

# Some remarks on Posters

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# Good Posters are simple & clear

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- Uncluttered & easily read from 1.5 m
- Main message in Title
- Prominent Objectives & **Conclusions**
- Text used with parsimony
- Figures adapted for simple visual messages
- Obvious sequence
- Most important on top
- Messages on several levels

# Writing readable scientific papers

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# This talk isn't about *Getting Started*

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- Write down the main point
- Make an outline
- Start writing in the middle
- Write the 1<sup>st</sup> draft quickly (no worries about editing)
- Revise

# Food for thought

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- Research doesn't count until it is published
- Publish or Perish
- Quantity is valued by some, but
- Quality is valued by all

*If you are out to describe the truth, leave elegance to the tailor.*

**Albert Einstein**

*Everything should be made as simple as possible,  
but not simpler.*

**Albert Einstein**

# Here's a story with a problem:

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1. Once upon a time, as a walk through the woods was taking place on the part of Little Red Riding Hood, the Wolf's jump out from behind a tree occurred, causing her fright.



# Compare sentences

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1. Once upon a time, as a walk through the woods was taking place on the part of Little Red Riding Hood, the Wolf's jump out from behind a tree occurred, causing her fright.
2. Once upon a time, Little Red Riding Hood was walking through the woods, when the Wolf jumped out from behind a tree and frightened her.

# Characters as Subjects

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1. Once upon a time, as **a walk** through the woods was taking place on the part of *Little Red Riding Hood*, *the Wolf's* **jump** out from behind a tree occurred, causing her fright.
2. Once upon a time, *Little Red Riding Hood* was walking through the woods, when *the Wolf* jumped out from behind a tree and frightened her.

# Actions as Verbs

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1. Once upon a time, as a **walk** through the woods was taking place on the part of Little Red Riding Hood, the Wolf's **jump** out from behind a tree occurred, causing her **fright**.
2. Once upon a time, Little Red Riding Hood was walking through the woods, when the Wolf jumped out from behind a tree and frightened her.

# Fix Nominalizations (verbs turned into nouns)

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1. The continuous ***stripping*** of rain forests in the ***service*** of short-term economic interests could result in ***damage*** to the entire biosphere.
2. If rain forests are continuously **stripped** to **serve** short-term economic interests, the entire biosphere may be **damaged**.

## Noun → Verb

- decision → decide
- agreement → agree
- resistance → resist
- delay → delay

## Noun → Adjective

- carelessness → careless
- frequency → frequent
- intelligence → intelligent
- specificity → specific

# Summary: Characters & Actions

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## Compare:

Radioactivity was the topic of our study. [Passive voice]

subject                  verb  
doer                  action

We studied radioactivity. [Active voice]

subject                  verb                  object  
doer                  action

- Readers prefer when most sentences have
  - *Subjects* that are characters &
  - *Actions* that are verbs.
- Benefit: sentences are shorter & clearer

# Should we always avoid *passive voice*?

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- 2a. The collapse of a dead star into a point no larger than a marble **creates** a black hole.
- 2b. A black hole **is created** by the collapse of a dead star into a point perhaps no larger than a marble.

# Which sentence fits better in a sequence?

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1. The collapse of a dead star into a point no larger than a marble **creates** a black hole.
2. A black hole **is created** by the collapse of a dead star into a point perhaps no larger than a marble.

Some astonishing questions about the nature of the universe have been raised by scientists studying black holes in space. [...] So much matter compressed into so little volume changes the fabric of space around it in puzzling ways.

# Which choice favors *Flow* between sentences?

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1. Some astonishing questions about the nature of the universe have been raised by scientists studying black holes in space. **The collapse of a dead star into a point no larger than a marble creates a black hole.** So much matter compressed into so little volume changes the fabric of space around it in puzzling ways.
2. Some astonishing questions about the nature of the universe have been raised by scientists studying black holes in space. **A black hole is created by the collapse of a dead star into a point perhaps no larger than a marble.** So much matter compressed into so little volume changes the fabric of space around it in puzzling ways.



# 1st *Flow* Principle: Old before New

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1. Some astonishing questions about the nature of the universe have been raised by scientists studying black holes in space. The collapse of a dead star into a point no larger than a marble creates a black hole. So much matter compressed into so little volume changes the fabric of space around it in puzzling ways.
2. Some astonishing questions about the nature of the universe have been raised by scientists studying [black holes in space. A black hole] is created by the collapse of a dead star into [a point perhaps no larger than a marble. So much matter compressed into so little volume] changes the fabric of space around it in puzzling ways.

# Tense – a matter of respect

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- Present tense – published work (established knowledge)  
*The half-life of  $^{14}\text{C}$  is 5700 yr (Audi et al., 2003; Bé et al, 2013).*
- Past tense – your own present work  
*Simulated acidification was highest in the Arctic Ocean.*

## Exceptions:

- Presentation: *Figure 1 shows that ...*
- Attribution: *Jones et al. (2015) showed that ...*

## Sections:

- Past tense: Abstract, Methods, & Results
- Present tense: Introduction & Discussion

## Must switch tense in some sentences:

*Our simulated pH change **was** 0.1 units, while data-based estimates **are** more than twice as much (Smith, 2014).*

# Passive voice: avoid or not?

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- When to use the passive voice:
  - ✓ To improve flow
  - ✓ To focus attention of readers on a particular character (subject)
  - ✓ To avoid mentioning subject (obvious, don't care, or don't want readers to know)
- Passive voice – for actions that **others can replicate** (measure, combine, record, ...)

*Oxygen isotopes were measured by mass spectrometer.*

- Active voice – for actions that **only you can perform** (suggest, argue, show, claim, prove, ...)

*We found that differences are due to the Suess effect.*

# Avoid the 1<sup>st</sup> person?

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I procured a triangular glass prism, to try therewith the celebrated phenomena of colors. And for that purpose, having darkened my laboratory, and made a small hole in my window shade, to let in a convenient quantity of the sun's light, I placed my prism at the entrance, that the light might be thereby refracted to the opposite wall. It was at first a very pleasing diversion to view the vivid and intense colors produced thereby.

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**Isaac Newton**

*New Theory of Light and Colors (1672)*

# Use 1<sup>st</sup> person, but in right places

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- Good writers often use 1<sup>st</sup> person at
  - Beginning (Introduction)
    - We claim that ...
    - We will show ...
    - We begin by ...
  - End (when summarizing)
    - We have argued ...
    - We have shown ...
- Avoid 1<sup>st</sup> person when describing your actions performed as part of your research
  - All calculated variables were computed from the GLODAP data.

# 3 methods to improve long sentences

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Of the many areas of science important to our future, few are more promising than genetic engineering, which is a new way of manipulating the elemental structural units of life itself, which are the genes and chromosomes that tell our cells how to reproduce to become the parts that constitute our bodies.

## Alternatives:

### Cut out parts

Of the many areas of science important to our future, few are more promising than genetic engineering, **which is** a new way of manipulating the elemental structural units of life itself, **which are** the genes and chromosomes that tell our cells how to reproduce to become the parts that constitute our bodies.

### Break them apart

Of the many areas of science important to our future, few are more promising than genetic engineering. **It** is a new way of manipulating the elemental structural units of life itself, which are the genes and chromosomes that tell our cells how to reproduce to become the parts that constitute our bodies.

### Use modifiers

# Use *modifiers* to improve long sentences

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## Resumptive modifier

Within ten years we could meet our energy needs with solar power, **needs** that will soar as our population grows.

## Summative modifier

Within ten years we could meet our energy needs with solar power, **a possibility** that few anticipated a decade ago.

## Free modifier

Within ten years we could meet our energy needs with solar power, **freeing** ourselves of dependence on foreign oil.



# Exercise on modifiers

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The reasons for the cause of aging are a **puzzle** that has perplexed humanity for millenia.

Make 3 longer sentences, using each of the following:

- Resumptive modifier
- Summative modifier (use 'a mystery')
- Free modifier

# Exercise on modifiers – example answers

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The reasons for the cause of aging are a **puzzle** that has perplexed humanity.

## Resumptive modifier

For millenia, why we age has been a puzzle, a puzzle that only now can be answered with any uncertainty.

## Summative modifier

For millenia, why we age has been a puzzle, a mystery that we can answer either biologically or spiritually.

## Free modifier

For millenia, why we age has been a puzzle, hoping that one day we might stop our inevitable decline into infirmity and death.

# References:

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W. Strunk Jr. and E. B. White, *The Elements of Style*, Longman Publishers for the 4th edition, 1999 (the 1st edition was published in 1959!)

\*\*\* J. M. Williams, *Style The Basics of Clarity and Grace*, 1st edition, ISBN 0-32111252-0 Addison Wesley Longman, Inc., 2003, 150 pp.  
→ this version is handy but the longer version, *Style: Lessons in Clarity and Grace*, also offers exercises to learn by doing

\*\*\* R. A. Day and B. Gastel, *How to Write and Publish a Scientific Paper*, 6th edition, ISBN 0-313-33040-9 Greenwood Press, 2006, 320 pp.

W. C. Booth, G. C. Colomb, and J. M. Williams, *The Craft of Research*, 2<sup>nd</sup> edition, University of Chicago Press, ISBN 0-226-06568-05, 325 pp.

# Two books no scientist should be without

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