

# *Tips and Tricks*

## *How to write an essay, report, paper or thesis*

*Prof. Dr habil. Christian WOLKERSDORFER*

*Lappeenranta University of Technology (LUT)*  
*Tshwane University of Technology (TUT)*

VERSION 2018-03-19

Before you start reading this document, ensure that you are using the most current version, which you can download here: <http://bit.ly/WolkesTipsTricks>

## Contents

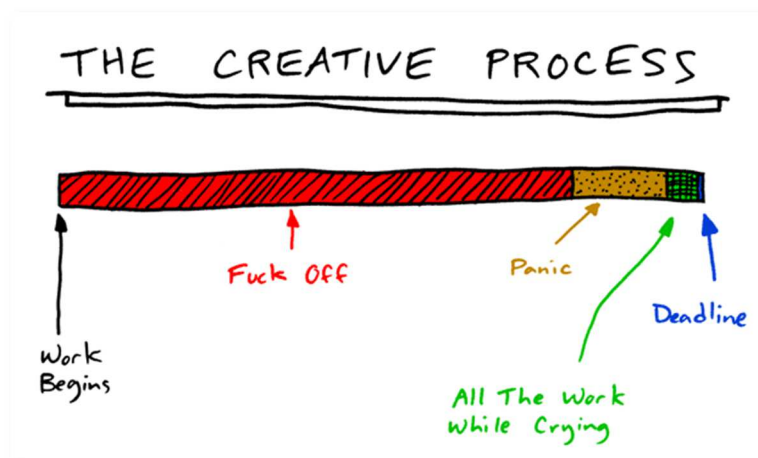
Contents .....	2
Introduction – or the Minimum you should read from this Text .....	3
General Hints .....	5
First Write then Edit and Format .....	5
Your Expectations and Disappointment .....	5
Avoid Plagiarism – Never “copy-and-paste”! .....	6
Literature References – The Ingredients of your text .....	7
Literature Review – How to find what others did .....	7
Backups .....	8
Saving your valuable Documents (“Files”) .....	8
Get your Software Driver’s Licence .....	9
The final Editing .....	9
Reports, Thesis and Scientific Papers .....	10
Introduction .....	10
Using your word processor .....	10
Content .....	10
Words .....	11
Punctuation .....	15
Units, Equations, Symbols and Formulae .....	18
Figures and Tables .....	20
References .....	21
Formatting .....	23
Miscellaneous .....	25
Writing the Acknowledgements .....	26
Figures .....	27
Introduction .....	27
General Hints .....	27
Free Software Tools .....	29
Copyright .....	29
Google Earth and Google Maps Images .....	30
Spreadsheets .....	30
Power Point .....	31
Acknowledgements .....	32
References .....	33
Endnotes .....	34

## Introduction – or the Minimum you should read from this Text

["Never give up – The beginning is always the hardest"]

**Y**ou need to write a thesis, a project report or a scientific paper? You are asking yourself "How do I write a report"? These "Tips & Tricks" shall assist you during your writing process. I will not teach you "how" to write, and also these "Tips & Tricks" won't do so – it's you who will write it with the knowledge you gained so far during your high-school or academic career. Therefore, I am expecting that you know some details of scientific writing or the software that you are using – which means that you should be familiar with the basics of both already. Like a driver's license: you should know how to navigate your car, but there is no need to understand what's happening under the engine bonnet. I will present here – and I will restrict myself to – the most common errors or pitfalls that I encounter in students' or colleagues' thesis or manuscripts (something in the kind of "dos and don'ts" of writing essays if you prefer). If you want to know how to structure your writing or which content you need, you should consult some of the literature mentioned below. These "Tips & Tricks" are the result of copy-editing numerous student's essays, reviewing scientific papers in the past 25 years and being the managing editor of a scientific, SCI listed journal since 1989. You are not alone with your writing and what you are currently going through is what others – including me – went through as well. Yet, you will constantly progress and at the end you will know how to master your writing better than before. "Good writing is essentially rewriting," said the famous British novelist Roald Dahl. If, during reading those "Tips & Tricks", you will think at least once "Ah, that's how it is done" then I reached my goal.

A lot of guidelines and books are available about scientific writing, and you should consult a couple of them if you need to improve your writing skills. Writing is something you can learn, but only by doing so you will progress. In addition, even in the electronic world, have some reference books handy. I use two different printed thesauri and two dictionaries to ensure I use appropriate words. Moreover, of course, because English is not my first language, I always have a printed German-English dictionary somewhere near me. If you just want to know how to correct your text after you are finished, just skip the following chapters. Browse directly to the section 'Reports, Thesis and Scientific Papers', where you will find everything you need to iron out the kinks in your text.



Simplified sketch of the four phases of our creative process (modified from ToothPasteForDinner.com accessed 2010-10-30).

These "Tips & Tricks" are a complement to the excellent literature about scientific writing (e.g. Day, 2011, Glasman-Deal, 2010, Strunk and White, 1999, Day and Sakaduski, 2011, The Economist, 2016).

They do not necessarily mirror my own, personal preferences. Instead, these “Tips & Tricks” are based on standard books about copy editing and reviewing (e.g. Butcher et al., 2006, Hames, 2007, Messenger et al., 2007). What I intend to do is summarizing the most common mistakes and writing errors that I find in my student’s texts. Please take yourself one to two hours time to read and understand the “Tips & Tricks”. The best way is to make a short five seconds break after each paragraph and think were you used something described in the paragraph or where you might use it in the future. It is not advisable to read these “Tips & Tricks” as you would read a novel – it is more like a cook book: the taste slowly adds up during the preparation of the meal. Before you go ahead, you should read at least the short ‘cookbook’ of Strunk and White (1999). Its first edition dates back to 1919, but since then it kept its significance.

Part of those “Tips & Tricks” are from a compilation made for the Associate Editors of the journal “Mine Water and the Environment” and the “ASA–CSSA–SSSA Publications Handbook and Style Manual”. The most current version of this writing guide is available by clicking this link: <http://bit.ly/Wolke-sTipsTricks>. Most text examples are fictional but some of them are from published sources or student’s reports without referring to them in all cases. You might consider that plagiarism – I would call it “protection of privacy” because not everybody likes his name to be associated with a bad example. Right?

Before I end: please read the manuals of all the software that you are using. Spend at least one to three full days to learn all the relevant functions of your tools. There are excellent tutorials on the web and excellent handbooks in the libraries of most universities. Study your software or attend a course about its usage. Knowing your software makes writing your essay much easier for you and your supervisors (see chapter ‘Get your Software Driver’s Licence’ on page 9). Also, get to know the tools to draw and manipulate images, which I partly explain in the chapter ‘Figures’ (page 27).

And now – go ahead and good luck!

---

*“My aim is to put down on paper what I see and what I feel  
in the best and simplest way.”*

*Ernest Hemingway*

---

## General Hints

### First Write then Edit and Format

[*Rem tene, verba sequentur*]

Sometimes students ask me how to proceed when writing: well, first write, then edit and format your text. Start with a table of contents and thereafter put down your ideas in the related sections. This text here started with a four pages, unsorted list of hints for students as a first idea and draft. The more input I received from my students and colleagues or during reviewing manuscripts, the more ideas I got and collected them for you.

If you have an idea for another chapter you are currently writing on, type in a double hash tag ## where you stop, jump to the section for which you have an idea, and type in the idea within hash tags again, ##just like that## (for the use of hash tags, see page 26). Alternatively, use the comment functions provided by your word processor and type in your ideas in the comments fields (ALT+CTRL+M when you have an English or French version of MS Word, ALT+CTRL+K in a German one). Then jump back to where you left your text. Keep writing as long as you have the ideas in your mind. Don't care about grammar or spelling mistakes at this stage (even when the red or blue zickzag lines in MS Word show up, which indicate errors), while you put down your ideas – let the ideas flow as long and possible. Only when you want to make a short relaxing break, you go back to the text and correct grammar and spelling.

But; please edit and format your text before you hand it over to the publisher or your supervisor. Don't let him, her or them do **your** work as wrongly formatted and written texts distracts many supervisors from your scientific intentions.

### Your Expectations and Disappointment

[*think positive – nearly all work grows between the two endpoints expectation and disappointment*]

At the beginning of your work you are expecting to proceed quickly, you are generally enthusiastic and energy laden about your project. This first phase is usually very productive; you collect information, read books or papers, speak to colleagues or conduct some lab experiments. Then, you might progressively encounter that you don't know enough about your subject and others did so much more. You will start to ask yourself what is new in the field and how you can contribute to the knowledge. Very often, you get disappointed and would prefer to skip your project. Yet, this is a normal process, and even during writing these 'Tips & Tricks' I sometimes thought if the effort I spend is worth the result (otherwise you wouldn't be able to read this text now). It is worth the result – and it is the usual "Creative Process", as you can see in the figure on page 3.

When you have the feeling that your thesis or project is not proceeding as you are expecting, take a big breath and lean back for a second or two. You might panic and don't see how to further progress. This is the time to take a walk, go into the cinema, read a non-scientific book, visit friends, listen to a presentation outside the field of your project – or just relax. Your brain will go ahead working and puts together missing information that you will need for the next phase of your project. Many ideas are coming at the most unexpected situations<sup>1</sup> – try to seek for them!

After that break, you will notice that you have a lot of energy again and your ideas and figures and your text are developing quickly. Your disappointment will disappear the more you write and think and read and bring your thoughts and concepts to paper. Have somebody read your text from time to time and ask for comments.

Therefore: never give up! You have more capabilities than you might expect and the more you work the more you will see how your capabilities grow. And then, at the end of your projects' track, you will have that good feeling when you hold your product or paper or book or thesis the first time in your hands. Don't miss this great feeling! It is very energizing for your future career.

### Avoid Plagiarism – Never “copy-and-paste”!

[only good work is plagiarised – make sure you know how to do it if you intend to do so]

**N**o matter where you found it: in a book, a paper or in the internet – Never copy and paste text from other publications without rewriting the text *and* properly referencing the source. Without rewriting or proper quotations, this is plagiarism, against the ethics of good science and includes your own published work (called self-plagiarism). If you are not H.G. Wells<sup>2</sup>, this plagiarism might result in severe consequences for you – including suspension from the university. You must refer to everything you are using from other publications or reports *and* rewrite it in your own words. In addition, in natural sciences, you should avoid quoting more than one or two sentences. Should you need to refer to such a shorter passage of text word by word, you correctly need to use quotation marks as in the above quote from Hemingway or in the following one. Should you be unsure about the meaning of plagiarism, visit <http://bit.ly/PreventPlagiarism>. In any case, before you submit your essay, use a plagiarism detection tool such as Turnitin or SafeAssign.

Let me give you an example. The original text in the publication of Geldenhuis and Bell (1998) reads like that:

*“This has led to a deterioration in the water quality in many surface streams.”*

Here are three examples of plagiarism (red background) and four correct references (green background):

*“This has led to a deterioration in the water quality in many surface streams.”*

This has led to a deterioration in the water quality in many surface streams.

This has led to a deterioration in the water quality in many surface streams (Geldenhuis & Bell, 1998).

*“This has led to a deterioration in the water quality in many surface streams”* (Geldenhuis & Bell, 1998).

According to Geldenhuis & Bell (1998), “[this] has led to a deterioration in the water quality in many surface streams”.

Geldenhuis & Bell (1998) noticed that the water quality in surface watercourses substantially declined.

The quality of watercourses worsened because of these influences (Geldenhuis & Bell, 1998).

Some people think that it is acceptable when you refer to a publication and copy and paste text from that publication. Yet, this is not the case. Very often, I see proposals or essays that are completely composed of copied and pasted text from other work with correct references – but still: copy and paste is plagiarism; no matter if you provide a correct reference or not (see the third example in the above texts)! You are not allowed to copy and paste any sections from other works. To make it simple (and to repeat): copying and pasting from other works is forbidden under all circumstances! This also refers to figures or tables.

## Literature References – The Ingredients of your text

[at least: be consistent!]

Each research institution and journal has its own reference style guides, which might differ substantially, as you can see from the table below. Follow and read the Style Guide for your relevant university or for the journal in which you want to publish. On page 21 I will provide you with further information about the use of references in your text.

- Tshwane University of Technology (TUT): [http://bit.ly/TUT\\_Citation\\_Guide](http://bit.ly/TUT_Citation_Guide)
- Lappeenranta University of Technology (LUT): [http://bit.ly/LUT\\_WritingAThesis](http://bit.ly/LUT_WritingAThesis)
- Mine Water and the Environment: <http://www.MWEN.info/notes-for-contributors.html>

Nevertheless, whichever reference style you use: be consistent and avoid changing from one style to the other. Yet, when writing for a journal you must use the journal's referencing format. Using a reference management software (e.g. EndNote, RefWorks, Citavi or Mendeley) helps you to change the format quickly, should you need to send your paper to another journal. Avoid using the build in function of MS Word, as it is very restricted with its output formats. In general, a reference consists of the following bibliographic elements: Authors(s) – Year of publication – Title of publication – Journal name – Volume(Issue) – Page numbers. Some journals require the publication place or the collation information (number of figures, tables and appendices), while others skip the Title of the publication.

The following table gives you an idea of the most commonly used and some journal reference styles – but there are several hundreds more of them in use.

Style	Example of Reference
APA	Jansen, R., Makaka, L., Little, I. T., & Dippenaar-Schoeman, A. (2013). Response of ground-dwelling spider assemblages (Arachnida, Araneae) to Montane Grassland management practices in South Africa. <i>Insect Conserv. Divers.</i> , 6(5), 572-589. doi: 10.1111/icad.12013
MLA	Jansen, Raymond, et al. "Response of Ground-Dwelling Spider Assemblages (Arachnida, Araneae) to Montane Grassland Management Practices in South Africa." <i>Insect Conserv. Divers.</i> 6.5 (2013): 572-89. Print.
Harvard	JANSEN, R., MAKAKA, L., LITTLE, I. T. & DIPPENAAR-SCHOEMAN, A. 2013. Response of ground-dwelling spider assemblages (Arachnida, Araneae) to Montane Grassland management practices in South Africa. <i>Insect Conserv. Divers.</i> , 6, 572-589.
Vancouver	1. Jansen R, Makaka L, Little IT, Dippenaar-Schoeman A. Response of ground-dwelling spider assemblages (Arachnida, Araneae) to Montane Grassland management practices in South Africa. <i>Insect Conserv Divers.</i> 2013;6(5):572-89. doi: 10.1111/icad.12013.
Chicago	Jansen, Raymond, Lukhanyo Makaka, Ian T. Little, and Ansie Dippenaar-Schoeman. 2013. "Response of ground-dwelling spider assemblages (Arachnida, Araneae) to Montane Grassland management practices in South Africa." <i>Insect Conserv. Divers.</i> 6 (5):572-589. doi: 10.1111/icad.12013.
Bonn Guidelines	JANSEN, R., MAKAKA, L., LITTLE, I. T. & DIPPENAAR-SCHOEMAN, A. (2013): Response of ground-dwelling spider assemblages (Arachnida, Araneae) to Montane Grassland management practices in South Africa. – <i>Insect Conserv. Divers.</i> , 7 fig., 5 tab., 4 app.; 6(5):572-589; doi:10.1111/icad.12013.
Mine Water Environ.	Jansen R, Makaka L, Little IT, Dippenaar-Schoeman A (2013) Response of ground-dwelling spider assemblages (Arachnida, Araneae) to Montane Grassland management practices in South Africa. <i>Insect Conserv Divers</i> 6(5):572-589. doi:10.1111/icad.12013
RSC Advances	R. Jansen, L. Makaka, I.T. Little and A. Dippenaar-Schoeman, <i>Insect Conserv. Divers.</i> , 2013, 6, 572–589.

## Literature Review – How to find what others did

[the more you read the less time you will spend on duplicating already done experiments]

If you start writing your essay without a preceding literature review, it would be like walking through a dark tunnel without a torch or candle. In both cases you might, and very likely will, get lost. Obviously, your scientific work should start with reading articles and books about your subject. After you found the first published work about your subject, or that touches your subject, you can use the

references in this work to go further. It is somehow like playing domino – once you hit the first stone, the others will fall automatically.

You should first find books about your subject and read the generally accepted methods and knowledge about your subject. Once you know the basics, you can then start to read also journal articles, as they usually cover aspects that are more detailed or have more recent findings. Most journal articles do not repeat the generally accepted knowledge; therefore, you might find it hard to understand your subject. There are excellent books about nearly all subjects you can consider – do not miss them.

Should you plan to start your literature review in front of your computer, open your browser and navigate to an internet search machine (such as Google, Bing or DuckDuckGo) you should immediately stop! This is the wrong way and leads you into the information nirvana. Using an internet search machine to help you in a literature review is simply a no-go (and this holds true for GoogleScholar). You need to start with your library's OPAC to find relevant books. From there you move to a literature search engine and you should proceed in this order: Web of Science ("Science Citation Index"), SciFinder, GEOREF, Scencedirect, Springerlink. Only – and really only – when you already know a paper's title you might use an internet search engine to be able to retrieve the full reference of the article or to download it.

Nowadays, nearly all published work is also available online for download. Yet, this does not mean that you refer to this article through the web page, where you downloaded it. You always need to refer to a published paper the way described in the previous chapter (see page 22 for an example). There is also no need to provide the "accessed at" tag when you cite a published paper.

## Backups

[you don't need it? Wait until a virus corrupted your complete hard disc – then you wished you had!]

**W**hen you write your text, save it with a new name immediately after you open the document (file) to proceed with your writing. This ensures that you always have an uncorrupted version of your text in case of a computer failure:

Day 1: My\_Proposal\_000.docx or My\_Proposal\_2014-02-27.docx  
 Day 2: My\_Proposal\_002.docx or My\_Proposal\_2014-02-28.docx  
 ...  
 Day 99: My\_Proposal\_099.docx or My\_Proposal\_2014-07-12.docx

Make regular backup-copies of your documents on an external hard disc or USB flash drive<sup>3</sup>. Alternatively, use cloud services (e.g. Dropbox, SkyDrive) to have your documents backed up and readily available.

## Saving your valuable Documents ("Files")

[do you have an idea how many files I have on my computer named **proposal.docx**?]

**A**lways save your documents with a "speaking" filename that contains your name, the topic and a running number or date. This is especially helpful when you get a template – do not save your document under the name of the template. You will confuse your reader and supervisors.

Proposal Template.docx



Sibelius\_MTech\_Proposal.docx

MyThesis\_CW\_2015-06-28.doc

You should also restrict yourself to letters, numbers, spaces, underscores and hyphens. All other characters (especially dots or commas) might either cause confusion on some systems or are completely forbidden on MS Windows systems (*i.e.* \* ? < > / \ : | " )

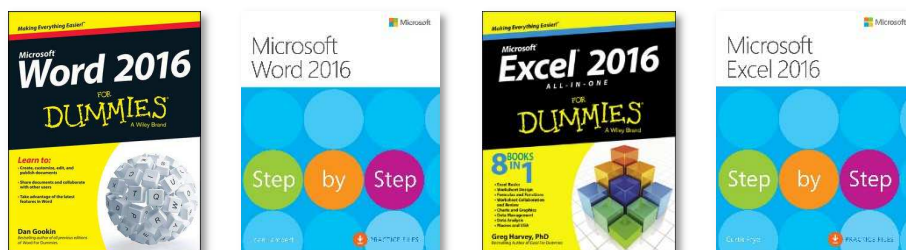
MyBook\_PopePeter\_2012.12.12.doc

Einstein\_Rivers\_1926/01/20.doc

## Get your Software Driver's Licence

[you don't drive car without a professional guidance – why are you doing it with your software?]

**R**ead the manuals of your software. They are available online or in most university libraries. In addition, consult the help files of the software or follow an on-line tutorial. Before you drive a car, you also have to do a driver's licence – the same is true for software. You should read a good manual so that you know what the software is capable to do – the yellow "... for Dummies" series of books might be a good and affordable starting point (e.g. Gookin, 2016). The MS Office series of products is a mighty tool and you will not understand all its options by just sitting in front of your computer and trying to use the software. Only a good manual or tutorial can introduce you to the functions you need to make writing a thesis as easy as possible.



Cover images from the Microsoft Press and For Dummies® web sites.

You also need to read a manual about your literature management software. Typing in the information wrongly will result in awkward reference lists. Please do not use a text file or a spreadsheet to organise your literature. Always use a literature management tool and when you are not too sure of how to format your references in case you do not have a software – there are many web pages that help you to format your references properly (yet, when you have more than 10 or 20 references, this becomes a little bit cumbersome).

## The final Editing

[it's a good idea to ask a friend in this last step]

**T**o find problems in your sentences, it often helps to read the text loudly. Very often, you encounter mistakes that you did not see on the screen. For sections that are more complicated it might also be helpful to write them down on paper first and thereafter type it into your document. And, of course, you should not forget the help of your friends and colleagues. Give them your final version and ask them to go critically through the text and let you know whatever you should modify. Do not let your

supervisors do this job – they should be able to concentrate on your scientific content, not correcting typos, wrong references and awkward sentences.

Finally, when you present a printed copy of your essay to your supervisor, ensure he or she is not able to identify if your last breakfast had tea or coffee and cake – please submit only paper that is not smudged with grease spots or the tips of your lovely cat.

## Reports, Thesis and Scientific Papers

### Introduction

[a long list – you should learn it by heart for your future career and for your current work]

The following bullet points list common errors and mistakes that I commonly find in written work by students or authors of papers in various countries. **PLEASE READ ALL OF THEM CAREFULLY AND CONSIDER THEM IN YOUR TEXT.** There is no specific order within the following subsections – except the one that was in my head while I compiled it for you. According to your opinion, some bullet points might belong to another sub-section – well it's like eating chocolate: some people like 100 % cacao, others prefer white chocolate; it's a matter of flavour, I would say.

You should give yourself several seconds of break after each bullet point and rethink the meaning of the bullet point. Give yourself at least one to two hours time to understand this document.

### Using your word processor

- Learn how to use your word processor – it is a Mercedes Benz – there is no need to drive it in the first gear with 30 km/h only! (more information: <http://bit.ly/WordForDissertations> or <http://bit.ly/HowToUseMSWord>)
- use the automatic numbering function of your word processor to number chapters, figures or tables – avoid numbering items manually (see above link for usage). When you use automatic numbering, you must also cross-reference to the automatically numbered items in your text, do not type in references to tables and figures manually! Yet, before you send your manuscript to a journal, ensure that you convert all your automatic numbering to fixed text.

To remove the automatic numbering in MS Word, mark all your text (CTRL+A) and then press CTRL+SHIFT+F9.

- Use the auto correction of your word processor and add unknown words to the word processor's dictionary.
- This paragraph might sound ridiculous to you but: don't use a spreadsheet for writing your essay<sup>4</sup>. Always use a word processor such as MS Word, OpenOffice, Latex, WordPerfect or even WordPad. If you want to submit your text to a scientific journal, make sure that they can handle your chosen file format. "Mine Water and the Environment" for example, accepts only MS Word and RTF-files ("Rich Text Format").

### Content

- state the purpose of the report or paper on the title page (e.g. iMineWa annual report, MTech Project Proposal)
- Avoid writing text between the different heading levels.

**2 Research Problem** (heading level 1)

**2.1 Introduction** (heading level 2)

This investigation is based on the previous publication by Molongwana (2014) about the caves.

### **2.2 Hypothesis** (heading level 2)

Other than Molongwana (2014) states, the water discharge is located below the street level.

## **3 Background** (heading level 1)

This chapter describes the Background for the study. *((This sentence is WITHIN different heading levels))*

### **3.1 Project Description** (heading level 2)

Earlier studies assumed that the cradle of humankind is the oldest known site with human remains.

### **3.2 Regional Geological Situation** (heading level 2)

All the rocks within the study area are carbonate rocks of different composition (Pillay, 2014).

- Avoid writing conclusions, results or ideas in “bullet points” – it seems to become a bad habit, which needs to be stopped. Always use full sentences in your report or paper – unless you want to list some items – the main information, yet, must be given in full sentences.
- Ensure that your sentences are not too long or too complicated. Use variable long and short sentences to make reading for your reader easier and more interesting. A paper is not only about science. When you use a boring writing style, your reader might simply stop reading it.
- Headings in the text are not part of the text. You cannot refer to a word or meaning in a heading.

### **Elephants**

Those animals are very large but it is nice to watch them when they are drinking.

### **Elephants**

Elephants are large animals, which drink water by the help of their trunk. It is nice to watch them drinking in nature.

- Don't hit 'Enter' at the end of a line unless you want to start a new paragraph (and please, hit it **once** only). Your word processor takes care of line breaks by itself – you don't have to do that. That was back in some archaeological time when people still used typewriters.

## Words

- Avoid the term “Heavy Metal”, as it has about 40 different definitions (Duffus, 2002) – except you are writing about music styles (Chapman, 2007). Please substitute it either by “Metals” or “Metals and Semi-Metals,” or some other correct term. “toxic metals” is not a correct term, because a lot of them are essential for life or are not even metals, such as arsenic or antimony (more details there: <http://bit.ly/Duffus2002>). An expression that you might use is “elements of potential concern”. A good reference for chemical terminology are the publications of the IUPAC (International Union of Pure and Applied Chemistry), especially their “Compendium of Chemical Terminology – Gold Book” (International Union of Pure and Applied Chemistry, 2014).

All heavy metals (Pb, Zn, Fe, As, Sb) were analysed by ICP-MS.

While she listened to the Heavy Metal album 'Now What?!', she compiled her paper about (semi)-metal removal from polluted mine water.

- Don't use the term 'sulphate' when you mean  $\text{SO}_4^{2-}$ . The 'Gold Book' (International Union of Pure and Applied Chemistry, 2014) clearly defines that it must be 'sulfate' in all English languages.
- Avoid the term "mine drainage" but write "mine water" instead. Exception: Acid Mine Drainage (AMD), as this is a technical term. Feel free to write "Acid Mine Water" instead, but do not use the abbreviation AMW – this is not commonly accepted.
- Avoid the word "significant" unless you conducted a statistical investigation and proved that something is indeed "significant". In all other cases write "substantial", "considerable", "relevant" or "noteworthy" – depending on the context

Pistorius (2013) showed that there is a significant likelihood of intruders in his environment.

Several electrical properties of rocks and minerals are significant in electrical prospecting.

Pistorius (2013) could not exclude a substantial amount of intruders into his environment.

Pistorius' (2013) results show a statistically significant correlation between the number of intruders and valentine's day presents.

Several electrical properties of rocks and minerals are relevant in electrical prospecting.

- "Here" is where you write your paper, but "there" is where you took your samples. Understand the difference in the meaning of "here" and "there".

All analysed springs in Limpopo Province are of questionable quality. Tekere et al. (2015) investigated the microbial community here.

Yet, Olivier (2011) could show that the water temperature there varies between 30 and 68 °C.

- Avoid abbreviations in headings, unless you explain them

#### 7.4.3 NRM

#### 7.4.3 NRM (Natural Remnant Magnetization)

- In the time of computers, the extensive use of abbreviations it is no longer necessary, especially when you use it seldom in your text. You can write words like "Laboratory of Green Chemistry" or "Mine Water Treatment Plant" whenever it appears instead of writing LGC or MWTP – make it as easy as possible for your readership. Exceptions are AMD or ARD, because these terms are commonly accepted and known in our community. But be careful with ALD – do you mean "atomic layer deposition" or "anoxic limestone drain"?
- Introduce abbreviations at their first appearance

pH values at IMC were too low to be measured with a normal pH-meter.

pH values at Iron Mountain in California (IMC) were too low to be measured instantly.

pH values at IMC (Iron Mountain in California) were too low to be measured instantly.

- avoid one sentence paragraphs. Each paragraph must consist of at least two sentences.
- avoid “*etc.*” (*et cetera*) at the end of lists, but start your list with “*e.g.*” (*exempli gratia*) instead or rewrite the sentence (in the first case the reader might think the author failed to have more ideas and in the second case the reader assumes the author thoroughly thought about his list and selected the most important items). Examples are from Pošepný (1902) and Meinzer (1923).

It may be inferred that metamorphous or metasomatic deposits will be especially frequent in soluble rocks like limestone, dolomite, *etc.*

It may be inferred that metamorphous or metasomatic deposits will be especially frequent in soluble rocks such as limestone or dolomite.

Abrasion methods (diamond, calyx, chilled-shot, *etc.*)

Abrasion methods (*e.g.* diamond, calyx, chilled-shot)

- Distinguish between affect (to influence) and effect (result or to accomplish)

“The effects of inflation do not affect me!”

- Distinguish between accept (to receive) and except (to leave out)
- Distinguish between allusion (an indirect reference) and illusion (a false perception)
- Distinguish between its (possessive form of “it”) and it’s (contraction of “it is”)
- Distinguish between their (possessive form of “they”), there (indication of location) and they’re (contraction of “they are”)
- Distinguish between then (next or at that time) and than (used in comparisons)
- Distinguish between to (toward), too (also or excessively) and two (number)
- Distinguish between your (possessive form of “you”) and you’re (contraction of “you are”)
- When you speak about water constituents, use the terms ‘sulfate’, ‘nitrate’ and ‘phosphate’ only in its singular form. There are also no ‘pyrites’ that might cause acid mine drainage – it is just one ‘pyrite’. In addition, when you analyse a water sample, it has no ‘sulfates’ or ‘nitrates’ of ‘phosphates’ concentrations.

The concentration of sulfates in the water sample was 1428 mg/L.

Pyrite oxidation is the starting point in the formation of acid mine drainage.

- Avoid the term “impact”, which means a collision, the force of a collision or (by extension) a major effect. You can use this term when you are speaking about a meteorite impact (this is a technical term) or an environmental impact (which is also a technical term). Use “effect” or “consequence”, “implication” or “influence” instead – depending on the context.

The acid mine water had a negative impact on the stream water quality.

Obviously, this book impacted the thinking of modern man.

The acid mine water had a negative effect on the stream water quality.

Vredefort Dome World Heritage Site is one of the largest visible impact structures on Earth. None of the earlier environmental impacts can be observed today.

- Avoid writing about the “content” of constituents. The correct expression is “concentration”.

High CaO and MgO contents were observed in the samples.

High CaO and MgO concentrations were observed in the samples.

- Try to avoid the article “the” at the beginning of sentences. It is considered bad writing. There are many possibilities to rewrite your sentences without using the article at the beginning. Interestingly enough, the less articles you use at the beginning of sentences, the better your text can be read and understood (examples in this guideline use sometimes articles at the beginning because they are cited without the whole context).

The most cited mercury poisoning occurred in Japan in 1956, where effluents containing mercury were discharged into the Minamata Bay. The methylmercury formed by the conversion of elemental mercury by microorganisms was taken up by fish.

In 1956, the most cited mercury poisoning occurred in Japan, where effluents containing mercury were discharged into the Minamata Bay. Extensive investigations showed that the methylmercury formed by the conversion of elemental mercury by microorganisms was taken up by fish.

To overcome the problem of articles at the beginning of sentences, you need to use transitional words and phrases. They are, as Patricia Campbell pointed out, “the traffic signals in writing”. Transitional expressions ensure that you link sentences and ideas. Using transitional expressions, you could rewrite the two above sentences like that:

For instance, the most cited mercury poisoning occurred in Japan in 1956, where effluents containing mercury were discharged into the Minamata Bay. As a result of extensive investigations, it could be shown that the methylmercury formed by the conversion of elemental mercury by microorganisms was taken up by fish.

- “geology”, “hydrogeology” or “geohydrology” are sciences. If you want to describe the geological, hydrogeological or geohydrological situation, please write as follows:

Govender (1983) provided a detailed description of the geological characteristics.

‘Geohydrology’ is the term commonly used in South Africa for what is ‘hydrogeology’ in other parts of the world.

The geology is characterized by ignimbrites.

Virtanen’s (1883) description of the hydrogeology in Finland is outdated.

- Ensure that you do not use a 0 (number zero) when you want to use an O (letter O).

H<sub>2</sub>O has a different molar mass than H<sub>2</sub>SO<sub>4</sub>

H<sub>2</sub>O and H<sub>2</sub>SO<sub>4</sub> are both liquids

- Do not use the term “decant” for a mine water discharge. The correct term is “discharge”, or when used as a verb, you can also use “to emanate”. The verb ‘to decant’ is used for an active process, but seldom, a mine is discharging ‘actively’, therefore using the word ‘decant’ in the before mentioned cases is incorrect.

The mine water discharged from the abandoned shaft.

The mine water emanated from the abandoned shaft.

No measurements were possible at the discharge location.

Mine water at the Fanie Nel Discharge has a pH of 3,81.

All the decants were analysed.

There are concerns that include the decanting of contaminated mine waters.

- Do not simply write “opencast” when you mean an “opencast mine”. Different from this British English term, the US English uses “open pit mine” or “surface mine”.

Sulfate concentrations from opencasts are usually high.

Sulfate concentrations from opencast mines are usually high.

Sulfate concentrations from open pit mines are usually high.

Sulfate concentrations from surface mines are usually high.

## Punctuation

**U**ndoubtedly, the purpose of punctuation is to clarify the syntax of your text. You are not Johann Wolfgang von Goethe, who often used syntax to express the lengths of breaks between words; therefore, you need to know the rules of syntax (some people call punctuation the traffic signals of language indicating when we shall stop, detour, slow down or speed up). As in the previous sections, I list the most common errors I encounter in students’ reports and papers. Keep them in mind when writing your essay! Yet, if you want to know more about punctuation, you should read the excellent and refreshingly written book by Lynne Truss (2003): “Eats, Shoots & Leaves – The Zero Tolerance Approach to Punctuation”, from which I benefitted a lot.

- Use decimal point instead of decimal comma for international papers

Flow at the stream was 12.4 L/s

and the electrical conductivity between 0,234 and 0,312 mS/cm.

When writing official documents for the European Union (EU) you should use a decimal comma also for English text. The EU parliament, representing more than a Dozen of languages, decided to simplify the rules and therefore official EU documents use the decimal comma instead:

The income in the European Union increased by 3,4 % to 2.472,32 Euros.



- Learn to distinguish between hyphens and dashes. Hyphens are used within words and dashes in the sentence and for numbers. Instead of the long dash between numbers, it is recommended to use the ‘...’ symbol, called ellipsis, which avoids having a dash and a minus sign following each other.

Hyphen: “this is his so-called friend”

Dashes: “the water source – which also acts as drinking water – is usually of good quality”

Dashes: “the length of the pipe is 5 – 10 m”

Ellipsis: “In winter, the lowest temperatures ranged from –12 ... –4 °C.”

- Use the correct *optional hyphen* when you need to hyphenate a word by pressing CTRL+HYPHEN. Do not manually type in a hyphen ('-'). You can identify wrong hyphenation when you find words **hyphen-ated** in the middle of a line. With the optional **hy-phen** (which you can see when you press the *nonprinting characters* symbol ¶ or hit CTRL+SHIFT+8 in MS Word), this will not happen, as Word uses the hyphenation only when needed at the end of a line.
- Don't use “:” or “.” after headings

### Metal Concentrations

Metal concentrations in the water exceeded the national limits at all locations.

### Quaternary Deposits:

A large number of rivers characterizes the study area.

### Temperature.

All temperature measurements were done during daytime.

- Use the correct quotation marks. In English, it looks like that “...” and not like this “...”. Do not use two apostrophes (“...”) or "...". Yet, in other languages, the quotation marks might look different (identical quotation marks below are shown with the same colour).

English	“Let me stand here till thou remember it.”	<i>William Shakespeare</i>
German	„Nun sag, wie hast du’s mit der Religion?“	<i>Johann Wolfgang von Goethe</i>
Afrikaans	„Nou maak ek self nie meer so baie saak nie”	<i>Lina Spies</i>
French	«Messieurs, je ne sais pas ce qui m’est arrivé.»	<i>Samuel Beckett</i>
Finnish	” matkalla ylös kohti kuumaa aurinkoa”	<i>Inger-Mari Aikio-Arianaick</i>

- Each sentence ends with a period

This had led to deterioration in the water quality

This had led to deterioration in the water quality.

- the correct multiply sign is × (shortcut key ALT + 0215), not the letter x or the symbol \*



- Do not use an apostrophe to make a word plural.

The 5 container's were rinsed with HCl.

The 5 containers were rinsed with HCl.

- the symbol for “is similar to” is not the  $\sim$  symbol, but  $\approx$ , which you can find in MS Word by going to “Insert” > “Symbol”. Symbols that you use frequently are saved by Word and show up when you use “Insert” > “Symbol”.

$\text{HCO}_3^- \approx 490 \text{ mg L}^{-1}$  ‘the bicarbonate concentration is around 490 mg L<sup>-1</sup>’

$c(\text{Na}^+) \sim c(\text{Cl}^-)$  ‘the Na<sup>+</sup>-concentration is directly proportional to that of Cl<sup>-</sup>’

- do not use the equal sign (=) for non-mathematical equality

$E = 1285 \text{ kN/m}^2$

–: no data measured

Thank you = kiitos = enkosi = Dankie = Danke

n.a. = not analysed

- Only use a comma before “and” or “or”, when the preceding sentence has its own subject and object (unless you are using the Oxford or serial comma<sup>5</sup> – but then you need to know what you are doing throughout your text).

“I came, saw and conquered” *but* “I came, I saw, I conquered”

“We analysed the samples and got the following results” *but* “We analysed the samples, and we got the following results”

“This light source can be red, green or blue” *but* “This light source can be red, green, or it can be blue” (when using Oxford or serial commas: “This light source can be red, green, or blue”)

Some journals, such as “Mine Water and the Environment”, require the serial comma. Ensure you are using the correct approach.

- Ensure that you have a space before the opening bracket and after the closing one – except there is a punctuation after the bracket. This also applies to references.

All rocks belong to the Bushveld Complex(Rustenberg suite, Lebowa Granite)in the south.

Acid mine water drains into the streams and requires treatment before its use(Tracy, 1921).

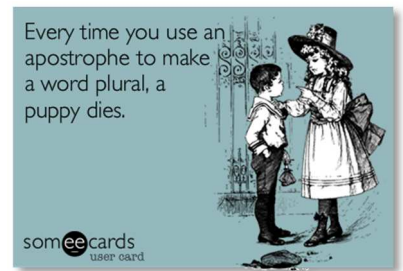
In the north, the rocks of the Transvaal basin are exposed (Wolkberg Group, Pretoria Group).

“One must be continually aware of the limitations” (Rietveld, 1993).

- Remove any spaces before punctuations, but insert spaces after them

Finally ,the president said he has a swimming pool ; it helps in extinguishing fires.

Finally, the president said he has a swimming pool; it helps in extinguishing fires.



- After “furthermore”, “therefore” or “consequently”, you need to write a comma (,), not a semi-colon (;):

Consequently, the shaft had to be abandoned.

## Units, Equations, Symbols and Formulae

- Use space between numbers and units. It is a good idea to use a non-breaking, protected space, which you can type in by pressing CTRL+SHIFT+SPACE. This ensures that the number and the unit are always kept together. When you turn on all format symbols by pressing ¶, this protected space looks like a degrees sign (°).

12 kg; 45.2 °C; 0.93 mmol

But: 23° for an angle (no space)

- Avoid using ppm, ppb or ppt for liquids – use mg/L, µg/L or ng/L instead. The Bureau International des Poids et Mesures (2006) recommends that “the terms ppb and ppt are best avoided” because “their meanings are language dependent” and therefore confusing. In addition, when used for water it is not clear if the “parts per” relates to the mass or the volume of the water. ISO 31-0 recommends avoiding the terms ppm, ppb and ppt at all. Therefore it is recommended not to use any “part per” units for water.
- Write charges of elements correctly

Fe<sup>+3</sup> or Al<sup>+3</sup>

Fe<sup>3+</sup> or Al<sup>3+</sup>

- Ensure to use the correct number of decimal places when reporting chemical analysis – each element has its own precision
- use the correct symbol for degrees, which is the shortcut key ALT + 0176 (°); avoid the shortcut key ALT + 0186 (º) or any other symbol

$t = 12.6\text{ °C}, \alpha = 56^\circ$

$t = 3.2\text{ °C}, \alpha = 56^\circ, 4 - 6\text{ °C}, 100\text{ °C}, +23^\circ$

- the abbreviation for litre is a capital L, not a small l or an ℓ (the latter commonly used in South Africa). Consequently, g/l and mg/l or g/ℓ and mg/ℓ must be corrected to g/L and mg/L or, alternatively, g L<sup>-1</sup> or mg L<sup>-1</sup> (this follows a 1979 recommendation of the CGPM – Conférence générale des poids et mesures)
- write “electrical conductivity” not just “conductivity” when you mean EC. Its common units are µS/m, mS/cm or µS/cm, but not µ/Sm
- write µS or mS instead of µMOHS, uMOHS or mMOHS
- write µg, µL or µm instead of ug, uL, um or micrometre
- use the correct SI symbol for the Ohm: Ω
- Distinguish between the prefixes milli and micro: mL (millilitre) and µL (microlitre). You can find the symbol µ in the “Character Map” utility of your system or by using keystroke ALT+0181 (on the number keyboard only)
- the correct unit symbol for cubic centimetre is m<sup>3</sup>, not cc

- The prefix for the kilo is a small k, not a capital one: km, not Km or KM and kg and not Kg or KG. Yet, the prefix mega is a capital M: ML (megalitre) and mL (millilitre) are not the same! The capital K is used for the unit Kelvin.
- Some SI-prefixes are used in small and in capital letters, but have different meanings: “m” for milli, meaning  $10^{-3} = 1/1000$  multiplier and “M” for mega, meaning  $10^6 = 1\,000\,000$  multiplier.

1 ms, a small measure of time (millisecond).

1 Ms, a large measure of time (megasecond).

1 mS, a small measure of electric conductance (millisiemens).

1 MS, a large measure of electric conductance (megasiemens).

1 mm, a small measure of length (millimetre; the second “m” stands for metre).

1 Mm, a large measure of length (megametre).

- pH has no unit – it even hasn’t the unit “s.u.” (‘standard unit’, ‘sine unitas’) – what you can or should write in tables or figures might be “–” where the unit should be.
- Use SI units without exception and do not explain them in the text. Second, minute, hour and day are written s, min, h, d, respectively. All units, with the exception of the L for litre and the units derived from the names of persons (e.g. S, Pa, V, A), are written in lowercase letters.

Most discharges exceed 2 cubic meters per minute ( $\text{m}^3 \text{min}^{-1}$ ).

When the voltage exceeded 300 v the lamp burnt through.

During the measurement, the pressure stayed constant at 912 hPa and the electrical conductivity at  $2514 \mu\text{S cm}^{-1}$ .

- use proper notation for scientific numbers. Instead of 0.16E-18 write  $0.16 \times 10^{-18}$  or  $0.16 \cdot 10^{-18}$
- The symbols for physical quantities, constants and mathematical variables are written in *italics*:

The mass *m* of the bottle is 142 g.

The volume *V* of the bottle is 1.002 L (1002 mL).

The symbol for the Avogadro constant is  $N_A$  or sometimes *L*.

- All symbols for mathematical operators and the abbreviations of elements are written in roman letters.

pH is the negative logarithm of the proton activity:  $-\log\{\text{H}^+\}$

$dp/dt$  is considered the rate change of the pressure.

$\text{CaCO}_3 \Leftrightarrow \text{Ca}^{2+} + \text{CO}_3^{2-}$

## Figures and Tables

**F**igures and Tables are the herbs and spices of your essay. Using too many or less or using the wrong herbs and spices will cause your tucker taste unpleasing. It is not much different with your report or manuscript. You need to know how to use them, when to use them and in which way. This section is just about the basics – you will find more detailed formatting hints for figures in the chapter “Figures” on page 27.

- use the automatic figure and table numbering of your word processor (<http://bit.ly/Word-ForDissertations>) and cross-reference to the automatically numbered figures and tables throughout your text
- Avoid writing “Figure 2 shows the mine water composition. It can be seen that it is acidic” but write “As can be seen, the mine water is acidic (Fig. 2).” The same is relevant for tables. Please do not write sentences such as “All the data obtained during the XRD investigations is listed in Table 1 and it could be shown that the investigated mineral is schwertmannite”, but write “Based on the XRD investigations, the investigated mineral is schwertmannite (Tab. 1)”. Keep in mind: you results show something, not your figures or tables. They are just used to present your results visually or nicely compiled.

Figure 3 compares the efficiency of sulfate removal by  $\text{BaCO}_3$ .

In a lab experiment, the efficiency of the sulfate removal with  $\text{BaCO}_3$  was tested (Fig. 3).

- Avoid sentences like “the result is shown in the figure below” or “as Table 4 above shows” – you never know where the table or figure ends up. You should always refer just to the table or figure (in brackets) without using the word “see” – also; avoid telling your readers what they have to do.

Just because Lions might kill people does not imply we should kill all lions (see Tab. 3 below).

Just because Lions might kill people does not imply we should kill all lions (Tab. 3).

- expressions such as “Scale 1:23000” in figures must be substituted by scale bars
- When presenting coordinates, you need to provide the exact geodetic datum. It is not enough to write “... the GPS coordinates of the location are ...”. Each datum consists of the Ellipsoid (*e.g.* ETRS89, DHDN90, WGS84, MGI, ED50, Cape 1880) and the projection (*e.g.* UTM, geographic coordinates). There are thousands of different combinations and you need to ensure your reader knows what you mean (you can use [www.georepository.com](http://www.georepository.com) to find conversions, the correct potential geodetic data for your location and converters). Wolfgang v. Goethe’s birth place in Frankfurt(Main), Germany has the coordinates listed in the following table. It becomes obvious, how important it is to refer to the exact geodetic datum – unless you want to mislead your reader on purpose. Even the same projections have a different datum when the Ellipsoid changes. More details about coordinate systems are listed in Bolstad (2008).



Geodetic datum	Projection	Ellipsoid (Geoid)
32U 476941 5551034	UTM	WGS84
32U 477147 5551219	UTM	KKJ (FI 2002) Helsinki
8° 40' 39" E, 50° 6' 40" N	Geographic coordinates	WGS84
8° 40' 43" E, 50° 6' 53" N	Geographic coordinates	Cape (ZA) 1880
3477006 5552815	Gauß-Krüger	DHDN90
3476931 5553255	Gauß-Krüger	ETRS89

- Do not use images as tables – always use the table functions of your word processor.
- Format your tables with three lines only: top, under the column headings, bottom. You need to remove all other lines.

This	Is	An, cm	Example, g	Table
Candle	White	15.0	98	0.98
Cup	White	3.0	43	2.54
Table	gray	90.5	1230	1.02

- Use the decimal tabulator when you have numbers in your table. The decimal tabulator ensures that the decimal points (or commas) are at the same location

Mineral Phase	Without Decimal Tab	Without Decimal Tab	With decimal Tab
Candle	1.33	1.33	1,33
Cup	25.07	25.07	25,07
Table	13.4	13.4	13,4

- Regression lines must display an  $r^2$ . Very often, authors use regression lines to show that a relationship between two parameters exists. Yet, in scientific publications, it is essential to include the  $r^2$ , which is a measure to allow verifying how exact the data does match a line. A small  $r^2$  indicates that the “regression” is very unlikely, whilst a large  $r^2$  shows that the regression line might be statistically significant for the data you want to fit.

## References

References are the key to proof that you know your subject. They tell your reader, reviewer or supervisor that you properly took into consideration the work of the colleagues in your area of research. Without reading and properly citing your references, you would be like a hermit who does not know what’s going on around him or her. Consequently, for your work, references are similar essential then your genuine research data. I am, therefore, somehow astonished how stepmotherly a lot of reference lists in manuscripts and thesis drafts are coming along. Many people are not taking properly care of their references and they are very often messed up in many ways.

One of the key tools to ensure consistency is using a literature management tool, which can be online (e.g. Mendeley, EndNote Web) or offline (e.g. EndNote). As already mentioned on page 9, you should use and read the manual about your literature management software. Typing in the information wrongly will result in awkward reference lists. Please do not use a text file, a spreadsheet or the build in function of MS Word to organise your literature. Do not copy and paste references simply from another publication or from the authors’ list on the web page or the electronic file. You always need to retype your references and format them according to the necessary reference style. When you are

not too sure of how to format your references, visit one of the many web pages that help you to format your references properly. Read also the chapter “Literature References – The Ingredients of your text” (page 6) about such types of software and some general hints about literature references.

- use a reference manager software (e.g. EndNote, RefWorks, Citavi or Mendeley)
- do not use references to predatory journals or predatory publishers – or what could be even worse: do never publish in one of these journals. You can find a list of these publishers and journals here: <https://beallslist.weebly.com>
- References in the text must be part of the sentence. They must not be written behind the text:

Nelson Mandela described himself a ‘water person’ during his opening address. (Fig, 2011).

Nelson Mandela described himself a ‘water person’ during his opening address (Fig, 2011).

- Avoid references to internet sources. Always try to find relevant journal papers or – when you write about general issues – relevant books. In addition, do not refer to a published paper using its URL but use the correct citation. When possible add the DOI of the paper as shown in the Casiot et al. (2004) example below. Do not write the DOI with the http-referrer (except when you publish in the *Austrian Journal of Earth Sciences*, where it is required: [www.univie.ac.at/ajes/guidelines](http://www.univie.ac.at/ajes/guidelines)).

KUSIN, F. M., JARVIS, A. P. & GANDY, C. J. 2010. Hydraulic residence time and iron removal in a wetland receiving ferruginous mine water over a 4 year period from commissioning. <http://www.ncbi.nlm.nih.gov/pubmed/20962411> [accessed 2018-03-19].

KUSIN, F. M., JARVIS, A. P. & GANDY, C. J. 2010. Hydraulic residence time and iron removal in a wetland receiving ferruginous mine water over a 4 year period from commissioning. *Water Sci. Technol.*, 62, 1937–1946. DOI:<http://dx.doi.org/10.2166/wst.2010.495>

KUSIN, F. M., JARVIS, A. P. & GANDY, C. J. 2010. Hydraulic residence time and iron removal in a wetland receiving ferruginous mine water over a 4 year period from commissioning. *Water Sci. Technol.*, 62, 1937–1946.

CASIOT, C., LEBRUN, S., MORIN, G., BRUNEEL, O., PERSONNÉ, J.C. & ELBAZ-POULICHET, F. 2004. Sorption and redox processes controlling arsenic fate and transport in a stream impacted by acid mine drainage. *Sci. Total Environ.*, 347(1–3):122–130. DOI:10.1016/j.scitotenv.2004.12.039.

- Do not omit the names of authors. Always use all their names in the references section. They invested a lot of time and hard work to write the paper. They do not want to be forgotten. An exception might be ATLAS Collaboration (2011) – a paper with more than 3000 authors.

SIBELIUS, J., PENDERECKI, K., KUULA, T., PINGOUD, E., NDODANA-BREEN, B., SONTONGA, E. 1994. The meaning of Words. *Finno-African J. Music*, 1(1), 19–94.

SIBELIUS, J., et al. 1994. The meaning of Words. *Finno-African J. Music*, 1(1), 19–94.

- Journal titles are usually abbreviated. You should write **J. Geochem. Explor.** instead of **Journal of Geochemical Exploration**. Do not write in capital letters (you might find it with

capital letters in the internet) and use correct periods in abbreviated words. One word journal names (e.g. *Tectonophysics*) are never abbreviated. Here is a search tool for journal abbreviations: <http://bit.ly/JournalAbbreviations>

Mine water and the Environment → Mine Water Environ.

Nature → Nature

Acta hydrochimica et hydrobiologica → Acta Hydrochim. Hydrobiol.

- Ensure that you use the correct names for journals. Do not just add the name “journal” after or before the journal’s name. Always look up the correct name of the journal when the word “journal” appears in the name. A good source for looking up journal names is Thomson Reuter’s “Web of Science” web site.

Mine Water Environ. J.

J. Acta Hydrochim. Hydrobiol.

J. Geochem. Explor.

- When a paper has been written by more than two authors you usually name only the first one and then you write *et al.* which, depending on the gender of the authors, means *et alia*, *et aliae* or *et alii* (and others) and therefore the al. has a period at the end. Please don’t write ‘et. al’ or ‘et. al.’ or ‘et al’.
- Restrict the names of publishers to the core of the publisher’s name

John Wiley & Sons

Springer Science & Business Media

Wiley

Springer

- When you have to use keywords for a paper that you submit, use only keywords that are not already in your title. Help your potential reader by using keywords that provide additional information about the paper’s content.

Title: Managing environmental impacts of large artificial sediment loads in rivers

Keywords: Australia, Macquarie Harbour, hydrodynamics, pollutants, geochemistry

Keywords: sediment loads, rivers, case study, environmental impacts

## Formatting

- use the templates provided by your supervisor(s), the academic institution or the journal in which you want to publish
- don’t use any frames around pages or page numbers
- don’t use fancy cover images
- ensure that all your pages are numbered
- use the style sheets of your word processor. I often hear that “Word does not do what I want” – of course, when you don’t tell word what you want – how shall it know. Style



sheets are a way of properly formatting your word document and word takes care of most of the rest. (<http://bit.ly/WordForDissertations>)

- remove all hyperlinks – they look ugly and disturb the reading process

<http://bit.ly/OfficeHyperlink>

[Oscar.Pistorius@KgosiMampuru.dcs.gov.za](mailto:Oscar.Pistorius@KgosiMampuru.dcs.gov.za)

<http://bit.ly/OfficeHyperlink>

[Oscar.Pistorius@KgosiMampuru.dcs.gov.za](mailto:Oscar.Pistorius@KgosiMampuru.dcs.gov.za)

- Avoid underlining of words in all cases – it is simply not done anymore because it dates back to the time of typewriters where people had underlining as the ONLY way to emphasize content; use *italics* or **bold** instead – the underlining “kills” the descenders (meanwhile, some text-processors and web pages do underlining correctly: hurray!)
- Use proper subscript and superscript in chemical formulae

$\text{H}_2\text{SO}_4$  is a strong acid, while  $\text{H}_2\text{CO}_3$  is a weak one.

$\text{H}^2\text{CO}^3$  is a weak acid when  $\text{CO}_2$  is dissolved in  $\text{H}_2\text{O}$ .

- Unless you are producing a final document, *e.g.* for your own publication process in a thesis, do not format your graphs – just import them into your word processor. Avoid normal copy-and-paste as this does produce images of low quality or it blows up the size of your document. For more details have a look to page 26.
- delete all double spaces in your text (hit CTRL+H in MS Word to find and replace text). Double spaces might have been used in the time of typewriters – but they are not necessary any more (and where even not necessary or at least questionable at the time of typewriters).
- Remove spaces at the beginning or end of paragraphs (press the symbol ¶ in MS Word, to see all formatting symbols in your text)
- never format your text with multiple spaces, lines or tabs – always use the appropriate formatting tools (*e.g.* tab formatting, paragraph formatting) provided by your word processor. Whenever your fingers want to press the spacebar more than once, you very likely have a case for a tab instead.
- never use hard return (“enter”) or page breaks or section brakes to format your text when you are preparing a report or a paper – detailed formatting should only be done by the final editor
- remove all empty lines (never use them for formatting text)
- remove all double tabs (do not use for formatting text)
- for equations and formulas use the equation editor
- Write words from foreign languages in *italics*. This is especially true for Latin names of organisms. Words from South Africa’s 11 official languages – some claim it are 13 – are never written in italics. Some journals might have differing style guides – always refer to them when writing a paper (*e.g.* the ASA–CSSA–SSSA Publications Handbook and Style Manual).

Kelly & Wood (2000) gave the bacteria the new name *Acidithiobacillus thiooxidans*.

All samples were taken *in-situ*.



A first tracer test at the abandoned *Georgi Unterbau* mine in Austria showed positive results. All springs from Tweebuffelsmeteenskootmorsdoodgeskietfontein show buffalo DNA.

He said “*Hamba kahle*” and walked away.

- You don’t need to know all the details of the “International Code of Zoological Nomenclature”, but at least the following hints are relevant:

*Pseudophillipsia (Carniphillipsia) ogivalis javornikensis* G. & R. HAHN, 1977

*pseudophillipsia Javornikensis* (HAHN).

- Avoid using CAPITAL LETTERS IN YOUR TITLES, TEXT OR FILE NAMES – it is considered “shouting out loudly”. Use SMALL CAPS instead or other ways of outlining something (e.g. *italics*, **bold**, other font).
- Some fonts have two different formats for numerals called “standard figures” and “text figures”. You would use text figures when writing text and standard figures in your tables. Word allows you to choose which one you want to use. You find it in the Font Dialog Advance tab under ‘Number forms’. Choose either ‘Default’ or ‘Old-style’. The following numbers are text figures: 1234567890 and these standard figures: 1234567890.
- Avoid using the fonts Arial and Times New Roman – reading them tires your eyes. Use the better designed and consequently easier readable Calibri (used in this text) or Cambria (especially for very long text as in a thesis or report). If you want to be more “innovative”, use the Corbel or the Palatino Linotype (used here for the example sections). When writing your CV, you might consider using the Garamond, which looks also very nice – and sets you apart from all the Arialers and Times-New-Romaners. Do not use the Candara for scientific text (I used it for the heading in square brackets []). You can use it to invite your friends to a party or your wedding. Under all circumstances avoid the **Comic Sans** – this font is a no go<sup>6</sup>.

This does not imply that **Arial** is not necessary any more.

In addition, the **Times New Roman** will find its niches in the future.

It just means that the **Calibri** from Luc(as) de Groot is easier to read and more thoroughly designed.

It also means that the **Cambria** is much easier to read and a nice piece of typography.

If you want to be more innovative use the **Corbel** from Jeremy Tankard – you will find nice ligatures.

Add a little bit of extravagancy to your texts by using the **Palatino Linotype**.

Moreover, a CV written with the **Garamond** sets you apart from your competitors.

Though the **Candara** from Gary Munch looks nice, you should only use it for informal documents.

But, with the **Comic Sans** you should not give a presentation - except about ‘*doge meme*’.

## Miscellaneous

- state your name
- do not use key words that are already in the title of your paper
- use “normal” page numbering instead of “fuzzy” ones

- Distinguish between ORP (potential of the electrode) and Redox Potential (based on the standard H<sub>2</sub>-probe) – the difference must be calculated and ranges, depending on the type of electrode, between 197 and 334 mV at 25 °C. If you need a conversion tool, visit this web page: [www.wolkersdorfer.info/redox](http://www.wolkersdorfer.info/redox) (in German and English)
- NAVSTAR GPS (USA), GLONASS (Russia), Galileo (European Union) or BeiDou (China) are satellite based technologies which enable the determination of coordinates with certain accuracy. None of those terms can be used as a substitution for a correct geodetic datum. Consequently, it is always necessary to record into which datum the GPS-data was converted. Finally, GPS elevations are calculated elevations based on the ellipsoid. They can never be used to record the real elevation of the geoid unless corrected accordingly.

Geographic position system (GPS) will be used to record the positions of sampling points.

The GPS coordinates of the sampling location are 476941 5551034.

All coordinates of the sampling points were measured with GPS-receivers and tabulated as UTM WGS84 coordinates.

GPS-data will be used to record the positions of sampling points.

- When you have sections that you want to fill in later or words or expressions that you need to look up, use the double hash tag to mark them like that: ## – before you finalise your document search for the double hash tag – in addition it can easily be seen when printed or on the screen. Do not use one # or three ###. Two is enough and you can simply search for them at the end of your writing process.

Zuma told the public that taking a shower helps ##add references.

Northern lights are not only common to Finland but can also be seen in ##where else?

Out of ##how many## water samples, only 3 have drinking water quality.

## Writing the Acknowledgements

[that part can be very tricky – whom to include whom to leave out – at least: be fair]

In the acknowledgements, you thank the persons who made your work become reality. Yet, in the past years, it seems to become custom, to include everybody who contributed even a small tiny bit to a paper as a co-author. Sometimes, I even see that copy-editors or proof-readers of universities are included or the lab person of a company who did the chemical analysis. Yet, this somehow contradicts the idea of “authorship”<sup>7</sup>. I think, I won’t make many friends when I write about labs, where the director of the lab is always the first author of a paper. Having become aware of this tendency of “false” co-authorship, many journals now require that the contribution of each author and co-author to the paper be listed at the end of a paper. It does not solve all the issues, but at least it is better than doing nothing. Yet, the correct approach for the above cases is to include those people in the acknowledgements. This section of your essay should list all persons or institutions that contributed to your work, but not to the paper itself. Here is a very good example of an acknowledgement from Wennervirta and Papunen (1974):

### ACKNOWLEDGEMENTS

The publishing of the present study was authorized by the Chief Geologist of the Outokumpu Oy, Dr. P. Haapala, and the Director of Exploration, Mr. P. Isokangas. The geologists of the

Metsämonttu mine gave valuable aid in sampling. The mercury determinations were performed in the Central Laboratory of the Outokumpu Oy under the guidance of Mr. O. Lindsjö. All the other analyses were done in the Geological Laboratory of the Outokumpu Oy under the supervision of Dr. T. A. Häkli. The statistical treatment of the data was done by Mr. V. Suokonautio with an IBM 360/40 computer in the Computer Centre of the Outokumpu Oy. Mrs Cillian Häkli translated a part of the paper into English. To all these people we want to express our cordial thanks.



I think, if they would write their paper today, the authorship might read: Wennervirta, H., Papunen, H., Suokonautio, V., Lindsjö, O, Häkli, A., Häkli, C., Isokangas, P. & Haapala, P. 2074. Well, you know my opinion – I am in the old tradition of “the writers shall be the authors”.

## Figures

### Introduction

[A figure that looks good on the screen will not necessarily look good when printed]

Graphs and figures are essential in scientific papers published in the area of natural sciences or engineering. Therefore, you need to know, what graphs are and how to use them properly. Generally, there are two types of graphic formats: pixel graphs (also called raster graphs) and vector graphs (also called line graphs). In a pixel graph, each part of a graph consists of a single dot, which is characterized by its size and colour. Examples are the photographs produced by your digital camera, a screen shot or an image from a graphic scanner (e.g. file formats JPG, TIF, BMP, PNG). Vector graphs, however, consist of graphic elements that are described with equations consisting for example of length of line, width of line, radius of circle or colour in a colour palette (e.g. file formats EPS, WMF). Whilst pixel graphs can't be up- and downscaled to any ratio (if at all), vector graphs usually are scalable without losing information. This is the reason why vector graphs should be favoured over pixel graphs, as you can see in the following images.

High quality, EPS vector file:  and low quality, scaled pixel file: 

In any case: always keep in mind that whenever you can compose an image with lines or objects, you must use a vector programme. Should you want to optimize camera images, you must use a raster programme. All image manipulations must include all parts of the image, you are not allowed to selectively modify parts of your images or remove disturbing elements. This is considered fraud, as you are working scientifically. However, you are allowed to crop your images to focus on the relevant parts of your picture.

### General Hints

[those things that need to be mentioned but don't fit under another heading]

Preparing figures and including them into your text is a science of its own and a guide about using figures would be another one or two dozen of pages. Yet, nowadays we are expecting that you are familiar with composing images as well. Composing a good image for your text might take as long as composing the text to describe the image itself. You should also understand that there are pixel graphs and vector graphs and they have different qualities and usages. Use the high quality vector graphs whenever possible. See also section “Figures and Tables” on page 19, which is about placing your figure in the text.

- remove all your frames around figures – only obituary notices should have frames

- You must refer to all figures and tables in your text. Usually, a figure or table is first referenced in the text and thereafter you place the figure or table.
- The captions of tables or figures must not be part of the table or figure. Also, do not write the figure's name into the figure.
- Crop everything of a figure that you do not need – especially white space. If necessary, use an appropriate image-processing tool such as Gimp (freeware: [www.gimp.org](http://www.gimp.org)), Photoshop ([www.photoshop.com](http://www.photoshop.com)) or Paint Shop Pro ([www.paintshoppro.com](http://www.paintshoppro.com)). Avoid “MS Paint” which comes with Windows™ – you might just worsen your figure. A simple but quick tool is Xnview from Pierre-Emmanuel Gougelet (freeware: [www.xnview.com](http://www.xnview.com)).
- Use vector graphs instead of pixel graphs for scientific images. Do not convert them into JPG or TIFF files. A free programme to produce and manipulate vector graphs is Inkscape ([www.inkscape.org](http://www.inkscape.org)).
- When you need to use a pixel graph, avoid JPG files whenever possible – use high quality TIFF files as often as possible. An exception are the JPG files coming from your digital camera – but make sure you use the highest camera resolution possible.
- Use line graphs to show relationships or trends between values and box plots when there are no connections between the measured data.
- When you are writing for a journal or when you are collaborating with colleagues only use “in-line” graphics. Do not format them and try to place them “nicely” in your text – the final editor of your text always does this step.
- When you are writing for a journal or when you are collaborating with colleagues do not use the build in drawing functions of MS Word. Always use external software that produces high quality line graphs or images, export them to a vector format for line graphs or TIFF for pixel graphs and import them into your word processor.
- Do not copy and paste graphs, but instead use paste → paste special (extended WMF). A better solution to include graphs is to save your graph on your hard disc and importing it into Word. Moreover, please keep in mind: low quality JPG files should not be used, as they are optimized for a screen resolution, but not for printing. Always use high quality figures (width at least 1000 pixel) or – even better – try to use a vector format (such as EPS, WMF).
- When using graphs from spreadsheet programmes, please remove the frame's line from the graph border and legend. In addition, remove all grid lines from the graph and make sure that you explain all abbreviations used in the graph's caption.
- A figure that looks “good” on your screen does not necessarily look “good” when printed. Your screen has a “resolution” below 100 dpi (if we convert the screen dots to print dots) and a high quality printing process uses between 300 and 1600 dpi. If you enlarge your figure on the screen by at least 400 % and you see large “steps” you can assume that it is unsuitable for printing.
- The number of digital places on the x- and y-axis of scatter diagrams must be the same, except you are using a logarithmic scale:

0 – 0.5 – 1 – 1.5 – 2 – 2.5

0.0 – 0.5 – 1.0 – 1.5 – 2.0 – 2.5

0.001 – 0.01 – 0.1 – 1 – 10 – 100 – 1000

$$1 \cdot 10^{-3} - 1 \cdot 10^{-2} - 1 \cdot 10^{-1} - 1 \cdot 10^0 - 1 \cdot 10^1 - 1 \cdot 10^2 - 1 \cdot 10^3$$

- maps must have a scale and north arrow or coordinates
- When you are enlarging or scaling down a figure, make sure you scale width and height with the same scaling factor. Never deform figures or maps.

### Free Software Tools

As described above, there are a number of free tools available for designing images, manipulation them or viewing your images. There is no silver bullet that can do everything you want to do with an image, especially, as there are two types of images (raster and vector):

- Inkscape (free Vector Programme): [www.inkscape.org](http://www.inkscape.org)
- Gimp (free Raster Programme): [www.gimp.org](http://www.gimp.org)
- XnView (free Image Viewer): [www.xnview.com/en](http://www.xnview.com/en)
- gnuplot (free scientific graphic package): [www.gnuplot.info](http://www.gnuplot.info)

### Copyright

[important – even without the © symbol]

This section is about copyright issues. Please read this section carefully and modify the captions of your tables and graphs if necessary. No other references to other work is allowed to ensure compliance with international or national copyright, as figures, such as text from a paper or book, are copyrighted – even when there is no copyright © symbol. In the US, for example, the copyright symbol is not needed anymore to mark “copyrighted” work, but it was legally necessary before 1989-03-01. If you want to know more details, you might want to read publications about the “Berne Convention for the Protection of Literary and Artistic Works”.

Once you are done with your paper or thesis, please check carefully the following items:

- are all your figures complete?
- do the captions match your figures?
- are the figures exactly as you want them?

You need to ensure that the references to figures that are not your own are absolutely correct. There are 4 ways to cite figures or images:

Reference	Meaning
from*	figure or image is EXACTLY the same one as in the original publication ( <i>e.g.</i> you got it from the author or you scanned it)
after	figure or image is the same one as in the original publication but you completely redrew the figure or image
modified from*	figure or image is EXACTLY the same one as in the original publication but you added or erased some details
modified after	figure or image is the same one as in the original publication, you completely redrew the figure or image and you added or erased some details

An asterisk (\*) in the above table means that you need written permission of the original author (except the original author is you). Written can also mean an e-mail (in a thesis this might be less relevant, but in a paper that you want to publish it *is* relevant).

Each reference to a figure must clearly use one of the above four options. Just writing

Fig. 6.62. Iron saturation indices for metal-mine pit lakes (Miller 2001).

is not enough, as an example, it must be (or any of the above 4 options)

Fig. 6.62. Iron saturation indices for metal-mine pit lakes (modified from Miller 2001).

## Google Earth and Google Maps Images

[what would we be without it – but learn to use it correctly]

It becomes more and more common to use Google Earth or Google Maps images in publications. Therefore, some hints about their correct handling in your essay. You are only allowed to use Google Earth or Google Maps when the Google copyright and Google logo are clearly seen AND if the source is properly mentioned in the caption. Google without a doubt indicates on their web site:

*“You can personally use an image from the application (for example on your website, on a blog or in a word document) as long as you preserve the copyrights and attributions including the Google logo attribution. However, you cannot sell these to others, provide them as part of a service, or use them in a commercial product such as a book or TV show without first getting a rights clearance from Google.*

*If you require these commercial rights, please visit Google’s permissions guidelines. You can then submit your application through our online request form.”*

You, as the author of your text must ensure that you comply with Google’s copyrights. An example of a correct caption is here (Geller et al., 2013):

Fig. 5.54 Map showing the relationship of the pit lake to Wollaston Lake. The pit lake to the north of the B-Zone Pit Lake is the D-Zone Lake. The waste rock pile is in the southeast corner of the map. © Google and Digital Globe (2011)

## Spreadsheets

[one of the best things that could have happened to science – and one of the most misused as well]

Spreadsheets are used to organize your data in a systematic way so that you can also use it for your report, paper or thesis. They are a powerful tool for calculating, solving simple equations or sets of equations or draw graphs of your data. They are not a replacement for professional scientific graphic programmes such as SigmaPlot or Origin, and whenever you have access to scientific graphic programmes, you should use a spreadsheet to organize your data but that graphic software to plot your data scientifically correct. As mentioned earlier: watch a tutorial for the spreadsheet software you are using or get a good book in your local library.

From time to time, I see that researchers are calculating numbers with their calculator and then type those numbers into the spreadsheet. Yet, another name for spreadsheet is “table calculation” – which means you can do **all** your calculations within the spreadsheet. Most spreadsheet programs have hundreds of mathematical or statistical build in functions that you can find in the help or in relevant books. You can even manipulate text or convert text into numbers or vice-versa.

One of the key issues in spreadsheets is how to organize your data in a useful way. You should use multiple tabs in the spreadsheet for the multiple measurements you made. Avoid keeping all your measurements in one tab – unless you already know how to organise that tab accordingly. The general

rule for you should be that one tab holds all the data that you might want to draw in a graph. Also, when you have similar types of data, ensure that your tabs have the same structure or content, so that you can easily modify your data, move it around or reference to the data from other tabs.

### Example

Let's assume you are measuring the flow, temperature and electrical conductivity of a stream every month by using the salt dilution method. The data for measuring the flow with the salt dilution method would go into several tabs, which you might call "Flow Data 2015-04-26" | "Flow Data 2015-05-23" | "Flow Data 2015-06-27" (see image below). Somewhere in those tabs you would have the calculated result of that given's day flow measurement.

Now you would have another tab, which you might want to call "Monitoring Data" – this would go into one table with the four columns "date", "flow, L/s", "temperature, °C" and "electrical conductivity, µS/cm". The headers of the columns should be in the first line of the spreadsheet and directly thereunder, you would have your data. Avoid combining cells, leave empty lines or empty columns within the relevant data as this avoids you from doing calculations or sorting your data. It's a good idea to include the units in the table header – don't write them under the headers.

	A	B	C	D	E	F
1	date	flow, L/s	temperature, °C	electrical conductivity, µS/cm		
2	2015-04-26	12,5	23,1	334		
3	2015-05-23	11,9	22,0	368		
4	2015-06-27	13,1	19,8	320		
5						

Then you compose a graph of your data in the tab "Monitoring Data", and at the end you move this graph into its own tab which you might call "Graph Monitoring Data". Delete all tabs that don't contain data from your spreadsheet – they might only confuse you – and ensure that you don't have 'non-speaking' tabs such as 'Sheet1' or 'Sheet2'.

## Power Point

[there would be much more to say – that's just the most important]

- Embed all your fonts (<http://bit.ly/PPFontEmbedding>)
- Resize all your figures
- Save your presentation as a Power Point Screen Presentation (ppsx) – this makes your presentation much more professional when you present, as Power Point itself will not open, just your presentation
- Keep the number of lines on a slide to 10 to 15. More lines are hard to read for your audience
- Avoid light colours such as light yellow or green – often, they can't be seen
- Use shadows only for photographs, not for scatter diagrams
- Avoid using "funny" animations – stay with 'wipe' and 'appear'
- Use guides to correctly align your elements (or the alignment function)



## Acknowledgements

[never forget to thank those who helped you – please avoid making them co-authors]

These “Tips & Tricks” would not have been possible without the input of so many of my students and my colleagues throughout the years. I say “Thank you very much” to all of them. Special thanks to Bob Kleinmann, Olga Oleksiienko, Catherine Coni and Henk Coetzee for proof reading the whole or parts of this text. I also say thank you to the numerous on-line and off-line sources that I used to verify which expression is correct or not. Some sections are taken literally from Turnitin’s QuickMark® comments definition or the ASA–CSSA–SSSA Publications Handbook and Style Manual. Dan Gookin’s writing style inspired me to “try new things”, which I haven’t done in the past – and even after having used MS Word since 1991 I still learned a lot from his book. A concluding thanks to Dr. Jana Göbel who taught me to be precise in all my writing, thinking and speaking.

And now, I wish you good luck! Don’t be shy anymore when you have your written text in front of you, because you have the right tools to present your ideas nicely – the content? – well that would be for another handbook about writing. With the German miner’s greeting, I am finally wishing you “Glückauf<sup>8</sup>!”



## References

[the ones you need to write for me and the ones I used to write for you]

- ATLAS COLLABORATION 2011. Measurement of the differential cross-sections of inclusive, prompt and non-prompt  $J/\psi$  production in proton–proton collisions at  $\sqrt{s} = 7$  TeV. *Nuclear Physics B*, 850, 387-444.
- BOLSTAD, P. 2008. *Geodesy, Datums, Map Projections, and Coordinate Systems*, White Bear Lake, Eider Press.
- BUREAU INTERNATIONAL DES POIDS ET MESURES 2006. *Le Système international d'unités – The International System of Units*, Sèvres Cedex, Organisation Intergouvernementale de la Convention du Mètre.
- BUTCHER, J., DRAKE, C. & LEACH, M. 2006. *Butcher's Copy-editing – The Cambridge Handbook for Editors, Copy-editors and Proofreaders*, Cambridge, Cambridge University Press.
- CASIOT, C., LEBRUN, S., MORIN, G., BRUNEEL, O., PERSONNÉ, J. C. & ELBAZ-POULICHET, F. 2004. Sorption and redox processes controlling arsenic fate and transport in a stream impacted by acid mine drainage. *Sci. Total Environ.*, 347, 122-130.
- CHAPMAN, P. M. 2007. Heavy metal – music, not science. *Environ. Sci. Technol.*, 41, 6C.
- DAY, R. A. 2011. *How to write and publish a scientific paper*, Greenwood.
- DAY, R. A. & SAKADUSKI, N. 2011. *Scientific English – A guide for scientists and other professionals*, Santa Barbara, Greenwood.
- DUFFUS, J. H. 2002. "Heavy Metals" – A meaningless term? *Pure Appl. Chem.*, 74, 793-807.
- GELDENHUIS, S. & BELL, F. G. 1998. Acid mine drainage at a coal mine in the eastern Transvaal, South Africa. *Environ. Geol.*, 34, 234-242.
- GELLER, W., SCHULTZE, M., KLEINMANN, R. & WOLKERSDORFER, C. 2013. *Acidic Pit Lakes – The Legacy of Coal and Metal Surface Mines*, Heidelberg, Springer.
- GLASMAN-DEAL, H. 2010. *Science research writing – For non-native speakers of English*, London, Imperial College Press.
- GOOKIN, D. 2016. *Word 2016 For Professionals For Dummies*, John Wiley & Sons.
- HAMES, I. 2007. *Peer review and manuscript management in scientific journals – Guidelines for good practice*, Malden, Blackwell.
- INTERNATIONAL UNION OF PURE AND APPLIED CHEMISTRY 2014. *Compendium of Chemical Terminology – Gold Book*, International Union of Pure and Applied Chemistry.
- MESSENGER, W. E., DE BRUYN, J., BROWN, J. & MONTAGNES, R. 2007. *The Canadian Writer's Handbook*, Oxford, Oxford University Press.
- ROCKE, A. J. 2010. *Image and reality – Kekulé, Kopp, and the scientific imagination*, Chicago, University of Chicago Press.
- STRUNK, W. & WHITE, E. B. 1999. *The elements of style*, Boston, Allyn and Bacon.
- THE ECONOMIST 2016. *Style Guide*, London, Profile Books.
- TRUSS, L. 2003. *Eats, Shoots & Leaves – The Zero Tolerance Approach to Punctuation*, Gotham Books.
- WENNERVIRTA, H. & PAPUNEN, H. 1974. Heavy metals as lithochemical indicators for ore deposits in the Iilinjärvi and Aijala fields, SW-Finland. *Bull. Geol. Surv. Finland*, 269, 22.

---

*"The world is a hellish place, and bad writing is destroying the quality of our suffering. It cheapens and degrades the human experience, when it should inspire and elevate."*

*Tom Waits in VANITY FAIR (July 2001)*

---

Endnotes<sup>9</sup>

[nothing will come hereafter – promised!]

<sup>1</sup> Do you know how the chemical structure of benzene was found? The man who found the structure was the German Friedrich August Kekulé von Stradonitz while he fell asleep in a London coach in summer 1855. He wrote:

*“During my time in London I lived for quite a while in Clapham Road, near the Common. However, I frequently spent my evenings at the home of my friend Hugo Müller in Islington, at the opposite end of the metropolis. We spoke of many things, but mostly of our beloved chemistry. One lovely summer day I rode once more, by the last omnibus, through the now deserted streets of the otherwise so lively city, ‘outside,’ on the upper deck of the omnibus, as usual. I sank into reveries [Träumereien]. The atoms began to gambol before my eyes. I had always before seen them in motion, these tiny creatures, but I had never succeeded in discerning the nature of their motion. This time I saw how two of the smaller ones frequently paired off; how larger ones seized two small ones, how still larger ones held three and even four of the tiny atoms together, and how they all moved in a whirling dance. I saw how the larger ones formed a line, and dragged the smaller ones along only at the end of the chain. I saw what the venerable Kopp, my honoured teacher and friend, so charmingly depicted for us in his ‘Molekularwelt,’ but I saw it long before him. The cry of the conductor, ‘Clapham Road!’, awakened me from my reveries, but I spent part of the night committing at least sketches of these dream figures to paper.” (from Rocke, 2010)*

This was the birth of the structure theory. It was a dream that revealed the most important structure in organic chemistry. Start do dream as well!

<sup>2</sup> Herbert George Wells is said to have plagiarized parts of Florence Amelia Deeks’ manuscript “The Web of the World’s Romance” (1818, unpublished) in his book “Outline of History” (1919) – which sold millions of times.

<sup>3</sup> There are nearly 100 different names used for this small, helpful tool developed by Amir Ban, Dov Moran and Oron Ogdan in 1999. I thought it might be worth mentioning.

<sup>4</sup> Once I got a scientific manuscript for review, which was completely written in MS Excel. Each line of the text was in one single cell and the whole text in one column. If you want to treat your supervisor badly – feel free to do so as well.

<sup>5</sup> The serial comma (also called Oxford comma, because the Oxford Style Manual recommends its use) is an interesting thing, which you might love or just ignore. It’s up to the Editor-in-Chief’s or your personal preference to use it or not. This comma is added directly before the last ‘and’, ‘or’ or ‘not’ in a list of more than two terms: “I came, saw, and conquered”. It is more common in the US than in the UK (though the name might induce different). What shall you do? Well, let’s simply say it with Lynne Truss (2003): “There are people who embrace the Oxford comma, and people who don’t, and I’ll just say this: never get between these people when drink has been taken.” – you understand?

<sup>6</sup> My preferred fonts are the fonts in the “Thesis Font Family” from font designer Luc(as) de Groot <sup>Luc(as) de Groot</sup><sub>de Groot</sub>. This family consists of the “Sans” (did you notice the similarity with the Calibri?), the “Mix” and the “Antiqua”. Yet – you have to purchase them. To ensure that you see what you can do with the fonts distributed with Windows and MS Office, I decided not to use them in this text. Do you want to see why I love them? Here they are (text from ‘The Letter’, a poem by Charlotte Brontë):

What is she writing? Watch her now, how fast her fingers move! \* The Sans

What is she writing? Watch her now, how fast her fingers move! ★ The Mix

What is she writing? Watch her now, how fast her fingers move! ★ The Antiqua

<sup>7</sup> I don’t want to touch the general problem of co-authorship. There is a lot of discussion and literature available in the academic world. The pressure to publish and the fact that many research institutions distribute money based on “output” (≙ publications) promotes this behaviour. Unfortunately, it also covers the tracks of the real authorship (the one who literally **wrote**) of a paper. Not too sure what to do? Well, then proceed to this web page with a lot of useful links: <http://teachingcommons.cdl.edu/cdip/facultyresearch/Co-authorship.html>

<sup>8</sup> Visit [www.IMWA.info/lagniappe/159-the-meaning-of-glueckauf.html](http://www.IMWA.info/lagniappe/159-the-meaning-of-glueckauf.html) if you want to know the exact meaning of this expression.

<sup>9</sup> I don’t like Endnotes because they make reading a text somehow laborious. However, during writing these lines so many sparks hit my brain that I didn’t want to withhold them from you. Please apologize. For both, the sparks and the endnotes.