DEZERNAT
STUDIUM UND LEHRE

UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

COURSE PORTFOLIO

Scientific Writing

WRITING AS A PROCESS

WS 01: REFLECTING YOUR WRITING EXPERIENCES

What do you find easy when it comes to writing?

What do you find challenging when it comes to writing?

THE FIVE-PARAGRAPH-METHOD

WS 02: DEVELOP A RESEARCH PROPOSAL USING THE „FIVE-PARAGRAPH-METHOD”

Step 1 - (7 min.)

In what area are you / will you be writing your paper?
Explain to your friend / grandmother / hairdresser (= a layperson) what you are working on.

I am working on…

Step 2a - (5 min.)

Rephrase what you have just written: Formulate only one sentence beginning with the words:

What I really wanted to say was….

Step 2b - (7 min.)

Turn this sentence into a question. Rephrase this question several times (at least three alternatives):

Question 1

Question 2

Question 3

Go over your three questions and ask yourself: Which one do I find most interesting? (Consider whether the variables you chose are measurable and controllable.)
Pick one of the three and note it down here:

Step 3 - (10 min.)

Describe briefly:

What other scientist(s) has/have attempted to answer this or a similar question?

What do you know about their ”answers”?

Step 4 - (10 min.)

What did you do / would you need to do in order to answer that question?

What kind of material would you need? What kind of methods could you use?

What kind of data would you need to gather?

Schritt 5 - (5 min.)

What is the purpose of your question? Why would it be good to answer it?

What are you hoping to achieve by finding an answer?

What results are you expecting?

What use would the answer of this question be to *whom*?

WS 03: REFLECTION

Evaluating the exercise “Five-Paragraph-Method” (WS 02)

What could be the purpose of this exercise?

Did you notice anything while writing?

WS 04: MAKING A DRAFT

Draft a research proposal using your text fragments from the Five-Paragraph-Method (write complete sentences) and bring this draft to the next session.

1. *I am writing about (Context, Background) …*

2. *My research question is… (50 words)*

3. *Researchers who have worked/are working in this field are… (50 words)*

4. *They argue that… (25 words)*

5. *“A” proposes that ... (25 words)*

6. *“B” proposes that … (25 words)*

7. *The discussion focuses on (topic)… (25 words)*

8. *It still needs to be investigated whether … (25 words)*

9. *My research is similar to AX's research with regard to … (25 words)*

10. *My contribution will be… (50 words)*

Review your draft

Complete the following sentences (prompts):

When I look at what I have written in my draft,

I am satisfied with…

What is still missing…

What I still have to do/read …

… in order to find out what?

ADDITIONAL INFORMATION:
RECOMMENDED READING

Five Paragraph Method: www.skrivekurs.uio.no

Farke, Stefan: Wie schreibe ich eine wissenschaftliche Arbeit? Berlin Verlag Arno Spitz GmbH 1997.
Theisen, Manuel René: Wissenschaftliches Arbeiten: Technik - Methodik - Form. Vahlen Verlag München, 2004.

Academic Writing:

Bolker, J. (1998): Writing your dissertation in fifteen minutes a day, New York: Henry Holt and Company, LLC
Booth, W.C.; Colomb, G.G. and Williams, J.M. (2003): The craft of research, Chicago & London: Chicago University Press
Day, R.A.; Gastel, B. (2006): How to write and publish a scientific paper, Westport CT USA: Greenwood Press
Ebel, H.F., Bliefert, C. and Greulich, W. (2006) Schreiben und Publizieren in den Naturwissenschaften, Zürich: Wiley-VCH
Friedland, A and Folt, C. L. (2000): Writing successful science proposals, New Haven & London: Yale University Press
Gustavii, B. (2003): How to write and illustrate a scientific paper, New York: Cambridge University Press
*Knisely, K.: A student handbook for writing in biology, Gordonsville USA 2005
Matthews, J.R.; Bowen, J.B. and Matthews, R.W. (2006): Successful scientific writing – a Stepp by Stepp guide for the biological and medical sciences, Cambridge UK: Cambridge University Press
Murray, Rowena (2005). Writing for Academic Journals, New York: Open University Press
Murray, Rowena (2006). How to Write a Thesis, New York: Open University Press
*Zeiger, Mimi (2000). Essentials of writing biomedical research papers, San Fransico, CA: McGraw-Hill

Online Resources:

Harvard: https://writingcenter.fas.harvard.edu/pages/resources

Purdue University West Lafayette, Indiana: https://owl.purdue.edu/owl/purdue_owl.html

Strunk and White on Elements of Style: http://www.bartleby.com/141/

STRUCTURE OF A SCIENTIFIC TEXT

ws 05: ANALYSING AN INTRODUCTION

The GET Complex Mediates Insertion of Tail-Anchored Proteins into the ER Membrane

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SUMMARY

Tail-anchored (TA) proteins, defined by the presence of a single C-terminal transmembrane domain (TMD), play critical roles throughout the secretory pathway and in mitochondria, yet the machinery responsible for their proper membrane insertion remains poorly characterized. Here we show that Get3, the yeast homolog of the TA-interacting factor Asna1/Trc40, specifically recognizes TMDs of TA proteins destined for the secretory pathway. Get3 recognition represents a key decision step, whose loss can lead to misinsertion of TA proteins into mitochondria. Get3-TA protein complexes are recruited for endoplasmic reticulum (ER) membrane insertion by the Get1/Get2 receptor. In vivo, the absence of Get1/Get2 leads to cytosolic aggregation of Get3-TA complexes and broad defects in TA protein biogenesis. In vitro reconstitution demonstrates that the Get proteins directly mediate insertion of newly synthesized TA proteins into ER membranes. Thus, the GET complex represents a critical mechanism for ensuring efficient and accurate targeting of TA proteins.

INTRODUCTION

The biogenesis of transmembrane proteins presents the cell with several compounding challenges. Prior to membrane inser- tion, hydrophobic transmembrane domains (TMDs) are prone to aggregation, and the spontaneous insertion of TMDs across lipid bilayers, even when thermodynamically favored, can be slow. Moreover, proteins containing TMDs must find their correct target membrane for insertion among the different mem- brane-surrounded compartments present in eukaryotic cells. To face these challenges, cells have evolved diverse mechanisms for chaperoning membrane proteins, often from the earliest stages of their biosynthesis on the ribosome to their proper destinations. Such pathways have been the subject of intense investigations and include the signal recognition particle (SRP)/Sec61 translocon system that imports secretory pathway proteins into the endoplasmic reticulum (ER) (Egea et al., 2005; Rapoport et al., 1999; Wickner and Schekman, 2005) and the transport inner membrane/transport outer membrane (Tim/Tom) translocases that mediate insertion of transmembrane proteins into both mitochondrial membranes (Neupert, 1997; Pfanner and Meijer, 1997).

Far less is known about the machinery responsible for the insertion of an important class of proteins that are anchored to the lipid bilayer by a single TMD located near their C termini. This topological arrangement allows tail-anchored (TA) proteins to be tethered to internal membranes while presenting their functional N-terminal domains to the cytosol (Borgese et al., 2007; Wattenberg and Lithgow, 2001). TA proteins are found throughout the secretory pathway, in the nuclear envelope, peroxisomes, and mitochondria. Within the secretory pathway, TA proteins play diverse roles, such as enabling vesicular traffic (e.g., many of the SNAREs, which mediate fusion of secretory vesicles, are TA proteins [Beilharz et al., 2003]), aiding in protein translocation, and promoting folding or degradation of membrane proteins (Borgese et al., 2007; Wattenberg and Lithgow, 2001). Secretory pathway TA proteins are first inserted into the ER membrane, and are then sorted to their ultimate destination (Bulbarelli et al., 2002). In contrast, mitochondrial TA proteins are inserted directly into the mitochondrial membrane, where they facilitate mitochondrial fission, provide key components of the translocation machinery, and act in apoptosis (Borgese et al., 2007; Wattenberg and Lithgow, 2001). The membrane specificity of TA proteins is largely encoded in their TMDs and flanking regions (Egan et al., 1999). These signals, however, are not absolute, as some TA proteins, such as the mammalian oncoprotein Bcl2 (Krajewski et al., 1993; Lithgow et al., 1994), are found in both the mitochondria and the ER. Moreover, it is not well understood how targeting determinants in the TMDs are decoded by cellular machinery (Borgese et al., 2007).

Because of its position near the C terminus, the TMD of TA proteins is occluded by the ribosome until translation is completed. Thus, TA proteins cannot exploit the classic cotranslational SRP/Sec61 translocation mechanism used by most secretory pathway proteins (Yabal et al., 2003). Early studies with cell extracts indicated that some TA proteins, such as CytB5, could integrate into membranes without the assistance of specialized machinery (Brambillasca et al., 2006; Rachubinski et al., 1980). However, most TA proteins, such as the mammalian Sec61b and synaptobrevin, have more hydrophobic TMDs, rendering them reliant on an incompletely characterized, ATP-dependent mechanism (Abell et al., 2007; High and Abell, 2004; Stefanovic and Hegde, 2007; Favaloro et al., 2008).

Recently, biochemical studies identified the mammalian soluble ATPase, Asna1/TRC40, as part of a cytosolic complex that interacts with the newly synthesized TA protein, Sec61b, in vitro (Stefanovic and Hegde, 2007; Favaloro et al., 2008). This complex can then deliver Sec61b to the surface of ER-derived vesicles (microsomes), where upon it can undergo ATP-dependent membrane insertion. While these studies have provided critical molecular insights into the ATP-dependent biogenesis of TA proteins, they leave several important questions unaddressed. First, it is unclear how broad a role the Asna1/TRC40 system plays in vivo. Indeed, a recent report established that the cytosolic chaperone pair Hsc70/Hsp40 is sufficient to mediate efficient ATP-dependent insertion of Sec61b in vitro (Abell et al., 2007). Second, the identity of the proteins necessary for recruiting Asna1/TRC40 to the ER is unknown. Finally, it is unknown how cells ensure proper partitioning of TA proteins between the ER and mitochondria.

Based on a large-scale genetic interaction map of the secretory pathway, we previously suggested that three otherwise unassociated yeast proteins (Mdm39/Get1, Rmd7/Get2, and Arr4/Get3, the yeast homolog of Asna1/TRC40) cooperate to carry out a common function that strongly impacts on trafficking and, accordingly, named them Get1–3 (Golgi ER trafficking 1–3) (Schuldiner et al., 2005). In agreement with this idea, we and others have found that all three Get proteins physically associate (Auld et al., 2006; Ho et al., 2002; Schuldiner et al., 2005), and that loss of any of the GET genes leads to a pronounced Kar2 secretion phenotype, suggestive of a defect in retrograde Golgi to ER trafficking (Schuldiner et al., 2005). However, the full range of phenotypes that have now been reported for the respective get deletions are difficult to reconcile with an isolated defect in trafficking. These include mitochondrial dismorphogenesis (Dimmer et al., 2002) for Dget1 (Dmdm39); defects in DNA replication or damage response (Zewail et al., 2003) and V-type ATPase dysfunction (Sambade et al., 2005) for Dget2 (Dhur2/Drmd7); sensitivity to toxic metal ions (Shen et al., 2003) and effects on protein degradation machinery (Auld et al., 2006) for Dget3 (Darr4); and defects in meiotic spore formation (Auld et al., 2006; Enyenihi and Saunders, 2003) for all deletions in GET genes. Thus, the underlying molecular function(s) of the Get proteins, and the extent to which they are working together to perform a single molecular role, remained unresolved.

Here we show, both in vivo and in vitro, that the GET complex is the machinery responsible for insertion of secretory pathway TA proteins into the ER membrane, and that the reduction in inserted TA proteins can, in turn, explain the wide array of phenotypes observed for deletions in the GET genes.

RESULTS

Get1 and Get2 Form a Membrane Receptor for Get3 on the Face of the ER

We began our functional analysis of the GET complex by exploring how Get1 and Get2 determine the subcellular localization of Get3 (for analysis of the physical and functional relationship between the Get proteins see Figures S1 and S2 available online). Earlier studies established that Get3, which, unlike Get1 and Get2, is not predicted to have TMDs, is found on the surface of the ER as well as in the cytosol. Moreover, in the absence of Get1 and/or Get2, Get3 loses its ER localization, and is found both in the cytosol as well as in poorly characterized punctate structures (Auld et al., 2006; Schuldiner et al., 2005). Here we reveal that, rather than being membrane vesicles, these punctate structures are in fact cytosolic detergent-insoluble aggregates (Figure S3). We further show, through in vitro experiments with microsomes and proteoliposomes containing Get1 and Get2, that the Get1/Get2 complex is directly responsible for recruiting Get3 to the ER membrane in an ATP-independent manner (Figure 1). This appears to be the primary role of Get1/2 complex, as, in the absence of Get3, there is no apparent additional cost to deleting Get1/2 (Auld et al., 2006; Schuldiner et al., 2005) (Figure S4). The fact that Get3 shuttles between the cytosol and the ER suggests that it may deliver substrates to the membrane. In the context of this model, the formation of aggregates and the exacerbated phenotype found in Dget1/Dget2 cells (Auld et al., 2006; Schuldiner et al., 2005) (Figure S4) would be explained by disruption of the Get3 cycle, leading to sequestration of potential substrates.

Get3 Binds the TA Protein Sed5 and Is Necessary for Its Membrane Targeting

To help identify factors that might be shuttled from the cytosol to the ER by the GET system, we performed a yeast two-hybrid (Y2H) screen for polypeptides that can interact with Get3. Y2H analysis, which reports on weak interactions occurring within the nucleus of assayed strains, is well suited for identifying Get3 binding proteins, as it can detect transient interactions that are independent of the presence of Get1 and Get2. We used yeast expressing Get3 as bait to screen a genomic library encoding prey proteins (James et al., 1996). Physical interactions caused activation of the Gal4-driven HIS3 reporter gene, allowing growth on plates lacking histidine. The strongest hit from the screen was a fragment of Sed5 (amino acid 197 to the C terminus) (Figure 2A), a TA protein that acts as a SNARE in vesicular traffic within the Golgi and between the Golgi and the ER (Hardwick and Pelham, 1992). The Get3-Sed5 interaction was dependent on the presence of the C-terminal TMD (Figure 2A).

We next examined whether Get3, as part of the GET complex, plays a role in recruiting newly synthesized Sed5 in the cytosol and inserting it into membranes. We visualized the subcellular localization of Sed5 with an N-terminal fusion protein with GFP (

WS 06: CREATIVE WRITING EXERCISE

Write for 5 minutes in complete sentences without stopping.
You do not have to worry about structure; nobody will read this text. When the words stop coming, just continue to scribble on the paper until the ideas start to emerge again.

What do I want to take home from what I have heard so far?

STRUCTURING YOUR MATERIAL

AU 07: MIND-MAP

Create a mind-map of your research (landscape format)

Develop “prompts” from your mind-map for a first draft of your introduction.

How did mind-mapping and using prompts work for you:

What was helpful?

What was bothering you?

ADDITIONAL INFORMATION:
FURTHER EXAMPLES OF PROMPTS

Quelle: Worksheets for Senior Thesis Writers
[http://hwpi.harvard.edu/files/complit/files/worksheets_for_senior_thesis_writers.pdf]

1. Prompts to Develop a Research Question:

Connecting with Your Curiosity

— What really interests me is …
— When I started this project, the thing that really interested me was …
— What really drew me to this topic in the first place was …

Putting Vague Thoughts into the Form of Questions

— Here is a list of questions – large and small, near and far, grand and modest, and in no particular order – that I might want to consider in my thesis.

Identifying your Governing Questions

— If I had to put my topic into the form of a single question, that question would be …
— What I really want to know is …

2. Questions and Prompts toward an Introduction

— My governing question derives from competing observations*, i.e., observations that appear to me to be in tension with one another and to indicate an apparent puzzle, problem, discrepancy, oversight, mystery, contradiction, or surprise. The competing observations that give rise to my governing question are ...
— ... on the one hand ...
— ... but on the other hand/and yet ...
— These tension/discrepancies and the question I pose are of interest to this discipline because ...

3. Questions and Prompts toward a Literature Review

— Who else (or what other body or bodies of literature) has attempted to address my governing question (or related questions)?
— The question they asked was ...
— The way they approached their question was to ...
— What they ended up saying in response to the question they posed is...
— It remains unasked/unresolved/overlooked/unexplored/unaddressed/misunderstood ...
— My project addresses that gap by ...

4. Questions and Prompts toward a Methods Section

— I can think of my methods as being, in part, the actual tasks (e.g., library research, interviews, viewing of videos or film, field observations) I will need to undertake to approach the question I am posing. Those tasks are (and I will try to be as specific as I can) ...
— Other methods I could potentially use (i.e., other tasks I could potentially undertake) to approach the question I'm posing are ...
— My reasons for choosing to use some of the methods I list above and not others are ...
— Terms I will need to define to do this research include ...
— Some of the methodological issues/problems/challenges with which I will need to contend are (these include both questions others might ask about how I am approaching my question as well as questions I myself have about how I am approaching my question) ...
— I might respond to or deal with those methodological issues/problems/challenges by ...

5. Questions and Prompts toward a Chapter

- If I had to put this chapter into the form of a single question, that question would be ...
- Here is a list of other questions I need to address in this chapter.

6. Questions and Prompts toward a Conclusion

- The headway I've made toward resolution of my governing question is ...
- What remains unresolved is ...
- It remains unresolved because ...
- My research has implications for ...
- For instance, my research has methodological implications for future research, that is, implications for how we frame the questions in this field and implications for the methods we use to address those questions. Those implications include ...
- Other implications include (e.g., implications for specific practices or policies, implications for how we interpret results of previous research) ...

7. Reckoning with Complexity

- What makes my question a particularly complex one with which to reckon is that ...
- I will attempt to reckon with those complexities by ...

8. Narrowing the Scope

- It is beyond the scope of my paper to ...
- Therefore, I won't consider/explore/analyze that issue in depth in this piece. For the purposes of this paper, I will ... (e.g., assume ... /work on the premise that ... /summarize others' thinking on this matter ... /refer the reader to ...)
- I make that particular assumption/work on that particular premise/summarize that particular person's thinking/refer the reader to that particular literature because ...

9. Gems without a Setting

- Here are some of the ideas that I might not be able to include in this thesis or paper but that deserve safekeeping because they are brilliant and precious thoughts – or at least interesting thoughts – that might come in handy for some other project.

STRATEGIES FOR READING SCIENTIFIC PAPERS

WS 08: REFLECTING ON YOUR EXPERIENCE WITH READING SCIENTIFIC PAPERS

I find reading scientific papers difficult / easy because…

I approach reading scientific papers as follows/My approach when reading scientific papers is as follows…

WS 09: CHECKLIST FOR READING SCIENTIFIC PAPERS

1. Determine the topic – read the title and abstract:

Which specific questions are the authors trying to answer?

Which observations are they trying to explain?

Are they trying to determine a relationship between different variables?

Which background information do they have about the topic?

Where can you look for additional information?

2. Get an overview – read the introduction:

Why did the author(s) carry out this work (scientific gaps / contradictions)?

Is there a main hypothesis, and if so, what is the main hypothesis of the research project?

Are the authors proposing a model to explain the process?

What was known about the topic or problem before?

What are the objectives of the current project?

3. Read the result section selectively – Look at the figures, their caption / legend, and finally the text:

Which variables were examined (independent – dependent – controlled)?

Was there a difference between control and experimental group?

What was the main finding regarding the relation of independent (manipulated, x-axis) and dependent (changeable, y-axis) variables)?

4. Data interpretation – Reading the discussion

Do the results support the hypothesis?

What are the most important findings? Which questions are answered, which are still open? Were there any surprises?

What further work is necessary or already in progress?

How does the paper relate to your own research project?

5. Skim material and methods – Look at subtitles and the first sentence of each paragraph

Which basic methods did the authors apply?

6. Take notes when first reading the paper

What do you not understand? (Note down your questions)

WS 10: REFLECTION: EVALUATING THE SUGGESTED READING STRATEGY

The structured reading approach using the questions from worksheet 10 was easier for me, because…

The structured reading approach using the questions from worksheet 10 was more complicated for me, because…

ADDITIONAL INFORMATION:
QUESTIONS TO EVALUATE EMPIRICAL STUDIES

Source: Hart 2007, p. 49

Using this list, you can…
- review your own research design (answer the questions),
- evaluate studies you are including in your overview of the current state of research.

1. What is the purpose of the study?
   - Fundamental research, applied research, summative or formative evaluation, action research, illuminative evaluation, ethnomethodology

2. What is its scope?
   - Which aspects are included, which aspects are excluded, why and with what consequence?

3. What is its focus?
   - People, politics, programs, Breadth vs. depth, case study, survey, chronology, comparison, etc.

4. What are the units of analysis?
   - Individuals, groups, program components, entire programs, organizations, critical incidents, time series, etc.

5. What is the data collection strategy?
   - Targeted, probability, quota, random, size, representation, implication and level of generalizability

6. What type of data are being collected?
   - Qualitative, quantitative

7. How are the data being processed?
   - Organization, classification, presentation, referenced, indicated, etc.

8. What analytic approach is being applied?
   - Deductive, inductive

9. How is the validity of the study being addressed?
   - Triangulation, Multiple Data Sources, Multiple Study

10. When was the study published?
    - Timeliness of the results, long-term study, succinct, divided into phases and monitored

11. What justifies the study?
    - Review and analysis of Literature, problem definition, applicability, intellectual game, etc.

12. How are ethical questions being addressed in the study?
    - Informed consent, confidentiality of information, reactivity, data privacy protection, etc.

13. How are logistics being handled?
    - Data access, field research, data storage, data management, etc.

SCIENTIFIC LANGUAGE

ws 11: REFLECTION: WHAT WAS ESPECIALLY IMPORTANT IN THE CHAPTER ABOUT ACADEMIC LANGUAGE?

What aspects will I put into practice when writing my next scientific text?

WS 12: FOR THE “EVALUATION”-SESSION

DRAFT OF YOUR RESEARCH PROPOSAL

Important Exercise for the Next Session

Write a draft for your entire research proposal using you results from Task 04 in this portfolio. The length of the proposal should be about 4-5 pages. It suffices if this proposal is in a draft stage, you don’t need to revise your text yet. Depending on where you are in your project, whether you have already researched literature or already analysed your data, your draft can focus on that.

Please bring a printed version of your proposal (3cm margins and 1,5 line spacing). In the summary/evaluation session you will exchange feedback with your fellow students.

ADDITIONAL INFORMATION:
“ELEMENTS OF STYLE: KEEPING IT SHORT AND SWEET” (EXAMPLE PHRASES)

BE AWARE OF WORDINESS

This term is used to cover a couple of style problems that involve using more words than you absolutely need to say something. Especially when we talk, we use a lot of little filler words that don’t actually have anything to add to the meaning of our sentences (this sentence has several examples--can you find them? Try to take out five words in the previous sentence.). In writing, these filler words and phrases become more obvious and act as delays in getting the reader to the point of your idea. If you have enough delays in your sentence, your readers might get frustrated. They might even start skimming your paper, which seems a shame after all of your efforts to communicate with them.

(THE WRITING CENTER, UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

HTTP://WWW.UNC.EDU/DEPTS/WCWEB/HANDOUTS/STYLE.HTML)

LONG	SHORT
... at present ...	... now ...
... in accordance with the method described ...	... using the method described ...
... regarding clarity, nothing was left to be desired ...	... it was clear....
... in the university field ...	...at university
... the fact that it was the better method…	…as it was the better method ...
... the fact that he was not successful ...	... his failures ...
... he is a man who always knows what to do...	... he always knows what to do...
... if they do the former they should be able to ...	... the former enables them to ...
... in a hasty manner ...	... hastily ...

Here are two lists of common or stock phrases to **locate** in your paper and **replace** with a single word (see Joseph M. Williams, *Style: Ten Lessons in Clarity and Grace*, pp. 93-97):

The reason for For the reason that Due to the fact that Owing to the face that In light of the fact that Considering the fact that On the grounds that	because, since, why
Despite the fact that Regardless of the fact that	although, even though
In the event that If it should happen that Under circumstances in which	if
On the occasion of In a situation in which Under circumstances in which	when
As regards In reference to With regard to Concerning the matter of Where ___ is concerned	about
It is crucial that It is necessary that There is a need/necessity for It is important that	must, should
Is able to Is in a position to Has the opportunity to Has the capacity for Has the ability to	can
It is possible that There is a chance that It could happen that The possibility exists for	may, might, can, could
Prior to In anticipation of Subsequent to Following on At the same time as Simultaneously with	before, when, as, after

Not different	similar
Not many	few
Not have	lack
Not include	omit
Not consider	ignore
Not the same	different
Not often	rarely
Not allow	prevent
Not admit	deny
Not accept	reject

a) Shorten by modifying phrases and clauses (Matthews & Matthews 2016; Skern 2011)

Several examples that can help with brevity and lucidity: Find possible modifications. (rule of thumb: try to write sentences with max. 15 – 20 words)	
The genera of the group of fungi that was studied by Fitzpatrick at this time are placed in the group of genera that are called the order Hypocreales because of the work of Miller (1941). *(35 words)*	Example: The fungal genera studied by Fitzpatrick now are placed in the order Hypocreales because of Miller's (1941) work. *(17 words)*
It can be seen from Figure 1 that there is a significant correlation between the rate of growth of the incidence of cardiac-related disease and illness and the increasing frequency of the possession and use of a television.	
It is a fact that 20% of the world's population has no clean water or enough to eat.	
There is a considerable, if not extensive, body of literature dedicated to demonstrating that the Earth can be considered as a spherical body traversing a circular path around a similarly shaped, although significantly larger and completely different in nature, body which is in common parlance termed the Sun.	

b) Shorten sentences by splitting them in two (Skern 2011)

Simple sentences are the best way to express complex thoughts. Especially native German speakers have a natural tendency to write sentences of great length. It is important to overcome this tendency when writing in English. To practise, use only one idea per sentences. Write them as a straightforward, direct statements (remember the S-V-O). To indicate that a statement might not be true in all situations (to qualify a statement), the qualification (the "disclaimer") follows the statement.

Lengthy sentences	**How it might be revised for clarity**
To be a good scientist, you have to be tolerant and patient when experiments or interpretations do not turn out as you had predicted, you must be able to stand high level of frustration. *(34 words)*	Example: To be a good scientist, you have to be tolerant and patient when experiments or interpretations do not turn out as you had predicted. You must be able to stand high level of frustration. *(24+10 words)*
62% of certified drug addicts believe that cannabis has effects on the behaviour of car drivers and machine operators which lengthen their reaction time, 45% of students shared this opinion and only 38% of customers interviewed at discotheques were aware of this negative effect of cannabis. *(46 words)*	
Finally, the correlation has been clearly shown, even though not all parameters have as yet been investigated and further investigations have to be done. *(24 words)*	
This results in texts which are extremely difficult to read as well as revealing to the world that their authors are clueless about paragraph structure. *(25 words)*	

c) Avoid Jargon (String of Pearls): uncouple long strings of nouns and adjectives (Matthews & Matthews 2016)

Be brief but not by sacrificing lucidity: a noun can be used to modify or describe another noun – but running together a whole series of nouns that modify one another is often difficult to decipher.

Example: Five two-week old single comb white leghorn specific pathogen free chickens were inoculated with approximately 105 tissue culture infected doses of duck adenovirus

Exercise: Circle every batch of more than two nouns in your typescript and try to reduce those strings to simple pairs.

Sentence fragment containing a string of pearls	How it might be revised for clarity
a system necessitated automated motor starting circuit	Example: an automated motor-starting circuit required by the system
the negative penicillin skin test result group	
blue absorbing pigment spectral curve	
climate controlled gene cluster phenotype variation	

d) Hedges: scientific objectivity – author's timidity (Matthews & Matthews 2016)

Remove unnecessary hedging (to hedge = protect one's argument with qualifications that allow for unknown contingencies or withdrawal from commitment. AVOID double and triple hedges, it drains force from the sentence – one way of saying "I am not sure" is enough.

Example: The cause of the degenerative changes is unknown but *possibly* one cause *may* be infection by a *presumed* parasite

nouns	adverbs	verbs
supposition	presumably	appear
idea	probably	postulate
speculation	possibly	suggest
conjecture	apparently	seem
possibility	not unlikely	may be
inference	seemingly	speculate

Exercise: Reduce the following examples to a single hedge word apiece
(your interpretation of the sentence might influence which hedge word you keep)**:**

These observations serve to suggest the probable existence of a possible female sex pheromone.
Our belief is that the study may show an apparent link between cigarette smoking and lung cancer.
The results appear to indicate that the mixture may have been more or less saturated with oil:

e) Write precise and brief: avoid tautologies (Matthews & Matthews 2016)

A tautology is defined as needless repetition of an idea in a different word, phrase, or sentence.

Exercise: Omit needless words.

1 a.m. ~~in the morning~~	new beginning
at this point ~~in time~~	optional choice
collaborate together	five in number
circulate around	positive benefits
mandatory requirement	true facts

Check your own text sample regarding style:

Any favourites yourself?

REVIEWING

WS 13: REFLECTION: FEEDBACK ALS TEIL DER ÜBERARBEITUNG FEEDBACK AS PART OF THE REVIEWING PROCESS

Have you ever received feedback on one of your texts? Who gave you that feedback?

How have you received feedback? What did you do with this feedback?

WORKSHEETS FOR THE “EVALUATION”-SESSION

ws 14: FOR THE “EVALUATION”-SESSION

PEER-REVIEW TO PROPOSAL

Read through the draft and consider the discussed criteria:

Do I understand what the author was trying to say? Is there a clear objective stated (question, hypothesis, central message of each paragraph)?

What questions do I have regarding the draft: Which arguments do I find it difficult to follow?

Any suggestions as to how to improve the draft?

What do I like about the draft, where do I see its strength?

WS 15: FOR THE “EVALUATION”-SESSION
PEER-REVIEW TO PROPOSAL

Analyze the feedback you got from your colleague and evaluate for yourself: what do you want to apply to your writing – where do you disagree and will subsequently not follow the feedback:

I will apply the following comments, because:

I will not follow the following comments, because:

For the future I will especially keep in mind the following from the feedback I got:

WS 16: CHECKLIST FOR MANAGING YOUR WRITING PROCESS (BORROWED FROM GABRIELE RUHMANN UND SHEILA M. REINDL)

This questionnaire can help you deal with motivational problems that can lead to a writers' block.
When you feel like your writing process is stagnating, it might be worth re-answering these questions.

1.	**What is the objective of my research?**
1.1	Is there a deadline? If so, when?
1.2	How long should my text be?
1.3	What is my central question?
1.4	What purpose does this writing project serve? (dissertation, publication – where?)
1.5	What main topics will I cover? (no bullet points, try writing entire sentences or prompts)

1.6	What do I want to achieve under each of these headings?
1.7	What makes my question difficult to resolve is…
1.8	If applicable: I am stuck. I am stuck because I can’t figure out….

2.	**What goal do I want to achieve with my work? (i.e. "summa" for my dissertation or "just" getting it done; publishing; apply for a scholarship…)**
2.1	Who will read the paper (name three people)? Who should like my work?
2.2	What makes it difficult for me to fully commit to my writing project is…
2.3	In an ideal world (regarding my writing project) …
3.	**What other projects / tasks (work, errands, family…etc.) do I have to get done… Write down the tasks and the time each task will take – then you can estimate how much time you can devote to your writing project.**
3.1	Looking at your additional tasks – how do you feel (often we do not realize how much we have on our plate in addition to the task we are focusing on)?