



BACHELOR'S THESIS TEMPLATE — TITLE OF PROJECT

Bachelor's Project Thesis

Max Punten, s1234567, m.punten@student.rug.nl
Supervisors: Dr A.R. Tifical & Prof Dr I.N. Telligence

Abstract: This document contains a detailed description of the appearance and contents of the Bachelors project report. These instructions must be followed as closely as possible. This document is an example that can be copied, as well as a template that can be used with \LaTeX .

1 Introduction

This is a document that helps you writing your Bachelors thesis. It has tips about academic writing style, but also about the style in which you have to write your thesis. A Bachelors thesis has a length of 1015 pages (15 pages is the maximum). If you have more to discuss or show, you can put these additional materials in the Appendices at the end of the thesis. The appendices are not counted in the number of pages.

It is important that Bachelors theses have a uniform style so that its layout is predictable. It is also a good way to practise using a style defined by someone else. When you write papers for journals and conferences, you will have to keep to a particular style. In many cases, reports for companies and government organizations are also required to be in a particular format.

The style has two elements: the form and the content. A standard/uniform design ensures that reports can be easily compared and that the reader does not have to get used to a new layout each time. A well-designed layout also makes the text easier to read. Uniformity of content enables the reader to find things easily in the text, and helps inexperienced writers to organize their material.

These instructions should be followed as closely as possible, as far as the word processing program allows. This will enable you to fit 600-700 words on a page. This document was created in \LaTeX and may be used as a template. It also serves as a reference for design and layout.

2 Style

Academics and scientists have a product to sell: the results of their research and the hypotheses that those results support. The readers to whom the product is offered are extremely critical and knowledgeable on the subject concerned. Academic and scientific texts must therefore be written with

this in mind. In everything they write, writers must ask themselves 'Does this help to convey my message to my envisaged audience?'. In addition, the audience/readers are used to seeing the message presented in a particular style. It is important not to deviate too much from this style, because this would generate a 'resistance' to the actual style used and thus, inevitably, to the content.

2.1 The academic style

The academic writing style is different to the style used in newspapers, novels and personal correspondence. The style used in 'serious' scholarly articles is even different to the style used in popular-science articles and books.

The most notable thing about the academic style is that it generally avoids the use of the first and second person pronouns (I, you, we). Texts are often written using impersonal constructions or the passive voice. This is perhaps explained by the fact that, in the ideal academic process, it is not a matter of the work that the writer has carried out personally, but that each academic/scientific article is, in principle, a non-personal contribution to the advancement of knowledge.

It may be that the use of 'we' is an exception. In English this style is known as the 'tutorial we' style. Some journals recommend this style (the 'Here we show ...' found in almost every article in the journal Nature is a good example) while other journals expressly advise against it. Particularly in a thesis by a single author, the use of 'we' is comical rather than functional. In your thesis you may use "I", but often it is better to avoid using it (e.g., by writing "this study intended to test ..." rather than "I wanted to see ...")

Style conventions do not remain constant. They change over time – as is clearly seen in older articles – and may also vary considerably from discipline to discipline. One thing that remains constant is the fact that the style must be geared to readability.

Overblown formal language is of no use to anyone. It is therefore always a good idea to ask someone to read through your texts in order to assess their readability (and content, of course).

2.2 Tips for a good writing style

The most useful tip is to *read many academic articles* to see what works and what does not, and what is customary and what is unusual. It also helps to read articles written over a wide range of years. Certain conventions regarding form and content change over the years, and are arbitrary to a certain extent, but a good article will always be a good article. Likewise, a bad article will always be a bad article, and it can certainly do no harm to look at a number of articles in this category in order to gain a better impression of why certain things do not work.

The second tip is to read a book about how to write. Useful resources on the subject of writing academic and scientific reports are available on the internet. A less obvious source, but certainly a very useful one, are the guidelines for Wikipedia authors.

Another useful tip for good writing – at paragraph level at least – is to build up the paragraphs in a fairly consistent way. One paragraph deals with one subject, or links two subjects. The first sentence indicates what the paragraph will be about. The final sentence of the paragraph establishes the link to the next paragraph. The detailed writing comes in between these two sentences. Obviously it is not necessary to structure every paragraph in this way (texts would easily become illegible if they were all written strictly according to the rules), but this is a useful guide.

Another way to improve your text is to consider the function of everything you write in relation to the whole. If you cannot give a positive answer to the question ‘Is this information relevant to what I am trying to say?’, it is better to leave it out. If you cannot give a positive answer to the question ‘Will my readers understand this?’, you know that you will have to explain it in more detail. An almost direct consequence of these criteria is that vague generalizations (‘The interest in X is rapidly increasing’ or ‘Many scientists believe that ...’) must be avoided, or substantiated for example with references.

Because writers can be their own least critical readers, it is useful to ask someone else to read your texts, and to take that person’s comments seriously. Given that we tend to be lenient with ourselves in self-criticism, if we think something is bad it is almost certain to be bad.

3 Contents

The contents must consist of a clearly written overview of the research question, the relationship to existing work in the field concerned, and the sources used (this is the introduction and the theory framework), a reproducible description of the model used, a clear description of the experiments carried out, an interpretation of the results in relation to the research question (this is the conclusion) and a discussion of the value, impact and possible continuations of the work. Bear in mind that the introduction and conclusion together must form a comprehensible summary of the report. This means that you may refer to your model in the introduction, and that you will need to summarize your results again in the conclusion.

3.1 Before you start

In order to clarify for yourself precisely what you are going to write, it is useful to note down answers to the following questions. These questions should be asked for every piece of academic writing, and the answers will provide a useful guide as you write.

The first question is: what is the *aim* of your writing? In the case of the Bachelor’s project, the aim is to write a report on a project and present your results. But the aim could also be to write a project proposal, a presentation of a new idea, a contribution to a discussion, an overview article, etc. For each type of article, there are requirements as to what should and should not be included.

The second question is: *for whom* are you writing? In the case of the Bachelor’s thesis, you are writing for your supervisor. You may also be writing for other researchers, who may or may not be favourably disposed towards your ideas. Sometimes you may also be required to write for a wider audience. Each group for whom you write requires a different style, and different assumptions in terms of background knowledge and approach.

The third question that you have to answer is: *for what* are you writing? In the case of a Bachelor’s thesis, you are writing a text that is approximately 12-15 pages long. A Master’s thesis may easily be five times as long. An article for a conference may be six pages long, and a journal article may be as long as 30 pages. Your audience’s background and the level of substantiation you need to provide will also depend on the forum for which you are writing. A journal article, for example, requires more detailed substantiation than a conference article or a Bachelor’s thesis.

When you have answered these basic questions, you can address more specific questions. The most important question is: what is your contribution, or what message do you want to convey? Also, what can you assume to be known? What can you

present as background information? How much detail can you go into? And last but not least, whose work have you used for your own work? In other words, what references are needed?

3.2 The abstract

If your research is going to be sold, the abstract serves as the *teaser*. This means that people must be able to decide on the basis of the abstract whether the rest of your article is worth reading. In many cases, abstracts are placed in a range of databases and, on the basis of the abstract, readers must decide whether to download or purchase the article which can be expensive in the latter case.

Because abstracts relate to academic/ scientific research, it is important that they include the key findings and conclusions. An abstract must not be a cliff-hanger that leaves the reader in suspense as to the outcome of the research. It must give a complete idea of what happened and what can be deduced from this.

The abstract must be seen as separate from the rest of the text. It should therefore be possible to read the main text without needing to read the abstract first.

3.3 How should you subdivide your text

A good structure with sections or chapters is important for the legibility of your thesis. It is important to think in advance about how you want to structure the material you are going to present. There is often a fixed structure (e.g., introduction, system description, results, conclusion, for a AI report; introduction, method, results, discussion, for empirical work) for short texts such as articles and the Bachelor's thesis. In the case of longer texts, these parts may be divided into more chapters, but it is also useful to consider whether subsections are required in short texts. When writing a PhD thesis, for example, it is even customary to pause half way through the process in order to draw up a detailed table of contents, setting out the chapters, the sections in the chapters and a brief description of the contents. This may even be useful for a Bachelor's thesis, and certainly for a Master's thesis.

Obviously, the content of each subdivision must form a cohesive whole. Devote each subdivision to a specific subject, and decide in advance what should and should not be included. Sooner or later you may encounter the problem that you need to have explained point B before explaining point A, and vice versa. You can solve this by referring ahead, and possibly giving a brief idea of what point B involves. A little redundancy in your thesis is therefore acceptable. Avoid endlessly long sections

in which you try to explain everything at once.

Ideally, subsections, sections and chapters will all be roughly the same length. Although differences in length are obviously inevitable, there is nevertheless a problem with the structure if you have sections with only one paragraph as well as sections that are three pages long. The use of many levels of subheadings (e.g. 1.2.1.7b) also points to a problem with the structure. A rule of thumb for longer texts is that it must be possible to read a chapter in one sitting (1 hours or so). A good length is therefore between 10 and 20 pages.

3.4 The introduction

As mentioned above, the introduction and conclusion together must give a complete and comprehensible picture of your thesis. This is for the time-poor readers whose interest has been aroused by the abstract but do not have time to read the full thesis, or who in any case need to decide whether they want to devote time to reading it.

Your introduction should therefore set out the context of the work (why it is relevant, who has worked on the subject before), the specific question (with an explanation of how it contributes to our understanding of the subject) and a summary of the techniques and analysis methods used. Obviously, the introduction is not the place for a highly detailed discussion of the methods and techniques. In the case of long texts in particular, the discussion of the context and related work may be spread over several chapters. This does not alter the fact that it should be possible to read the introduction and the conclusion on a 'stand-alone' basis.

The introduction should convince the reader that your work is useful and exciting/interesting, that you know what you are talking about and understand why you researched the subject in the way you describe.

Introductions often end with a summary of what follows in the rest of the thesis. This is only useful if it makes the thesis easier to read. For example, it is useful to point out that Chapter 3 is only relevant for people who are interested in the mathematics of your model, and others therefore do not need to read it. It is not useful to point out that Chapter 2 describes the model, Chapter 3 contains the results and Chapter 4 the conclusion. The reader can see this from the table of contents. In the case of bachelor theses it is not necessary at all to point it out, as such theses are relatively short.

3.5 The system / methods

The description of the system and/or method must focus on reproducibility. In the case of a computer program, sufficient detail must be provided to enable the programming to be repeated. In the case

of an experimental setup, this means that sufficient details should be given so that the precise experiment can be repeated.

For experimental papers, there is a much used, and therefore more or less standard structure. It is highly recommended to adhere to such a standard structure. It helps the reader because they know where to look for particular information, and it helps you as a writer because it is easier not to forget things.

In both cases, only relevant details should be given. Just as, in the case of an fMRI experiment, the colour of the pyjamas worn by the test subjects is unimportant but the type and settings of the MRI machine *are* important, in the case of programs it is important to describe precisely *what* happens, but not precisely *how* this was programmed. The description therefore needs to be above the source-code level. Often, the best way is to describe in general how the system works and then discuss its individual components. Ultimately, everything must be substantiated with formulae and tables of pseudo code.

The reasons behind certain choices in the system should also be given. In many cases, certain aspects of the system can be executed in many different ways. It is therefore necessary to explain why a certain method of execution was chosen and why the alternatives were rejected. It is helpful to place these choices in the wider context of the research, as outlined in the introduction and research question. Describing the system therefore involves more than simply describing what you built!

Importantly, remember to include the values of all the parameters used in your system! The best way to do this is to present them in a table in a central position.

The description in the system/method section goes beyond the description of the computer model or experiment that was used. The techniques used to analyse the behaviour of the system (or the model, or the experimental subjects) should also be described. In many cases, a computer model or an experiment generates sizeable volumes of data that, in their raw form, are too large and complex to draw a conclusion from. In such cases, measures need to be defined for calculations using the data. These may be averages, or aspects such as the diversity of the system, learning success, rate of convergence, etc. The calculations must be clearly described, and reasons given for the choice of measures. For experiments, this means that the method section also describes how the raw data were collected, averaged, and processed to make it ready for statistical testing. The statistical tests must also be described, together with the reasons to use those.

3.6 The results

When you present your results, you are presenting the essence of the message you wish to convey. This is the opportunity to show what you have discovered and how your findings shed light on the research question. Two things are important in order to do this successfully: selection and presentation.

The importance of selecting results is something that young scientists/academics often overlook. Surely every result is important? Yes and no. It is natural to want to present every single result that you have obtained from your model with blood, sweat and tears. The risk, however, is that you will overload the reader with results that are not relevant to your research question. It is therefore important to present only the results that shed light on your research question.

This does not alter the fact that not all your interesting findings relate directly to the research question. There are plenty of studies that have produced different and much more interesting results that do not relate to the original purpose of the study. But that is something for your next publication. The research for your thesis had a specific aim and, given the limited amount of time available, it is sensible to keep the focus on the research question you formulated at the outset.

The second problem is how to present the results. It goes without saying that they should be presented as clearly as possible. Unfortunately, it is not possible to say briefly which format is suitable in each case. However, there are certain guidelines that may be followed.

Graphs are useful for presenting large volumes of data. If there is a relationship between the data (e.g. data points in a time series), a line graph should be used. If no such relationship exists, a bar chart is preferable. If the results consist of components that add up to a whole, it is a good idea to present them in a pie chart, and sometimes it is useful to think up a graph of your own. A number of conventions for producing decent graphs are discussed in Section 4.7. As with writing, when you are learning to produce graphs it is useful to look critically at a wide range of graphs produced by other people.

Graphs are not the answer to everything. Sometimes it is better to present results in a table. This is certainly the case if precise numeric values are important, or in the case of very small numbers of data points. Sometimes it is sufficient to discuss the results in the text, certainly if the qualitative form of the results is more important than the precise quantitative values.

In all cases, you must show whether or not your results are statistically significant. In graphs this is done using box plots, reliability intervals or error

bars. In tables it is useful to give reliability intervals and/or standard deviations, etc. When discussing your results you must also clearly explain which statistical tests you used and why they are valid tests to use.

3.7 The conclusion and discussion

In the conclusion and discussion you describe the consequences of your findings, obviously in the context of your research question. As mentioned above, the introduction, together with the conclusion and discussion, must form a mini-article that can be read on a stand-alone basis. Therefore you should somehow include all your key findings in this section. Clearly, there is no need to repeat graphs and tables, but it is essential to summarize your findings in words.

The repetition will occur when you explain what the results mean and how they should be interpreted. You should take the reader by the hand, as it were, by explaining how each result is relevant to the research question and to other work on the subject. This discussion may serve as an argumentation for a short and (hopefully) powerful message: the ultimate conclusion. Obviously, there may be more than one conclusion that can be drawn from your results.

In the discussion, the conclusion can be placed in the broader context of the academic discussion to which the presented work contributes. This is also the place to make suggestions for future research.

Possibilities for future research are sometimes (but not usually in a Bachelor's thesis) presented in a separate section. In this section, keen young academics at the start of their career have the tendency to suggest how the system can be made even more complex, especially if their results were disappointing. But remember that the reverse may be true: perhaps the system was too complex, and simplification would provide greater insight. Suggestions like these should always be made with the original research question in mind, not simply because it is enjoyable to play with complex systems. When you've done an experiment, don't simply suggest to use more subjects in a next experiment to increase the power of the experiment. Really large effects in the real world should have shown in your experiment even with a relatively small sample. Don't confuse significance with relevance!

3.8 Acknowledgements and related matters

Acknowledgements etc. are usually only appropriate in texts that are longer than a Bachelor's thesis. It is acceptable to include acknowledgements in a Master's thesis, and for books and PhD theses

it is standard. Parents and other loved ones are often very flattered to be mentioned in acknowledgements. It is not necessary to mention the supervisor in acknowledgements in texts below the level of a doctoral thesis. The supervisor is mentioned anyway. Supervisors may be embarrassed to be mentioned in the acknowledgements of a Master's thesis (since supervision is simply part of their work), but tastes differ and it is therefore a good idea to discuss this with your supervisor.

Generally speaking, a foreword is not required in a thesis. A foreword usually says something about the reason for the work and about how the work was carried out. It is best to leave this out of a Bachelor's or Master's thesis unless there is something exceptional to report.

3.9 The bibliography

The format for references is described in Section 4.9. Obviously, it is also important to know when references are needed, and to which sources. References are always required when you use other people's ideas or when you use text or illustrations that are not your own. When describing a system, references must be included when you are explaining the various choices made. Choices of this sort must be based on something preferably a sound knowledge of what other researchers have already tried. Obviously, in your introduction you should include references to similar work, but without interrupting the flow of your account. Sometimes useful, but very tiring to read, are the literature overviews that summarize a great deal of other work but do not really relate it to the authors own work. In the conclusion, after all, full reference can be made to similar conclusions drawn by fellow scientists or academics.

A practical problem that may occur is deciding precisely which source to refer to. Should you refer to the person who originally discovered something, or to the textbook that gives a much clearer explanation of what it is about? Probably the simplest solution is to refer to both. On balance, it is better to over-reference than to under-reference, but be careful about referring to original work that will be difficult for the reader to find. You should be open about the fact that you have not read something, for example by including a reference in the following form: (Schwartz, Boë, Vallée, and Abry, 1997, as cited in Berrah and Laboissière, 1999). In the reference list you then refer to both (Schwartz et al., without the cited bit, and Berrah and Laboissière).

4 Layout

The present document serves as a template. If you type your thesis in it, your report has the correct format. Below are described the layout requirements.

The reports must be laid out for A4 paper, with horizontal and vertical margins of 25 mm. Page numbers must be on the bottom right-hand side of the page, 10 mm below the text. The title, subtitle, authors and abstract must be laid out as a single column across the whole width of the page, but the main text must be set out in two columns. Columns are 77 mm wide, with a 6 mm space in between. The font must be Palatino Linotype (Regular), or similar (e.g. Computer Modern by L^AT_EX). Times Roman, nor Georgia, the University of Groningen preferred font of the house style, is not recommended because it is not really suitable for long texts. The font size is 10 points for the main text, with single line spacing. Boldface type should only be used for subheadings. Italicized text is permitted. Underlining should not be used – it belongs to the era of manuscripts and typewriters!

Paragraphs should be left and right aligned, and words may be hyphenated. There should be no indent in the first paragraph of a section. Subsequent paragraphs in the section should have a 6 mm first-line indent.

4.1 The title material

The title of the report is printed in 16-pt bold. The title is fully capitalized, but use 14-pt capitals (or use ‘small caps’) where lower-case letters would normally be used. Content words in the title must begin with a capital letter (‘title caps’). Leave 3 points of empty space under the title.

The title is followed by the name of the author(s), with the student number(s) after the name. Note: remove the student number from the final version that you upload to the repository. Leave 6 points before the title, and 12 points after the last line. This is followed by the abstract.

All the title details are centred on the page.

4.2 The abstract

The abstract should ideally consist of one paragraph containing a brief description of what is discussed in the document. Its maximum length is 250 words. Any further paragraphs in the abstract should have a 6 mm first-line indent, as in the main text. The abstract begins with the word Abstract (in bold), followed by a colon. After this comes the main text, beginning with a capital letter.

The font size for the abstract is 9 pt. The abstract is presented as a single column across the whole page, with a 6 mm indent on both sides. The

abstract is followed by 6 points of empty space, then the beginning of the main text.

4.3 The subheadings

It is advisable not to have more than two subheading levels in a short text. All subheadings should be in bold, numbered, with 12 points of empty space before them and 3 points after them. The font size for first-level subheadings is 12 pt. All other levels are 10 pt. Subheadings must be left-aligned.

Arabic numerals should be used for subheadings. Single numbers (1, 2, etc.) are used for the first level, double numbers (1.1, 1.2 etc.) for the second level, three numbers for the third level, and so on. Numbers are followed by a full stop.

Subheadings begin with a capital letter, but contain no further capitals. They do not end with a full stop.

4.4 The main text

The main text was discussed in the first part of this section (10 pt, left and right aligned). It is advisable to check spelling and hyphenation. If you write Dutch in L^AT_EX, you should `\usepackage[dutch]{babel}`. Make sure there are no line breaks in the middle of formulae or between a number and unit (e.g. 6 cm). We strongly recommend that you use a spelling checker. Also check that tremas and accents, when required, are used correctly.

Italics are used for words from other languages (except for terms that have become commonplace), Latin abbreviations, new terminology/concepts and for emphasis. Short quotes may also be italicized. Quotes must be placed between quotation marks. Make sure that you use opening and closing quotation marks correctly, i.e. ‘correct’ and ‘not correct’ and “also correct” and “wrong again”.

The short dash- (hyphen) is used to join words or to separate the syllables of a word. The ‘en dash’ is used as a minus sign and to indicate series of numbers (–1, 2 – 5). The ‘em-dash’ — is used as a pause or parenthesis.

Numbers are best presented using modified American notation, i.e. points are used where a comma would be used in Dutch, and vice versa. One and a half is therefore written as 1.5 and not as 1,5. Scientific notation should be used for large numbers: 6.022×10^{-23} . If necessary, spaces are used to separate large numbers into groups of three digits: 4 294 967 296. This also works after the decimal point: 3.141 592 653 589 79.

4.5 Formulae

Formulae must be written in the current notations used in mathematics, logic and physics. Make sure

that symbols are properly explained. Use the same font as in the main text.

$$\delta J = A \frac{dL}{dq} \delta q B + C \frac{dL}{dq} - \frac{d}{dt} \frac{dL}{dq} D \delta q dt \quad (4.1)$$

This equation can be referred to as equation 4.1, whereby the first number indicates the section and the second number is the number of the equation within the section.

Formulae should be centred, and their numbers right-aligned.

4.6 Pseudocode

It is best to express algorithms in pseudo code. This is a detailed high-level description using notations from mathematics and logic, and concepts from structured or object-oriented programming.

The font size for pseudo code is 9 pt and, as with figures and tables, should be set apart from the main text. As in mathematical formulae, the names of variables are italicized. Control words in the code (such as **if**, **then**, **else**, **for**, **while**) should be in boldface. Function names (such as SORT, FINDSHORTEST, PROCESSSENSOR, etc.) are printed in *small caps*. Line numbers must be used if reference is made to individual lines of code. Blocks of code are indented, and conclude with end and the relevant control word, such as end for, end while or end else.

When pseudo code is used, an explanatory caption must be included above the code. The caption should be 9 pt bold and begin with ‘Algorithm’ followed by the section number and the number of the algorithm within the section. The reference to it in the text is ‘see algorithm 4.1’.

Algorithm 4.1 Calculate $y = x^n$

Require: $n \geq 0 \vee x \neq 0$

Ensure: $y = x^n$

$y \leftarrow 1$

if $n < 0$ **then**

$X \leftarrow 1/x$

$N \leftarrow -n$

else

$X \leftarrow x$

$N \leftarrow n$

end if

while $N \neq 0$ **do**

if N is even **then**

$X \leftarrow X \times X$

$N \leftarrow N/2$

else { N is odd}

$y \leftarrow y \times X$

$N \leftarrow N - 1$

end if

end while

4.7 Figures

Figures must be comprehensible and the text they contain must be clearly legible. Bitmaps may only be used in the case of photos. They are not acceptable for line diagrams and graphs, unless the quality and resolution are so high that there is no visible difference.

Graphs must have clear axes with the values marked, an indication of what they show and, where relevant, the units used. If more than one thing is shown in the graph, a legend must be provided or an explanation given in the caption below the graph. The various elements of the graph must be clearly distinguishable, even in black and white! Where relevant, graphs must also include reliability intervals or other information about possible variation.

Figures must be either one or two columns wide, and must be placed either above or below the margins.

An explanatory caption must be included below the figure. The caption begins with the word Figure, followed by the number of the section, a point and the number of the figure within the section. This is followed by a colon and the rest of the caption, beginning with a capital letter. The caption should be in 9-pt bold. Six points of blank space should be left between the caption of a figure and the text.

The in-text reference is see Figure 4.1. Figures should be placed as close as possible to the first reference to them.

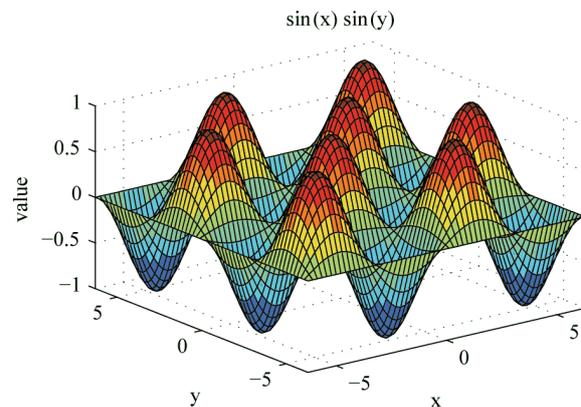


Figure 4.1: Graph of the function $\sin(x) \cdot \sin(y)$. This figure is a bitmap, but of sufficiently high quality to be acceptable. Take note of the legible axes and labels.

4.8 Tables

Tables can be used if precise values are important, or in cases where a graph would not make things clearer. Tables may also be placed in the middle of the text if they are small enough. Otherwise, as

with figures, they should be placed directly above or below the margin.

A table consists of rows and columns. These must be clearly labelled (in bold). Numbers in a table are in ordinary typeface. The font size for all text in a table is 9 pt. Numbers are centred or aligned around the decimal point. In principle, rows and columns are separated by a single half-point line, but a certain amount of creativity may be used to group together related parts of the table.

Tables must be provided with a caption (also 9-pt bold). Convention dictates that the caption should be *placed* above the table. It begins with ‘Table’, followed by the section number, a point, and the number of the table within the section. The in-text reference is ‘see Table 4.1’. One blank line is left above and below the table. It is also allowed to use Verdana 8 pt in the table if that is clearer.

Table 4.1: Number of student passes and fails per year.

	2003	2004	2005
passes	16	19	17
fails	20	23	19

4.9 References

It is very important that the references in a document conform to a particular standard, because it must be possible for readers to find the background material referred to. The author, year, title of the book/journal, publisher and issue number must all be provided. This report should follow the conventions of the American Psychological Association. These can be found at <https://apastyle.apa.org/>, but it is usually more helpful to look at a number of examples. Other conventions may be used but this has to be discussed and approved of by your supervisor beforehand. To make it easier for your readers to access your references, please provide DOIs whenever possible — you can search for them at <https://search.crossref.org/>. It is important to avoid references to vague sources as far as possible. It is best to avoid sources that are *in press* or *unpublished manuscripts*. For online resources which are not articles, always provide a *complete and permanent URL* and mention the time you accessed them.

In the text articles are referred to with the name(s) of the author(s) and the year (Dawkins, 1976). If the source has two authors, the names are separated by an ampersand (Berrah and Laboissière, 1999) but if there are three or more authors, et al. is used (Schwartz et al., 1997). A refer-

ence may include several sources (Cooper, Delattre, Liberman, Borst, and Gerstman, 1952; Crothers, 1975) or even more than one paper by the same author (Kirby, 1998, 1999, 2000; Oliphant, 1993, 1996). Note the use of commas and semi-colons.

5 Conclusions

These instructions may look daunting, but in practice they are very easy to follow. They are very much like the instructions you might be given for a conference publication or journal article, which in many cases are considerably more complicated. The main purpose of style and layout instructions is to ensure that the appearance of articles is as uniform as possible. This makes it easier for the reader to concentrate on the content and to quickly find relevant information in a new article. These instructions also make it easier for writers to concentrate on the content, since the style and layout are already defined.

References

- A.-R. Berrah and R. Laboissière. Species: An evolutionary model for the emergence of phonetic structures in an artificial society of speech agents. In J.-D. Nicoud D. Floreano and F. Mondada, editors, *Advances in artificial life, lecture notes in artificial intelligence*, volume 1674, pages 674–678. Springer Berlin, 1999. doi:10.1007/3-540-48304-7_88.
- F. S. Cooper, P. C. Delattre, A. M. Liberman, J. M. Borst, and L. J. Gerstman. Some experiments on the perception of synthetic speech sounds. *Journal of the Acoustical Society of America*, 24: 597–606, 1952. doi:10.1121/1.1906940.
- J. Crothers. Typology and universals of vowel systems. In J. H. Greenberg, C. A. Ferguson, and E. A. Moravcsik, editors, *Universals of human language*, volume 2 Phonology, pages 93–152. Stanford: Stanford University Press, 1975.
- R. Dawkins. *The selfish gene*. Oxford: Oxford University Press, 1976. ISBN 978-0-19-857519-1.
- S. Kirby. Fitness and the selective adaptation of language. In J. R. Hurford, M. Studdert-Kennedy, and C. Knight, editors, *Approaches to the evolution of language*, pages 359–383. Cambridge: Cambridge University Press, 1998.
- S. Kirby. *Function, selection and innateness: The emergence of language universals*. Oxford: Oxford University Press, 1999.

- S. Kirby. Syntax without natural selection: How compositionality emerges from vocabulary in a population of learners. In C. Knight, editor, *The evolutionary emergence of language: Social function and the origins of linguistic form*, pages 303–323. Cambridge: Cambridge University Press, 2000.
- M. Oliphant. Conditions for the evolution of saussurean communication. Master’s thesis, University of California, San Diego, 1993.
- M. Oliphant. The dilemma of saussurean communication. *Biosystems*, 37(1-2):31–38, 1996. doi:10.1016/0303-2647(95)01543-4.
- J.-L. Schwartz, L.-J. Boë, N. Vallée, and C. Abry. Major trends in vowel system inventories. *Journal of Phonetics*, 25:233–235, 1997. doi:10.1006/jpho.1997.0044.

A Appendix

In the Appendix (or Appendices) you may give the details that did not fit in the main text. If necessary, you may use a one-column lay-out here. Start the first appendix on a new page.

B Appendices

If you have more than one Appendix, use letters to “number” them. You may start every appendix on a new page, but this is not necessary. If you have many appendices, it may be helpful for the reader to have a list of appendices on the first page of the appendices.