't be touched by latexindent.pl!
some after text
\end{verbatim}
\end{listing}

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).

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

\begin{verbatim}
$ latexindent.pl -l noindent3.yaml noindent1
\end{verbatim}

gives the output in Listing 51.

\begin{listing}
\caption{noIndentBlock1.tex using Listing 49}
\begin{verbatim}
some before text
  this code won't be touched by latexindent.pl!
some after text
\end{verbatim}
\end{listing}

We will demonstrate this feature later in the documentation in Listing 572.

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.

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

#### 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.

#### 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.
5.4 Indentation and horizontal space

---

**Listing 56: Motivating preambleCommandsBeforeEnvironments**

```latex
... 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 \tab which means a tab; we will explore customisation beyond `defaultIndent` in Section 5.8 on page 53.

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 460 to 462 on page 113 for before and after results. Thanks to [3] for providing this feature.

**Listing 57: removeTrailingWhitespace**

```plaintext
removeTrailingWhitespace:
beforeProcessing: 0
afterProcessing: 1
```

**Listing 58: removeTrailingWhitespace (alt)**

```plaintext
removeTrailingWhitespace: 1
```

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)**

```plaintext
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

```bash
cmh:~$ latexindent.pl tabular1.tex
```
5.5 Aligning at delimiters

5.5.1 Advanced forms

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

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

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

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

- \texttt{delims}: binary switch (0 or 1) equivalent to simply specifying, for example, \texttt{tabular}: 1 in the basic version shown in Listing 59. If \texttt{delims} is set to 0 then the align at ampersand routine will not be called for this code block (default: 1);
- \texttt{alignDoubleBackSlash}: binary switch (0 or 1) to determine if \texttt{\backslash \backslash} should be aligned (default: 1);
- \texttt{spacesBeforeDoubleBackSlash}: optionally, specifies the number (integer $\geq 0$) of spaces to be inserted before \texttt{\backslash \backslash} (default: 1);
- \texttt{multiColumnGrouping}: binary switch (0 or 1) that details if latexindent.pl should group columns above and below a \texttt{\multicolumn} command (default: 0);
- \texttt{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);
- \texttt{spacesBeforeAmpersand}: optionally specifies the number (integer $\geq 0$) of spaces to be placed before ampersands (default: 1);
- \texttt{spacesAfterAmpersand}: optionally specifies the number (integer $\geq 0$) of spaces to be placed After ampersands (default: 1);
5.5 Aligning at delimiters

- justification: optionally specifies the justification of each cell as either left or right (default: left);

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

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

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

- 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;

- lookForChildCodeBlocks optionally instructs \texttt{latexindent.pl} to search for child code blocks or not (default: 1), discussed in Section 5.5.5;

- alignContentAfterDoubleBackSlash optionally instructs \texttt{latexindent.pl} to align content after double back slash (default: 0), discussed in Section 5.5.6;

- spacesAfterDoubleBackSlash optionally specifies the number (integer \(\geq 0\)) of spaces to be placed after the double back slash when \texttt{alignContentAfterDoubleBackSlash} is active; demonstrated in Section 5.5.6.

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

\begin{verbatim}
\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}
\end{verbatim}

\begin{verbatim}
\end{verbatim}

\textbf{LISTING 63: tabular2.tex}

\begin{verbatim}
\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}
\end{verbatim}

\begin{verbatim}
\end{verbatim}

\textbf{LISTING 64: tabular2.yaml}

\begin{verbatim}
lookForAlignDelims:
tabular:
multiColumnGrouping: 1
\end{verbatim}

\textbf{LISTING 65: tabular3.yaml}

\begin{verbatim}
lookForAlignDelims:
tabular:
alignRowsWithoutMaxDelims: 0
\end{verbatim}

\textbf{LISTING 66: tabular4.yaml}

\begin{verbatim}
lookForAlignDelims:
tabular:
spacesBeforeAmpersand: 4
\end{verbatim}

\textbf{LISTING 67: tabular5.yaml}

\begin{verbatim}
lookForAlignDelims:
tabular:
spacesAfterAmpersand: 4
\end{verbatim}

\textbf{LISTING 68: tabular6.yaml}

\begin{verbatim}
lookForAlignDelims:
tabular:
alignDoubleBackSlash: 0
\end{verbatim}

\textbf{LISTING 69: tabular7.yaml}

\begin{verbatim}
lookForAlignDelims:
tabular:
spacesBeforeDoubleBackSlash: 0
\end{verbatim}
5.5 Aligning at delimiters

```
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 & & \\
AAA & BBB & & \\
\multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
\multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
one & two & & \\
five & & six & \\
seven & & \\
\end{tabular}
```

**Listing 72:** tabular2.tex using Listing 64

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

**Listing 73:** tabular2.tex using Listing 65

```
\begin{tabular}{cccc}
A & B & & \\
AAA & BBB & & \\
\multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
\multicolumn{2}{c}{first heading} & \multicolumn{2}{c}{second heading} \\
one & two & & \\
five & & six & \\
seven & & \\
\end{tabular}
```
5.5 Aligning at delimiters

<table>
<thead>
<tr>
<th>Listing 74: tabular2.tex using Listings 64 and 66</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cccc} \multicolumn{2}{c}{first heading} \multicolumn{2}{c}{second heading} \end{tabular}</td>
</tr>
</tbody>
</table>
| A & B & C & D \hline
| AAA & BBB & CCC & DDD \hline
| one & two & three & four \hline
| five & six & & \hline
| seven & & & \hline
| \end{tabular} |

<table>
<thead>
<tr>
<th>Listing 75: tabular2.tex using Listings 64 and 67</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cccc} \multicolumn{2}{c}{first heading} \multicolumn{2}{c}{second heading} \end{tabular}</td>
</tr>
</tbody>
</table>
| A & B & C & D \hline
| AAA & BBB & CCC & DDD \hline
| one & two & three & four \hline
| five & six & & \hline
| seven & & & \hline
| \end{tabular} |

<table>
<thead>
<tr>
<th>Listing 76: tabular2.tex using Listings 64 and 68</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cccc} \multicolumn{2}{c}{first heading} \multicolumn{2}{c}{second heading} \end{tabular}</td>
</tr>
</tbody>
</table>
| A & B & C & D \hline
| AAA & BBB & CCC & DDD \hline
| one & two & three & four \hline
| five & six & & \hline
| seven & & & \hline
| \end{tabular} |

<table>
<thead>
<tr>
<th>Listing 77: tabular2.tex using Listings 64 and 69</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cccc} \multicolumn{2}{c}{first heading} \multicolumn{2}{c}{second heading} \end{tabular}</td>
</tr>
</tbody>
</table>
| A & B & C & D \hline
| AAA & BBB & CCC & DDD \hline
| one & two & three & four \hline
| five & six & & \hline
| seven & & & \hline
| \end{tabular} |

<table>
<thead>
<tr>
<th>Listing 78: tabular2.tex using Listings 64 and 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cccc} \multicolumn{2}{c}{first heading} \multicolumn{2}{c}{second heading} \end{tabular}</td>
</tr>
</tbody>
</table>
| A & B & C & D \hline
| AAA & BBB & CCC & DDD \hline
| one & two & three & four \hline
| five & six & & \hline
| seven & & & \hline
| \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 set to 0 in Listing 65; however, the `\` have still been aligned;

- in Listing 74 the columns beneath and above the `\texttt{\textbackslash 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 `\texttt{\textbackslash 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 `\texttt{\textbackslash multicolumn}` statements have still been group correctly, because of the settings in Listing 64.

### 5.5.1 `lookForAlignDelims`: `spacesBeforeAmpersand`

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

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

then we receive the default output given in Listing 80.

<table>
<thead>
<tr>
<th>Listing 79: <code>aligned1.tex</code></th>
<th>Listing 80: <code>aligned1-default.tex</code></th>
</tr>
</thead>
<tbody>
<tr>
<td><code>\begin{aligned}</code></td>
<td><code>\begin{aligned}</code></td>
</tr>
<tr>
<td>&amp; a &amp; b, <code>\</code>  `</td>
<td>&amp; a &amp; b, <code>\</code>  `</td>
</tr>
<tr>
<td>&amp; c &amp; d.</td>
<td>&amp; c &amp; d.</td>
</tr>
<tr>
<td><code>\end{aligned}</code></td>
<td><code>\end{aligned}</code></td>
</tr>
</tbody>
</table>

The settings in Listings 81 to 84 are all equivalent; we have used the not-yet discussed `noAdditionalIndent` field (see Section 5.8 on page 53) which will assist in the demonstration in what follows.

<table>
<thead>
<tr>
<th>Listing 81: <code>sba1.yaml</code></th>
<th>Listing 82: <code>sba2.yaml</code></th>
</tr>
</thead>
<tbody>
<tr>
<td><code>noAdditionalIndent:</code></td>
<td><code>noAdditionalIndent:</code></td>
</tr>
<tr>
<td>aligned: 1</td>
<td>aligned: 1</td>
</tr>
<tr>
<td><code>lookForAlignDelims:</code></td>
<td><code>lookForAlignDelims:</code></td>
</tr>
<tr>
<td>aligned: 1</td>
<td>aligned: 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 83: <code>sba3.yaml</code></th>
<th>Listing 84: <code>sba4.yaml</code></th>
</tr>
</thead>
<tbody>
<tr>
<td><code>noAdditionalIndent:</code></td>
<td><code>noAdditionalIndent:</code></td>
</tr>
<tr>
<td>aligned: 1</td>
<td>aligned: 1</td>
</tr>
<tr>
<td><code>lookForAlignDelims:</code></td>
<td><code>lookForAlignDelims:</code></td>
</tr>
<tr>
<td>aligned:</td>
<td>aligned:</td>
</tr>
<tr>
<td><code>spacesBeforeAmpersand:</code></td>
<td><code>spacesBeforeAmpersand:</code></td>
</tr>
<tr>
<td>default: 1</td>
<td>leadingBlankColumn: 1</td>
</tr>
</tbody>
</table>

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

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

We note in particular:

- Listing 81 demonstrates the basic form for \texttt{lookForAlignDelims}; in this case, the default values are specified as in Listing 62 on page 34;
- Listing 82 demonstrates the advanced form for \texttt{lookForAlignDelims} and specified \texttt{spacesBeforeAmpersand}. The default value is 1;
- Listing 83 demonstrates the new advanced way to specify \texttt{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 \texttt{leadingBlankColumn} has not been specified in Listing 83, and it will inherit the value from \texttt{default};
- Listing 84 demonstrates spaces to be used before ampersands for \textit{leading blank columns}. We note that \texttt{default} has not been specified, and it will be set to 1 by default.

\begin{itemize}
  \item We can customise the space before the ampersand in the \textit{leading blank column} of Listing 85 by using either of Listings 86 and 87, which are equivalent.
\end{itemize}

\begin{Verbatim}
\texttt{cmh:~$ latexindent.pl aligned1.tex -l sba5.yaml}
\texttt{cmh:~$ latexindent.pl aligned1.tex -l sba2.yaml}
\texttt{cmh:~$ latexindent.pl aligned1.tex -l sba3.yaml}
\texttt{cmh:~$ latexindent.pl aligned1.tex -l sba4.yaml}
\end{Verbatim}

Upon running

\begin{Verbatim}
\texttt{cmh:~$ latexindent.pl aligned1.tex -l sba5.yaml}
\texttt{cmh:~$ latexindent.pl aligned1.tex -l sba6.yaml}
\end{Verbatim}

then we receive the (same) output given in Listing 88. We note that the space before the ampersand in the \textit{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.
5.5 Aligning at delimiters

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

```bash
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.

We note that in:

- Listing 92, by default, the first set of double backslashes 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

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

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

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

### Listing 97: align-block.tex default output
```latex
\begin{tabular}
1 & 2 & 3 & 4 \\ 
5 & & 6 & \\
\end{tabular}
```

With reference to Table 2 on page 54 and the, yet undiscussed, fields of noAdditionalIndent and indentRules (see Section 5.8 on page 53), these comment-marked blocks are considered environments.

#### 5.5.3 lookForAlignDelims: the dontMeasure feature

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

### Listing 99: tabular-DM.tex default output
```latex
\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

```
$ latexindent -l=dontMeasure1.yaml tabular-DM.tex
```

and receive the output given in Listing 100.

### Listing 100: tabular-DM.tex using Listing 101
```latex
\begin{tabular}{cccc}
aaaaaa & bbbbb & ccc & dd \\
11 & 2 & 33 & 4 \\
5 & 66 & 7 & 8
\end{tabular}
```

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,

```
$ latexindent -l=dontMeasure2.yaml tabular-DM.tex
```

we receive the output in Listing 102.
5.5 Aligning at delimiters

Listing 102: tabular-DM.tex using Listing 103 or Listing 105
\begin{tabular}{cccc}
tabular-DM.tex & bbbbb & ccc & dd \\
11 & 2 & 33 & 4 \\
5 & 66 & 7 & 8
\end{tabular}

Listing 103: dontMeasure2.yaml
lookForAlignDelims:
tabular:
dontMeasure:
  - aaaaa
  - 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}
tabular-DM.tex & bbbbb & ccc & dd \\
11 & 2 & 33 & 4 \\
5 & 66 & 7 & 8
\end{tabular}

Listing 105: dontMeasure3.yaml
lookForAlignDelims:
tabular:
dontMeasure:
  - this: aaaaa
    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}
tabular-DM.tex & bbbbb & ccc & dd \\
11 & 2 & 33 & 4 \\
5 & 66 & 7 & 8
\end{tabular}

Listing 108: dontMeasure5.yaml
lookForAlignDelims:
tabular:
dontMeasure:
  - this: aaaaa\&bbbbb\&ccc&dd\
    applyTo: row

- [git] • main @ 7632037 • 2023-07-14 • V3.22.2
5.5 Aligning at delimiters

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

```bash
$ latexindent.pl tabular-DM.tex -l=dontMeasure6.yaml
```

we receive the output in Listing 109.

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

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

<table>
<thead>
<tr>
<th>lookForAlignDelims:</th>
</tr>
</thead>
<tbody>
<tr>
<td>tabular:</td>
</tr>
<tr>
<td>dontMeasure:</td>
</tr>
<tr>
<td>-</td>
</tr>
<tr>
<td>regex: [a-z]\</td>
</tr>
<tr>
<td>applyTo: row</td>
</tr>
</tbody>
</table>

**LISTING 110: dontMeasure6.yaml**

### 5.5.4 lookForAlignDelims: the delimiterRegEx and delimiterJustification feature

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.

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

**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**

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

```bash
$ latexindent.pl tabbing.tex -l=delimiterRegEx1.yaml
```

we receive the output given in Listing 113.

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

**LISTING 113: tabbing.tex using Listing 114**

<table>
<thead>
<tr>
<th>lookForAlignDelims:</th>
</tr>
</thead>
<tbody>
<tr>
<td>tabbing:</td>
</tr>
<tr>
<td>delimiterRegEx: `((?!|[)][:=])'</td>
</tr>
</tbody>
</table>

**LISTING 114: delimiterRegEx1.yaml**

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

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

to receive the output given in Listing 115.

**Listing 115: tabbing.tex using `delimiterRegEx2.yaml`**

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

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

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

to receive the output given in Listing 117.

**Listing 117: tabbing.tex using `delimiterRegEx3.yaml`**

```
\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

```bash
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 # yyyy y\\
  . \# # &\\
\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.

<table>
<thead>
<tr>
<th>Listing 122: tabbing1-mod5.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabbing}</td>
</tr>
</tbody>
</table>
| 1 # 22 \> 333  \\
| xxx # aaa # yyyyy  \\
| . # # &  \\
| \end{tabbing} |

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

5.5.5 lookForAlignDelims: lookForChildCodeBlocks

There may be scenarios in which you would prefer to instruct \texttt{latexindent.pl} not to search for child blocks; in which case setting \texttt{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.

<table>
<thead>
<tr>
<th>Listing 124: tabular-DM-1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cc}</td>
</tr>
</tbody>
</table>
| 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.

<table>
<thead>
<tr>
<th>Listing 126: tabular-DM-1-mod1a.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{tabular}{cc}</td>
</tr>
</tbody>
</table>
| 1 & 2\only<2>{ \ \\
| 3 & 4}  \\
| \end{tabular} |

5.5.6 lookForAlignDelims: alignContentAfterDoubleBackSlash

You can instruct \texttt{latexindent} to align content after the double back slash. See also Section 6.3.2 on page 115.

example 31 We consider the file in Listing 128, and the default output given in Listing 129.
5.6  Indent after items, specials and headings

\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.

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

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

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

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.

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

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

5.6  Indent after items, specials and headings

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

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

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
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.)

```
itemNames: (fields)
```

```
item: 1
myitem: 1
```

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.

```
specialBeginEnd: (fields)
```

```
specialBeginEnd:
  displayMath:
    begin: (?<!\\)\\[
    end: \\]
  lookForThis: 1
  inlineMath:
    begin: (?<!\$)(?<!\})(?!\\\\$)
    end: \$(?<!\\\\$)
  lookForThis: 1
  displayMathTeX:
    begin: $\\$
    end: $\\$
  lookForThis: 1
  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

```
$ 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.

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**

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

Now consider the YAML files shown in Listings 142 and 143.

**Listing 142: specialsLeftRight.yaml**

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

**Listing 143: specialBeforeCommand.yaml**

```yaml
specialBeginEnd:
  specialBeforeCommand: 1
```

Upon running the following commands

```bash
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**

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

**Listing 145: specialLR.tex using Listings 142 and 143**

```latex
\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 Listing 143 specifies that the `specialBeginEnd` should be sought before commands.

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.
5.6 Indent after items, specials and headings

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

```bash
$ latexindent.pl special2.tex -l=middle
$ latexindent.pl special2.tex -l=middle1
```

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

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.

You may specify fields in specialBeginEnd to be treated as verbatim code blocks by changing lookForThis to be verbatim.
For example, beginning with the code in Listing 151 and the YAML in Listing 152, and running

```
$ latexindent special3.tex -l=special-verb1
```

then the output in Listing 151 is unchanged.

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

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

```
\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

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

to receive the output in Listing 154.

```
\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}
```

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

```
$ latexindent special-align.tex -l edge-node2.yaml -o=+-mod2
```
5.6 Indent after items, specials and headings

To receive the output in Listing 156.

**Listing 156: special-align.tex using Listing 157**

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

**Listing 157: edge-node2.yaml**

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

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

indentAfterHeadings: (fields)
```

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

`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 158: indentAfterHeadings**

```yaml
indentAfterHeadings:
  part:
    indentAfterThisHeading: 0
    level: 1
  chapter:
    indentAfterThisHeading: 0
    level: 2
  section:
    indentAfterThisHeading: 0
    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 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 page 53); 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 38**

For example, assuming that you have the code in Listing 160 saved into `headings1.yaml`, and that you have the text from Listing 159 saved into `headings1.tex`.

\(^5\)There is a slight difference in interface for this field when comparing Version 2.2 to Version 3.0; see appendix L on page 173 for details.
5.6 Indent after items, specials and headings

<table>
<thead>
<tr>
<th>Listing 159: headings1.tex</th>
</tr>
</thead>
</table>
\subsection{subsection title}  
subsection text  
subsection text  
\paragraph{paragraph title}  
paragraph text  
paragraph text  
\paragraph{paragraph title}  
paragraph text  
paragraph text  

Listing 160: headings1.yaml

\begin{verbatim}
indentAfterHeadings:  
subsection:  
  indentAfterThisHeading: 1  
  level: 1  
paragraph:  
  indentAfterThisHeading: 1  
  level: 2
\end{verbatim}

If you run the command

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

then you should receive the output given in Listing 161.

<table>
<thead>
<tr>
<th>Listing 161: headings1.tex using Listing 160</th>
</tr>
</thead>
</table>
\subsection{subsection title}  
  ____subsection text  
  ____subsection text  
  ____\paragraph{paragraph title}  
  ____paragraph text  
  ____paragraph text  
  ____\paragraph{paragraph title}  
  ____paragraph text  
  ____paragraph text

Listing 162: headings1.tex second modification

\begin{verbatim}
\subsection{subsection title}  
  ____subsection text  
  ____subsection text  
  ____\paragraph{paragraph title}  
  ____paragraph text  
  ____paragraph text  
  ____\paragraph{paragraph title}  
  ____paragraph text  
  ____paragraph text
\end{verbatim}

Now say that you modify the YAML from Listing 160 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 162; notice that the paragraph and subsection are at the same indentation level.

maximumIndentation: \textit{(horizontal space)}

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

\textbf{example 39} For example, consider the example shown in Listing 163 together with the default output shown in Listing 164.
example 40  Now say that, for example, you have the max-indentation1.yaml from Listing 166 and that you run the following command:

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

You should receive the output shown in Listing 165.

Comparing the output in Listings 164 and 165 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.

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 141.

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 next 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

<table>
<thead>
<tr>
<th>Code block</th>
<th>characters allowed in name</th>
<th>example</th>
</tr>
</thead>
<tbody>
<tr>
<td>environments</td>
<td>a-zA-Z@*0-9__</td>
<td>\begin{myenv} body of myenv \end{myenv}</td>
</tr>
<tr>
<td>optionalArguments</td>
<td>inherits name from parent (e.g environment name)</td>
<td>[ opt arg text ]</td>
</tr>
<tr>
<td>mandatoryArguments</td>
<td>inherits name from parent (e.g environment name)</td>
<td>{ mand arg text }</td>
</tr>
<tr>
<td>commands</td>
<td>+a-zA-Z@*0-9__</td>
<td>\mycommand{arguments}</td>
</tr>
<tr>
<td>keyEqualsValuesBracesBrackets</td>
<td>a-zA-Z@*0-9__/.h{}:#-</td>
<td>my key/.style={arguments}</td>
</tr>
<tr>
<td>namedGroupingBracesBrackets</td>
<td>0-9_.a-zA-Z@*&lt;&gt;</td>
<td>in{arguments}</td>
</tr>
<tr>
<td>UnNamedGroupingBracesBrackets</td>
<td>No name!</td>
<td>{ or [ or , or &amp; or ) or ( or $ followed by \ arguments}</td>
</tr>
</tbody>
</table>
| 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 158 on page 51 | \chapter{title} ...
\section{title} |
| filecontents                    | User specified, see Listing 54 on page 32 | \begin{filecontents} ...
\end{filecontents} |
3. `noAdditionalIndent` for the type of the current `thing`;
4. `indentRules` 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 `noAdditionalIndent`, 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 preceding page; for reference, there follows a list of the code blocks covered.

5.8.1 Environments and their arguments ........................................... 55
5.8.2 Environments with items ...................................................... 62
5.8.3 Commands with arguments ................................................... 63
5.8.4 `ifelsefi` code blocks .......................................................... 65
5.8.5 `specialBeginEnd` code blocks .............................................. 66
5.8.6 `afterHeading` code blocks ................................................... 67
5.8.7 The remaining code blocks ................................................... 69
  5.8.7.1 `keyEqualsValuesBracesBrackets` ...................................... 69
  5.8.7.2 `namedGroupingBracesBrackets` ........................................ 70
  5.8.7.3 `UnNamedGroupingBracesBrackets` ...................................... 70
  5.8.7.4 `filecontents` ............................................................ 71
5.8.8 Summary ................................................................. 71

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 167.

**Listing 167: myenv.tex**

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

**noAdditionalIndent:** `{fields}`

**Example 41** If we do not wish `myenv` to receive any additional indentation, we have a few choices available to us, as demonstrated in Listings 168 and 169.

**Listing 168:**

```yaml
myenv-noAdd1.yaml
noAdditionalIndent:
  myenv: 1
```

**Listing 169:**

```yaml
myenv-noAdd2.yaml
noAdditionalIndent:
  myenv:
    body: 1
```

On applying either of the following commands,
we obtain the output given in Listing 170; note in particular that the environment myenv has not received any additional indentation, but that the outer environment has still received indentation.

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

**example 42**  
Upon changing the YAML files to those shown in Listings 171 and 172, and running either

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

we obtain the output given in Listing 173.

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

**example 43**  
Let’s now allow myenv to have some optional and mandatory arguments, as in Listing 174.

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

Upon running

```
\begin{outer}
  \begin{myenv}
  \optional{optional argument text}
  \optional{optional argument text}
  \mandatory{mandatory argument text}
  \mandatory{mandatory argument text}
  body of environment
  body of environment
  \end{myenv}
\end{outer}
```
we obtain the output shown in Listing 175; 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 168), then all parts of the environment (body, optional and mandatory arguments) are assumed to want no additional indent.

**Listing 175: myenv-args.tex using Listing 168**

```latex
\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 44**

We may customise `noAdditionalIndent` for optional and mandatory arguments of the `myenv` environment, as shown in, for example, Listings 176 and 177.

**Listing 176: myenv-noAdd5.yaml**

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

**Listing 177: myenv-noAdd6.yaml**

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

Upon running

```bash
$ latexindent.pl myenv.tex -l myenv-noAdd5.yaml
$ latexindent.pl myenv.tex -l myenv-noAdd6.yaml
```

we obtain the respective outputs given in Listings 178 and 179. Note that in Listing 178 the text for the optional argument has not received any additional indentation, and that in Listing 179 the mandatory argument has not received any additional indentation; in both cases, the body has not received any additional indentation.

**Listing 178: myenv-args.tex using Listing 176**

```latex
\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 179: myenv-args.tex using Listing 177**

```latex
\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 also specify indentation rules for environment code blocks using the `indentRules` field; see, for example, Listings 180 and 181.

<table>
<thead>
<tr>
<th>Listing 180: myenv-rules1.yaml</th>
<th>Listing 181: myenv-rules2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>indentRules:</td>
<td>indentRules:</td>
</tr>
<tr>
<td>myenv: &quot; &quot;</td>
<td>myenv: body: &quot; &quot;</td>
</tr>
</tbody>
</table>

On applying either of the following commands,

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

we obtain the output given in Listing 182; note in particular that the environment `myenv` has received one tab (from the outer environment) plus three spaces from Listing 180 or 181.

<table>
<thead>
<tr>
<th>Listing 182: myenv.tex output (using either Listing 180 or Listing 181)</th>
</tr>
</thead>
</table>
| \begin{outer}
  \begin{myenv}
    \begin{myenv}
      body of environment
      body of environment
      body of environment
    \end{myenv}
  \end{myenv}
\end{outer} |

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

example 46  Returning to the example in Listing 174 that contains optional and mandatory arguments. Upon using Listing 180 as in

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

we obtain the output in Listing 183; note that the body, optional argument and mandatory argument of `myenv` have all received the same customised indentation.

<table>
<thead>
<tr>
<th>Listing 183: myenv-args.tex using Listing 180</th>
</tr>
</thead>
</table>
| \begin{outer}
  \begin{myenv}[
    optional_argument_text
    optional_argument_text]
  \{mandatory_argument_text
  mandatory_argument_text\}
  \begin{myenv}
    body of environment
    body of environment
    body of environment
  \end{myenv}
  \end{myenv}
\end{outer} |

example 47  You can specify different indentation rules for the different features using, for example, Listings 184 and 185
After running

```
\$ latexindent.pl myenv-args.tex -l myenv-rules3.yaml
\$ latexindent.pl myenv-args.tex -l myenv-rules4.yaml
```

then we obtain the respective outputs given in Listings 186 and 187.

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

Note that in Listing 186, 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 187, 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.

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 188).

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

example 48 Let’s say that you change the value of environments to 1 in Listing 188, and that you run

```
\$ latexindent.pl myenv-args.tex -l env-noAdditionalGlobal.yaml
\$ latexindent.pl myenv-args.tex -l myenv-rules1.yaml,env-noAdditionalGlobal.yaml
```

The respective output from these two commands are in Listings 189 and 190; in Listing 189 notice that both environments receive no additional indentation but that the arguments of myenv still do receive indentation. In Listing 190 notice that the outer environment does not receive additional indentation, but because of the settings from myenv-rules1.yaml in Listing 180 on the previous page, the myenv environment still does receive indentation.
In fact, `noAdditionalIndentGlobal` also contains keys that control the indentation of optional and mandatory arguments; on referencing Listings 191 and 192

we may run the commands

```bash
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 193 and 194. Notice that in Listing 193 the `optional` argument has not received any additional indentation, and in Listing 194 the `mandatory` argument has not received any additional indentation.

The final check that `latexindent.pl` will make is to look for `indentRulesGlobal` as detailed in Listing 195.
example 50  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 196 and 197. Note that in Listing 196, both the environment blocks have received a single-space indentation, whereas in Listing 197 the outer environment has received single-space indentation (specified by indentRulesGlobal), but myenv has received " ", as specified by the particular indentRules for myenv in Listing 180 on page 58.

```
\begin{outer}
  \begin{myenv}[%
    optional_argument_text
    \{ mandatory_argument_text
    \}]
  \}
  \end{myenv}
\end{outer}
```

```
\begin{outer}
  \begin{myenv}[%
    \{ mandatory_argument_text
    \}]
  \}
  \end{myenv}
\end{outer}
```

example 51  You can specify indentRulesGlobal for both optional and mandatory arguments, as detailed in Listings 198 and 199

```
\begin{outer}
  \begin{myenv}[%
    \{ mandatory_argument_text
    \}]
  \}
  \end{myenv}
\end{outer}
```

```
\begin{outer}
  \begin{myenv}[%
    \{ mandatory_argument_text
    \}]
  \}
  \end{myenv}
\end{outer}
```

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 200 and 201. Note that the optional argument in Listing 200 has received two tabs worth of indentation, while the mandatory argument has done so in Listing 201.

```
\begin{outer}
  \begin{myenv}[%
    \{ mandatory_argument_text
    \}]
  \}
  \end{myenv}
\end{outer}
```

```
\begin{outer}
  \begin{myenv}[%
    \{ mandatory_argument_text
    \}]
  \}
  \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 202, although a more efficient approach may be to change the relevant field in itemNames to 0.

**Example 52** Similarly, you can customise the indentation that your item receives using indentRules, as in Listing 203

<table>
<thead>
<tr>
<th>Listing 202: item-noAdd1.yaml</th>
<th>Listing 203: item-rules1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>noAdditionalIndent:</td>
<td>indentRules:</td>
</tr>
<tr>
<td>item: 1</td>
<td>item: &quot; &quot;</td>
</tr>
<tr>
<td># itemNames:</td>
<td></td>
</tr>
<tr>
<td>#    item: 0</td>
<td></td>
</tr>
</tbody>
</table>

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 204 and 205; note that in Listing 204 that the text after each item has not received any additional indentation, and in Listing 205, the text after each item has received a single space of indentation, specified by Listing 203.

<table>
<thead>
<tr>
<th>Listing 204: items1.tex using Listing 202</th>
<th>Listing 205: items1.tex using Listing 203</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{itemize}</td>
<td>\begin{itemize}</td>
</tr>
<tr>
<td>\hspace{0ex}</td>
<td>\hspace{0ex}</td>
</tr>
<tr>
<td>\item some text here</td>
<td>\hspace{0ex}</td>
</tr>
<tr>
<td>some more text here</td>
<td>__\item some_text_here</td>
</tr>
<tr>
<td>some more text here</td>
<td>\hspace{0ex}</td>
</tr>
<tr>
<td>\item another item</td>
<td>__\item another_item</td>
</tr>
<tr>
<td>some more text here</td>
<td>\hspace{0ex}</td>
</tr>
<tr>
<td>\end{itemize}</td>
<td>\hspace{0ex}</td>
</tr>
</tbody>
</table>

**Example 53** Alternatively, you might like to populate noAdditionalIndentGlobal or indentRulesGlobal using the items key, as demonstrated in Listings 206 and 207. Note that there is a need to ‘reset/remove’ the item field from indentRules in both cases (see the hierarchy description given on page 53) as the item command is a member of indentRules by default.

<table>
<thead>
<tr>
<th>Listing 206: items-noAdditionalGlobal.yaml</th>
<th>Listing 207: items-indentRulesGlobal.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>indentRules:</td>
<td>indentRules:</td>
</tr>
<tr>
<td>item: 0</td>
<td>item: 0</td>
</tr>
<tr>
<td>noAdditionalIndentGlobal:</td>
<td>noAdditionalIndentGlobal:</td>
</tr>
<tr>
<td>items: 1</td>
<td>items: 1</td>
</tr>
</tbody>
</table>

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 204 and 205 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 54  Let’s begin with the simple example in Listing 208: when latexindent.pl operates on this file, the default output is shown in Listing 209. 

<table>
<thead>
<tr>
<th>Listing 208: mycommand.tex</th>
<th>Listing 209: mycommand.tex default output</th>
</tr>
</thead>
<tbody>
<tr>
<td>\mycommand</td>
<td>\mycommand</td>
</tr>
<tr>
<td>{</td>
<td>{</td>
</tr>
<tr>
<td>mand arg text</td>
<td>mand arg text</td>
</tr>
<tr>
<td>mand arg text</td>
<td>mand arg text</td>
</tr>
<tr>
<td>[</td>
<td>[</td>
</tr>
<tr>
<td>opt arg text</td>
<td>opt arg text</td>
</tr>
<tr>
<td>opt arg text</td>
<td>opt arg text</td>
</tr>
<tr>
<td>}</td>
<td>}</td>
</tr>
</tbody>
</table>

As in the environment-based case (see Listings 168 and 169 on page 55) we may specify noAdditionalIndent either in ‘scalar’ form, or in ‘field’ form, as shown in Listings 210 and 211

<table>
<thead>
<tr>
<th>Listing 210: mycommand-noAdd1.yaml</th>
<th>Listing 211: mycommand-noAdd2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>noAdditionalIndent:</td>
<td>noAdditionalIndent:</td>
</tr>
<tr>
<td>mycommand: 1</td>
<td>mycommand:</td>
</tr>
<tr>
<td>body: 1</td>
<td>body: 1</td>
</tr>
</tbody>
</table>

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 212 and 213

<table>
<thead>
<tr>
<th>Listing 212: mycommand.tex using Listing 210</th>
<th>Listing 213: mycommand.tex using Listing 211</th>
</tr>
</thead>
<tbody>
<tr>
<td>\mycommand</td>
<td>\mycommand</td>
</tr>
<tr>
<td>{</td>
<td>{</td>
</tr>
<tr>
<td>mand arg text</td>
<td>mand arg text</td>
</tr>
<tr>
<td>mand arg text</td>
<td>mand arg text</td>
</tr>
<tr>
<td>[</td>
<td>[</td>
</tr>
<tr>
<td>opt arg text</td>
<td>opt arg text</td>
</tr>
<tr>
<td>opt arg text</td>
<td>opt arg text</td>
</tr>
<tr>
<td>}</td>
<td>}</td>
</tr>
</tbody>
</table>

Note that in Listing 212 that the ‘body’, optional argument and mandatory argument have all received no additional indentation, while in Listing 213, 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.

---

*The command code blocks have quite a few subtleties, described in Section 5.9 on page 71.

example 55  We may further customise noAdditionalIndent for mycommand as we did in Listings 176 and 177 on page 57; explicit examples are given in Listings 214 and 215.
After running the following commands,

```bash
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 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
]
```

e**xample 56**

Attentive readers will note that the body of `mycommand` in both Listings 216 and 217 has received no additional indent, even though body is explicitly set to 0 in both Listings 214 and 215. This is because, by default, `noAdditionalIndentGlobal` for commands is set to 1 by default; this can be easily fixed as in Listings 218 and 219.

**Listing 218:** mycommand-noAdd5.yaml
```
noAdditionalIndent:
mycommand:
  body: 0
  optionalArguments: 1
  mandatoryArguments: 0
noAdditionalIndentGlobal:
  commands: 0
```

**Listing 219:** mycommand-noAdd6.yaml
```
noAdditionalIndent:
mycommand:
  body: 0
  optionalArguments: 0
  mandatoryArguments: 1
noAdditionalIndentGlobal:
  commands: 0
```

After running the following commands,

```bash
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 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
]
Both indentRules and indentRulesGlobal can be adjusted as they were for environment code blocks, as in Listings 184 and 185 on page 59 and Listings 195, 198 and 199 on pages 60–61.

### 5.8.4 ifelsefi code blocks

**Example 57** Let’s use the simple example shown in Listing 222; when latexindent.pl operates on this file, the output as in Listing 223; note that the body of each of the `\if` statements have been indented, and that the `\else` statement has been accounted for correctly.

<table>
<thead>
<tr>
<th>Listing 222: ifelsefil.tex</th>
<th>Listing 223: ifelsefil.tex default output</th>
</tr>
</thead>
<tbody>
<tr>
<td>\ifodd\radius \ifnum\radius&lt;14 \pgfmathparse{100-(\radius)*4}; \else \pgfmathparse{200-(\radius)*3}; \fi\fi</td>
<td>\ifodd\radius \ifnum\radius&lt;14 \pgfmathparse{100-(\radius)*4}; \else \pgfmathparse{200-(\radius)*3}; \fi\fi</td>
</tr>
</tbody>
</table>

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 224 and 225.

<table>
<thead>
<tr>
<th>Listing 224: ifnum-noAdd.yaml</th>
<th>Listing 225: ifnum-indent-rules.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>noAdditionalIndent: ifnum: 1</td>
<td>indentRules: ifnum: &quot; &quot;</td>
</tr>
</tbody>
</table>

After running the following commands,

```
$ latexindent.pl ifelsefil.tex -local ifnum-noAdd.yaml
$ latexindent.pl ifelsefil.tex -l ifnum-indent-rules.yaml
```

we receive the respective output given in Listings 226 and 227; note that in Listing 226, the ifnum code block has not received any additional indentation, while in Listing 227, the ifnum code block has received one tab and two spaces of indentation.

<table>
<thead>
<tr>
<th>Listing 226: ifelsefil.tex using Listing 224</th>
<th>Listing 227: ifelsefil.tex using Listing 225</th>
</tr>
</thead>
<tbody>
<tr>
<td>\ifodd\radius \ifnum\radius&lt;14 \pgfmathparse{100-(\radius)*4}; \else \pgfmathparse{200-(\radius)*3}; \fi\fi</td>
<td>\ifodd\radius \ifnum\radius&lt;14 \pgfmathparse{100-(\radius)*4}; \else \pgfmathparse{200-(\radius)*3}; \fi\fi</td>
</tr>
</tbody>
</table>

**Example 58** We may specify noAdditionalIndentGlobal and indentRulesGlobal as in Listings 228 and 229.

<table>
<thead>
<tr>
<th>Listing 228: ifelsefi-noAdd-glob.yaml</th>
<th>Listing 229: ifelsefi-indent-rules-global.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>noAdditionalIndentGlobal: ifElseFi: 1</td>
<td>indentRulesGlobal: ifElseFi: &quot; &quot;</td>
</tr>
</tbody>
</table>

Upon running the following commands
5.8 noAdditionalIndent and indentRules

we receive the outputs in Listings 230 and 231; notice that in Listing 230 neither of the ifelsefi code blocks have received indentation, while in Listing 231 both code blocks have received a single space of indentation.

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

example 59

We can further explore the treatment of ifElseFi code blocks in Listing 232, and the associated default output given in Listing 233; note, in particular, that the bodies of each of the 'or statements' have been indented.

```latex
\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 47 which has default output shown in Listing 140 on page 47.

example 60

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 234 and 235.

```
noAdditionalIndent: displayMath: 1
```

After running the following commands,

```bash
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 236 and 237; note that in Listing 236, the displayMath code block has not received any additional indentation, while in Listing 237, the displayMath code block has received three tabs worth of indentation.
The function \( f \) has formula
\[
\begin{align*}
f(x) &= x^2. \\
\text{If you like splitting dollars,} & \quad g(x) = f(2x) \\
\end{align*}
\]

\( g(x) = f(2x) \)

---

**example 61** We may specify `noAdditionalIndentGlobal` and `indentRulesGlobal` as in Listings 238 and 239.

Upon running the following commands:

```bash
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 240 and 241; notice that in Listing 240 neither of the special code blocks have received indentation, while in Listing 241 both code blocks have received a single space of indentation.

---

**5.8.6 afterHeading code blocks**

Let's use the example Listing 242 for demonstration throughout this Section. As discussed on page 52, by default `latexindent.pl` will not add indentation after headings.

---

**example 62** On using the YAML file in Listing 244 by running the command

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

we obtain the output in Listing 243. Note that the argument of `paragraph` has received (default) indentation, and that the body after the heading statement has received (default) indentation.
If we specify `noAdditionalIndent` as in Listing 246 and run the command

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

then we receive the output in Listing 245. 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.

example 63 Similarly, if we specify `indentRules` as in Listing 248 and run analogous commands to those above, we receive the output in Listing 247; note that the body, mandatory argument and content after the heading of paragraph have all received three tabs worth of indentation.

example 64 We may, instead, specify `noAdditionalIndent` in ‘field’ form, as in Listing 250 which gives the output in Listing 249.

example 65 Analogously, we may specify `indentRules` as in Listing 252 which gives the output in Listing 251; 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.
5.8 noAdditionalIndent and indentRules

Finally, let’s consider noAdditionalIndentGlobal and indentRulesGlobal shown in Listings 254 and 256 respectively, with respective output in Listings 253 and 255. Note that in Listing 254 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 255, the argument has received both a (default) tab plus two spaces of indentation (from the global rule specified in Listing 256), and the remaining body after paragraph has received just two spaces of indentation.

5.8.7 The remaining code blocks

Referencing the different types of code blocks in Table 2 on page 54, 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 63, 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 54;
- then an = symbol;
- then at least one set of curly braces or square brackets (comments and line breaks allowed throughout).

See the keyEqualsValuesBracesBrackets: follow and keyEqualsValuesBracesBrackets: name fields of the fine tuning section in Listing 556 on page 141.

example 67 An example is shown in Listing 257, with the default output given in Listing 258.
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 54;
- 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 556 on page 141.

example 68

A simple example is given in Listing 259, with default output in Listing 260.

In particular, latexindent.pl considers child, parent and node all to be namedGroupingBracesBrackets. Referencing Listing 260, 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 53.

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 556 on page 141.
5.9 Commands and the strings between their arguments

The `\psforeach` 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 the arguments. An example is shown in Listing 261 with default output given in Listing 262.

```latex
\psforeach{\row}{% 
  {3.2.8,2.7,3,3.1},%, 
  {2.8,1,1.2,2,3},%, 
}
```

Referencing Listing 262, 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 53.

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 263 and 264 should now make sense.

```plaintext
Listing 263: noAdditionalIndentGlobal

| noAdditionalIndentGlobal | 339 | environments: 0 | # 0/1 | 340 | commands: 1 | # 0/1 | 341 | optionalArguments: 0 | # 0/1 | 342 | mandatoryArguments: 0 | # 0/1 | 343 | ifElseFi: 0 | # 0/1 | 344 | items: 0 | # 0/1 | 345 | keyEqualsValuesBracesBrackets: 0 | # 0/1 | 346 | namedGroupingBracesBrackets: 0 | # 0/1 | 347 | UnNamedGroupingBracesBrackets: 0 | # 0/1 | 348 | specialBeginEnd: 0 | # 0/1 | 349 | afterHeading: 0 | # 0/1 | 350 | filecontents: 0 | # 0/1 | 351 |
|--------------------------|-----|----------------|-------|-----|--------------|-------|-----|-----------------------|-------|-----|-----------------------|-------|-----|----------------------|-------|-----|----------------------|-------|-----|

Listing 264: indentRulesGlobal

| indentRulesGlobal | 355 | # 0/h-space | 356 | # 0/h-space | 357 | # 0/h-space | 358 | # 0/h-space | 359 | # 0/h-space | 360 | # 0/h-space | 361 | # 0/h-space | 362 | # 0/h-space | 363 | # 0/h-space | 364 | # 0/h-space | 365 | # 0/h-space | 366 | # 0/h-space | 367 | # 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.

The `commandCodeBlocks` field contains a few switches detailed in Listing 265.

```
LISTING 265: commandCodeBlocks
commandCodeBlocks:
  roundParenthesesAllowed: 1
  stringsAllowedBetweenArguments:
    - amalgamate: 1
    - node
    - at
    - to
    - decoration
    - \(+\)
    - \(-\)
    - \#\#\d
  commandNameSpecial:
    - amalgamate: 1
    - '@ifnextchar[...

roundParenthesesAllowed: 0|1
```

**example 70**  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 266.

```
LISTING 266: pstricks1.tex
\defFunction[algebraic]{torus}(u,v)
  {(2+cos(u))*cos(v+\Pi)}
  {(2+cos(u))*sin(v+\Pi)}
  {sin(u)}

LISTING 267: 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 265, then `latexindent.pl` will allow round parenthesis between optional and mandatory arguments. In the case of the code in Listing 266, `latexindent.pl` finds all the arguments of `defFunction`, both before and after \((u,v)\).

The default output from running `latexindent.pl` on Listing 266 actually leaves it unchanged (see Listing 267); note in particular, this is because of `noAdditionalIndentGlobal` as discussed on page 64.

Upon using the YAML settings in Listing 269, and running the command

```
$ latexindent.pl pstricks1.tex -l noRoundParentheses.yaml
```

we obtain the output given in Listing 268.
5.9 Commands and the strings between their arguments

Notice the difference between Listing 267 and Listing 268; in particular, in Listing 268, 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 54) which, by default, assume indentation for their body, and hence the tabbed indentation in Listing 268.

example 71

Let’s explore this using the YAML given in Listing 271 and run the command

```
cmh:$ latexindent.pl pstricks1.tex -l defFunction.yaml
```

then the output is as in Listing 270.

Notice in Listing 270 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 271.

```
stringsAllowedBetweenArguments: (fields)
```

example 72
tikz users may well specify code such as that given in Listing 272; processing this code using latexindent.pl gives the default output in Listing 273.

With reference to Listing 265 on the preceding 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 272, 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)
5.9 Commands and the strings between their arguments

- the round-bracketed argument \((0,-0.5\text{cm})\) because `roundParenthesesAllowed` is 1 by default
- the string `node` (specified in `stringsAllowedBetweenArguments`)
- the optional argument `[below,align=left,scale=0.5]`  

**example 73**

We can explore this further, for example using Listing 275 and running the command

```
cmh:~$ latexindent.pl tikz-node1.tex -l draw.yaml
```

we receive the output given in Listing 274.

Listing 274: tikz-node1.tex using Listing 275

```latex
\draw[thin]
 (c) to[in=110,out=-90]
 ++(0,-0.5cm)
 node[below,align=left,scale=0.5]
```

Notice that each line after the `\draw` command (its 'body') in Listing 274 has been given the appropriate two-spaces worth of indentation specified in Listing 275.

Let's compare this with the output from using the YAML settings in Listing 277, and running the command

```
cmh:~$ latexindent.pl tikz-node1.tex -l no-strings.yaml
```

given in Listing 276.

Listing 276: tikz-node1.tex using Listing 277

```latex
\draw[thin]
 (c) to[in=110,out=-90]
 ++(0,-0.5cm)
 node[below,align=left,scale=0.5]
```

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 named `GroupingBracesBrackets` called to (see Table 2 on page 54) with argument `[in=110,out=-90]`
- it finds another named `GroupingBracesBrackets` but this time called `node` with argument `[below,align=left,scale=0.5]`

Referencing Listing 265 on page 72, 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 278 or Listing 279 is equivalent to using the settings in Listing 280.
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 281 means that only the strings specified in that field will be used.

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 279 to 281.

**example 74**

We may explore this feature further with the code in Listing 282, whose default output is given in Listing 283.

Let's compare this with the output from using the YAML settings in Listing 285, and running the command

```
~$ latexindent.pl for-each.tex -l foreach.yaml
```

given in Listing 284.

You might like to compare the output given in Listing 283 and Listing 284. Note, in particular, in
Listing 283 that the \foreach command has not included any of the subsequent strings, and that the braces have been treated as a namedGroupingBracesBrackets. In Listing 284 the \foreach command has been allowed to have \textbackslash x/\textbackslash y and in between arguments because of the settings given in Listing 285.

commandNameSpecial: \{fields\}

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 75

For example, consider the sample file in Listing 286, which has default output in Listing 287.

\begin{Verbatim}
Listing 286: ifnextchar.tex
parbox{
  @ifnextchar[\{arg 1\}arg 2]}
\end{Verbatim}

\begin{Verbatim}
Listing 287: ifnextchar.tex
default output
parbox{
  \@ifnextchar[\{arg 1\}arg 2]}
\end{Verbatim}

Notice that in Listing 287 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 \textbackslash <thing> and works outwards, discussed in more detail on page 124.

For demonstration, we can compare this output with that given in Listing 288 in which the settings from Listing 289 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.

\begin{Verbatim}
Listing 288: ifnextchar.tex using Listing 289
parbox{
  @ifnextchar[\{arg 1\}arg 2]}
\end{Verbatim}

\begin{Verbatim}
Listing 289: no-ifnextchar.yaml
commandCodeBlocks:
  commandNameSpecial: 0
\end{Verbatim}

The amalgamate field can be used for commandNameSpecial, just as for stringsAllowedBetweenArguments. The same condition holds as stated previously, which we state again here:

\begin{Verbatim}
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 279 to 281.
\end{Verbatim}
SECTION 6

The -m (modifylinebreaks) switch

All features described in this section will only be relevant if the -m switch is used.

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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 290.

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>501</td>
<td>preserveBlankLines: 1 # 0/1</td>
</tr>
<tr>
<td>502</td>
<td>condenseMultipleBlankLinesInto: 1 # 0/1</td>
</tr>
</tbody>
</table>

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.

element 76

As an example, Listing 291 shows a sample file with blank lines; upon running

```bash
cmh:~$ latexindent.pl myfile.tex -m -o=+-mod1
```

the output is shown in Listing 292; note that the multiple blank lines have been condensed into one blank line, and note also that we have used the -m switch!
6.1 Text Wrapping

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 293.

### Listing 293: textWrapOptions

```plaintext
528 textWrapOptions:
529    columns: 0
530    multipleSpacesToSingle: 1
531    removeBlockLineBreaks: 1
532    when: before # before/after
533    comments:
534      wrap: 0 # 0/1
535      inheritLeadingSpace: 0 # 0/1
536    blocksFollow:
537      headings: 1 # 0/1
538      commentOnPreviousLine: 1 # 0/1
539      par: 1 # 0/1
540      blankLine: 1 # 0/1
541      verbatim: 1 # 0/1
542      filecontents: 1 # 0/1
543      other: \\]|\item(?:\h|\[) # regex
544  blocksBeginWith:
545    A-Z: 1 # 0/1
546    a-z: 1 # 0/1
547    0-9: 0 # 0/1
548  other: 0 # regex
549  blocksEndBefore:
550    commentOnOwnLine: 1 # 0/1
551    verbatim: 1 # 0/1
552    filecontents: 1 # 0/1
553    other: \begin\{|\\[|\end\{ # regex
554  huge: overflow # forbid mid-word line breaks
555  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);
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:
6.1 Text Wrapping

(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 removeBlockLineBreaks 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 331);
   (b) multiple trailing comments will be connected at the end of the text wrap block (see Listing 335);
   (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 337);

10. trailing comments can receive text wrapping; examples are shown in Section 6.1.8 and Section 6.2.8.

We demonstrate this feature using a series of examples.

6.1.2 Text wrap: simple examples

example 77 Let’s use the sample text given in Listing 294.

<table>
<thead>
<tr>
<th>Listing 294: textwrap1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here is a line of text that will be wrapped by latexindent.pl.</td>
</tr>
<tr>
<td>Here is a line of text that will be wrapped by latexindent.pl.</td>
</tr>
</tbody>
</table>

We will change the value of columns in Listing 296 and then run the command

```
$ latexindent.pl -m -l textwrap1.yaml textwrap1.tex
```

then we receive the output given in Listing 295.

<table>
<thead>
<tr>
<th>Listing 295: textwrap1-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Here is a line of text that will be wrapped by latexindent.pl.</td>
</tr>
<tr>
<td>Here is a line of text that will be wrapped by latexindent.pl.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 296: textwrap1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>textWrapOptions:</td>
</tr>
<tr>
<td>columns: 20</td>
</tr>
</tbody>
</table>

example 78 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 295 and using the settings in Listing 297
example 79

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 300.

Using the settings in Listing 300 and running

cmh:~$ latexindent.pl -m -l textwrap1B.yaml textwrap1-mod1.tex

gives the output in Listing 299.

We note that in Listing 299 the multiple spaces have not been condensed into single spaces.

6.1.3 Text wrap: blocksFollow examples

We examine the `blocksFollow` field of Listing 293.

example 80

Let’s use the sample text given in Listing 301.

We note that Listing 301 contains the heading commands `section` and `subsection`. Upon running the command
then we receive the output given in Listing 302.

```
\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 293 on page 79 and also Listing 158 on page 51:

- in Listing 293 the headings field is set to 1, which instructs `latexindent.pl` to read the fields from Listing 158 on page 51, 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 304 and then run

```
\section{my heading}\label{mylabel1}
text to be wrapped from the first section
\subsection{subheading}
text to be wrapped from the first section
```

gives the output in Listing 303, in which text wrapping has been instructed not to happen following headings.

```
\section{my heading}\label{mylabel1}
text to be wrapped from the first section
\subsection{subheading}
text to be wrapped from the first section
```

**example 81**

Let's use the sample text given in Listing 305.

```
% trailing comment
text to be
wrapped following first comment
% another comment
text to be
wrapped following second comment
```

We note that Listing 305 contains trailing comments. Upon running the command

```
\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 trailing comments. Upon running the command

```
\section{my heading}\label{mylabel1}
text to be wrapped from the first section
\subsection{subheading}
text to be wrapped from the first section
```
then we receive the output given in Listing 306.

**Listing 306: tw-comments1-mod1.tex**

```latex
% trailing comment
text to be wrapped
following first comment
% another comment
text to be wrapped
following second comment
```

With reference to Listing 293 on page 79 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 308 and then run

```bash
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bf-no-comments.yaml tw-comments1.tex
```

gives the output in Listing 307, in which text wrapping has been instructed not to happen following comments on their own line.

**Listing 307: tw-comments1-mod2.tex**

```latex
% trailing comment
text to be wrapped following first comment
% another comment
text to be wrapped following second comment
```

Referencing Listing 293 on page 79 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 82**

Let’s use the sample text given in Listing 309.

**Listing 309: tw-disp-math1.tex**

```latex
text to be wrapped before display math
\[ y = x \]
text to be wrapped after display math
```

We note that Listing 309 contains display math. Upon running the command

```bash
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-disp-math1.tex
```

then we receive the output given in Listing 310.
With reference to Listing 293 on page 79 the other field is set to $$\backslash\backslash$$, which instructs latexindent.pl to find text wrap blocks after the end of display math.

We can turn off this switch as in Listing 312 and then run

cmh:~$ latexindent.pl -m -l textwrap1.yaml,bf-no-disp-math.yaml tw-disp-math1.tex

gives the output in Listing 311, in which text wrapping has been instructed *not to happen* following display math.

```
Listing 311: tw-disp-math1-mod2.tex
```

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 83**

Let's use the sample text given in Listing 313.

```
Listing 313: tw-bf-myenv1.tex
```

We note that Listing 313 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 314.
6.1 Text Wrapping

LISTING 314: 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 316 and then run

```
$ latexindent.
```

which gives the output in Listing 315, in which text wrapping has been implemented across the file.

<table>
<thead>
<tr>
<th>LISTING 315: tw-bf-myenv1-mod2.tex</th>
</tr>
</thead>
</table>
| 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 |
<table>
<thead>
<tr>
<th>LISTING 316: tw-bf-myenv.yaml</th>
</tr>
</thead>
</table>
| modifyLineBreaks:
textWrapOptions:
  blocksFollow:
    other: |
    (?x)
    \]
    | \
    \item(?!h\d)
    | \
    \begin\{myenv\} # <--- new bit
    | # <--- new bit
    \end\{myenv\} # <--- new bit |

6.1.4 Text wrap: blocksBeginWith examples

We examine the blocksBeginWith field of Listing 293 with a series of examples.

example 84

By default, text wrap blocks can begin with the characters a–z and A–Z.

If we start with the file given in Listing 317

<table>
<thead>
<tr>
<th>LISTING 317: tw-0-9.tex</th>
</tr>
</thead>
</table>
| 123 text to
  be
  wrapped before display math
\[ y = x\]
456 text to
be
wrapped after display math |

and run the command

```
$ latexindent.
```

then we receive the output given in Listing 318 in which text wrapping has not occurred.
6.1 Text Wrapping

We can allow paragraphs to begin with 0-9 characters by using the settings in Listing 320 and running

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bb-0-9-yaml tw-0-9.tex
```

gives the output in Listing 319, in which text wrapping has happened.

```
Listing 319: tw-0-9-mod2.tex

123 text to be wrapped before display math \[ y = x \]
456 text to be wrapped after display math
```

```
example 85

Let's now use the file given in Listing 321

```
Listing 321: 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 322 in which text wrapping has not occurred.

```
Listing 322: 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 324 and running

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,tw-bb-announce.yaml tw-bb-announce1.tex
```

gives the output in Listing 323, in which text wrapping has happened.
6.1 Text Wrapping

6.1.5 Text wrap: blocksEndBefore examples

We examine the blocksEndBefore field of Listing 293 with a series of examples.

example 86

Let's use the sample text given in Listing 325.

We note that Listing 325 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 326.

With reference to Listing 293 on page 79 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 327 and then run

```
cmh:~$ latexindent.pl -m -l textwrap1A.yaml,tw-be-equation.yaml tw-be-equation.tex
```

gives the output in Listing 328, in which text wrapping has been instructed not to stop at these statements.
6.1 Text Wrapping

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 87**  
The file in Listing 329 contains a trailing comment which *does* have a space infront of it.

Running the command

```bash
cmh:~$ latexindent.pl -m tw-tc1.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output given in Listing 330.

<table>
<thead>
<tr>
<th>LISTING 329: tw-tc1.tex</th>
<th>LISTING 330: tw-tc1-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>foo␣%</td>
<td>foo bar%</td>
</tr>
<tr>
<td>bar</td>
<td></td>
</tr>
</tbody>
</table>

**example 88**  
The file in Listing 331 contains a trailing comment which *does not* have a space infront of it.

Running the command

```bash
cmh:~$ latexindent.pl -m tw-tc2.tex -l textwrap1A.yaml -o=+-mod1
```

after equation text \begin{align} 1 & 2 \ 3 & 4 \end{align} after equation text

<table>
<thead>
<tr>
<th>LISTING 331: tw-tc2.tex</th>
<th>LISTING 332: tw-tc2-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>foo%</td>
<td>foobar%</td>
</tr>
<tr>
<td>bar</td>
<td></td>
</tr>
</tbody>
</table>

We note that, because there is *not* a space before the trailing comment, that the lines have been joined *without* a space.

**example 89**  
The file in Listing 333 contains multiple trailing comments.

Running the command

```bash
cmh:~$ latexindent.pl -m tw-tc3.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 334.

<table>
<thead>
<tr>
<th>LISTING 333: tw-tc3.tex</th>
<th>LISTING 334: tw-tc3-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>foo %1</td>
<td>foo barthree%1%2</td>
</tr>
<tr>
<td>bar%2</td>
<td></td>
</tr>
<tr>
<td>three</td>
<td></td>
</tr>
</tbody>
</table>
6.1 Text Wrapping

example 90  The file in Listing 335 contains multiple trailing comments.
Running the command

```bash
cmh:~$ latexindent.pl -m tw-tc4.tex -l textwrap1A.yaml -o=+-mod1
```
gives the output in Listing 336.

<table>
<thead>
<tr>
<th>Listing 335: tw-tc4.tex</th>
<th>Listing 336: tw-tc4-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>foo %1</td>
<td>foo barthree%1%2%3</td>
</tr>
<tr>
<td>bar%2</td>
<td></td>
</tr>
<tr>
<td>three%3</td>
<td></td>
</tr>
</tbody>
</table>

example 91  The file in Listing 337 contains multiple trailing comments.
Running the command

```bash
cmh:~$ latexindent.pl -m tw-tc5.tex -l textwrap1A.yaml -o=+-mod1
```
gives the output in Listing 338.

<table>
<thead>
<tr>
<th>Listing 337: tw-tc5.tex</th>
<th>Listing 338: tw-tc5-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>foo%1</td>
<td>foobarthree␣%1%2%3</td>
</tr>
<tr>
<td>bar%2</td>
<td></td>
</tr>
<tr>
<td>three␣%3</td>
<td></td>
</tr>
</tbody>
</table>

The space at the end of the text block has been preserved.

example 92  The file in Listing 339 contains multiple trailing comments.
Running the command

```bash
cmh:~$ latexindent.pl -m tw-tc6.tex -l textwrap1A.yaml -o=+-mod1
```
gives the output in Listing 340.

<table>
<thead>
<tr>
<th>Listing 339: tw-tc6.tex</th>
<th>Listing 340: tw-tc6-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>foo%1</td>
<td>foobar␣%1</td>
</tr>
<tr>
<td>bar</td>
<td></td>
</tr>
</tbody>
</table>

The space at the end of the text block has been preserved.

6.1.7 Text wrap: when before/after

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 6.2.7.

example 93  Let’s begin with the file in Listing 341.
6.1 Text Wrapping

<table>
<thead>
<tr>
<th>Listing 341: textwrap8.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>This paragraph has line breaks throughout its paragraph; we would like to combine the textwrapping and paragraph removal routine.</td>
</tr>
<tr>
<td>\begin{myenv}</td>
</tr>
<tr>
<td>This paragraph has line breaks throughout its paragraph; we would like to combine the textwrapping and paragraph removal routine.</td>
</tr>
<tr>
<td>\end{myenv}</td>
</tr>
</tbody>
</table>

Using the settings given in Listing 343 and running the command

```
$ latexindent.pl textwrap8.tex -o=+-mod1.tex -l=tw-before1.yaml -m
```

gives the output given in Listing 342.

<table>
<thead>
<tr>
<th>Listing 342: textwrap8-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>This paragraph has line breaks throughout its paragraph; we would like to combine the textwrapping and paragraph removal routine.</td>
</tr>
<tr>
<td>\begin{myenv}</td>
</tr>
<tr>
<td>This paragraph has line breaks throughout its paragraph; we would like to combine the textwrapping and paragraph removal routine.</td>
</tr>
<tr>
<td>\end{myenv}</td>
</tr>
</tbody>
</table>

We note that, in Listing 342, that the wrapped text has exceeded the specified value of columns (35) given in Listing 343. We can affect this by changing when; we explore this next.

<table>
<thead>
<tr>
<th>Listing 343: tw-before1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>defaultIndent: ''</td>
</tr>
<tr>
<td>modifyLineBreaks: textWrapOptions: columns: 35 when: before \textbackslash begin{myenv}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 344: tw-after1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>blocksFollow: other: \textbackslash begin{myenv}</td>
</tr>
</tbody>
</table>

We continue working with Listing 341.

Using the settings given in Listing 345 and running the command

```
$ latexindent.pl textwrap8.tex -o=+-mod2.tex -l=tw-after1.yaml -m
```

gives the output given in Listing 344.
6.1 Text Wrapping

LISTING 344: 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

We note that, in Listing 344, that the wrapped text has obeyed the specified value of columns (35) given in Listing 345.

6.1.8 Text wrap: wrapping comments

You can instruct latexindent.pl to apply text wrapping to comments; we demonstrate this with examples, see also Section 6.2.8.

example 95 We use the file in Listing 346 which contains a trailing comment block.

LISTING 346: textwrap9.tex

My first sentence
% first comment
% second
% third comment
% fourth

Using the settings given in Listing 348 and running the command

```
cmh:~$ latexindent.pl textwrap9.tex -o=textwrap9-mod1.tex -l=wrap-comments1.yaml -m
```

gives the output given in Listing 347.

We note that, in Listing 347, that the comments have been combined and wrapped because of the annotated line specified in Listing 348.

example 96 We use the file in Listing 349 which contains a trailing comment block.

LISTING 349: textwrap10.tex

My first sentence
% first comment
% second
% third comment
% fourth

Using the settings given in Listing 351 and running the command
6.1 Text Wrapping

We note that, in Listing 350, that the comments have been combined and wrapped because of the annotated line specified in Listing 351, and that the space from the leading comment has not been inherited; we will explore this further in the next example.

example 97 We continue to use the file in Listing 349. Using the settings given in Listing 353 and running the command

cmh:~$ latexindent.pl textwrap10.tex -o=+-mod2.tex -l=wrap-comments2.yaml -m

gives the output given in Listing 352.

We note that, in Listing 352, that the comments have been combined and wrapped and that the leading space has been inherited because of the annotated lines specified in Listing 353.

6.1.9 Text wrap: huge, tabstop and separator

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:

Warning!

Changing the value of huge to anything other than overflow will slow down latexindent.pl significantly when the -m switch is active.

Furthermore, changing huge means that you may have some words or commands(!) split across lines in your .tex file, which may affect your output. I do not recommend changing this field.

example 98 For example, using the settings in Listings 355 and 357 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 354 and 356.
You can also specify the `tabstop` field as an integer value, which is passed to the text wrap module; see [47] for details.

**example 99**

Starting with the code in Listing 358 with settings in Listing 359, and running the command

```
cmh:~$ latexindent.pl -m textwrap-ts.tex -o=+-mod1 -l tabstop.yaml
```

gives the code given in Listing 360.

```
x y
```

You can specify `separator`, `break` and `unexpand` options in your settings in analogous ways to those demonstrated in Listings 357 and 359, 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

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 361, all of which we discuss next.
### 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 `removeSentenceLineBreaks` 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 6.2.7);
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.
6.2 oneSentencePerLine: modifying line breaks for sentences

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 100** For example, consider `multiple-sentences.tex` shown in Listing 362.

```
LISTING 362: 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 364 and 366, 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 363 and 365.

```
LISTING 363: multiple-sentences.tex using Listing 364

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 364: multiple-sentences.yaml

modifyLineBreaks:
onSentencePerLine:
manipulateSentences: 1
```

```
LISTING 365: multiple-sentences.tex using Listing 366

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 366: keep-sen-line-breaks.yaml

modifyLineBreaks:
onSentencePerLine:
manipulateSentences: 1
removeSentenceLineBreaks: 0
```

Notice, in particular, that the 'internal' sentence line breaks in Listing 362 have been removed in Listing 363, but have not been removed in Listing 365.

```
multipleSpacesToSingle: 0|1
```

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 361 on page 94 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 367); 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 368); by default, this is only capital letters;
- **end** with a character (see Listing 369); 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 367: sentencesFollow

```
<table>
<thead>
<tr>
<th>Line</th>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>509</td>
<td>sentencesFollow</td>
<td></td>
</tr>
<tr>
<td>510</td>
<td>par</td>
<td>1#0/1</td>
</tr>
<tr>
<td>511</td>
<td>blankLine</td>
<td>1#0/1</td>
</tr>
<tr>
<td>512</td>
<td>fullStop</td>
<td>1#0/1</td>
</tr>
<tr>
<td>513</td>
<td>exclamationMark</td>
<td>1#0/1</td>
</tr>
<tr>
<td>514</td>
<td>questionMark</td>
<td>1#0/1</td>
</tr>
<tr>
<td>515</td>
<td>rightBrace</td>
<td>1#0/1</td>
</tr>
<tr>
<td>516</td>
<td>commentOnPreviousLine</td>
<td>1#0/1</td>
</tr>
<tr>
<td>517</td>
<td>other</td>
<td>0#regex</td>
</tr>
</tbody>
</table>
```

### Listing 368: sentencesBeginWith

```
<table>
<thead>
<tr>
<th>Line</th>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>518</td>
<td>sentencesBeginWith</td>
<td></td>
</tr>
<tr>
<td>519</td>
<td>A-Z</td>
<td>1#0/1</td>
</tr>
<tr>
<td>520</td>
<td>a-z</td>
<td>0#0/1</td>
</tr>
<tr>
<td>521</td>
<td>other</td>
<td>0#regex</td>
</tr>
</tbody>
</table>
```

### Listing 369: sentencesEndWith

```
<table>
<thead>
<tr>
<th>Line</th>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>522</td>
<td>sentencesEndWith</td>
<td></td>
</tr>
<tr>
<td>523</td>
<td>basicFullStop</td>
<td>0#0/1</td>
</tr>
<tr>
<td>524</td>
<td>betterFullStop</td>
<td>1#0/1</td>
</tr>
<tr>
<td>525</td>
<td>exclamationMark</td>
<td>1#0/1</td>
</tr>
<tr>
<td>526</td>
<td>questionMark</td>
<td>1#0/1</td>
</tr>
<tr>
<td>527</td>
<td>other</td>
<td>0#regex</td>
</tr>
</tbody>
</table>
```

---

### 6.2.2 oneSentencePerLine: sentencesFollow

Let's explore a few of the switches in `sentencesFollow`.

**example 101** We start with Listing 362 on the previous page, and use the YAML settings given in Listing 371. Using the command

```
cmh:~/latexindent.pl multiple-sentences -m -l=sentences-follow1.yaml
```

we obtain the output given in Listing 370.

```
LISTING 370: 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.
```

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 102  We can explore the other field in Listing 367 with the .tex file detailed in Listing 372.

We can explore the other field in Listing 367 with the .tex file detailed in Listing 372.

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 373 and 374.

```
(Listing 373: multiple-sentences1.tex using Listing 364 on page 95)

(Some sentences stand alone in brackets.) This is the first sentence.
This is the; second, sentence.
This is the third sentence.

(Listing 374: multiple-sentences1.tex using Listing 375)

(Listing 375: sentences-follow2.yaml)

modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesFollow:
      other: "\)"
```

Notice that in Listing 373 the first sentence after the ) has not been accounted for, but that following the inclusion of Listing 375, the output given in Listing 374 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 368), and we can use the other field to define sentences to begin with other characters.

example 103  We use the file in Listing 376.

```
(Listing 376: multiple-sentences2.tex)

This is the first sentence.

$\alpha$ 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
```

then we obtain the respective output given in Listings 377 and 378.
6.2 oneSentencePerLine: modifying line breaks for sentences

LISTING 377: multiple-sentences2.tex using Listing 364 on page 95

This is the first sentence.

\$a\$ can represent a number. 7 is at the beginning of this sentence.

<table>
<thead>
<tr>
<th>LISTING 378: multiple-sentences2.tex using Listing 379</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the first sentence.</td>
</tr>
<tr>
<td>$a$ can represent a number. 7 is at the beginning of this sentence.</td>
</tr>
</tbody>
</table>

Notice that in Listing 377, the first sentence has been accounted for but that the subsequent sentences have not. In Listing 378, all of the sentences have been accounted for, because the other field in Listing 379 has defined sentences to begin with either \$ or any numeric digit, 0 to 9.

6.2.4 oneSentencePerLine: sentencesEndWith

example 104 Let's return to Listing 362 on page 95; we have already seen the default way in which latexindent.pl will operate on the sentences in this file in Listing 363 on page 95. We can populate the other field with any character that we wish; for example, using the YAML specified in Listing 381 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 380.

<table>
<thead>
<tr>
<th>LISTING 380: multiple-sentences.tex using Listing 381</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the first sentence.</td>
</tr>
<tr>
<td>This is the; second, sentence.</td>
</tr>
<tr>
<td>This is the third sentence.</td>
</tr>
<tr>
<td>This is the fourth sentence!</td>
</tr>
<tr>
<td>This is the fifth sentence?</td>
</tr>
<tr>
<td>This is the sixth sentence.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING 381: sentences-end1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>oneSentencePerLine:</td>
</tr>
<tr>
<td>manipulateSentences: 1</td>
</tr>
<tr>
<td>sentencesEndWith:</td>
</tr>
<tr>
<td>other: &quot;$|0-9&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING 382: multiple-sentences.tex using Listing 383</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is the first sentence.</td>
</tr>
<tr>
<td>This is the; second, sentence.</td>
</tr>
<tr>
<td>This is the third sentence.</td>
</tr>
<tr>
<td>This is the fourth sentence!</td>
</tr>
<tr>
<td>This is the fifth sentence?</td>
</tr>
<tr>
<td>This is the sixth sentence.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING 383: sentences-end2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>oneSentencePerLine:</td>
</tr>
<tr>
<td>manipulateSentences: 1</td>
</tr>
<tr>
<td>sentencesEndWith:</td>
</tr>
<tr>
<td>other: &quot;$|0-9&quot;</td>
</tr>
<tr>
<td>sentencesBeginWith:</td>
</tr>
<tr>
<td>a-z: 1</td>
</tr>
</tbody>
</table>
There is a subtle difference between the output in Listings 380 and 382; in particular, in Listing 380 the word sentence has not been defined as a sentence, because we have not instructed \texttt{latexindent.pl} to begin sentences with lower case letters. We have changed this by using the settings in Listing 383, and the associated output in Listing 382 reflects this.

Referencing Listing 369 on page 96, you’ll notice that there is a field called \texttt{basicFullStop}, which is set to 0, and that the \texttt{betterFullStop} is set to 1 by default.

\textbf{example 105} Let’s consider the file shown in Listing 384.

\begin{verbatim}
Listing 384: url.tex
This sentence, \url{tex.stackexchange.com/} finishes here. Second sentence.
\end{verbatim}

Upon running the following commands

\texttt{cmh:~$ latexindent.pl url -m -l=manipulate-sentences.yaml}

we obtain the output given in Listing 385.

\begin{verbatim}
Listing 385: url.tex using Listing 364 on page 95
This sentence, \url{tex.stackexchange.com/} finishes here. Second sentence.
\end{verbatim}

Notice that the full stop within the url has been interpreted correctly. This is because, within the \texttt{betterFullStop}, full stops at the end of sentences have the following properties:

\begin{itemize}
  \item they are ignored within \texttt{e.g.} and \texttt{i.e.};
  \item they can not be immediately followed by a lower case or upper case letter;
  \item they can not be immediately followed by a hyphen, comma, or number.
\end{itemize}

If you find that the \texttt{betterFullStop} does not work for your purposes, then you can switch it off by setting it to 0, and you can experiment with the \texttt{other} field. You can also seek to customise the \texttt{betterFullStop} routine by using the \texttt{fine tuning}, detailed in Listing 556 on page 141.

The \texttt{basicFullStop} routine should probably be avoided in most situations, as it does not accommodate the specifications above.

\textbf{example 106} For example, using the following command

\texttt{cmh:~$ latexindent.pl url -m -l=alt-full-stop1.yaml}

and the YAML in Listing 387 gives the output in Listing 386.

\begin{verbatim}
Listing 386: url.tex using Listing 387
This sentence, \url{tex.stackexchange.com/} finishes here. Second sentence.
\end{verbatim}

\begin{verbatim}
Listing 387: alt-full-stop1.yaml
modifyLineBreaks:
oneSentencePerLine:
  manipulateSentences: 1
  sentencesEndWith: 
    \texttt{basicFullStop}: 1
    \texttt{betterFullStop}: 0
\end{verbatim}

Notice that the full stop within the URL has not been accommodated correctly because of the non-default settings in Listing 387.

\textbf{6.2.5 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 107  For example, if we begin with the `.tex` file in Listing 388, and run the command

```
$ latexindent.pl multiple-sentences3 -m -l=manipulate-sentences.yaml
```

then we obtain the output in Listing 389.

<table>
<thead>
<tr>
<th>LISTING 388: multiple-sentences3.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first sentence continues after the verbatim</td>
</tr>
</tbody>
</table>
| `\begin{verbatim}
| there are sentences within this. These  |
| will not be operated  |
| `\end{verbatim}`  |
| and finishes here. Second sentence % a commented full stop. |
| contains trailing comments,  |
| which are ignored.  |

example 108  Furthermore, if sentences run across environments then, by default, the line breaks internal to the sentence will be removed. For example, if we use the `.tex` file in Listing 390 and run the commands

```
$ latexindent.pl multiple-sentences4 -m -l=manipulate-sentences.yaml
$ latexindent.pl multiple-sentences4 -m -l=keep-sen-line-breaks.yaml
```

then we obtain the output in Listings 391 and 392.

<table>
<thead>
<tr>
<th>LISTING 390: multiple-sentences4.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>This sentence</td>
</tr>
</tbody>
</table>
| `\begin{itemize}
| `\item continues  |
| `\end{itemize}`  |
| and finishes here.  |

<table>
<thead>
<tr>
<th>LISTING 391: multiple-sentences4.tex using Listing 364 on page 95</th>
</tr>
</thead>
<tbody>
<tr>
<td>This sentence <code>\begin{itemize} </code>\item continues <code>\end{itemize}</code> across itemize and finishes here.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING 392: multiple-sentences4.tex using Listing 366 on page 95</th>
</tr>
</thead>
<tbody>
<tr>
<td>This sentence <code>\begin{itemize} </code>\item continues <code>\end{itemize}</code> across itemize and finishes here.</td>
</tr>
</tbody>
</table>
example 109  Once you’ve read Section 6.3, you will know that you can accommodate the removal of internal sentence line breaks by using the YAML in Listing 394 and the command

```
\texttt{cmh:~\$ latexindent.pl multiple-sentences4 \ -m \ -l=item-rules2.yaml}
```

the output of which is shown in Listing 393.

```
\texttt{Listing 393: multiple-sentences4.tex}
\texttt{using Listing 394}
```

```
This sentence
\begin{itemize}
  \item continues
\end{itemize}
across itemize and finishes here.
```

6.2.6  oneSentencePerLine: text wrapping and indenting sentences

The oneSentencePerLine can be instructed to perform text wrapping and indentation upon sentences.

example 110  Let’s use the code in Listing 395.

```
\texttt{Listing 395: multiple-sentences5.tex}
```

```
A distin\c{c}ao entre conteudo \textit{real} e conteudo \textit{intencional} esta relacionada, ainda, a distin\c{c}ao entre o conceito husserliano de \textit{experi\c{c}ia} e o uso popular desse termo. No sentido comum, o \textit{experimentado} e um complexo de eventos exteriores, e o \textit{experimentar} consiste em percep\c{c}oes (alem de julgamentos e outros atos) nas quais tais eventos aparecem como objetos, e objetos frequentemente to the end.
```

Referencing Listing 397, and running the following command

```
\texttt{cmh:~\$ latexindent.pl multiple-sentences5 \ -m \ -l=sentence-wrap1.yaml}
```

we receive the output given in Listing 396.

```
\texttt{Listing 396: multiple-sentences5.tex using Listing 397}
```

```
A distin\c{c}ao entre conteudo \textit{real} e conteudo \textit{intencional} esta relacionada, ainda, a distin\c{c}ao entre o conceito husserliano de \textit{experi\c{c}ia} e o uso popular desse termo. No sentido comum, o \textit{experimentado} e um complexo de eventos exteriores, e o \textit{experimentar} consiste em percep\c{c}oes (alem de julgamentos e outros atos) nas quais tais eventos aparecem como objetos, e objetos frequentemente to the end.
```

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 111  The indentation of sentences requires that sentences are stored as code blocks. This means that you may need to tweak Listing 369 on page 96. Let’s explore this in relation to Listing 398.

<table>
<thead>
<tr>
<th>Listing 398: multiple-sentences6.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider the following:</td>
</tr>
<tr>
<td>\begin{itemize}</td>
</tr>
<tr>
<td>\item firstly.</td>
</tr>
<tr>
<td>\item secondly.</td>
</tr>
<tr>
<td>\end{itemize}</td>
</tr>
<tr>
<td>By default, \texttt{latexindent.pl} will find the full-stop within the first \texttt{item}, which means that, upon running the following commands</td>
</tr>
<tr>
<td>\texttt{cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml}</td>
</tr>
<tr>
<td>\texttt{cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml -y=&quot;modifyLineBreaks:oneSentencePerLine:sentenceIndent:''&quot;}</td>
</tr>
<tr>
<td>we receive the respective output in Listing 399 and Listing 400.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 399: multiple-sentences6-mod1.tex using Listing 397</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider the following: \begin{itemize} \item firstly. \item secondly. \end{itemize}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 400: multiple-sentences6-mod2.tex using Listing 397 and no sentence indentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consider the following: \begin{itemize} \item firstly. \item secondly. \end{itemize}</td>
</tr>
</tbody>
</table>

We note that Listing 399 the \texttt{itemize} code block has not been indented appropriately. This is because the oneSentencePerLine has been instructed to store sentences (because Listing 397); each sentence is then searched for code blocks.

example 112  We can tweak the settings in Listing 369 on page 96 to ensure that full stops are not followed by \texttt{item} commands, and that the end of sentences contains \texttt{\end{itemize}} as in Listing 401. This setting is actually an appended version of the betterFullStop from the fineTuning, detailed in Listing 556 on page 141.
6.2 oneSentencePerLine: modifying line breaks for sentences

Upon running

```bash
$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml,itemize.yaml
```

we receive the output in Listing 402.

Consider the following: \begin{itemize}
\item firstly.
\item secondly.
\end{itemize}

Notice that the sentence has received indentation, and that the \texttt{itemize} code block has been found and indented correctly.

Text wrapping when using the \texttt{oneSentencePerLine} routine determines if it will remove line breaks while text wrapping, from the value of \texttt{removeSentenceLineBreaks}.
6.2.7 oneSentencePerLine: text wrapping and indenting sentences, when before/after

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 113** Let's begin with the file in Listing 403.

```
\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 405 and running the command

```
cmh:~$ latexindent.pl multiple-sentences8.tex -o=+-mod1.tex -l=sentence-wrap2 -m
```

gives the output given in Listing 404.

```
\begin{myenv}
This paragraph has line breaks throughout its paragraph; we would like to combine the textwrapping and paragraph removal routine.
\end{myenv}
```

We note that, in Listing 404, that the wrapped text has exceeded the specified value of columns (35) given in Listing 405. We can affect this by changing when; we explore this next.

**example 114** We continue working with Listing 403.

Using the settings given in Listing 407 and running the command

```
cmh:~$ latexindent.pl multiple-sentences8.tex -o=+-mod2.tex -l=sentence-wrap3 -m
```

gives the output given in Listing 406.
We note that, in Listing 406, that the wrapped text has obeyed the specified value of columns (35) given in Listing 407.

### 6.2.8 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 115** Let's begin with the file in Listing 408.

Listing 408: 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 410 and running the command

```
$ latexindent .
multiple-sentences9 -o=+-mod1.tex -l=sentence-wrap4 -m
```

gives the output given in Listing 409.

We note that, in Listing 409, that the sentences have been wrapped, and so too have the comments because of the annotated line in Listing 410.

### 6.3 Poly-switches

Every other field in the modifyLineBreaks field uses poly-switches, and can take one of the following integer values:
6.3 Poly-switches

- 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>`;

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>`;

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 54. 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 411; note that it contains global settings (immediately after the `environments` field) and that per-name settings are also allowed – in the case of Listing 411, settings for `equation*` have been specified for demonstration. Note that all poly-switches are off (set to 0) by default.

#### Listing 411: environments

<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>557</td>
<td>environments:</td>
<td></td>
</tr>
<tr>
<td>558</td>
<td><code>BeginStartsOnOwnLine</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>559</td>
<td><code>BodyStartsOnOwnLine</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>560</td>
<td><code>EndStartsOnOwnLine</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>561</td>
<td><code>EndFinishesWithLineBreak</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>562</td>
<td><code>equation*</code>:</td>
<td></td>
</tr>
<tr>
<td>563</td>
<td><code>BeginStartsOnOwnLine</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>564</td>
<td><code>BodyStartsOnOwnLine</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>565</td>
<td><code>EndStartsOnOwnLine</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
<tr>
<td>566</td>
<td><code>EndFinishesWithLineBreak</code>: 0</td>
<td># -1,0,1,2,3,4</td>
</tr>
</tbody>
</table>

Let’s begin with the simple example given in Listing 412; note that we have annotated key parts of the file using ♠, ♥, ♦ and ♣, these will be related to fields specified in Listing 411.

#### Listing 412: 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 116

Let’s explore `BeginStartsOnOwnLine` and `BodyStartsOnOwnLine` in Listings 413 and 414, and in particular, let’s allow each of them in turn to take a value of 1.

#### Listing 413: env-mlb1.yaml

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

#### Listing 414: env-mlb2.yaml

```
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 415 and 416 respectively.

There are a couple of points to note:

- in Listing 415 a line break has been added at the point denoted by ♠ in Listing 412; no other line breaks have been changed;
- in Listing 416 a line break has been added at the point denoted by ♥ in Listing 412; furthermore, note that the body of myenv has received the appropriate (default) indentation.

**example 117** Let's now change each of the 1 values in Listings 413 and 414 so that they are 2 and save them into env-mlb3.yaml and env-mlb4.yaml respectively (see Listings 417 and 418).

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 419 and 420.

Note that line breaks have been added as in Listings 415 and 416, 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 118** Let's now change each of the 1 values in Listings 413 and 414 so that they are 3 and save them into env-mlb5.yaml and env-mlb6.yaml respectively (see Listings 421 and 422).

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 423 and 424.
Let's now change each of the values in Listings 421 and 422 so that they are 4 and save them into `env-beg4.yaml` and `env-body4.yaml` respectively (see Listings 425 and 426).

We will demonstrate this poly-switch value using the code in Listing 427.

Upon running the commands:

```
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-beg4.yaml
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-body4.yaml
```

then we receive the respective outputs in Listings 428 and 429.

We note in particular that, by design, for this value of the poly-switches:

1. in Listing 428 a blank line has been inserted before the `\begin` statement, even though the `\begin` statement was already on its own line;
2. in Listing 429 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`

Let's explore `EndStartsOnOwnLine` and `EndFinishesWithLineBreak` in Listings 430 and 431, and in particular, let's allow each of them in turn to take a value of 1.
### 6.3 Poly-switches

After running the following commands,

```bash
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 432 and 433.

#### Listings 432 and 433

- **Listing 432**: `env-mlb.tex` using Listing 430
  - Before words: `\begin{myenv}body of myenv\end{myenv}`
  - After words:

- **Listing 433**: `env-mlb.tex` using Listing 431
  - Before words: `\begin{myenv}body of myenv\end{myenv}`
  - After words:

There are a couple of points to note:

- in Listing 432 a line break has been added at the point denoted by ♦ in Listing 412 on page 106; no other line breaks have been changed and the `\end{myenv}` statement has *not* received indentation (as intended);
- in Listing 433 a line break has been added at the point denoted by ♣ in Listing 412 on page 106.

### Example 121

Let’s now change each of the 1 values in Listings 430 and 431 so that they are 2 and save them into `env-mlb9.yaml` and `env-mlb10.yaml` respectively (see Listings 434 and 435).

#### Listings 434 and 435

- **Listing 434**: `env-mlb9.yaml`
  - Before words: `modifyLineBreaks:
environments:
  EndStartsOnOwnLine: 2`

- **Listing 435**: `env-mlb10.yaml`
  - Before words: `modifyLineBreaks:
environments:
  EndFinishesWithLineBreak: 2`

Upon running the commands

```bash
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 436 and 437.

#### Listings 436 and 437

- **Listing 436**: `env-mlb.tex` using Listing 434
  - Before words: `\begin{myenv}body of myenv%\
    \end{myenv}`
  - After words:

- **Listing 437**: `env-mlb.tex` using Listing 435
  - Before words: `\begin{myenv}body of myenv%\end{myenv}`
  - After words:

Note that line breaks have been added as in Listings 432 and 433, 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 122

Let’s now change each of the 1 values in Listings 430 and 431 so that they are 3 and save them into `env-mlb11.yaml` and `env-mlb12.yaml` respectively (see Listings 438 and 439).
6.3 Poly-switches

<table>
<thead>
<tr>
<th>Listing 438: env-mlb1.yaml</th>
<th>Listing 439: env-mlb2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>modifyLineBreaks:</td>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>environments:</td>
<td>environments:</td>
</tr>
<tr>
<td>EndStartsOnOwnLine: 3</td>
<td>EndFinishesWithLineBreak: 3</td>
</tr>
</tbody>
</table>

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-mlb1.yaml
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-mlb2.yaml
```

we obtain Listings 440 and 441.

<table>
<thead>
<tr>
<th>Listing 440: env-mlb.tex using Listing 438</th>
<th>Listing 441: env-mlb.tex using Listing 439</th>
</tr>
</thead>
<tbody>
<tr>
<td>before words \begin{myenv}body of myenv</td>
<td>before words \begin{myenv}body of myenv\end{myenv}</td>
</tr>
<tr>
<td>\end{myenv} after words</td>
<td>after words</td>
</tr>
</tbody>
</table>

Note that line breaks have been added as in Listings 432 and 433, and that a blank line has been added after the line break.

**Example 123**

Let’s now change each of the 1 values in Listings 438 and 439 so that they are 4 and save them into env-end4.yaml and env-end-f4.yaml respectively (see Listings 442 and 443).

<table>
<thead>
<tr>
<th>Listing 442: env-end4.yaml</th>
<th>Listing 443: env-end-f4.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>modifyLineBreaks:</td>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>environments:</td>
<td>environments:</td>
</tr>
<tr>
<td>EndStartsOnOwnLine: 4</td>
<td>EndFinishesWithLineBreak: 4</td>
</tr>
</tbody>
</table>

We will demonstrate this poly-switch value using the code from Listing 427 on page 108.

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-end4.yaml
cmh:~$ latexindent.pl -m env-mlb1.tex -l env-end-f4.yaml
```

then we receive the respective outputs in Listings 444 and 445.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>before words \begin{myenv}body of myenv</td>
<td>before words \begin{myenv}body of myenv\end{myenv}</td>
</tr>
<tr>
<td>\end{myenv} after words</td>
<td>after words</td>
</tr>
</tbody>
</table>

We note in particular that, by design, for this value of the poly-switches:

1. in Listing 444 a blank line has been inserted before the \end statement, even though the \end statement was already on its own line;
2. in Listing 445 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 124 For example, if you process the file in Listing 446 using poly-switch values of 1, 2, or 3, it will be left unchanged.

<table>
<thead>
<tr>
<th>Listing 446: env-mlb2.tex</th>
<th>Listing 447: env-mlb3.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>before words</td>
<td>before words</td>
</tr>
<tr>
<td>\begin{myenv}</td>
<td>\begin{myenv} %</td>
</tr>
<tr>
<td>body of myenv</td>
<td>body of myenv %</td>
</tr>
<tr>
<td>\end{myenv}</td>
<td>\end{myenv} %</td>
</tr>
<tr>
<td>after words</td>
<td>after words</td>
</tr>
</tbody>
</table>

Setting the poly-switches to a value of 4 instructs latexindent.pl to add a line break even if the \texttt{<part of thing>} is already on its own line; see Listings 428 and 429 and Listings 444 and 445.

example 125 In contrast, the output from processing the file in Listing 447 will vary depending on the poly-switches used; in Listing 448 you’ll see that the comment symbol after the \texttt{\begin{myenv}} has been moved to the next line, as BodyStartsOnOwnLine is set to 1. In Listing 449 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 447 and by setting the other poly-switches considered so far to 2 in turn.

<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>before words</td>
<td>before words</td>
</tr>
<tr>
<td>\begin{myenv} %</td>
<td>\begin{myenv} %</td>
</tr>
<tr>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>body of myenv %</td>
<td>body of myenv %</td>
</tr>
<tr>
<td>\end{myenv} %</td>
<td>\end{myenv} %</td>
</tr>
<tr>
<td>after words</td>
<td>after words</td>
</tr>
</tbody>
</table>

The details of the discussion in this section have concerned \textit{global} poly-switches in the \texttt{environments} field; each switch can also be specified on a \textit{per-name} basis, which would take priority over the global values; with reference to Listing 411 on page 106, an example is shown for the \texttt{equation*} environment.

6.3.1.4 Removing line breaks (poly-switches set to \texttt{-1})

Setting poly-switches to \texttt{-1} tells latexindent.pl to remove line breaks of the \texttt{<part of thing>}, if necessary.

example 126 We will consider the example code given in Listing 450, noting in particular the positions of the line break highlighters, ♠, ♥, ♦ and ♣, together with the associated YAML files in Listings 451 to 454.
6.3 Poly-switches

After running the commands

```bash
$ latexindent.pl -m env-mlb4.tex -l env-mlb13.yaml
$ latexindent.pl -m env-mlb4.tex -l env-mlb14.yaml
$ latexindent.pl -m env-mlb4.tex -l env-mlb15.yaml
$ latexindent.pl -m env-mlb4.tex -l env-mlb16.yaml
```

we obtain the respective output in Listings 455 to 458.

Notice that in:
- Listing 455 the line break denoted by ♠ in Listing 450 has been removed;
- Listing 456 the line break denoted by ♥ in Listing 450 has been removed;
- Listing 457 the line break denoted by ♦ in Listing 450 has been removed;
- Listing 458 the line break denoted by ♣ in Listing 450 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 451 to 454 into one file; alternatively, you could tell `latexindent.pl` to load them all by using the following command, for example

```bash
```
6.3 Poly-switches

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 127 We consider the file shown in Listing 459, which highlights trailing spaces.

Listing 459: env-mlb5.tex

```latex
\begin{myenv}
body of myenv
\end{myenv}
```

Listing 460: removeTWS-before.yaml

```yaml
removeTrailingWhitespace:
beforeProcessing: 1
```

The output from the following commands

```
```

which gives the output in Listing 412 on page 106.

is shown, respectively, in Listings 461 and 462; note that the trailing horizontal white space has been preserved (by default) in Listing 461, while in Listing 462, it has been removed using the switch specified in Listing 460.

Listing 461: env-mlb5.tex using Listings 455 to 458

```
before_words\\begin{myenv}body of myenv\end{myenv}after_words
```

Listing 462: env-mlb5.tex using Listings 455 to 458 and Listing 460

```
before_wordsbegin{myenv}body of myenv\end{myenv}after_words
```

6.3.1.6 poly-switch line break removal and blank lines

example 128 Now let’s consider the file in Listing 463, which contains blank lines.

Listing 463: env-mlb6.tex

```
before words\\begin{myenv}body of myenv\end{myenv}after words
```

Listing 464: UnpreserveBlankLines.yaml

```
modifyLineBreaks:
preserveBlankLines: 0
```

Upon running the following commands
we receive the respective outputs in Listings 465 and 466. In Listing 465 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 466, we have allowed the poly-switches to remove blank lines because, in Listing 464, we have set preserveBlankLines to 0.

example 129  We can explore this further using the blank-line poly-switch value of 3; let’s use the file given in Listing 467.

Upon running the following commands

we receive the outputs given in Listings 468 and 469.

Notice that in:

• Listing 468 that \end{one} has added a blank line, because of the value of EndFinishesWithLineBreak in Listing 439 on page 110, and even though the line break ahead of \begin{two} should have been removed (because of BeginStartsOnOwnLine in Listing 451 on page 112), the blank line has been preserved by default;
• Listing 469, by contrast, has had the additional line-break removed, because of the settings in Listing 464.
6.3.2 Poly-switches for double backslash

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 47).

Consider the code given in Listing 470.

```latex
\begin{tabular}{cc}
  1 & 2 \star \square & 3 & 4 \star \square \\
\end{tabular}
```

Referencing Listing 470:

- DBS stands for *double backslash*;
- line breaks ahead of the double backslash are annotated by \star, and are controlled by `DBSStartsOnOwnLine`;
- line breaks after the double backslash are annotated by \square, and are controlled by `DBSFinishesWithLineBreak`.

Let’s explore each of these in turn.

### 6.3.2.1 Double backslash starts on own line

**example 130** We explore `DBSStartsOnOwnLine` (\star in Listing 470); starting with the code in Listing 470, together with the YAML files given in Listing 472 and Listing 474 and running the following commands

```bash
$c mh:~$ latexindent.pl -m tabular3.tex -l DBS1.yaml
$c mh:~$ latexindent.pl -m tabular3.tex -l DBS2.yaml
```

then we receive the respective output given in Listing 471 and Listing 473.

**listing 471: tabular3.tex using Listing 472**

```latex
\begin{tabular}{cc}
  1 & 2 \star \square & 3 & 4 \star \square \\
\end{tabular}
```

**listing 472: DBS1.yaml**

```yaml
modifyLineBreaks:
  environments:
    DBSStartsOnOwnLine: 1
```

**listing 473: tabular3.tex using Listing 474**

```latex
\begin{tabular}{cc}
  1 & 2 \%
  \% 3 & 4\%
  \%
\end{tabular}
```

**listing 474: DBS2.yaml**

```yaml
modifyLineBreaks:
  environments:
    tabular:
      DBSStartsOnOwnLine: 2
```

We note that

- Listing 472 specifies `DBSStartsOnOwnLine` for every environment (that is within `lookForAlignDelims`, Listing 62 on page 34); the double backslashes from Listing 470 have been moved to their own line in Listing 471;
- Listing 474 specifies `DBSStartsOnOwnLine` on a *per-name* basis for `tabular` (that is within `lookForAlignDelims`, Listing 62 on page 34); the double backslashes from Listing 470 have been moved to their own line in Listing 473, having added comment symbols before

---

Footnote: There is no longer any need for the code block to be specified within `lookForAlignDelims` for DBS poly-switches to activate.
moving them.

**Example 131** 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 475, and using the settings in Listings 131 and 133 on page 46 and running

```bash
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 476 and 477.

**Listing 475:** `tabular6.tex`

```latex
\begin{tabular}{cc}
1 & 22 \\
333 & 4444 \\
55555 & 666666
\end{tabular}
```

**Listing 476:** `tabular6-mod1.tex`

```latex
\begin{tabular}{cc}
1 & 22 \\
333 & 4444 \\
55555 & 666666
\end{tabular}
```

**Listing 477:** `tabular6-mod2.tex`

```latex
\begin{tabular}{cc}
1 & 22 \\
333 & 4444 \\
55555 & 666666
\end{tabular}
```

We note that:

- in Listing 476 the content after the double back slash has been aligned;
- in Listing 477 we see that 3 spaces have been added after the double back slash.

### 6.3.2.2 Double backslash finishes with line break

**Example 132** Let's now explore `DBSFinishesWithLineBreak` (□ in Listing 470); starting with the code in Listing 470, together with the YAML files given in Listing 479 and Listing 481 and running the following commands

```bash
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 478 and Listing 480.

**Listing 478:** `tabular3.tex` using Listing 479

```latex
\begin{tabular}{cc}
1 & 2 \\
3 & 4 \\
\end{tabular}
```

**Listing 479:** `DBS3.yaml`

```
modifyLineBreaks:
environments:
  DBSFinishesWithLineBreak: 1
```

**Listing 480:** `tabular3.tex` using Listing 481

```latex
\begin{tabular}{cc}
1 & 2 \\
3 & 4 \\
\end{tabular}
```

**Listing 481:** `DBS4.yaml`

```
modifyLineBreaks:
environments:
  tabular:
    DBSFinishesWithLineBreak: 2
```

We note that:

- Listing 479 specifies `DBSFinishesWithLineBreak` for every environment (that is within `lookForAlignDelims`, Listing 62 on page 34); the code following the double backslashes from Listing 470 has been moved to their own line in Listing 478;
• Listing 481 specifies DBSFinishesWithLineBreak on a per-name basis for tabular (that is within lookForAlignDelims, Listing 62 on page 34); the first double backslashes from Listing 470 have moved code following them to their own line in Listing 480, 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 133 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 482.

\begin{verbatim}
\begin{tabular}{llll}
  a & =b \\
  & =c \\
  & =d \\
  & =e \\
\end{tabular}
\end{verbatim}

Upon using the YAML settings in Listing 484, and running the command

\texttt{cmh:~$ latexindent.pl -m special4.tex -l DBS5.yaml}

then we receive the output given in Listing 483.

\begin{verbatim}
\begin{tabular}{llll}
  a & =b \\
  & =c \\
  & =d \\
  & =e \\
\end{tabular}
\end{verbatim}

\begin{verbatim}

specialBeginEnd:
  cmhMath:
    lookForThis: 1
    begin: '\<'
    end: '\>
lookForAlignDelims:
  cmhMath: 1
modifyLineBreaks:
  specialBeginEnd:
    cmhMath:
      DBSFinishesWithLineBreak: 1
      SpecialBodyStartsOnOwnLine: 1
      SpecialEndStartsOnOwnLine: 2
\end{verbatim}

There are a few things to note:

• in Listing 484 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 134 We use with the code in Listing 485.
6.3 Poly-switches

Upon using the YAML settings in Listings 487 and 489, and running the command

```
cmh:~$ latexindent.pl -m mycommand2.tex -l DBS6.yaml
```
then we receive the output given in Listings 486 and 488.

### 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 135**

For example, beginning with the code in Listing 490

```
\begin{pmatrix}
1 & 2 \[2pt] 3 & 4 \[3 ex] 5\&6\[4 pt] 7 & 8
\end{pmatrix}
```

and running the following command, using Listing 479,

```
cmh:~$ latexindent.pl -m pmatrix3.tex -l DBS3.yaml
```
then we receive the output given in Listing 491.
You can customise the pattern for the double backslash by exploring the fine tuning field detailed in Listing 556 on page 141.

### 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 106), 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.

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

<table>
<thead>
<tr>
<th>Code block</th>
<th>Sample</th>
<th>Poly-switch mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td>environment</td>
<td>\begin{myenv}</td>
<td>\begin{StartsOnOwnLine} \BodyStartsOnOwnLine \EndStartsOnOwnLine \EndFinishesWithLineBreak</td>
</tr>
<tr>
<td></td>
<td>\end{myenv}</td>
<td></td>
</tr>
<tr>
<td></td>
<td>\item</td>
<td>\item</td>
</tr>
<tr>
<td>if/elsefi</td>
<td>\begin{verbatim}</td>
<td>\begin{verbatim}</td>
</tr>
<tr>
<td></td>
<td>\end{verbatim}</td>
<td></td>
</tr>
<tr>
<td>optionalArguments</td>
<td>...</td>
<td>\begin{verbatim}</td>
</tr>
<tr>
<td></td>
<td>[</td>
<td></td>
</tr>
<tr>
<td></td>
<td>]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>\or</td>
<td>\or</td>
</tr>
<tr>
<td></td>
<td>\else</td>
<td>\else</td>
</tr>
<tr>
<td></td>
<td>\fi</td>
<td>\fi</td>
</tr>
<tr>
<td>mandatoryArguments</td>
<td>...</td>
<td>\begin{verbatim}</td>
</tr>
<tr>
<td></td>
<td>{</td>
<td></td>
</tr>
<tr>
<td></td>
<td>]</td>
<td></td>
</tr>
<tr>
<td>commands</td>
<td>\begin{verbatim}</td>
<td>\begin{verbatim}</td>
</tr>
<tr>
<td></td>
<td>\end{verbatim}</td>
<td></td>
</tr>
<tr>
<td>namedGroupingBracesBrackets</td>
<td>before words\begin{myenv}myname{braces/brackets}</td>
<td>\begin{verbatim} \begin{verbatim} \NameStartsOnOwnLine \NameFinishesWithLineBreak</td>
</tr>
<tr>
<td>keyEqualsValuesBracesBrackets</td>
<td>before words\begin{verbatim}key={braces/brackets}</td>
<td>\begin{verbatim} \begin{verbatim} \KeyStartsOnOwnLine \KeyFinishesWithLineBreak</td>
</tr>
<tr>
<td>items</td>
<td>\item</td>
<td>\item</td>
</tr>
<tr>
<td>specialBeginEnd</td>
<td>\begin{verbatim}</td>
<td>\begin{verbatim}</td>
</tr>
<tr>
<td></td>
<td>\end{verbatim}</td>
<td></td>
</tr>
<tr>
<td>verbatim</td>
<td>before words\begin{verbatim}{verbatim}begin\end{verbatim}</td>
<td>\begin{verbatim} \begin{verbatim} \VerbatimBeginStartsOnOwnLine \VerbatimFinishsOnOwnLine</td>
</tr>
</tbody>
</table>

---

7. LSqB stands for Left Square Bracket
8. LCuB stands for Left Curly Brace
6.3 Poly-switches

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 previous page) and LCuBStartsOnOwnLine for mandatory arguments, and LSqBStartsOnOwnLine for optional arguments.

example 136 Let’s begin with the code in Listing 492 and the YAML settings in Listing 494; with reference to Table 3 on the preceding page, the key CommandNameFinishesWithLineBreak is an alias for BodyStartsOnOwnLine.

Upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb1.yaml mycommand1.tex
```

we obtain Listing 493; note that the second mandatory argument beginning brace { has had its leading line break removed, but that the first brace has not.

example 137 Now let’s change the YAML file so that it is as in Listing 496; upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb2.yaml mycommand1.tex
```

we obtain Listing 495; both beginning braces { have had their leading line breaks removed.

example 138 Now let’s change the YAML file so that it is as in Listing 498; upon running the command
we obtain Listing 497.

Listing 497: mycommand1.tex using Listing 498

```
\mycommand
{mand arg text
 mand arg text}
{mand arg text
 mand arg text}
```

6.3.5 Conflicting poly-switches: sequential code blocks

It is very easy to have conflicting poly-switches.

element 139 We use the example from Listing 492 on the previous page, and consider the YAML settings given in Listing 500. The output from running

```
cmh:~$ latexindent.pl -m -l=mycom-mlb4.yaml mycommand1.tex
```

is given in Listing 500.

Listing 500: mycom-mlb4.yaml

```
modifyLineBreaks:
 mandatoryArguments:
  LCuBStartsOnOwnLine: -1
  RCuBFinishesWithLineBreak: 1
```

Studying Listing 500, 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 499, 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 140 We can explore this further by considering the YAML settings in Listing 502; upon running the command

```
cmh:~$ latexindent.pl -m -l=mycom-mlb5.yaml mycommand1.tex
```

we obtain the output given in Listing 501.
6.3 Poly-switches

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 504, and run the command

```bash
cmh:~$ latexindent.pl -m -l=mycom-mlb6.yaml mycommand1.tex
```

which gives the output in Listing 503.

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 141** Now let's consider an example when nested code blocks have conflicting poly-switches; we'll use the code in Listing 505, noting that it contains nested environments.

```latex
\begin{one}
one text
\begin{two}
two text
\end{two}
\end{one}
```

Let's use the YAML settings given in Listing 507, which upon running the command

```bash
cmh:~$ latexindent.pl -m -l=nested-env-mlb1.yaml nested-env.tex
```

gives the output in Listing 506.
In Listing 506, 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 \texttt{latexindent.pl}:

1. Phase 1: packing, in which code blocks are replaced with unique ids, working from \textit{the inside to the outside}, and then sequentially – for example, in Listing 505, the \texttt{two} environment is found \textit{before} the \texttt{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 \textit{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 \textit{NOT} added (see EndFinishesWithLineBreak).

With reference to Listing 506, this means that during Phase 1:

• the \texttt{two} environment is found first, and the line break ahead of the \texttt{\end{two}} statement is removed because EndStartsOnOwnLine is set to $-1$. Importantly, because, \textit{at this stage}, \texttt{\end{two}} does finish with a line break, EndFinishesWithLineBreak causes no action.

• next, the \texttt{one} environment is found; the line break ahead of \texttt{\end{one}} is removed because EndStartsOnOwnLine is set to $-1$.

The indentation is done in Phase 2; in Phase 3 \textit{there is no option to add a line break after the end statements}. We can justify this by remembering that during Phase 3, the \texttt{one} environment will be found and processed first, followed by the \texttt{two} environment. If the \texttt{two} environment were to add a line break after the \texttt{\end{two}} statement, then latexindent.pl would have no way of knowing how much indentation to add to the subsequent text (in this case, \texttt{\end{one}}).

\textbf{example 142} We can explore this further using the poly-switches in Listing 509; upon running the command

\begin{verbatim}
cmh:~$ latexindent.pl -m -l=nested-env-mlb2.yaml nested-env.tex
\end{verbatim}

we obtain the output given in Listing 508.
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.

```latex
\begin{one}
  one text
  \begin{two}
    two text
  \end{two}
\end{one}
```
SECTION 7

The -r, -rv and -rr switches

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>
<thead>
<tr>
<th>switch</th>
<th>indentation?</th>
<th>respect verbatim?</th>
</tr>
</thead>
<tbody>
<tr>
<td>-r</td>
<td>✓</td>
<td>×</td>
</tr>
<tr>
<td>-rv</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>-rr</td>
<td>×</td>
<td>×</td>
</tr>
</tbody>
</table>

The default value of the replacements field is shown in Listing 510; 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 510.

<table>
<thead>
<tr>
<th>Listing 510: replacements</th>
</tr>
</thead>
<tbody>
<tr>
<td>replacements:</td>
</tr>
<tr>
<td>-</td>
</tr>
<tr>
<td>amalgamate: 1</td>
</tr>
<tr>
<td>this: latexindent.pl</td>
</tr>
<tr>
<td>that: pl.latexindent</td>
</tr>
<tr>
<td>lookForThis: 0</td>
</tr>
<tr>
<td>when: before</td>
</tr>
</tbody>
</table>

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 143  Beginning with the code in Listing 511 and running the command

cmh:~$ latexindent.pl -r replace1.tex
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.

7.3 Examples of replacements

element 144 We begin with code given in Listing 515

```latex
\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.

```bash
$ latexindent.pl -r replace1.tex -l=replace1.yaml
```

which gives the output in Listing 513.

```yaml
replacements:
- amalgamate: 0
- this: latexindent.pl
  that: pl.latexindent
  lookForThis: 1
```

Note that in Listing 514 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.
Using the YAML in Listing 517, and running the command

```bash
cmh:~$ latexindent.pl -r colsep.tex -l=colsep.yaml
```

then we achieve the output in Listing 516.

**Listing 516: colsep.tex using Listing 515**

```latex
\begin{env}
  1 2 3
  4 5 6
\end{env}
```

**Listing 517: colsep.yaml**

replacements:
- this: \arraycolsep=3pt
- this: \arraycolsep=5pt

Note that in Listing 517, 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 517 more concise by exploring the substitution field. Using the settings in Listing 519 and running the command

```bash
cmh:~$ latexindent.pl -r colsep.tex -l=colsep1.yaml
```

then we achieve the output in Listing 518.

**Listing 518: colsep.tex using Listing 519**

```latex
\begin{env}
  1 2 3
  4 5 6
\end{env}
```

**Listing 519: colsep1.yaml**

replacements:
- substitution: s/\arraycolsep=\d+pt//sg

The code given in Listing 519 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 519, 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 519 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 145** We'll keep working with the file in Listing 515 on the previous page for this example.

Using the YAML in Listing 521, and running the command
7.3 Examples of replacements

then we achieve the output in Listing 520.

With reference to Listing 521, 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 510 on page 126. 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 523, and running the command

then we achieve the output in Listing 522.

We note that, because we have specified when: after, that latexindent.pl has not found the string specified in Listing 523 within the file in Listing 515 on page 127. As it has looked for the string within Listing 523 after the indentation has been performed. After indentation, the string as written in Listing 523 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,

then the when field is ignored, no indentation is done, and the output is as in Listing 520.

example 146

An important part of the substitution routine is in capture groups.

Assuming that we start with the code in Listing 524, 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.
7.3 Examples of replacements

<table>
<thead>
<tr>
<th>Listing 524: displaymath.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>before text $$a^2+b^2=4$$ and $$c^2$$</td>
</tr>
<tr>
<td>$$d^2+e^2 = f^2$$</td>
</tr>
<tr>
<td>and also $$g^2$$</td>
</tr>
<tr>
<td>$$h\text{ inline math: }h^2$$</td>
</tr>
</tbody>
</table>

We use the settings in Listing 526 and run the command

```
$ latexindent.pl -r displaymath.tex -l=displaymath1.yaml
```

to receive the output given in Listing 525.

<table>
<thead>
<tr>
<th>Listing 525: displaymath.tex using Listing 526</th>
</tr>
</thead>
<tbody>
<tr>
<td>before text \begin{equation*}a^2+b^2=4\end{equation*} and \begin{equation*}c^2\end{equation*}</td>
</tr>
<tr>
<td>\begin{equation*}d^2+e^2 = f^2\end{equation*}</td>
</tr>
<tr>
<td>and also \begin{equation*}g^2\end{equation*}</td>
</tr>
<tr>
<td>and some inline math: $h^2$</td>
</tr>
</tbody>
</table>

A few notes about Listing 526:

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](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 105, which we do in Listing 528; upon running the command

```
$ latexindent.pl -r -m displaymath.tex -l=displaymath1.yaml,equation.yaml
```

then we receive the output in Listing 527.
### 7.3 Examples of replacements

**Listing 527:** displaymath.tex using Listings 526 and 528

```latex
\begin{equation*}
\begin{align*}
a^2 + b^2 &= 4 \\
c^2 &= d^2 + e^2 = f^2 \\
g &= \end{equation*}
and some inline math: $h^2$
```

---

**example 147** This example is motivated by tex.stackexchange question 490086. We begin with the code in Listing 529.

**Listing 529:** phrase.tex

```latex
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 531, and run the command

```
$c\mathrm{mh}:\sim\$ latexindent.pl -r phrase.tex -l=hspace.yaml
```

which gives the output in Listing 530.

**Listing 530:** phrase.tex using Listing 531

```latex
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
```

The `\h+` setting in Listing 531 say to replace at least one horizontal space with a single space.

---

**example 148** We begin with the code in Listing 532.

**Listing 528:** equation.yaml

```yaml
modifyLineBreaks:
environments:
equation:  
  BeginStartsOnOwnLine: 2
  BodyStartsOnOwnLine: 2
  EndStartsOnOwnLine: 2
  EndFinishesWithLineBreak: 2
```

---

**Listing 531:** hspace.yaml

```yaml
replacements:  
  - substitution: s/\h+/ /sg
```

---

---
7.3 Examples of replacements

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 534 and running the command

```shell
$ latexindent -r references.tex -l=reference.yaml
```

which gives the output in Listing 533.

Referencing Listing 534, the | means or, we have used capture groups, together with an example of an optional pattern, (?:eq)?.

**example 149** Let’s explore the three replacement mode switches (see Table 4 on page 126) in the context of an example that contains a verbatim code block, Listing 535; we will use the settings in Listing 536.

Upon running the following commands,

```shell
$ latexindent -r verb1.tex -l=verbatim1.yaml -o=+mod1
$ latexindent -rv verb1.tex -l=verbatim1.yaml -o=+-rv-mod1
$ latexindent -rr verb1.tex -l=verbatim1.yaml -o=+-rr-mod1
```
7.3 Examples of replacements

we receive the respective output in Listings 537 to 539

<table>
<thead>
<tr>
<th>Listing 537: verb1-mod1.tex</th>
<th>Listing 538: verb1-rv-mod1.tex</th>
<th>Listing 539: verb1-rr-mod1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{myenv}</td>
<td>\begin{myenv}</td>
<td>\begin{myenv}</td>
</tr>
<tr>
<td>head of verbatim</td>
<td>head of verbatim</td>
<td>head of verbatim</td>
</tr>
<tr>
<td>some verbatim</td>
<td>\begin{verbatim}</td>
<td>some verbatim</td>
</tr>
<tr>
<td>head</td>
<td>text</td>
<td>body</td>
</tr>
<tr>
<td>\end{verbatim}</td>
<td></td>
<td>of verbatim</td>
</tr>
<tr>
<td>text</td>
<td>\end{verbatim}</td>
<td>text</td>
</tr>
<tr>
<td>\end{verbatim}</td>
<td>text</td>
<td>text</td>
</tr>
</tbody>
</table>

We note that:

1. in Listing 537 indentation has been performed, and that the replacements specified in Listing 536 have been performed, even within the verbatim code block;
2. in Listing 538 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 539 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 126.

**example 150** Let’s explore the amalgamate field from Listing 510 on page 126 in the context of the file specified in Listing 540.

<table>
<thead>
<tr>
<th>Listing 540: amalg1.tex</th>
</tr>
</thead>
<tbody>
<tr>
<td>one two three</td>
</tr>
</tbody>
</table>

Let’s consider the YAML files given in Listings 541 to 543.

<table>
<thead>
<tr>
<th>Listing 541: amalg1-yaml.yaml</th>
<th>Listing 542: amalg2-yaml.yaml</th>
<th>Listing 543: amalg3-yaml.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>replacements:</td>
<td>replacements:</td>
<td>replacements:</td>
</tr>
<tr>
<td>- this: one</td>
<td>- this: two</td>
<td>- amalgamate: 0</td>
</tr>
<tr>
<td>that: 1</td>
<td>that: 2</td>
<td>- this: three</td>
</tr>
<tr>
<td></td>
<td></td>
<td>that: 3</td>
</tr>
</tbody>
</table>

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 544 to 546.

<table>
<thead>
<tr>
<th>Listing 544: amalg1.tex using Listing 541</th>
<th>Listing 545: amalg1.tex using Listings 541 and 542</th>
<th>Listing 546: amalg1.tex using Listings 541 to 543</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 two three</td>
<td>1 2 three</td>
<td>one two 3</td>
</tr>
</tbody>
</table>

We note that:

1. in Listing 544 the replacements from Listing 541 have been used;
2. in Listing 545 the replacements from Listings 541 and 542 have both been used, because
the default value of `amalgamate` is 1;

3. in Listing 546 only the replacements from Listing 543 have been used, because the value of `amalgamate` has been set to 0.
Section 8

The –lines switch

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

```
$ latexindent.pl --lines 3-7 myfile.tex
$ 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 547.

**Listing 547: 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 151** We demonstrate the basic usage using the command

```
$ 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 548.
Before the environments
\begin{one}
  first block, first line
  first block, second line
  first block, third line
\end{one}

\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:

```
$ latexindent.pl --lines 3-7 myfile.tex -o=+-mod1
$ latexindent.pl --lines 7-3 myfile.tex -o=+-mod1
```

as latexindent.pl performs a check to put the lowest number first.

**Example 152**

You can call the `lines` switch with only *one number* and in which case only that line will be operated upon. For example

```
$ latexindent.pl --lines 5 myfile.tex
$ latexindent.pl --lines 5-5 myfile.tex
```

instructs latexindent.pl to only operate on line 5; the output is given in Listing 549.

Before the environments
\begin{one}
  first block, first line
  first block, second line
  first block, third line
\end{one}

\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:

```
$ latexindent.pl --lines 5 myfile.tex
$ latexindent.pl --lines 5-5 myfile.tex
```

**Example 153**

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

```
$ latexindent.pl --lines 11-13 myfile.tex
```

latexindent.pl will ignore the `lines` argument, and *operate on the entire file* because List-
ing 547 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 154**

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 550.

**LISTING 550: myfile-mod3.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 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 155**

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 551.
As previously, the ordering does not matter, and the following calls to latexindent.pl are all equivalent:

\begin{verbatim}
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
\end{verbatim}

as latexindent.pl performs a check to put the lowest line ranges first, and within each line range, it puts the lowest number first.

\begin{example}

You can specify negated line ranges by using ! as in

\begin{verbatim}
cmh:~$ latexindent.pl --lines !5-7 myfile.tex -o=+-mod5
\end{verbatim}

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:

\begin{verbatim}
cmh:~$ latexindent.pl --lines !5-7 myfile.tex
cmh:~$ latexindent.pl --lines 1-4,8-12 myfile.tex
\end{verbatim}

The output is given in Listing 552.

\begin{listing}
\noindent\begin{verbatim}
Before the environments
\begin{one}
  first block, first line
  first block, second line
  first block, third line
\end{one}
\begin{two}
  second block, first line
  second block, second line
  second block, third line
  second block, fourth line
\end{two}
\end{verbatim}
\end{listing}
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 553.

```
\begin{one}
  \begin{two}
    \begin{one}
      first block, first line
      first block, second line
      first block, third line
    \end{one}
    second block, first line
    second block, second line
    second block, third line
    second block, fourth line
  \end{two}
\end{one}
```

example 158

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 159

We can, of course, use the lines switch in combination with other switches.

For example, let’s use with the file in Listing 554.

```
\begin{one}
  \begin{two}
    \begin{one}
      first block, first line
      first block, second line
      first block, third line
    \end{one}
    body
  \end{two}
\end{one}
```

We can demonstrate interaction with the −m switch (see Section 6 on page 77); in particular, if we use Listing 446 on page 111, Listing 430 on page 109 and Listing 431 on page 109 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 555.
Before the environments
\begin{one}
  first block, first line
  first block, second line
  first block, third line
\end{one}

\begin{two}
  body
\end{two}
SECTION 9

Fine tuning

latexindent.pl operates by looking for the code blocks detailed in Table 2 on page 54. The fine tuning of the details of such code blocks is controlled by the fineTuning field, detailed in Listing 556.

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!

<table>
<thead>
<tr>
<th>Listing 556: fineTuning</th>
</tr>
</thead>
<tbody>
<tr>
<td>fineTuning:</td>
</tr>
<tr>
<td>environments:</td>
</tr>
<tr>
<td>name: [a-zA-Z*0-9_]+</td>
</tr>
<tr>
<td>ifElseFi:</td>
</tr>
<tr>
<td>name: (?!@if[a-zA-Z*]<em>?{)</em>@if[a-zA-Z*]*?</td>
</tr>
<tr>
<td>commands:</td>
</tr>
<tr>
<td>name: [a-zA-Z*0-9_]+</td>
</tr>
<tr>
<td>items:</td>
</tr>
<tr>
<td>canBeFollowedBy: (?![[~]]+)</td>
</tr>
<tr>
<td>keyEqualsValuesBracesBrackets:</td>
</tr>
<tr>
<td>name: [a-zA-Z*0-9_]+</td>
</tr>
<tr>
<td>follow: (?!{)</td>
</tr>
<tr>
<td>namedGroupingBracesBrackets:</td>
</tr>
<tr>
<td>name: [0-9.a-zA-Z*&gt;&lt;]+</td>
</tr>
<tr>
<td>follow: {</td>
</tr>
<tr>
<td>UnNamedGroupingBracesBrackets:</td>
</tr>
<tr>
<td>follow: {</td>
</tr>
<tr>
<td>arguments:</td>
</tr>
<tr>
<td>before: (?:#\d\h*;?,?+/?)+</td>
</tr>
<tr>
<td>between: _</td>
</tr>
<tr>
<td>trailingComments:</td>
</tr>
<tr>
<td>notPreceededBy: (&lt;?!\h* \h)</td>
</tr>
<tr>
<td>afterComment: .*?</td>
</tr>
<tr>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>doubleBackSlash: \{(?:\h*\h*\d+\h*\h*\h*[a-zA-Z]+\h*)} \h*\h*\h*[a-zA-Z]+\h*)}</td>
</tr>
<tr>
<td>comma: ,,'</td>
</tr>
<tr>
<td>betterFullStop:</td>
</tr>
<tr>
<td>(?x) # ignore spaces in the below</td>
</tr>
<tr>
<td>(?:</td>
</tr>
<tr>
<td># not <em>followed by</em> a-z</td>
</tr>
<tr>
<td>#</td>
</tr>
<tr>
<td># OR</td>
</tr>
<tr>
<td># not <em>preceded by</em></td>
</tr>
<tr>
<td>(?: \eG.)</td>
</tr>
<tr>
<td>#</td>
</tr>
</tbody>
</table>
The fields given in Listing 556 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 556:

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 ? at 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 77. In particular:
   (a) `betterFullStop` is in relation to the one sentence per line routine, detailed in Section 6.2 on page 93
   (b) `doubleBackSlash` is in relation to the `DBSStartsOnOwnLine` and `DBSFinishesWithLineBreak` polyswitches surrounding double backslashes, see Section 6.3.2 on page 115
   (c) `comma` is in relation to the `CommaStartsOnOwnLine` and `CommaFinishesWithLineBreak` polyswitches surrounding commas in optional and mandatory arguments; see Table 3 on page 120

It is not obvious from Listing 556, 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 160**
As a demonstration, consider the file given in Listing 557, together with its default output using the command

```
cmh:~$ latexindent.pl finetuning1.tex
```

is given in Listing 558.

<table>
<thead>
<tr>
<th>Listing 557: finetuning1.tex</th>
<th>Listing 558: finetuning1.tex default</th>
</tr>
</thead>
<tbody>
<tr>
<td>\mycommand{\rule{G -&gt; +H[-G]CL} \rule{H -&gt; -G[+H]CL} \rule{g -&gt; +h[-g]cL} \rule{h -&gt; -g[+h]cL} }</td>
<td>\mycommand{\rule{G -&gt; +H[-G]CL} \rule{H -&gt; -G[+H]CL} \rule{g -&gt; +h[-g]cL} \rule{h -&gt; -g[+h]cL} }</td>
</tr>
</tbody>
</table>

It’s clear from Listing 558 that the indentation scheme has not worked as expected. We can `fine tune` the indentation scheme by employing the settings given in Listing 560 and running the command

```
cmh:~$ latexindent.pl finetuning1.tex -l=fine-tuning1.yaml
```

and the associated (desired) output is given in Listing 559.

<table>
<thead>
<tr>
<th>Listing 559: finetuning1.tex using Listing 560</th>
<th>Listing 560: finetuning1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>\mycommand{\rule{G -&gt; +H[-G]CL} \rule{H -&gt; -G[+H]CL} \rule{g -&gt; +h[-g]cL} \rule{h -&gt; -g[+h]cL} }</td>
<td>fineTuning: arguments: between: '_|||||-&gt;||--+H[H]</td>
</tr>
</tbody>
</table>

**Example 161**
Let’s have another demonstration; consider the file given in Listing 561, together with its default output using the command

```
cmh:~$ latexindent.pl finetuning2.tex
```
It's clear from Listing 562 that the indentation scheme has not worked as expected. We can fine tune the indentation scheme by employing the settings given in Listing 564 and running the command

```cmh:
$ latexindent.pl finetuning2.tex -l=fine-tuning2.yaml
```

and the associated (desired) output is given in Listing 563.

In particular, note that the settings in Listing 564 specify that NamedGroupingBracesBrackets and UnNamedGroupingBracesBrackets can follow " and that we allow --- between arguments.

Example 162 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 565 and running the following command

```cmh:
$ latexindent.pl -m -y='modifyLineBreaks:oneSentencePerLine:manipulateSentences:1,1 modifyLineBreaks:oneSentencePerLine:sentencesBeginWith:a-z:1 fineTuning:modifyLineBreaks:betterFullStop:1' issue-243.tex -o=+-mod1
```

gives the output shown in Listing 566.

Example 163 We can tweak the fineTuning for how trailing comments are classified. For motivation, let's consider the code given in Listing 567

```cmh:
$ latexindent.pl -m -y='modifyLineBreaks:oneSentencePerLine:manipulateSentences:1,1 modifyLineBreaks:oneSentencePerLine:sentencesBeginWith:a-z:1 fineTuning:modifyLineBreaks:betterFullStop:1' issue-243.tex -o=+-mod1
```
We will compare the settings given in Listings 568 and 569.

<table>
<thead>
<tr>
<th>Listing 568: href1.yaml</th>
<th>Listing 569: href2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>modifyLineBreaks:</td>
<td>fineTuning:</td>
</tr>
<tr>
<td></td>
<td>trailingComments:</td>
</tr>
<tr>
<td>textWrapOptions:</td>
<td>notPreceededBy:</td>
</tr>
<tr>
<td>columns: -1</td>
<td>'(?:(?&lt;!Handbook)(?&lt;!for)(?&lt;!Spoken))'</td>
</tr>
<tr>
<td>blocksEndBefore:</td>
<td>modifyLineBreaks:</td>
</tr>
<tr>
<td>verbatim: 0</td>
<td>textWrapOptions:</td>
</tr>
<tr>
<td>blocksFollow:</td>
<td>columns: -1</td>
</tr>
<tr>
<td>verbatim: 0</td>
<td>blocksEndBefore:</td>
</tr>
<tr>
<td>removeTrailingWhitespace:</td>
<td>blocksFollow:</td>
</tr>
<tr>
<td>beforeProcessing: 1</td>
<td>verbatim: 0</td>
</tr>
</tbody>
</table>

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 570 and 571.

<table>
<thead>
<tr>
<th>Listing 570: finetuning4.tex using Listing 568</th>
</tr>
</thead>
<tbody>
<tr>
<td>some before text \href{Handbook%20for%30Spoken%40document.pdf}{my document} some after text</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 571: finetuning4.tex using Listing 569</th>
</tr>
</thead>
<tbody>
<tr>
<td>some before text \href{Handbook%20for%30Spoken%40document.pdf}{my document} some after text</td>
</tr>
</tbody>
</table>

We note that in:

- Listing 570 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 571 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 164** 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 572 and running the command

```
cmh:~$ latexindent.pl -m finetuning4.tex -o=+-mod3 -l=href3
```

then we receive the same output given in Listing 571.
With reference to the body field in Listing 572, 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 165** We can use the *fineTuning* field to assist in the formatting of bibliography files.

Starting with the file in Listing 573 and running the command

```
$ latexindent .pl bib1.bib -o=+-mod1
```
gives the output in Listing 574.

Let's assume that we would like to format the output so as to align the `=` symbols. Using the settings in Listing 576 and running the command

```
$ latexindent .pl bib1.bib -l bibsettings1.yaml -o=+-mod2
```
gives the output in Listing 575.

Some notes about Listing 576:
• 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 166 We can build upon Listing 576 for slightly more complicated bibliography files.

Starting with the file in Listing 577 and running the command

```
cmh:~$ latexindent.pl bib2.bib -l bibsettings1.yaml -o=-mod1
```

gives the output in Listing 578.

<table>
<thead>
<tr>
<th>Listing 577: bib2.bib</th>
</tr>
</thead>
<tbody>
<tr>
<td>@online{cmh:videodemo,</td>
</tr>
<tr>
<td>title=&quot;Videodemonstrationofpl.latexindentonyoutube&quot;,</td>
</tr>
<tr>
<td>url=&quot;<a href="https://www.youtube.com/watch?v=wo38aaH2F4E&amp;spfreload=10">https://www.youtube.com/watch?v=wo38aaH2F4E&amp;spfreload=10</a>&quot;,</td>
</tr>
<tr>
<td>urldate={2017-02-21},</td>
</tr>
<tr>
<td>}</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Listing 578: bib2-mod1.bib</th>
</tr>
</thead>
<tbody>
<tr>
<td>@online{cmh:videodemo,</td>
</tr>
<tr>
<td>title = &quot;Videodemonstrationofpl.latexindentonyoutube&quot;,</td>
</tr>
<tr>
<td>url = &quot;<a href="https://www.youtube.com/watch?v=wo38aaH2F4E&amp;spfreload">https://www.youtube.com/watch?v=wo38aaH2F4E&amp;spfreload</a> = 10&quot;,</td>
</tr>
<tr>
<td>urldate = {2017-02-21},</td>
</tr>
<tr>
<td>}</td>
</tr>
</tbody>
</table>

The output in Listing 578 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 579.

<table>
<thead>
<tr>
<th>Listing 579: bibsettings2.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>lookForAlignDelims:</td>
</tr>
<tr>
<td>online:</td>
</tr>
<tr>
<td>delimiterRegEx: '([^!v])(?!spfreload)(=)'</td>
</tr>
</tbody>
</table>

Upon running the command

```
cmh:~$ latexindent.pl bib2.bib -l bibsettings1.yaml,bibsettings2.yaml -o=-mod2
```

we receive the desired output in Listing 580.

<table>
<thead>
<tr>
<th>Listing 580: bib2-mod2.bib</th>
</tr>
</thead>
<tbody>
<tr>
<td>@online{cmh:videodemo,</td>
</tr>
<tr>
<td>title = &quot;Videodemonstrationofpl.latexindentonyoutube&quot;,</td>
</tr>
<tr>
<td>url = &quot;<a href="https://www.youtube.com/watch?v=wo38aaH2F4E&amp;spfreload=10">https://www.youtube.com/watch?v=wo38aaH2F4E&amp;spfreload=10</a>&quot;,</td>
</tr>
<tr>
<td>urldate = {2017-02-21},</td>
</tr>
<tr>
<td>}</td>
</tr>
</tbody>
</table>

With reference to Listing 579 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.
We can use the fineTuning settings to tweak how latexindent.pl finds trailing comments.

We begin with the file in Listing 581

```latex
\chapter{chapter text} % 123
chapter text
\section{section text} % 456
section text
% end
% end
```

Using the settings in Listing 583 and running the command

```
$ latexindent.pl finetuning5.tex -l=fine-tuning3.yaml
```

gives the output in Listing 582.

```yaml
fineTuning:
  trailingComments:
    notPreceededBy: (?<!\)
afterComment: (?!(?:\hend)).*?

specialBeginEnd:
  customSection:
    begin: \(?:section\|chapter\)
    end: \%h+end
  specialBeforeCommand: 1
```

The settings in Listing 583 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 53) 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 124); 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.

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](http://tex.stackexchange.com/users/6621/cmhughes).
SECTION 11

References

11.1 perl-related links
[33] Data::Dumper module. URL: https://perldoc.perl.org/Data::Dumper (visited on 06/18/2021).
[37] perldoc Encode::Supported. URL: https://perldoc.perl.org/Encode::Supported (visited on 05/06/2021).
[38] Strawberry Perl. URL: http://strawberryperl.com/ (visited on 01/23/2017).
[40] Text::Wrap Perl module. URL: http://perldoc.perl.org/Text/Wrap.html (visited on 05/01/2017).

11.2 conda-related links

11.3 VScode-related links

11.4 Other links
[38] latexindent.pl ghcr (GitHub Container Repository) location. URL: https://github.com/cmhughes?tab=packages (visited on 06/12/2022).
11.5 Contributors (in chronological order)


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 584 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 584: helloworld.pl
#!/usr/bin/perl

use strict; # |
use warnings; # |
use Encode; # |
use Getopt::Long; # |
use Data::Dumper; # these modules are generally part
use List::Util qw(max); # of a default perl distribution
use PerlIO::encoding; #
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\nworld";
exit;
```

A.1 Module installer script

`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 584 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
```

or else by running, for example,

```
cmh:~$ sudo perl -MCPAN -e'install "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
```

A.2.1.4 Ubuntu: users without perl

`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,
A.2 Manually installing modules

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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 585; thanks to [12] for providing these details.

**Listing 585: 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-name-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

cp

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:

```
cmph:~$ brew install perl
cmph:~$ brew install cpanm
```

cmph:~$ cpanm YAML::Tiny
cmph:~$ cpanm File::HomeDir

Alternatively,

```
cmph:~$ brew install latexindent
```

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.
A.3 The GCString switch

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

```bash
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,

```bash
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;
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.
Batches of files

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

```bash
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.
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 586; on my Ubuntu laptop this file lives at /home/cmhughes/.config/Code/User/settings.json.

Alternatively, if you would prefer not to download the json file, you might be able to use an adapted version of Listing 587.

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 588 may work.

If you have details of how to implement this schema in other editors, please feel encouraged to contribute to this documentation.
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

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.

F1 Sample docker installation on Ubuntu

To pull the image and show `latexindent`'s help on Ubuntu:

```
# 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
fi

# download image and execute
docker pull ghcr.io/cmhughes/latexindent.pl
docker run ghcr.io/cmhughes/latexindent.pl -h
```

F2 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
ghr.io/cmhughes/latexindent.pl -s -w myfile.tex
```
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 590.

```
.. listing:: .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 591.

```
.. listing:: .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 591.

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 592 in your git-repository.

```yaml
# Listing 592: .pre-commit-config.yaml (cpan)
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.22.2
  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 592:

- the settings given in Listing 592 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 592 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 592 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.

```yaml
# Listing 593: .pre-commit-config.yaml (conda)
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.22.2
  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 592:
• the settings given in Listing 593 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 592 are equivalent to calling

```bash
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 592 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.

```
repo: https://github.com/cmhughes/latexindent.pl
```

```
rev: V3.22.2
```

```
hooks:
- id: latexindent-docker
  args: [-s]
```

Once created, you should then be able to run the following command:

```bash
cmh:~$ pre-commit run --all-files
```

A few notes about Listing 592:
• the settings given in Listing 594 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 592 are equivalent to calling

```bash
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 592 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 168**

We use the local settings given in Listing 595.

```
onlyOneBackUp: 1
```

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
```

and `.pre-commit-config.yaml` as in Listing 596:
A few notes about Listing 596:

- 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.
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

<table>
<thead>
<tr>
<th>environment variable</th>
<th>type</th>
<th>Linux</th>
<th>macOS</th>
<th>Windows</th>
</tr>
</thead>
<tbody>
<tr>
<td>LATEXINDENT_CONFIG</td>
<td>full path to file</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>XDG_CONFIG_HOME</td>
<td>directory path</td>
<td>✔</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>LOCALAPPDATA</td>
<td>directory path</td>
<td>✗</td>
<td>✗</td>
<td>✔</td>
</tr>
</tbody>
</table>

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\Local 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 are 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/
cmh:~$ touch /home/cmh/.config/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 are 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 169** Let’s say that we start with the code given in Listing 597, and the settings specified in Listing 598.

<table>
<thead>
<tr>
<th>Listing 597: simple.tex</th>
<th>Listing 598: logfile-prefs1.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>\begin{myenv}</td>
<td>logFilePreferences:</td>
</tr>
<tr>
<td>body of myenv</td>
<td>showDecorationStartCodeBlockTrace: &quot;+++++&quot;</td>
</tr>
<tr>
<td>\end{myenv}</td>
<td>showDecorationFinishCodeBlockTrace: &quot;-----&quot;</td>
</tr>
</tbody>
</table>

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 599.

<table>
<thead>
<tr>
<th>Listing 599: indent.log</th>
</tr>
</thead>
</table>
| ++++
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.
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 600 within their indentconfig.yaml, where 936 is the result of the chcp command.

```
<table>
<thead>
<tr>
<th>Listing 600: encoding demonstration for indentconfig.yaml</th>
</tr>
</thead>
<tbody>
<tr>
<td>encoding: cp936</td>
</tr>
</tbody>
</table>
```
SECTION K

dos2unix linebreak adjustment

dos2unixlinebreaks: {integer}

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 details.
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,

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

whereas in Version 3.0 you would run any of the following, for example,

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

noting that the output file is given next to the -o switch.

The fields given in Listing 601 are obsolete from Version 3.0 onwards.

<table>
<thead>
<tr>
<th>LISTING 601: Obsolete YAML fields from Version 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>alwaysLookforSplitBrackets</td>
</tr>
<tr>
<td>alwaysLookforSplitBrackets</td>
</tr>
<tr>
<td>checkunmatched</td>
</tr>
<tr>
<td>checkunmatchedELSE</td>
</tr>
<tr>
<td>checkunmatchedbracket</td>
</tr>
<tr>
<td>constructIfElseFi</td>
</tr>
</tbody>
</table>

There is a slight difference when specifying indentation after headings; specifically, we now write `indentAfterThisHeading` instead of `indent`. See Listings 602 and 603

<table>
<thead>
<tr>
<th>LISTING 602: indentAfterThisHeading in Version 2.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>indentAfterHeadings:</td>
</tr>
<tr>
<td>part:</td>
</tr>
<tr>
<td>indent: 0</td>
</tr>
<tr>
<td>level: 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LISTING 603: indentAfterThisHeading in Version 3.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>indentAfterHeadings:</td>
</tr>
<tr>
<td>part:</td>
</tr>
<tr>
<td>indentAfterThisHeading: 0</td>
</tr>
<tr>
<td>level: 1</td>
</tr>
</tbody>
</table>

To specify noAdditionalIndent for display-math environments in Version 2.2, you would write YAML as in Listing 604; as of Version 3.0, you would write YAML as in Listing 605 or, if you're using -m switch, Listing 606.
LISTING 604: noAdditionalIndent in Version 2.2

noAdditionalIndent:
\[ : 0
\] : 0

LISTING 605: noAdditionalIndent for displayMath in Version 3.0

specialBeginEnd:
  displayMath:
    begin: '\\[\'
    end: '\\]'
  lookForThis: 0

LISTING 606: noAdditionalIndent for displayMath in Version 3.0

noAdditionalIndent:
  displayMath: 1

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