

Academic Communication

in (Astro)Physics

Lecture 7: Academic Journal Papers III

References & Citations, Acknowledgements

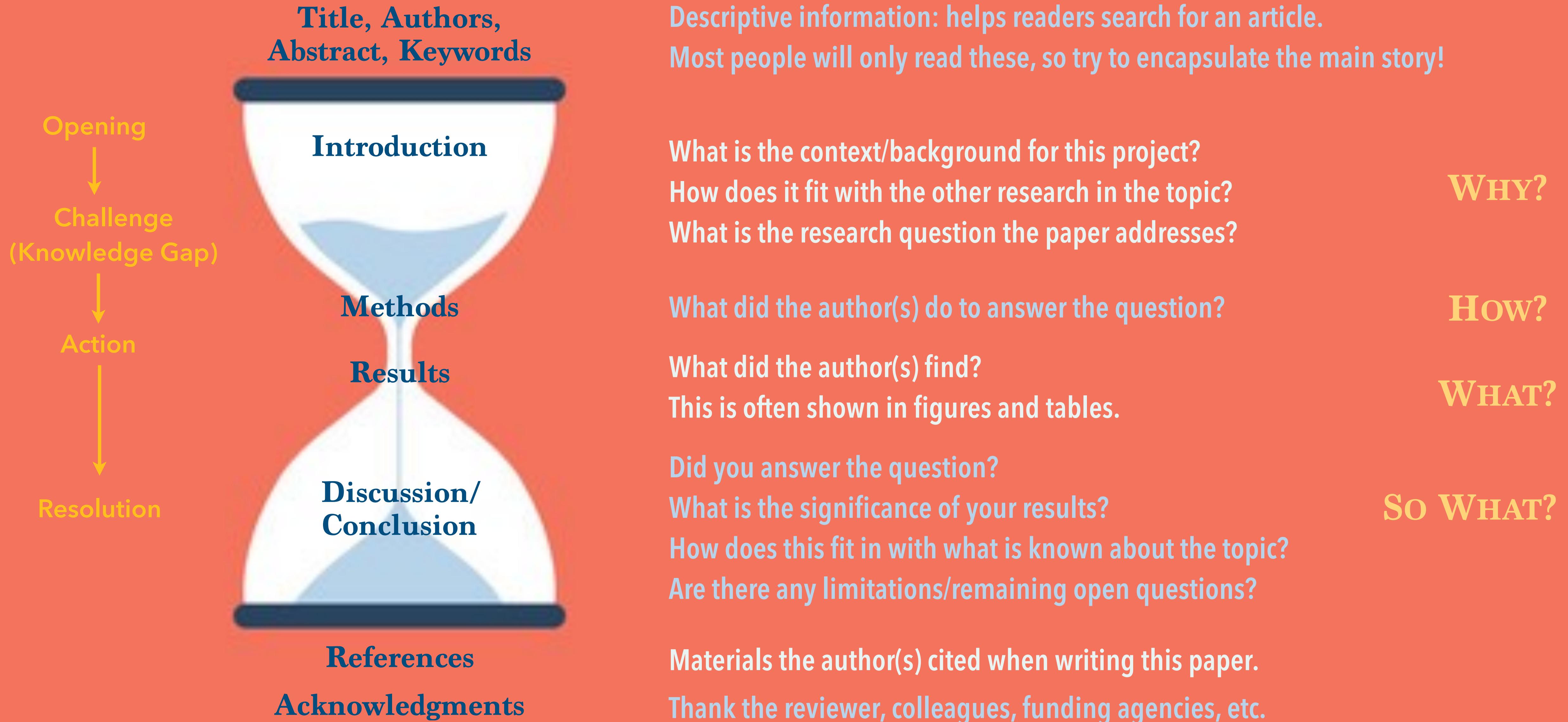
The Abstract

Finishing your paper and getting it published

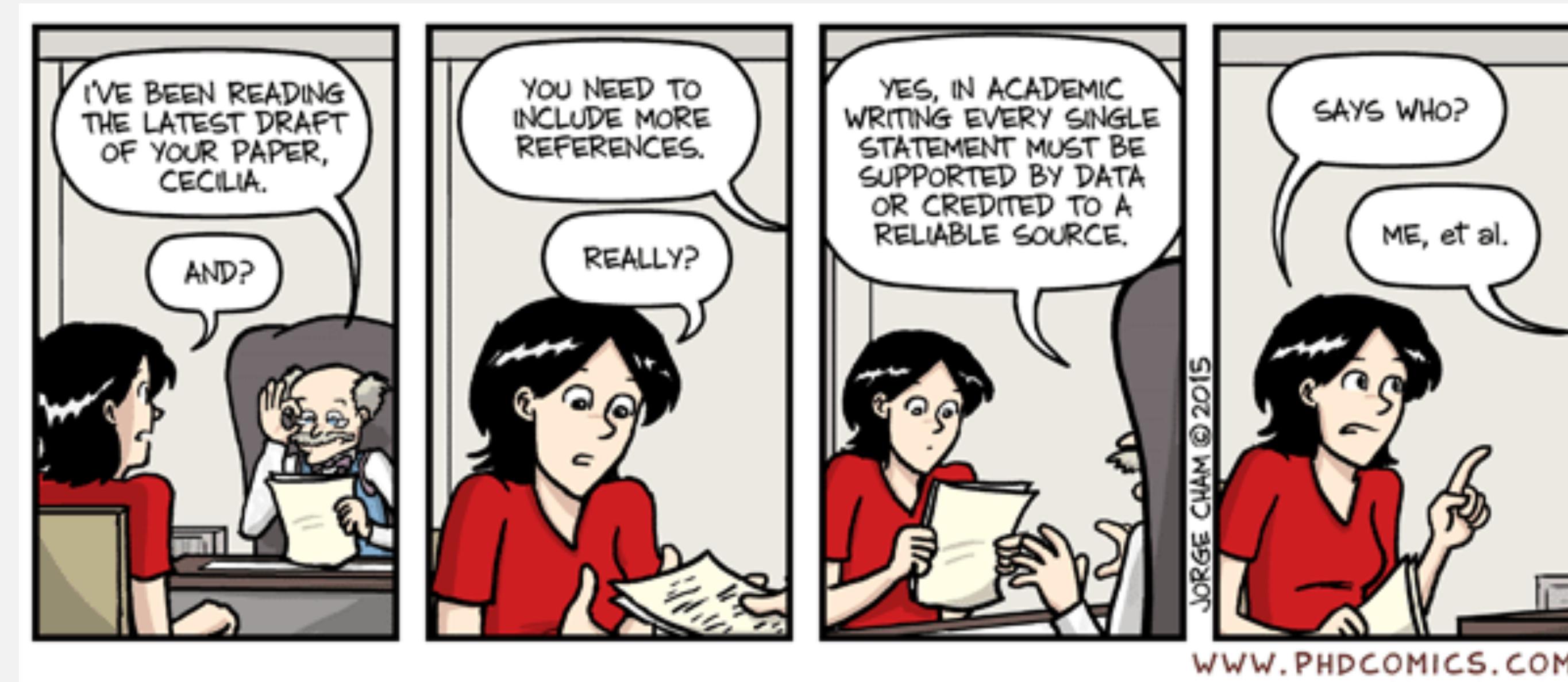
Today's lecture

- References & Citations
- Acknowledgements
- The Abstract
- After the first draft: revising & reviewing
- Submission and Peer Review

Structure of a scientific paper



REFERENCES & CITATIONS



References & Citations

MOST OF THE TIME, YOUR SCIENTIFIC FINDINGS WILL BUILD ON PREVIOUS STUDIES

Reference the ideas and findings of others: cite the source as an in-text citation as well as list it in the “References” section at the end.

- Give appropriate credit to the contributions of others.
- Direct readers who want further information to the literature of interest.
- Provide editors with a list of potential reviewers.
- Show how familiar you are with the area of your specialty.



What to cite?

Differentiate between primary, secondary, and tertiary sources.

SOURCE	DEFINITION	EXAMPLE
Primary	Original, peer-reviewed publication of a scientist's new data, results, and theories; report results for the first time.	Scientific journal articles; theses and dissertations; conference proceedings; talks
Secondary	Analyze and discuss the information provided by primary sources.	Review articles; literary criticisms; some textbooks; commentaries.
Tertiary	Compile and reorganize information provided in mainly secondary sources.	Textbooks (some may also be secondary); manuals; Wikipedia

- Prioritise primary sources: to ensure that specific findings have been accurately conveyed.
- Secondary or tertiary sources can be used for a general overview of the topic.

Types of references

General Context	The type that appears in the Introduction; sets the stage; provides background.
Specific Use	You are adopting the same methodology, tool, number, equation, that has appeared in a previous paper. Note: important to cite the original paper!
Comparison/Contrast	When you put your results in context (Results and Discussion).
Specific Result	Specific result that is not a generally known fact, which has appeared in another paper.

Other types? Discuss.

Finding references

- **Be well read!!!** Use NASA/ADS to look for papers; arXiv/astro-ph to see the most recent work.
- **Be organized.** Throughout your project, take notes on papers you read.

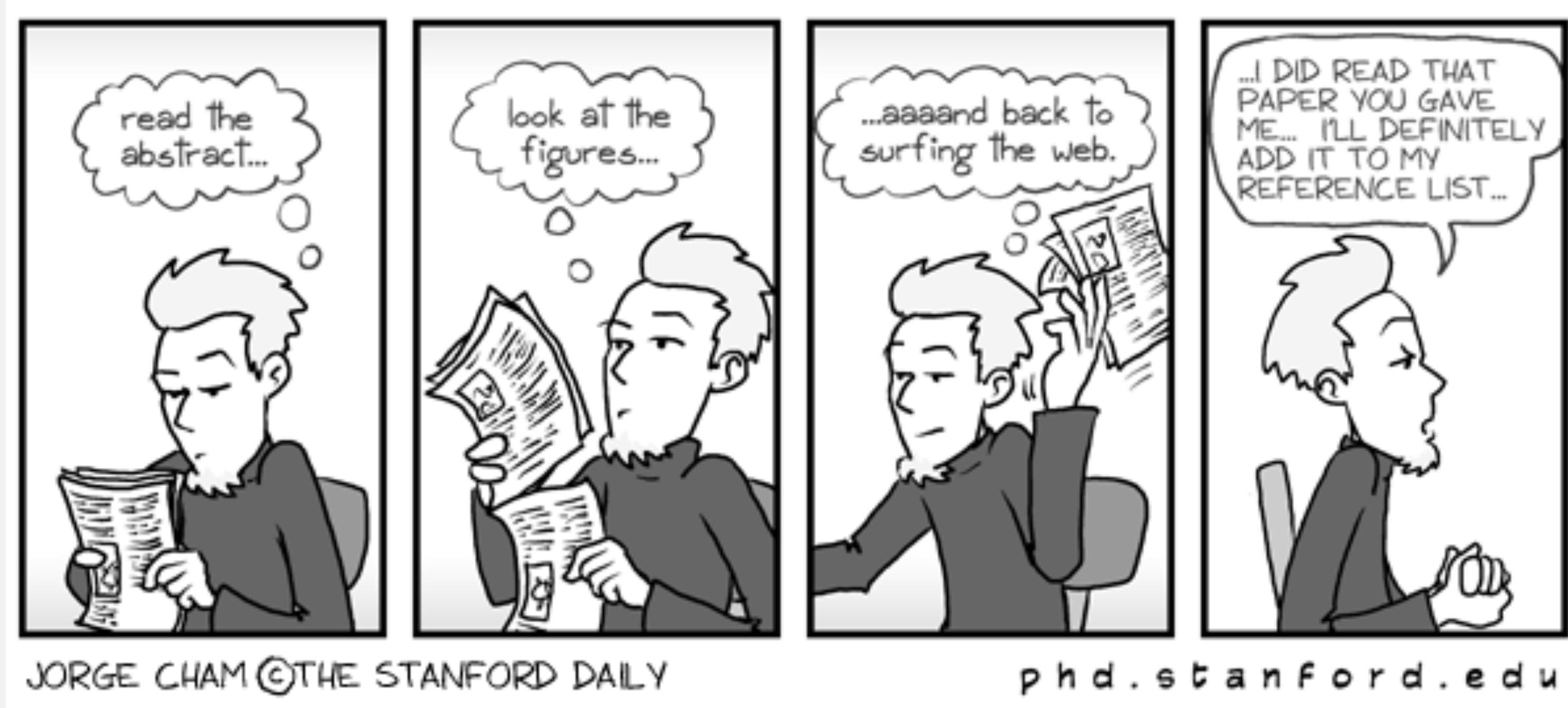
Identify the classic papers in your field ("paper zero").

"Paper zero" – a very important paper in your field, one of the classics. Find it using ADS:

- (1) Find a modern, well-written, relevant paper by a leading author or group and open the abstract page in ADS.
- (2) In the left column, click "References". This shows all the papers cited in that paper.
- (3) Click "View this list in a search results page".
- (4) Order the resulting list by "Citation count" (in the drop-down menu).
- (5) You can now see the most-cited papers among those referenced in your selected paper. Many of these will be catalogues, or survey description papers. But very quickly you can identify papers in your field of study that are classic and important.
- (6) Repeat this process a few times for different modern papers, and the classic, pioneering, critical papers in the field will soon bubble up.
- (7) Click on one or more of these key papers, and check which papers cite it. The most recent ones will quickly give you a superb overview of what is currently going on in the field!

Guidelines

- **Select the most relevant references** – don't overwhelm the reader with all possible references on a topic (use "e.g.").
- **Cite the original articles** for an idea, observation, or method – not just the most recent ones or the ones in your research group!
- Also **cite relevant recent work** to make sure your work is up to date with the most recent developments.
- **Consider for what statements you need a reference.** For textbook-level basic knowledge, no; specific statements or results, yes.
- **The information must be accurate:** always verify the original article if you are citing a specific piece of information from another paper – you don't want to perpetuate errors on how results from other papers are reported! **You must read everything you cite!!!**
- It is preferable to **cite peer-reviewed, published work** such as refereed publications (sometimes textbooks); avoid citing PhD dissertations, conference proceedings, etc.
- **Unpublished work and private communication should be included in parentheses** but don't go in the list at the end (XX, in prep.; YY, priv. comm.); they should not be used to draw strong conclusions (because they can't be verified), only to support findings.
- Ensure that **every citation in the text is included in the Reference list at the end – use BibTex.**



Bryan Gaensler
@SciBry

Research is spending 6 hours reading
35 papers, so you can write one
sentence containing 2 references.

Citation styles

Follow the journal's style: cite in correct form and order.

- **Harvard system**

- Author, date: seen as Author (date), or (Author date)
- Usually listed in alphabetical order in the References list
- ApJ, MNRAS, A&A, PASA, etc

- **Vancouver system**

- Numbers that show up as parenthetical or superscript
- Usually listed in the order in which each reference first appears in the text
- Nature, Science

Usually this is all done automatically in LaTeX:

- use the journal's style file and BibTex
- use \citet, \citep, \citealt

Tone & Style

You must be professional and courteous when citing other authors.

- Remain objective and neutral when citing the work of others

do not insult the authors of previous work!

Unbelievably, Brown failed to consider...	Different theories on this topic exist (27-29).
The study by Aday is without merit.	Our study differs from that of Aday (2009) in that...
Clearly, Chumsky's method is wrong.	X has been the topic of much controversy (4, 5, 8).

Tone & Style – sample wording

TO SUPPORT YOUR FINDINGS (OR THOSE OF OTHERS)	TO REFUTE THE FINDINGS OF OTHERS	TO COMPARE YOUR FINDINGS WITH OTHERS	TO HIGHLIGHT YOUR FINDINGS
<p>Our results are consistent with those reported previously (5, 8, 10-14).</p> <p>Similar results have also been observed by Alton et al. (2008).</p> <p>Mayer and Bims (2011) also determined...</p> <p>(Here we confirm Lohn's theory of...)</p>	<p>Different findings have been reported previously (33).</p> <p>Our findings show that the previously proposed theory A (17) is not supported by...</p> <p>Not all studies agree on this finding. For example, Peters et al. (2019) determined...</p>	<p>Our findings are comparable to those of Vignanery et al. (2020).</p> <p>When compared to recent findings described by (8), our study shows...</p> <p>Although Dauh et al. (2017) reported recently XX, our study also takes into consideration...</p>	<p>Unlike other previous findings (23-25), our work presents...</p> <p>Our study expands on work of Hui et al. (2019), which reported Y, and highlights the importance of...</p> <p>Our study sets itself apart from other studies (33-35) in that...</p>

Incorporating references into the text

Placement of references should be meaningful and specific.

- **Know where to place references in a sentence.**

There are two general ways to cite in the text:

- (1) to emphasize the science, place the citation following a concept, idea, or finding;
- (2) to emphasize the author(s), place the citation including names at the start.

References do not need to go at the end of the sentence.

References for different points in a sentence should come after the appropriate point.

“The tight correlation between the mass of the black hole and the velocity dispersion and the mass of the galactic bulge within which it resides (Ferrarese & Merritt 2000; Gebhardt et al. 2000; Marconi & Hunt 2003) is compelling evidence for a close connection between the formation of the black hole and that of its host galaxy (e.g., Cattaneo et al. 1999; Kaufmann & Haehnelt 2000; Granato et al. 2001).”

Plagiarism

- Quoting material without acknowledging the source (this is the most obvious kind of plagiarism).
- Using someone else's ideas, concepts, results, conclusions, passing them off as your own without proper acknowledgment – even if these ideas have been substantially reworded.
- Summarising and paraphrasing someone else's work without acknowledging the source.



PLAGIARISM vs PARAPHRASING:

Paraphrasing: taking another person's ideas/results, and putting them in your own words (still must cite!)

Plagiarism: only changing a few words, or using the same words but changing the sentence order.

Learn how to paraphrase

Original sentence:

Grizzly bears (*Ursus arctos* ssp.) encompass all living North American subspecies of the brown bear: the mainland grizzly (*Ursus arctos horribilis*), the Kodiak (*Ursus arctos middendorffi*), and the peninsular grizzly (*Ursus arctos gyas*), but none of the giant brown bear subspecies found in Russia, Northern China, and Korea.

Plagiarised sentence:

Grizzly bears (*Ursus arctos* ssp.) consist of North American subspecies of the brown bear, including the mainland grizzly (*Ursus arctos horribilis*), the Kodiak (*Ursus arctos middendorffi*), and the peninsular grizzly (*Ursus arctos gyas*), but not the subspecies found in Russia, Northern China, and Korea.

Paraphrased sentence:

Only the three North American brown bear subspecies *Ursus arctos horribilis*, *middendorffi*, and *gyas* are considered to belong to the grizzly bears. (Brown bears inhabiting Siberia and Northeast Asia are another subspecies.)

Plagiarism

You don't need to cite common knowledge: "information that the average, educated reader would accept as reliable without having to look it up" (Academic Integrity at MIT Handbook):

- information that most people know
- information shared by a cultural or national group
- knowledge shared by members of a certain field

Ask yourself: Who is my audience? What can I assume they already know? Will I be asked where I obtained my information?

When in doubt, cite your source.

Examples of Astronomy common knowledge:

The Sun is roughly 4.6 billion years old.

Hotter stars are bluer.

The Milky Way is a spiral galaxy.

Avoiding plagiarism

- Improve your vocabulary so that it is easier for you to paraphrase.
- If you have to quote verbatim, use quotation marks and reference.
- Never copy a text from another paper directly into your manuscript.
- Do not take notes by copying and pasting – always take notes in your own words.
- Do not “recycle” your own text – self-plagiarism is a thing too!
- Beware unconscious plagiarism of ideas! Know the old literature and also what is being done/published in the field.

Summary: References

- Reference the ideas and findings of others.
- Use mostly primary sources.
- Select the most relevant references.
- Verify your references against the original document.
- Manage your references well. Keep track of ideas and references.
- Cite the references in the correct form and order.
- Remain objective and neutral when citing the work of others.
- Know where to place references in a sentence.
- Ensure that you are not plagiarizing.
- Know how to paraphrase.

ACKNOWLEDGEMENTS

- List all the people whose help was important but not enough to warrant authorship.
- Specify what you are thanking each people (or group of people) for (helpful discussions, comments on the manuscript, sharing data/code etc.)
- After review, you can (should) thank the reviewer.
- If using archival telescope data, often people name the observational program and PI here.
- You can also acknowledge the use of public software (but preferable to cite if there is a reference).
- List any funds, grants, fellowships, or financial contributions.



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Data accessibility. This article does not contain any additional data.

Authors' contributions. Both authors contributed equally to the structuring and writing of this review.

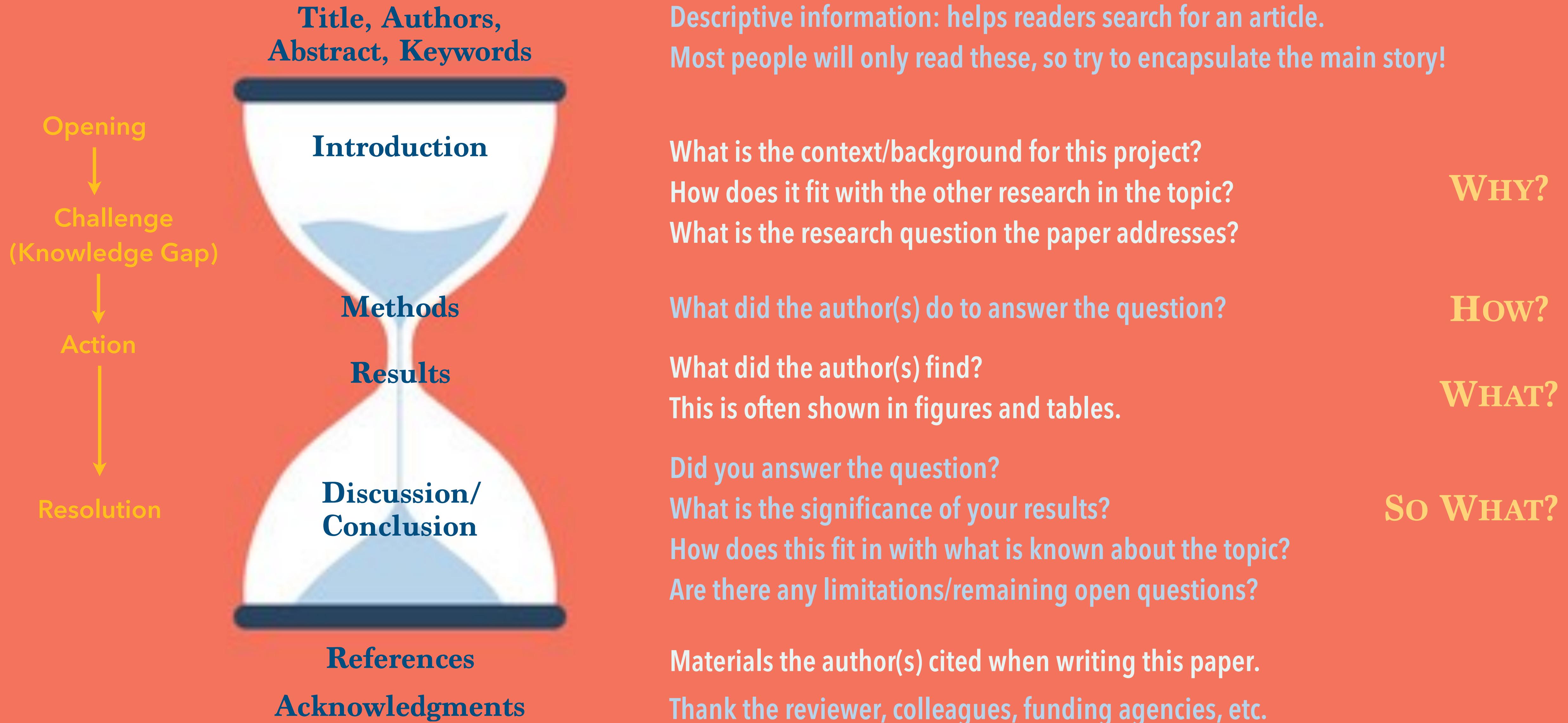
Competing interests. We declare we have no competing interests.

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Hodge & da Cunha (2020)

Structure of a scientific paper



THE ABSTRACT

Abstract MadLibs!!

This paper presents a _____ method for _____
(synonym for new) (sciencey verb)
the _____. Using _____, the
(noun few people have heard of) (something you didn't invent)
_____ was measured to be _____ +/- _____
(property) (number) (number)
_____. Results show _____ agreement with
(units) (sexy adjective)
theoretical predictions and significant improvement over
previous efforts by _____, et al. The work presented
(Loser)
here has profound implications for future studies of
_____ and may one day help solve the problem of
(buzzword)
_____.
(supreme sociological concern)

Keywords: _____, _____, _____
(buzzword) (buzzword) (buzzword)

The Abstract

KNOWING HOW TO WRITE AN ABSTRACT IS ONE OF THE MOST IMPORTANT SKILLS IN SCIENCE

- Most people will only read the Abstract; they will only keep reading if the Abstract interests them.
- It should fully summarise the contents of the paper in one paragraph.
- It must concise, yet informative and complete – the Abstract must stand on its own.
- Include only the key results and other important details.
- Write it with the non-specialist in mind – you want to attract a wide audience.
- Advice: last thing to write. The abstract is easier to write once the manuscript is complete and you know what results/conclusions you need to highlight. The content of the Abstract is derived from the rest of the paper, not the other way around.

Key elements of the Abstract

Background [Optional]

Short background information for the non-expert, to help the reader understand the question.

Question or purpose

This must be included (and should be explicitly stated in the Introduction).

Methods

Describe only generally.

Results

Include only main results; include key numbers (i.e., quantify).

Conclusion (answer to the question)

Main conclusion(s); provide answer to the research question.

Significance [Optional]

Implication, speculation, application, or recommendation.

Editorial

Introducing structured abstracts for A&A articles[★]

A helpful tip for writing an Abstract: pretend you are writing a structured Abstract (just without the headings).

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ABSTRACT

Context. Due to their wide availability, abstracts have become the most important part of any astrophysical paper.

Aims. Having noticed that abstracts published in astronomical journals are not always optimal, we introduce the concept of structured abstracts for A&A articles.

Methods. We explain what structured abstracts are and where they come from, provide examples showing how to structure an abstract, and discuss the advantages and drawbacks of this novel concept. In an on-line appendix, we show what some published abstracts look like once they are structured.

Results. We demonstrate the improvements in information content, readability, and style that can be made when writing structured abstracts instead of traditional ones.

Conclusions. A new version 6.0 of the A&A LaTeX macro is now available for structuring the abstracts of articles, and A&A authors are kindly invited to use it for their new submissions.

Guidelines

- **Do not omit any of the key components!**
- Do not include any information or conclusion not included in the paper.
- **Be specific:** avoid general descriptive statements that merely hint at your results or act like a rough table of contents. There should be no surprises or elements of suspense.
- Avoid abbreviations, unfamiliar terms, jargon, and citations. Do not refer to figures or tables.
- Include all the important key terms found in the title: **the abstract and title must go together.**
- **Keep it short.**
- Follow the journal guidelines for authors:
 - **word limit is typically 250 words** (ApJ, MNRAS);
 - A&A encourages structured abstracts;
 - arXiv: abstracts longer than about 20 lines will be truncated; abridge your abstract if necessary.

Let's look for the
key elements:

Background

Question/ purpose

Methods

Results

Conclusion

Implication

THE ORIGIN OF THE MASS-METALLICITY RELATION: INSIGHTS FROM 53,000 STAR-FORMING GALAXIES IN THE SLOAN DIGITAL SKY SURVEY

CHRISTY A. TREMONTI,^{1,2} TIMOTHY M. HECKMAN,¹ GUINEVERE KAUFFMANN,³ JARLE BRINCHMANN,^{3,4} STÉPHANE CHARLOT,^{3,5} SIMON D. M. WHITE,³ MARK SEIBERT,^{1,6} ERIC W. PENG,^{1,7} DAVID J. SCHLEGEL,⁸ ALAN UOMOTO,^{1,9} MASATAKA FUKUGITA,¹⁰ AND JON BRINKMANN¹¹

Received 2003 December 21; accepted 2004 May 28

ABSTRACT

We utilize Sloan Digital Sky Survey imaging and spectroscopy of $\sim 53,000$ star-forming galaxies at $z \sim 0.1$ to study the relation between stellar mass and gas-phase metallicity. We derive gas-phase oxygen abundances and stellar masses using new techniques that make use of the latest stellar evolutionary synthesis and photoionization models. We find a tight (± 0.1 dex) correlation between stellar mass and metallicity spanning over 3 orders of magnitude in stellar mass and a factor of 10 in metallicity. The relation is relatively steep from $10^{8.5} M_{\odot} h_{70}^{-2}$, in good accord with known trends between luminosity and metallicity, but flattens above $10^{10.5} M_{\odot}$. We use indirect estimates of the gas mass based on the H α luminosity to compare our data to predictions from simple closed box chemical evolution models. We show that metal loss is strongly anticorrelated with baryonic mass, with low-mass dwarf galaxies being 5 times more metal depleted than L^* galaxies at $z \sim 0.1$. Evidence for metal depletion is not confined to dwarf galaxies but is found in galaxies with masses as high as $10^{10} M_{\odot}$. We interpret this as strong evidence of both the ubiquity of galactic winds and their effectiveness in removing metals from galaxy potential wells.

Subject headings: galaxies: abundances — galaxies: evolution — galaxies: fundamental parameters — galaxies: statistics

A SIMPLE MODEL FOR THE ABSORPTION OF STARLIGHT BY DUST IN GALAXIES

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ABSTRACT

We present a new model for computing the effects of dust on the integrated spectral properties of galaxies, based on an idealized description of the main features of the interstellar medium (ISM). The model includes the ionization of H II regions in the interiors of the dense clouds in which stars form and the influence of the finite lifetime of these clouds on the absorption of radiation. We compute the production of emission lines and the absorption of continuum radiation in the H II regions and the subsequent transfer of line and continuum radiation in the surrounding H I regions and the ambient ISM. This enables us to interpret simultaneously all the observations of an ultraviolet-selected sample of nearby starburst galaxies, including the ratio of far-infrared to ultraviolet luminosities, the ratio of H α to H β luminosities, the H α equivalent width, and the ultraviolet spectral slope. We show that the finite lifetime of stellar birth clouds is a key ingredient for resolving an apparent discrepancy between the attenuation of line and continuum photons in starburst galaxies. In addition, we find that an effective absorption curve proportional to $\lambda^{-0.7}$ reproduces the observed relation between the ratio of far-infrared to ultraviolet luminosities and the ultraviolet spectral slope. We interpret this relation most simply as a sequence in the overall dust content of the galaxies. The shallow wavelength dependence of the effective absorption curve is compatible with the steepness of known extinction curves if the dust has a patchy distribution. In particular, we find that a random distribution of discrete clouds with optical depths similar to those in the Milky Way provides a consistent interpretation of all the observations. A noteworthy outcome of our detailed analysis is that the observed mean relations for starburst galaxies can be closely approximated by the following simple recipe: use an effective absorption curve proportional to $\lambda^{-0.7}$ to attenuate the line and continuum radiation from each stellar generation, and lower the normalization of the curve, typically by a factor of 3 after 10^7 yr, to account for the dispersal of the birth clouds. This recipe or our full model for absorption can be incorporated easily into any population synthesis model.

Subject headings: dust, extinction — galaxies: ISM — galaxies: starburst — infrared: galaxies — ultraviolet: galaxies

Let's look for the
key elements:

Background

Question/
purpose

Methods

Results

Conclusion

Implication

Signals for the reader

Question/Methods	Results	Answer/Conclusion	Implication
To determine whether..., we... We asked whether... To answer this question, we... X was studied by...	We found... Our results demonstrate... Here we report...	We conclude that... Thus, ... These results indicate that...	These results suggest that... These results may play a role in... Y can be used to...



Special case: indicative abstracts

Do not use this kind of Abstract for your research paper!

Also known as descriptive abstracts – used for book chapters or review papers.

Essentially a table of contents in paragraph form; these abstracts do not stand on their own.

The spectral energy distributions (SEDs) of galaxies are shaped by nearly every physical property of the system, including the star-formation history, metal content, abundance pattern, dust mass, grain size distribution, star-dust geometry, and interstellar radiation field. The principal goal of stellar population synthesis (SPS) is to extract these variables from observed SEDs. In this review I provide an overview of the SPS technique and discuss what can be reliably measured from galaxy SEDs. Topics include stellar masses, star-formation rates and histories, metallicities and abundance patterns, dust properties, and the stellar initial mass function.

Special case: descriptive papers

Some research papers are not written to answer specific questions or to test a hypothesis but rather to describe a new finding, e.g., a very distant galaxy, a new emission mechanism, etc.

In these kinds of papers, the Abstract should include:

- **Descriptive statement**
- **Description of the new findings**
- **Conclusion/significance/implication**

Background

Description of new findings

Conclusion/ Implication

Over the past decades, rest-frame ultraviolet (UV) observations have provided large samples of UV luminous galaxies at redshift (z) greater than 6 (refs. 1,2,3), during the so-called epoch of reionization. While a few of these UV-identified galaxies revealed substantial dust reservoirs^{4,5,6,7}, very heavily dust-obscured sources at these early times have remained elusive. They are limited to a rare population of extreme starburst galaxies^{8,9,10,11,12} and companions of rare quasars^{13,14}. These studies conclude that the contribution of dust-obscured galaxies to the cosmic star formation rate density at $z > 6$ is sub-dominant. Recent ALMA and Spitzer observations have identified a more abundant, less extreme population of obscured galaxies at $z = 3\text{--}6$ (refs. 15,16). However, this population has not been confirmed in the reionization epoch so far. Here, we report the discovery of two dust-obscured star-forming galaxies at $z = 6.6813 \pm 0.0005$ and $z = 7.3521 \pm 0.0005$. These objects are not detected in existing rest-frame UV data and were discovered only through their far-infrared [C II] lines and dust continuum emission as companions to typical UV-luminous galaxies at the same redshift. The two galaxies exhibit lower infrared luminosities and star-formation rates than extreme starbursts, in line with typical star-forming galaxies at $z \approx 7$. This population of heavily dust-obscured galaxies appears to contribute 10–25% to the $z > 6$ cosmic star formation rate density.

Fudamoto et al., 2021, “Normal, dust-obscured galaxies in the epoch of reionization”, *Nature*

Common problems of the Abstract

1) Missing elements

Always include (at least): question/purpose, methods, results, and conclusion.

2) Excessive length

Omit unnecessary words and combine sentences.

Condense background.

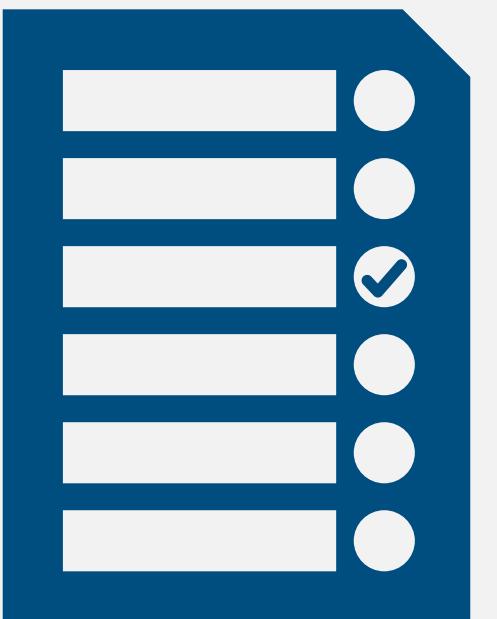
Omit or subordinate less important information (definitions, details of methods, exact data, confirmatory results, and comparisons with previous results).

Summary: Abstract

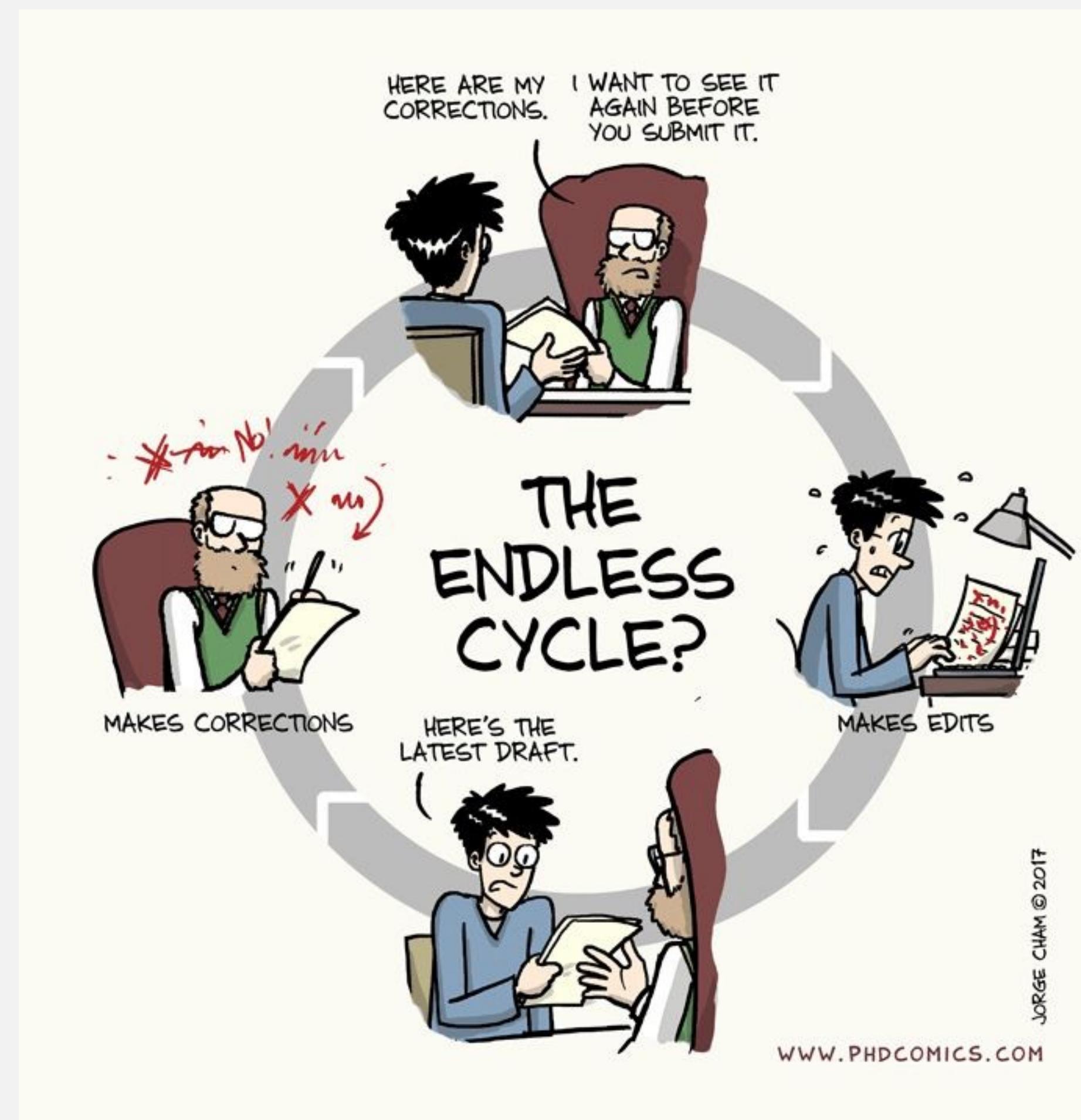
- Use an informative or structured abstract for research articles.
- For investigative papers, always include:
 - Question/purpose
 - Experimental approach
 - Results
 - Conclusion
- For descriptive papers, always include:
 - Descriptive statement
 - Description of new findings
 - Conclusion/significance/implication
- Apply basic scientific writing rules
- Signal the different components
- Do not omit any parts of the Abstract
- Keep it short
- Do not use the wrong type of Abstract

Checklist for the Abstract

- Did you distinguish between a research paper abstract and an indicative abstract?
- Is the question/purpose stated?
- Is the experimental approach stated?
- Are the results indicated?
- Is the answer/conclusion provided?
- Are all the elements signalled?
- Is the length within the required limits?
- Has the Abstract been condensed as much as possible?
- Is the significance of the work apparent?
- Is the context clear?
- Is the work original?



REVISING & REVIEWING YOUR MANUSCRIPT



First revision

REVISION IS KEY TO SUCCESSFUL WRITING

- After you completed your first draft, let it incubate for a day or two, then return to it with fresh eyes.
- Check for content and content location:
 - have you included all essential points you want to make?
 - does everything you say contribute in some way to the question and answer?
 - place all information in the right order
 - remove irrelevant points
 - include any missing evidence
- Work your way from the outside in: check individual sections first, then paragraphs, then sentences

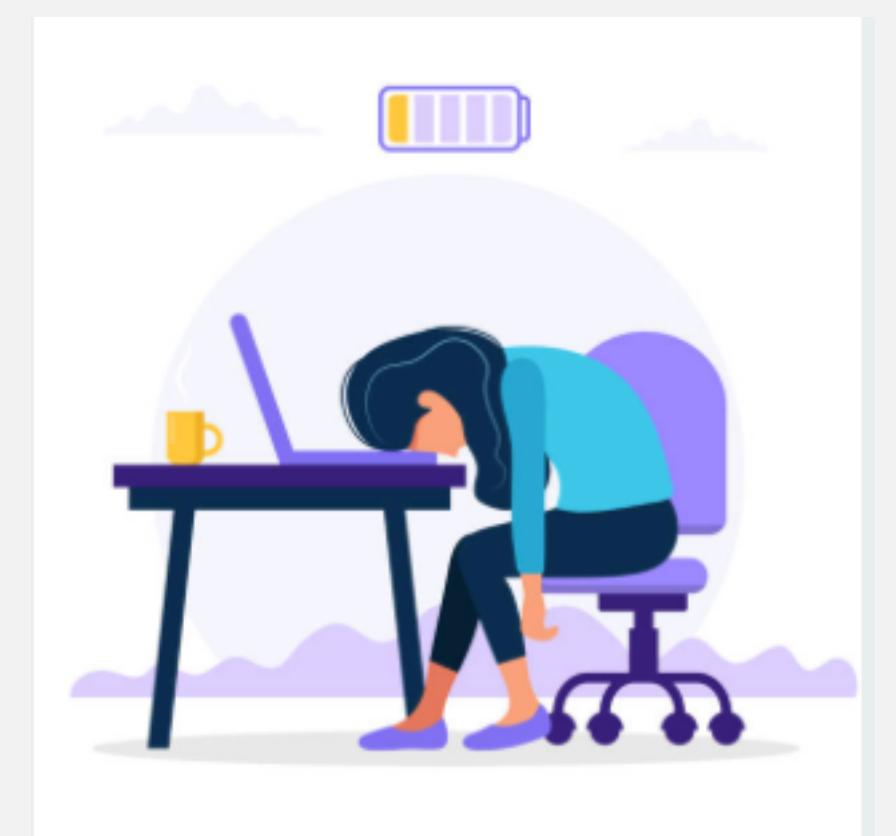
Title	Three to four important key terms
Abstract	Content: question/purpose, methods, results, interpretation/answer, significance
Introduction	Format: funnel shape (background, unknown, question, experimental approach)
Methods	Organize chronologically, most to least important, or by subsections
Results	1st paragraph(s): Overview of most important/interesting results
	Middle paragraphs: Describe other results. Organize chronologically or most to least important – every result segment should contain: purpose of the experiment, experimental approach, results, and their interpretation.
	Last paragraph: State interesting result(s) or summarize main findings if Results section is lengthy.
Discussion	Format: pyramid shape 1st paragraph: Interpretation of most important results/answer to the question of the paper; support and defend interpretation
	Middle paragraphs: chain of topics, compare and contrast findings, list limitations, propose models, etc
	Conclusion: summary of the main findings and significance (future directions)

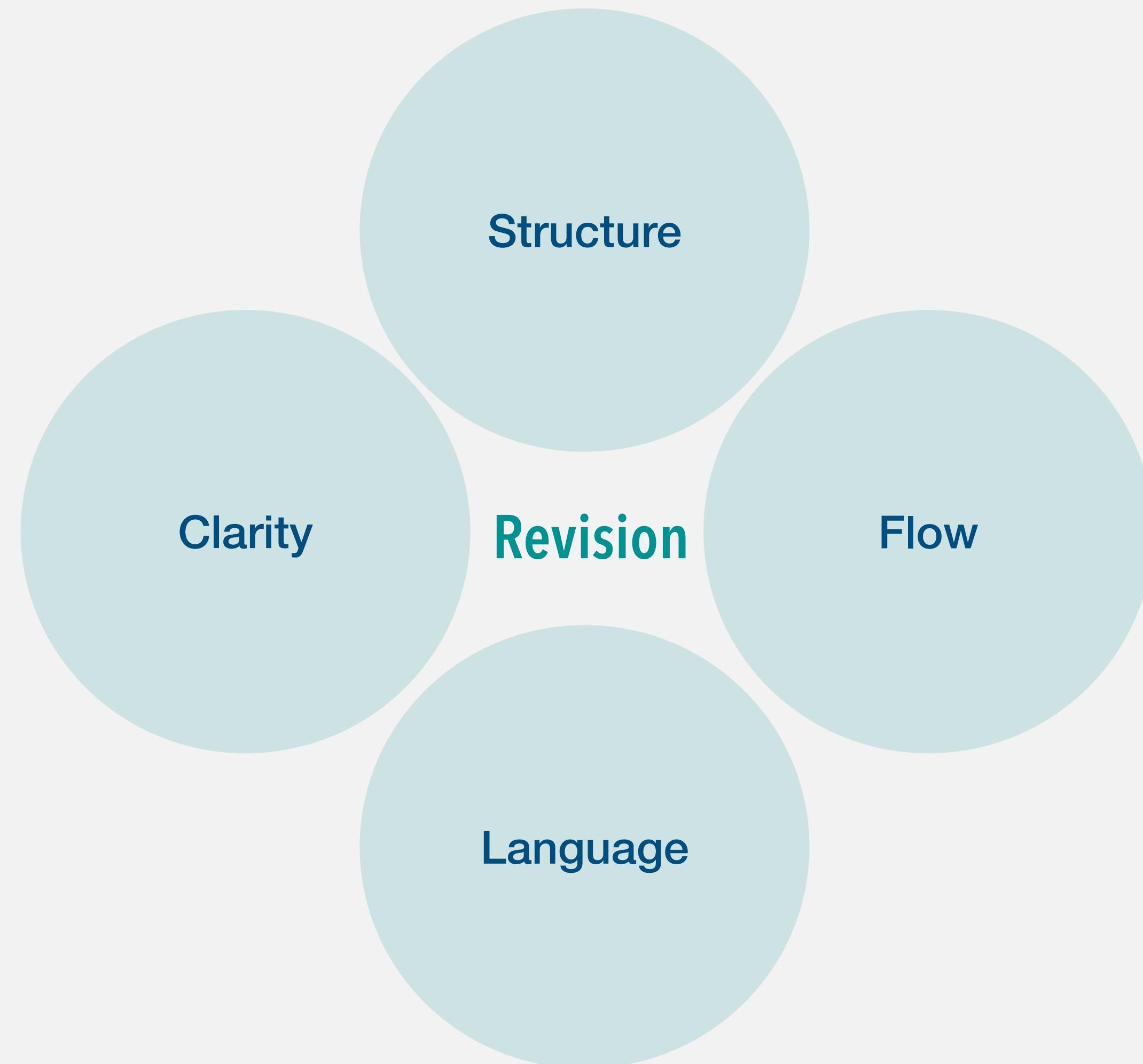
First revision

- Check logical organization and flow of sections and subsections.
 - ➡ is it clear how and why the evidence presented supports the interpretation of your findings? Is it clear why a technique or approach is appropriate? Have the main concepts been clearly and logically connected?
 - ➡ verify that you have a chain of topic sentences running throughout the paper; when read by themselves, they should provide a rough outline of the paper.
 - ➡ make a reverse outline of the paper by going through it paragraph by paragraph (compare with your original outline).
- Revise for style only after you are satisfied with the content and organization.
- Condense where possible.
 - ➡ omit needless details, words, phrases, even paragraphs
 - ➡ look out for repetition and redundancy
- Proofread your manuscript for punctuation, spelling, and typographical errors.

THIS TAKES TIME!

- Revise in stages.
- You will likely take more time revising than writing the first draft.
- Do as much as you can on the first revision.
- When you no longer see anything to change, put the paper away for a few days.
- Then, you are ready to work on second revision or third draft.





- Revising is a multi-step, iterative, and lengthy process – you will always start with something rough (“shitty first draft!”) that takes time to polish.

- Secret weapon in revising:

READ IT OUT LOUD!

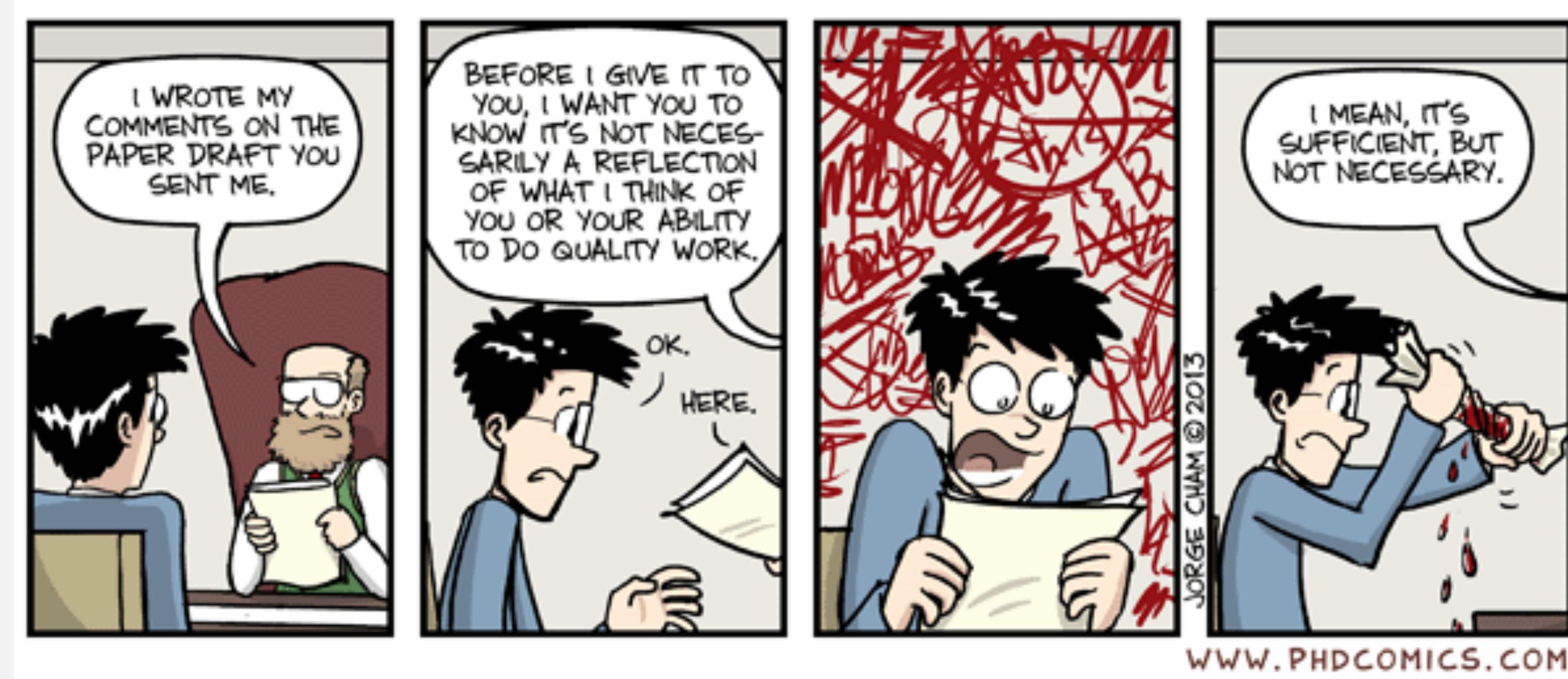
Awkward expressions, breaks in flow, clunky words
— your eyes may skip over them, but not your ears.

Joshua Schimel, Writing Science

Subsequent revisions

- Let some time elapse between revisions. Count on multiple (>6) drafts.
- Recheck for content, logical organization, and style, and revise if needed.
- Give complete copies of revised manuscript to co-authors. As appropriate, point out specific areas in the manuscript where you may need their expertise or opinion.
- Give your co-authors enough time to send comments – at least two weeks for a full paper. People are busy and critically reading a paper and putting together constructive feedback takes time.
- Show your manuscript also to a colleague in a related field and a friend in a different discipline.
- Have at least one English native speaker read the paper.
- Ask for comments and constructive criticism in writing (oral comments are easy to forget; if they only give you oral comments, immediately write them down).
- Be prepared to accept criticism.
- Check for grammatical and other errors before finalizing the manuscript. Know when to stop – finished (as long as it is clear and complete) beats perfect!

Criticism is good!



- If you consider the criticism valid, incorporate it. If you do not think it is valid, at least think it over.
- You don't have to agree with the people reviewing your paper, but you should respect their opinions.
- Give particular consideration to passages questioned by more than one reviewer – such passages usually need extra attention even if you as the author do not immediately see the problem.

Reviewing someone else's manuscript pre-submission

- Be as specific as possible and point out both strengths and weaknesses.
- Always treat the author with respect.

- Evaluating the work of others is good practice for your own writing.
- How you review a colleague's work depends on when in the writing process you are reviewing:
 - early drafts: evaluate primarily major components of the paper, e.g., research question, answer, overall organization;
 - subsequent drafts: style and composition, as well as flow;
 - final draft: should be revised for every aspect of the paper.
- The least helpful comment is: "It looks okay to me."
- Be as specific as possible, point out places in particular where revision would be helpful.
- Be constructive! Don't just point out flaws and problems, provide suggestions on how to improve those.
- If a passage reads well, or a section/figure is particularly great, point it out too!

Checklist for pre-submission peer review

"FINAL".doc



FINAL.doc!



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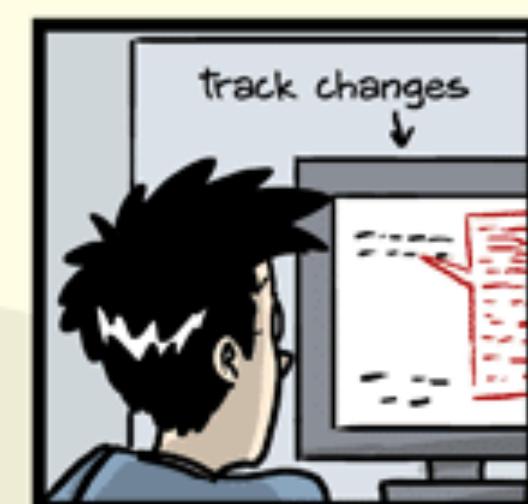
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FINAL_rev.6.COMMENTS.doc



FINAL_rev.8.comments5.CORRECTIONS.doc



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FINAL_rev.18.comments7.corrections9.MORE.30.doc



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Content (I)

Purpose and Interpretation

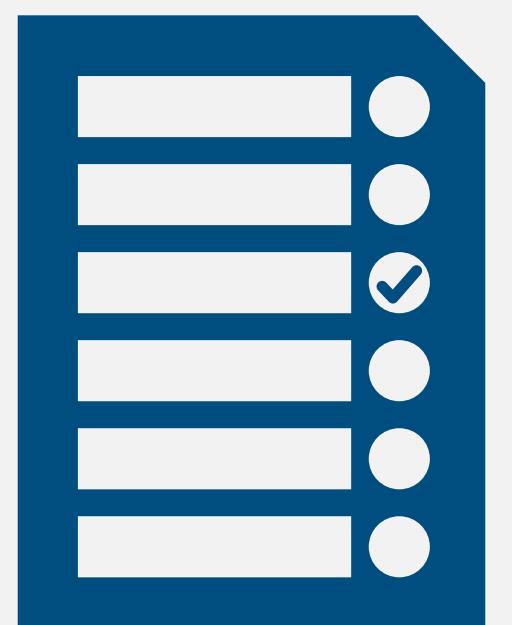
- Is the overall purpose of the paper and/or central question clear?
- Does the interpretation of the findings answer the overall question of the paper?

Support

- Is there sufficient evidence to support the answer?
- Is every paragraph and sentence in the paper relevant to the overall question?
- Are there portions of the text that could be omitted?

Overall

- Does the paper advance the field?
- Does it provide interesting and important insights into the topic of interest?
- Have power positions been considered (especially in the Introduction, Results, and Discussion)?



Content (II)

Individual sections

Title:

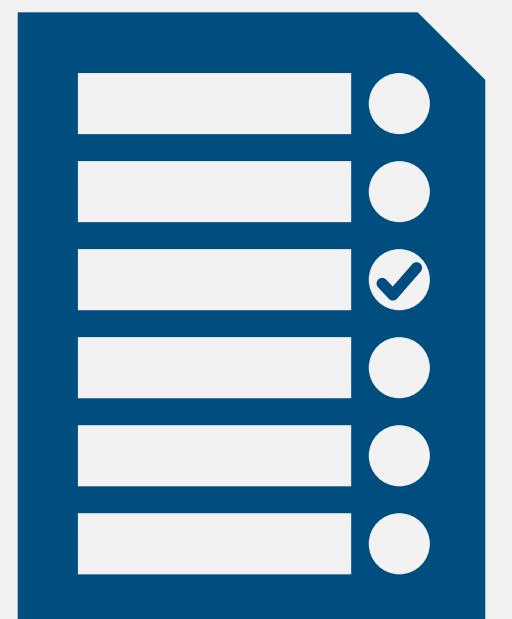
- Is the title strong?

Abstract:

- Does the Abstract adequately summarize the paper?
- Have all necessary elements been included (Question, Experimental approach, Results, Conclusion)?
- Is the Abstract concise?

Introduction:

- Does the Introduction clearly state the overall question of the paper?
- Does the question follow the unknown?
- Are all elements (background, unknown, question, experimental approach) clearly signalled?
- Has the topic been reviewed?



Content (III)

Methods:

- Have all the experiments been described adequately?

Results:

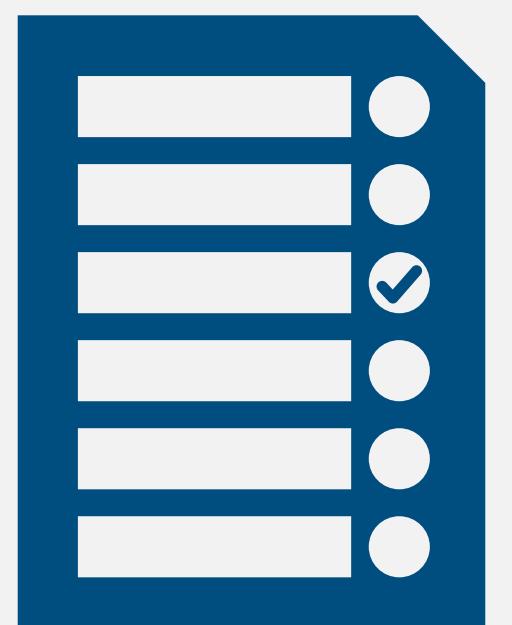
- Is the main finding presented?
- Are there errors in factual information, logic, analysis, statistics, or mathematics?
- Are all figures and tables explained sufficiently?

Discussion:

- Is the overall interpretation of the results clearly stated?
- Did the writer adequately summarize and discuss the topic?
- Has a clear conclusion been provided?

References:

- Have references been cited where needed?
- Are sources cited adequately and appropriately?
- Are all the citations in the text listed in the References section?



Format & Organization (I)

Overall Format and Organization

- Is the overall format and organization of the paper clear and effective?
- Are there unclear portions?
- Could the clarity be improved by changes in the order of the paper?
- Does the language seem appropriate for its intended audience?

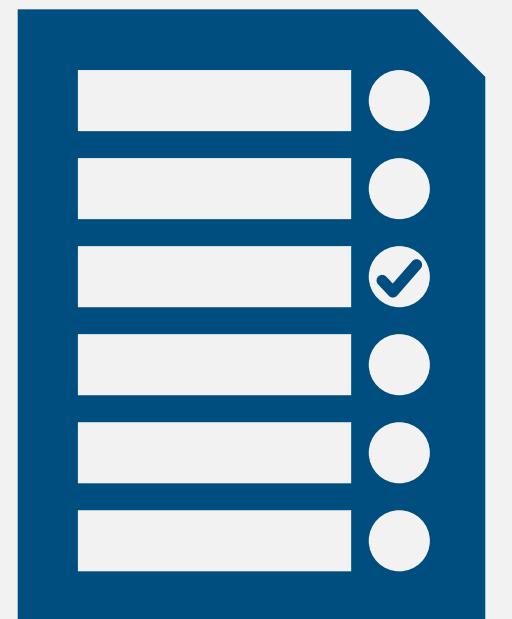
Individual sections

Introduction:

- Does the Introduction follow a funnel structure?

Methods:

- Are experiments organized logically?



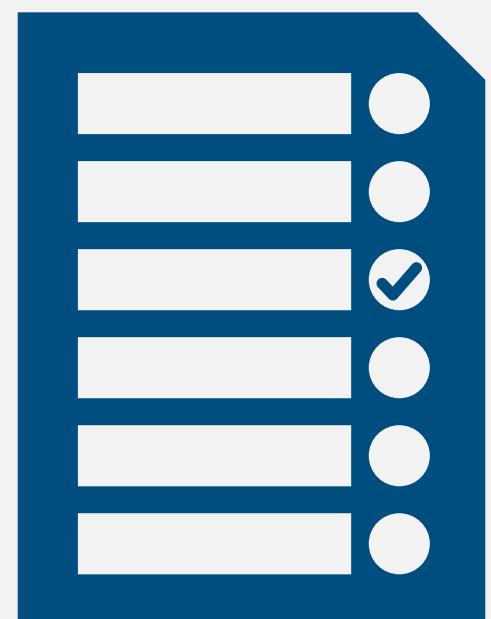
Format & Organization (II)

Results:

- Is the main finding presented in the first paragraph?
- Are all the figures and tables labelled properly?

Discussion

- Is the overall interpretation of the results clearly stated in the first paragraph?
- Is the significance clearly stated in the last/concluding paragraph?
- Is the Discussion ordered in a way that is logical, clear, and easy to follow?

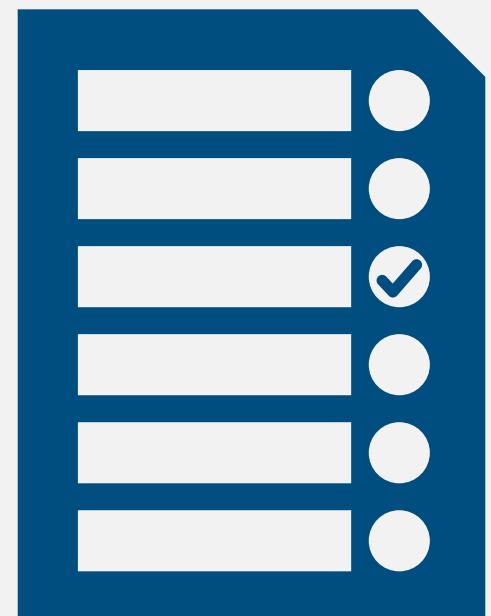


Style & Composition

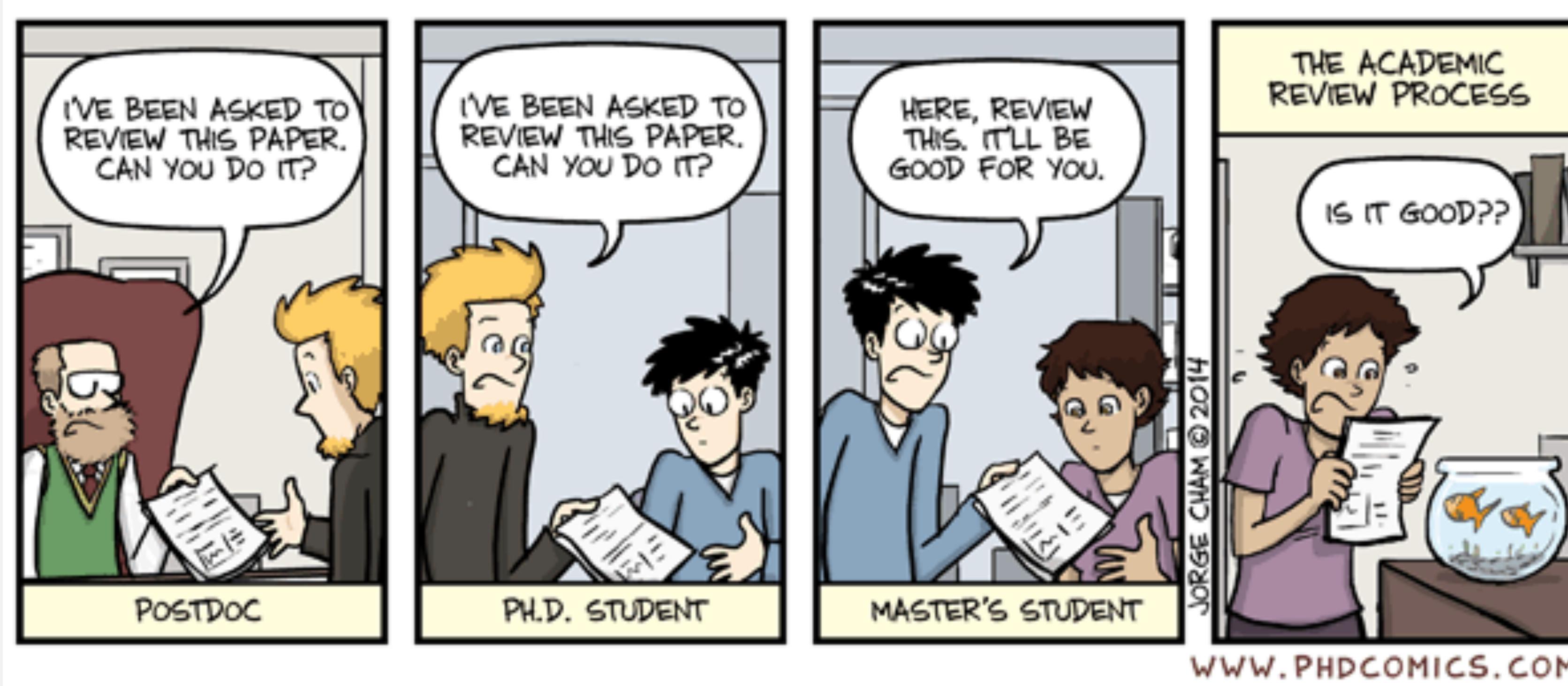
- Are the transitions between sections and paragraphs logical?
- Are key words repeated exactly?
- Are the paragraphs and sentences cohesive?
- Has word location been considered?
- Are there any grammar, punctuation, or spelling problems?
- Is the style concise?
- Are there any wordy passages?
- What other problems exist?

Overall quality

- What are the paper's main strengths?
- What are the paper's main weaknesses?
- What specific recommendations can you make?



SUBMISSION AND PEER REVIEW



Yay! You're ready to submit! Next steps:

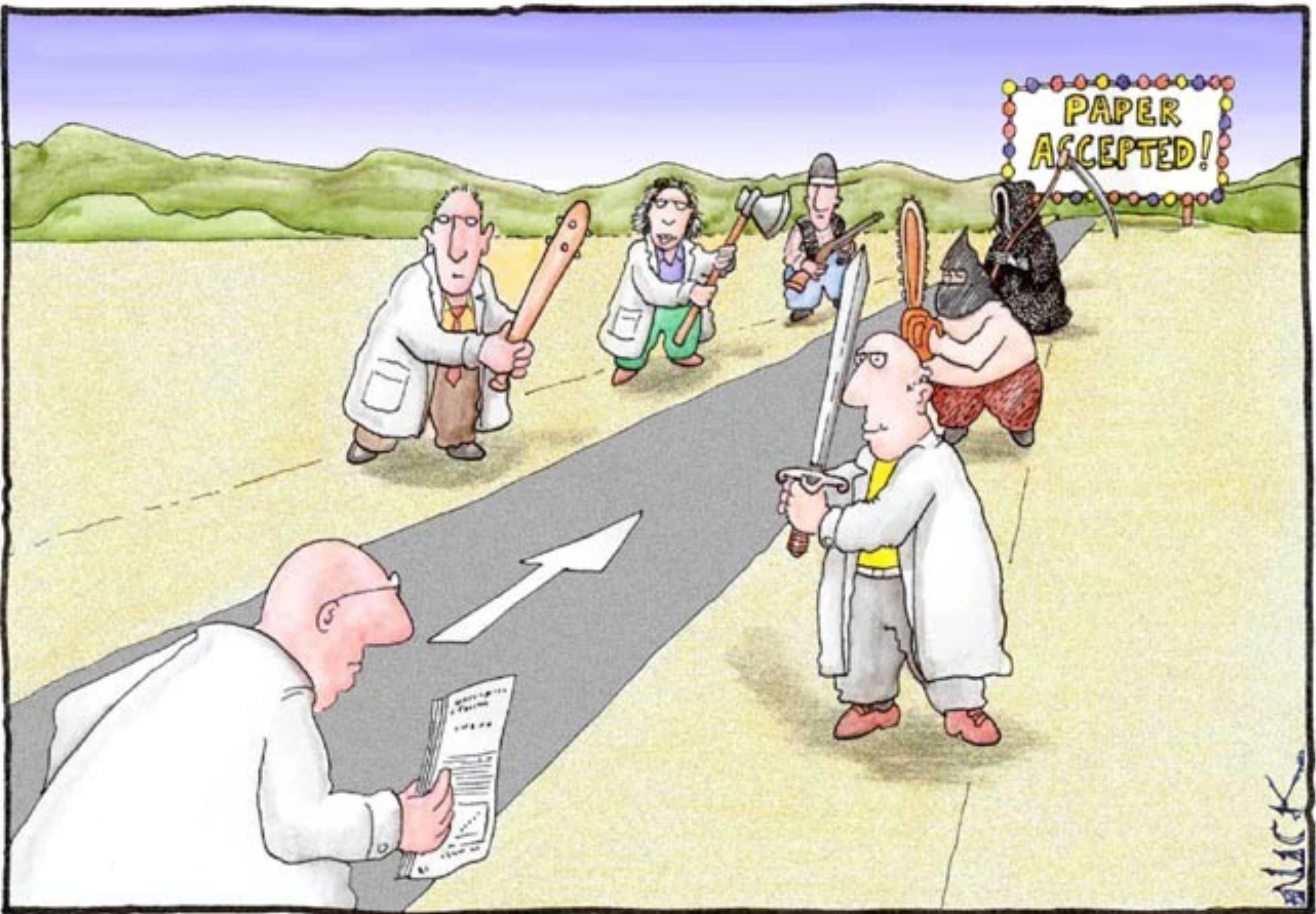
- Check all co-authors have agreed to be on the paper, and their affiliations and acknowledgements are included.
- Decide whether you will submit to the arXiv at the same time as you submit to the journal – people's views on this vary; I personally think it's better to wait until the paper is accepted for publication.
- Check again for spelling, grammar, typesetting errors – finding a typo right after you hit "submit" is very frustrating!
- Familiarize yourself with the guidelines for electronic submission of the journal of your choice:
 - file formats (including figure format and resolution)
 - name all files clearly
- Write the cover letter.

The cover letter (or email)

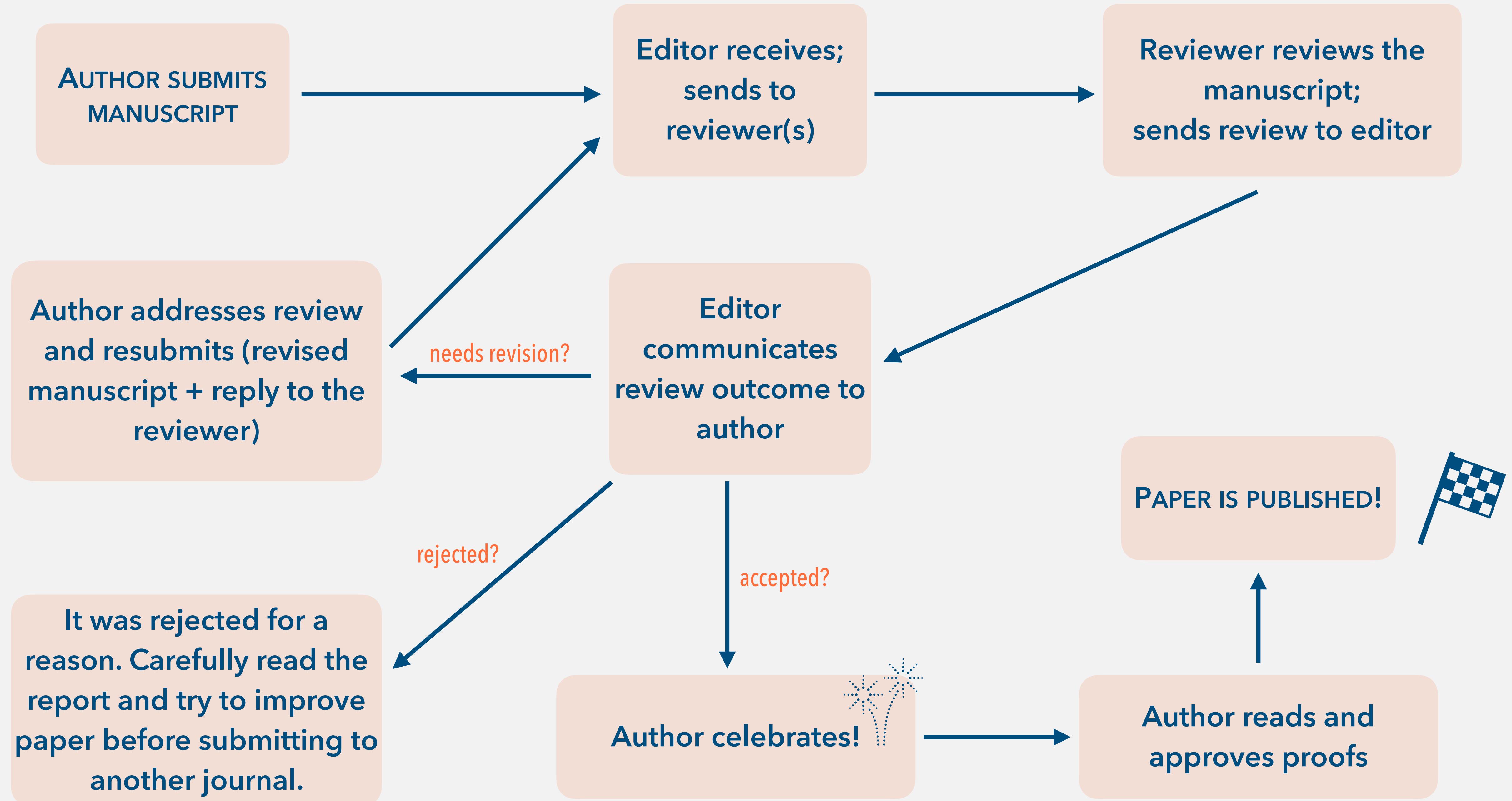
- This is a letter addressed to the journal editor that accompanies your manuscript submission.
- It should be brief and well-crafted.
- Use your institute letterhead, include your contact details, etc – professional letter.
- Addressing the editor by name (e.g., Dear Dr Conselice) will make a good first impression.
- In the body of the letter, briefly state the title of the paper and why it belongs in the journal in the first paragraph. You can add a few sentences on the significance of the work in a second paragraph.
- In the closing paragraph, you may want to request for certain people not to review your manuscript (and explain why, e.g. if someone is a direct competitor). But remember the editor is under no obligation to follow your request.

The peer review process

- Editors usually choose from reviewers they know will send in a good review; often they chose from the references.
- The process is usually single-blind: the reviewer knows who the authors are but the authors don't know who the reviewer is.
- The reviewer is asked by the editor if they are willing/able to review a paper and they only see the title, authors, and abstract to make that decision – make the abstract interesting so they accept!
- The whole process takes time (~months).
- Reply to any emails from the editor as quickly as possible.
- Make corrections by the requested date.
- Always be courteous and professional in every interaction with the editor and communication with the reviewer!



Most scientists regarded the new streamlined peer-review process
as "quite an improvement."



ADDRESSING REVIEWER COMMENTS

BAD REVIEWS ON YOUR PAPER? FOLLOW THESE GUIDELINES AND YOU MAY YET GET IT PAST THE EDITOR:

Reviewer comment:

"The method/device/paradigm the authors propose is clearly wrong."

How NOT to respond:

✗ "Yes, we know. We thought we could still get a paper out of it. Sorry."

Correct response:

✓ "The reviewer raises an interesting concern. However, as the focus of this work is exploratory and not performance-based, validation was not found to be of critical importance to the contribution of the paper."

Reviewer comment:

"The authors fail to reference the work of Smith et al., who solved the same problem 20 years ago."

How NOT to respond:

✗ "Huh. We didn't think anybody had read that. Actually, their solution is better than ours."

Correct response:

✓ "The reviewer raises an interesting concern. However, our work is based on completely different first principles (we use different variable names), and has a much more attractive graphical user interface."

Reviewer comment:

"This paper is poorly written and scientifically unsound. I do not recommend it for publication."

How NOT to respond:

✗ "You #&@*% reviewer! I know who you are! I'm gonna get you when it's my turn to review!"

Correct response:

✓ "The reviewer raises an interesting concern. However, we feel the reviewer did not fully comprehend the scope of the work, and misjudged the results based on incorrect assumptions."

Addressing the referee report

Referee reports are not all made equal; there are many different kinds, for example:

- One that is **constructive**, lends insight that no one on the author list had, and improves the paper in an objective sense.
- One that includes only **minor comments** (wording issues), and lets the paper through.
- One that is **extensive**, and requires major new analysis for acceptance.
- One that is **hostile** (s spiteful), irrational, ignorant, politically-driven, and seemingly unsurmountable.



4:41 AM · Feb 19, 2022 · Twitter Web App

Addressing the referee report (I)

1) Address every comment raised by the referee.

If at all possible, as an author, you need to respond to every comment in the referee report. You don't need to alter the paper in response to each comment, but, if you choose not to edit the paper, you need to provide an adequate response in your letter to the referee explaining why you are not changing the paper.

2) Pick your battles.

As long as changing the paper in response to a referee comment does not make the paper worse (and hopefully it will make the paper better), you should implement the comment. At the same time, if you truly feel that implementing the comment will degrade the quality of the paper, do not implement it – but explain your reasoning in a dispassionate manner.

3) Use a respectful tone.

Even if the referee's tone is unprofessional, you should maintain a focus on facts, and remain constructive – even if you disagree. One of the easiest comments to address is the one where the referee asks you to do something, and you've already done it in the submitted manuscript. Simply point the referee to the relevant part of the manuscript, sans snark! Also, remember to thank the referee for their comments.

Addressing the referee report (II)

4) Contacting the editor.

For the most part, it should be sufficient to submit a standard referee response letter to the journal, with boilerplate comments to the editor. If you are not converging with the referee (e.g., 3rd or 4th round), or if something unusual occurs, it's time to write to the editor directly, and either ask them to step in, or request a second referee.

5) Make it easy to find your answer to each comment.

In practice, a good way to do this is the following. Make a copy of the referee report. Below each comment, include your response, using symbols such as “**” or “>” before each line, or labelling “Reviewer” for the comment/“Authors” for the answer and if possible use boldface or different colour font. The idea is to clearly delineate your own responses from the comments of the referee. If multiple comments from the referee touch on the same topic, you can refer to your response to an earlier comment (e.g., “see our response to comment #11”).

Addressing the referee report (III)

6) Make it easy to spot edits to the text.

If you make edits to the text, indicate where they are in the updated manuscript, and if possible highlight them using e.g., boldface. Include the updated text in your referee response – it makes life easier for the referee and it makes it more likely that they will see your edit.

7) Provide complete references.

If you use references to back up your arguments in the referee reply, include the full bibliographic information (i.e., Author, journal, year, volume, page), not just “Author et al., year”.

8) Consider including figures.

Sometimes it pays to make figures to accompany your response, and illustrate key points, even if they don’t make it into the revised manuscript.

Remember: writing & publishing a paper is not linear

