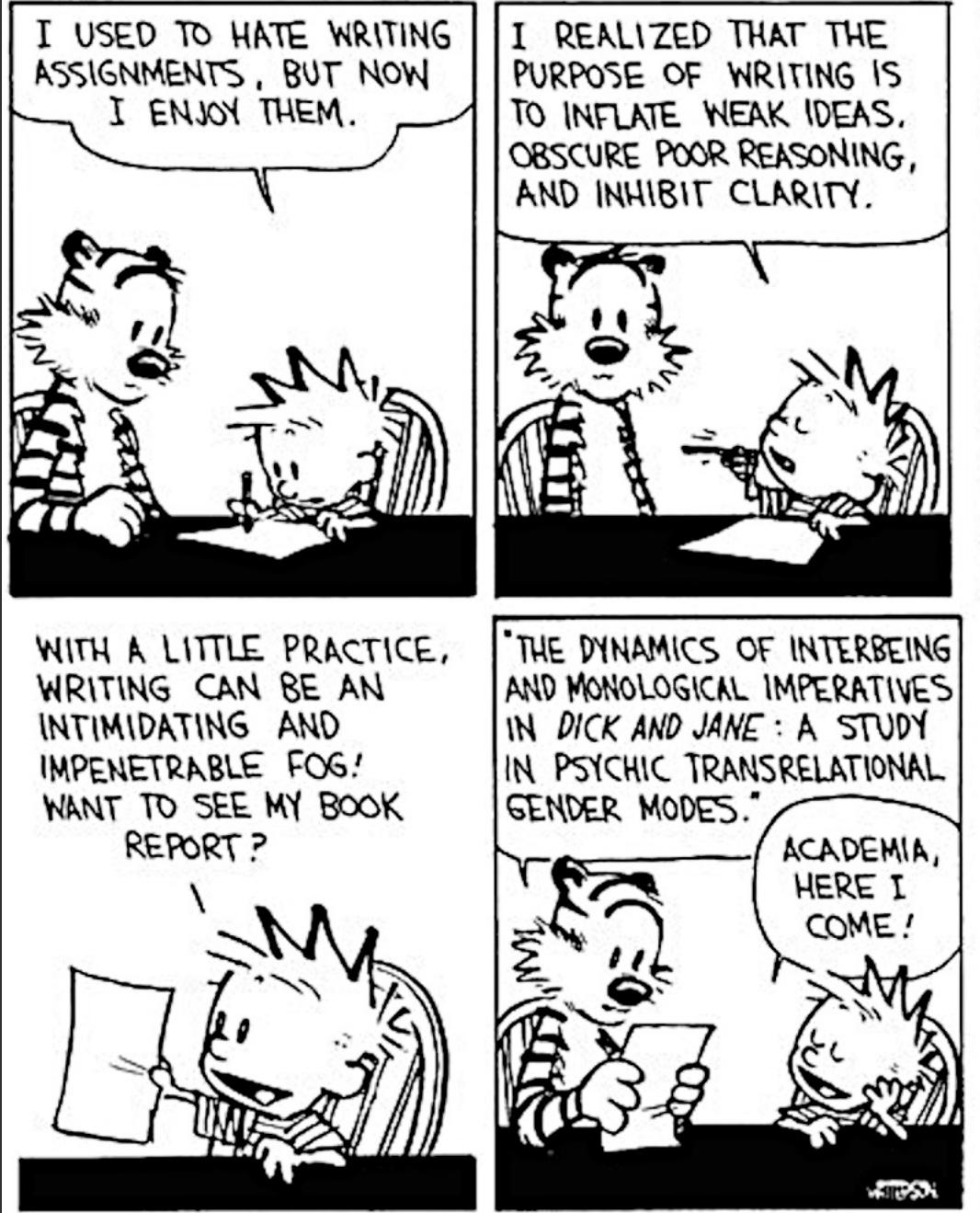


Scientific Writing Second day

Style, words, and
some other
things



Style

Your style of writing reflects and
affects

- what / how **you** think
- if **others** enjoy reading your text
- if they **understand** and **believe**
what you are saying



Style in a nutshell

Rule1: Who is my audience?

Rule2: What is my main
message?

The battle for good writing is won sentence by sentence

“A good sentence is: **short**, has the **subject and verb together**, has an **active** verb, has the **points of emphasis at the beginning and end**, and moves the reader along from a familiar launch point at the start to the **new information at the end.**”

Brian McGill on <http://dynamicecology.wordpress.com>

The rest of today, we'll speak about this in a bit more detail

Topics

- Attitude / Clarity
- Structure
- Word choice and details

Attitude

- **Preparation** – Know what you want to say. Sounds trivial, but it isn't. Explain a friend in 5 min the point of your paper. If you fail, think about your story first.
- **Mindset** – Make your goal, above all, *clarity of thought and expression, and logic of your argument.* Read Woodford, F. (1967) Sounder thinking through clearer writing. Science, 156, 743.

From Woodford

In order to evaluate the possible significance of certain molecular parameters at the subcellular level, and to shed light on the conceivable role of structural configuration in spatial relationships of intracellular macromolecules, an integrated approach [see *I*] to the problem of cell diffusivity has been devised and developed. The results, which are in a preliminary stage, are discussed here in some detail because of their possible implication in mechanisms of diffusivity in a wider sphere.

The student can no longer write: he pontificates.

What has brought about the change? Clearly, the students have copied these dreary and pretentious phrases from the scientific literature. They have been dutifully studying it, as they are urged to do, and it has warped their style to the point that they can no longer walk to the door without “utilizing a pedestrian relocation,” or sip their coffee without “prior elevation of the containing vessel to facilitate imbibition.”

His conclusions

- Complicated, meaningless phrases → not only confusing for others, but also for ourselves
 - If we write sentences that are difficult and unspecific, we don't notice if we write nonsense
- → Simple, clear sentences that convey the logic of our argument!

Here's a thing that really
helps: sentence and
paragraph structure

Sentence structure

A sentence

Sentence

**Beginning
Topic position**

**End
Stress position**

The Science of Scientific Writing

If the reader is to grasp what the writer means,
the writer must understand what the reader needs

George D. Gopen and Judith A. Swan*

*George D. Gopen is associate professor of English in English from Harvard University and a J.D. from Princeton University. Her Ph.D., which is in biochemistry, is from Gopen: 307 Allen Building, Duke University, Durham, NC 27708.

Science is often hard to read. Most people assume that the extreme complexity of scientific concepts and thought need not lead to impenetrability of the text. That can produce clarity in communication without being substantive, not merely cosmetic: Improving thought.

18. Place the emphatic words of a sentence at the end

The proper place for the word, or group of words, which the writer desires to make most prominent is usually the end of the sentence.

Humanity has hardly advanced in fortitude since that time, but it has advanced in many other ways.	Humanity, since that time, has advanced in many other ways, but it has hardly advanced in fortitude.
Because of its hardness, this steel is principally used in making razors.	

16.2.1 Subjects and Characters

The first principle may remind you of something you learned in grammar school, but it is in fact more complicated. At the heart of every sentence are its subject and verb. At the heart of every story are its characters and

Topic position

- The **beginning** of a sentence or paragraph establish the **topic of this sentence and also of paragraphs**
- Example from G&S:
 - "Bees disperse pollen"
 - "Pollen is dispersed by bees"
- → Same content, but one time the topic is bees, the other it is pollen.

Sentences are weak if the topic is not in the first position

1 Introduction

With this project we want to observe the gender based behaviour differences in traffic. In detail we will analyse if men are more aggressively behaving in stress situations than women. Therefore we manipulate the reaction by purposely

- → Start with the topic makes this beginning a lot stronger: **gender-differences in behavior ...**

Stress position (from G&S)

- It is a linguistic commonplace that **readers naturally emphasize the material that arrives at the end of a sentence**. We refer to that location as a "**stress position**."
- If a writer is consciously aware of this tendency, she can arrange for the emphatic information to appear at the moment the reader is naturally exerting the greatest reading emphasis. As a result, the chances greatly increase that reader and writer will perceive the same material as being worthy of primary emphasis.
- **The very structure of the sentence thus helps persuade the reader of the relative values of the sentence's contents.**

Compare these two paragraphs

15a. There is a second reason historians have concentrated on Darwin rather than Mendel. Hundreds of letters, both personal and scientific, to scores of different recipients, including leading scientific figures, illuminate Darwin's genius. Only ten letters to the botanist Karl Nageli, and a handful to his mother, sister, brother-in-law, and nephew, represent Mendel.

15b. Historians of science have concentrated on Darwin rather than Mendel for a second reason. Darwin's genius is illuminated by hundreds of letters, both personal and scientific, to scores of different recipients, including leading scientific figures. Mendel is represented by only ten letters to the botanist Karl Nageli, and a handful to his mother, sister, brother-in-law, and nephew.

Wrong information at the stress position

- When the writer puts the emphatic material of a sentence in any place other than the stress position, one of two things can happen; both are bad.
- First, **the reader might find the stress position occupied by material that dearly is not worthy of emphasis.** [...costs time ...]
- The second possibility is even worse: **The reader may find the stress position occupied by something that does appear capable of receiving emphasis**, even though the writer did not intend to give it any stress. (from G&S)

Remember: **Endings of sentences are stress positions.** The stress position can be a word or several lines – the important thing is that it coincides with the moment of syntactic closure.

The stress position is where you place important **new information**, conclusions, ideas

Historically as head of the household, men have been the main drivers of the family vehicle. Although this has been changing drastically as women gain a more diverse role in terms of working (Polk, 2003), males remain the dominant drivers. Recently, transport and mobility studies have become more focused on the role gender plays in determining transport methods (Law, 2002). These methods includes using bikes, cars, and public transportation in urban settings.

- Men, as heads of the houseshould, have traditionally been the **main drivers of the family vehicle**
 - TOPIC FIRST
- **These gender differences** in driving have been the focus of many **recent mobility studies**, or: As a result of this apparent sex differences in driving, there has been an increase of research ...
 - TOPIC FIRST, connects old → new

Again, stress and topic link old to new information

- The topic position establishes our topic (and therefore our **expectation** about what is to come), but it must also establish our **link to the previous thought, to the last stress position.**
- If you systematically check for this connection, you will also **uncover flaws in your logic** more easily

One more example

From Gopen, G. D. & Swan, J. A.
(1990) The Science Of Scientific
Writing. Am. Sci., 78, 550-558.

Large earthquakes along a given fault segment do not occur at random intervals because it takes time to accumulate the strain energy for the rupture. The rates at which tectonic plates move and accumulate strain at their boundaries are approximately uniform. Therefore, in first approximation, one may expect that large ruptures of the same fault segment will occur at approximately constant time intervals. If subsequent mainshocks have different amounts of slip across the fault, then the recurrence time may vary, and the basic idea of periodic mainshocks must be modified. For great plate boundary ruptures the length and slip often vary by a factor of 2. Along the southern segment of the San Andreas fault the recurrence interval is 145 years with variations of several decades. The smaller the standard deviation of the average recurrence interval, the more specific could be the long term prediction of a future mainshock.

For at home: read the solution of
this example by G&S, starting
with the passage about “large
earthquakes ...”

Paragraph structure

Paragraphs

- Similar to sentences
 - Topic position in the beginning
- However, with exceptions possible, the end of a paragraph should normally give a **conclusion to the topic**
 - Means that the topic should appear again in some form
 - Can use of therefore, in conclusion, summarizing
 - Ideally, already introduces the next paragraph by raising a new topic
- **Tropical forests** are [...] it would therefore be highly desirable to know more about the drought resistance of **tropical forests**.

Looking at a paragraph

Historically as head of the household, men have been the main drivers of the family vehicle. Although this has been changing drastically as women gain a more diverse role in terms of working (Polk, 2003), males remain the dominant drivers. Recently, transport and mobility studies have become more focused on the role gender plays in determining transport methods (Law, 2002). These methods includes using bikes, cars, and public transportation in urban settings. Differences in preferred modes can be for a variety of reasons. Middle-aged males usually have a strict work routine, resulting in a greater number driving cars to work (Ribeiro et al., 2010). Women may still stay home with their children, running errands by cycling or public transportation while their husbands have the family vehicle. This results in women staying closer to home, with shorter travel distances (Dickinson et al., 2003) and thus no reason to have a car. Students are more likely to cycle or take public transportation to school (Ribeiro et al., 2010) due to a lower income. Elderly tend to take public transportation since they do not work (Carlsson-Kanyama and Linden, 1999), stay closer to home, and are less able to drive cars or ride bikes (Gilhooly et al., 2002)

No conclusion of the topic

Sentence topic sentence stress

Paragraph topic

Sentence topic sentence stress

Sentence topic sentence stress

Sentence topic sentence stress

Paragraph conclusion

Sentence topic sentence stress

Paragraph topic

Sentence topic sentence stress

Structure of introduction, first paragraph

This is the topic?

In 2009, Germany covered one of the highest numbers of organic food and drink sales in Europe with a market growth of 15% \cite{Tobler2011}. But who are the consumers? According to recently published scientific papers there are different points of view about the relation between age, gender and the tendency to buy organic food. A study from Geen and Firth (2006) from United Kingdom claims that older people tend to buy more organic food. Arbindra et al. (2005) points out the opposite: younger people are more likely to consume organic food \cite{Arbindra2005}. The main reason for younger people to buy organic food is altruistic motivation and environmental friendliness \cite{Frostling-Henningsson2014}. Worth mentioning is that a study from McEachern (2005) notes that the group of middle-aged people, usually with children, is the group most willing to spend money on organic food \cite{McEachern2005}. Looking at the gender of consumers, there is a tendency towards women as potential consumers of organic food \cite{Huylenbroek2009}. Sources state that middle-aged women are more concerned about buying and consuming organic food.

Here topic moves to research problem already

Separate paragraphs

Organic food consumption has grown rapidly in recent years. In 2009, Germany covered one of the highest numbers of organic food and drink sales in Europe with a market growth of 15% \cite{Tobler2011} . ADD MORE DATA HERE

While the growth of organic food is well documented, less is known about the consumers and their choices that drive this growth. A study from Geen and Firth (2006) from United Kingdom claims that older people tend to buy more organic food. Arbindra et al. (2005) points out the opposite: younger people are more likely to consume organic food \cite{Huylenbroek2009}. The main reason for younger people to buy organic food is altruistic motivation such as the eco-friendliness \cite{Frostling-Henningsson2014}. Worth mentioning is the study of Mintel (2000) who notes that the group of middle-aged people, usually with children, is the group most willing to spend money on organic food \cite{McEachern2005}. Looking at the gender of consumers, there is a tendency towards women as potential consumers of organic food \cite{Huylenbroek2009}. Sources state that middle-aged women are more concerned about buying and consuming organic food. In conclusion, there is still a research gap regarding ...

The time people spend on eating is directly related to their health state. This affirmation is well known by society in general and it has been proved in many studies. The fact is that eating too fast is unhealthy because more food is eaten until one gets sated. Otsuka (2006) even stated, that it can lead to obesity. Furthermore, cardiovascular diseases and Diabetes type 2 are following, if the eating behaviour is not changed over time (Ohkuma et al. 2013).

Paragraph Conclusion Lacking!

Topic: factors that affect the speed of eating!

In their study, Martin et al. (2007) claim, that, if a person eats slowly, satiety is earlier experienced and so eating is stopped earlier. Several studies have demonstrated the theory that obese people have higher eating rates than average weighted people. Hill and McCutcheon (1984); Rolls and Fedoroff, I., Guthrie, J. (1991) and Kral et al. (2001) showed, that men are in general eating quicker than women by taking bigger bites and subsequently gorging more and chewing less. Males will spend less time on their food than females. It has been suggested that socialization differences regarding mealtime etiquette, as well as different body size between men and women are the reason for different gender eating habits. In addition, people eating together in groups spend more time on their meals because they are interacting or communicating with others and therefore are less concentrated on the food (Bell and Pliner 2003).

Paragraph Conclusion Lacking!

Don't mix topics between
paragraphs

Logic

Logical gaps

- Structure should help you to make sure that you have a **logical chain of thought** in your paragraphs
- Still, needs additional attention. In particular, take extra care when a word like: thus, therefore, hence, still, nevertheless ... appears
 - “There is much research on this topic. **Therefore**, a new study is needed.” This signals an **implication** => did you explain why this implication is valid?
 - Apes live often in trees. **Nevertheless**, they are not able to read. If you use a word signifying a **contradiction/restriction** to what you said, did you explain why this is contradictory?

Logical gaps

Virtanen, 1995; Tuba et al., 2011). According to Leege (2001) and Gooley (2010) this physiological dependence of mosses upon water and the inclination of the sun in the northern hemisphere lead to the folklore belief that moss growths only on the north side of trees in the northern hemisphere. For this reason, it is known for many decades that moss can be used as a natural indicator for navigation (van der Wal et al., 2005). The object of this study is to

- Thought, believed, ...

Careful also with however, better in the sentence

Eating rate and health are two topics very related to each other. However, the factors that influence our eating rates are still not defined in a degree of relevance. In the study, we compare the influence of factors like sex, body weight and group size. We found that there is a good correlation between eating rate

- Better: The pace of eating has been shown to affect human health. Why humans eat differently fast, however, is still not well understood.
- Or: Despite the importance for human health, the factors that cause ... are not well understood

Strict logic is extremely
important for scientific writing

If you review on Thursday, ask yourself
for every sentence:

Is it logically valid?

Could I misunderstand this sentence?

More style

Subject-verb separation

- Keep the verb close to the subject of a sentence
(difficult for Germans)
- Didn't really see this problem abundantly in your writing ... I suppose this happens when you start doing long and complicated sentences
- Still, read the section in G&S

Put statements in a positive form

He was not very often on time.	He usually came late.
He did not think that studying Latin was much use.	He thought the study of Latin useless.

- Can be more clear
- Again, logic of the argument more important than this

Avoid nominalization

- 2a. Locke frequently repeated himself because he did not trust words to name things accurately.
- 2b. The reason for Locke's frequent repetition lies in his distrust of the accuracy of the naming power of words.
- 3a. If rain forests are continuously stripped to serve short-term economic interests, the entire biosphere may be damaged.
- 3b. The continuous stripping of rain forests in the service of short-term economic interests could result in damage to the entire biosphere.

Avoiding nominalization gets rid of prepositions

- 4a. Our development and standardization **of** an index **for** the measurement **of** thought disorders has made possible quantification **of** response **as** a function **of** treatment differences.
- 4b. Now that we have developed and standardized an index to measure thought disorders, we can quantify how patients respond to different treatments.

Verb	Nominalization	Adjective	Nominalization
decide	decision	precise	precision
fail	failure	frequent	frequency
resist	resistance	intelligent	intelligence
delay	delay	specific	specificity

When you nominalize adjectives and verbs, you change your sentences in two other ways:

- You have to add verbs, which will always be less specific than the ones you could have used.
- You are likely to make the characters in your story modifiers of nouns or to drop them from a sentence altogether.

So here are two basic principles of a clear style:

- Make your central characters the subjects of your verbs; keep those subjects short, concrete, and specific.
- Use verbs to express crucial actions.

Active / passive voice

In doubt, use the active!!!!

Advice to use the passive in scientific
writing is outdated at best

Exception 1: sentence structure

- Don't use active **at the cost of giving up topic / stress positions**

11a. If rain forests continue **to be stripped** to serve short-term economic interests, the entire biosphere may **be damaged**.

Had we followed the standard routine advice, that sentence would have to read:

11b. If loggers continue **to strip** rain forests to serve short-term economic interests, they may **damage** the entire biosphere.

Exception 2: meaning

12a. The fluctuations in the current were measured at two-second intervals.

12b. We measured the fluctuations in the current at two-second intervals.

These sentences are equally objective, but their *stories* differ; one is about fluctuations, the other about the person measuring. The first is supposed to be more “scientific” because it ignores the person and focuses on the current. But the passive in itself is not more objective than the active; it merely implies that the action can be performed by anonymous others who can replicate the procedures. So in this case, the passive is the right choice.

On the other hand, consider this pair of sentences:

13a. It is **suggested** that the fluctuations resulted from the Burns effect.

13b. We **suggest** that the fluctuations resulted from the Burns effect.

The active verb in (13b) is not only common in the sciences, but appropriate. The difference? It has to do with the kind of action the verb names. The passive is appropriate when authors refer to actions they perform in the laboratory and that others can replicate: *measure, record, combine*, and so on. But when authors refer to actions that only *they* are entitled to perform—rhetorical actions such as *suggest, prove, claim, argue, show*, and so on—then the authors are the main characters and so they *should* be the subjects of active verbs. Researchers typically use the first person

Summary

When to use Active Voice

In general, writing should be composed in the active voice because of the sense of immediacy and conciseness conveyed when the subject of the sentence carries out the action. In addition, fewer words are usually required for the active voice, it is more efficient, and it takes the reader from point A to point B in a “straight line.”

When to use Passive Voice

The passive voice does exist for a reason, however, and its presence is not always to be despised. The passive is particularly useful (even recommended) in two situations:

When it is more important to draw our attention to the person or thing acted upon: The unidentified victim was apparently struck during the early morning hours.

When the actor in the situation is not important: The aurora borealis can be observed in the early morning hours.

Conclusions about active / passive

- Prefer active, as this is generally better readable
- Passive used if that is required by the logic of your text

Spelling, punctuation and grammar

- US or UK? Depends ... many journals have their own rules
 - This applies also for some style, grammar and punctuation questions
- Generally
 - Make sure that you use words in their precise meaning
 - Ideally, check every word if it can be replaced by a better / more precise word

Repetitions

- Avoid repetitions of words, **but not at all costs**, specially not at the cost of making the text more imprecise or longer
- E.g., if you start calling something: study area, don't replace it by “the field site”, because people might be unsure if you do mean the same thing

Omit needless words

- The question as to whether
- for the purpose of
- a total of n subjects
- in close proximity
- there were several subjects who completed

This (on ILIAS) has a nice list with commonly misused words and sentences

**SCIENTIFIC WRITING
BOOKLET**

Compiled by Marc E. Tischler, Ph.D.
Department of Biochemistry & Molecular Biophysics
University of Arizona

Short sentences

- In English, sentences are much shorter than in German – get used to it!
- In science writing, short sentences are preferred

THE AWFUL GERMAN LANGUAGE

A little learning makes the whole world kin.
—*Proverbs xxxii, 7*

I went often to look at the collection of curiosities in Heidelberg Castle, and one day I surprised the keeper of it with my German. I spoke entirely in that language. He was greatly interested; and after I had talked a while he said my German was very rare, possibly a “unique;” and wanted to add it to his museum.

pens with pens; finally, all the parentheses and re-parentheses are massed together between a couple of king-parentheses, one of which is placed in the first line of the majestic sentence and the other in the middle of the last line of it—*after which comes the VERB*, and you find out for the first time what the man has been talking about; and after the verb—merely by way of ornament, as far as I can make out,—the writer shovels in “*haben sind gewesen gehabt haben geworden sein*,” or words to that effect, and the monument is finished. I suppose that this closing hurrah is in the nature of the flourish to a man’s signature—not necessary, but pretty. Ger-

We have the Parenthesis disease in our literature, too; and one may see cases of it every day in our books and newspapers: but with us it is the mark and sign of an unpracticed writer or a cloudy intellect, whereas with the Germans it is doubtless the mark and sign of a practiced pen and of the presence of that sort of luminous intellectual fog which stands for clearness among these people. For surely it is *not* clearness,—it necessarily can't be clearness. Even a jury would have penetration enough to discover that. A writer's

Past and present

- Generally write in the present
- Past for
 - Experimental results
 - Model results? – often present because it's a mathematical fact
 - Previous research (other opinions around)

Emphasis

- Position of words
 - we had this already
- Repetition
 - Location, location, location
- Breaking a grammatical rule,
unusual sentence structure
 - E.g. start a sentence with “but”

Some writing tips of Mark Twain

- Get your facts first, and then you can distort them as much as you please.
- Use the right word, not its second cousin.
- As to the Adjective: when in doubt, strike it out.
- Substitute *damn* every time you're inclined to write *very*; your editor will delete it and the writing will be just as it should be.
- Use plain, simple language, short words and brief sentences. That is the way to write English--it is the modern way and the best way. Stick to it; don't let fluff and flowers and verbosity creep in.
- The time to begin writing an article is when you have finished it to your satisfaction. By that time you begin to clearly and logically perceive what it is that you really want to say.

Random remarks

- We **tried to** examine → there is no try, do it ;)
- Was **proven** right → received support, you can't prove right
- The reason, however, is → commas for insertions like however, in our opinion, for example,
- **Which / that**
 - The code, **which** was written in C++, was
 - The apples (of many) which/**that** where bad → **restrictive clause**, prefer the use of that for clarity, if which is used no comma
- Abbreviations such as “**E.g.**” only in parenthesis (e.g. Hartig et al., 2012); in sentences always “for example”. Don't use **etc.**, an “or” is fine. Don't use **like** → such as

Exercise for now?

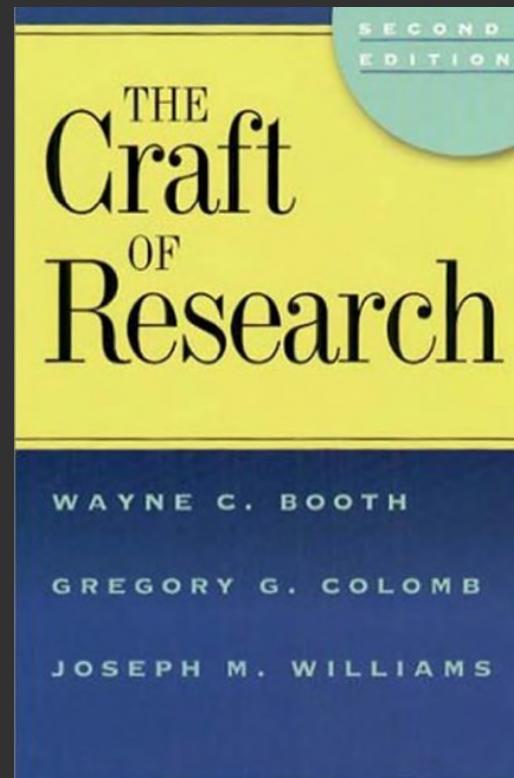
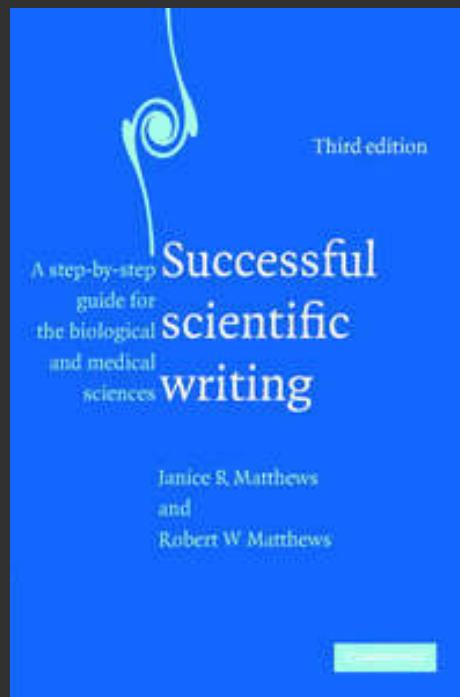
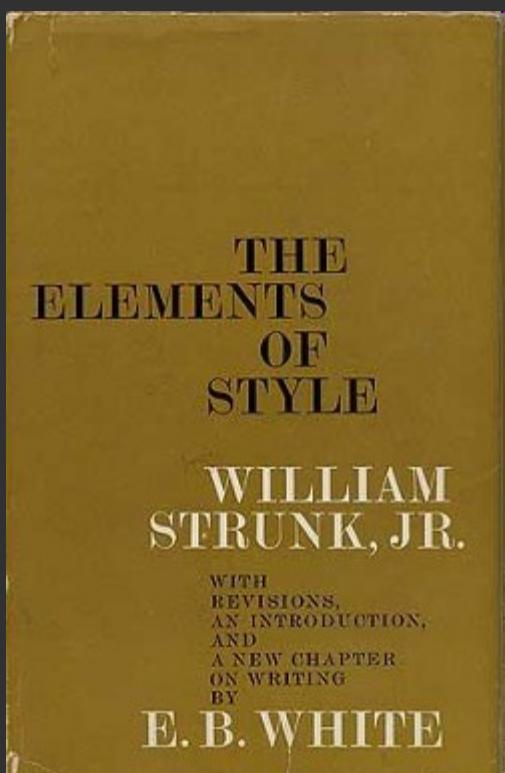
- Go through one of your paragraphs
- Check
 - Paragraphs starts and concludes with the topic of the paragraph
 - Conclusion leads to next paragraph
 - Stress and topic positions correct, sentences connect
 - Verb-subject
 - Logical gaps

The battle for good writing is won sentence by sentence

“A good sentence is: short, has the subject and verb together, has an active verb, has the points of emphasis at the beginning and end, and moves the reader along from a familiar launch point at the start to the new information at the end.”

Brian McGill on <http://dynamicecology.wordpress.com>

Literature



<http://cgi.duke.edu/web/sciwriting/index.php>

Automatic readability checks

The regular practice of exercise has been shown to improve several aspects of daily life. These improvements not only occur on the health aspects, reducing the risk of cardiorespiratory diseases, but on the psychological aspects as well, enhancing self-esteem and helping inclusion. However, it has been shown that despite the importance of the exercise in the daily life, there might be difference on the frequency of activity between genders, due to different preferences and incentives. Here, we tried to analyze if males are more prone to exercise than females in the city of Freiburg im Breisgau. For this purpose, we measured the frequency of exercisers in six different locations in the neighborhood of Littenweiller. These locations were distributed in three indoor and three outdoor collection points, distributed in three periods of the day. Performing a t-test for comparing the means between males and females exercisers, we found that there was no statistical difference between the proportion of exercisers in these two groups. A possible reason is the

Hemingway
Editor

Desktop Version

Just Released!

Like 35k

Tweet 3,878

Write Edit

Readability

Grade 17

Bad

Paragraphs: 1
Sentences: 8
Words: 213
Characters: 1145

2 of 8 sentences are hard to read.

4 of 8 sentences are very hard to read.

0 adverbs. Aim for 0 or fewer.

1 words or phrases can be simpler.

3 uses of passive voice. Aim for 2 or fewer.

Find papers you like, analyze
and copy them!

Examples

Cookie dunking is a very common practice to enrich the flavour and change the consistence to its optimum for eating. Nevertheless, the dunking process mostly rely on the experience and random testing than on scientific knowledge. The influence of the ingredients of the cookie behaviour while dunking is rather unknown.

Avoid “very”

Nevertheless → logic, connected to eating, you want to connect to common

The influence → new, not connected
Subject-verb connection

Cookie dunking enriches the flavour and changes the consistence to its optimum for eating. **Current practice** of the dunking process relies on **individual** experience and **anecdotal evidence rather** than on scientific research. So far, little is known (better: **we know little, avoid is!**) about how ingredients of the cookie influence its properties while dunking.

Simplify this sentence

Feral pigeons as a generalistic kind of species seem to prefer habitats that show a high level of urbanization (cite). In contrast, bird species with more specific ecological requirements tend to be less abundant in urban habitats (cite).

Feral pigeons are generalist, that prefer urban habitats (cite). Bird species with more specific habitat requirements tend to be less abundant in urban habitats (cite).

- Also: connection not 100% logical, one sentence about habitat, next about abundance.

Motivation for the study?

Feral pigeons are generalist that prefer urban habitats (cite). Bird species with more specific habitat requirements tend to be less abundant in urban habitats (cite).

Problem why?

There are, however, a lot of habitats which can neither be categorized as urban, nor as rural habitats but display an in-between status. In our study we analyzed the presence of feral pigeons in comparison to the rest of the avian community in five different habitats which showed an urbanization gradient. We expected to see an inverse correlation between feral pigeons and the rest of the avian community.

How does that address the problem?

A lot of people had problems with the problem part in abstract and intro

- Abstract is a “mini paper”
 - Set the scene
 - Tropical forests are some of the most species-rich ecosystems of the world.
 - Raise the problem
 - The reason for this, however, is still widely debated. Hypotheses range from processes related to productivity over environmental stability to the historical changes in geography.
 - Introduce your approach.
 - Here, we tried to contrast these different hypotheses by using data from ... together with .. (fancy new method)
 - State your results
 - We find that hypothesis X seems to be significantly better supported by our data than all alternatives we test. Specifically ...
 - Give your conclusions and discuss the wider significance
 - In conclusion, our study supports the hypothesis that species diversity in the tropics is mainly driven by higher productivity. These results challenge some long-held ideas about geographical stability being the main reason for global diversity patterns. They also have important practical applications for mitigation of climate change, as ...

It is widely known that there are big behavior different between men and women. The gender affects to the mind and the needs which everyone has. This claim has been widely debated and extensively studied. Due to that, there are so many beliefs about it. One of them could be the fact that women carry more luggage than men when they are travelling. However, even being and huge popular belief, there is no studies about that so it is not proved yet. In this paper, we try to figure out if it is true doing our own investigation and studying whether gender affects to the size of luggage. We know it by using the statistical program R. In conclusion we find that the results are not as we though at the beginning(popular belief). The luggage depends on the duration of the trip but there is no difference between the luggage depending on the gender.

It is a commonly held belief that men and women differ in their behavior. A behavioral difference often named is that women carry more luggage than men when travelling. Despite the popularity of this belief, however, it has not yet been empirically tested. In this study, we investigate if gender affects to the size of luggage. We find that luggage size depends on the duration of the trip but there is no difference between the luggage depending on the gender. We speculate ... / in conclusion

Coffee is probably one of the most taken drink in Europa, and Germany, most specific in Freiburg, this rule is not an exception. (Crawford 1852).

- Probably – are you sure or not?
- Point after Europe, erase “most specific”
- Use recent literature!!!
- No citations in the abstract if not absolutely necessary!

Data analysis / statistical methods

2.2 Data analysis

All data analysis was done on RStudio.

2.2.1 Logistic regression

The statistic test used for the data collected

The presence of child/children seen with an adult was assigned a value of 1, and the absence of any child/children was assigned a value of 0.

2.2.2 ANOVA

Analysis Of Variance (ANOVA), type II test were used to test if gender and/or location had any significance on the presence of child/children observed. It was

Concentrate on the aim and not on the method, e.g.

The main question was ...

To test whether ..., we used
Logistic regression

2.3 Statistical analysis

**See before ... also, spreadsheet
Not necessary**

The collected data was put into a spread sheet and analysed with the statistic program R (version 0.97.551). We applied a LM and an ANOVA on the collected data

3 Results

Belongs in methods!!!

We collected data of 124 dog walkers, whereupon the majority (82) were women. 40 men walked their dogs during the sample time (Figure 2). Two times, it was impossible to determine the sex of the dog walker. In the restricted areas, we collected 70 samples, while in the non-restricted areas we collected 54 samples (Figure 3). The percentage of women in the non-restricted areas was smaller

2.1 The Color Green

Green is the color of plants, nature and spring and therefore the color of youth, freshness, juvenescence, life, fertility, harmony, hope and eternity, as after every cold hard winter a grass green spring returns. The color evokes the feeling of relaxation and reliance in humans.

- Need reference for all non-trivial statements!
- For all submitted papers: a lot of statements I saw were not needed, don't engage in side-tracks that make you susceptible for attacks, state only what's necessary and true for your study!

1 Introduction

Through the generations, it is a common fact that women take up the main-stay of household activities and with them it includes childcare. Tracing back through the biology of reproduction, males play little or no direct role in the well being of their offspring in more than ninety five percent of mammalian species Geary (2000). A previous study by Craig and Mullan (2011) examined this issue by comparing time spent between the mothers and fathers on their children's activities as a measure of childcare proportions. Nationally represented

- Start with topic,
- Why claim household? Study and reference about childcare
- Which issue? 95%?

Use precise words

Age and gender determining the willingness of
pedestrians to donate to beggars

- Only age and gender? → affects!

Precise wording

No difference in leash-keeping behavior between
men and women

- Evidence for differences – you can't show there is no difference!

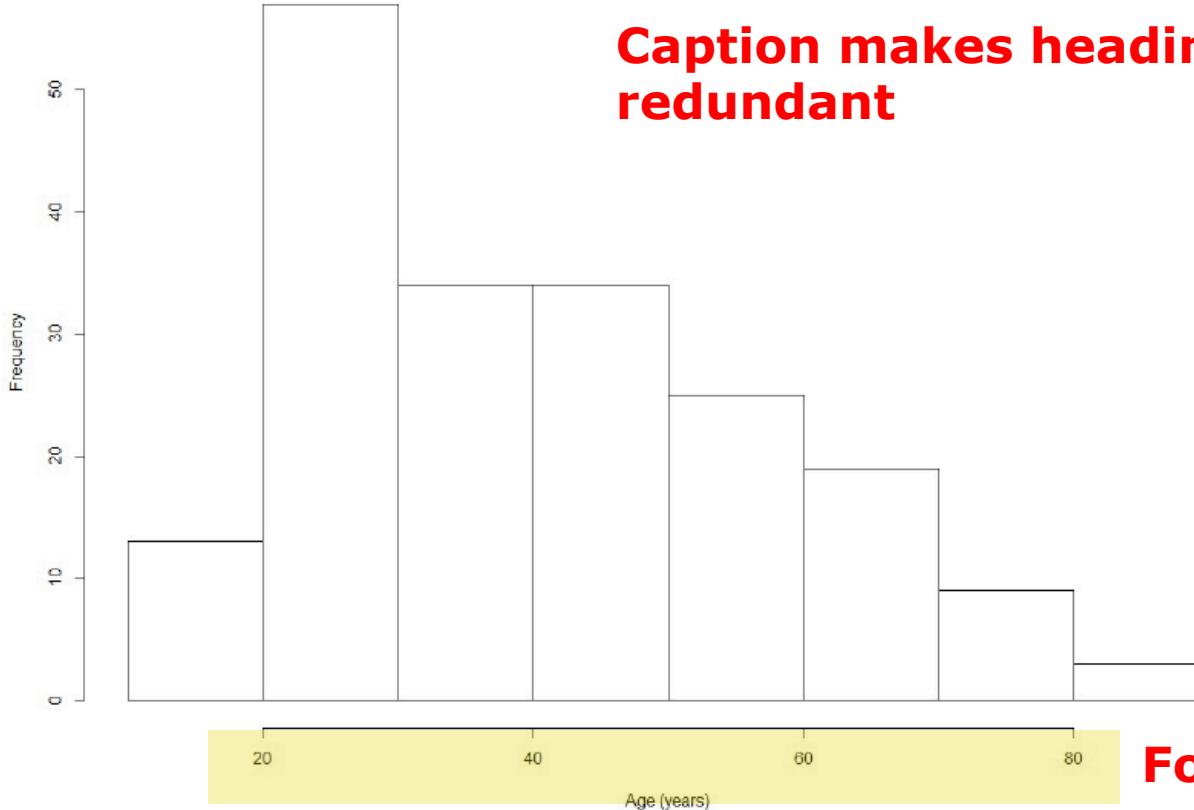
1.1 The Broad Topic

We are looking to study how often people donate to street beggars, based on the characteristics sex and age of the donors. The question of whether men or women are more selfless has been widely studied. One study found that women, on average, donate twice as much as men and that, whereas 1.47 percent of

- No subsections in intro
- There is no try, do it!
- Topic changes in the paragraph
- „the question of“ can be erased

Age Distribution of Sampled Males at Female Beggar Sites

Caption makes heading redundant



Font size

Figure 3: Age distribution of sampled males at female beggar sites.

Germans are stereotypically known as people that value punctuality very high (Tinsley and Woloshin 1974), whereas for instance Latin time frames are more loose (Cunha and Cunha 2004), also called "Southern Time". Culture has a very strong influence on how a person behaves and hence his / her perception on lateness (Shapira-Lishchinsky 2007). Americans and Japanese value punctuality very high as well, whereas people in Saudi Arabia have another understanding of time. Brislin and Kim (2003) said that Saudi Arabians think in units of 15 minutes to organize their work days, whereas Americans and Japanese think in units of 5 minutes. This different understand of time results in different approaching times at meetings. Levine et al. (1980) found that Brazilians valued punctuality less high than Americans did, and that they were more flexible in their definitions of early and late. White et al. (2011) also found big differences in the perception on early and late in three different countries (Estonia, Morocco and the United States).

- Topic is perception of punctuality, start with this and not with Germans
- Precision: "Southern time" – from whom do you quote? Latin time frames means what?
- Stress / topic wrong in 2nd sentence (but later better)
- Precision – another understanding?
- Conclude paragraph!

Stats

- Figures are no proof of a difference, need a test or a regression with p-values!
- If you find no significant difference, what is wrong about the following statement:
 - The difference was not significant, we can therefore reject our hypothesis that there is a difference between A and B
- $R^2 \neq$ effect size

Disclaimer – style tips are not set in stone

How to write good...

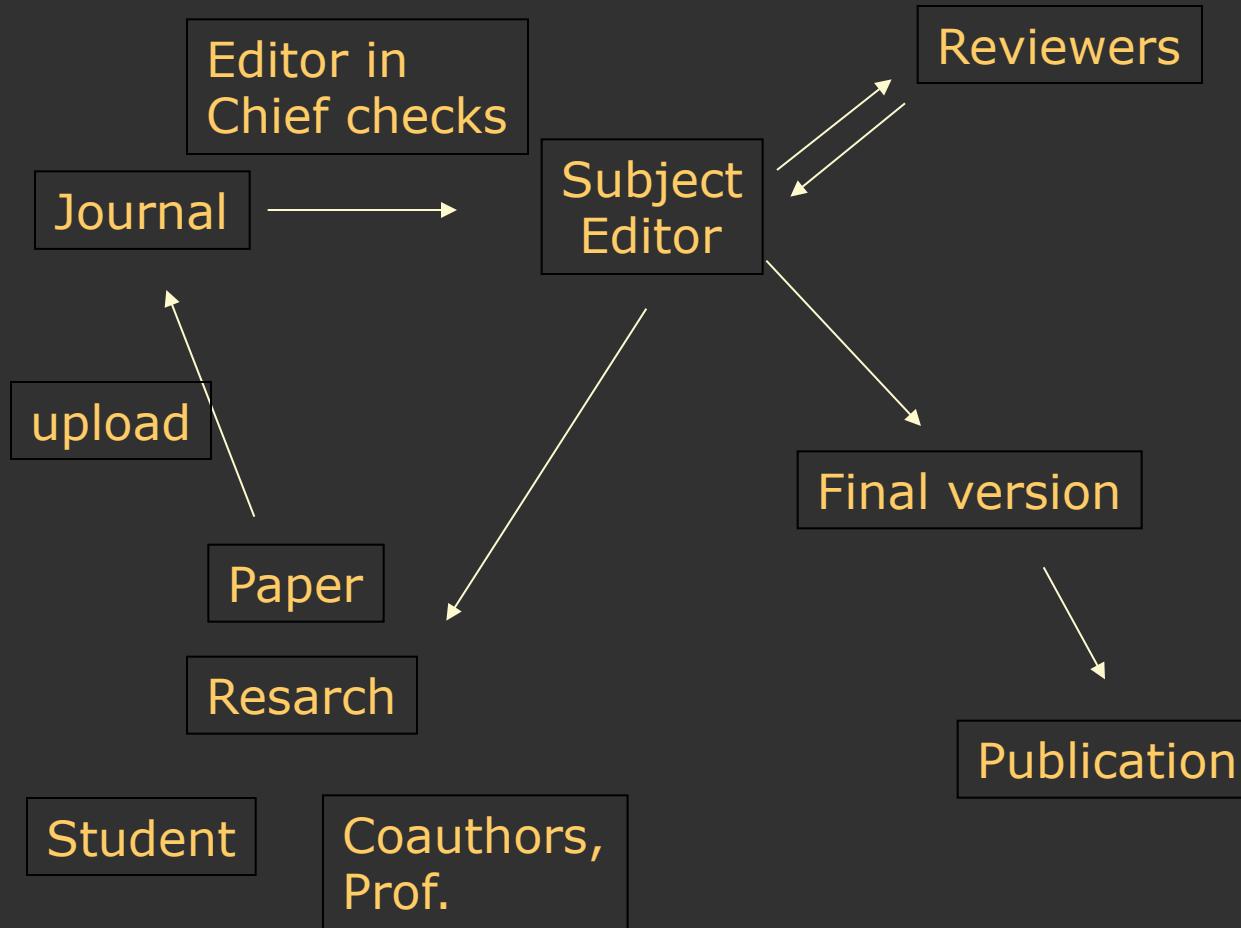
1. Avoid alliteration. Always.
2. Prepositions are not words to end sentences with.
3. Avoid clichés like the plague. (They're old hat.)
4. Eschew ampersands & abbreviations, etc.
5. One should never generalize.
6. Comparisons are as bad as clichés.
7. Be more or less specific.
8. Sentence fragments? Eliminate.
9. Exaggeration is a billion times worse than understatement.
10. Parenthetical remarks (however relevant) are unnecessary.
11. Who needs rhetorical questions?

The publishing process

Not all journals are equally important

- Impact factor: how often articles from a journal get cited on average in the first 2 years after publication
- Reputation: many journals are run by a society (e.g. Journal of Biogeography),
- Competition for journal space, gatekeepers are the editors and the reviewers

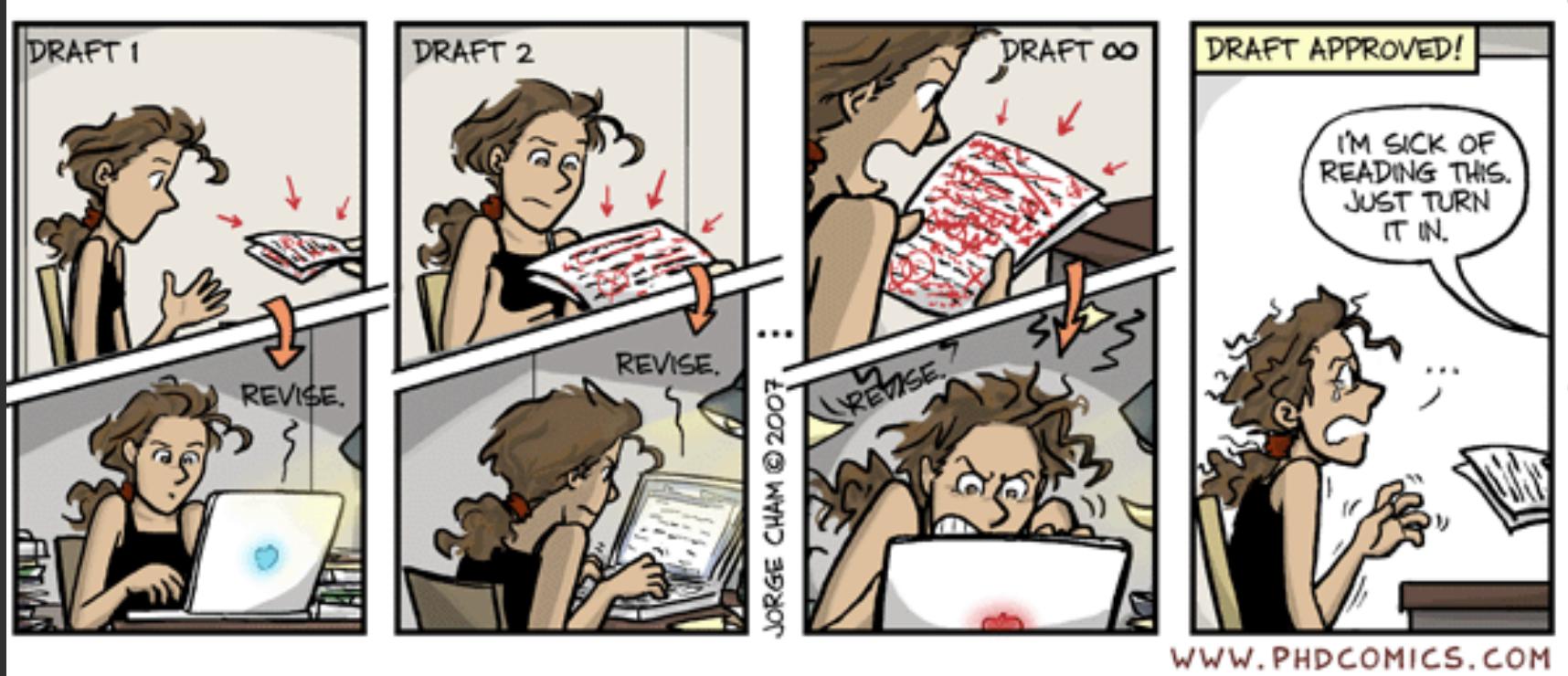
How does academic publishing work in general



Writing for a journal

- Choose a journal early, because journals differ in
 - Audience, interest
 - Length
 - Structure
 - Citation styles and conventions
- Many journals quite strict about that
- It's much more difficult than you think to change an article once it's written for one specific journal, or to cut it from 7000 to 5000 words

When to submit?



- You will have to do changes anyways, so it doesn't have to be perfect (e.g. figures), but it should be close to what you would be willing to see printed

How does that work?

- Finished paper
- Fill out a lot of forms and name some reviewers
- Letter to the editor
 - IMPORTANT! Explain why this is a good fit for the journal
- Wait 2-6 months
- Get the reviewer comments
- Unless you're rejected, you have to revise

Should I try to publish my master thesis?

- I think yes, if think you have found something and you like your subject
- Great motivation to know that your result might be out there, and great pride if it is accepted
- If designed well and you're a good writer, it's really realistic to publish a Master thesis in a not too high journal
 - Doesn't have to be all rocket science to get in

Orga and various things

Schedule last Week

Compulsory: paper draft Ready for Thursday

	Monday 3.11.	Tuesday 4.11.	Wednesday 5.11.	Thursday 6.11.	Friday 7.11.
9.15 till 12.45	Writing 2 Style Paragraph structures Choice of wording and common mistakes	Poster What makes a good poster Presentation 1 Presentation types Conference presentation	Communication Ends and means, Elevator speech Social media Presentation 2 FH, PB CIP 2 morning blocked	Choosing a career in science Should I do a PhD? Reviewing Peer review	Practice day Finalize research article

3-min speed presentations

Deadline final paper Sunday

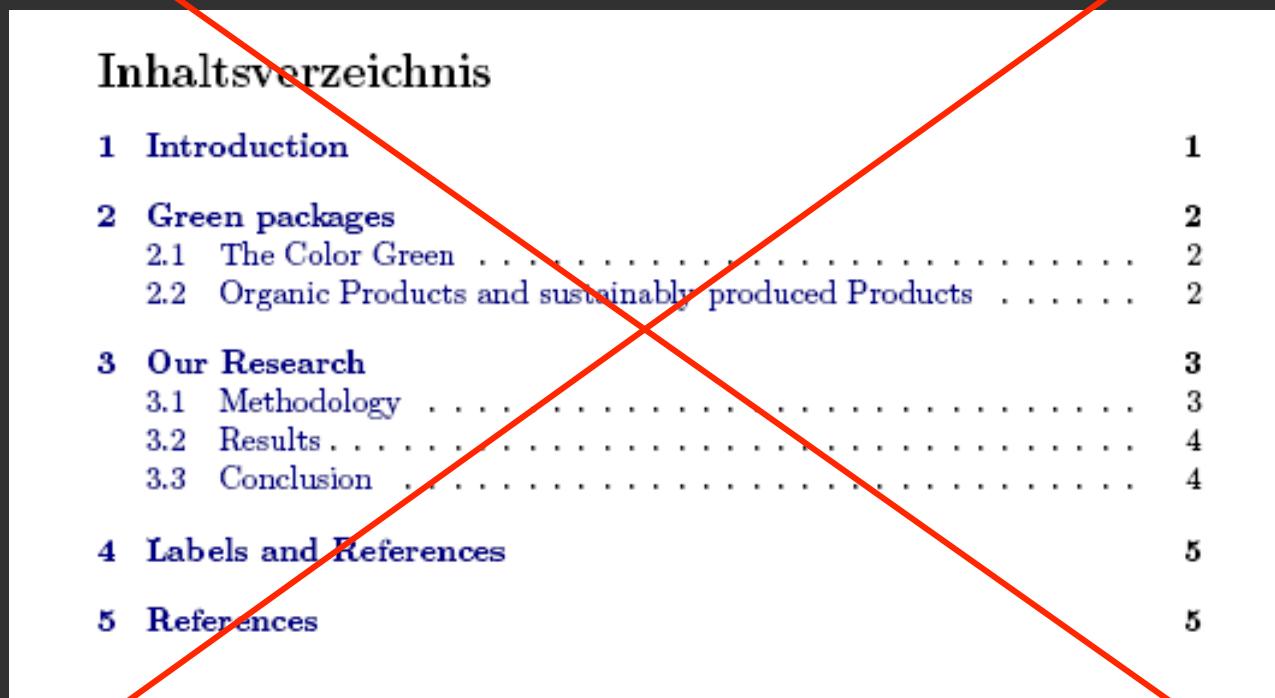
Aim for the paper

- Write alone from now on → you're the first author, name your group members as coauthors
- Pretend to write a real research paper!

~~in Freiburg. This research is a training exercise and will not expand the current knowledge of moss growth on tree stems, except that it may confirm this knowledge for the Schlossberg study area.~~

- Means that you have to
 - Write a self-contained story in complete sentences
 - Write a story that makes more or less sense
 - Do a satisfactory statistical analysis

No TOC in papers, no page breaks!



Inhaltsverzeichnis	
1	Introduction
2	Green packages
2.1	The Color Green
2.2	Organic Products and sustainably produced Products
3	Our Research
3.1	Methodology
3.2	Results
3.3	Conclusion
4	Labels and References
5	References

For your stats education

- <http://datacolada.org/2014/10/22/29-help-someone-thinks-i-p-hacked/>

The screenshot shows a blog post from the website **DATA COLADA**. The header features the site's name in large blue letters and the tagline "THINKING ABOUT EVIDENCE AND VICE VERSA". A yellow sidebar on the left displays the date "10.22.14" and the author's name, "by Uri Simonsohn". The main content area has a white background and contains a large red title "[29] HELP! SOMEONE THINKS I P-HACKED". Below the title, a paragraph of text discusses the increasing public suspicion of *p*-hacking in research papers. The text includes two examples: one involving a *p*-hacker from Slate.com and another involving an anonymous referee. Both examples link to their respective responses or accusations.

10.22.14
by Uri Simonsohn

[29] HELP! SOMEONE THINKS I P-HACKED

It has become more common to publicly speculate, upon noticing a paper with unusual analyses, that a reported finding was obtained via *p*-hacking. This post discusses how authors can persuasively respond to such speculations.

Examples of public speculation of *p*-hacking

Example 1. A Slate.com post by Andrew Gelman suspected *p*-hacking in a paper that collected data on 10 colors of clothing, but analyzed red & pink as a single color [[.html](#)] (see authors' response to the accusation [.html](#))

Example 2. An anonymous referee suspected *p*-hacking and recommended rejecting a paper, after noticing participants with low values of the dependent variable were dropped [[.html](#)]

Homework: write and revise
your paper!

Paul is here today to help!