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. Donec et 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

[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`

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.

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.tex`

```
855 œŒúŰóŐ
856 One sentence per line.
857 This rule is important for the usage of version control systems.
858 A new line is generated with a blank line.
859 As you would do in Word:
860 New paragraphs are generated by pressing enter.
861 In LaTeX, this does not lead to a new paragraph as LaTeX joins
        ↪ subsequent lines.
862 To start a new paragraph, press enter twice.
863 This leads to an empty line.
864 In word, there is the functionality to press shift and enter.
865 This leads to a hard line break.
866 The text starts at the beginning of a new line.
867 In LaTeX, you can do that by using two backslashes (\
        ↪ textbackslash\textbackslash).
868 \\
869 Running text seldom needs a hard line break.
870
871 Please do \textit{not} use two backslashes for new paragraphs.
872 For instance, this sentence belongs to the same paragraph,
        ↪ whereas the last one started a new one.
873 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).

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

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.

This is a small note.

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

```
885 œŒúŰóŐ
886 \begin{mindflow}
887 This is a small note.
888 \end{mindflow}
```

4.3 Handling TODOs

Marked text.

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

```
893 œŒúŰóŐ
894 \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.tex`

```
899 œŒúŰóŐ
900 \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.tex`

```
903 œŒúŰóŐ
904 \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.tex`

```
907 œŒŧŧŰŏŐ
908 This is some text.
909 \change{FL1: text adjusted}{Changed text}.
```

Here is a comment.

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

```
912 œŒŧŧŰŏŐ
913 Here is a comment\sidecomment{Comment}.
```

TODO!

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

```
916 œŒŧŧŰŏŐ
917 \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.~~ FA
!!! This is important. !!!

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

```
923 œŒŧŧŰŏŐ
924 Quantum mechanics developed quickly thanks to the works of
        ↪ Schrödinger, Heisenberg, and Dirac,
925 who drew inspiration from earlier ideas by Planck \FA{and
        ↪ Einstein} \FA[Einstein must not be missing here.]
926 \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 applica 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 `"=` instead of `-`, as in application"=specific. This is enabled by an additional configuration of the babel package.

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

```
936 œŒúŰóŐ
937 In case you write \enquote{application-specific}, then the word
        ↪ will only be hyphenated at the dash.
938 You can also insert \verb1\allowbreak{}1 into the word, as in
        ↪ applica\allowbreak{}tion-specific, but this is much more
        ↪ effort.
939
940 You can now write words containing hyphens which are hyphenated
        ↪ at other places in the word.
941 For that, write \verb1"=1 instead of \verb1-1, as in application
        ↪ "=specific.
942 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.tex`

```
947 œŒúŰóŐ
948 Numbers can be written plain text (such as 100), by using the \
        ↪ href{https://ctan.org/pkg/siunitx}{siunitx} package as
        ↪ follows:
949 \SI{100}{\km\per\hour},
950 or by using plain \LaTeX{} (and math mode):
951 $100 \frac{\mathit{km}}{h}$.
```

5 % of 10 kg

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

```
954 œŒúŰóŐ
955 \SI{5}{\percent} of \SI{10}{kg}
```

Numbers are automatically grouped: 123 456.

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

```
958 œŒúÚóŐ
959 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.tex`

```
964 œŒúÚóŐ
965 Please use the \enquote{enquote command} to quote something.
966 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.

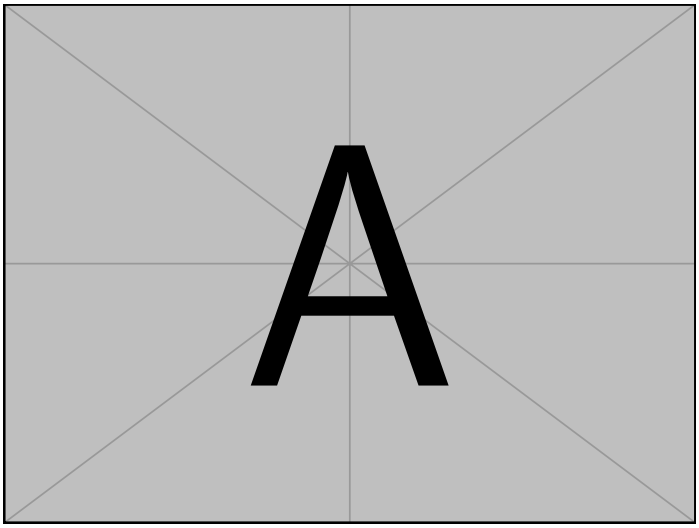


Fig. 1. Example figure for zcref demo

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.

Table 1. Example table for zcref demo

Heading1	Heading2
One	Two
Three	Four

Section 4.7 shows a simple fact, although Sect. 4.7 could also show something else.

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

```
996 œŒŧúŰöŐ
997 \Zcref{fig:ex:cref} shows a simple fact, although \zcref{fig:ex:
        ↪ cref} could also show something else.
998
999 \Zcref{tab:ex:cref} shows a simple fact, although \zcref{tab:ex:
        ↪ cref} could also show something else.
1000
1001 \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.tex`

```
œĚúŰőŐ
\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.

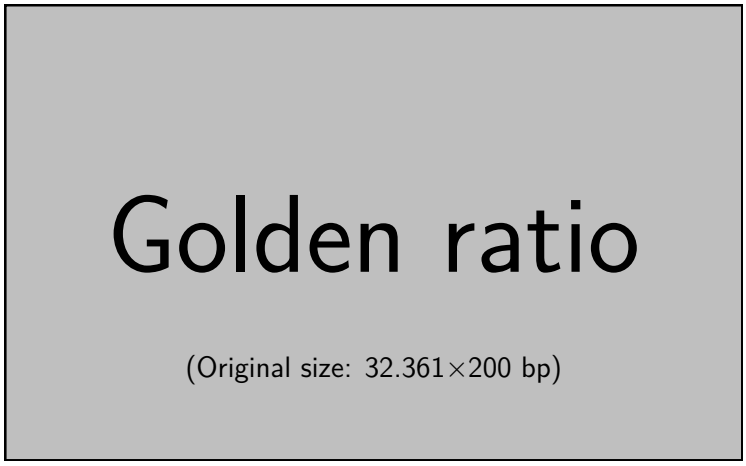


Fig. 2. Simple Figure. Based on Scharrer [3].

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

```
œŒüŰóŐ
\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.tex`

```
œŒüŰóŐ
\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}
```



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

One can also have pictures floating inside text:

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.

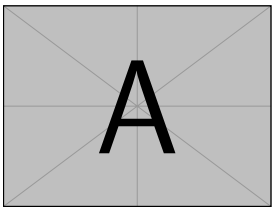


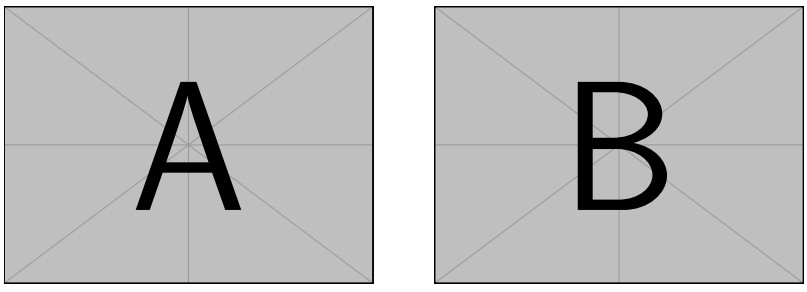
Fig. 4. A floating figure

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

```
œŒúŰóŐ
\begin{floatingfigure}{.33\linewidth}
  \includegraphics[width=.29\linewidth]{example-image-a}
  \caption{A floating figure}
\end{floatingfigure}
\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.tex`

```
1085 œŒűŰőŐ
1086 \begin{figure}[!b]
1087   \centering
1088   \subfloat[Case I]{\includegraphics[width=.4\linewidth]{example
         ↪ -image-a}%
1089     \label{fig:first_case}}
1090   \hfil
1091   \subfloat[Case II]{\includegraphics[width=.4\linewidth]{
         ↪ example-image-b}%
1092     \label{fig:second_case}}
1093   \caption{Example figure with two sub figures.}
1094   \label{fig:two_sub_figures}
1095 \end{figure}
```

4.11 Figures with tikz

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

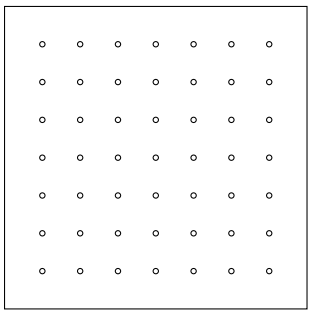


Fig. 6. A regular grid generated easily with two for loops.

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

```
1103 œŒűŰőŐ
1104 \begin{figure}[ht]
1105   \centering
1106   \begin{tikzpicture}
1107     \draw(0,0) rectangle (4,4);
1108     \foreach \x in {0.5,1,1.5,2,2.5,3,3.5}
1109     \foreach \y in {0.5,1,1.5,2,2.5,3,3.5}
1110     \draw(\x,\y) circle (1pt);
1111   \end{tikzpicture}
1112   \caption{A regular grid generated easily with two for loops.}\
         ↪ label{fig:tikz_example}
1113 \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].

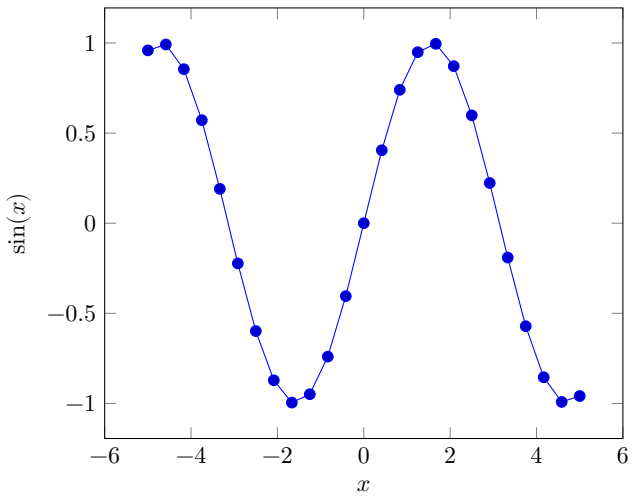


Fig. 7. Plot of $\sin(x)$ directly inside the figure environment with pgfplots.

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

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

```
1121 œŒúŰöŐ
1122 \begin{figure}[ht]
1123   \centering
1124   \begin{tikzpicture}
1125     \begin{axis}[xlabel=$x$, ylabel=$\sin(x)$]
1126       \addplot {sin(deg(x))}; % Plot the sine function
1127     \end{axis}
1128   \end{tikzpicture}
1129   \caption{Plot of $\sin(x)$ directly inside the figure
          ↪ environment with pgfplots.}
1130   \label{fig:pgfplots_example}
1131 \end{figure}
```

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

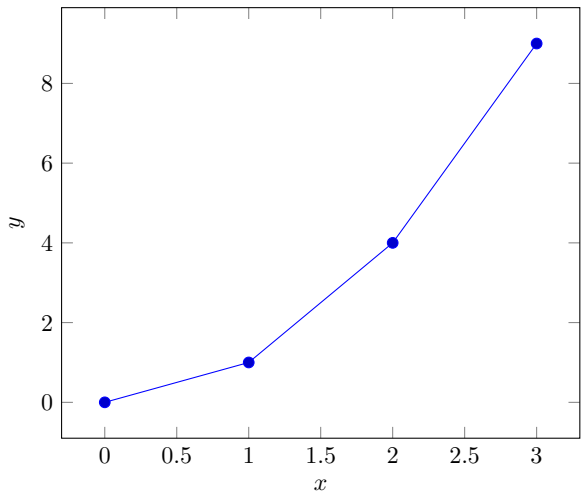


Fig. 8. Explicit coordinates plotted with pgfplots.

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

```
1135 œŒŧŧŰŰőŐ
1136 \begin{figure}[ht]
1137   \centering
1138   \begin{tikzpicture}
1139     \begin{axis}[xlabel=$x$, ylabel=$y$]
1140       \addplot coordinates {(0,0) (1,1) (2,4) (3,9)}; % Plot
          ↪ explicit coordinates
1141     \end{axis}
1142   \end{tikzpicture}
1143   \caption{Explicit coordinates plotted with pgfplots.}
1144   \label{fig:pgfplots_coords}
1145 \end{figure}
```

4.13 Tables

Table 2. Simple Table

Heading1	Heading2
One	Two
Three	Four

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

```
1150 œŒŧŧŰŰőŐ
1151 \begin{table}
1152   \caption{Simple Table}
1153   \label{tab:simple}
1154   \centering
1155   \begin{tabular}{ll}
1156     \toprule
1157     Heading1 & Heading2 \\
1158     \midrule
1159     One      & Two      \\
1160     Three    & Four     \\
1161     \bottomrule
1162   \end{tabular}
1163 \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.tex`

```
œĖúŰöŐ
\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.tex`

```
œŒúŰőŐ
\begin{table}
  \caption{Table with a footnote}
  \label{tab:footnote}
  \centering
  \begin{tabular}{ll}
    \toprule
    Heading1 & Heading2\tablefootnote{A footnote inside a table .} \\
    \midrule
    One      & Two \\
    \bottomrule
  \end{tabular}
\end{table}
```

Table 5. Table with diagonal line

Row \ Column	A	B
1	x	y

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

```
œŒúŰőŐ
% Adapted from https://tex.stackexchange.com/a/468994/9075
\begin{table}
  \caption{Table with diagonal line}
  \label{tab:diag}
  \begin{center}
    \begin{tabular}{|l|c|c|}
      \hline
      \diagbox{Row}{Column} & A & B \\
      \hline
      1                     & x & y \\
      \hline
    \end{tabular}
  \end{center}
\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.tex`

```
1229 œŒűŰőŐ
1230 \begin{longtable}{|l|l|l|}
1231   \caption{A sample long table.}\label{tab:long} \\
1232   \hline
1233   \multicolumn{1}{|c|}{\textbf{First column}} & \multicolumn{1}{
         ↪ c|}{\textbf{Second column}} & \multicolumn{1}{c|}{\
         ↪ textbf{Third column}} \\ \hline
1234   \endfirsthead
1235
1236   \multicolumn{3}{c}{{\bfseries \tablename\ \thetable{} --
         ↪ continued from previous page}} \\
1237   \hline
1238   \multicolumn{1}{|c|}{\textbf{First column}} & \multicolumn{1}{
         ↪ c|}{\textbf{Second column}} & \multicolumn{1}{c|}{\
         ↪ textbf{Third column}} \\ \hline
1239   \endhead
1240
1241   \hline \multicolumn{3}{|r|}{{Continued on next page}} \\ \
         ↪ hline
1242   \endfoot
1243
1244   \hline\hline
1245   \endlastfoot
1246
1247   A & BC & D \\
1248   A & BC & D \\
1249   A & BC & D \\
1250   A & BC & D \\
1251   A & BC & D \\
1252   A & BC & D \\
1253   A & BC & D \\
1254   A & BC & D \\
1255   A & BC & D \\
1256   A & BC & D \\
1257   A & BC & D \\
1258   A & BC & D \\
1259 \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.tex`

```
œĞúŰőŐ
\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.tex`

```
œĞúŰőŐ
\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.tex`

```
œĖúŰöŐ
\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.tex`

```
œĖúŰöŐ
\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.tex`

```
1331 œŒúŰóŐ
1332 \begin{itemize}
1333   \item Item One
1334   \item Item Two
1335 \end{itemize}
```

One can enumerate items as follows:

1. Item One
2. Item Two

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

```
1341 œŒúŰóŐ
1342 \begin{enumerate}
1343   \item Item One
1344   \item Item Two
1345 \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.tex`

```
1351 œŒúŰóŐ
1352 \begin{inparaenum}
1353   \item The first item,
1354   \item the second item, and
1355   \item the third item appear in one line.
1356 \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.tex`

```
œŒúŰőŐ
  \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.tex`

```
œŒúŰőŐ
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.tex`

```
1406 œŒüÜöÖ
1407 The symbol for powerset is now correct: $\powerset$ and not a
         ↪ Weierstrass p ($\wp$).
1408
1409 $\powerset({1,2,3})$
```

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

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

```
1412 œŒüÜöÖ
1413 Brackets work as designed:
1414 <test>
1415 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.tex`

```
1420 œŒüÜöÖ
1421 The \UML is maintained by the \OMG; related standards include \
         ↪ BPEL and \BPMN.
1422 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.

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References

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All links were last followed on October 5, 2020.