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[GRADUATE PROGRAM]

Daniel Vartanian

abnt: Quarto Format for ABNT Theses and Dissertations

[City]
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Daniel Vartanian

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[Dissertation/Thesis] presented to the [School/Department] at the [University], as a requirement for the degree of [Master of Science/Doctor of Science] by the [Graduate program].

Area of concentration: [Area of concentration]

Supervisor: Prof. Dr. [Supervisor's full name]

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supervisor's forename(s)] co-super. III. Title.

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[Dissertation/Thesis] by Daniel Vartanian, under the title **abnt: Quarto Format for ABNT Theses and Dissertations** , presented to the [School/Department] at the [University], as a requirement for the degree of [Master of Science/Doctor of Science] by the [Graduate program], in the concentration area of [Area of concentration].

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Institution [School], [University]

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*To the worm that first gnawed on the cold flesh of my corpse,
I dedicate, as a fond remembrance, these posthumous memories.*¹

¹ ASSIS, M. **Memórias póstumas de Brás Cubas** [The Posthumous Memoirs of Brás Cubas]. São Paulo: Companhia das Letras, 2014.

ACKNOWLEDGEMENTS

I would like to acknowledge this awesome [Quarto format!](#) :)

*Nullius in verba*²

² THE ROYAL SOCIETY. **History of the Royal Society**. Available from: <<https://royalsociety.org/about-us/history/>>. Visited on: 9 Sept. 2023.

ABSTRACT

[SURNAME], [Forename(s) initial(s)]. **abnt: Quarto Format for ABNT Theses and Dissertations** . 2026. 37p. [Dissertation/Thesis] ([Master of Science/Doctor of Science]) – [School/Department], [University], [City], 2026.

abnt is a **Quarto** format designed for creating theses and dissertations that comply with guidelines established by the Brazilian Association of Technical Standards (**ABNT**). It's based on the **abntex2** LaTeX class, which belongs to the **memoir** class family.

Keywords: [Keyword 1]. [Keyword 2]. [Keyword 3].

RESUMO

[SOBRENOME], [Inicial(is) do(s) prenome(s)]. **[Título]**. 2026. 37p. [Dissertação/Tese] ([Título acadêmico]) – [Escola/Faculdade], [Universidade], [Cidade/Local], 2026.

abnt é um formato **Quarto** projetado para criar teses e dissertações que atendem às diretrizes estabelecidas pela Associação Brasileira de Normas Técnicas (**ABNT**). Ele é baseado na classe LaTeX **abntex2**, que pertence à família de classes **memoir**.

Palavras-chaves: [Palavra-chave 1]. [Palavra-chave 2]. [Palavra-chave 3].

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LIST OF ABBREVIATIONS AND ACRONYMS

F

Subscript indicating a relation with work-free days.

W

Subscript indicating a relation with workdays.

MCTQ

Munich ChronoType Questionnaire.

MCTQ^{PT}

Portuguese version of the MCTQ.

MEQ

Morningness-Eveningness Questionnaire.

MSF

Local time of mid-sleep on work-free days.

MSF_{sc}

Chronotype proxy. The midpoint between sleep onset and sleep end on work-free days. A sleep correction (_{sc}) is made when a possible sleep compensation related to a lack of sleep on workdays is identified.

MSW

Local time of mid-sleep on workdays.

LIST OF SYMBOLS

For an extensive list of chronobiology related symbols, please refer to [Aschoff \(1965\)](#) and [Marques and Oda \(2012\)](#).

τ

Period of a rhythm in free flow; only revealed under constant environmental conditions.

T

Zeitgeber period.

ϕ

Phase.

$\Delta\phi$

Phase shift.

$+\Delta\phi$

Phase advance.

$-\Delta\phi$

Phase delay.

Ψ

Phase relation.

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1 [SHOWCASE] INTRODUCTION

See Figure 1.

“The activity can be represented by a *general schema of problem-solving by the method of imaginative conjectures and criticism*, or, as I have often called it, by the *method of conjecture and refutation*. The schema (in its simplest form) is this

$$P_1 \rightarrow TT \rightarrow EE \rightarrow P_2$$

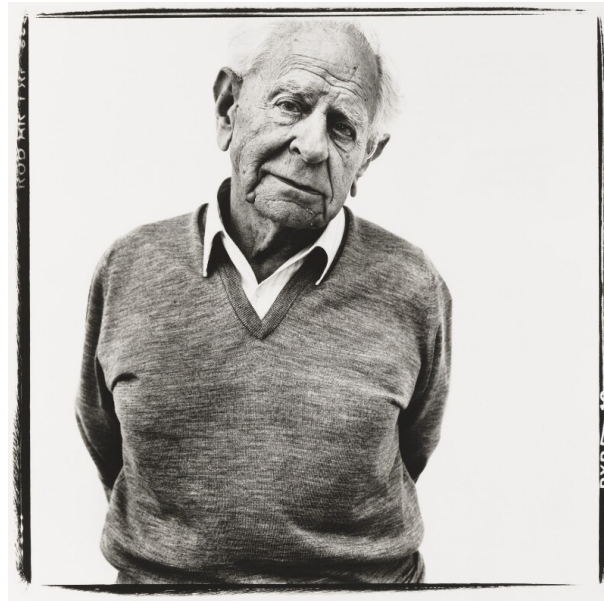
Here P_1 is the *problem* from which we start, TT (the ‘tentative theory’) is the imaginative conjectural solution which we first reach, for example our first *tentative interpretation*. EE (*error-elimination*) consists of a severe critical examination of our conjecture, our tentative interpretation: it consists, for example, of the critical use of documentary evidence and, if we have at this early stage more than one conjecture at our disposal, it will also consist of a critical discussion and comparative evaluation of the competing conjectures. P_2 is the problem situation as it emerges from our first critical attempt to solve our problems.

It leads up to our second attempt (*and so on*). A satisfactory understanding will be reached if the interpretation, the conjectural theory, finds support in the fact that it can throw new light on new problems — on more problems than we expected; or if it finds support in the fact that it explains many sub-problems, some of which were not seen to start with. Thus we may say that we can gauge the progress we have made by comparing P_1 with some of our later problems (P_n , say).”

(Popper, 1979, p. 164)

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Figure 1 – Karl Popper (July 25, 1902 – September 17, 1994).
One of the 20th century's most influential philosophers of science.



Source: [Steve Pyke](#).

1.1 SECONDARY SECTION

See [Table 1](#).

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Table 1 – A sample of the penguins dataset

Species	Island	Bill length (mm)	Bill depth (mm)	Flipper length (mm)
Gentoo	Biscoe	43.5	14.2	220
Adelie	Torgersen	36.2	17.2	187
Chinstrap	Dream	58.0	17.8	181
Adelie	Dream	37.0	16.9	185
Adelie	Biscoe	38.1	16.5	198

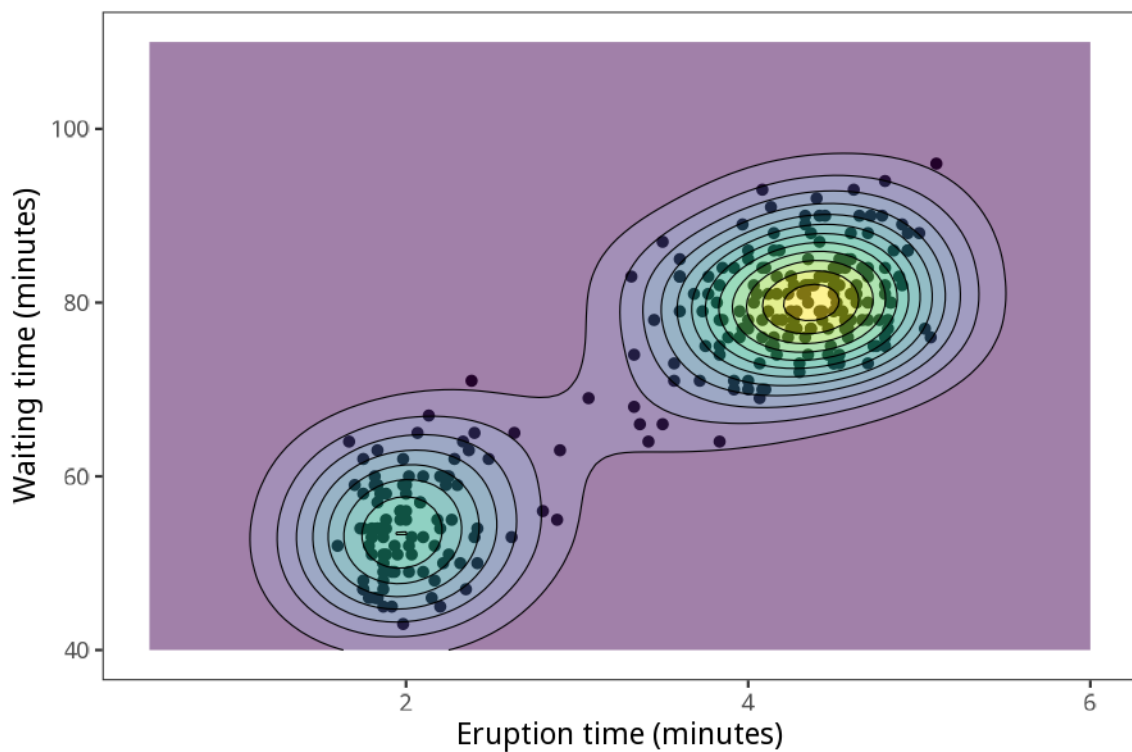
Source: Based on [Horst, Hill, and Gorman \(2020\)](#) penguin dataset.

1.1.1 Tertiary Section

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Figure 2 – Relation between *waiting time to next eruption* (minutes) and *eruption time* (minutes) at Old Faithful Geyser, Yellowstone National Park, Wyoming, USA



Source: Reproduced from the [ggplot2 R package documentation](#) (Wickham, 2016).

1.1.1.1 Quaternary Section

- Bullet point
 - Bullet point
 - ✱ Bullet point

1.1.1.1.1 Quinary Section

1. List
2. List
3. List

1.2 ANOTHER SECONDARY SECTION

See Figure [3](#).

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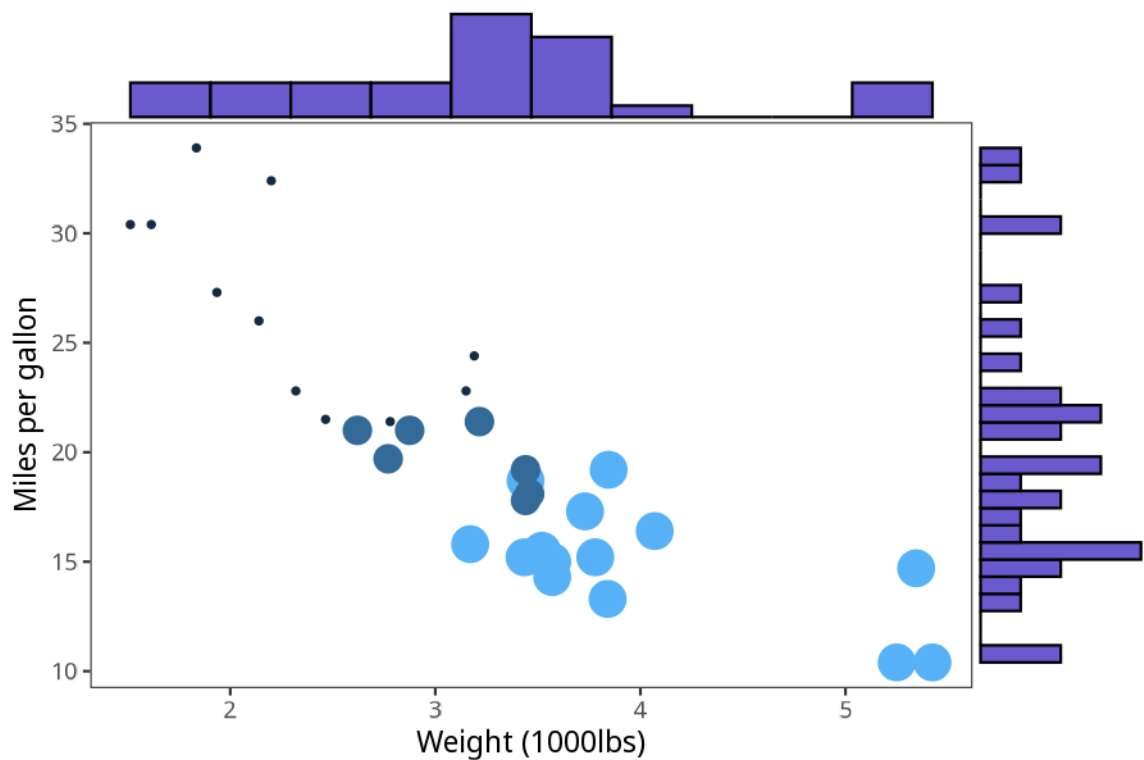
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Figure 3 – Relation between *weight (1000lbs)* and *miles per gallon* for combustion engine vehicles



Source: Data extracted from the 1974 Motor Trend magazine, published by [Henderson and Velleman \(1981\)](#). Visualization by [Holtz \(2023\)](#), available at [The R Graph Gallery](#).

2 [SHOWCASE] DEVELOPMENT

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3 [SHOWCASE] CONCLUSION

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GLOSSARY

For an extensive list of chronobiology related terms and definitions, please refer to [Aschoff \(1965\)](#) and [Marques and Oda \(2012\)](#).

Chronotype

Any kind of temporal phenotype ([Ehret, 1974](#); [Pittendrigh, 1993](#)). Usually, it refers to circadian phenotypes in a spectrum that goes from morningness to eveningness ([Roenneberg; Wirz-Justice; Merrow, 2003](#)). It can also be seen as an organism's phase of entrainment ([Roenneberg; Allebrandt, et al., 2012](#)).

Circadian rhythm

A rhythm with a period close to a day/24h, an approximation to the period of the earth's rotation ([Pittendrigh, 1960](#)). From the Latin *circā*, around, and *dies*, day ([Latinitium, 2023](#)). Example: the sleep-wake cycle.

Complex system

There are several definitions. Here are some that I found to be of use:

- "Systems that don't yield to compact forms of representation or description" (David Krakauer apud [Mitchell \(2013\)](#))
- "A system of many interacting parts where the system is more than just the sum of its parts" (Mark Newman apud [Mitchell \(2013\)](#))

Entrainment

A shift and alignment of biological rhythms induced by a zeitgeber input ([Kuhlman; Craig; Duffy, 2018](#)). For example: a shift/alignment of an organism's circadian rhythm when exposed to light.

APPENDICES

APPENDIX A – [SHOWCASE]

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A.1 SECONDARY SECTION

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ANNEXES

ANNEX A – [SHOWCASE]



B SETTINGS

! Important

You are reading the work-in-progress of this manual.

This chapter is undergoing heavy restructuring and may be confusing or incomplete.

B.1 SECTIONS

If you won't use a section of this document, you must remove it from `_quarto.yml`. Empty sections will produce an error.

At the moment, you also need to remove them in `tex/include-before-body.tex` and `R/.pre-render.R`.

B.2 TYPOGRAPHY

B.2.1 Typeface

To change typefaces, simply use the [Quarto options](#), such as `mainfont`, `monofont` and `sansfont` in your `quarto-[format].yml` file.

```
1 format:
2   abnt-pdf:
3     mainfont: Arial
```

The ABNT NBR 14724:2011 norm does not specify the use of any specific font. You have the freedom to choose any font you prefer, but it's important to note that the selected font must be installed on your computer.

B.2.2 Font Size

To adjust the font size, utilize the `fontsize` option in in the `quarto-[format].yml` file.

```

1 format:
2   abnt-pdf:
3     fontsize: 12pt

```

It's important to note that the third paragraph of Section 5.1 of ABNT NBR 14724:2011 norm establishes that the font size should be 12pt for the entire document, including the cover, except for quotations longer than three lines, footnotes, pagination, cataloging data, captions, and sources of illustrations and tables, which should be in a smaller and uniform size.

The smaller font is set to `\footnotesize`, which corresponds to a 10pt font size with the default settings. You can modify this setting by inserting the following LaTeX command into `tex/include-in-header.tex`:

```

1 \renewcommand{\ABNTEXfontereduzida}{[NEW SIZE (e.g., \small)]}

```

B.3 LANGUAGE AND HYPHENATION

B.4 DOCUMENT SECTIONS

B.4.1 Editing Pre-Textual Sections

`abnt` uses a system of tags to transfer and render the content of Quarto files (`.qmd`) to LaTeX. These tags look like this:

```

1 ```{=latex}
2 %:::% class attribute begin/end %:::%
3 ```

```

Unless you want to customize the template, you don't need to modify the `.tex` files. You can write directly in the `.qmd` files. Just ensure that you preserve all the tags.

B.4.2 How to Include LaTeX Commands in Quarto files (`.qmd`)

To add LaTeX commands in your writing use a `{=latex}` chunk.

```

1  ```{=latex}
2  % Some LaTeX code.
3  ```

```

B.4.3 How to Add or Remove Sections

For pre-textual sections (e.g., list of symbols, abstract), remove them from `tex/include-before-body.tex` and from `R/quarto-pre-render.R`.

For textual sections (e.g., chapters), remove them from `.quarto-[format].yaml` file.

For post-textual sections (e.g., appendices, annexes):

- If it's the Glossary, remove it from `.quarto-[format].yaml` and copy the the LaTeX code after `<!-- glossary end -->` in `glossary.qmd` to the bottom of the last chapter;
- If it's not the last appendix chapter, simply remove it from `.quarto-[format].yaml`; else remove it from `.quarto-[format].yaml`, remove `\begin{apendicesenv}` from the bottom of `glossary.qmd` and add the code the code after `<!-- appendices end -->` of the appendice file to the bottom of `glossary.qmd`;
- [Annexes];
- [Index].

It's important to note that, at this moment, the transition between sections of the document are made inserting LaTeX code at the end of specific sections. These are:

- Between the last chapter and the Glossary section.
- Between the Glossary section and the Appendices section.
- Between the Appendices and Annexes section.
- After the Annexes section.

B.5 CITATION MANAGEMENT

B.5.1 Citation Method

This Quarto format was specifically designed to be compatible with [BibLaTeX](#), which is a comprehensive re-implementation of [BiBTeX](#). At first glance, these two systems may appear very similar.

To get started, simply insert your references into the `references.bibfile`. However, this task can be somewhat tedious and demanding. To simplify the process, we recommend exploring the integration of [Zotero](#) along with [Better BiBTeX](#), as demonstrated in a section below.

For detailed guidance on handling citations in Quarto, please refer to Quarto's [Citation & Footnotes](#) documentation.

B.5.2 Citation Style

There are two built-in citation styles:

- [ABNT](#) (Brazilian Association of Technical Standards);
- [APA](#) (American Psychological Association).

To use one of them, simply change the `biblio-style` option in your `ym1` file with the style of your preference.

```
1 format:
2   abnt-pdf:
3     biblio-style: abnt # options: [abnt, abnt-ibid, abnt-numeric, apa]
```

There are other options related to the citation style; some are shown below. Please refer to [biblatex](#), [biblatex-abnt](#) and [biblatex-apa](#) manuals to learn more about them.

```
1 format:
2   abnt-pdf:
3     biblio-footnote: >
4       According to the Brazilian Association of Technical Standards
```



```

5      (ABNT NBR 6023).
6      biblatexoptions:
7          - backend=biber,
8          - language=english, # [options: english, brazil, spanish, french]
9          - url=true,
10         - useprefix=false,
11         - giveninits=true,
12         - extrayear=true
13      bibhang: 0cm # Use 0.5cm if `biblio-style: apa`.
14      bibparsep: 0ex

```

B.6 ABNT FIGURES AND TABLES

Thanks for the incredible work of [Carlos Scheidegger](#) and other Quarto developers we now have a built-in solution for figures and tables that require two captions (one at the top and the other at the bottom, or a caption and a legend), as required by the ABNT norms. Please note that this feature is only available for Quarto versions $\geq v1.4$.

The procedure for adding these captions is the same for figures and tables. Enclose your figure/table/code in figure `divs`, as shown in the example below. The first paragraph after the figure content will be rendered as the source (bottom caption), and the last one will be the top caption.

The formatting options for this bottom caption/legend is still matter of debate (see [here](#)). That's why is important to add Quarto's [LaTeX Environment](#) filter in your `_quarto-pdf.yml` with the command `legendand use[SOURCE TEXT GOES HERE].legend`' when defining legends for figures/tables, like the example below.

```

1  ::: {#fig-1}
2  ::: {.figure-content}
3  This is the figure content.
4  :::
5
6  [Source: My source.]{.legend}

```

```

7
8 This is a caption.
9 :::

```

Please note that, like all cross-reference elements, these `divs` must follow a naming pattern. Always use the prefixes `#fig-` for figures and `#tbl-` for tables.

Visit the showcase chapter “Introduction” (`qmd/introduction.qmd`) of this Quarto format to see this feature in action. For more detailed information, please refer to Quarto’s [Cross-referenceable elements](#) article.

B.7 CROSS-REFERENCEABLE ELEMENTS

Quarto allow you to create and reference almost anything by using `div` enclosures.

Example: See Theorem [B.1](#).

Theorem B.1 (Line). *The equation of any straight line, called a linear equation, can be written as:*

$$y = mx + b$$

Although, it’s important to note that for this to work, each type of `div` must use pre-defined prefixes. If you don’t follow these rules your document will not be rendered.

Here are most of the the label prefixes.

- | | | |
|----------------------------------|--------------------------------|-----------------------------------|
| • <code>cnj-</code> : Conjecture | • <code>exr-</code> : Exercise | • <code>prp-</code> : Proposition |
| • <code>cor-</code> : Corollary | • <code>fig-</code> : Figure | • <code>sec-</code> : Section |
| • <code>def-</code> : Definition | • <code>lem-</code> : Lemma | • <code>tbl-</code> : Table |
| • <code>eq-</code> : Equation | • <code>lst-</code> : Listings | • <code>thm-</code> : Theorem |
| • <code>exm-</code> : Example | | |

For more information about cross-reference elements, see Quarto’s guide [Book Crossrefs](#), [Cross References](#) and [Cross-referenceable elements](#) articles.

B.8 FREEZING AND CACHE

See [Freeze](#).

B.9 HOW TO CUSTOMIZE THIS QUARTO FORMAT

B.9.1 Quarto System

See [Quarto's guide](#).

B.9.2 Template Partial

See [Template partials](#).

- Set fixed dimensions (e.g., page dimensions) in `cm` or `pt`. `cm` is the prefer unit for margins.
- Set line spacing as a proportion of `\baselineskip` (e.g., `1.5\baselineskip`).
- Use the settings `\tinyskipamount`, `\smallskipamount`, `\midskipamount`, `\bigskipamount`, `\hugeskkipamount` and their counterparts `\tinyskip`, `\smallskip`, `\midskip`, `\bigskip`, `\hugeskkip`. You can find them in the `lengths.tex` template partial.
- For other kinds of relative vertical spacing, use the `ex` unit.
- For relative horizontal spacing, use the `em` unit.

See [Oetiker *et al.* \(2023\)](#), section 7.5) to learn more about LaTeX spacing features. The articles on [Overleaf](#) are also a great source of information. Check [Lengths in LaTeX](#) and [How to change paragraph spacing in LaTeX](#) to get a sense of the subject.

The following are the equivalences for a Arial typeface with size 12_{pt}.

B.9.2.1 Unit equivalences

- $1\text{em} == 12\text{pt}$ or $\approx 0.423333\text{cm}$.
- $1\text{ex} == \approx 6.22266\text{pt}$ or $\approx 0.219521\text{cm}$.

B.9.2.1.1 `\baselineskip`

Use `\the\baselineskip` and `\getvalue{}` to figure out the exact value. Note that `\getvalue{}` will return the value in pt.

Example of using `\getvalue{}`:

```
1 \begingroup
2 \setlength{\parskip}{1em}
3 \getlength{\parskip}
4 \endgroup
```

- `\linestretch=1`
 - `1\baselineskip == 14.5pt`. That's about 1.2x (or $\approx 1.208333x$) the font size (standard procedure).
- `\linestretch=1.5`
 - `0.25\baselineskip == 5.4375pt` or $\approx 0.191822917\text{cm}$;
 - `0.5\baselineskip == 10.875pt` or $\approx 0.383645833\text{cm}$;
 - `0.75\baselineskip == 16.3125pt` or $\approx 0.57546875\text{cm}$;
 - `1\baselineskip == 21.75pt` or $\approx 0.76729167\text{cm}$;
 - `1.5\baselineskip == 32.625pt` or $\approx 1.1509375\text{cm}$;
 - `2\baselineskip == 43.5pt` or $\approx 1.534583\text{cm}$;
 - `2.5\baselineskip == 54.375pt` or $\approx 1.91822917\text{cm}$;
 - `3\baselineskip == 65.25pt` or $\approx 2.301875\text{cm}$.

B.9.3 How to Add New Citation Styles

B.9.4 Must See References

To learn the basics about LaTeX, see [Oetiker *et al.* \(2023\)](#). To delve deeper into the LaTeX system, see [Lamport \(1994\)](#) and [Knuth \(1986\)](#).

B.9.4.1 Manuals

B.9.4.2 R packages

- [gt](#)

- Quarto
 - abntex2
 - memoir
 - biblatex
 - biblatex-abnt
- biblatex-apa
 - babel
 - fontspec
 - makeidx

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