Paper Title

Firstname Lastname and Firstname Lastname

Institute

Abstract. Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Keywords: First keyword · Second keyword · Third keyword

1 Introduction

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Nulla malesuada porttitor diam. Donec felis erat, congue non, volutpat at, tincidunt tristique, libero. Vivamus viverra fermentum felis. Donec nonummy pellentesque ante. Phasellus adipiscing semper elit. Proin fermentum massa ac quam. Sed diam turpis, molestie vitae, placerat a, molestie nec, leo. Maecenas lacinia. Nam ipsum ligula, eleifend at, accumsan nec, suscipit a, ipsum. Morbi blandit ligula feugiat magna. Nunc eleifend

consequat lorem. Sed lacinia nulla vitae enim. Pellentesque tincidunt purus vel magna. Integer non enim. Praesent euismod nunc eu purus. Donec bibendum quam in tellus. Nullam cursus pulvinar lectus. Don mi. Nam vulputate metus eu enim. Vestibulum pellentesque felis eu massa.TODO!

The remainder of the paper starts with a presentation of related work (Sect. 2). It is followed by a presentation of hints on LaTeX (Sect. 4). The paper closes with a conclusion and an outlook on future work (Sect. 5).

2 Related Work

Winery [2] is a graphical modeling tool. The whole idea of TOSCA is explained by Binz et al. [1].

To search for related work, ScienceOS[1] can be used; it stores data in the EU and backs its answers with citations, which you still have to read and check yourself. Writing hints for student theses are given in the open-access book *Student Thesis Projects*[2]. More hints are given in *Writing for Computer Science*[3].

3 Writing in Markdown

This section uses plain Markdown, not LaTeX. Its source is the file `content-markdown.md`, which the main file includes with the `markdownInput` command of the `markdown` package[4]. This needs LuaLaTeX. Text can be *emphasized* or **bold**, and a citation looks like this [3]. Sect. 4.17 shows more Markdown.

4 LaTeX Hints

This section contains hints on writing LaTeX. It focuses on minimal examples, which can be directly adapted to the content

4.1 Handling of paragraphs

One sentence per line. This rule is important for the usage of version control systems. A new line is generated with a blank line. As you would do in Word: New paragraphs are generated by pressing enter. In LaTeX, this does not lead to a new paragraph as LaTeX joins subsequent lines. To start a new paragraph, press enter twice. This leads to an empty line. In word, there is the functionality to press shift and enter. This leads to a hard line break. The text starts at the beginning of a new line. In LaTeX, you can do that by using two backslashes (\\).
Running text seldom needs a hard line break.

[1] `https://www.scienceos.ai/`
[2] `https://vdf.ch/product/student-thesis-projects-en.html`
[3] `https://doi.org/10.1007/978-1-4471-6639-9`
[4] `https://ctan.org/pkg/markdown`

Please do *not* use two backslashes for new paragraphs. For instance, this sentence belongs to the same paragraph, whereas the last one started a new one. Andrew Stacey gives a long motivation for that in the section “Line Wrapping” of his *Document Revision System*[5].

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
843 œŒúŰóŐ
844 One sentence per line.
845 This rule is important for the usage of version control systems.
846 A new line is generated with a blank line.
847 As you would do in Word:
848 New paragraphs are generated by pressing enter.
849 In LaTeX, this does not lead to a new paragraph as LaTeX joins
        ↪ subsequent lines.
850 To start a new paragraph, press enter twice.
851 This leads to an empty line.
852 In word, there is the functionality to press shift and enter.
853 This leads to a hard line break.
854 The text starts at the beginning of a new line.
855 In LaTeX, you can do that by using two backslashes (\
        ↪ textbackslash\textbackslash).
856 \\
857 Running text seldom needs a hard line break.
858
859 Please do \textit{not} use two backslashes for new paragraphs.
860 For instance, this sentence belongs to the same paragraph,
        ↪ whereas the last one started a new one.
861 Andrew Stacey gives a long motivation for that in the section \
        ↪ enquote{Line Wrapping} of his \href{https://loopspace.
        ↪ mathforge.org/HowDidIDoThat/TeX/VCS/#section.3}{\emph{
        ↪ Document Revision System}}\footnote{\url{https://
        ↪ loopspace.mathforge.org/HowDidIDoThat/TeX/VCS/}}.
```

Once the text is final, single paragraphs can be polished. If the last line of a paragraph holds only a word or two, or is nearly full, let TeX set the paragraph one line shorter or longer: write `\looseness=-1` (or `=1`) as the first thing in that paragraph. TeX resets `\looseness` at the end of every paragraph, so only that one paragraph is affected. With LuaLaTeX, a lone short word as the last line is avoided automatically (package impnattypo).

4.2 Notes separated from the text

The package mindflow enables writing down notes and annotations in a way so that they are separated from the main text.

[5] `https://loopspace.mathforge.org/HowDidIDoThat/TeX/VCS/`

This is a small note.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
873 œŒŧŨŏŐ
874 \begin{mindflow}
875 This is a small note.
876 \end{mindflow}
```

4.3 Handling TODOs

Marked text.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
881 œŒŧŨŏŐ
882 \textmarker{Marked text.}
```

With \textmarker, only the text color is changed, since this also works well for individual words.

Marked text.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
887 œŒŧŨŏŐ
888 \textcomment{Marked text.}{A comment on it.}
```

Manual marking for text that has been changed since the last version.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
891 œŒŧŨŏŐ
892 \modified{Manual marking for text that has been changed since
        ↪ the last version.}
```

This is some text. Changed text.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
895 œŒŧŨŏŐ
896 This is some text.
897 \change{FL1: text adjusted}{Changed text}.
```

Here is a comment.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
900 œŒŧŦűŰőŐ
901 Here is a comment\sidecomment{Comment}.
```



TODO!

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
904 œŒŧŦűŰőŐ
905 \todo{A lot of text still needs to be produced here}
```

Several authors can mark their edits and comments with the phfcc package; the initials of the author appear once per page in the margin. Define one command per author in the preamble (`\phfMakeCommentingCommand`); `\phfDisableCommentingCommands` hides everything for the final version.

Quantum mechanics developed quickly thanks to the works of Schrödinger, Heisenberg, and Dirac, who drew inspiration from earlier ideas by Planck and Einstein [Einstein must not be missing here.] ~~This sentence is to be removed.~~ **!!! This is important. !!!** FA

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
911 œŒŧŦűŰőŐ
912 Quantum mechanics developed quickly thanks to the works of
        ↪ Schrödinger, Heisenberg, and Dirac,
913 who drew inspiration from earlier ideas by Planck \FA{and
        ↪ Einstein} \FA[Einstein must not be missing here.]
914 \FA*{This sentence is to be removed.} \FA!{This is important.}
```

4.4 Hyphenation

LaTeX automatically hyphenates words. When using microtype, there should be fewer hyphenations than in other settings. You might still need to tweak the hyphenation. Here are some hints:

In case you write “application-specific”, then the word will only be hyphenated at the dash. You can also insert `\allowbreak{}` into the word, as in application-specific, but this is much more effort.

You can now write words containing hyphens which are hyphenated at other places in the word. For that, write `"=` instead of `-`, as in application”=specific. This is enabled by an additional configuration of the babel package.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
œĚúŰőŐ
In case you write \enquote{application-specific}, then the word
    ↪ will only be hyphenated at the dash.
You can also insert \verb1\allowbreak{}1 into the word, as in
    ↪ applica\allowbreak{}tion-specific, but this is much more
    ↪ effort.

You can now write words containing hyphens which are hyphenated
    ↪ at other places in the word.
For that, write \verb1"=1 instead of \verb1-1, as in application
    ↪ "=specific.
This is enabled by an additional configuration of the babel
    ↪ package.
```

4.5 Typesetting Units

Numbers can be written plain text (such as 100), by using the siunitx package as follows: 100 $\frac{\mathrm{km}}{\mathrm{h}}$, or by using plain LaTeX (and math mode): $100\frac{km}{h}$.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
œĚúŰőŐ
Numbers can be written plain text (such as 100), by using the \
    ↪ href{https://ctan.org/pkg/siunitx}{siunitx} package as
    ↪ follows:
\SI{100}{\km\per\hour},
or by using plain \LaTeX{} (and math mode):
$100 \frac{\mathit{km}}{h}$.
```

$5\,\%$ of $10\,\mathrm{kg}$

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
œĚúŰőŐ
\SI{5}{\percent} of \SI{10}{kg}
```

Numbers are automatically grouped: $123\,456$.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
œĚúŰőŐ
Numbers are automatically grouped: \num{123456}.
```

4.6 Surrounding Text by Quotes

Please use the “enquote command” to quote something. Quoting with “quote” or “quote” also works.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
952 œŒűŰőŐ
953 Please use the \enquote{enquote command} to quote something.
954 Quoting with "`quote"' or ``quote'' also works.
```

4.7 Zref-clever examples

Demonstration of zref-clever: Zcref (short for zcref[S]) at the beginning of a sentence, zcref in all other cases.

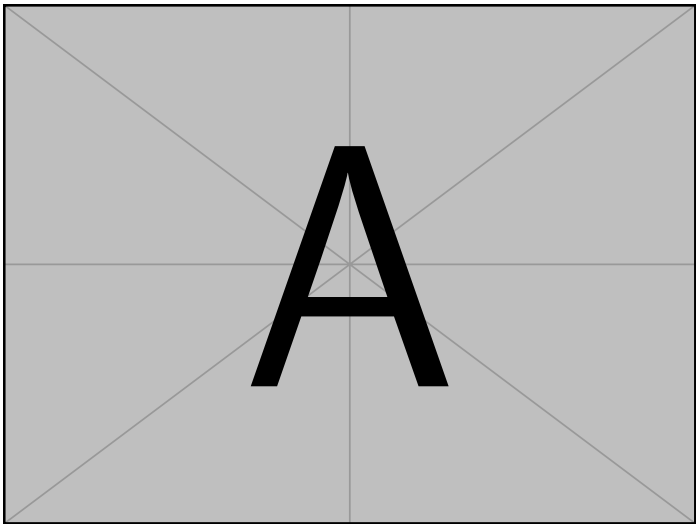


Fig. 1. Example figure for zcref demo

Table 1. Example table for zcref demo

Heading1	Heading2
One	Two
Three	Four

Figure 1 shows a simple fact, although Fig. 1 could also show something else.
Table 1 shows a simple fact, although Table 1 could also show something else.
Section 4.7 shows a simple fact, although Sect. 4.7 could also show something else.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œĚúŰöŐ
\Zcref{fig:ex:cref} shows a simple fact, although \zcref{fig:ex:
    ↪ cref} could also show something else.

\Zcref{tab:ex:cref} shows a simple fact, although \zcref{tab:ex:
    ↪ cref} could also show something else.

\Zcref{sec:ex:cref} shows a simple fact, although \zcref{sec:ex:
    ↪ cref} could also show something else.
```

4.8 Theorem-like Environments and Mathematics

The `llncs` class already provides the theorem-like environments `theorem`, `proposition`, `lemma`, `corollary`, `definition`, `example`, `exercise`, `note`, `problem`, `question`, `remark`, and `solution` as well as the unnumbered `proof` environment – no additional package is required.

Definition 1 (Idempotence). *An operation f is* idempotent *if $f(f(x)) = f(x)$ holds for all inputs x.*

Proposition 1. *The identity operation is idempotent.*

Lemma 1. *An idempotent operation fixes every element of its image.*

Theorem 1. *If two idempotent operations f and g commute, their composition $f \circ g$ is idempotent.*

Proof. Since f and g commute and are idempotent,

$$(f \circ g)((f \circ g)(x)) = f(f(g(g(x)))) = f(g(x)) = (f \circ g)(x). \tag{1}$$

□

Corollary 1. *Applying $f \circ g$ a second time yields no further change, as Eq. (1) shows.*

Example 1. Trimming spaces in a string is idempotent: Lemma 1 applies to every already-trimmed string.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒűŰőŐ
\begin{definition}[Idempotence]
  An operation $f$ is \emph{idempotent} if $f(f(x)) = f(x)$
      ↪ holds for all inputs $x$.
\end{definition}

\begin{proposition}
  The identity operation is idempotent.
\end{proposition}

\begin{lemma}\label{lem:fixed}
  An idempotent operation fixes every element of its image.
\end{lemma}

\begin{theorem}\label{thm:idempotent-composition}
  If two idempotent operations $f$ and $g$ commute, their
      ↪ composition $f \circ g$ is idempotent.
\end{theorem}

\begin{proof}
  Since $f$ and $g$ commute and are idempotent,
  \begin{equation}
    (f \circ g)\bigl((f \circ g)(x)\bigr) = f\bigl(f(g(g(x)))\
        ↪ bigr) = f(g(x)) = (f \circ g)(x).
    \label{eq:idempotent-composition}
  \end{equation}
  \qed
\end{proof}

\begin{corollary}
  Applying $f \circ g$ a second time yields no further change,
      ↪ as \zcref{eq:idempotent-composition} shows.
\end{corollary}

\begin{example}
  Trimming spaces in a string is idempotent: \zcref{lem:fixed}
      ↪ applies to every already-trimmed string.
\end{example}
```

4.9 Figures

Figure 2 shows something interesting.

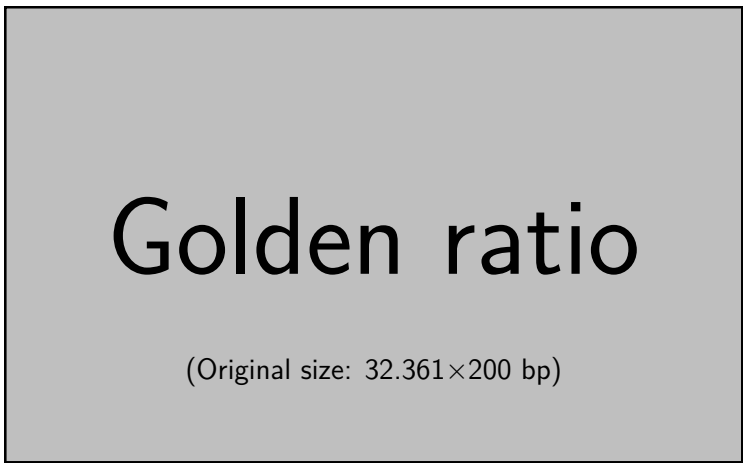


Fig. 2. Simple Figure. Based on Scharrer [3].

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒüŰőŐ
\Zcref{fig:label} shows something interesting.

\begin{figure}
  \centering
  \includegraphics[width=.8\linewidth]{example-image-golden}
  \caption[Simple Figure]{
    Simple Figure.
    Based on \citet{mwe}.
  }
  \label{fig:label}
\end{figure}
```

Photos in JPEG or PNG format are included the same way, as shown in Fig. 3.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒüŰőŐ
\begin{figure}
  \centering
  \includegraphics[width=.5\linewidth]{figures/ulm-minster.jpg}
  \caption{Ulm Minster. Photo: wkrauth, CC0, via Wikimedia
      ↪ Commons.}
  \label{fig:jpg}
\end{figure}
```

One can also have pictures floating inside text:



Fig. 3. Ulm Minster. Photo: wkrauth, CC0, via Wikimedia Commons.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

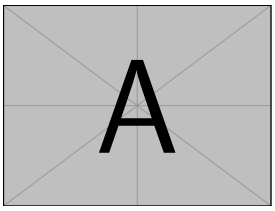


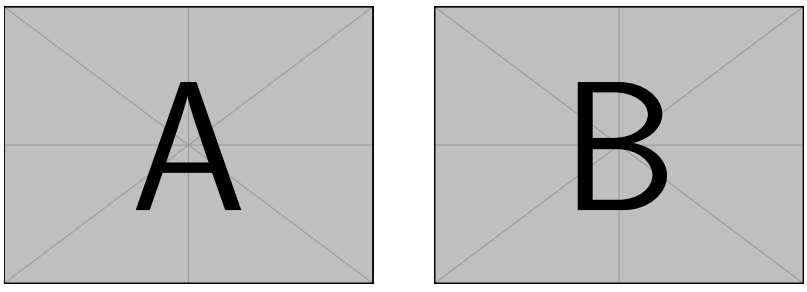
Fig. 4. A floating figure

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
1061 œŒúŰóŐ
1062 \begin{floatingfigure}{.33\linewidth}
1063   \includegraphics[width=.29\linewidth]{example-image-a}
1064   \caption{A floating figure}
1065 \end{floatingfigure}
1066 \lipsum[2]
```

4.10 Sub Figures

An example of two sub figures is shown in Fig. 5.



(a) Case I (b) Case II

Fig. 5. Example figure with two sub figures.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒűŰőŐ
\begin{figure}[!b]
  \centering
  \subfloat[Case I]{\includegraphics[width=.4\linewidth]{example
      ↪ -image-a}%
    \label{fig:first_case}}
  \hfil
  \subfloat[Case II]{\includegraphics[width=.4\linewidth]{
      ↪ example-image-b}%
    \label{fig:second_case}}
  \caption{Example figure with two sub figures.}
  \label{fig:two_sub_figures}
\end{figure}
```

4.11 Figures with tikz

The tikz package creates graphics programmatically. This package generates grids and other regular structures.

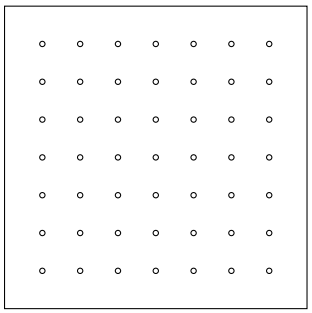


Fig. 6. A regular grid generated easily with two for loops.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
1091 œŒűŰöŐ
1092 \begin{figure}[ht]
1093   \centering
1094   \begin{tikzpicture}
1095     \draw(0,0) rectangle (4,4);
1096     \foreach \x in {0.5,1,1.5,2,2.5,3,3.5}
1097     \foreach \y in {0.5,1,1.5,2,2.5,3,3.5}
1098     \draw(\x,\y) circle (1pt);
1099   \end{tikzpicture}
1100   \caption{A regular grid generated easily with two for loops.}\
          ↪ label{fig:tikz_example}
1101 \end{figure}
```

4.12 Plots with pgfplots

The pgfplots package plots functions directly in LaTeX, similar to MATLAB or gnuplot. Some visual examples are available in the package documentation[6].

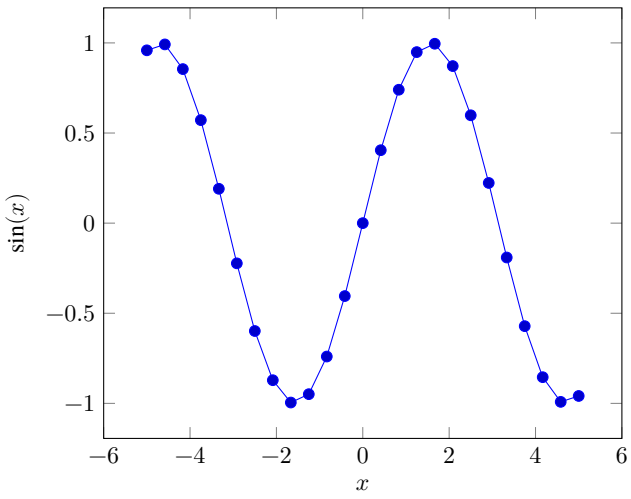


Fig. 7. Plot of $\sin(x)$ directly inside the figure environment with pgfplots.

[6] `http://texdoc.net/pkg/pgfplots`

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒűŰöŐ
\begin{figure}[ht]
  \centering
  \begin{tikzpicture}
    \begin{axis}[xlabel=$x$, ylabel=$\sin(x)$]
      \addplot {sin(deg(x))}; % Plot the sine function
    \end{axis}
  \end{tikzpicture}
  \caption{Plot of $\sin(x)$ directly inside the figure
      ↪ environment with pgfplots.}
  \label{fig:pgfplots_example}
\end{figure}
```

Coordinates can also be given explicitly instead of as a function:

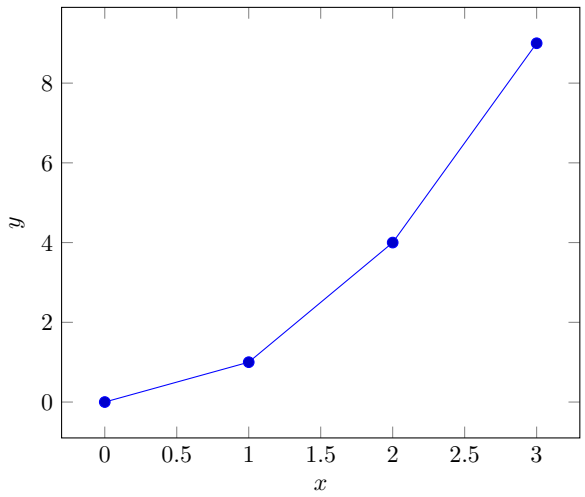


Fig. 8. Explicit coordinates plotted with pgfplots.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒŧŦůŮöÖ
\begin{figure}[ht]
  \centering
  \begin{tikzpicture}
    \begin{axis}[xlabel=$x$, ylabel=$y$]
      \addplot coordinates {(0,0) (1,1) (2,4) (3,9)}; % Plot explicit coordinates
    \end{axis}
  \end{tikzpicture}
  \caption{Explicit coordinates plotted with pgfplots.}
  \label{fig:pgfplots_coords}
\end{figure}
```

4.13 Tables

Table 2. Simple Table

Heading1	Heading2
One	Two
Three	Four

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒŧŦůŮöÖ
\begin{table}
  \caption{Simple Table}
  \label{tab:simple}
  \centering
  \begin{tabular}{ll}
    \toprule
    Heading1 & Heading2 \\
    \midrule
    One      & Two      \\
    Three    & Four     \\
    \bottomrule
  \end{tabular}
\end{table}
```

A table caption goes above the table (`\caption` before the `tabular`), a figure caption below the figure.

Rows and cells can be colored with `\rowcolor` and `\cellcolor` from the colortbl

package, which xcolor loads with its option `table`.

Table 3. Table with colored cells

Test	Result
A	pass
B	fail

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰőŐ
\begin{table}
  \caption{Table with colored cells}
  \label{tab:colored}
  \centering
  \begin{tabular}{ll}
    \toprule
    \rowcolor{gray!20}
    Test & Result                  \\
    \midrule
    A    & \cellcolor{green!20}pass \\
    B    & \cellcolor{red!20}fail  \\
    \bottomrule
  \end{tabular}
\end{table}
```

A `\footnote` inside a floating table is lost. Use `\tablefootnote` from the tablefootnote package instead: it is set as a normal footnote at the bottom of the page. If the notes should appear directly below the table instead (common in journals), use the threeparttable package.

Table 4. Table with a footnote

Heading1	Heading2[7]
One	Two

[7] A footnote inside a table.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
1179 œŒťŰŏŐ
1180 \begin{table}
1181   \caption{Table with a footnote}
1182   \label{tab:footnote}
1183   \centering
1184   \begin{tabular}{ll}
1185     \toprule
1186     Heading1 & Heading2\tablefootnote{A footnote inside a table
         ↪ .} \\
1187     \midrule
1188     One      & Two
         ↪ \\
1189     \bottomrule
1190   \end{tabular}
1191 \end{table}
```

Table 5. Table with diagonal line

Row \ Column	A	B
1	x	y

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
1194 œŒťŰŏŐ
1195 % Adapted from https://tex.stackexchange.com/a/468994/9075
1196 \begin{table}
1197   \caption{Table with diagonal line}
1198   \label{tab:diag}
1199   \begin{center}
1200     \begin{tabular}{|l|c|c|}
1201       \hline
1202       \diagbox{Row}{Column} & A & B \\
1203       \hline
1204       1                     & x & y \\
1205       \hline
1206     \end{tabular}
1207   \end{center}
1208 \end{table}
```

4.14 Tables spanning multiple pages

The longtable package typesets tables that automatically break across page boundaries. The header (`\endhead`) and footer (`\endfoot`) rows are repeated on every page; once enough rows are added, the table spans more than one page on its own.

Table 6: A sample long table.

First column	Second column	Third column
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D
A	BC	D

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒűŰőŐ
\begin{longtable}{|l|l|l|}
  \caption{A sample long table.}\label{tab:long} \\
  \hline
  \multicolumn{1}{|c|}{\textbf{First column}} & \multicolumn{1}{
      ↪ c|}{\textbf{Second column}} & \multicolumn{1}{c|}{\
      ↪ textbf{Third column}} \\ \hline
  \endfirsthead

  \multicolumn{3}{c}{{\bfseries \tablename\ \thetable{} --
      ↪ continued from previous page}} \\
  \hline
  \multicolumn{1}{|c|}{\textbf{First column}} & \multicolumn{1}{
      ↪ c|}{\textbf{Second column}} & \multicolumn{1}{c|}{\
      ↪ textbf{Third column}} \\ \hline
  \endhead

  \hline \multicolumn{3}{|r|}{{Continued on next page}} \\ \
      ↪ hline
  \endfoot

  \hline\hline
  \endlastfoot

  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
  A & BC & D \\
\end{longtable}
```

4.15 Source Code

Listing 1.1 shows source code written in XML. Line 2 contains a comment.

```
1 <listing name="example">
2   <!-- comment -->
3   <content>not interesting</content>
4 </listing>
```

```
<listing name="example">
  Floating
</listing>
```

Listing 1.2. Example XML listing – placed as floating figure

Listing 1.1. Example XML Listing

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰöŐ
\Zcref{lst:XML} shows source code written in XML.
\Zcref{line:comment} contains a comment.

\begin{lstlisting}[
  language=XML,
  caption={Example XML Listing},
  label={lst:XML}]
<listing name="example">
  <!-- comment --> (* \label{line:comment} *)
  <content>not interesting</content>
</listing>
\end{lstlisting}
```

One can also add `float` as parameter to have the listing floating. Listing 1.2 shows the floating listing.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰöŐ
\begin{lstlisting}[
  % one can adjust spacing here if required
  % aboveskip=2.5\baselineskip,
  % belowskip=-.8\baselineskip,
  float,
  language=XML,
  caption={Example XML listing -- placed as floating figure},
  label={lst:flXML}]
<listing name="example">
  Floating
</listing>
\end{lstlisting}
```

One can also typeset JSON as shown in List. 1.3.

```
{
  key: "value"
}
```

Listing 1.3. Example JSON listing – placed as floating figure

```
public class Hello {
    public static void main (String[] args) {
        System.out.println("Hello World!");
    }
}
```

Listing 1.4. Example Java listing

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒŧŦűŰőŐ
\begin{lstlisting}[
  float,
  language=json,
  caption={Example JSON listing -- placed as floating figure},
  label={lst:json}]
{
  key: "value"
}
\end{lstlisting}
```

Java is also possible as shown in List. 1.4.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒŧŦűŰőŐ
\begin{lstlisting}[
  caption={Example Java listing},
  label=lst:java,
  language=Java,
  float]
public class Hello {
    public static void main (String[] args) {
        System.out.println("Hello World!");
    }
}
\end{lstlisting}
```

4.16 Itemization

One can list items as follows:

- Item One
- Item Two

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰóŐ
\begin{itemize}
  \item Item One
  \item Item Two
\end{itemize}
```

One can enumerate items as follows:

1. Item One
2. Item Two

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰóŐ
\begin{enumerate}
  \item Item One
  \item Item Two
\end{enumerate}
```

With paralist, one can even have all items typeset after each other and have them clean in the TeX document:
1. The first item, 2. the second item, and 3. the third item appear in one line.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰóŐ
\begin{inparaenum}
  \item The first item,
  \item the second item, and
  \item the third item appear in one line.
\end{inparaenum}
```

4.17 Writing in Markdown

If you are new to LaTeX, you can start by writing your text in Markdown using the markdown package. LaTeX then takes care of the typesetting. Markdown and LaTeX can be mixed: Table 7 is written in Markdown and referenced from LaTeX. A whole section can be written in a separate Markdown file included by `\markdownInput`, as Sect. 3 shows.

The markdown-latex-quickstart shows a complete document written in Markdown.

Text can be *emphasized* or **bold**, and `code` is set in a monospaced font. A citation looks like this [3], and here is a footnote.[8] Referenced footnotes work as well[9].

- first point
- second point

    - sub-point

1. firstly
2. secondly

Right	Left	Centered
12	12	12
123	123	123

Table 7. A table written in Markdown

Table 7 shows a table with caption. Its identifier `{#tbl:markdown}` is referenced by `<#tbl:markdown>`.

[8] This is an inline footnote.
[9] This is a footnote defined at a different place in the text.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰöŐ
  \begin{markdown}
Text can be *emphasized* or **bold**, and `code` is set in a
    ↪ monospaced font.
A citation looks like this [@mwe], and here is a footnote.^[This
    ↪  is an inline footnote.]
Referenced footnotes work as well[^detail].

[^detail]: This is a footnote defined at a different place in
    ↪ the text.

- first point
- second point
  - sub-point

1) firstly
2) secondly

| Right | Left | Centered |
|------:|:-----|:--------:|
|    12 | 12   |    12    |
|   123 | 123  |   123    |

: A table written in Markdown {#tbl:markdown}

<#tbl:markdown> shows a table with caption.
Its identifier `{#tbl:markdown}` is referenced by `<#tbl:
    ↪ markdown>`.
\end{markdown}
```

4.18 Other Features

The words “workflow” and “dwarflike” can be copied from the PDF and pasted to a text file.

Corresponding LaTeX code of `paper-basic-listings-newtx.tex`

```
œŒúŰöŐ
The words \enquote{workflow} and \enquote{dwarflike} can be
    ↪ copied from the PDF and pasted to a text file.
```

The symbol for powerset is now correct: $\wp$ and not a Weierstrass p ($\wp$).
$\wp(1, 2, 3)$

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
1394 œŒúŰóŐ
1395 The symbol for powerset is now correct: $\powerset$ and not a
         ↪ Weierstrass p ($\wp$).
1396
1397 $\powerset({1,2,3})$
```

Brackets work as designed: <test> One can also input backticks in verbatim text: `test`.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
1400 œŒúŰóŐ
1401 Brackets work as designed:
1402 <test>
1403 One can also input backticks in verbatim text: \verb|`test`|.
```

Acronyms can be typeset in running text with `\initialism`, which sets them as small caps that blend into the surrounding lowercase text. It is the lightweight alternative to the full acronym and glossary management (`\gls`, with an automatic list of abbreviations) provided by the thesis variants: `\initialism` only typesets the acronym and does not add it to any list. The macro and the ready-made acronyms (`\OMG`, `\BPEL`, `\BPMN`, `\UML`) are defined in `commands.tex`, where you can add your own.

The UML is maintained by the OMG; related standards include BPEL and BPMN. Any acronym can be set inline with REST or HTTP.

Corresponding LaTeX code of paper-basic-listings-newtx.tex

```
1408 œŒúŰóŐ
1409 The \UML is maintained by the \OMG; related standards include \
         ↪ BPEL and \BPMN.
1410 Any acronym can be set inline with \initialism{REST} or \
         ↪ initialism{HTTP}.
```

5 Conclusion and Outlook

Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Ut purus elit, vestibulum ut, placerat ac, adipiscing vitae, felis. Curabitur dictum gravida mauris. Nam arcu libero, nonummy eget, consectetuer id, vulputate a, magna. Donec vehicula augue eu neque. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Mauris ut leo. Cras viverra metus rhoncus sem. Nulla et lectus vestibulum urna fringilla ultrices. Phasellus eu tellus sit amet tortor gravida placerat. Integer sapien est, iaculis in, pretium quis, viverra ac, nunc. Praesent eget sem vel leo ultrices bibendum. Aenean faucibus. Morbi dolor nulla, malesuada eu, pulvinar at, mollis ac, nulla. Curabitur

auctor semper nulla. Donec varius orci eget risus. Duis nibh mi, congue eu, accumsan eleifend, sagittis quis, diam. Duis eget orci sit amet orci dignissim rutrum.

Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris.

Acknowledgments Identification of funding sources and other support, and thanks to individuals and groups that assisted in the research and the preparation of the work should be included in an acknowledgment section, which comes right before the reference section in your document [4].

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All links were last followed on October 5, 2020.