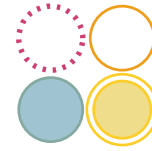


latexindent.pl



Version  
3.23.1

Chris Hughes \*

2023-09-13

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 152. 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  $\text{\TeX}$  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 152 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 174 and the comments throughout this document for details.*

### 1.3 Quick start

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

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

from the command line.



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

LISTING 1: `quick-start.tex`

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

Running

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

gives Listing 2.

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

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

**example 1** Running

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

gives Listing 3.



LISTING 3: quick-start-mod1.tex

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

See Section 5.4.

LISTING 4: quick-start1.yaml

```
defaultIndent: " "
```

### example 2 Running

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

gives Listing 5.

LISTING 5: quick-start-mod2.tex

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

See Section 5.8.

LISTING 6: quick-start2.yaml

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

### example 3 Running

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

gives Listing 7.



LISTING 7: quick-start-mod3.tex

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

See Section 5.8.

LISTING 8: quick-start3.yaml

```
noAdditionalIndent:
  myenv: 1
```

#### example 4 Running

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

gives Listing 9.

LISTING 9: quick-start-mod4.tex

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

Full details of text wrapping in Section 6.1.

LISTING 10: quick-start4.yaml

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

-m

#### example 5 Running

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

gives Listing 11.





LISTING 11: quick-start-mod5.tex

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

LISTING 12: quick-start5.yaml

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

Full details of text wrapping in Section 6.1.

#### example 6 Running

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

gives Listing 13.

LISTING 13: quick-start-mod6.tex

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

LISTING 14: quick-start6.yaml

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

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

#### example 7 Running

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

gives Listing 15.



LISTING 15: quick-start-mod7.tex

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

LISTING 16: quick-start7.yaml

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

-m

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

#### example 8 Running

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

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

LISTING 17: quick-start-mod8.tex

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

LISTING 18: quick-start8.yaml

```
indentPreamble: 1
```

See Section 5.3.

#### example 9 Running

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

gives Listing 19.



LISTING 19: quick-start-mod9.tex

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

LISTING 20: quick-start9.yaml

```
noAdditionalIndent:
  document: 0
```

See Section 5.8. ■

## 1.4 Required perl modules

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

LISTING 21: Possible error messages

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

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

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

You might also like to see <https://stackoverflow.com/questions/19590042/error-cant-locate-file-homedir-pm-in-inc>, for example, as well as appendix A on page 154.

## 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 610. This may seem a lot, but I deem it necessary in presenting the various different options of latexindent.pl and the associated output that they are capable of producing.

The different listings are presented using different styles:

LISTING 22: demo-tex.tex

```
demonstration .tex file
```

This type of listing is a .tex file.

LISTING 23:  
fileExtensionPreference

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

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



LISTING 24: modifyLineBreaks

-m

```

500 modifyLineBreaks:
501     preserveBlankLines: 1           # 0/1
502     condenseMultipleBlankLinesInto: 1 # 0/1

```

This type of listing is a .yaml file, but it will only be relevant when the `-m` switch is active; see Section 6 on page 77 for more details.

LISTING 25: replacements

-r

```

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

```

This type of listing is a .yaml file, but it will only be relevant when the `-r` switch is active; see Section 7 on page 127 for more details.

N: 2017-06-25

You will occasionally see dates shown in the margin (for example, next to this paragraph!) which detail the date of the version in which the feature was implemented; the ‘N’ stands for ‘new as of the date shown’ and ‘U’ stands for ‘updated as of the date shown’. If you see ✨, it means that the feature is either new (N) or updated (U) as of the release of the current version; if you see ✨ attached to a listing, then it means that listing is new (N) or updated (U) as of the current version. If you have not read this document before (and even if you have!), then you can ignore every occurrence of the ✨; they are simply there to highlight new and updated features. The new and updated features in this documentation (V3.23.1) are on the following pages:

*oneSentencePerLine: sentencesDoNOTcontain (N)* ..... 100  
*updated example of oneSentencePerLine (U)* ..... 100

## 1.6 A word about regular expressions

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

## SECTION 2



# Demonstration: before and after

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

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

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

LISTING 26: `filecontents1.tex`

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

LISTING 28: `tikzset.tex`

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

LISTING 30: `pstricks.tex`

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

LISTING 27: `filecontents1.tex` default output

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

LISTING 29: `tikzset.tex` default output

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

LISTING 31: `pstricks.tex` default output

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

## SECTION 3



# How to use the script

`latexindent.pl` ships as part of the  $\TeX$ Live distribution for Linux and Mac users; `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 158 which details how the path variable can be updated.

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

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

### 3.1 Requirements

#### 3.1.1 Perl users

N: 2018-01-13

Perl users will need a few standard Perl modules – see [appendix A](#) on page 154 for details; in particular, note that a module installer helper script is shipped with `latexindent.pl`.

#### 3.1.2 Windows users without perl

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

`latexindent.exe` is available from [\[35\]](#).

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

#### 3.1.3 Ubuntu Linux users without perl

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

N: 2022-10-30

`latexindent-linux` is available from [\[35\]](#).

#### 3.1.4 macOS users without perl

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

N: 2022-10-30

`latexindent-macos` is available from [\[35\]](#).

#### 3.1.5 conda users

Users of `conda` should see the details given in [appendix E](#).

#### 3.1.6 docker users

Users of `docker` should see the details given in [appendix F](#).



### 3.2 From the command line

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

N: 2017-06-25

**-v, -version**

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

This will output only the version number to the terminal.

N: 2022-01-08

**-vv, -vversion**

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

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

**-h, -help**

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

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

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

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

N: 2022-03-25

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

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

Full details are given in appendix C on page 160.

**-w, -overwrite**

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

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

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

N: 2022-03-25

**-wd, -overwriteIfDifferent**



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

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

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

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

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

This will indent `myfile.tex` and output it to `output.tex`, overwriting it (`output.tex`) if it already exists<sup>1</sup>.

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

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

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

N: 2017-06-25

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

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

N: 2017-06-25

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

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

N: 2017-06-25

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

<sup>1</sup>Users of version 2.\* should note the subtle change in syntax





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

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

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

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

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

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

See appendix L on page 174 for details of how the interface has changed from Version 2.2 to Version 3.0 for this flag.

`-s`, `-silent`

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

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

`-t`, `-trace`

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

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

`-tt`, `-ttrace`

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

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

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

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

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



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

U: 2017-08-21

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

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

N: 2017-06-25

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

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

which translate, respectively, to

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

Note that the following is *not* allowed:

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

and

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

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

N: 2017-06-25

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

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

`-y`, `-yaml=yaml settings`

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

N: 2017-08-21

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



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

`-d, -onlydefault`

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

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

U: 2017-08-21

`-c, -cruft=<directory>`

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

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

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

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

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

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

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

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

`-sl, -screenlog`

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

N: 2021-05-07

N: 2018-01-13

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

`-m, -modifylinebreaks`

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

One of the most exciting developments in Version 3.0 is the ability to modify line breaks; for full details see Section 6 on page 77

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



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

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

#### STDIN

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

N: 2018-01-13

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

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

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

U: 2018-01-13

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

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

Once you have finished typing your input, you can press

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

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

#### `-r, -replacement`

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

N: 2019-07-13

You can call `latexindent.pl` with the `-r` switch to instruct it to perform replacements/substitutions on your file; full details and examples are given in Section 7 on page 127.

#### `-rv, -replacementrespectverb`

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

N: 2019-07-13

You can instruct `latexindent.pl` to perform replacements/substitutions by using the `-rv` switch, but will *respect verbatim code blocks*; full details and examples are given in Section 7 on page 127.

#### `-rr, -onlyreplacement`

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

N: 2019-07-13

You can instruct `latexindent.pl` to skip all of its other indentation operations and *only* perform replacements/substitutions by using the `-rr` switch; full details and examples are given in Section 7 on page 127.

#### `-k, -check`



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

N: 2021-09-16

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

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

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

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

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

`-kv`, `-checkv`

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

N: 2021-09-16

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

`-n`, `-lines=MIN-MAX`

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

N: 2021-09-16

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

Complete demonstrations are given in Section 8.

`-GCString`

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

N: 2022-03-25

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

### 3.3 From arara

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

### 3.4 Summary of exit codes

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

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

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

TABLE 1: Exit codes for `latexindent.pl`

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

## SECTION 4



# indentconfig.yaml, local settings and the -y switch

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

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

N: 2023-01-01

### 4.1 indentconfig.yaml and .indentconfig.yaml

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

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

LISTING 32: `indentconfig.yaml` (sample)

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

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

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

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

<sup>2</sup>If you’re not sure where to put `indentconfig.yaml`, don’t worry `latexindent.pl` will tell you in the log file exactly where to put it assuming it doesn’t exist already.



LISTING 33: mysettings.yaml (example)

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

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

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

**Warning!**

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

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

N: 2021-06-19

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

LISTING 34: The encoding option for indentconfig.yaml

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

Thank you to [15] for this contribution; please see appendix J on page 172 and details within [42] for further information.

## 4.2 localSettings.yaml and friends

U: 2021-03-14

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

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

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

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

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

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

<sup>3</sup>Windows users may find that they have to end `.yaml` files with a blank line





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

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

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

#### LISTING 35: `localSettings.yaml` (example)

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

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

### 4.3 The -y|yaml switch

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

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

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

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

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

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

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

If you wish to specify any regex-based settings using the `-y` switch, it is important not to use quotes surrounding the regex; for example, with reference to the 'one sentence per line' feature (Section 6.2 on page 93) and the listings within Listing 369 on page 96, the following settings give the option to have sentences end with a semicolon

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

### 4.4 Settings load order

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

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

N: 2017-08-21



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.

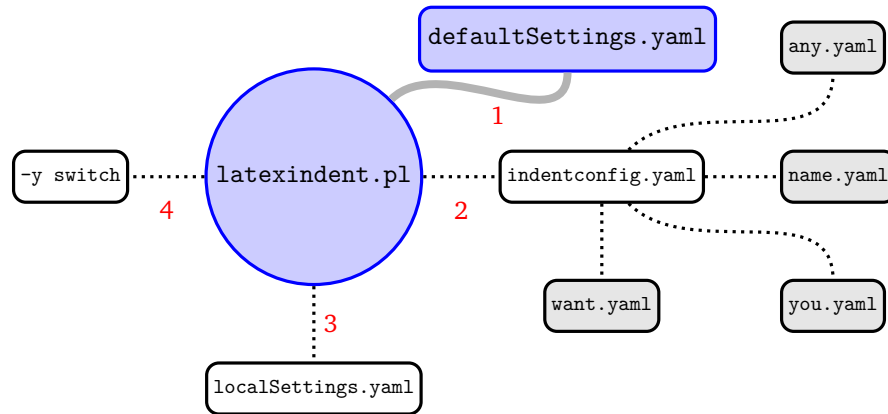


FIGURE 1: Schematic of the load order described in Section 4.4; solid lines represent mandatory files, dotted lines represent optional files. `indentconfig.yaml` can contain as many files as you like. The files will be loaded in order; if you specify settings for the same field in more than one file,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

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

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

```
fileExtensionPreference: <fields>
```

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

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

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

LISTING 36: `fileExtensionPreference`

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

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

### 5.1 Backup and log file preferences

```
backupExtension: <extension name>
```

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

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

<sup>4</sup>Throughout this manual, listings shown with line numbers represent code taken directly from `defaultSettings.yaml`.



`onlyOneBackUp`: *<integer>*

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

`maxNumberOfBackUps`: *<integer>*

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

`cycleThroughBackUps`: *<integer>*

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

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

The default value of `cycleThroughBackUps` is 0.

`logFilePreferences`: *<fields>*

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

LISTING 37: `logFilePreferences`

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

When either of the trace modes (see page 17) are active, you will receive detailed information in `indent.log`. You can specify character strings to appear before and after the notification of a found code block using, respectively, `showDecorationStartCodeBlockTrace` and `showDecorationFinishCodeBlockTrace`. A demonstration is given in appendix I on page 171.



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

U: 2021-03-14

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

U: 2021-06-19

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

## 5.2 Verbatim code blocks

**verbatimEnvironments:** *(fields)*

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

LISTING 38: `verbatimEnvironments`

```
109 verbatimEnvironments:
110     verbatim: 1
111     lstlisting: 1
112     minted: 1
```

LISTING 39: `verbatimCommands`

```
115 verbatimCommands:
116     verb: 1
117     lstinline: 1
```

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

N: 2021-10-30

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

### example 10

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

LISTING 40: `nameAsRegex1.yaml`

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

LISTING 41: `nameAsRegex2.yaml`

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

With reference to Listing 41:

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

**verbatimCommands:** *(fields)*

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

N: 2021-10-30

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



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

LISTING 42: `nameAsRegex3.yaml`

```
verbatimCommands:
  verbatim: 1
  myinline: 1
```

LISTING 43: `nameAsRegex4.yaml`

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

With reference to Listing 43:

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

`noIndentBlock: {fields}`

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

LISTING 44: `noIndentBlock`

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

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

LISTING 45: `noIndentBlock.tex`

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

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

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

LISTING 46: `noIndentBlock1.tex`

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

The settings given in Listings 47 and 48 are equivalent:



LISTING 47: noindent1.yaml

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

LISTING 48: noindent2.yaml

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

LISTING 49: noindent3.yaml

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

Upon running the commands

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

then we receive the output given in Listing 50.

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

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

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

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

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

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

gives the output in Listing 51.

LISTING 51: noIndentBlock1.tex using Listing 49

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

We will demonstrate this feature later in the documentation in Listing 576.

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

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



LISTING 52: nameAsRegex5.yaml

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

LISTING 53: nameAsRegex6.yaml

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

With reference to Listing 53:

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

### 5.3 filecontents and preamble

```
fileContentsEnvironments: <field>
```

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

LISTING 54: fileContentsEnvironments

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

```
indentPreamble: 0|1
```

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

```
lookForPreamble: <fields>
```

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

LISTING 55: lookForPreamble

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

```
preambleCommandsBeforeEnvironments: 0|1
```

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



LISTING 56: Motivating `preambleCommandsBeforeEnvironments`

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

## 5.4 Indentation and horizontal space

`defaultIndent`: *(horizontal space)*

This is the default indentation used in the absence of other details for the code block with which we are working. The default value is `\t` which means a tab; we will explore customisation beyond `defaultIndent` in Section 5.8 on page 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 464 to 466 on page 114 for before and after results. Thanks to [3] for providing this feature.

LISTING 57: `removeTrailingWhitespace`

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

LISTING 58: `removeTrailingWhitespace (alt)`

```
removeTrailingWhitespace: 1
```

N: 2017-06-28

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

## 5.5 Aligning at delimiters

`lookForAlignDelims`: *(fields)*

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

LISTING 59: `lookForAlignDelims (basic)`

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

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

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



gives the output given in Listing 61.

LISTING 60: tabular1.tex

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

LISTING 61: `tabular1.tex` default output

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

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

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

LISTING 62: `lookForAlignDelims` (advanced)

```

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

```

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

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

U: 2018-01-13

N: 2017-06-19

N: 2017-06-19

N: 2018-01-13

N: 2018-01-13



N: 2018-01-13

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

N: 2020-03-21

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

N: 2020-03-21

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

N: 2020-03-21

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

N: 2020-03-21

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

N: 2021-12-13

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

N: 2023-05-01

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

N: 2023-05-01

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

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

LISTING 63: `tabular2.tex`

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

LISTING 64: `tabular2.yaml`

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

LISTING 65: `tabular3.yaml`

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

LISTING 66: `tabular4.yaml`

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

LISTING 67: `tabular5.yaml`

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

LISTING 68: `tabular6.yaml`

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

LISTING 69: `tabular7.yaml`

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



## LISTING 70: tabular8.yaml

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

On running the commands

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

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

## LISTING 71: tabular2.tex default output

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

## LISTING 72: tabular2.tex using Listing 64

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

## LISTING 73: tabular2.tex using Listing 65

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

LISTING 74: `tabular2.tex` using Listings 64 and 66

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

LISTING 75: `tabular2.tex` using Listings 64 and 67

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

LISTING 76: `tabular2.tex` using Listings 64 and 68

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

LISTING 77: `tabular2.tex` using Listings 64 and 69

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

LISTING 78: tabular2.tex using Listings 64 and 70

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

Notice in particular:

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



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

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

### 5.5.1 lookForAlignDelims: spacesBeforeAmpersand

U: 2021-06-19

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

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

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

then we receive the default output given in Listing 80.

LISTING 79: aligned1.tex	LISTING 80: aligned1-default.tex
<code>\begin{aligned}</code>	<code>\begin{aligned}</code>
<code>&amp; a &amp; b, \\</code>	<code>&amp; a &amp; b, \\</code>
<code>&amp; c &amp; d.</code>	<code>&amp; c &amp; d.</code>
<code>\end{aligned}</code>	<code>\end{aligned}</code>

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.

LISTING 81: sba1.yaml	LISTING 82: sba2.yaml
<code>noAdditionalIndent:</code>	<code>noAdditionalIndent:</code>
<code>aligned: 1</code>	<code>aligned: 1</code>
<code>lookForAlignDelims:</code>	<code>lookForAlignDelims:</code>
<code>aligned: 1</code>	<code>aligned:</code>
	<code>spacesBeforeAmpersand: 1</code>
LISTING 83: sba3.yaml	LISTING 84: sba4.yaml
<code>noAdditionalIndent:</code>	<code>noAdditionalIndent:</code>
<code>aligned: 1</code>	<code>aligned: 1</code>
<code>lookForAlignDelims:</code>	<code>lookForAlignDelims:</code>
<code>aligned:</code>	<code>aligned:</code>
<code>spacesBeforeAmpersand:</code>	<code>spacesBeforeAmpersand:</code>
<code>default: 1</code>	<code>leadingBlankColumn: 1</code>

Upon running the following commands



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

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

LISTING 85: aligned1-mod1.tex

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

We note in particular:

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

We note that `leadingBlankColumn` has not been specified in Listing 83, and it will inherit the value from default;

- Listing 84 demonstrates spaces to be used before ampersands for *leading blank columns*. We note that *default* has not been specified, and it will be set to 1 by default.

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

LISTING 86: sba5.yaml

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

LISTING 87: sba6.yaml

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

Upon running

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

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

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



LISTING 88: aligned1-mod5.tex

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

LISTING 89: aligned1.tex using Listing 90

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

LISTING 90: sba7.yaml

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

### 5.5.2 lookForAlignDelims: alignFinalDoubleBackSlash

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

#### example 18

N: 2020-03-21

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

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

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

LISTING 91: tabular4.tex

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

LISTING 92: tabular4-default.tex

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

LISTING 93: tabular4-FDBS.tex

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

We note that in:

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

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

#### example 19

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

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

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

LISTING 94: matrix1.tex

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

LISTING 95: matrix1.tex default output

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

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





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

LISTING 96: `align-block.tex`

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

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

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

With reference to Table 2 on page 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

N: 2020-03-21

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

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

LISTING 98: `tabular-DM.tex`

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

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

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

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

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

and receive the output given in Listing 100.

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

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

LISTING 101: `dontMeasure1.yaml`

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

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

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

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

we receive the output in Listing 102.



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

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

LISTING 103: dontMeasure2.yaml

```
lookForAlignDelims:
  tabular:
    dontMeasure:
      - aaaaaa
      - bbbbbb
      - 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 106

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

LISTING 105: dontMeasure3.yaml

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

LISTING 106: dontMeasure4.yaml

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

We note that in:

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

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

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

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

we receive the output in Listing 107.

LISTING 107: tabular-DM.tex using  
Listing 108

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

LISTING 108: dontMeasure5.yaml

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



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

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

we receive the output in Listing 109.

LISTING 109: tabular-DM.tex using Listing 110

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

LISTING 110: dontMeasure6.yaml

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

#### 5.5.4 lookForAlignDelims: the `delimiterRegEx` and `delimiterJustification` feature

N: 2020-03-21

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



#### Warning!

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

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

LISTING 111: tabbing.tex

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

LISTING 112: tabbing.tex default output

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

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

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

to receive the output given in Listing 113.

LISTING 113: tabbing.tex using Listing 114

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

LISTING 114: delimiterRegEx1.yaml

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

We note that:

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



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

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

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

to receive the output given in Listing 115.

LISTING 115: tabbing.tex using Listing 116

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

LISTING 116: delimiterRegEx2.yaml

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

We note that only the `\>` have been aligned.

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

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

to receive the output given in Listing 117.

LISTING 117: tabbing.tex using Listing 118

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

LISTING 118: delimiterRegEx3.yaml

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

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

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

we receive the output in Listing 120.

LISTING 119: tabbing1.tex

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

LISTING 120: tabbing1-mod4.tex

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

LISTING 121: delimiterRegEx4.yaml

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



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

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

gives the output in Listing 122.

LISTING 122: tabbing1-mod5.tex

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

LISTING 123: delimiterRegEx5.yaml

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

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

### 5.5.5 lookForAlignDelims: lookForChildCodeBlocks

N: 2021-12-13

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

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

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

gives the output in Listing 125.

LISTING 124: tabular-DM-1.tex

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

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

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

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

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

which gives the output in Listing 127.

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

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

LISTING 127: dontMeasure1a.yaml

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

### 5.5.6 lookForAlignDelims: alignContentAfterDoubleBackSlash

N: 2023-05-01

You can instruct `latexindent` to align content after the double back slash. See also Section 6.3.2 on page 116.

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



LISTING 128: tabular5.tex

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

LISTING 129: tabular5-default.tex

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

Using the settings given in Listing 131 and running

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

gives the output in Listing 130.

LISTING 130: tabular5-mod1.tex

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

LISTING 131: alignContentAfterDBS1.yaml

```
lookForAlignDelims:
  tabular:
    alignContentAfterDoubleBackslash: 1
```

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

N: 2023-05-01

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

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

gives the output in Listing 132.

LISTING 132: tabular5-mod2.tex

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

LISTING 133: alignContentAfterDBS2.yaml

```
lookForAlignDelims:
  tabular:
    alignContentAfterDoubleBackslash: 1
    spacesAfterDoubleBackslash: 3
```

## 5.6 Indent after items, specials and headings

`indentAfterItems: {fields}`

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

LISTING 134: indentAfterItems

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

LISTING 135: items1.tex

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

LISTING 136: items1.tex default output

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



```
itemNames: {fields}
```

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

LISTING 137: `itemNames`

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

```
specialBeginEnd: {fields}
```

U: 2017-08-21

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

LISTING 138: `specialBeginEnd`

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

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

**example 33**

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

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

gives the output given in Listing 140.

LISTING 139: `special1.tex` before

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

LISTING 140: `special1.tex` default output

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



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

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

N: 2017-08-21

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

LISTING 141: `specialLR.tex`

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

Now consider the YAML files shown in Listings 142 and 143

LISTING 142: `specialsLeftRight.yaml`

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

LISTING 143:

`specialBeforeCommand.yaml`

```
specialBeginEnd:
  specialBeforeCommand: 1
```

Upon running the following commands

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

we receive the respective outputs in Listings 144 and 145.

LISTING 144: `specialLR.tex` using Listing 142

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

LISTING 145: `specialLR.tex` using Listings 142 and 143

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

Notice that in:

- Listing 144 the `\left` has been treated as a *command*, with one optional argument;
- Listing 145 the `specialBeginEnd` pattern in Listing 142 has been obeyed because Listing 143 specifies that the `specialBeginEnd` should be sought *before* commands. ■

N: 2018-04-27

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

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





LISTING 146: special2.tex

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

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

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

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

LISTING 147: special2.tex using  
Listing 148

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

LISTING 148: middle.yaml

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

LISTING 149: special2.tex using  
Listing 150

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

LISTING 150: middle1.yaml

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

We note that:

- in Listing 147 the bodies of each of the `Elsif` statements have been indented appropriately;
- the `Else` statement has *not* been indented appropriately in Listing 147 – read on!
- we have specified multiple settings for the `middle` field using the syntax demonstrated in Listing 150 so that the body of the `Else` statement has been indented appropriately in Listing 149.

■

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



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

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

then the output in Listing 151 is unchanged.

LISTING 151: special3.tex and output using Listing 152

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

LISTING 152: special-verb1.yaml

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

We can combine the specialBeginEnd with the lookForAlignDelims feature.

**example 37** We begin with the code in Listing 153.

LISTING 153: special-align.tex

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

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

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

to receive the output in Listing 154.

LISTING 154: special-align.tex using Listing 155

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

LISTING 155: edge-node1.yaml

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

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

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

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



to receive the output in Listing 156.

LISTING 156: `special-align.tex` using Listing 157

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

LISTING 157: `edge-node2.yaml`

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

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

U: 2021-06-19

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

`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.<sup>5</sup>

LISTING 158: `indentAfterHeadings`

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

<sup>5</sup>There is a slight difference in interface for this field when comparing Version 2.2 to Version 3.0; see appendix L on page 174 for details.



LISTING 159: headings1.tex

```
\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

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

If you run the command

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

then you should receive the output given in Listing 161.

LISTING 161: headings1.tex using Listing 160

```
\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

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

Now say that you modify the YAML from Listing 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:` *<horizontal space>*

N: 2017-08-21

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

**example 39** For example, consider the example shown in Listing 163 together with the default output shown in Listing 164.



LISTING 163: mult-nested.tex

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

LISTING 164: mult-nested.tex  
default output

```
\begin{one}
__one
__\begin{two}
__two
__\begin{three}
__three
__\begin{four}
__four
__\end{four}
__\end{three}
__\end{two}
__\end{one}
```

**example 40** Now say that, for example, you have the `max-indentation1.yaml` from Listing 166 and that you run the following command:

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

You should receive the output shown in Listing 165.

LISTING 165: mult-nested.tex using  
Listing 166

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

LISTING 166: max-indentation1.yaml

```
maximumIndentation: " "
```

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 142.

## 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`

Code block	characters allowed in name	example
environments	<code>a-zA-Z@*0-9_\\</code>	<code>\begin{myenv}</code> body of myenv <code>\end{myenv}</code>
optionalArguments	<i>inherits</i> name from parent (e.g environment name)	[ opt arg text ]
mandatoryArguments	<i>inherits</i> name from parent (e.g environment name)	{ mand arg text }
commands	<code>+a-zA-Z@*0-9_:</code>	<code>\mycommand⟨arguments⟩</code>
keyEqualsValuesBracesBrackets	<code>a-zA-Z@*0-9_/. \h\{\}:\#-</code>	<code>my key/.style=⟨arguments⟩</code>
namedGroupingBracesBrackets	<code>0-9\ .a-zA-Z@*⟩&lt;</code>	<code>in⟨arguments⟩</code>
UnNamedGroupingBracesBrackets	<i>No name!</i>	{ or [ or , or \& or ) or ( or \$ followed by <code>⟨arguments⟩</code>
ifElseFi	<code>@a-zA-Z</code> but must begin with either <code>\if</code> of <code>\@if</code>	<code>\ifnum...</code> ... <code>\else</code> ... <code>\fi</code>
items	User specified, see Listings 134 and 137 on page 46 and on page 47	<code>\begin{enumerate}</code> <code>\item ...</code> <code>\end{enumerate}</code>
specialBeginEnd	User specified, see Listing 138 on page 47	<code>\[</code> ... <code>\]</code>
afterHeading	User specified, see Listing 158 on page 51	<code>\chapter{title}</code> ... <code>\section{title}</code>
filecontents	User specified, see Listing 54 on page 32	<code>\begin{filecontents}</code> ... <code>\end{filecontents}</code>



3. noAdditionalIndentGlobal for the *type* of the current *<thing>*;
4. indentRulesGlobal for the *type* of the current *<thing>*.

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

We now present details for the different type of code blocks known to latexindent.pl, as detailed in Table 2 on the 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
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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

```
\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:

myenv-noAdd1.yaml

```
noAdditionalIndent:
  myenv: 1
```

LISTING 169:

myenv-noAdd2.yaml

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

On applying either of the following commands,



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

we obtain the output given in Listing 170; note in particular that the environment `myenv` has not received any *additional* indentation, but that the outer environment *has* still received indentation.

LISTING 170: `myenv.tex` output (using either Listing 168 or Listing 169)

```
\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

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

we obtain the output given in Listing 173.

LISTING 171: `myenv-noAdd3.yaml`

```
noAdditionalIndent:
  myenv: 0
```

LISTING 172: `myenv-noAdd4.yaml`

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

LISTING 173: `myenv.tex` output (using either Listing 171 or Listing 172)

```
\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.

LISTING 174: `myenv-args.tex`

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

Upon running





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

we obtain the output shown in Listing 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

```
\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

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

LISTING 177: myenv-noAdd6.yaml

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

Upon running

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

we obtain the respective outputs given in Listings 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

```
\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

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

`indentRules: {fields}`



**example 45** We may also specify indentation rules for environment code blocks using the `indentRules` field; see, for example, Listings 180 and 181.

LISTING 180: `myenv-rules1.yaml`

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

LISTING 181: `myenv-rules2.yaml`

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

On applying either of the following commands,

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

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

LISTING 182: `myenv.tex` output (using either Listing 180 or Listing 181)

```
\begin{outer}
  \begin{myenv}
    \bodyofenvironment
    \bodyofenvironment
    \bodyofenvironment
  \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

```
cmh:~$ 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.

LISTING 183: `myenv-args.tex` using Listing 180

```
\begin{outer}
  \begin{myenv}[%
    \optionalargumenttext
    \optionalargumenttext]%
    \mandatoryargumenttext
    \mandatoryargumenttext}
  \bodyofenvironment
  \bodyofenvironment
  \bodyofenvironment
  \end{myenv}
\end{outer}
```

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



LISTING 184: myenv-rules3.yaml

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

LISTING 185: myenv-rules4.yaml

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

After running

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

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

LISTING 186: myenv-args.tex using Listing 184

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

LISTING 187: myenv-args.tex using Listing 185

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

Note that in Listing 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.

```
noAdditionalIndentGlobal: {fields}
```

Assuming that your environment name is not found within neither `noAdditionalIndent` nor `indentRules`, the next place that `latexindent.pl` will look is `noAdditionalIndentGlobal`, and in particular for the *environments* key (see Listing 188).

LISTING 188: noAdditionalIndentGlobal

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

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

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

The respective output from these two commands are in Listings 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.



LISTING 189: myenv-args.tex using Listing 188

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

LISTING 190: myenv-args.tex using Listings 180 and 188

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

**example 49** In fact, noAdditionalIndentGlobal also contains keys that control the indentation of optional and mandatory arguments; on referencing Listings 191 and 192

LISTING 191:  
opt-args-no-add-glob.yaml

```
noAdditionalIndentGlobal:
  optionalArguments: 1
```

LISTING 192:  
mand-args-no-add-glob.yaml

```
noAdditionalIndentGlobal:
  mandatoryArguments: 1
```

we may run the commands

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

which produces the respective outputs given in Listings 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.

LISTING 193: myenv-args.tex using Listing 191

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

LISTING 194: myenv-args.tex using Listing 192

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

```
indentRulesGlobal: {fields}
```

The final check that latexindent.pl will make is to look for indentRulesGlobal as detailed in Listing 195.

LISTING 195: indentRulesGlobal

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



**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` Listing 180 on page 58.

LISTING 196: `myenv-args.tex` using Listing 195

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

LISTING 197: `myenv-args.tex` using Listings 180 and 195

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

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

LISTING 198:

`opt-args-indent-rules-glob.yaml`

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

LISTING 199:

`mand-args-indent-rules-glob.yaml`

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

Upon running the following commands

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

we obtain the respective outputs in Listings 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.

LISTING 200: `myenv-args.tex` using Listing 198

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

LISTING 201: `myenv-args.tex` using Listing 199

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



### 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

LISTING 202: item-noAdd1.yaml

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

LISTING 203: item-rules1.yaml

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

Upon running the following commands

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

the respective outputs are given in Listings 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.

LISTING 204: items1.tex using Listing 202

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

LISTING 205: items1.tex using Listing 203

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

**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.

LISTING 206:  
items-noAdditionalGlobal.yaml

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

LISTING 207:  
items-indentRulesGlobal.yaml

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

Upon running the following commands,

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

the respective outputs from Listings 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.<sup>a</sup>

LISTING 208: mycommand.tex	LISTING 209: mycommand.tex default output
<pre>\mycommand {   mand arg text   mand arg text} [   opt arg text   opt arg text ]</pre>	<pre>\mycommand {   mand arg text   mand arg text} [   opt arg text   opt arg text ]</pre>

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

LISTING 210: mycommand-noAdd1.yaml	LISTING 211: mycommand-noAdd2.yaml
<pre>noAdditionalIndent:   mycommand: 1</pre>	<pre>noAdditionalIndent:   mycommand:     body: 1</pre>

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

LISTING 212: mycommand.tex using Listing 210	LISTING 213: mycommand.tex using Listing 211
<pre>\mycommand {   mand arg text   mand arg text} [   opt arg text   opt arg text ]</pre>	<pre>\mycommand {   mand arg text   mand arg text} [   opt arg text   opt arg text ]</pre>

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.

<sup>a</sup>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.



LISTING 214: mycommand-noAdd3.yaml

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

LISTING 215: mycommand-noAdd4.yaml

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

After running the following commands,

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

we receive the respective output given in Listings 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
]
```

#### example 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,

```
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.

LISTING 222: ifelsefi1.tex	LISTING 223: ifelsefi1.tex default output
<pre>\ifodd\radius \ifnum\radius&lt;14 \pgfmathparse{100-(\radius)*4}; \else \pgfmathparse{200-(\radius)*3}; \fi\fi</pre>	<pre>\ifodd\radius   \ifnum\radius&lt;14     \pgfmathparse{100-(\radius)*4};   \else     \pgfmathparse{200-(\radius)*3}; \fi\fi</pre>

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.

LISTING 224: ifnum-noAdd.yaml	LISTING 225: ifnum-indent-rules.yaml
<pre>noAdditionalIndent:   ifnum: 1</pre>	<pre>indentRules:   ifnum: " "</pre>

After running the following commands,

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

we receive the respective output given in Listings 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.

LISTING 226: ifelsefi1.tex using Listing 224	LISTING 227: ifelsefi1.tex using Listing 225
<pre>\ifodd\radius   \ifnum\radius&lt;14     \pgfmathparse{100-(\radius)*4};   \else     \pgfmathparse{200-(\radius)*3}; \fi\fi</pre>	<pre>\ifodd\radius   __\ifnum\radius&lt;14     __\pgfmathparse{100-(\radius)*4};   __\else     __\pgfmathparse{200-(\radius)*3};   __\fi\fi</pre>

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

LISTING 228: ifelsefi-noAdd-glob.yaml	LISTING 229: ifelsefi-indent-rules-global.yaml
<pre>noAdditionalIndentGlobal:   ifElseFi: 1</pre>	<pre>indentRulesGlobal:   ifElseFi: " "</pre>

Upon running the following commands



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

we receive the outputs in Listings 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.

LISTING 230: `ifelsefi1.tex` using Listing 228

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

LISTING 231: `ifelsefi1.tex` using Listing 229

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

### example 59

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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.

LISTING 232: `ifelsefi2.tex`

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

LISTING 233: `ifelsefi2.tex` default output

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

### 5.8.5 specialBeginEnd code blocks

Let’s use the example from Listing 139 on page 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.

LISTING 234: `displayMath-noAdd.yaml`

```
noAdditionalIndent:
  displayMath: 1
```

LISTING 235: `displayMath-indent-rules.yaml`

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

After running the following commands,

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

we receive the respective output given in Listings 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.



LISTING 236: special1.tex using Listing 234

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

LISTING 237: special1.tex using Listing 235

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

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

LISTING 238: special-noAdd-glob.yaml

```
noAdditionalIndentGlobal:
  specialBeginEnd: 1
```

LISTING 239:

special-indent-rules-global.yaml

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

Upon running the following commands

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

we receive the outputs in Listings 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.

LISTING 240: special1.tex using Listing 238

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

LISTING 241: special1.tex using Listing 239

```
The_function_$f$has_formula
\[
 f(x)=x^2.
\]
If_you_like_splitting_dollars,
$
  g(x)=f(2x)
$
```

### 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.

LISTING 242: headings2.tex

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

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

```
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.



LISTING 243: headings2.tex using  
Listing 244

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

LISTING 244: headings3.yaml

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

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.

LISTING 245: headings2.tex using  
Listing 246

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

LISTING 246: headings4.yaml

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

**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.

LISTING 247: headings2.tex using Listing 248

```
\paragraph{paragraph
_____title}
_____paragraph text
_____paragraph text
```

LISTING 248: headings5.yaml

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

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

LISTING 249: headings2.tex using  
Listing 250

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

LISTING 250: headings6.yaml

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

**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.





LISTING 257: pgfkeys1.tex

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

LISTING 258: pgfkeys1.tex default output

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

In Listing 258, note that the maximum indentation is three tabs, and these come from:

- the `\pgfkeys` command's mandatory argument;
- the `start coordinate/.initial` key's mandatory argument;
- the `start coordinate/.initial` key's body, which is defined as any lines following the name of the key that include its arguments. This is the part controlled by the *body* field for `noAdditionalIndent` and friends from page 53.

### 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 560 on page 142

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**example 68** A simple example is given in Listing 259, with default output in Listing 260.

LISTING 259: child1.tex

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

LISTING 260: child1.tex default output

```
\coordinate
child[grow=down]{
____edge from parent [antiparticle]
____node [above=3pt] {$C$}
____}
```

In particular, `latexindent.pl` considers `child`, `parent` and `node` all to be `namedGroupingBracesBrackets`<sup>a</sup>. 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.

<sup>a</sup>You may like to verify this by using the `-tt` option and checking `indent.log`!

### 5.8.7.3 UnNamedGroupingBracesBrackets

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

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

See the `UnNamedGroupingBracesBrackets: follow` field of the fine tuning section in Listing 560 on page 142

N: 2019-07-13



**example 69** An example is shown in Listing 261 with default output give in Listing 262.

LISTING 261: psforeach1.tex	LISTING 262: psforeach1.tex default output
<pre>\psforeach{\row}{% { {3,2.8,2.7,3,3.1}},% {2.8,1,1.2,2,3},% }</pre>	<pre>\psforeach{\row}{% —{ ———{3,2.8,2.7,3,3.1}},% ——{2.8,1,1.2,2,3},% }</pre>

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.

LISTING 263: noAdditionalIndentGlobal	LISTING 264: indentRulesGlobal
<pre>339 noAdditionalIndentGlobal: 340   environments: 0          # 0/1 341   commands: 1            # 0/1 342   optionalArguments: 0    # 0/1 343   mandatoryArguments: 0   # 0/1 344   ifElseFi: 0            # 0/1 345   items: 0                # 0/1 346   keyEqualsValuesBracesBrackets: 0 # 0/1 347   namedGroupingBracesBrackets: 0   # 0/1 348   UnNamedGroupingBracesBrackets: 0 # 0/1 349   specialBeginEnd: 0          # 0/1 350   afterHeading: 0            # 0/1 351   filecontents: 0           # 0/1</pre>	<pre>355 indentRulesGlobal: 356   environments: 0          # 357   0/h-space 358   commands: 0             # 359   0/h-space 360   optionalArguments: 0     # 361   0/h-space 362   mandatoryArguments: 0    # 363   0/h-space 364   ifElseFi: 0             # 365   0/h-space 366   items: 0                # 367   0/h-space 368   keyEqualsValuesBracesBrackets: 0 # 369   0/h-space 370   namedGroupingBracesBrackets: 0   # 371   0/h-space 372   UnNamedGroupingBracesBrackets: 0 # 373   0/h-space 374   specialBeginEnd: 0          # 375   0/h-space 376   afterHeading: 0            # 377   0/h-space 378   filecontents: 0           # 379   0/h-space</pre>

## 5.9 Commands and the strings between their arguments

The command code blocks will always look for optional (square bracketed) and mandatory (curly braced) arguments which can contain comments, line breaks and 'beamer' commands `<. *>` between



them. There are switches that can allow them to contain other strings, which we discuss next.

```
commandCodeBlocks: {fields}
```

U: 2018-04-27

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

LISTING 265: <code>commandCodeBlocks</code>	
370	<code>commandCodeBlocks:</code>
371	<code>roundParenthesesAllowed: 1</code>
372	<code>stringsAllowedBetweenArguments:</code>
373	<code>-</code>
374	<code>amalgamate: 1</code>
375	<code>- node</code>
376	<code>- at</code>
377	<code>- to</code>
378	<code>- decoration</code>
379	<code>- \+ \+</code>
380	<code>- \- \-</code>
381	<code>- \# \# \d</code>
382	<code>commandNameSpecial:</code>
383	<code>-</code>
384	<code>amalgamate: 1</code>
385	<code>- '@ifnextchar\['</code>

```
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: <code>pstricks1.tex</code>	LISTING 267: <code>pstricks1</code> default output
<code>\defFunction[algebraic]{torus}(u,v)</code>	<code>\defFunction[algebraic]{torus}(u,v)</code>
<code>{(2+cos(u))*cos(v+\Pi)}</code>	<code>{(2+cos(u))*cos(v+\Pi)}</code>
<code>{(2+cos(u))*sin(v+\Pi)}</code>	<code>{(2+cos(u))*sin(v+\Pi)}</code>
<code>{sin(u)}</code>	<code>{sin(u)}</code>

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

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

we obtain the output given in Listing 268.





LISTING 268: pstricks1.tex using Listing 269

```
\defFunction[algebraic]{torus}(u,v)
{(2*cos(u))*cos(v+\Pi)}
{(2*cos(u))*sin(v+\Pi)}
{sin(u)}
```

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.

LISTING 270: pstricks1.tex using Listing 271

```
\defFunction[algebraic]{torus}(u,v)
  {(2*cos(u))*cos(v+\Pi)}
  {(2*cos(u))*sin(v+\Pi)}
  {sin(u)}
```

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.

LISTING 271: defFunction.yaml

```
indentRules:
  defFunction:
    body: " "
```

```
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.

LISTING 272: tikz-node1.tex

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

LISTING 273: tikz-node1 default output

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

With reference to Listing 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)



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

**example 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

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

LISTING 275: draw.yaml

```
indentRules:
  draw:
    body: " "
```

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

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

LISTING 277: no-strings.yaml

```
commandCodeBlocks:

  stringsAllowedBetweenArguments:
    0
```

In this case, `latexindent.pl` sees that:

- the `\draw` command finishes after the (c), as `stringsAllowedBetweenArguments` has been set to 0 so there are no strings allowed between arguments;
- it finds a namedGroupingBracesBrackets called to (see Table 2 on page 54) with argument `[in=110,out=-90]`
- it finds another namedGroupingBracesBrackets but this time called node with argument `[below,align=left,scale=0.5]`

U: 2018-04-27

Referencing Listing 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.



LISTING 278: amalgamate-demo.yaml

```
commandCodeBlocks:

  stringsAllowedBetweenArguments:
    - 'more'
    - 'strings'
    - 'here'
```

LISTING 279: amalgamate-demo1.yaml

```
commandCodeBlocks:

  stringsAllowedBetweenArguments:
    -
      amalgamate: 1
    - 'more'
    - 'strings'
    - 'here'
```

LISTING 280: amalgamate-demo2.yaml

```
commandCodeBlocks:

  stringsAllowedBetweenArguments:
    -
      amalgamate: 1
    - 'node'
    - 'at'
    - 'to'
    - 'decoration'
    - '\+\'
    - '\-\'
    - 'more'
    - 'strings'
    - 'here'
```

We specify `amalgamate` to be set to 0 and in which case any settings loaded prior to those specified, including the default, will be overwritten. For example, using the settings in Listing 281 means that only the strings specified in that field will be used.

LISTING 281: amalgamate-demo3.yaml

```
commandCodeBlocks:
  stringsAllowedBetweenArguments:
    -
      amalgamate: 0
    - 'further'
    - 'settings'
```

It is important to note that the `amalgamate` field, if used, must be in the first field, and specified using the syntax given in Listings 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.

LISTING 282: for-each.tex

```
\foreach \x/\y in {0/1,1/2}{
  body of foreach
}
```

LISTING 283: for-each default output

```
\foreach \x/\y in {0/1,1/2}{
  body of foreach
}
```

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

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

given in Listing 284.

LISTING 284: for-each.tex using Listing 285

```
\foreach \x/\y in {0/1,1/2}{
  body of foreach
}
```

LISTING 285: foreach.yaml

```
commandCodeBlocks:

  stringsAllowedBetweenArguments:
    -
      amalgamate: 0
    - '\\x\\y'
    - 'in'
```

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 `\x/\y` and `in` between arguments because of the settings given in Listing 285.

```
commandNameSpecial: {fields}
```

U: 2018-04-27

There are some special command names that do not fit within the names recognised by `latexindent.pl`, the first one of which is `\ifnextchar[`. From the perspective of `latexindent.pl`, the whole of the text `\ifnextchar[` is a command, because it is immediately followed by sets of mandatory arguments. However, without the `commandNameSpecial` field, `latexindent.pl` would not be able to label it as such, because the `[` is, necessarily, not matched by a closing `]`.

**example 75** For example, consider the sample file in Listing 286, which has default output in Listing 287.

LISTING 286: `ifnextchar.tex`

```
\parbox{
  \@ifnextchar[{arg 1}]{arg 2}
}
```

LISTING 287: `ifnextchar.tex`  
default output

```
\parbox{
  \@ifnextchar[{arg 1}]{arg 2}
}
```

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 <thing> and works outwards*, discussed in more detail on page 125.

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.

LISTING 288: `ifnextchar.tex` using  
Listing 289

```
\parbox{
  \@ifnextchar[{arg 1}]{arg 2}
}
```

LISTING 289: `no-ifnextchar.yaml`

```
commandCodeBlocks:
  commandNameSpecial: 0
```

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



#### Warning!

It is important to note that the `amalgamate` field, if used, in either `commandNameSpecial` or `stringsAllowedBetweenArguments` must be in the first field, and specified using the syntax given in Listings 279 to 281.

## 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.

LISTING 290: `modifyLineBreaks`

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

Having read the previous paragraph, it should sound reasonable that, if you call `latexindent.pl` using the `-m` switch, then you give it permission to modify line breaks in your file, but let's be clear:



#### Warning!

If you call `latexindent.pl` with the `-m` switch, then you are giving it permission to modify line breaks. By default, the only thing that will happen is that multiple blank lines will be condensed into one blank line; many other settings are possible, discussed next.

`preserveBlankLines: 0|1`

This field is directly related to *poly-switches*, discussed in Section 6.3. By default, it is set to 1, which means that blank lines will be *protected* from removal; however, regardless of this setting, multiple blank lines can be condensed if `condenseMultipleBlankLinesInto` is greater than 0, discussed next.

`condenseMultipleBlankLinesInto: {positive integer}`

Assuming that this switch takes an integer value greater than 0, `latexindent.pl` will condense multiple blank lines into the number of blank lines illustrated by this switch.

**example 76** As an example, Listing 291 shows a sample file with blank lines; upon running

```
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!



LISTING 291: mlb1.tex	LISTING 292: mlb1-mod1.tex
before blank line	before blank line
	after blank line
after blank line	after blank line
after blank line	

6.1 Text Wrapping

N: 2022-03-13

The text wrapping routine has been over-hauled as of V3.16; I hope that the interface is simpler, and most importantly, the results are better.

The complete settings for this feature are given in Listing 293.

LISTING 293: textWrapOptions

530 textWrapOptions:  
531 columns: 0  
532 multipleSpacesToSingle: 1  
533 removeBlockLineBreaks: 1  
534 when: before # before/after  
535 comments:  
536 wrap: 0 # 0/1  
537 inheritLeadingSpace: 0 # 0/1  
538 blocksFollow:  
539 headings: 1 # 0/1  
540 commentOnPreviousLine: 1 # 0/1  
541 par: 1 # 0/1  
542 blankLine: 1 # 0/1  
543 verbatim: 1 # 0/1  
544 filecontents: 1 # 0/1  
545 other: \\|\\item(?:\\h|\\[) # regex  
546 blocksBeginWith:  
547 A-Z: 1 # 0/1  
548 a-z: 1 # 0/1  
549 0-9: 0 # 0/1  
550 other: 0 # regex  
551 blocksEndBefore:  
552 commentOnOwnLine: 1 # 0/1  
553 verbatim: 1 # 0/1  
554 filecontents: 1 # 0/1  
555 other: \\begin\\{\\|\\[\\|\\end\\{ # regex  
556 huge: overflow # forbid mid-word line breaks  
557 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:

N: 2023-01-01



- (a) *follow* the fields specified in `blocksFollow`
  - (b) *begin* with the fields specified in `blocksBeginWith`
  - (c) *end* before the fields specified in `blocksEndBefore`
6. setting `columns` to a value  $> 0$  will text wrap blocks by first removing line breaks, and then wrapping according to the specified value of `columns`;
  7. setting `columns` to  $-1$  will *only* remove line breaks within the text wrap block;
  8. by default, the text wrapping routine will remove line breaks within text blocks because `removeBlockLineBreak` is set to 1; switch it to 0 if you wish to change this;
  9. about trailing comments within text wrap blocks:
    - (a) trailing comments that do *not* have leading space instruct the text wrap routine to connect the lines *without* space (see Listing 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 6.2.9.

N: 2023-01-01

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.

LISTING 294: `textwrap1.tex`

```
Here is a line of text that will be wrapped by latexindent.pl.

Here is a line of text that will be wrapped by latexindent.pl.
```

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

```
cmh:~$ latexindent.pl -m -1 textwrap1.yaml textwrap1.tex
```

then we receive the output given in Listing 295.

LISTING 295: `textwrap1-mod1.tex`

```
Here is a line of
text that will be
wrapped by
latexindent.pl.

Here is a line of
text that will be
wrapped by
latexindent.pl.
```

LISTING 296: `textwrap1.yaml`

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

-m

**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





LISTING 297: textwrap1A.yaml

-m

```
modifyLineBreaks:
  textWrapOptions:
    columns: -1
```

and running

```
cmh:~$ latexindent.pl -m -l textwrap1A.yaml textwrap1-mod1.tex
```

gives the output in Listing 298.

LISTING 298: textwrap1-mod1A.tex

Here is a line of text that will be wrapped by latexindent.pl.

Here is a line of text that will be wrapped by latexindent.pl.

**example 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.

LISTING 299: textwrap1-mod1B.tex

Here is a line of  
text that will be  
wrapped by  
latexindent.pl.

Here is a line of  
text that will be  
wrapped by  
latexindent.pl.

LISTING 300: textwrap1B.yaml

-m

```
modifyLineBreaks:
  textWrapOptions:
    columns: 20
    multipleSpacesToSingle: 0
```

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.

LISTING 301: tw-headings1.tex

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

We note that Listing 301 contains the heading commands `section` and `subsection`. Upon running the command



```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-headings1.tex
```

then we receive the output given in Listing 302.

LISTING 302: tw-headings1-mod1.tex

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

We reference Listing 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

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,bf-no-headings.yaml tw-headings1.tex
```

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

LISTING 303: tw-headings1-mod2.tex

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

LISTING 304: bf-no-headings.yaml

```
modifyLineBreaks:
  textWrapOptions:
    blocksFollow:
      headings: 0
```

-m

**example 81** Let's use the sample text given in Listing 305.

LISTING 305: tw-comments1.tex

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

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

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml tw-comments1.tex
```



then we receive the output given in Listing 306.

LISTING 306: tw-comments1-mod1.tex

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

With reference to Listing 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

```
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

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

LISTING 308: bf-no-comments.yaml

```
modifyLineBreaks:
  textWrapOptions:
    blocksFollow:
      commentOnPreviousLine: 0
```

-m

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

```
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

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

then we receive the output given in Listing 310.



LISTING 310: tw-disp-math1-mod1.tex

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

With reference to Listing 293 on page 79 the other field is set to `\\`, which instructs `latexindent.pl` to find text wrap blocks after the end of display math.

We can turn off this switch as in Listing 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

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

LISTING 312:  
bf-no-disp-math.yaml

-m

```
modifyLineBreaks:
  textWrapOptions:
    blocksFollow:
      other: 0
```

Naturally, you should feel encouraged to customise this as you see fit. ■

The `blocksFollow` field *deliberately* does not default to allowing text wrapping to occur after begin environment statements. You are encouraged to customize the `other` field to accommodate the environments that you would like to text wrap individually, as in the next example.

**example 83** Let's use the sample text given in Listing 313.

LISTING 313: tw-bf-myenv1.tex

```
text to
  be
  wrapped before myenv environment
\begin{myenv}
text to
  be
  wrapped within myenv environment
\end{myenv}
text to
  be
  wrapped after myenv environment
```

We note that Listing 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.



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

```
cmh:~$ latexindent.pl -m -l textwrap1.yaml,tw-bf-myenv.yaml tw-bf-myenv1.tex
```

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

LISTING 315:  
tw-bf-myenv1-mod2.tex

```
text to be wrapped
before myenv
environment
\begin{myenv}
  text to be wrapped
  within myenv
  environment
\end{myenv}
text to be wrapped
after myenv
environment
```

LISTING 316: tw-bf-myenv.yaml

```
modifyLineBreaks:
  textWrapOptions:
    blocksFollow:
      other: |-
        (?x)
        \\\]
        |
        \\\item(?:\h|\[)
        |
        \\\begin\{myenv\} # <--- new bit
        |                # <--- new bit
        \\\end\{myenv\}  # <--- new bit
```

#### 6.1.4 Text wrap: blocksBeginWith examples

We examine the blocksBeginWith field of Listing 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

LISTING 317: tw-0-9.tex

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

and run the command

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

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



LISTING 318: tw-0-9-mod1.tex

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

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

LISTING 320: bb-0-9.yaml.yaml

```
modifyLineBreaks:
  textWrapOptions:
    blocksBeginWith:
      0-9: 1
```

-m

**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.



LISTING 323:  
tw-bb-announce1-mod2.tex

```
% trailing comment
\announce{announce
  text} and text to
be wrapped before
goes here
```

LISTING 324: tw-bb-announce.yaml -m

```
modifyLineBreaks:
  textWrapOptions:
    blocksBeginWith:
      other: '\\announce'
```

### 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.

LISTING 325: tw-be-equation.tex

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

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.

LISTING 326: tw-be-equation-mod1.tex

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

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.



LISTING 327: tw-be-equation.yaml

```
modifyLineBreaks:
  textWrapOptions:
    blocksEndBefore:
      other: 0
```

-m

LISTING 328: tw-be-equation-mod2.tex

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

Naturally, you should feel encouraged to customise this as you see fit.

### 6.1.6 Text wrap: trailing comments and spaces

We explore the behaviour of the text wrap routine in relation to trailing comments using the following examples.

**example 87** The file in Listing 329 contains a trailing comment which *does* have a space in front of it. Running the command

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

gives the output given in Listing 330.

LISTING 329: tw-tc1.tex

```
foo %
bar
```

LISTING 330: tw-tc1-mod1.tex

```
foo bar %
```

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

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

gives the output in Listing 332.

LISTING 331: tw-tc2.tex

```
foo%
bar
```

LISTING 332: tw-tc2-mod1.tex

```
foobar %
```

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

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

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

gives the output in Listing 334.

LISTING 333: tw-tc3.tex

```
foo %1
bar %2
three
```

LISTING 334: tw-tc3-mod1.tex

```
foo barthree %1 %2
```





**example 90** The file in Listing 335 contains multiple trailing comments.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc4.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 336.

LISTING 335: tw-tc4.tex

```
foo %1
bar%2
three%3
```

LISTING 336: tw-tc4-mod1.tex

```
foo barthree%1%2%3
```

**example 91** The file in Listing 337 contains multiple trailing comments.

Running the command

```
cmh:~$ latexindent.pl -m tw-tc5.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 338.

LISTING 337: tw-tc5.tex

```
foo%1
bar%2
three%3
```

LISTING 338: tw-tc5-mod1.tex

```
foobarthree%1%2%3
```

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

```
cmh:~$ latexindent.pl -m tw-tc6.tex -l textwrap1A.yaml -o=+-mod1
```

gives the output in Listing 340.

LISTING 339: tw-tc6.tex

```
foo%1
bar
```

LISTING 340: tw-tc6-mod1.tex

```
foobar%1
```

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

### 6.1.7 Text wrap: when before/after

N: 2023-01-01

The text wrapping routine operates, by default, before the code blocks have been found, but this can be changed to after:

- before means it is likely that the columns of wrapped text may *exceed* the value specified in columns;
- after means it columns of wrapped text should *not* exceed the value specified in columns.

We demonstrate this in the following examples. See also Section 6.2.8.

**example 93** Let's begin with the file in Listing 341.



LISTING 341: textwrap8.tex

```

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

```

Using the settings given in Listing 343 and running the command

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

gives the output given in Listing 342.

LISTING 342: textwrap8-mod1.tex

```

This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
  This paragraph has line breaks
  throughout its paragraph; we would
  like to combine the textwrapping
  and paragraph removal routine.
\end{myenv}
-----|-----|-----|-----|-----|-----|-----|
      5      10      15      20      25      30      35      40

```

LISTING 343: tw-before1.yaml

```

defaultIndent: ' '

modifyLineBreaks:
  textWrapOptions:
    columns: 35
    when: before # <!-------
    blocksFollow:
      other: \\begin\\{myenv\\}

```

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. ■

**example 94** We continue working with Listing 341.

Using the settings given in Listing 345 and running the command

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

gives the output given in Listing 344.



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

```

LISTING 345: tw-after1.yaml

```

defaultIndent: ' '

modifyLineBreaks:
  textWrapOptions:
    columns: 35
    when: after # <!-------
    blocksFollow:
      other: \\begin\\{myenv\\}

```

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

N: 2023-01-01

You can instruct `latexindent.pl` to apply text wrapping to comments ; we demonstrate this with examples, see also Section 6.2.9.

**example 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=+-mod1.tex -l=wrap-comments1.yaml -m
```

gives the output given in Listing 347.

LISTING 347: textwrap9-mod1.tex

```

My first sentence
% first comment second third
% comment fourth
----|----|----|----|----|----|----|----|
   5   10   15   20   25   30   35   40

```

LISTING 348: wrap-comments1.yaml

```

modifyLineBreaks:
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1 #<!-------

```

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



```
cmh:~$ latexindent.pl textwrap10.tex -o=+-mod1.tex -l=wrap-comments1.yaml -m
```

gives the output given in Listing 350.

LISTING 350: textwrap10-mod1.tex

```
My first sentence
% first comment second third
% comment fourth
----|----|----|----|----|----|----|----|
   5   10   15   20   25   30   35   40
```

LISTING 351: wrap-comments1.yaml

```
modifyLineBreaks:
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1 #<!--
```

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.

LISTING 352: textwrap10-mod2.tex

```
My first sentence
%   first comment second third
%   comment fourth
----|----|----|----|----|----|----|----|
   5   10   15   20   25   30   35   40
```

LISTING 353: wrap-comments2.yaml

```
modifyLineBreaks:
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1 #<!--
      inheritLeadingSpace: 1 #<!--
```

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.



LISTING 354: textwrap4-mod2A.tex

He  
re  
is  
a  
li  
ne  
of  
te  
xt  
.

LISTING 355: textwrap2A.yaml

modifyLineBreaks:  
  textWrapOptions:  
    columns: 3  
    huge: wrap

LISTING 356: textwrap4-mod2B.tex

Here  
is  
a  
line  
of  
text.

LISTING 357: textwrap2B.yaml

modifyLineBreaks:  
  textWrapOptions:  
    columns: 3

N: 2020-11-06

You can also specify the `tabstop` field as an integer value, which is passed to the text wrap module; see [47] for details.

**example 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.

LISTING 358: textwrap-ts.tex

x        y

LISTING 359: tabstop.yaml

modifyLineBreaks:  
  textWrapOptions:  
    columns: 80  
    tabstop: 9  
    multipleSpacesToSingle: 0

LISTING 360:  
textwrap-ts-mod1.tex

x        y

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

N: 2018-01-13

You can instruct `latexindent.pl` to format your file so that it puts one sentence per line. Thank you to [7] for helping to shape and test this feature. The behaviour of this part of the script is controlled by the switches detailed in Listing 361, all of which we discuss next.



LISTING 361: oneSentencePerLine

```

503 oneSentencePerLine:
504     manipulateSentences: 0           # 0/1
505     removeSentenceLineBreaks: 1      # 0/1
506     multipleSpacesToSingle: 1        # 0/1
507     textWrapSentences: 0             # 1 disables main textWrap
508     sentenceIndent: ""
509     sentencesFollow:
510         par: 1                       # 0/1
511         blankLine: 1                 # 0/1
512         fullStop: 1                  # 0/1
513         exclamationMark: 1           # 0/1
514         questionMark: 1              # 0/1
515         rightBrace: 1                # 0/1
516         commentOnPreviousLine: 1     # 0/1
517         other: 0                     # regex
518     sentencesBeginWith:
519         A-Z: 1                       # 0/1
520         a-z: 0                       # 0/1
521         other: 0                     # regex
522     sentencesEndWith:
523         basicFullStop: 0              # 0/1
524         betterFullStop: 1             # 0/1
525         exclamationMark: 1           # 0/1
526         questionMark: 1              # 0/1
527         other: 0                     # regex
528     sentencesDoNOTcontain:
529         other: \\begin                # regex

```

### 6.2.1 oneSentencePerLine: overview

An overview of how the oneSentencePerLine routine feature works:

1. the default value of `manipulateSentences` is 0, which means that `oneSentencePerLine` will *not* happen by default;
2. it happens *after* verbatim blocks have been found;
3. it happens *before* the text wrapping routine (see Section 6.1);
4. it happens *before* the main code blocks have been found;
5. sentences to be found:
  - (a) *follow* the fields specified in `sentencesFollow`
  - (b) *begin* with the fields specified in `sentencesBeginWith`
  - (c) *end* with the fields specified in `sentencesEndWith`
6. by default, the `oneSentencePerLine` routine will remove line breaks within sentences because `removeBlockLineBreaks` is set to 1; switch it to 0 if you wish to change this;
7. sentences can be text wrapped according to `textWrapSentences`, and will be done either before or after the main indentation routine (see Section 6.2.8);
8. about trailing comments within text wrap blocks:
  - (a) multiple trailing comments will be connected at the end of the sentence;
  - (b) the number of spaces between the end of the sentence and the (possibly combined) trailing comments is determined by the spaces (if any) at the end of the sentence.

We demonstrate this feature using a series of examples.



```
manipulateSentences: 0|1
```

This is a binary switch that details if `latexindent.pl` should perform the sentence manipulation routine; it is *off* (set to 0) by default, and you will need to turn it on (by setting it to 1) if you want the script to modify line breaks surrounding and within sentences.

```
removeSentenceLineBreaks: 0|1
```

When operating upon sentences `latexindent.pl` will, by default, remove internal line breaks as `removeSentenceLineBreaks` is set to 1. Setting this switch to 0 instructs `latexindent.pl` not to do so.

**example 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 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 364:  
`manipulate-sentences.yaml`

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
```

LISTING 366:  
`keep-sen-line-breaks.yaml`

```
modifyLineBreaks:
  oneSentencePerLine:
    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
```

U: 2022-03-25

By default, the one-sentence-per-line routine will convert multiple spaces into single spaces. You can change this behaviour by changing the switch `multipleSpacesToSingle` to a value of 0.

The remainder of the settings displayed in Listing 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`

-m

```
sentencesFollow:
  par: 1                # 0/1
  blankLine: 1          # 0/1
  fullStop: 1           # 0/1
  exclamationMark: 1    # 0/1
  questionMark: 1       # 0/1
  rightBrace: 1         # 0/1
  commentOnPreviousLine: 1 # 0/1
  other: 0              # regex
```

LISTING 368: `sentencesBeginWith`

-m

```
sentencesBeginWith:
  A-Z: 1                # 0/1
  a-z: 0                # 0/1
  other: 0              # regex
```

LISTING 369: `sentencesEndWith`

-m

```
sentencesEndWith:
  basicFullStop: 0      # 0/1
  betterFullStop: 1     # 0/1
  exclamationMark: 1    # 0/1
  questionMark: 1       # 0/1
  other: 0              # regex
```

### 6.2.2 oneSentencePerLine: sentencesFollow

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

**example 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` using Listing 371

```
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 371: `sentences-follow1.yaml`

-m

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesFollow:
      blankLine: 0
```





Notice that, because `blankLine` is set to 0, `latexindent.pl` will not seek sentences following a blank line, and so the fourth sentence has not been accounted for.

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

#### LISTING 372: `multiple-sentences1.tex`

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

Upon running the following commands

```
cmh:~$ latexindent.pl multiple-sentences1 -m -l=manipulate-sentences.yaml
cmh:~$ latexindent.pl multiple-sentences1 -m -l=manipulate-sentences.yaml,sentences-follow2.yaml
```

then we obtain the respective output given in Listings 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

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

#### 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.

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

Upon running the following commands

```
cmh:~$ latexindent.pl multiple-sentences2 -m -l=manipulate-sentences.yaml
cmh:~$ latexindent.pl multiple-sentences2 -m -l=manipulate-sentences.yaml,sentences-begin1.yaml
```



then we obtain the respective output given in Listings 377 and 378.

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.
```

LISTING 378: multiple-sentences2.tex using Listing 379

```
This is the first sentence.

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

LISTING 379: sentences-begin1.yaml

-m

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesBeginWith:
      other: "\\$| [0-9]"
```

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.

LISTING 380: multiple-sentences.tex using Listing 381

```
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 381: sentences-end1.yaml

-m

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesEndWith:
      other: "\\;\\;\\;,"
```



LISTING 382: multiple-sentences.tex using Listing 383

```
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 383: sentences-end2.yaml

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesEndWith:
      other: "\:\;\,\,"
    sentencesBeginWith:
      a-z: 1
```

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 `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 `basicFullStop`, which is set to 0, and that the `betterFullStop` is set to 1 by default.

**example 105** Let's consider the file shown in Listing 384.

LISTING 384: url.tex

```
This sentence, \url{tex.stackexchange.com/} finishes here. Second sentence.
```

Upon running the following commands

```
cmh:~$ latexindent.pl url -m -l=manipulate-sentences.yaml
```

we obtain the output given in Listing 385.

LISTING 385: url.tex using Listing 364 on page 95

```
This sentence, \url{tex.stackexchange.com/} finishes here.
Second sentence.
```

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

- they are ignored within e.g. and i.e.;
- they can not be immediately followed by a lower case or upper case letter;
- they can not be immediately followed by a hyphen, comma, or number.

If you find that the `betterFullStop` does not work for your purposes, then you can switch it off by setting it to 0, and you can experiment with the other field. You can also seek to customise the `betterFullStop` routine by using the *fine tuning*, detailed in Listing 560 on page 142.

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

**example 106** For example, using the following command

```
cmh:~$ latexindent.pl url -m -l=alt-full-stop1.yaml
```

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



## LISTING 386: url.tex using Listing 387

```
This sentence, \url{tex.
  stackexchange.com/} finishes here.Second sentence.
```

## LISTING 387: alt-full-stop1.yaml

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesEndWith:
      basicFullStop: 1
      betterFullStop: 0
```

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

## 6.2.5 oneSentencePerLine: sentencesDoNOTcontain

You can specify patterns that sentences do *not* contain using the field in Listing 388.

## LISTING 388: sentencesDoNOTcontain

```
528 sentencesDoNOTcontain:
529     other: \\begin           # regex
530 textWrapOptions:
```

If sentences run across environments then, by default, they will *not* be considered a sentence by latexindent.pl.

**example 107** For example, if we use the .tex file in Listing 389

## LISTING 389: multiple-sentences4.tex

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

and run the command

```
cmh:~$ latexindent.pl multiple-sentences4 -m -l=manipulate-sentences.yaml
```

then the output is unchanged, because the default value of sentencesDoNOTcontain says, *sentences do NOT contain*

This means that, by default, latexindent.pl does *not* consider the file in Listing 389 to have a sentence. \\begin

**example 108** We can customise the sentencesDoNOTcontain field with anything that we do *not* want sentences to contain.

We begin with the file in Listing 390.

## LISTING 390: sentence-dnc1.tex

```
This should not be a sentence \cmh{?} and should not change.
But this
one should.
```

Upon running the following commands

```
cmh:~$ latexindent.pl sentence-dnc1.tex -m -l=dnc1.yaml
```

then we obtain the output given in Listing 391.



LISTING 391: sentence-dnc1-mod1.tex

```
This should not be a sentence \cmh{?} and should not change.
But this one should.
```

LISTING 392: dnc1.yaml

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesDoNOTcontain:
      other: |-
        (?x)
        \\begin
        |
        \\cmh
```

The settings in Listing 392 say that sentences do *not* contain `\\begin` and that they do not contain `\\cmh`

**example 109** We can implement case insensitivity for the `sentencesDoNOTcontain` field. We begin with the file in Listing 393.

LISTING 393: sentence-dnc2.tex

```
This should not be a sentence \cmh{?} and should not change.
This should not be a sentence \CMH{?} and should not change.
But this
one should.
```

Upon running the following commands

```
cmh:~$ latexindent.pl sentence-dnc2.tex -m -l=dnc2.yaml
```

then we obtain the output given in Listing 394.

LISTING 394: sentence-dnc2-mod2.tex

```
This should not be a sentence \cmh{?} and should not change.
This should not be a sentence \CMH{?} and should not change.
But this one should.
```

LISTING 395: dnc2.yaml

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesDoNOTcontain:
      other: |-
        (?xi)      #<!--
        \\begin
        |
        \\cmh
```

The settings in Listing 395 say that sentences do *not* contain `\\begin` and that they do not contain *case insensitive* versions of `\\cmh`

**example 110** We can turn off `sentencesDoNOTcontain` by setting it to 0 as in Listing 396.

LISTING 396: dnc-off.yaml

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    sentencesDoNOTcontain: 0
```

The settings in Listing 396 mean that sentences can contain any character.

### 6.2.6 Features of the oneSentencePerLine routine

The sentence manipulation routine takes place *after* verbatim environments, preamble and trailing comments have been accounted for; this means that any characters within these types of code blocks will not be part of the sentence manipulation routine.



**example 111** For example, if we begin with the .tex file in Listing 397, and run the command

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

then we obtain the output in Listing 398.

#### LISTING 397: multiple-sentences3.tex

```
The first sentence continues after the verbatim
\begin{verbatim}
  there are sentences within this. These
  will not be operated
  upon by latexindent.pl.
\end{verbatim}
and finishes here. Second sentence % a commented full stop.
contains trailing comments,
which are ignored.
```

#### LISTING 398: multiple-sentences3.tex using Listing 364 on page 95

```
The first sentence continues after the verbatim \begin{verbatim}
  there are sentences within this. These
  will not be operated
  upon by latexindent.pl.
\end{verbatim} and finishes here.
Second sentence contains trailing comments, which are ignored.
% a commented full stop.
```

### 6.2.7 oneSentencePerLine: text wrapping and indenting sentences

N: 2018-08-13

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

**example 112** Let's use the code in Listing 399.

#### LISTING 399: multiple-sentences5.tex

```
A distincao entre conteudo \emph{real} e conteudo \emph{intencional} esta
relacionada, ainda, a distincao entre o conceito husserliano de
\emph{experiencia} e o uso popular desse termo. No sentido comum,
o \term{experimentado} e um complexo de eventos exteriores,
e o \term{experimental} consiste em percepcoes (alem de julgamentos e outros
atos) nas quais tais eventos aparecem como objetos, e objetos frequentemente
to the end.
```

Referencing Listing 401, and running the following command

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

we receive the output given in Listing 400.



LISTING 400: multiple-sentences5.tex using Listing 401

A distincao entre conteudo `\emph{real}` e conteudo `\emph{intencional}` esta relacionada, ainda, a distincao entre o conceito husserliano de `\emph{experiencia}` e o uso popular desse termo. No sentido comum, o `\term{experimentado}` e um complexo de eventos exteriores, e o `\term{experimental}` consiste em percepcoes (alem de julgamentos e outros atos) nas quais tais eventos aparecem como objetos, e objetos frequentemente to the end.

LISTING 401: sentence-wrap1.yaml

```
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    removeSentenceLineBreaks: 1
    textWrapSentences: 1
    sentenceIndent: " "
  textWrapOptions:
    columns: 50
```

If you specify `textWrapSentences` as 1, but do *not* specify a value for `columns` then the text wrapping will *not* operate on sentences, and you will see a warning in `indent.log`.

**example 113** 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 402.

LISTING 402: multiple-sentences6.tex

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

By default, `latexindent.pl` will find the full-stop within the first `item`, which means that, upon running the following commands

```
cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml
cmh:~$ latexindent.pl multiple-sentences6 -m -l=sentence-wrap1.yaml
-y="modifyLineBreaks:oneSentencePerLine:sentenceIndent:''"
```

we receive the respective output in Listing 403 and Listing 404.

LISTING 403: multiple-sentences6-mod1.tex using Listing 401

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

LISTING 404: multiple-sentences6-mod2.tex using Listing 401 and no sentence indentation

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

We note that Listing 403 the `itemize` code block has *not* been indented appropriately. This is because the `oneSentencePerLine` has been instructed to store sentences (because Listing 401); each sentence is then searched for code blocks.

**example 114** We can tweak the settings in Listing 369 on page 96 to ensure that full stops are not followed by `item` commands, and that the end of sentences contains `\end{itemize}` as in Listing 405. This setting is actually an appended version of the `betterFullStop` from the `fineTuning`, detailed in Listing 560 on page 142.



LISTING 405: itemize.yaml

```

modifyLineBreaks:
  textWrapOptions:
    columns: 45
  oneSentencePerLine:
    sentencesEndWith:
      betterFullStop: 0
      other: |-
        (?x)
        (?:
          (?!\R|\h)*\\item          # new
        )
        |
        (?:
          \. \)
          (?!\h*[a-z])
        )
        |
        (?:
          (?<|
            (?:
              [eE]\. [gG])
              |
              [iI]\. [eE])
              |
              [etc]
            )
          )
        )
        \.
        (?:\h*\R*(?:\\end\{itemize\})?) # new
      (?!
        (?:
          [a-zA-Z0-9-~,]
          |
          \),
          |
          \)\.
        )
      )
    )
  )

```

Upon running

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

we receive the output in Listing 406.

LISTING 406: multiple-sentences6-mod3.tex using Listing 401 and Listing 405

```

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

```

Notice that the sentence has received indentation, and that the itemize code block has been found and indented correctly. ■

Text wrapping when using the oneSentencePerLine routine determines if it will remove line breaks while text wrapping, from the value of removeSentenceLineBreaks.





### 6.2.8 oneSentencePerLine: text wrapping and indenting sentences, when before/after

N: 2023-01-01

The text wrapping routine operates, by default, before the code blocks have been found, but this can be changed to after:

- before means it is likely that the columns of wrapped text may *exceed* the value specified in columns;
- after means it columns of wrapped text should *not* exceed the value specified in columns.

We demonstrate this in the following examples. See also Section 6.1.7.

**example 115** Let's begin with the file in Listing 407.

LISTING 407: multiple-sentences8.tex

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

Using the settings given in Listing 409 and running the command

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

gives the output given in Listing 408.

LISTING 408:  
multiple-sentences8-mod1.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
  This paragraph has line breaks
  throughout its paragraph; we would
  like to combine the textwrapping
  and paragraph removal routine.
\end{myenv}
-----|-----|-----|-----|-----|-----|-----|-----|
      5      10      15      20      25      30      35      40
```

LISTING 409: sentence-wrap2.yaml

```
defaultIndent: ' '
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    textWrapSentences: 1
  textWrapOptions:
    columns: 35
    when: before # <!-------
```

We note that, in Listing 408, that the wrapped text has *exceeded* the specified value of columns (35) given in Listing 409. We can affect this by changing when; we explore this next. ■

**example 116** We continue working with Listing 407.

Using the settings given in Listing 411 and running the command

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

gives the output given in Listing 410.



LISTING 410:  
multiple-sentences8-mod2.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
\begin{myenv}
  This paragraph has line breaks
  throughout its paragraph; we
  would like to combine the
  textwrapping and paragraph
  removal routine.
\end{myenv}
----|----|----|----|----|----|----|----|
   5   10   15   20   25   30   35   40
```

LISTING 411: sentence-wrap3.yaml

```
defaultIndent: ' '
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    textWrapSentences: 1
  textWrapOptions:
    columns: 35
    when: after # <!-------
```

We note that, in Listing 410, that the wrapped text has *obeyed* the specified value of columns (35) given in Listing 411. ■

### 6.2.9 oneSentencePerLine: text wrapping sentences and comments

We demonstrate the one sentence per line routine with respect to text wrapping *comments*. See also Section 6.1.8.

**example 117** Let's begin with the file in Listing 412.

LISTING 412: 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 414 and running the command

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

gives the output given in Listing 413.

LISTING 413:  
multiple-sentences9-mod1.tex

```
This paragraph has line breaks
throughout its paragraph; we would
like to combine the textwrapping
and paragraph removal routine.
% first comment second comment
% third comment fourth comment
% fifth comment
----|----|----|----|----|----|----|----|
   5   10   15   20   25   30   35   40
```

LISTING 414: sentence-wrap4.yaml

```
defaultIndent: ' '
modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
    textWrapSentences: 1
  textWrapOptions:
    columns: 35
    comments:
      wrap: 1 #<!-------
```

We note that, in Listing 413, that the sentences have been wrapped, and so too have the comments because of the annotated line in Listing 414. ■

## 6.3 Poly-switches

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



- 1 *remove mode*: line breaks before or after the *<part of thing>* can be removed (assuming that `preserveBlankLines` is set to 0);
- 0 *off mode*: line breaks will not be modified for the *<part of thing>* under consideration;
- 1 *add mode*: a line break will be added before or after the *<part of thing>* under consideration, assuming that there is not already a line break before or after the *<part of thing>*;
- 2 *comment then add mode*: a comment symbol will be added, followed by a line break before or after the *<part of thing>* under consideration, assuming that there is not already a comment and line break before or after the *<part of thing>*;
- 3 *add then blank line mode*: a line break will be added before or after the *<part of thing>* under consideration, assuming that there is not already a line break before or after the *<part of thing>*, followed by a blank line;
- 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 415; note that it contains *global* settings (immediately after the `environments` field) and that *per-name* settings are also allowed – in the case of Listing 415, settings for `equation*` have been specified for demonstration. Note that all poly-switches are *off* (set to 0) by default.

LISTING 415: environments -m

```

559 environments:
560     BeginStartsOnOwnLine: 0           # -1,0,1,2,3,4
561     BodyStartsOnOwnLine: 0           # -1,0,1,2,3,4
562     EndStartsOnOwnLine: 0           # -1,0,1,2,3,4
563     EndFinishesWithLineBreak: 0      # -1,0,1,2,3,4
564     ## equation*:
565     ##     BeginStartsOnOwnLine: 0      # -1,0,1,2,3,4
566     ##     BodyStartsOnOwnLine: 0      # -1,0,1,2,3,4
567     ##     EndStartsOnOwnLine: 0      # -1,0,1,2,3,4
568     ##     EndFinishesWithLineBreak: 0  # -1,0,1,2,3,4

```

Let's begin with the simple example given in Listing 416; note that we have annotated key parts of the file using ♠, ♥, ♦ and ♣, these will be related to fields specified in Listing 415.

LISTING 416: 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 118** Let's explore `BeginStartsOnOwnLine` and `BodyStartsOnOwnLine` in Listings 417 and 418, and in particular, let's allow each of them in turn to take a value of 1.

<p style="text-align: center;">LISTING 417: env-mlb1.yaml <span style="float: right;">-m</span></p> <pre> modifyLineBreaks:   environments:     BeginStartsOnOwnLine: 1 </pre>	<p style="text-align: center;">LISTING 418: env-mlb2.yaml <span style="float: right;">-m</span></p> <pre> modifyLineBreaks:   environments:     BodyStartsOnOwnLine: 1 </pre>
--	---



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 419 and 420 respectively.

LISTING 419: env-mlb.tex using Listing 417

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

LISTING 420: env-mlb.tex using Listing 418

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

There are a couple of points to note:

- in Listing 419 a line break has been added at the point denoted by ♠ in Listing 416; no other line breaks have been changed;
- in Listing 420 a line break has been added at the point denoted by ♥ in Listing 416; furthermore, note that the *body* of myenv has received the appropriate (default) indentation.

**example 119** Let's now change each of the 1 values in Listings 417 and 418 so that they are 2 and save them into env-mlb3.yaml and env-mlb4.yaml respectively (see Listings 421 and 422).

LISTING 421: env-mlb3.yaml

```
modifyLineBreaks:
  environments:
    BeginStartsOnOwnLine: 2
```

LISTING 422: env-mlb4.yaml

```
modifyLineBreaks:
  environments:
    BodyStartsOnOwnLine: 2
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb3.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb4.yaml
```

we obtain Listings 423 and 424.

LISTING 423: env-mlb.tex using Listing 421

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

LISTING 424: env-mlb.tex using Listing 422

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

Note that line breaks have been added as in Listings 419 and 420, 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 120** Let's now change each of the 1 values in Listings 417 and 418 so that they are 3 and save them into env-mlb5.yaml and env-mlb6.yaml respectively (see Listings 425 and 426).

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LISTING 425: env-mlb5.yaml

```
modifyLineBreaks:
  environments:
    BeginStartsOnOwnLine: 3
```

LISTING 426: env-mlb6.yaml

```
modifyLineBreaks:
  environments:
    BodyStartsOnOwnLine: 3
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb5.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb6.yaml
```

we obtain Listings 427 and 428.



LISTING 427: env-mlb.tex using Listing 425

before words

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

LISTING 428: env-mlb.tex using Listing 426

before words `\begin{myenv}`

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

Note that line breaks have been added as in Listings 419 and 420, but this time a *blank line* has been added after adding the line break.

**example 121**

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Let's now change each of the 1 values in Listings 425 and 426 so that they are 4 and save them into env-beg4.yaml and env-body4.yaml respectively (see Listings 429 and 430).

LISTING 429: env-beg4.yaml

-m

```
modifyLineBreaks:
  environments:
    BeginStartsOnOwnLine: 4
```

LISTING 430: env-body4.yaml

-m

```
modifyLineBreaks:
  environments:
    BodyStartsOnOwnLine: 4
```

We will demonstrate this poly-switch value using the code in Listing 431.

LISTING 431: env-mlb1.tex

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

Upon running the commands

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

then we receive the respective outputs in Listings 432 and 433.

LISTING 432: env-mlb1.tex using Listing 429

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

LISTING 433: env-mlb1.tex using Listing 430

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

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

1. in Listing 432 a blank line has been inserted before the `\begin` statement, even though the `\begin` statement was already on its own line;
2. in Listing 433 a blank line has been inserted before the beginning of the *body*, even though it already began on its own line.

**6.3.1.2 Adding line breaks: EndStartsOnOwnLine and EndFinishesWithLineBreak****example 122**

Let's explore EndStartsOnOwnLine and EndFinishesWithLineBreak in Listings 434 and 435, and in particular, let's allow each of them in turn to take a value of 1.



LISTING 434: env-mlb7.yaml

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

LISTING 435: env-mlb8.yaml

```
modifyLineBreaks:
  environments:
    EndFinishesWithLineBreak: 1
```

After running the following commands,

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb7.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb8.yaml
```

the output is as in Listings 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
```

There are a couple of points to note:

- in Listing 436 a line break has been added at the point denoted by  $\diamond$  in Listing 416 on page 107; no other line breaks have been changed and the `\end{myenv}` statement has *not* received indentation (as intended);
- in Listing 437 a line break has been added at the point denoted by  $\clubsuit$  in Listing 416 on page 107.

**example 123** Let's now change each of the 1 values in Listings 434 and 435 so that they are 2 and save them into env-mlb9.yaml and env-mlb10.yaml respectively (see Listings 438 and 439).

LISTING 438: env-mlb9.yaml

```
modifyLineBreaks:
  environments:
    EndStartsOnOwnLine: 2
```

LISTING 439: env-mlb10.yaml

```
modifyLineBreaks:
  environments:
    EndFinishesWithLineBreak: 2
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb9.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb10.yaml
```

we obtain Listings 440 and 441.

LISTING 440: env-mlb.tex using Listing 438

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

LISTING 441: env-mlb.tex using Listing 439

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

Note that line breaks have been added as in Listings 436 and 437, 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 124** Let's now change each of the 1 values in Listings 434 and 435 so that they are 3 and save them into env-mlb11.yaml and env-mlb12.yaml respectively (see Listings 442 and 443).

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LISTING 442: env-mlb11.yaml

```
modifyLineBreaks:
  environments:
    EndStartsOnOwnLine: 3
```

LISTING 443: env-mlb12.yaml

```
modifyLineBreaks:
  environments:
    EndFinishesWithLineBreak: 3
```

Upon running the commands

```
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb11.yaml
cmh:~$ latexindent.pl -m env-mlb.tex -l env-mlb12.yaml
```

we obtain Listings 444 and 445.

LISTING 444: env-mlb.tex using Listing 442

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

LISTING 445: env-mlb.tex using Listing 443

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

Note that line breaks have been added as in Listings 436 and 437, and that a *blank line* has been added after the line break.

### example 125

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Let's now change each of the 1 values in Listings 442 and 443 so that they are 4 and save them into env-end4.yaml and env-end-f4.yaml respectively (see Listings 446 and 447).

LISTING 446: env-end4.yaml

```
modifyLineBreaks:
  environments:
    EndStartsOnOwnLine: 4
```

LISTING 447: env-end-f4.yaml

```
modifyLineBreaks:
  environments:
    EndFinishesWithLineBreak: 4
```

We will demonstrate this poly-switch value using the code from Listing 431 on page 109.

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 448 and 449.

LISTING 448: env-mlb1.tex using Listing 446

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

\end{myenv}
after words
```

LISTING 449: env-mlb1.tex using Listing 447

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

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

1. in Listing 448 a blank line has been inserted before the `\end` statement, even though the `\end` statement was already on its own line;
2. in Listing 449 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 126** For example, if you process the file in Listing 450 using poly-switch values of 1, 2, or 3, it will be left unchanged.

LISTING 450: env-mlb2.tex	LISTING 451: env-mlb3.tex
before words <code>\begin{myenv}</code> body of myenv <code>\end{myenv}</code> after words	before words <code>\begin{myenv}</code> % body of myenv% <code>\end{myenv}</code> % after words

Setting the poly-switches to a value of 4 instructs `latexindent.pl` to add a line break even if the `<part of the thing>` is already on its own line; see Listings 432 and 433 and Listings 448 and 449.

**example 127** In contrast, the output from processing the file in Listing 451 will vary depending on the poly-switches used; in Listing 452 you'll see that the comment symbol after the `\begin{myenv}` has been moved to the next line, as `BodyStartsOnOwnLine` is set to 1. In Listing 453 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 451 and by setting the other poly-switches considered so far to 2 in turn.

LISTING 452: env-mlb3.tex using Listing 418 on page 107	LISTING 453: env-mlb3.tex using Listing 422 on page 108
before words <code>\begin{myenv}</code> % body of myenv% <code>\end{myenv}</code> % after words	before words <code>\begin{myenv}</code> % body of myenv% <code>\end{myenv}</code> % after words

The details of the discussion in this section have concerned *global* poly-switches in the `environments` field; each switch can also be specified on a *per-name* basis, which would take priority over the global values; with reference to Listing 415 on page 107, an example is shown for the `equation*` environment.

#### 6.3.1.4 Removing line breaks (poly-switches set to -1)

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

**example 128** We will consider the example code given in Listing 454, noting in particular the positions of the line break highlighters, ♠, ♥, ♦ and ♣, together with the associated YAML files in Listings 455 to 458.





LISTING 454: env-mlb4.tex

```
before words♠
\begin{myenv}♥
body of myenv◇
\end{myenv}♣
after words
```

LISTING 455: env-mlb13.yaml

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

LISTING 456: env-mlb14.yaml

```
modifyLineBreaks:
  environments:
    BodyStartsOnOwnLine: -1
```

LISTING 457: env-mlb15.yaml

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

LISTING 458: env-mlb16.yaml

```
modifyLineBreaks:
  environments:
    EndFinishesWithLineBreak:
      -1
```

After running the commands

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

we obtain the respective output in Listings 459 to 462.

LISTING 459: env-mlb4.tex using  
Listing 455

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

LISTING 460: env-mlb4.tex using  
Listing 456

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

LISTING 461: env-mlb4.tex using  
Listing 457

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

LISTING 462: env-mlb4.tex using  
Listing 458

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

Notice that in:

- Listing 459 the line break denoted by ♠ in Listing 454 has been removed;
- Listing 460 the line break denoted by ♥ in Listing 454 has been removed;
- Listing 461 the line break denoted by ◇ in Listing 454 has been removed;
- Listing 462 the line break denoted by ♣ in Listing 454 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 455 to 458 into one file; alternatively, you could tell `latexindent.pl` to load them all by using the following command, for example



```
cmh:~$ latexindent.pl -m env-mlb4.tex -l env-mlb13.yaml,env-mlb14.yaml,env-mlb15.yaml,env-mlb16.yaml
```

which gives the output in Listing 416 on page 107.

### 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 129** We consider the file shown in Listing 463, which highlights trailing spaces.

LISTING 463: env-mlb5.tex

```
before_words\begin{myenv}body_of_myenv\end{myenv}after_words
```

LISTING 464: removeTWS-before.yaml

```
removeTrailingWhitespace:
  beforeProcessing: 1
```

The output from the following commands

```
cmh:~$ latexindent.pl -m env-mlb5.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16
cmh:~$ latexindent.pl -m env-mlb5.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16,removeTWS-before
```

is shown, respectively, in Listings 465 and 466; note that the trailing horizontal white space has been preserved (by default) in Listing 465, while in Listing 466, it has been removed using the switch specified in Listing 464.

LISTING 465: env-mlb5.tex using Listings 459 to 462

```
before_words\begin{myenv}body_of_myenv\end{myenv}after_words
```

LISTING 466: env-mlb5.tex using Listings 459 to 462 and Listing 464

```
before_words\begin{myenv}body_of_myenv\end{myenv}after_words
```

### 6.3.1.6 poly-switch line break removal and blank lines

**example 130** Now let's consider the file in Listing 467, which contains blank lines.

LISTING 467: env-mlb6.tex

```
before words

\begin{myenv}

body of myenv

\end{myenv}

after words
```

LISTING 468:

UnpreserveBlankLines.yaml

```
modifyLineBreaks:
  preserveBlankLines: 0
```

Upon running the following commands



```
cmh:~$ latexindent.pl -m env-mlb6.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16
cmh:~$
    latexindent.pl -m env-mlb6.tex -l env-mlb13,env-mlb14,env-mlb15,env-mlb16,UnpreserveBlankLines
```

we receive the respective outputs in Listings 469 and 470. In Listing 469 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 470, we have allowed the poly-switches to remove blank lines because, in Listing 468, we have set `preserveBlankLines` to 0.

LISTING 469: `env-mlb6.tex` using Listings 459 to 462

```
before words

\begin{myenv}

    body of myenv

\end{myenv}

after words
```

LISTING 470: `env-mlb6.tex` using Listings 459 to 462 and Listing 468

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

**example 131** We can explore this further using the blank-line poly-switch value of 3; let's use the file given in Listing 471.

LISTING 471: `env-mlb7.tex`

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

Upon running the following commands

```
cmh:~$ latexindent.pl -m env-mlb7.tex -l env-mlb12.yaml,env-mlb13.yaml
cmh:~$
    latexindent.pl -m env-mlb7.tex -l env-mlb13,env-mlb14,UnpreserveBlankLines
```

we receive the outputs given in Listings 472 and 473.

LISTING 472: `env-mlb7-preserve.tex`

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

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

LISTING 473: `env-mlb7-no-preserve.tex`

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

Notice that in:

- Listing 472 that `\end{one}` has added a blank line, because of the value of `EndFinishesWithLineBreak` in Listing 443 on page 111, and even though the line break ahead of `\begin{two}` should have been removed (because of `BeginStartsOnOwnLine` in Listing 455 on page 113), the blank line has been preserved by default;
- Listing 473, by contrast, has had the additional line-break removed, because of the settings in Listing 468.



### 6.3.2 Poly-switches for double backslash

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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).<sup>6</sup>

Consider the code given in Listing 474.

LISTING 474: `tabular3.tex`

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

Referencing Listing 474:

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

Let's explore each of these in turn.

#### 6.3.2.1 Double backslash starts on own line

**example 132** We explore `DBSStartsOnOwnLine` (★ in Listing 474); starting with the code in Listing 474, together with the YAML files given in Listing 476 and Listing 478 and running the following commands

```
cmh:~$ latexindent.pl -m tabular3.tex -l DBS1.yaml
cmh:~$ latexindent.pl -m tabular3.tex -l DBS2.yaml
```

then we receive the respective output given in Listing 475 and Listing 477.

LISTING 475: `tabular3.tex` using Listing 476

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

LISTING 476: `DBS1.yaml`

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

LISTING 477: `tabular3.tex` using Listing 478

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

LISTING 478: `DBS2.yaml`

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

We note that

- Listing 476 specifies `DBSStartsOnOwnLine` for *every* environment (that is within `lookForAlignDelims`, Listing 62 on page 34); the double backslashes from Listing 474 have been moved to their own line in Listing 475;
- Listing 478 specifies `DBSStartsOnOwnLine` on a *per-name* basis for `tabular` (that is within `lookForAlignDelims`, Listing 62 on page 34); the double backslashes from Listing 474 have been moved to their own line in Listing 477, having added comment symbols before

<sup>6</sup>There is no longer any need for the code block to be specified within `lookForAlignDelims` for DBS poly-switches to activate.

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moving them. ■

**example 133** 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 479, and using the settings in Listings 131 and 133 on page 46 and running

```
cmh:~$ latexindent.pl -s -m -l alignContentAfterDBS1.yaml,DBS1.yaml tabular6.tex -o=+-mod1
cmh:~$ latexindent.pl -s -m -l alignContentAfterDBS2.yaml,DBS1.yaml tabular6.tex -o=+-mod2
```

gives the respective outputs shown in Listings 480 and 481.

LISTING 479: tabular6.tex

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

LISTING 480: tabular6-mod1.tex

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

LISTING 481: tabular6-mod2.tex

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

We note that:

- in Listing 480 the content *after* the double back slash has been aligned;
- in Listing 481 we see that 3 spaces have been added after the double back slash. ■

### 6.3.2.2 Double backslash finishes with line break

**example 134** Let's now explore `DBSFinishesWithLineBreak` (□ in Listing 474); starting with the code in Listing 474, together with the YAML files given in Listing 483 and Listing 485 and running the following commands

```
cmh:~$ latexindent.pl -m tabular3.tex -l DBS3.yaml
cmh:~$ latexindent.pl -m tabular3.tex -l DBS4.yaml
```

then we receive the respective output given in Listing 482 and Listing 484.

LISTING 482: tabular3.tex using  
Listing 483

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

LISTING 483: DBS3.yaml

-m

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

LISTING 484: tabular3.tex using  
Listing 485

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

LISTING 485: DBS4.yaml

-m

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

We note that

- Listing 483 specifies `DBSFinishesWithLineBreak` for *every* environment (that is within `lookForAlignDelims`, Listing 62 on page 34); the code following the double backslashes from Listing 474 has been moved to their own line in Listing 482;



- Listing 485 specifies DBSFinishesWithLineBreak on a *per-name* basis for tabular (that is within lookForAlignDelims, Listing 62 on page 34); the first double backslashes from Listing 474 have moved code following them to their own line in Listing 484, 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 135** 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 486.

LISTING 486: special4.tex

```
\< a & =b \\ & =c\\ & =d\\ & =e \>
```

Upon using the YAML settings in Listing 488, and running the command

```
cmh:~$ latexindent.pl -m special4.tex -l DBS5.yaml
```

then we receive the output given in Listing 487.

LISTING 487: special4.tex  
using Listing 488

```
\<
  a & =b \\
    & =c \\
    & =d \\
    & =e %
\>
```

LISTING 488: DBS5.yaml

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

There are a few things to note:

- in Listing 488 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 136** We use with the code in Listing 489.



LISTING 489: mycommand2.tex

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

Upon using the YAML settings in Listings 491 and 493, and running the command

```
cmh:~$ latexindent.pl -m mycommand2.tex -l DBS6.yaml
cmh:~$ latexindent.pl -m mycommand2.tex -l DBS7.yaml
```

then we receive the output given in Listings 490 and 492.

LISTING 490: mycommand2.tex  
using Listing 491

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

LISTING 491: DBS6.yaml

-m

```
lookForAlignDelims:
  mycommand: 1
modifyLineBreaks:
  optionalArguments:
    DBSStartsOnOwnLine: 2
    DBSFinishesWithLineBreak: 2
```

LISTING 492: mycommand2.tex  
using Listing 493

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

LISTING 493: DBS7.yaml

-m

```
lookForAlignDelims:
  mycommand: 1
modifyLineBreaks:
  mandatoryArguments:
    DBSStartsOnOwnLine: 2
    DBSFinishesWithLineBreak: 2
```

### 6.3.2.5 Double backslash optional square brackets

The pattern matching for the double backslash will also, optionally, allow trailing square brackets that contain a measurement of vertical spacing, for example `\\[3pt]`.

**example 137** For example, beginning with the code in Listing 494

LISTING 494: pmatrix3.tex

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

and running the following command, using Listing 483,

```
cmh:~$ latexindent.pl -m pmatrix3.tex -l DBS3.yaml
```

then we receive the output given in Listing 495.

LISTING 495: pmatrix3.tex using Listing 483

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



You can customise the pattern for the double backslash by exploring the *fine tuning* field detailed in Listing 560 on page 142.

### 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 107), 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).

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TABLE 3: Poly-switch mappings for all code-block types

Code block	Sample	Poly-switch mapping
environment	before words♠ \begin{myenv}♥ body of myenv◇ \end{myenv}♣ after words	♠ BeginStartsOnOwnLine ♥ BodyStartsOnOwnLine ◇ EndStartsOnOwnLine ♣ EndFinishesWithLineBreak
ifelsefi	before words♠ \if...♥ body of if/or statement▲ \or▼ body of if/or statement★ \else□ body of else statement◇ \fi♣ after words	♠ IfStartsOnOwnLine ♥ BodyStartsOnOwnLine ▲ OrStartsOnOwnLine ▼ OrFinishesWithLineBreak ★ ElseStartsOnOwnLine □ ElseFinishesWithLineBreak ◇ FiStartsOnOwnLine ♣ FiFinishesWithLineBreak
optionalArguments	...♠ [♥ value before comma★, □ end of body of opt arg◇ ]♣ ...	♠ LSqBStartsOnOwnLine <sup>7</sup> ♥ OptArgBodyStartsOnOwnLine ★ CommaStartsOnOwnLine □ CommaFinishesWithLineBreak ◇ RSqBStartsOnOwnLine ♣ RSqBFinishesWithLineBreak
mandatoryArguments	...♠ {♥ value before comma★, □ end of body of mand arg◇ }♣ ...	♠ LCuBStartsOnOwnLine <sup>8</sup> ♥ MandArgBodyStartsOnOwnLine ★ CommaStartsOnOwnLine □ CommaFinishesWithLineBreak ◇ RCuBStartsOnOwnLine ♣ RCuBFinishesWithLineBreak
commands	before words♠ \mycommand♥ (arguments)	♠ CommandStartsOnOwnLine ♥ CommandNameFinishesWithLineBreak
namedGroupingBracesBrackets	before words♠ myname♥ {braces/brackets}	♠ NameStartsOnOwnLine ♥ NameFinishesWithLineBreak
keyEqualsValuesBracesBrackets	before words♠ key=♥ {braces/brackets}	♠ KeyStartsOnOwnLine • EqualsStartsOnOwnLine ♥ EqualsFinishesWithLineBreak
items	before words♠ \item♥ ...	♠ ItemStartsOnOwnLine ♥ ItemFinishesWithLineBreak
specialBeginEnd	before words♠ \[♥ body of special/middle★ \middle□ body of special/middle ◇ \]♣ after words	♠ SpecialBeginStartsOnOwnLine ♥ SpecialBodyStartsOnOwnLine ★ SpecialMiddleStartsOnOwnLine □ SpecialMiddleFinishesWithLineBreak ◇ SpecialEndStartsOnOwnLine ♣ SpecialEndFinishesWithLineBreak
verbatim	before words♠\begin{verbatim}	♠ VerbatimBeginStartsOnOwnLine

<sup>7</sup>LSqB stands for Left Square Bracket<sup>8</sup>LCuB stands for Left Curly Brace



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body of verbatim \end{verbatim}♣ ♣ VerbatimEndFinishesWithLineBreak  
after words

#### 6.3.4 Partnering BodyStartsOnOwnLine with argument-based poly-switches

Some poly-switches need to be partnered together; in particular, when line breaks involving the *first* argument of a code block need to be accounted for using both BodyStartsOnOwnLine (or its equivalent, see Table 3 on the previous page) and LCuBStartsOnOwnLine for mandatory arguments, and LSqBStartsOnOwnLine for optional arguments.

**example 138** Let's begin with the code in Listing 496 and the YAML settings in Listing 498; with reference to Table 3 on the preceding page, the key CommandNameFinishesWithLineBreak is an alias for BodyStartsOnOwnLine.

LISTING 496: mycommand1.tex

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

Upon running the command

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

we obtain Listing 497; note that the *second* mandatory argument beginning brace { has had its leading line break removed, but that the *first* brace has not.

LISTING 497: mycommand1.tex  
using Listing 498

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

LISTING 498: mycom-mlb1.yaml

-m

```
modifyLineBreaks:
  commands:
    CommandNameFinishesWithLineBreak: 0
  mandatoryArguments:
    LCuBStartsOnOwnLine: -1
```

**example 139** Now let's change the YAML file so that it is as in Listing 500; upon running the command

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

we obtain Listing 499; both beginning braces { have had their leading line breaks removed.

LISTING 499: mycommand1.tex  
using Listing 500

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

LISTING 500: mycom-mlb2.yaml

-m

```
modifyLineBreaks:
  commands:
    CommandNameFinishesWithLineBreak: -1
  mandatoryArguments:
    LCuBStartsOnOwnLine: -1
```

**example 140** Now let's change the YAML file so that it is as in Listing 502; upon running the command



```
cmh:~$ latexindent.pl -m -l=mycom-mlb3.yaml mycommand1.tex
```

we obtain Listing 501.

LISTING 501: mycommand1.tex  
using Listing 502

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

LISTING 502: mycom-mlb3.yaml

-m

```
modifyLineBreaks:
  commands:
    CommandNameFinishesWithLineBreak: -1
  mandatoryArguments:
    LCuBStartsOnOwnLine: 1
```

### 6.3.5 Conflicting poly-switches: sequential code blocks

It is very easy to have conflicting poly-switches.

**example 141** We use the example from Listing 496 on the previous page, and consider the YAML settings given in Listing 504. The output from running

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

is given in Listing 504.

LISTING 503: mycommand1.tex using  
Listing 504

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

LISTING 504: mycom-mlb4.yaml

-m

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

Studying Listing 504, 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 503, 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 142** We can explore this further by considering the YAML settings in Listing 506; upon running the command

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

we obtain the output given in Listing 505.



LISTING 505: mycommand1.tex using Listing 506

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

LISTING 506: mycom-mlb5.yaml

-m

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

As previously, the most-recently-processed code block takes priority – as before, the second (i.e., *last*) argument.

Exploring this further, we consider the YAML settings in Listing 508, and run the command

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

which gives the output in Listing 507.

LISTING 507: mycommand1.tex using Listing 508

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

LISTING 508: mycom-mlb6.yaml

-m

```
modifyLineBreaks:
  mandatoryArguments:
    LCuBStartsOnOwnLine: 2
    RCuBFinishesWithLineBreak:
      -1
```

Note that a `%` has been added to the trailing first `}`; this is because:

- while processing the *first* argument, the trailing line break has been removed (`RCuBFinishesWithLineBreak` set to `-1`);
- while processing the *second* argument, `latexindent.pl` finds that it does *not* begin on its own line, and so because `LCuBStartsOnOwnLine` is set to 2, it adds a comment, followed by a line break.

■

### 6.3.6 Conflicting poly-switches: nested code blocks

**example 143** Now let's consider an example when nested code blocks have conflicting poly-switches; we'll use the code in Listing 509, noting that it contains nested environments.

LISTING 509: nested-env.tex

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

Let's use the YAML settings given in Listing 511, which upon running the command

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

gives the output in Listing 510.



LISTING 510: `nested-env.tex` using Listing 511

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

LISTING 511: `nested-env-mlb1.yaml` -m

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

In Listing 510, let's first of all note that both environments have received the appropriate (default) indentation; secondly, note that the poly-switch `EndStartsOnOwnLine` appears to have won the conflict, as `\end{one}` has had its leading line break removed.

To understand it, let's talk about the three basic phases of `latexindent.pl`:

1. Phase 1: packing, in which code blocks are replaced with unique ids, working from *the inside to the outside*, and then sequentially – for example, in Listing 509, the two environment is found *before* the one environment; if the `-m` switch is active, then during this phase:
  - line breaks at the beginning of the body can be added (if `BodyStartsOnOwnLine` is 1 or 2) or removed (if `BodyStartsOnOwnLine` is `-1`);
  - line breaks at the end of the body can be added (if `EndStartsOnOwnLine` is 1 or 2) or removed (if `EndStartsOnOwnLine` is `-1`);
  - line breaks after the end statement can be added (if `EndFinishesWithLineBreak` is 1 or 2).
2. Phase 2: indentation, in which white space is added to the begin, body, and end statements;
3. Phase 3: unpacking, in which unique ids are replaced by their *indented* code blocks; if the `-m` switch is active, then during this phase,
  - line breaks before begin statements can be added or removed (depending upon `BeginStartsOnOwnLine`);
  - line breaks after *end* statements can be removed but *NOT* added (see `EndFinishesWithLineBreak`).

With reference to Listing 510, this means that during Phase 1:

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

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

**example 144** We can explore this further using the poly-switches in Listing 513; upon running the command

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

we obtain the output given in Listing 512.

LISTING 512: nested-env.tex using  
Listing 513

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

LISTING 513: nested-env-mlb2.yaml

-m

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

During Phase 1:

- the two environment is found first, and the line break ahead of the `\end{two}` statement is not changed because `EndStartsOnOwnLine` is set to 1. Importantly, because, *at this stage*, `\end{two}` *does* finish with a line break, `EndFinishesWithLineBreak` causes no action.
- next, the one environment is found; the line break ahead of `\end{one}` is already present, and no action is needed.

The indentation is done in Phase 2, and then in Phase 3, the one environment is found and processed first, followed by the two environment. *At this stage*, the two environment finds `EndFinishesWithLineBreak` is `-1`, so it removes the trailing line break; remember, at this point, `latexindent.pl` has completely finished with the one environment. ■

## SECTION 7



# The -r, -rv and -rr switches

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You can instruct `latexindent.pl` to perform replacements/substitutions on your file by using any of the `-r`, `-rv` or `-rr` switches:

- the `-r` switch will perform indentation and replacements, not respecting verbatim code blocks;
- the `-rv` switch will perform indentation and replacements, and *will* respect verbatim code blocks;
- the `-rr` switch will *not* perform indentation, and will perform replacements not respecting verbatim code blocks.

We will demonstrate each of the `-r`, `-rv` and `-rr` switches, but a summary is given in Table 4.

TABLE 4: The replacement mode switches

switch	indentation?	respect verbatim?
<code>-r</code>	✓	✗
<code>-rv</code>	✓	✓
<code>-rr</code>	✗	✗

The default value of the `replacements` field is shown in Listing 514; 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 514.

LISTING 514: replacements -r

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

The first entry within the `replacements` field is `amalgamate`, and is *optional*; by default it is set to 1, so that replacements will be amalgamated from each settings file that you specify. As you'll see in the demonstrations that follow, there is no need to specify this field.

You'll notice that, by default, there is only *one* entry in the `replacements` field, but it can take as many entries as you would like; each one needs to begin with a `-` on its own line.

### 7.1 Introduction to replacements

Let's explore the action of the default settings, and then we'll demonstrate the feature with further examples.

**example 145** Beginning with the code in Listing 515 and running the command

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



gives the output given in Listing 516.

LISTING 515: replace1.tex	LISTING 516: replace1.tex default
Before text, latexindent.pl, after text.	Before text, latexindent.pl, after text.

We note that in Listing 514, because `lookForThis` is set to 0, the specified replacement has *not* been made, and there is no difference between Listings 515 and 516.

If we *do* wish to perform this replacement, then we can tweak the default settings of Listing 514 on the preceding page by changing `lookForThis` to 1; we perform this action in Listing 518, and run the command

```
cmh:~$ latexindent.pl -r replace1.tex -l=replace1.yaml
```

which gives the output in Listing 517.

LISTING 517: replace1.tex using Listing 518	LISTING 518: replace1.yaml <span>-r</span>
Before text, pl.latexindent, after text.	replacements: - amalgamate: 0 - this: latexindent.pl that: pl.latexindent lookForThis: 1

Note that in Listing 518 we have specified `amalgamate` as 0 so that the default replacements are overwritten. ■

We haven't yet discussed the `when` field; don't worry, we'll get to it as part of the discussion in what follows.

## 7.2 The two types of replacements

There are two types of replacements:

1. *string*-based replacements, which replace the string in *this* with the string in *that*. If you specify *this* and you do not specify *that*, then the *that* field will be assumed to be empty.
2. *regex*-based replacements, which use the substitution field.

We will demonstrate both in the examples that follow.

`latexindent.pl` chooses which type of replacement to make based on which fields have been specified; if the `this` field is specified, then it will make *string*-based replacements, regardless of if substitution is present or not.

## 7.3 Examples of replacements

**example 146** We begin with code given in Listing 519

LISTING 519: colsep.tex
<pre>\begin{env} 1 2 3\arraycolsep=3pt 4 5 6\arraycolsep=5pt \end{env}</pre>

Let's assume that our goal is to remove both of the `arraycolsep` statements; we can achieve this in a few different ways.





Using the YAML in Listing 521, and running the command

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

then we achieve the output in Listing 520.

LISTING 520: colsep.tex using Listing 519

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

LISTING 521: colsep.yaml

-r

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

Note that in Listing 521, 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 521 more concise by exploring the substitution field. Using the settings in Listing 523 and running the command

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

then we achieve the output in Listing 522.

LISTING 522: colsep.tex using Listing 523

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

LISTING 523: colsep1.yaml

-r

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

The code given in Listing 523 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 523, 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 523 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 147** We’ll keep working with the file in Listing 519 on the previous page for this example.

Using the YAML in Listing 525, and running the command



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

then we achieve the output in Listing 524.

LISTING 524: colsep.tex using  
Listing 525

```
multi-line!
```

LISTING 525: multi-line.yaml

-r

```
replacements:
-
  this: |-
    \begin{env}
    1 2 3\arraycolsep=3pt
    4 5 6\arraycolsep=5pt
    \end{env}
  that: 'multi-line!'
```

With reference to Listing 525, 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 514 on page 127. 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 527, and running the command

```
cmh:~$ latexindent.pl -r colsep.tex -l=multi-line1.yaml
```

then we achieve the output in Listing 526.

LISTING 526: colsep.tex using  
Listing 527

```
\begin{env}
  1 2 3\arraycolsep=3pt
  4 5 6\arraycolsep=5pt
\end{env}
```

LISTING 527: multi-line1.yaml

-r

```
replacements:
-
  this: |-
    \begin{env}
    1 2 3\arraycolsep=3pt
    4 5 6\arraycolsep=5pt
    \end{env}
  that: 'multi-line!'
  when: after
```

We note that, because we have specified `when: after`, that `latexindent.pl` has not found the string specified in Listing 527 within the file in Listing 519 on page 128. As it has looked for the string within Listing 527 *after* the indentation has been performed. After indentation, the string as written in Listing 527 is no longer part of the file, and has therefore not been replaced.

As a final note on this example, if you use the `-rr` switch, as follows,

```
cmh:~$ latexindent.pl -rr colsep.tex -l=multi-line1.yaml
```

then the `when` field is ignored, no indentation is done, and the output is as in Listing 524.

**example 148** An important part of the substitution routine is in *capture groups*.

Assuming that we start with the code in Listing 528, let's assume that our goal is to replace each occurrence of `$$...$$` with `\begin{equation*}...\end{equation*}`. This example is partly motivated by [tex stackexchange question 242150](#).



LISTING 528: displaymath.tex

before text  $a^2+b^2=4$  and  $c^2$

```


$$d^2+e^2 = f^2$$

and also  $g^2$ 

$$h^2$$


```

We use the settings in Listing 530 and run the command

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

to receive the output given in Listing 529.

LISTING 529: displaymath.tex using Listing 530

before text  $a^2+b^2=4$  and  $c^2$

```


$$d^2+e^2 = f^2$$

and also  $g^2$ 

$$h^2$$


```

LISTING 530: displaymath1.yaml

-r

```

replacements:
-
  substitution: |-
    s/\$\$
    (.*?)
    \$\$/\begin{equation*}$1\end{equation*}/sgx

```

A few notes about Listing 530:

1. we have used the `x` modifier, which allows us to have white space within the regex;
2. we have used a capture group, `(.*?)` which captures the content between the `$$...$$` into the special variable, `$1`;
3. we have used the content of the capture group, `$1`, in the replacement text.

See <https://perldoc.perl.org/perlre.html#Capture-groups> for a discussion of capture groups.

The features of the replacement switches can, of course, be combined with others from the toolkit of `latexindent.pl`. For example, we can combine the poly-switches of Section 6.3 on page 106, which we do in Listing 532; upon running the command

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

then we receive the output in Listing 531.



LISTING 531:

displaymath.tex using  
Listings 530 and 532

```
before text%
\begin{equation*}%
  a^2+b^2=4%
\end{equation*}%
and%
\begin{equation*}%
  c^2%
\end{equation*}

\begin{equation*}
  d^2+e^2 = f^2
\end{equation*}
and also%
\begin{equation*}%
  g^2
\end{equation*}%
and some inline math: $h^2$
```

LISTING 532: equation.yaml

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

**example 149** This example is motivated by [tex stackexchange question 490086](#). We begin with the code in Listing 533.

LISTING 533: phrase.tex

phrase 1	phrase 2 phrase 3	phrase 100
phrase 1	phrase 2 phrase 3	phrase 100
phrase 1	phrase 2 phrase 3	phrase 100
phrase 1	phrase 2 phrase 3	phrase 100

Our goal is to make the spacing uniform between the phrases. To achieve this, we employ the settings in Listing 535, and run the command

```
cmh:~$ latexindent.pl -r phrase.tex -l=hspace.yaml
```

which gives the output in Listing 534.

LISTING 534: phrase.tex using  
Listing 535

```
phrase 1 phrase 2 phrase 3 phrase 100
phrase 1 phrase 2 phrase 3 phrase 100
phrase 1 phrase 2 phrase 3 phrase 100
phrase 1 phrase 2 phrase 3 phrase 100
```

LISTING 535: hspace.yaml

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

The `\h+` setting in Listing 535 says to replace *at least one horizontal space* with a single space.

**example 150** We begin with the code in Listing 536.



LISTING 536: references.tex

```
equation \eqref{eq:aa} and Figure \ref{fig:bb}
and table-\ref{tab:cc}
```

Our goal is to change each reference so that both the text and the reference are contained within one hyperlink. We achieve this by employing Listing 538 and running the command

```
cmh:~$ latexindent.pl -r references.tex -l=reference.yaml
```

which gives the output in Listing 537.

LISTING 537: references.tex using Listing 538

```
\hyperref{equation \ref*{eq:aa}} and \hyperref{Figure \ref*{fig:bb}}
and \hyperref{table \ref*{tab:cc}}
```

LISTING 538: reference.yaml

-r

```
replacements:
-
  substitution: |-
    s/(
      equation
      |
      table
      |
      figure
      |
      section
    )
    (\h|-)*
    \\(?:eq)?
    ref\{(.*)\}\}/\\hyperref{$1 \ref*{$3}}/sgxi
```

Referencing Listing 538, the | means *or*, we have used *capture groups*, together with an example of an *optional* pattern, (?:eq)?.

**example 151** Let's explore the three replacement mode switches (see Table 4 on page 127) in the context of an example that contains a verbatim code block, Listing 539; we will use the settings in Listing 540.

LISTING 539: verb1.tex

```
\begin{myenv}
body of verbatim
\end{myenv}
some verbatim
\begin{verbatim}
  body
    of
  verbatim
text
\end{verbatim}
text
```

LISTING 540: verbatim1.yaml

-r

```
replacements:
-
  this: 'body'
  that: 'head'
```

Upon running the following commands,

```
cmh:~$ latexindent.pl -r verb1.tex -l=verbatim1.yaml -o+=mod1
cmh:~$ latexindent.pl -rv verb1.tex -l=verbatim1.yaml -o+=rv-mod1
cmh:~$ latexindent.pl -rr verb1.tex -l=verbatim1.yaml -o+=rr-mod1
```



we receive the respective output in Listings 541 to 543

LISTING 541: verb1-mod1.tex	LISTING 542: verb1-rv-mod1.tex	LISTING 543: verb1-rr-mod1.tex
<pre> \begin{myenv}   head of verbatim \end{myenv} some verbatim \begin{verbatim}   head     of   verbatim text \end{verbatim} text </pre>	<pre> \begin{myenv}   head of verbatim \end{myenv} some verbatim \begin{verbatim}   body     of   verbatim text \end{verbatim} text </pre>	<pre> \begin{myenv} head of verbatim \end{myenv} some verbatim \begin{verbatim}   head     of   verbatim text \end{verbatim} text </pre>

We note that:

1. in Listing 541 indentation has been performed, and that the replacements specified in Listing 540 have been performed, even within the verbatim code block;
2. in Listing 542 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 543 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 127.

**example 152** Let's explore the `amalgamate` field from Listing 514 on page 127 in the context of the file specified in Listing 544.

LISTING 544: amalg1.tex
one two three

Let's consider the YAML files given in Listings 545 to 547.

LISTING 545: amalg1-yaml.yaml	LISTING 546: amalg2-yaml.yaml	LISTING 547: amalg3-yaml.yaml
<pre> replacements: -   this: one   that: 1 </pre>	<pre> replacements: -   this: two   that: 2 </pre>	<pre> replacements: -   amalgamate: 0 -   this: three   that: 3 </pre>

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 548 to 550.

LISTING 548: amalg1.tex using Listing 545	LISTING 549: amalg1.tex using Listings 545 and 546	LISTING 550: amalg1.tex using Listings 545 to 547
1 two three	1 2 three	one two 3

We note that:

1. in Listing 548 the replacements from Listing 545 have been used;
2. in Listing 549 the replacements from Listings 545 and 546 have *both* been used, because



the default value of `amalgamate` is 1;

3. in Listing 550 *only* the replacements from Listing 547 have been used, because the value of `amalgamate` has been set to 0. ■

## SECTION 8



# The `-lines` switch

N: 2021-09-16

`latexindent.pl` can operate on a *selection* of lines of the file using the `-lines` or `-n` switch.

The basic syntax is `-lines MIN-MAX`, so for example

```
cmh:~$ latexindent.pl --lines 3-7 myfile.tex
cmh:~$ latexindent.pl -n 3-7 myfile.tex
```

will only operate upon lines 3 to 7 in `myfile.tex`. All of the other lines will *not* be operated upon by `latexindent.pl`.

The options for the lines switch are:

- line range, as in `-lines 3-7`
- single line, as in `-lines 5`
- multiple line ranges separated by commas, as in `-lines 3-5,8-10`
- negated line ranges, as in `-lines !3-5` which translates to `-lines 1-2,6-N`, where N is the number of lines in your file.

We demonstrate this feature, and the available variations in what follows. We will use the file in Listing 551.

LISTING 551: `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 153** We demonstrate the basic usage using the command

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

which instructs `latexindent.pl` to only operate on lines 3 to 7; the output is given in Listing 552.





## LISTING 552: myfile-mod1.tex

```

1 Before the environments
2 \begin{one}
3 first block, first line
4 first block, second line
5 first block, third line
6 \begin{two}
7 second block, first line
8     second block, second line
9     second block, third line
10    second block, fourth line
11 \end{two}
12 \end{one}

```

The following two calls to `latexindent.pl` are equivalent

```

cmh:~$ latexindent.pl --lines 3-7 myfile.tex -o=+-mod1
cmh:~$ latexindent.pl --lines 7-3 myfile.tex -o=+-mod1

```

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

**example 154** You can call the `lines` switch with only *one number* and in which case only that line will be operated upon. For example

```

cmh:~$ latexindent.pl --lines 5 myfile.tex -o=+-mod2

```

instructs `latexindent.pl` to only operate on line 5; the output is given in Listing 553.

## LISTING 553: myfile-mod2.tex

```

1 Before the environments
2 \begin{one}
3     first block, first line
4     first block, second line
5 first block, third line
6     \begin{two}
7         second block, first line
8         second block, second line
9         second block, third line
10        second block, fourth line
11    \end{two}
12 \end{one}

```

The following two calls are equivalent:

```

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

```

**example 155** If you specify a value outside of the line range of the file then `latexindent.pl` will ignore the `lines` argument, detail as such in the log file, and proceed to operate on the entire file.

For example, in the following call

```

cmh:~$ latexindent.pl --lines 11-13 myfile.tex

```

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



ing 551 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 156** 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 554.

LISTING 554: myfile-mod3.tex

```
1 Before the environments
2 \begin{one}
3 first block, first line
4 first block, second line
5 first block, third line
6   \begin{two}
7     second block, first line
8 second block, second line
9 second block, third line
10 second block, fourth line
11   \end{two}
12 \end{one}
```

The following calls to latexindent.pl are all equivalent

```
cmh:~$ latexindent.pl --lines 3-5,8-10 myfile.tex
cmh:~$ latexindent.pl --lines 8-10,3-5 myfile.tex
cmh:~$ latexindent.pl --lines 10-8,3-5 myfile.tex
cmh:~$ latexindent.pl --lines 10-8,5-3 myfile.tex
```

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

**example 157** 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 555.



## LISTING 555: myfile-mod4.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}

```

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

```

cmh:~$ latexindent.pl --lines 1-2,4-5,9-10,12 myfile.tex
cmh:~$ latexindent.pl --lines 2-1,4-5,9-10,12 myfile.tex
cmh:~$ latexindent.pl --lines 4-5,1-2,9-10,12 myfile.tex
cmh:~$ latexindent.pl --lines 12,4-5,1-2,9-10 myfile.tex

```

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

**example 158** You can specify *negated line ranges* by using `!` as in

```

cmh:~$ latexindent.pl --lines !5-7 myfile.tex -o=+-mod5

```

which instructs `latexindent.pl` to operate upon all of the lines *except* lines 5 to 7.

In other words, `latexindent.pl` *will* operate on lines 1 to 4, and 8 to 12, so the following two calls are equivalent:

```

cmh:~$ latexindent.pl --lines !5-7 myfile.tex
cmh:~$ latexindent.pl --lines 1-4,8-12 myfile.tex

```

The output is given in Listing 556.

## LISTING 556: myfile-mod5.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 159** You can specify *multiple negated line ranges* such as



```
cmh:~$ latexindent.pl --lines !5-7,!9-10 myfile.tex -o=+-mod6
```

which is equivalent to:

```
cmh:~$ latexindent.pl --lines 1-4,8,11-12 myfile.tex -o=+-mod6
```

The output is given in Listing 557.

LISTING 557: myfile-mod6.tex

```
1 Before the environments
2 \begin{one}
3   first block, first line
4   first block, second line
5   first block, third line
6   \begin{two}
7     second block, first line
8     second block, second line
9     second block, third line
10    second block, fourth line
11   \end{two}
12 \end{one}
```

**example 160** 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 161** We can, of course, use the lines switch in combination with other switches.

For example, let's use with the file in Listing 558.

LISTING 558: myfile1.tex

```
1 Before the environments
2 \begin{one}
3   first block, first line
4   first block, second line
5   first block, third line
6   \begin{two} body \end{two}
7 \end{one}
```

We can demonstrate interaction with the `-m` switch (see Section 6 on page 77); in particular, if we use Listing 450 on page 112, Listing 434 on page 110 and Listing 435 on page 110 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 559.



## LISTING 559: myfile1-mod1.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   body
8 \end{two}
9 \end{one}
```

---

■

## SECTION 9



# Fine tuning

N: 2019-07-13

`latexindent.pl` operates by looking for the code blocks detailed in Table 2 on page 54. The fine tuning of the details of such code blocks is controlled by the `fineTuning` field, detailed in Listing 560.

This field is for those that would like to peek under the bonnet/hood and make some fine tuning to `latexindent.pl`'s operating.



### Warning!

Making changes to the fine tuning may have significant consequences for your indentation scheme, proceed with caution!

LISTING 560: `fineTuning`

```
631 fineTuning:
632   environments:
633     name: [a-zA-Z@*0-9_\\]+
634   ifElseFi:
635     name: (?!@?if[a-zA-Z@]*?\\{)@?if[a-zA-Z@]*?
636   commands:
637     name: [+a-zA-Z@*0-9_\\.]+?
638   items:
639     canBeFollowedBy: (?:\\[[^]]*?\\)|(?:<[~>]*?>)
640   keyEqualsValuesBracesBrackets:
641     name: [a-zA-Z@*0-9_\\.\\:~#-]+[a-zA-Z@*0-9_\\.\\h{\\}:\\#-]*?
642     follow: (?:(<!\\)\\{)|,|(?:(<!\\)\\[)
643   namedGroupingBracesBrackets:
644     name: [0-9\\.a-zA-Z@*~><]+?
645     follow: \\h\\R|\\{\\[\\[\\$\\|\\)\\(\\
646   UnNamedGroupingBracesBrackets:
647     follow: \\{\\[\\[\\[\\|&\\|\\)\\(\\[\\$
648   arguments:
649     before: (?:#\\d\\h*;?;?\\|/?)+|\\<.*?\\>
650     between: _\\|~\\|*
651   trailingComments:
652     notPreceededBy: (?!\\)\\)
653     afterComment: .*?
654   modifyLineBreaks:
655     doubleBackSlash: \\\\[?\\h*\\[\\h*\\d+\\h*[a-zA-Z]+\\h*\\])?
656     comma: ', '
657     betterFullStop: |-
658       (?x)                                # ignore spaces in the below
659       (? :                                #
660         \\.)                               # .)
661         (?!\\h*[a-z])                     # not *followed by* a-z
662       )                                    #
663       |                                    # OR
664       (? :                                #
665         (?<!                               # not *preceded by*
666           (? :                               #
667             (? : [eE]\\. [gG])              # e.g OR E.g OR e.G OR E.G
668             |
```



```

669      (?:[iI]\.[eE])          # i.e OR I.e OR i.E OR I.E
670      |                      #
671      (? :etc)                # etc
672      |                      #
673      (?:[wW]\.[rR]\.[tT])    # w.r.t OR W.r.t OR w.R.t OR w.r.T OR W.R.t OR W.r.T
OR w.R.T OR W.R.T
674      )                      #
675      )                      #
676      )                      #
677      \.                      # .
678      (?!                     # not *followed by*
679      (? :                    #
680      [a-zA-Z0-9~~,]         #
681      |                      #
682      \),                    # ),
683      |                      #
684      \)\.                   # ).
685      )                      #
686      )                      #

```

The fields given in Listing 560 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 560:

1. the `environments:name` field details that the *name* of an environment can contain:

- (a) a-z lower case letters
- (b) A-Z upper case letters
- (c) @ the @ 'letter'
- (d) \\* stars
- (e) 0-9 numbers
- (f) \_ underscores
- (g) \ backslashes

The + at the end means *at least one* of the above characters.

2. the `ifElseFi:name` field:

- (a) @? means that it *can possibly* begin with @
- (b) followed by `if`
- (c) followed by 0 or more characters from a-z, A-Z and @
- (d) the ? the end means *non-greedy*, which means 'stop the match as soon as possible'

3. the `keyEqualsValuesBracesBrackets` contains some interesting syntax:

- (a) | means 'or'
- (b) (?:(?!\\)\{) the (? :...) uses a *non-capturing* group – you don't necessarily need to worry about what this means, but just know that for the `fineTuning` feature you should only ever use *non-capturing* groups, and *not* capturing groups, which are simply (...)
- (c) (?<!\)\{) means a { but it can *not* be immediately preceded by a \

4. in the `arguments:before` field

- (a) \d\h\* means a digit (i.e. a number), followed by 0 or more horizontal spaces
- (b) ;?,? means *possibly* a semi-colon, and *possibly* a comma
- (c) \<.\*?\> is designed for 'beamer'-type commands; the .\*? means anything in between <...>



5. the `modifyLineBreaks` field refers to fine tuning settings detailed in Section 6 on page 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` polswitches surrounding double backslashes, see Section 6.3.2 on page 116
  - (c) `comma` is in relation to the `CommaStartsOnOwnLine` and `CommaFinishesWithLineBreak` polswitches surrounding commas in optional and mandatory arguments; see Table 3 on page 121

It is not obvious from Listing 560, 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 162

As a demonstration, consider the file given in Listing 561, together with its default output using the command

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

is given in Listing 562.

LISTING 561: finetuning1.tex	LISTING 562: finetuning1.tex default
<pre>\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} }</pre>	<pre>\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} }</pre>

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 finetuning1.tex -l=fine-tuning1.yaml
```

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

LISTING 563: finetuning1.tex using Listing 564	LISTING 564: finetuning1.yaml
<pre>\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} }</pre>	<pre>fineTuning:   arguments:     between:       '_ \^ \* \~&gt; \- \+ h H g G'</pre>

■

### example 163

Let's have another demonstration; consider the file given in Listing 565, together with its default output using the command

```
cmh:~$ latexindent.pl finetuning2.tex
```





is given in Listing 566.

LISTING 565: finetuning2.tex

```
@misc{ wikilatem,
author = "{Wikipedia contributors}",
title = "LaTeX --- {Wikipedia}{,}",
note = "[Online; accessed 3-March-2020]"
}
```

LISTING 566: finetuning2.tex default

```
@misc{ wikilatem,
author = "{Wikipedia contributors}",
title = "LaTeX --- {Wikipedia}{,}",
note = "[Online; accessed 3-March-2020]"
}
```

It's clear from Listing 566 that the indentation scheme has not worked as expected. We can *fine tune* the indentation scheme by employing the settings given in Listing 568 and running the command

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

and the associated (desired) output is given in Listing 567.

LISTING 567: finetuning2.tex using Listing 568

```
@misc{ wikilatem,
  author = "{Wikipedia contributors}",
  title = "LaTeX --- {Wikipedia}{,}",
  note = "[Online; accessed 3-March-2020]"
}
```

LISTING 568: finetuning2.yaml

```
fineTuning:
  NamedGroupingBracesBrackets:
    follow: '\h|\R|\{|\}|\$|\(|\)'
  UnNamedGroupingBracesBrackets:
    follow: '\{|\[|,|&|\)|\(|\$|"'
  arguments:
    between: '_|\^|\*|---'
```

In particular, note that the settings in Listing 568 specify that `NamedGroupingBracesBrackets` and `UnNamedGroupingBracesBrackets` can follow " and that we allow --- between arguments. ■

**example 164** 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 569 and running the following command

```
cmh:~$ latexindent.pl -m
-y='modifyLineBreaks:oneSentencePerLine:manipulateSentences:␣1,␣
modifyLineBreaks:oneSentencePerLine:sentencesBeginWith:a-z:␣1,␣
fineTuning:modifyLineBreaks:betterFullStop:␣
"(?:\.|;|:|(?![a-z]))|(?:(?<!(?:e\.g)|(?:i\.e)|(?:etc)))\.(?!(?:[a-z]|[A-Z])\
issue-243.tex -o=+-mod1
```

gives the output shown in Listing 570.

LISTING 569: finetuning3.tex

```
We go; you see: this sentence \cite{tex:stackexchange} finishes here.
```

LISTING 570: finetuning3.tex using -y switch

```
We go;
you see:
this sentence \cite{tex:stackexchange} finishes here.
```

**example 165** We can tweak the `fineTuning` for how trailing comments are classified. For motivation, let's consider the code given in Listing 571



LISTING 571: finetuning4.tex

```
some before text
\href{Handbook%20for%30Spoken%40document.pdf}{my document}
some after text
```

We will compare the settings given in Listings 572 and 573.

LISTING 572: href1.yaml

-m

```
modifyLineBreaks:
  textWrapOptions:
    columns: -1
    blocksEndBefore:
      verbatim: 0
    blocksFollow:
      verbatim: 0
removeTrailingWhitespace:
  beforeProcessing: 1
```

LISTING 573: href2.yaml

-m

```
fineTuning:
  trailingComments:
    notPreceededBy:
      '?:(?<!Handbook)(?<!for)(?<!Spoken)'
```

```
modifyLineBreaks:
  textWrapOptions:
    columns: -1
    blocksEndBefore:
      verbatim: 0
    blocksFollow:
      verbatim: 0
removeTrailingWhitespace:
  beforeProcessing: 1
```

Upon running the following commands

```
cmh:~$ latexindent.pl -m finetuning4.tex -o+=-mod1 -l=href1
cmh:~$ latexindent.pl -m finetuning4.tex -o+=-mod2 -l=href2
```

we receive the respective output in Listings 574 and 575.

LISTING 574: finetuning4.tex using Listing 572

```
some before text \href{Handbooksome after text%20for%30Spoken%40document.pdf}{my document}
```

LISTING 575: finetuning4.tex using Listing 573

```
some before text \href{Handbook%20for%30Spoken%40document.pdf}{my document} some after text
```

We note that in:

- Listing 574 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 575 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 166** 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 576 and running the command

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

then we receive the same output given in Listing 575.



LISTING 576: href3.yaml

```

modifyLineBreaks:
  textWrapOptions:
    columns: -1
    blocksEndBefore:
      verbatim: 0
    blocksFollow:
      verbatim: 0

noIndentBlock:
  href:
    begin: '\\href\[~]*?\[~\{
    body: '[~]*?'
    end: '\}'

```

With reference to the body field in Listing 576, 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 167** We can use the `fineTuning` field to assist in the formatting of bibliography files.

Starting with the file in Listing 577 and running the command

```
cmh:~$ latexindent.pl bib1.tex -o=+-mod1
```

gives the output in Listing 578.

LISTING 577: bib1.bib

```

@online{paulo,
  title="arararule,indent.yaml",
  author="PauloCereda",
  date={2013-05-23},
  urldate={2021-03-19},
  keywords={contributor},}

```

LISTING 578: bib1-mod1.bib

```

@online{paulo,
  title="arararule,indent.yaml",
  author="PauloCereda",
  date={2013-05-23},
  urldate={2021-03-19},
  keywords={contributor},}

```

Let's assume that we would like to format the output so as to align the = symbols. Using the settings in Listing 580 and running the command

```
cmh:~$ latexindent.pl bib1.bib -l bibsettings1.yaml -o=+-mod2
```

gives the output in Listing 579.

LISTING 579: bib1.bib using Listing 580

```

@online{paulo,
  title   = "arararule,indent.yaml",
  author  = "PauloCereda",
  date    = {2013-05-23},
  urldate = {2021-03-19},
  keywords = {contributor},}

```

LISTING 580: bibsettings1.yaml

```

lookForAlignDelims:
  online:
    delimiterRegEx: '(=)'

fineTuning:
  keyEqualsValuesBracesBrackets:
    follow:
      '(?:(<!\)\)\{)|(?:(<!\)\)\}'
  UnNamedGroupingBracesBrackets:
    follow: '\{[ \[ |, & | \) | \[ ( | \$ | ='

```

Some notes about Listing 580:



- 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 168** We can build upon Listing 580 for slightly more complicated bibliography files.

Starting with the file in Listing 581 and running the command

```
cmh:~$ latexindent.pl bib2.bib -l bibsettings1.yaml -o=+-mod1
```

gives the output in Listing 582.

LISTING 581: bib2.bib

```
@online{cmh:videodemo,
title="Videodemonstrationofpl.latexindentonyoutube",
url="https://www.youtube.com/watch?v=wo38aaH2F4E&spfreload=10",
urldate={2017-02-21},
}
```

LISTING 582: bib2-mod1.bib

```
@online{cmh:videodemo,
title = "Videodemonstrationofpl.latexindentonyoutube",
url = "https://www.youtube.com/watch?v          = wo38aaH2F4E&spfreload = 10",
urldate = {2017-02-21},
}
```

The output in Listing 582 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 583.

LISTING 583: bibsettings2.yaml

```
lookForAlignDelims:
online:
delimiterRegex: '(?!v)(?!spfreload)(=)'
```

Upon running the command

```
cmh:~$ latexindent.pl bib2.bib -l bibsettings1.yaml,bibsettings2.yaml -o=+-mod2
```

we receive the *desired* output in Listing 584.

LISTING 584: bib2-mod2.bib

```
@online{cmh:videodemo,
title = "Videodemonstrationofpl.latexindentonyoutube",
url = "https://www.youtube.com/watch?v=wo38aaH2F4E&spfreload=10",
urldate = {2017-02-21},
}
```

With reference to Listing 583 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`.



**Example 169** We can use the `fineTuning` settings to tweak how `latexindent.pl` finds trailing comments.

We begin with the file in Listing 585

LISTING 585: `finetuning5.tex`

```
\chapter{chapter text} % 123
chapter text
\section{section text} % 456
section text
% end
% end
```

Using the settings in Listing 587 and running the command

```
cmh:~$ latexindent.pl finetuning5.tex -l=fine-tuning3.yaml
```

gives the output in Listing 586.

LISTING 586: `finetuning5-mod1.tex`

```
\chapter{chapter text} % 123
chapter text
\section{section text} % 456
section text
% end
% end
```

LISTING 587: `finetuning3.yaml`

```
fineTuning:
  trailingComments:
    notPreceededBy: (?<!\s)
    afterComment: (?!(?:\hend)).*?

specialBeginEnd:
  customSection:
    begin: \\(?:section|chapter)
    end: \\%h+end
  specialBeforeCommand: 1
```

The settings in Listing 587 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 125); I hope that, in a future version, only *nested* code blocks will need to be stored in the ‘packing’ phase, and that this will improve the efficiency of the script.

U: 2019-07-13

You can run `latexindent` on any file; if you don’t specify an extension, then the extensions that you specify in `fileExtensionPreference` (see Listing 36 on page 27) will be consulted. If you find a case in which the script struggles, please feel free to report it at [35], and in the meantime, consider using a `noIndentBlock` (see page 30).

I hope that this script is useful to some; if you find an example where the script does not behave as you think it should, the best way to contact me is to report an issue on [35]; otherwise, feel free to find me on the <http://tex.stackexchange.com/users/6621/cmhughes>.

# SECTION 11



## References

### 11.1 perl-related links

- [31] *CPAN: Comprehensive Perl Archive Network*. URL: <http://www.cpan.org/> (visited on 01/23/2017).
- [32] *Data Dumper demonstration*. URL: <https://stackoverflow.com/questions/7466825/how-do-you-sort-the-output-of-datadumper> (visited on 06/18/2021).
- [33] *Data::Dumper module*. URL: <https://perldoc.perl.org/Data::Dumper> (visited on 06/18/2021).
- [34] Jeffrey E. F. Friedl. *Mastering Regular Expressions*. ISBN: 0596002890.
- [40] *Log4perl Perl module*. URL: <http://search.cpan.org/~mschilli/Log-Log4perl-1.49/lib/Log/Log4perl.pm> (visited on 09/24/2017).
- [41] *Perlbrew*. URL: <http://perlbrew.pl/> (visited on 01/23/2017).
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- [46] *Text::Tabs Perl module*. URL: <http://search.cpan.org/~muir/Text-Tabs+Wrap-2013.0523/lib/old/Text/Tabs.pm> (visited on 07/06/2017).
- [47] *Text::Wrap Perl module*. URL: <http://perldoc.perl.org/Text/Wrap.html> (visited on 05/01/2017).

### 11.2 conda-related links

- [29] *anacoda*. URL: <https://www.anaconda.com/products/individual> (visited on 12/22/2021).
- [30] *conda forge*. URL: <https://github.com/conda-forge/miniforge> (visited on 12/22/2021).
- [37] *How to install Anaconda on Ubuntu?* URL: <https://askubuntu.com/questions/505919/how-to-install-anaconda-on-ubuntu> (visited on 01/21/2022).
- [44] *Solving environment: failed with initial frozen solve. Retrying with flexible solve*. URL: <https://github.com/conda/conda/issues/9367#issuecomment-558863143> (visited on 01/21/2022).

### 11.3 VScode-related links

- [36] *How to create your own auto-completion for JSON and YAML files on VS Code with the help of JSON Schema*. URL: <https://dev.to/brpaz/how-to-create-your-own-auto-completion-for-json-and-yaml-files-on-vs-code-with-the-help-of-json-schema-k1i> (visited on 01/01/2022).
- [49] *VSCode YAML extension*. URL: <https://marketplace.visualstudio.com/items?itemName=redhat.vscode-yaml> (visited on 01/01/2022).

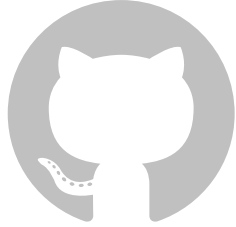
### 11.4 Other links

- [28] *A Perl script for indenting tex files*. URL: <http://tex.blogoverflow.com/2012/08/a-perl-script-for-indenting-tex-files/> (visited on 01/23/2017).
- [35] *Home of latexindent.pl*. URL: <https://github.com/cmhughes/latexindent.pl> (visited on 01/23/2017).
- [38] *How to use latexindent on Windows?* URL: <https://tex.stackexchange.com/questions/577250/how-to-use-latexindent-on-windows> (visited on 01/08/2022).
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## 11.5 Contributors (in chronological order)



- [1] Paulo Cereda. *arara rule, indent.yaml*. May 23, 2013. URL: <https://github.com/islandoftex/arara/blob/master/rules/arara-rule-indent.yaml> (visited on 03/19/2021).
- [2] Harish Kumar. *Early version testing*. Nov. 10, 2013. URL: <https://github.com/harishkumarholla> (visited on 06/30/2017).
- [3] Michel Voßkuhle. *Remove trailing white space*. Nov. 10, 2013. URL: <https://github.com/cmhughes/latexindent.pl/pull/12> (visited on 01/23/2017).
- [4] Jacobo Diaz. *Changed shebang to make the script more portable*. July 23, 2014. URL: <https://github.com/cmhughes/latexindent.pl/pull/17> (visited on 01/23/2017).
- [5] Jacobo Diaz. *Hiddenconfig*. July 21, 2014. URL: <https://github.com/cmhughes/latexindent.pl/pull/18> (visited on 01/23/2017).
- [6] Jason Juang. *add in PATH installation*. Nov. 24, 2015. URL: <https://github.com/cmhughes/latexindent.pl/pull/38> (visited on 01/23/2017).
- [7] mlep. *One sentence per line*. Aug. 16, 2017. URL: <https://github.com/cmhughes/latexindent.pl/issues/81> (visited on 01/08/2018).
- [8] John Owens. *Paragraph line break routine removal*. May 27, 2017. URL: <https://github.com/cmhughes/latexindent.pl/issues/33> (visited on 05/27/2017).
- [9] Cheng Xu (xu cheng). *always output log/help text to STDERR*. July 13, 2018. URL: <https://github.com/cmhughes/latexindent.pl/pull/121> (visited on 08/05/2018).
- [10] Tom Zöhner (zoechnet). *Improving text wrap*. Feb. 4, 2018. URL: <https://github.com/cmhughes/latexindent.pl/issues/103> (visited on 08/04/2018).
- [11] Sam Abey. *Print usage tip to STDERR only if STDIN is TTY*. Sept. 17, 2019. URL: <https://github.com/cmhughes/latexindent.pl/pull/174> (visited on 03/19/2021).
- [12] Randolph J. *Alpine-linux instructions*. Aug. 10, 2020. URL: <https://github.com/cmhughes/latexindent.pl/pull/214> (visited on 08/10/2020).
- [13] jeanlego. *Search localSettings in CWD as well*. Sept. 15, 2020. URL: <https://github.com/cmhughes/latexindent.pl/pull/221> (visited on 03/19/2021).
- [14] newptcai. *Update appendices.tex*. Feb. 16, 2021. URL: <https://github.com/cmhughes/latexindent.pl/pull/221> (visited on 03/19/2021).
- [15] qiancy98. *Locale encoding of file system*. May 6, 2021. URL: <https://github.com/cmhughes/latexindent.pl/pull/273> (visited on 05/06/2021).
- [16] Alexander Regueiro. *Update help screen*. Mar. 18, 2021. URL: <https://github.com/cmhughes/latexindent.pl/pull/261> (visited on 03/19/2021).
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- [22] Nehctargl. *Added support for the XDG specification*. Dec. 23, 2022. URL: <https://github.com/cmhughes/latexindent.pl/pull/397> (visited on 12/23/2022).
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- [24] Henrik Sloot. *feat: add devcontainer configuration*. May 20, 2023. URL: <https://github.com/cmhughes/latexindent.pl/pull/443> (visited on 05/20/2023).
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- [26] Jesse Stricker. *Create cruft directory if it does not exist*. July 12, 2023. URL: <https://github.com/cmhughes/latexindent.pl/pull/453> (visited on 07/12/2023).
- [27] valterikantanen. *fix: decode the name of the backup file*. Apr. 7, 2023. URL: <https://github.com/cmhughes/latexindent.pl/pull/439> (visited on 04/07/2023).



# 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 588 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 588: `helloworld.pl`

```
#!/usr/bin/perl

use strict;           #
use warnings;         #
use Encode;           #
use Getopt::Long;      #
use Data::Dumper;      # these modules are
use List::Util qw(max); # generally part
use PerlIO::encoding;  # of a default perl distribution
use open ':std', ':encoding(UTF-8)'; #
use Text::Wrap;        #
use Text::Tabs;        #
use FindBin;          #
use File::Copy;        #
use File::Basename;    #
use File::Path;        #
use File::HomeDir;     # <--- typically requires install via cpanm
use YAML::Tiny;        # <--- typically requires install via cpanm

print "hello_world";
exit;
```

### A.1 Module installer script

`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 588 will vary depending on your operating system and Perl distribution.

### A.2.1 Linux

#### A.2.1.1 perlbrew

Linux users may be interested in exploring Perlbrew [41]; an example installation would be:

```
cmh:~$ sudo apt-get install perlbrew
cmh:~$ perlbrew init
cmh:~$ perlbrew install perl-5.34.0
cmh:~$ perlbrew switch perl-5.34.0
cmh:~$ sudo apt-get install curl
cmh:~$ curl -L http://cpanmin.us | perl - App::cpanminus
cmh:~$ cpanm YAML::Tiny
cmh:~$ cpanm File::HomeDir
```

#### A.2.1.2 Ubuntu/Debian

For other distributions, the Ubuntu/Debian approach may work as follows

```
cmh:~$ sudo apt install perl
cmh:~$ sudo cpan -i App::cpanminus
cmh:~$ sudo cpanm YAML::Tiny
cmh:~$ sudo cpanm File::HomeDir
```

or else by running, for example,

```
cmh:~$ sudo perl -MCPAN -e'install File::HomeDir'
```

#### A.2.1.3 Ubuntu: using the texlive from apt-get

Ubuntu users that install texlive using apt-get as in the following

```
cmh:~$ sudo apt install texlive
cmh:~$ sudo apt install texlive-latex-recommended
```

may need the following additional command to work with `latexindent.pl`

```
cmh:~$ sudo apt install texlive-extra-utils
```

#### A.2.1.4 Ubuntu: users without perl

`latexindent-linux` is a standalone executable for Ubuntu Linux (and therefore does not require a Perl distribution) and caches copies of the Perl modules onto your system. It is available from [35].

#### A.2.1.5 Arch-based distributions

First install the dependencies

```
cmh:~$ sudo pacman -S perl cpanminus
```

In addition, install `perl-file-homedir` from AUR, using your AUR helper of choice,



```
cmh:~$ sudo paru -S perl-file-homedir
```

then run the `latexindent-module-installer.pl` file located at `helper-scripts/`

#### A.2.1.6 Alpine

If you are using Alpine, some Perl modules are not build-compatible with Alpine, but replacements are available through `apk`. For example, you might use the commands given in Listing 589; thanks to [12] for providing these details.

LISTING 589: `alpine-install.sh`

```
# Installing perl
apk --no-cache add miniperl perl-utils

# Installing incompatible latexindent perl dependencies via apk
apk --no-cache add \
    perl-log-dispatch \
    perl-namespace-autoclean \
    perl-specio \
    perl-unicode-linebreak

# Installing remaining latexindent perl dependencies via cpan
apk --no-cache add curl wget make
ls /usr/share/texmf-dist/scripts/latexindent
cd /usr/local/bin && \
    curl -L https://cpanmin.us/ -o cpanm && \
    chmod +x cpanm
cpanm -n App::cpanminus
cpanm -n File::HomeDir
cpanm -n Params::ValidationCompiler
cpanm -n YAML::Tiny
```

Users of NixOS might like to see <https://github.com/cmhughes/latexindent.pl/issues/222> for tips.

#### A.2.2 Mac

Users of the Macintosh operating system might like to explore the following commands, for example:

```
cmh:~$ brew install perl
cmh:~$ brew install cpanm
cmh:~$
cmh:~$ cpanm YAML::Tiny
cmh:~$ cpanm File::HomeDir
```

Alternatively,

```
cmh:~$ brew install latexindent
```

`latexindent-macos` is a standalone executable for macOS (and therefore does not require a Perl distribution) and caches copies of the Perl modules onto your system. It is available from [35].

#### A.2.3 Windows

Strawberry Perl users on Windows might use `CPAN client`. All of the modules are readily available on CPAN [31]. `indent.log` will contain details of the location of the Perl modules on your system.

`latexindent.exe` is a standalone executable for Windows (and therefore does not require a Perl distribution) and caches copies of the Perl modules onto your system; if you wish to see where they are cached, use the `trace` option, e.g



```
C:\Users\cmh>latexindent.exe -t myfile.tex
```

### A.3 The GCString switch

If you find that the `lookForAlignDelims` (as in Section 5.5) does not work correctly for your language, then you may wish to use the `Unicode::GCString` module.

This can be loaded by calling `latexindent.pl` with the `GCString` switch as in

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

In this case, you will need to have the `Unicode::GCString` installed in your perl distribution by using, for example,

```
cmh:~$ cpanm Unicode::GCString
```

Note: this switch does *nothing* for `latexindent.exe` which loads the module by default. Users of `latexindent.exe` should not see any difference in behaviour whether they use this switch or not, as `latexindent.exe` loads the `Unicode::GCString` module.

N: 2022-03-25

## SECTION B



# Updating the path variable

`latexindent.pl` has a few scripts (available at [35]) that can update the path variables. Thank you to [6] for this feature. If you're on a Linux or Mac machine, then you'll want `CMakeLists.txt` from [35].

### B.1 Add to path for Linux

To add `latexindent.pl` to the path for Linux, follow these steps:

1. download `latexindent.pl` and its associated modules, `defaultSettings.yaml`, to your chosen directory from [35];
2. within your directory, create a directory called `path-helper-files` and download `CMakeLists.txt` and `cmake_uninstall.cmake.in` from [35]/`path-helper-files` to this directory;
3. run

```
cmh:~$ ls /usr/local/bin
```

to see what is *currently* in there;

4. run the following commands

```
cmh:~$ sudo apt-get update
cmh:~$ sudo apt-get install --no-install-recommends cmake make # or any
other generator
cmh:~$ mkdir build && cd build
cmh:~$ cmake ../path-helper-files
cmh:~$ sudo make install
```

5. run

```
cmh:~$ ls /usr/local/bin
```

again to check that `latexindent.pl`, its modules and `defaultSettings.yaml` have been added.

To *remove* the files, run

```
cmh:~$ sudo make uninstall
```

### B.2 Add to path for Windows

To add `latexindent.exe` to the path for Windows, follow these steps:

1. download `latexindent.exe`, `defaultSettings.yaml`, `add-to-path.bat` from [35] to your chosen directory;
2. open a command prompt and run the following command to see what is *currently* in your `%path%` variable;



```
C:\Users\cmh>echo %path%
```

3. right click on add-to-path.bat and *Run as administrator*;
4. log out, and log back in;
5. open a command prompt and run

```
C:\Users\cmh>echo %path%
```

to check that the appropriate directory has been added to your `%path%`.

To *remove* the directory from your `%path%`, run `remove-from-path.bat` as administrator.

# SECTION C



## Batches of files

N: 2022-03-25

You can instruct `latexindent.pl` to operate on multiple files. For example, the following calls are all valid

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

We note the following features of the script in relation to the switches detailed in Section 3.

### C.1 location of `indent.log`

If the `-c` switch is *not* active, then `indent.log` goes to the directory of the final file called.

If the `-c` switch is active, then `indent.log` goes to the specified directory.

### C.2 interaction with `-w` switch

If the `-w` switch is active, as in

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

then files will be overwritten individually. Back-up files can be re-directed via the `-c` switch.

### C.3 interaction with `-o` switch

If `latexindent.pl` is called using the `-o` switch as in

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

and there are multiple files to operate upon, then the `-o` switch is ignored because there is only *one* output file specified.

More generally, if the `-o` switch does *not* have a `+` symbol at the beginning, then the `-o` switch will be ignored, and is turned off.

For example

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

will work fine because *each* `.tex` file will output to `<basename>myfile.tex`

Similarly,

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

will work because the ‘existence check/incrementation’ routine will be applied.

### C.4 interaction with `lines` switch

This behaves as expected by attempting to operate on the line numbers specified for each file. See the examples in Section 8.





### C.5 interaction with check switches

The exit codes for `latexindent.pl` are given in Table 1 on page 22.

When operating on multiple files with the check switch active, as in

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

then

- exit code 0 means that the text from *none* of the files has been changed;
- exit code 1 means that the text from *at least one* of the files been file changed.

The interaction with `checkv` switch is as in the check switch, but with verbose output.

### C.6 when a file does not exist

What happens if one of the files can not be operated upon?

- if at least one of the files does not exist and `latexindent.pl` has been called to act upon multiple files, then the exit code is 3; note that `latexindent.pl` will try to operate on each file that it is called upon, and will not exit with a fatal message in this case;
- if at least one of the files can not be read and `latexindent.pl` has been called to act upon multiple files, then the exit code is 4; note that `latexindent.pl` will try to operate on each file that it is called upon, and will not exit with a fatal message in this case;
- if `latexindent.pl` has been told to operate on multiple files, and some do not exist and some cannot be read, then the exit code will be either 3 or 4, depending upon which it scenario it encountered most recently.

# SECTION D



## latexindent-yaml-schema.json

N: 2022-01-02

latexindent.pl ships with latexindent-yaml-schema.json which might help you when constructing your YAML files.

### D.1 VSCode demonstration

To use latexindent-yaml-schema.json with VSCode, you can use the following steps:

1. download latexindent-yaml-schema.json from the documentation folder of [35], save it in whichever directory you would like, noting it for reference;
2. following the instructions from [36], for example, you should install the VSCode YAML extension [49];
3. set up your settings.json file using the directory you saved the file by adapting Listing 590; on my Ubuntu laptop this file lives at /home/cmhughes/.config/Code/User/settings.json.

LISTING 590: settings.json

```
{
  "yaml.schemas": {
    "/home/cmhughes/projects/latexindent/documentation/latexindent-yaml-schema.json":
      "/home/cmhughes/projects/latexindent/defaultSettings.yaml"
  },
  "redhat.telemetry.enabled": true
}
```

Alternatively, if you would prefer not to download the json file, you might be able to use an adapted version of Listing 591.

LISTING 591: settings-alt.json

```
{
  "yaml.schemas": {
    "https://raw.githubusercontent.com/cmhughes/latexindent.pl/main/documentation/latexindent-yaml-schema.json":
      "/home/cmhughes/projects/latexindent/defaultSettings.yaml"
  }
}
```

Finally, if your TeX distribution is up to date, then latexindent-yaml-schema.json *should* be in the documentation folder of your installation, so an adapted version of Listing 592 may work.

LISTING 592: settings-alt1.json

```
{
  "yaml.schemas": {
    "/usr/local/texlive/2021/texmf-dist/doc/support/latexindent/latexindent-yaml-schema.json":
      "/home/cmhughes/projects/latexindent/defaultSettings.yaml"
  }
}
```

If you have details of how to implement this schema in other editors, please feel encouraged to contribute to this documentation.

## SECTION E



# Using conda

If you use conda you'll only need

```
cmh:~$ conda install latexindent.pl -c conda-forge
```

This will install the executable and all its dependencies (including perl) in the activate environment. You don't even have to worry about `defaultSettings.yaml` as it included too, you can thus skip appendices [A](#) and [B](#).

You can get a conda installation for example from [\[30\]](#) or from [\[29\]](#).

### E.1 Sample conda installation on Ubuntu

On Ubuntu I followed the 64-bit installation instructions at [\[37\]](#) and then I ran the following commands:

```
cmh:~$ conda create -n latexindent.pl
cmh:~$ conda activate latexindent.pl
cmh:~$ conda install latexindent.pl -c conda-forge
cmh:~$ conda info --envs
cmh:~$ conda list
cmh:~$ conda run latexindent.pl -vv
```

I found the details given at [\[44\]](#) to be helpful.

## SECTION F



# Using docker

N: 2022-06-12

If you use docker you'll only need

```
cmh:~$ docker pull ghcr.io/cmhughes/latexindent.pl
```

This will download the image packed latexindent's executable and its all dependencies. Thank you to [19] for contributing this feature; see also [39]. For reference, *ghcr* stands for *GitHub Container Repository*.

### F.1 Sample docker installation on Ubuntu

To pull the image and show latexindent's help on Ubuntu:

LISTING 593: docker-install.sh

```
# setup docker if not already installed
if ! command -v docker &> /dev/null; then
    sudo apt install docker.io -y
    sudo groupadd docker
    sudo gpasswd -a "$USER" docker
    sudo systemctl restart docker
fi

# download image and execute
docker pull ghcr.io/cmhughes/latexindent.pl
docker run ghcr.io/cmhughes/latexindent.pl -h
```

### F.2 How to format on Docker

When you use latexindent with the docker image, you have to mount target tex file like this:

```
cmh:~$ docker run -v /path/to/local/myfile.tex:/myfile.tex
ghcr.io/cmhughes/latexindent.pl -s -w myfile.tex
```

# SECTION G



## pre-commit

N: 2022-01-21

Users of `.git` may be interested in exploring the `pre-commit` tool [43], which is supported by `latexindent.pl`. Thank you to [20] for contributing this feature, and to [21] for their contribution to it.

To use the `pre-commit` tool, you will need to install `pre-commit`; sample instructions for Ubuntu are given in appendix G.1. Once installed, there are two ways to use `pre-commit`: using CPAN or using `conda`, detailed in appendix G.3 and appendix G.4 respectively.

### G.1 Sample pre-commit installation on Ubuntu

On Ubuntu I ran the following command:

```
cmh:~$ python3 -m pip install pre-commit
```

I then updated my path via `.bashrc` so that it includes the line in Listing 594.

LISTING 594: `.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 595.

LISTING 595: `.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 595.



#### 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 596 in your git-repository.

LISTING 596: `.pre-commit-config.yaml` (cpan)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.1
  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 596:

- the settings given in Listing 596 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 596 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 596 so that args: `[-s, -w]`.

Naturally you can add options, or omit `-s` and `-w`, according to your preference.

### G.4 pre-commit using conda

You can also rely on conda (detailed in appendix E) instead of CPAN for all dependencies, including `latexindent.pl` itself.

LISTING 597: `.pre-commit-config.yaml` (conda)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.1
  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 596:



- the settings given in Listing 597 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 596 are equivalent to calling

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

for each .tex file in your repository;

- to instruct latexindent.pl to overwrite the files in your repository, then you can update Listing 596 so that args: [-s, -w].

## G.5 pre-commit using docker

You can also rely on docker (detailed in appendix F) instead of CPAN for all dependencies, including latexindent.pl itself.

LISTING 598: .pre-commit-config.yaml (docker)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.1
  hooks:
    - id: latexindent-docker
      args: [-s]
```

Once created, you should then be able to run the following command:

```
cmh:~$ pre-commit run --all-files
```

A few notes about Listing 596:

- the settings given in Listing 598 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 596 are equivalent to calling

```
cmh:~$ docker run -v /path/to/myfile.tex:/myfile.tex
ghcr.io/cmhughes/latexindent.pl -s myfile.tex
```

for each .tex file in your repository;

- to instruct latexindent.pl to overwrite the files in your repository, then you can update Listing 596 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 170** We use the local settings given in Listing 599.

LISTING 599: .latexindent.yaml

```
onlyOneBackUp: 1

modifyLineBreaks:
  oneSentencePerLine:
    manipulateSentences: 1
```

and .pre-commit-config.yaml as in Listing 600:



LISTING 600: .pre-commit-config.yaml (demo)

```
- repo: https://github.com/cmhughes/latexindent.pl
  rev: V3.23.1
  hooks:
  - id: latexindent
    args: [-l, -m, -s, -w]
```

Now running

```
cmh:~$ pre-commit run --all-files
```

is equivalent to running

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

for each .tex file in your repository.

A few notes about Listing 600:

- the -l option was added to use the local .latexindent.yaml (where it was specified to only create one back-up file, as git typically takes care of this when you use pre-commit);
  - -m to modify line breaks; in addition to -s to suppress command-line output, and -w to format files in place.
-



# SECTION H



## indentconfig options

N: 2023-01-01

This section describes the possible locations for the main configuration file, discussed in Section 4. Thank you to [22] for this contribution.

The possible locations of `indentconfig.yaml` are read one after the other, and reading stops when a valid file is found in one of the paths.

Before stating the list, we give summarise in Table 5.

TABLE 5: indentconfig environment variable summaries

environment variable	type	Linux	macOS	Windows
LATEXINDENT_CONFIG	full path to file	✓	✓	✓
XDG_CONFIG_HOME	directory path	✓	✗	✗
LOCALAPPDATA	directory path	✗	✗	✓

The following list shows the checked options and is sorted by their respective priority. It uses capitalized and with a dollar symbol prefixed names (e.g. `$LATEXINDENT_CONFIG`) to symbolize environment variables. In addition to that the variable name `$homeDir` is used to symbolize your home directory.

1. The value of the environment variable `$LATEXINDENT_CONFIG` is treated as highest priority source for the path to the configuration file.
2. The next options are dependent on your operating system:
  - Linux:
    - (a) The file at `$XDG_CONFIG_HOME/latexindent/indentconfig.yaml`
    - (b) The file at `$homeDir/.config/latexindent/indentconfig.yaml`
  - Windows:
    - (a) The file at `$LOCALAPPDATA\latexindent\indentconfig.yaml`
    - (b) The file at `$homeDir\AppData\Local\latexindent\indentconfig.yaml`
  - Mac:
    - (a) The file at `$homeDir/Library/Preferences/latexindent/indentconfig.yaml`
3. The file at `$homeDir/indentconfig.yaml`
4. The file at `$homeDir/.indentconfig.yaml`

### H.1 Why to change the configuration location

This is mostly a question about what you prefer, some like to put all their configuration files in their home directory (see `$homeDir` above), whilst some like to sort their configuration. And if you don't care about it, you can just continue using the same defaults.



## H.2 How to change the configuration location

This depends on your preferred location, if, for example, you would like to set a custom location, you would have to change the `$LATEXINDENT_CONFIG` environment variable.

Although the following example only covers `$LATEXINDENT_CONFIG`, the same process can be applied to `$XDG_CONFIG_HOME` or `$LOCALAPPDATA` because both are environment variables. You just have to change the path to your chosen configuration directory (e.g. `$homeDir/.config` or `$homeDir\AppData\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/latexindent
cmh:~$ touch /home/cmh/.config/latexindent/indentconfig.yaml
```

### H.2.2 Windows

To change `$LATEXINDENT_CONFIG` on Windows you can run the following command in `powershell.exe` after changing the path:

```
C:\Users\cmh> [Environment]::SetEnvironmentVariable
C:\Users\cmh> ("LATEXINDENT_CONFIG", "\your\config\path", "User")
```

This sets the environment variable for every user session.

### H.2.3 Mac

To change `$LATEXINDENT_CONFIG` on macOS you can run the following command in a terminal after changing the path:

```
cmh:~$ echo 'export LATEXINDENT_CONFIG="/your/config/path"' >> ~/.profile
```

Context: This command adds the line to your `.profile` file (which is commonly stored in `$HOME/.profile`). All commands in this file 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 171** Let's say that we start with the code given in Listing 601, and the settings specified in Listing 602.

LISTING 601: simple.tex

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

LISTING 602: logfile-prefs1.yaml

```
logFilePreferences:
  showDecorationStartCodeBlockTrace: "+++++"
  showDecorationFinishCodeBlockTrace: "-----"
```

If we run the following command (noting that `-t` is active)

```
cmh:~$ latexindent.pl -t -l=logfile-prefs1.yaml simple.tex
```

then on inspection of `indent.log` we will find the snippet given in Listing 603.

LISTING 603: indent.log

```
+++++
TRACE: environment found: myenv
      No ancestors found for myenv
      Storing settings for myenvenvironments
      indentRulesGlobal specified (0) for environments, ...
      Using defaultIndent for myenv
      Putting linebreak after replacementText for myenv
      looking for COMMANDS and key = {value}
TRACE: Searching for commands with optional and/or mandatory arguments AND key =
      {value}
      looking for SPECIAL begin/end
TRACE: Searching myenv for special begin/end (see specialBeginEnd)
TRACE: Searching myenv for optional and mandatory arguments
      ... no arguments found
-----
```

Notice that the information given about myenv is 'framed' using +++++ and ----- respectively. ■

## SECTION J



# Encoding indentconfig.yaml

In relation to Section 4 on page 23, Windows users that encounter encoding issues with `indentconfig.yaml`, may wish to run the following command in either `cmd.exe` or `powershell.exe`:

```
C:\Users\cmh>chcp
```

They may receive the following result

```
C:\Users\cmh>Active code page: 936
```

and can then use the settings given in Listing 604 within their `indentconfig.yaml`, where 936 is the result of the `chcp` command.

LISTING 604: encoding demonstration for `indentconfig.yaml`

```
encoding: cp936
```

## SECTION K



# dos2unix linebreak adjustment

`dos2unixlinebreaks: <integer>`

N: 2021-06-19

If you use `latexindent.pl` on a dos-based Windows file on Linux then you may find that trailing horizontal space is not removed as you hope.

In such a case, you may wish to try setting `dos2unixlinebreaks` to 1 and employing, for example, the following command.

```
cmh:~$ latexindent.pl -y="dos2unixlinebreaks:1" myfile.tex
```

See [50] for further details.

## SECTION L



# Differences from Version 2.2 to 3.0

There are a few (small) changes to the interface when comparing Version 2.2 to Version 3.0. Explicitly, in previous versions you might have run, for example,

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

whereas in Version 3.0 you would run any of the following, for example,

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

noting that the *output* file is given *next* to the `-o` switch.

The fields given in Listing 605 are *obsolete* from Version 3.0 onwards.

LISTING 605: Obsolete YAML fields from Version 3.0

```
alwaysLookforSplitBrackets
alwaysLookforSplitBrackets
checkunmatched
checkunmatchedELSE
checkunmatchedbracket
constructIfElseFi
```

There is a slight difference when specifying indentation after headings; specifically, we now write `indentAfterThisHeading` instead of `indent`. See Listings 606 and 607

LISTING 606:

indentAfterThisHeading in Version  
2.2

```
indentAfterHeadings:
  part:
    indent: 0
    level: 1
```

LISTING 607:

indentAfterThisHeading in Version  
3.0

```
indentAfterHeadings:
  part:
    indentAfterThisHeading: 0
    level: 1
```

To specify `noAdditionalIndent` for display-math environments in Version 2.2, you would write YAML as in Listing 608; as of Version 3.0, you would write YAML as in Listing 609 or, if you're using `-m` switch, Listing 610.



LISTING 608: noAdditionalIndent in  
Version 2.2

```
noAdditionalIndent:  
  \[: 0  
  \]: 0
```

LISTING 609: noAdditionalIndent for  
displayMath in Version 3.0

```
specialBeginEnd:  
  displayMath:  
    begin: '\\\\['  
    end: '\\\\]'  
    lookForThis: 0
```

LISTING 610: noAdditionalIndent for  
displayMath in Version 3.0

```
noAdditionalIndent:  
  displayMath: 1
```

*End*





# Listings

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