latexindent.pl

Version 3.0

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Abstract

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 indentation after headings (such as chapter, section, etc) are also available. The script also has the ability to modify line breaks, and add comment symbols.

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^{*}and contributors! (See ?? on page ??.) For all communication, please visit [latexindent-home].



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1 Introduction

1.1 Thanks

I first created latexindent.pl to help me format chapter files in a big project. After I blogged about it on the TeX stack exchange [cmhblog] I received some positive feedback and follow-up feature requests. A big thank you to Harish Kumar 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 ?? on page ?? for their valued contributions.

1.2 License

latexindent.pl is free and open source, and it always will be. 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 8) but you should still be careful when using it. The script has been tested on many files, but there are some known limitations (see ??). 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 ([latexindent-home]) with a complete minimum working example as I would like to improve the code as much as possible.





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

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

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 [cmh:videodemo]

As you look at Listings 1 to 6, 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 each user can personalize their indentation scheme.



In each of the samples given in Listings 1 to 6 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 4).

LISTING 1: filecontents before

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

LISTING 3: tikzset before

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

LISTING 5: pstricks before

```
\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 2: filecontents after

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

LISTING 4: tikzset after

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

LISTING 6: pstricks after

```
\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}}
```

3 How to use the script

latexindent.pl ships as part of the TeXLive distribution for Linux and Mac users; latexindent.exe ships as part of the TeXLive and MiKTeXdistributions for Windows users. These files are also available from github [latexindent-home] should you wish to use them without a TeX distribution; in this case, you may like to read ?? on page ?? 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 3.1 and Section 3.2 respectively. We will discuss how to change the settings and behaviour of the script in Section 4 on page 7.

latexindent.pl ships with latexindent.exe for Windows users, so that you can use the script with or without a Perl distribution. If you plan to use latexindent.pl (i.e, the original Perl script) then you will need a few standard Perl modules—see ?? on page ?? for details.

3.1 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.

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

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

-h, -help

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

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 in any way using this command.

-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 4, 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.

-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 exists¹. 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).

Note that using -o is equivalent to using

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

-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).

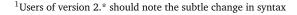
-1, -local[=myyaml.yaml,other.yaml,...]

```
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
```

Local settings: you might like to read Section 4 before using this switch. latexindent.pl will always load defaultSettings.yaml and if it is called with the -l switch and it finds localSettings.yaml in the same directory as myfile.tex 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 -1 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.

-d, -onlydefault







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

Only defaultSettings.yaml: you might like to read Section 4 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/.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.

-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.

-g, -logfile

```
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 this, simply call the script with your chosen name after the -g switch.

-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 ?? on page ??

latexindent.pl can also be called on a file without the file extension, for example latexindent.pl myfile and in which case, you can specify the order in which extensions are searched for; see Listing 8 on page 8 for full details.

3.2 From arara

Using latexindent.pl from the command line is fine for some folks, but others may find it easier to use from arara. latexindent.pl ships with an arara rule, indent.yaml, which can be copied to the directory of your other arara rules; otherwise you can add the directory in which latexindent.pl resides to your araraconfig.yaml file.

Once you have told arara where to find your indent rule, you can use it any of the ways described in Listing 7 (or combinations thereof). In fact, arara allows yet greater flexibility—you can use yes/no, true/false, or on/off to toggle the various options.



LISTING 7: arara sample usage

```
% arara: indent
% arara: indent: {overwrite: yes}
% arara: indent: {output: myfile.tex}
% arara: indent: {silent: yes}
% arara: indent: {trace: yes}
% arara: indent: {localSettings: yes}
% arara: indent: {onlyDefault: on}
% arara: indent: { cruft: /home/cmhughes/Desktop }
% arara: indent: { modifylinebreaks: yes }
\documentclass{article}
...
```

Hopefully the use of these rules is fairly self-explanatory, but for completeness Table 1 shows the relationship between arrana directive arguments and the switches given in Section 3.1.



TABLE 1: arara directive arguments and corresponding switches

| arara directive argument | switch |
|--------------------------|--------|
| overwrite | -M |
| output | -0 |
| silent | -s |
| trace | -t |
| localSettings | -1 |
| ${	t only Default}$ | -d |
| cruft | -c |
| ${\tt modifylinebreaks}$ | -m |

The cruft directive does not work well when used with directories that contain spaces.

4 default, user, and local settings

latexindent.pl loads its settings from defaultSettings.yaml (rhymes with camel). 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 MT_EX.

4.1 defaultSettings.yaml

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.

You can certainly feel free to edit defaultSettings.yaml, but this is not ideal as it may be overwritten when you update your TeX distribution – all of your hard work tweaking the script would be undone! Don't worry, there's a solution, feel free to peek ahead to ?? if you like.

fileExtensionPreference: \langle fields \rangle

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.

Calling latexindent.pl myfile with the (default) settings specified in Listing 8 means that the script will first look for myfile.tex, then myfile.sty, myfile.cls, and finally myfile.bib in order.

```
LISTING 8:
fileExtensionPreference:
ctex: 1
csty: 2
cls: 3
cbib: 4
```

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.

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.

```
onlyOneBackUp: \(\langle integer \rangle \)
```

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: \( \text{integer} \)
```

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.

```
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 9.

Note that if you put an environment in verbatimEnvironment's and in other fields such as lookForAlignDelims or 66

LISTING 9: verbatimEnvironments verbatimEnvironments:

verbatim: 1
lstlisting: 1

LISTING 10: verbatimCommands

verbatimCommands:

[git] • object-oriented-approach @ f6017b9 • 2017

70

64



noAdditionalIndent then latexindent.pl will always prioritize verbatimEnvironments.

```
{\tt verbatimCommands:} \ \langle \textit{fields} \rangle
```

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 ?? on page ??).

```
{\tt noIndentBlock:} \ \langle \textit{fields} \rangle
```

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 11.

Of course, you don't want to have to specify these as null environments in your code, so you use them with a com-

LISTING 11:
noIndentBlock

77
noIndentBlock:
noindent: 1

cmhtest: 1

ment symbol, %, followed by as many spaces (possibly none) as you like; see Listing 12 for example.

LISTING 12: noIndentBlock demonstration

removeTrailingWhitespace: \(\fields \)

Trailing white space can be removed both *before* and *after* processing the document, as detailed in Listing 13; each of the fields can take the values 0 or 1. Thanks to [vosskuhle] for providing this feature.

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 14. The behaviour of latexindent.pl on these environments is determined by their location (preamble or not), and the value indentPreamble, discussed next.

```
LISTING 13: removeTrailingWhitespace
```

removeTrailingWhitespace: beforeProcessing: 0 afterProcessing: 1

82

83

84

88

89

90

LISTING 14:
fileContentsEnvironments
fileContentsEnvironments:
filecontents: 1
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 15, 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.

```
{\tt preambleCommandsBeforeEnvironments:} \ \mathbf{0} \, | \, \mathbf{1}
```

LISTING 15: lookForPreamble 96 97 .tex: 1 98 .sty: 0 99 .cls: 0 .bib: 0

Assuming that latexindent.pl is asked to operate upon the preamble of a document, when this switch is set to 0 then envi-

ronment 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 16.

LISTING 16: Motivating preambleCommandsBeforeEnvironments

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

```
defaultIndent: \langle horizontal space \rangle
```

This is the default indentation (\t means a tab, and is the default value) used in the absence of other details for the command or environment we are working with; see indentRules for more details (??).

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

```
lookForAlignDelims: \( fields \)
```

This contains a list of environments and/or commands that are operated upon in a special way by latexindent.pl (see Listing 17). In fact, the fields in lookForAlignDelims can actually take two different forms: the *basic* version is shown in Listing 17 and the *advanced* version in Listing 20; we will discuss each in turn.

The environments specified in this field will be operated on in a special way by latexindent.pl. In particular, it will try and align each column by its alignment tabs. It does have some limitations (discussed further in ??), but in many cases it will produce results such as those in Listings 18 and 19.

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 11).

```
LISTING 18: tabular before

\begin{tabular}{cccc}

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

```
LISTING 17:
lookForAlignDelims
(basic)

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

```
LISTING 19: tabular after (basic)

begin{tabular}{cccc}

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



If you wish to remove the alignment of the \\ within a delimiter-aligned block, then the advanced form of lookForAlignDelims shown in Listing 20 is for you.

```
LISTING 20: lookForAlignDelims (advanced)
114
     lookForAlignDelims:
115
        tabular:
116
           delims: 1
117
           alignDoubleBackSlash: 1
118
           spacesBeforeDoubleBackSlash: 2
119
        tabularx:
120
           delims: 1
121
        longtable: 1
```

Note that you can use a mixture of the basic and advanced form: in Listing 20 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 up to 3 fields:

- delims: switch equivalent to simply specifying, for example, tabular: 1 in the basic version shown in Listing 17 (default: 1);
- alignDoubleBackSlash: switch to determine if \\ should be aligned (default: 1);
- spacesBeforeDoubleBackSlash: optionally, specifies the number of spaces to be inserted before (non-aligned) \\. In order to use this field, alignDoubleBackSlash needs to be set to 0 (default: 0).

Assuming that you have the settings in Listing 20 saved in mysettings.yaml, and the code from Listing 18 in myfile.tex and you run

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

then you should receive the before-and-after results shown in Listings 21 and 22; note that the ampersands have been aligned, but the \\ have not (compare the alignment of \\ in Listings 19 and 22).

Using spacesBeforeDoubleBackSlash: 3 gives Listings 23 and 24, note the spacing before the \\ in Listing 24.

As of Version 3.0, the alignment routine works on mandatory and optional arguments within commands, and also within 'special' code blocks (see); for example, assuming that you have a command called \matrix and that it is populated within lookForAlignDelims (which it is, by default), then the before-and-after results shown in Listings 25 and 26 are achievable by default.





```
LISTING 25: matrix before

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

```
LISTING 26: matrix after

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



```
indentAfterItems: \langle fields \rangle
```

The environments 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 28 and 29

```
LISTING 28: items before

begin{itemize}

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

```
LISTING 27: indentAfterItems
148
     indentAfterItems:
149
         itemize: 1
150
         enumerate: 1
151
         list: 1
          LISTING 29: items after
   \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 ?? on page ?? for details of how to configure user settings, and ?? on page ?? in particular59

```
LISTING 30:
itemNames
itemNames:
item: 1
myitem: 1
```

specialBeginEnd: \(fields \)

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 31 shows the default settings of specialBeginEnd.

```
LISTING 31: specialBeginEnd
     specialBeginEnd:
163
164
         displayMath:
165
             begin: '\\\['
              end: '\\\]'
166
167
             lookForThis: 1
168
         inlineMath:
169
             begin: '(?<!\$)(?<!\\)\$(?!\$)'
170
              end: '(?<!\\)\$(?!\$)'
171
             lookForThis: 1
172
         displayMathTeX:
173
             begin: '\$\$'
174
              end: '\$\$'
175
              lookForThis: 1
```

The field displayMath represents \[...\], inlineMath represents \$...\$ and displayMathTex



represents \$\$...\$\$. You can, of course, rename these in your own YAML files (see ?? on page ??); indeed, you might like to set up your own specil begin and end statements.

A demonstration of the before-and-after results are shown in Listings 32 and 33.

```
LISTING 32: special1.tex before

The function f f has formula

\[
f(x)=x^2.
\]

If you like splitting dollars,

\[
g(x)=f(2x)
\]
```

```
LISTING 33: special1.tex after

The function $ f $ has formula

\[ f(x) = x^2. \]

If you like splitting dollars,

$ g(x) = f(2x)
$
```

For each field, the 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.

indentAfterHeadings: \langle fields \rangle

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.

This field is slightly different from most of the fields that we have considered previously, because each element is itself a field which has two elements: indent and level. (Similar in structure to the advanced form of lookForAlignDelims in Listing 20.)

The default settings do *not* place indentation after a heading, but you can easily switch them on by changing indentAfterThisHeading:

O to indentAfterThisHeading: 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; you will find the default indentRules contains chapter: " " which tells latexindent.pl simply to use a space character after headings (once indent is set to 1 for chapter).

LISTING 34: indentAfterHeadings 185 indentAfterHeadings: 186 part: 187 indentAfterThisHeading: 0 188 level: 1 189 chapter: 190 indentAfterThisHeading: 0 191 level: 2 192 section: 193 indentAfterThisHeading: 0 194 level: 3

For example, assuming that you have read ?? on page ??, say that you have the code in Listing 36 saved into headings1.yaml, and that you have the text from Listing 36 saved into headings1.tex.

FIX



```
LISTING 35: headings1.yaml

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

LISTING 36: headings1.tex

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

If you run the command

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

then you should receive the output given in Listing 37.

```
modification

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

LISTING 37: headings1.tex first

LISTING 38: headings1.tex second modification

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

Now say that you modify the YAML from Listing 36 so that the paragraph level is 1; after running

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

you should now receive the code given in Listing 38; notice that the paragraph and subsection are at the same indentation level.

4.2 noAdditionalIndent and indentRules

latexindent.pl searches YAML fields for information in the following order:

- noAdditionalIndent for the name of the current \(\lambda thing \rangle;\)
- 2. indentRules for the *name* of the current \(\lambda thing \rangle;\)
- 3. noAdditionalIndentGlobal for the type of the current \(\text{thing} \);
- 4. indentRulesGlobal for the type of the current \(\text{thing} \).

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.

4.2.1 Environments and their arguments

There are a few different YAML switches governing the indentation of environments; let's start with the simple sample code shown in Listing 39.





```
LISTING 39: myenv.tex

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

noAdditionalIndent: \langle fields \rangle

If we do not wish myenv to receive any additional indentation, we have a few choices available to us, as demonstrated in Listings 40 and 41.

```
LISTING 40:
myenv-noAdd1.yaml

noAdditionalIndent:
myenv: 1

LISTING 41:
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 42; note in particular that the environment myenv has not received any *additional* indentation, but that the outer environment *has* still received indentation.

```
LISTING 42: myenv.tex output (using either Listings 40 and 41)

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

Upon changing the YAML files to those shown in Listings 43 and 44, 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 45.

```
LISTING 43:
myenv-noAdd3.yaml

noAdditionalIndent:
myenv: 0

LISTING 44:
myenv-noAdd4.yaml

noAdditionalIndent:
myenv:
body: 0
```



```
LISTING 45: myenv.tex output (using either Listings 43 and 44)

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

Let's now allow myenv to have some optional and mandatory arguments, as in Listing 46.

```
LISTING 46: 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 47; 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 40), then *all* parts of the environment (body, optional and mandatory arguments) are assumed to want no additional indent.

```
LISTING 47: myenv-args.tex using Listing 40

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

We may customise noAdditionalIndent for optional and mandatory arguments of the myenv environment, as shown in, for example, Listings 48 and 49.

```
LISTING 48:
                                                            LISTING 49:
         myenv-noAdd5.yaml
                                                       myenv-noAdd6.yaml
   noAdditionalIndent:
                                              1
                                                 noAdditionalIndent:
2
                                              2
       myenv:
                                                     myenv:
3
                                              3
           body: 0
                                                         body: 0
4
                                              4
                                                         optionalArguments: 0
           optionalArguments: 1
5
           mandatoryArguments: 0
                                              5
                                                         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 50 and 51. Note that in Listing 50 the text for the *optional* argument has not received any additional indentation, and that in Listing 51 the *mandatory* argument has not received any additional indentation; in both cases, the *body* has not received any additional indentation.

```
LISTING 50: myenv-args.tex using
Listing 48

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

```
Listing 49

\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
\cond{myenv}
\end{outer}
```

indentRules: \(fields \)

We may also specify indentation rules for environment code blocks using the indentRules field; see, for example, Listings 52 and 53.

```
LISTING 52:

myenv-rules1.yaml

indentRules:

myenv: " "
```

```
LISTING 53:

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 54; note in particular that the environment myenv has not received any *additional* indentation, but that the outer environment *has* still received indentation.

```
LISTING 54: myenv.tex output (using either Listings 52 and 53)

begin{outer}
begin{myenv}
body of environment
body of environment
body of environment
bedy of environment
bedy of environment
bedy of environment
lend{myenv}

end{outer}
```

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

Let's now return to the example in Listing 46 that contains optional and mandatory arguments. Upon using Listing 52 as in

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



we obtain the output in Listing 55; note that the body, optional argument and mandatory argument have *all* received the same customised indentation.

```
LISTING 55: myenv-args.tex using Listing 52

| 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 | body of environment | bend{myenv} | end{outer}
```

You can specify different indentation rules for the different features using, for example, Listings 56 and 57

```
LISTING 56: myenv-rules3.yaml
                                                      LISTING 57: myenv-rules4.yaml
1
   indentRules:
                                                    indentRules:
2
       myenv:
                                                2
                                                        myenv:
3
           body: "
                                                3
                                                            body: "
4
            optionalArguments: " "
                                                4
                                                            \verb| mandatoryArguments: "\t\t"|
```

After running

```
cmh:~$ latexindent.pl myenv-args.tex -1 myenv-rules3.yaml
cmh:~$ latexindent.pl myenv-args.tex -1 myenv-rules4.yaml
```

then we obtain the respective outputs given in Listings 58 and 59.

```
LISTING 58: myenv-args.tex using
                                                   LISTING 59: myenv-args.tex using
             Listing 56
                                                               Listing 57
\begin{outer}
                                                 \begin{outer}
 \begin{myenv}[%
                                                   \begin{myenv}[%
                                                        optional argument text
      optional argument text
      optional argument text]%
                                                        optional argument text]%
     { mandatory argument text
                                                      { mandatory argument text
      mandatory argument text}
                                                          mandatory argument text}
                                                      body of environment
     body of environment
     body of environment
                                                      body of environment
     body of environment
                                                      body of environment
 \end{myenv}
                                                   \end{myenv}
\end{outer}
                                                 \end{outer}
```

Note that in Listing 58, 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 59, 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.

240

241

```
{\tt noAdditionalIndentGlobal:} \ \langle fields \rangle
```

Assuming that your environment name is not found within neither noAdditionalIndent nor indentRules, the next place that latexindent.pl will look is noAdditionalIndentGlobal, and

```
LISTING 60:
env-noAdditionalGlobal.yaml
noAdditionalIndentGlobal:
environments: 0
```



in particular for the environments key (see Listing 60). Let's say that you change the value of environments to 1 in Listing 60, 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 61 and 62; in Listing 61 notice that *both* environments receive no additional indentation but that the arguments of myenv still *do* receive indentation. In Listing 62 notice that the *outer* environment does not receive additional indentation, but because of the settings from myenv-rules1.yaml (in Listing 52 on page 17), the myenv environment still *does* receive indentation.

```
Listing 60: myenv-args.tex using
Listing 60

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
body of environment
bend{myenv}
end{outer}
```

```
LISTING 62: myenv-args.tex using
Listings 52 and 60

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

In fact, noAdditionalIndentGlobal also contains keys that control the indentation of optional and mandatory arguments; on referencing Listings 63 and 64

```
LISTING 63:
opt-args-no-add-glob.yaml
noAdditionalIndentGlobal:
optionalArguments: 1
```

```
LISTING 64:
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 65 and 66. Notice that in Listing 65 the *optional* argument has not received any additional indentation, and in Listing 66 the *mandatory* argument has not received any additional indentation.

```
LISTING 65: myenv-args.tex using
Listing 63

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

```
Listing 64

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



```
indentRulesGlobal: \( fields \)
```

The final check that latexindent.pl will make is to look for indentRules as detailed in Listing 67; if you change the environments field to anything involving horizontal space, say " ", and then run the following commands

```
LISTING 67:
env-indentRulesGlobal.yaml
indentRulesGlobal:
environments: 0
```

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

256

257

then the respective output is shown in Listings 68 and 69. Note that in Listing 68, both the environment blocks have received a single-space indentation, whereas in Listing 69 the outer environment has received single-space indentation (specified by indentRulesGlobal), but myenv has received " , as specified by the particular indentRules for myenv Listing 52 on page 17.

```
Listing 68: myenv-args.tex using
Listing 67

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

```
Listings 52 and 67

\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
\begin{mainle}
bo
```

You can specify indentRulesGlobal for both optional and mandatory arguments, as detailed in Listings 70 and 71

```
LISTING 70:
opt-args-indent-rules-glob.yaml
indentRulesGlobal:
optionalArguments: "\t\t"
```

```
LISTING 71:
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 72 and 73. Note that the *optional* argument in Listing 72 has received two tabs worth of indentation, while the *mandatory* argument has done so in Listing 73.



LISTING 72: myenv-args.tex using Listing 70

```
\begin{outer}
\begin{outer}
    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 73: myenv-args.tex using Listing 71

4.2.2 Environments with items

With reference to Listings 27 and 30 on page 12, some commands may contain item commands; for the purposes of this discussion, we will use the code from Listing 28 on page 12.

Assuming that you've populated itemNames with the name of your item, you can put the item name into noAdditionalIndent as in Listing 74, although a more efficient approach may be to change the relevant field in itemNames to 0. Similarly, you can customise the indentation that your item receives using indentRules, as in Listing 75

```
LISTING 74: item-noAdd1.yaml
noAdditionalIndent:
item: 1
itemNames:
4 item: 0

LISTING 75: 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 76 and 77; note that in Listing 76 that the text after each item has not received any additional identation, and in Listing 77, the text after each item has received a single space of indentation, specified by Listing 75.

```
LISTING 76: items1.tex using
                                                      LISTING 77: items1.tex using
              Listing 74
                                                                Listing 75
\begin{itemize}
                                                  \begin{itemize}
 \item some text here
                                                    \item some text here
 some more text here
                                                     some more text here
 some more text here
                                                     some more text here
  \item another item
                                                    \item another item
                                                     some more text here
 some more text here
\end{itemize}
                                                  \end{itemize}
```

Alternatively, you might like to populate noAdditionalIndentGlobal or indentRulesGlobal using the items key, as demonstrated in Listings 78 and 79. Note that there is a need to 'reset/remove' the item field from indentRules in both cases (see the hierarchy description given on page 14) as the item command is a member of indentRules by default.

```
LISTING 78:
                                                                  LISTING 79:
                                                       items-indentRulesGlobal.yaml
    items-noAdditionalGlobal.yaml
   indentRules:
                                                  1
1
                                                     indentRules:
                                                  2
2
       item: 0
                                                         item: 0
3
                                                  3
   noAdditionalIndentGlobal:
                                                     indentRulesGlobal:
4
                                                  4
                                                         items: " "
       items: 1
```



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 76 and 77 are obtained; note, however, that *all* such item commands without their own individual noAdditionalIndent or indentRules settings would behave as in these listings.

4.2.3 Commands with arguments

Let's begin with the simple example Listing 80; when latexindent.pl operates on this file, the default output is shown in Listing 81.

```
LISTING 80: mycommand.tex

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

```
LISTING 81: mycommand.tex default
output

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

As in the environment-based case (see Listings 40 and 41 on page 15) we may specify noAdditionalIndent either in 'scalar' form, or in 'field' form, as shown in Listings 82 and 83

```
LISTING 82:
mycommand-noAdd1.yaml
noAdditionalIndent:
mycommand: 1
```

```
LISTING 83:
mycommand-noAdd2.yaml

noAdditionalIndent:
mycommand:
body: 1
```

After running the following commands,

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

we receive the respective output given in Listings 84 and 85

```
LISTING 84: mycommand.tex using
Listing 82

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

```
LISTING 85: mycommand.tex using
Listing 83

\mycommand
{

mand arg text
mand arg text}
[

opt arg text
opt arg text
]
```

Note that in Listing 84 that the 'body', optional argument *and* mandatory argument have *all* received no additional indentation, while in Listing 85, 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.

We may further customise *noAdditionalIndent* for mycommand as we did in Listings 48 and 49 on page 16; explicit examples are given in Listings 86 and 87.



```
LISTING 86:
                                                                   LISTING 87:
       mycommand-noAdd3.yaml
                                                           mycommand-noAdd4.yaml
   {\tt noAdditionalIndent:}
                                                       {\tt noAdditionalIndent:}
1
                                                    1
2
                                                    2
       mycommand:
                                                           mycommand:
3
                                                    3
           body: 0
                                                                body: 0
4
                                                    4
            optionalArguments: 1
                                                                optionalArguments: 0
5
                                                    5
            mandatoryArguments: 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 88 and 89.

```
LISTING 88: mycommand.tex using
                                                    LISTING 89: mycommand.tex using
              Listing 86
                                                                 Listing 87
\mycommand
                                                   \mycommand
                                                  {
{
  mand arg text
                                                  mand arg text
  mand arg text}
                                                  mand arg text}
opt arg text
                                                    opt arg text
opt arg text
                                                    opt arg text
```

Attentive readers will note that the body of mycommand in both Listings 88 and 89 has received no additional indent, even though body is explicitly set to 0 in both Listings 86 and 87. This is because, by default, noAdditionalIndentGlobal for commands is set to 1 by default; this can be easily fixed as in Listings 90 and 91.

```
LISTING 90:
                                                                LISTING 91:
       mycommand-noAdd5.yaml
                                                         mycommand-noAdd6.yaml
   noAdditionalIndent:
                                                     noAdditionalIndent:
2
                                                  2
                                                         mycommand:
       mycommand:
3
                                                 3
           body: 0
                                                             body: 0
4
                                                 4
           optionalArguments: 1
                                                             optionalArguments: 0
                                                 5
5
           mandatoryArguments: 0
                                                             mandatoryArguments: 1
6
                                                 6
   noAdditionalIndentGlobal:
                                                     noAdditionalIndentGlobal:
7
                                                  7
       commands: 0
                                                         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 92 and 93.

```
LISTING 92: mycommand.tex using
                                                     LISTING 93: mycommand.tex using
             Listing 90
                                                                 Listing 91
\mycommand
                                                  \mycommand
 {
                                                    {
   mand arg text
                                                    mand arg text
   mand arg text}
                                                    mand arg text}
 opt arg text
                                                       opt 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 56 and 57 on page 18 and Listings 67, 70 and 71 on page 19 and on page 20.