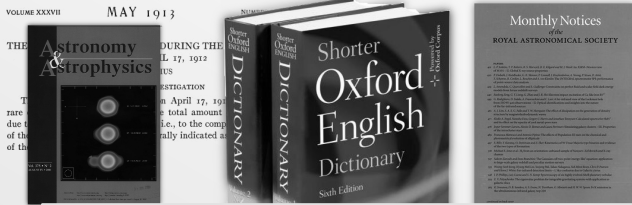


# Scientific Writing 6951

THE  
ASTROPHYSICAL JOURNAL  
AN INTERNATIONAL REVIEW OF SPECTROSCOPY  
AND ASTRONOMICAL PHYSICS

Wednesdays 10-12 Room 0.008



<http://www.astro.uni-bonn.de/~izzard/writing.html>

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## Previously on *Scientific Writing*

- Style part 1 of 3
- Errors and distraction
- Fragments, Sentences, Paragraphs, Clauses
- Openings
- Consistency
- Gender bias



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**English Style!**



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## Today

- Part I :Punctuation
  - **Commas**, Clauses, Phrases, Lists
  - Hyphens, dashes
  - Numbers, units and counting
- Part II : **Verbs**
  - Verbose **Fluff**
  - Quotation, hyphens, dashes
  - Double negatives



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## Punctuation Hell

- German/French/etc.

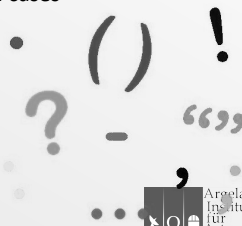
,,,!!!

- Scientific English:

”””

- Moral: use commas only in special cases

(which have to be learned...)



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## Commas 1

Separate introductory and dependent phrases from the rest of the sentence (unless the phrase is very short)

Despite an attack of influenza, I gave the lecture.  
However large it is, the star is yellow.

But not for infinitive (to ...) or gerund (...ing) phrases:

To obtain the stellar colour a stellar atmosphere code was employed.  
Doing the shopping was tiring because I was sick.  
Shopping was tiring because I was sick.

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## Commas 2

Joining of (unrelated) *independent* clauses (with a conjunction)

The stellar model does not resolve convection, **but** the SPH model does.

*Exception: short sentences, closely related clauses.*

I am alive and I am doing fine.

The code ran for five hundred timesteps and then crashed.

*Avoid comma splices (in sentences without conjunctions)*

It is late, we are tired.

It is late; we are tired.

It is late – we are tired.

*"So many highly respected writers observe the splice comma that a rather unfair rule emerges on this one: only do it if you're famous."*  
Lynne Truss (British author)

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## Commas 3

Delimit non-restrictive (parenthetic) phrases (more later)

The stellar model, which continues to run, does not resolve convective cells.

Eloquent Science (p346) gives an excellent example:

Critics of the war plan, now being executed by the U.S. Military, ...

Place names

London, England.

Bonn, Germany.



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## Commas 4

Lists of things

The set includes x, y and z.



The set includes x, y, and z.



Oxford / Harvard comma

**BUT!** Use an Oxford comma to avoid ambiguity

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## Oxford comma?

- Among those interviewed were his two ex-wives, Kris Kristofferson and Robert Duvall.
- Among those interviewed were his two ex-wives, Kris Kristofferson, and Robert Duvall.

[http://en.wikipedia.org/wiki/Serial\\_comma#Resolving\\_ambiguity](http://en.wikipedia.org/wiki/Serial_comma#Resolving_ambiguity)

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## Oxford comma?

- ***They went to Oregon with Betty, a maid, and a cook.***

How many people went to Oregon?

- ***They went to Oregon with Betty, a maid and a cook.***

Is Betty a maid *and* a cook?

**The Oxford comma does not help here!**



[http://en.wikipedia.org/wiki/Serial\\_comma#Resolving\\_ambiguity](http://en.wikipedia.org/wiki/Serial_comma#Resolving_ambiguity)

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## ... or rephrase for clarity!

- 1 person
  - They went to Oregon with Betty, who was a maid and a cook.
  - They went to Oregon with Betty, both a maid and a cook.
  - They went to Oregon with Betty, their maid and cook.
- 2 persons
  - They went to Oregon with Betty (a maid) and a cook.
  - They went to Oregon with Betty—a maid—and a cook.
  - They went to Oregon with Betty, a maid, and with a cook.
  - They went to Oregon with the maid Betty and a cook.
  - They went to Oregon with a cook and Betty, a maid.
  - They went to Oregon with Betty, a maid; and a cook.
- 3 persons
  - They went to Oregon with Betty, as well as a maid and a cook.
  - They went to Oregon with Betty and a maid and a cook.
  - They went to Oregon with Betty, one maid and a cook.
  - They went to Oregon with a maid, a cook, and Betty.
  - They went with Betty to Oregon with a maid and a cook.

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## Commas 5

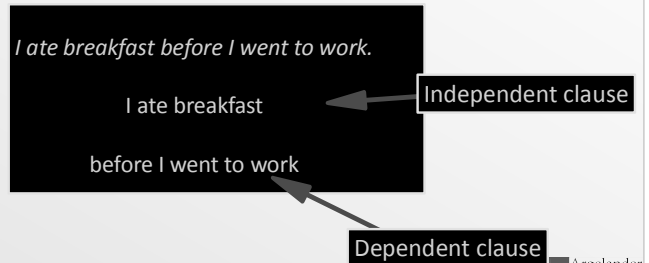
### Adjective lists



## Commas 6: Misuse

### Restrictive clauses:

cannot be removed and maintain meaning  
or be used alone



## Commas 6: Misuse

### Restrictive clauses:

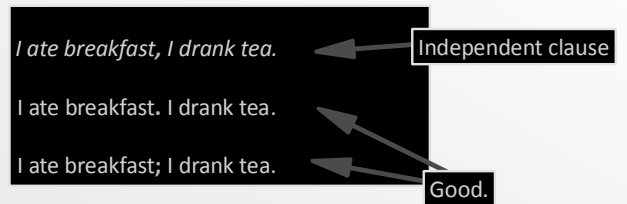
cannot be removed and maintain meaning  
or be used alone

- (1) The building company, which erects very fine houses, will make a large profit.  
(non-restrictive)
- (2) The building company that/which erects very fine houses will make a large profit.  
(restrictive)

**No commas around restrictive clauses**

## Commas 7: Misuse

### Joining of two independent clauses without a conjunction



## Comma resources

<http://owl.english.purdue.edu/owl/resource/692/1/>  
<http://johngarger.com/articles/writing/the-top-3-misused-commas-in-scholarly-writing>

<http://www.kentlaw.edu/academics/lrw/grinker/LwtaCommas.htm>

## Hyphens and dashes

### Hyphens

- Between number ranges:

**1-10, 62.3-102.4**

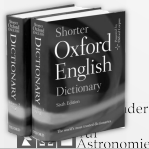
- Split words across a line (LaTeX does this for you)  
*hyphenation*
- Compound words ... sometimes! (next slide)

## Compound Words

... are a *nightmare!* Use hyphens in these cases:

- Numbers: *One-hundred-and-two*
- Modifiers (before a noun) “Star-to-star variation”
- Multiple modifiers: *The short- and long-period binary stars.*
- X-ray, T-bone, ex-worker
- NOT -ly adverbs: **Slowly** rotating star.
- Clarity: *I recount the votes* vs *I re-count the votes.*

Otherwise, it's seemingly random . . .  
Get a dictionary and check!



## En Dashes

- En-dash — (width of an *n*)  
longer than a hyphen -
- Separates two words of similar importance
- 30%–100%, *Prize-winning* paper,  
pages 10–20, *x–y* plot, 1969–2011
- In open/libreoffice and *LaTeX*: --

## Em Dashes

- Em-dash — (width of an *m*)
- Used for emphasised parenthetical phrases  
*The star (which was red) exploded.*  
*The star, which was red, exploded.*  
*The star — which was red — exploded.*
- Do not use the em-dash often!
- *LaTeX*: ---

## Apostrophe and Quotation

- Used for possessive e.g. *Rob's beer*
- **Generally avoided in scientific writing!**
- But remember :
  - it's = *it is*
  - its thing = *the thing that belongs to it*
- Quotation in English “...” or '...'
  - He said “I am fine,” but then died.
  - He said “I am fine”, but then died.
- Use for *direct quotes* and *jargon*



i.e. **sparingly!**

## Numbers and counting

- For measurements, decimals and money use numerals e.g. 1 km, \$2.60
- When counting small numbers or informal use words e.g. *I walked for one kilometre.*
- Check journal style for  $M_{\odot}$  vs  $M_{\odot}$  etc.
- Spacing: *LaTeX* \, → 1 km  
1 km
- Beware:
  - The stick is 1.257135712 m long.
  - The stick is  $1.2 \pm 0.352$  m long.

## Part II: Verbs and fluff

- Misuse of verbs and verbal “fluff” ruin a good paper
- Avoid this by learning to be two things:
  - **CLEAR**
  - **CONCISE**
- *Control the tone*
- Rule of thumb:  
*can you remove the phrase and  
the meaning is the same?*

**If so DO IT!**



## Strong verbs

- What do verbs like *get*, *use*, *do*, *affect* actually mean?
- Use “**strong**” verbs.
- E.g.
  - I went to **get** the shopping.
  - I went to **buy** the shopping.
  - The child got woken up.
  - The child was woken (up).
- Modal verbs are weak: *can*, *may*, *will*

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## Concise phrasing

- E.g. Why use *utilize* when *use* is the same?
- Ditto for:
  - perform – do
  - Initiate – start
  - Facilitate – cause
  - Propagate – move
- Short (usually Anglo-Saxon origin) words

← Pretentious!



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## Concise phrasing

- It is known that the star is blue.
- It is clear that the star is blue.
- It has been noted that the star is blue.
- It is obvious that the star is blue.

What is it?

The above are sometimes *pretentious* and all *waste* a lot of space. What about this?

**The star is blue.**

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## Concise phrasing

- The number  $\pi$  is approximately 3.1459.
- The number  $\pi$  is more or less 3.1459.
- The number  $\pi$  is in the vicinity of 3.1459.
- The number  $\pi$  is of the order of 3.1459.

**The number  $\pi$  is about 3.1459.**

- Use words: avoid “ $\pi \sim 3.1459$ ”

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## Connotation I

- Verbs may have other meanings
- e.g. “Claim”
  - Jones (2010) *claims* that  $\pi = 22/7$ .
- This implies that Jones says  $\pi = 22/7$ 
  - and
- That ***we do not believe*** Jones !
- This may be an ***unwise statement*** !

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## Connotation II

- e.g.
  - The abundance of nitrogen is significant in the star HD 012345.
- What does this ***mean*** ?
- Have you ***really*** calculated a ***significance test*** (in the statistical sense) ?
  - That is what it ***really*** means.
- Be careful!
  - (this is related to jargon – see next class)

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## Confusing pronouns

- *Such stars lead to rapid evolution of the galaxy and systematic reddening of its dust. This is critical to the formation of planets.*
- What is *this* ?
- Reddening?
- The galaxy?
- The stars?
- Who knows...

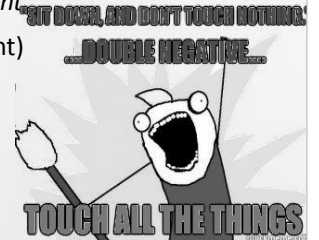


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## Double negatives

- It is **not not** good. *Clearly wrong.*
- “It is **not unlikely**” (It is likely)
- “The effect was **not unimpressive**”  
(The effect was impressive)
- “At **no time** was the signal **absent**”  
(The signal was always present)



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## Recent Example!

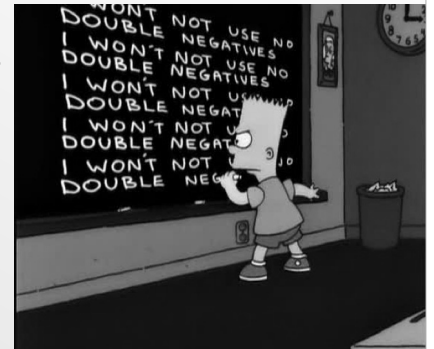
- Bonn-Cologne Graduate School *H2* admissions
- Selection criteria:
- Page 1: “**They (students) can apply after having finished the first PhD year**”
- Page 2: “**Work on the PhD thesis began no sooner than 18 months before the date of the review**”
- So when can a student apply?
- Deadlines are: 1 September, 10 January, 1 May

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## Exercises

- Pronouns
- Commas and restrictive clauses
- Commas and lists
- Commas and clauses
- Improve me!



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