Academic Communication
in (Astro)Physics

Lecture 4: Good Style III

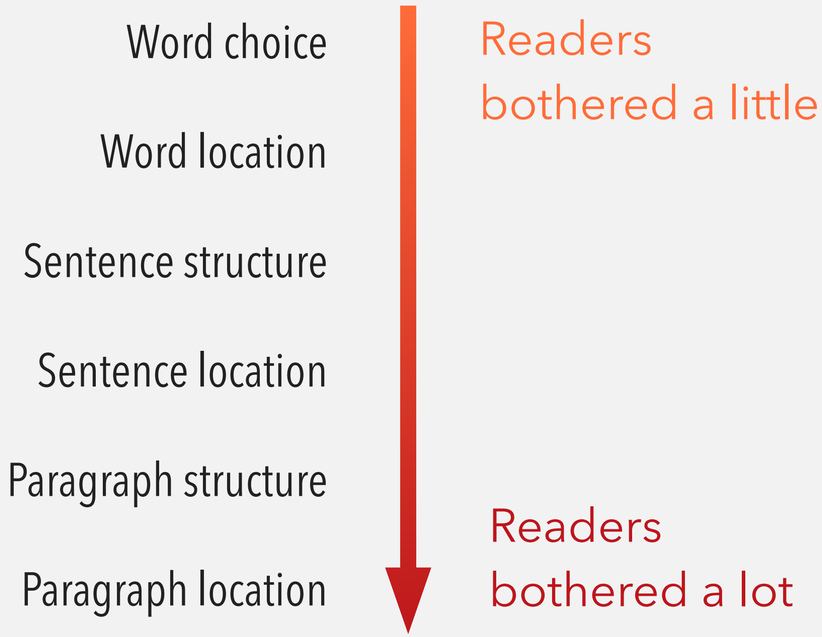
Word Choice

Common word choice and grammar issues

Substance ⇔ Structure

Readers have relatively fixed expectations about where in the structure of prose they will encounter particular items of its substance.

It is more important to logically organize and present one's ideas than to worry about perfect grammatical form or word choice (though those are important too!).



Choose your words with care

> "This sentence beats readers into submission and instructs them that they are in the presence of a great and deep mind. Actual communication has nothing to do with it."
>
> Dennis Dutton, editor of *Philosophy and Literature*, commenting on a piece of academic writing.

Causes of heavy academic style:

- we imitate what we read – this style becomes an ingrained habit, creating a self-sustaining cycle.
- written and spoken English are different. We think differently when we write. Written language is more formal.

But scientific writing can have life and energy – you can be professional without being pedantic.

When you last read a paper that was hard to read, were you impressed by how scholarly the authors were? Or were you frustrated trying to figure out what they were saying? We notice language when it's awkward, and may blame ourselves for not being smart enough to figure it out.

When the writing is good, we notice the ideas and the data, and those are what make the science.

Consider the origin of English words

An important issue when choosing English words is their origin. English takes words from three main sources:

Anglo-Saxon Old English
peasant's language

- **feels comfortable and casual**
- **usually shorter**
- **more common**

Norman French
nobles' language

- **feels formal**
- ***-ate***

Latin
scholars' language

- **feels like jargon**
- **originally coined to show off writer's erudition**
- ***-ion***

Despite the benefits of short, light words, academics routinely fall into the centuries-old trap of choosing long, heavy Latin words. **Many of us are still showing off instead of communicating.** Given a choice of starting an experiment or initiating one, we go for the Latin and "initiate".
Why use a long Latin word when a short Anglo-Saxon one will do the job?
Also, **proposals have page limits – you can't afford to waste space.**

If unsure, consult a good dictionary (e.g., the Oxford English Dictionary) for a word's origin and meanings.

Short words are best, and old words when short, best of all.

Winston Churchill

Long French or Latin word	Short Anglo-Saxon Word (unless otherwise noted)
Duration (French)	Length or time
Consume (French)	Eat
Mortality (French)	Death
Permit (French)	Let
Necessary (French)	Need
Demonstrate (Latin)	Show
Donate (Latin)	Give
Initiate (Latin)	Start
Attempt (French)	Try (from Old French *trier*)
Utilize (French)	Use (from Old French *user*)
Methodology (Latin combined form)	Method (Latin borrowed into English)

Long	Short
implement	put
adhere	stick
develop	make
retain	keep
utilize	use
terminate	end
ascertain	find
facilitate	help
alteration	change
subsequent	next
prescription	plan

Sometimes, you should use the French/Latin word because the English word has a different connotation.

If you are struggling with word choice, use a thesaurus, but always back it up with a good dictionary.

Some online resources

(many more if you Google!)

THESAURUS.COM

SYNONYMS FOR *terminate* ⓘ

Compare Synonyms

abolish	discharge	sack	end	scrub
abort	discontinue	wrap up	extinguish	tether
adjourn	dismiss	achieve	fire	wrap
annul	dissolve	bounce	issue	bring to an end
cancel	eliminate	bound	lapse	come to an end
cease	expire	close	limit	prorogate
complete	halt	confine	perfect	run out
conclude	put an end to	define	prorogue	ultimate
cut off	recess	desist	result	wind down
determine	restrict	drop	scratch	wind up

ONLINE ETYMOLOGY DICTIONARY

Search

end (v.)

Old English *endian* "to end, finish, abolish, destroy; come to an end, die," from the source of **end** (n.). Related: **Ended**; **ending**.

terminate (v.)

early 15c., "bring to an end," from Latin *terminatus*, past participle of *terminare* "to mark the end or boundary," from *terminus* "end, limit" (see **terminus**). Intransitive sense of "to come to an end" is recorded from 1640s; meaning "dismiss from a job" is recorded from 1973; that of "to assassinate" is from 1975. Related: *Terminated*; *terminating*.

Cambridge Dictionary

dictionary.cambridge.org

terminate

verb [I or T] • formal

UK /ˈtɜː.mɪ.neɪt/ US /ˈtɜː.mə.neɪt/

to (cause something to) end or stop

terminar, cancelar, rescindir

- *They terminated my contract in October.*
- *This train will terminate at the next stop - passengers who wish to continue should change trains.*

Use simple words

Avoid flowery and pompous language. In professional English, statements are rather direct; you need to use correct terminology and avoid grandiose and unnecessarily complicated words or phrases. This also makes your writing easier to understand by non-native English speakers.

Simple language also offsets the necessary use of technical terms in a sentence.

Fractions of 0.8ml were collected, reduced to dryness, and dissolved in 3.75% methanol prior to being sequenced.	Fractions of 0.8ml were collected, **dried**, and dissolved in 3.75% methanol prior to being sequenced.
Our sample reflects deviations from the power law fit.	Our sample **deviates** from the power law fit.
There is a large body of experimental evidence that clearly shows that members of the genus *Crotalus* congregate simultaneously in cases of prolonged decreased temperature conditions in the later part of the year.	**Rattlesnakes come together when it gets cold in the fall.**

The power of short words

Although investigations of medieval plague victims have identified *Yersinia pestis* as the putative etiologic agent of the pandemic, methodological limitations have prevented large-scale genomic investigations to evaluate changes in the pathogen's virulence over time.	By studying medieval plague victims, we know that *Yersinia pestis* likely caused the Black Death; however, we don't know how the pathogen's virulence changed over time, because large-scale genomic studies are hard to do.

Use precise words

Quantify precisely what you mean. This applies to all sections of a paper, but especially the methods, results, and discussion.

The current remained increased for several hours.	The current remained increased for **6 hours.**
Nests were observed frequently for signs of predation.	Nests were observed **every 12 hours** for signs of predation.
We characterized the stellar populations of galaxies with stellar population synthesis models.	We characterized the stellar populations of galaxies **using** stellar population synthesis models.
The ALMA large program comprehends 40 galaxies.	The ALMA large program **targets** 40 galaxies.
A considerable fraction of our sources is detected by WISE.	89 out of our 100 sources are detected by WISE.

Keep terms the same

Many scientific writers believe that repeating the same term for an important character makes their writing boring or repetitive. So instead they use different terms. By doing so they risk confusing the readers who think they mean different things. **For readers, consistent terms are the opposite of boring; they are essential to navigating new, complex information.**

In relatively unproductive ecosystems like deserts, **grazers** and **predators** are so rare as to be negligible, and competition for resources structures **plant communities.** In more productive systems like grasslands, a large effective **herbivore community** can be supported and grazing determines **plant biomass.**	In relatively unproductive ecosystems like deserts, **plant biomass** is limited by a lack of resources. In more productive systems like grasslands, **plant biomass** is limited by herbivores.

Affirmatives & negatives

Affirmative statements are often less wordy than negative statements.

Negative statements are more opaque, because they imply what should be happening by stating what is not. Affirmatives state the point more directly. Obviously, in sentences where you are contradicting or denying some point, only the negatives will do, but rephrasing many negatives into affirmatives will save words.

Negative	Affirmative
did not accept	rejected
did not consider	ignored
does not have	lacks
did not allow	prevented
not the same	different
not possible	impossible
not many	few
not large enough	too small

Affirmatives & negatives

The canopy of Norway maples **does not allow** sufficient light to penetrate the understory and native tree seedlings **cannot germinate.**	The canopy of Norway maples **blocks** sufficient light from penetrating the understory and **prevents** native tree seedlings from germinating.
Our sample size **is not sufficiently large** to statistically confirm the correlation.	Our sample **is too small** to statistically confirm the correlation.
The infrared spectral energy distributions of these galaxies are **not sufficiently well sampled** to constrain their dust temperatures.	The infrared spectral energy distributions of these galaxies are **too poorly sampled** to constrain their dust temperatures.

Jargon & Technical Terms

Jargon:

(A) A term that refers to a schema the reader ***does not*** hold.

(B) A term for which there is an adequate plain language equivalent.

Technical term:

(A) A term that refers to a schema that the reader ***does*** hold.

(B) A term for which either there is no plain language equivalent or where using it would be confusing.

This distinction is fuzzy and fluid and depends on the reader's knowledge. In one context, a word may be a technical term, but in another it may be jargon. **Know your audience!**

Ask yourself: can you use simpler terms that will expand your audience without annoying the experts?

Jargon & Technical Terms

For clarity, jargon may be embedded in a parenthetical clause to remind readers of the term.

> This idea that excited states relax with rates determined by the solute-solvent system's ordinary energy fluctuations, commonly called linear response theory, is a critical component in the success of transition-state theories of chemical reaction rates in liquids.

[Teaches the non-expert what linear response theory is about; if you are a physical chemist and already knew the theory, this definition would merely feel like a comfortable reminder.]

> Programmed cell death, or apoptosis, is prominent in neural progenitors and appears to play an important role in the development of the cerebral cortex.

[These authors placed the word apoptosis in a short clause where it reminds the readers of the term but doesn't feel like they are defining it for everyone.]

Jargon & Technical Terms

General pattern for using technical terms in different places in a sentence:

- **Beginning of the sentence:**
  - You assume that every reader knows and understands the term.
  - You run the risk of it appearing to be jargon if they don't.
- **End of the sentence:**
  - You define a new term for everyone.
  - You run the risk of appearing ignorant if it is already an accepted schema in the field.
- **Middle of the sentence:**
  - You assume that most readers know the term.
  - You are also indicating that the term itself isn't critical to your story.
  - You run the risk of people missing the term.

There is no single perfect place to introduce terms – you have to evaluate your audience and what they know.

If you err, err on the side of over defining.

Example: spectral energy distributions

The spectral energy distributions of our galaxies are fitted using a radiative transfer code.

Assumes every reader knows what a spectral energy distribution is.

The light emitted by our galaxies from ultraviolet to infrared wavelengths, i.e., their spectral energy distribution, is fitted using a radiative transfer code.

Most readers probably know, but they are reminded.

We use a radiative transfer code to fit the light emitted by our galaxies from ultraviolet to infrared wavelengths, i.e., their spectral energy distribution.

Defines spectral energy distribution for all readers; assumes they didn't know what it was.

Abbreviations and acronyms

Use sparingly.

Too many can be confusing to the reader and should therefore be kept to a minimum (the reader keeps accessing memory to remember what the abbreviation/acronym means).

Always defined on first occurrence.

Once you have defined an acronym, use it whenever needed – do not switch back to using the full term unless many pages have elapsed since its previous appearance – then you may remind the reader, once, what the acronym means.

If you use – and define – an abbreviation/acronym in the title of a paper (not recommended), redefine it in the main text (same goes for abbreviations/acronyms in the abstract).

Special abbreviations from Latin (use correctly):

e.g. = *exempli gratia* – for example

et al. = *et alia* – and others

i.e. = *id est* – that is

Abbreviations and acronyms

active galactic nucleus = AGN (singular)

active galactic nuclei = AGN (plural) [controversial: some people defend it's "AGNs"]

spectral energy distribution = SED (singular)

spectral energy distributions = SEDs (plural)

quasi-stellar object = QSO (singular)

quasi-stellar objects = QSOs (plural)

semi-analytic model = SAM (singular)

semi-analytic models = SAMs (plural)

NEVER: AGN's, SED's, QSO's, SAM's!

Redundancy

Omit needless words and phrases.

Large fractions of red galaxies have been observed to occur in volumes that have been determined to be overdense.	Large fractions of red galaxies occur in overdense volumes.
Most galaxies with unusually luminous cores are quite asymmetric in shape.	Most galaxies with unusually luminous cores are asymmetric.
Our analysis makes use of 28 galaxies with significant [CII] emission line detections.	We analyse 28 galaxies with significant [CII] emission line detections.
The sample size was not quite sufficiently large enough.	The sample was not large enough.

Redundancy

Omit needless words and phrases.

These words add nothing to a text and can usually be deleted:

actually
practically
basically
quite
essentially
rather
fairly
several
much
very
really
virtually

Words in parenthesis add nothing and can usually be omitted:

(already) existing
(basic) fundamentals
cold (temperature)
(currently) underway
each and every [choose one]
estimated (roughly) at
first (and foremost)
(main) essentials
period (of time)
(still) persists
at (the) present (time)
blue (in color)
(completely) eliminate
each (individual)
(end) result
(final) outcome
(future) plans
never (before)
reason is (because)
(true) facts

Unnecessary phrases

Omit needless words and phrases.

These phrases can almost always be deleted to state the facts more succinctly:

In a previous study, it was demonstrated that the metallicity of galaxies increases with stellar mass.	The metallicity of galaxies increases with stellar mass.
The accretion rates have been shown to vary depending on the black hole mass.	The accretion rates depend on the black hole mass.

Other commonly used unnecessary phrases that can usually be deleted:

there are many papers stating...

it was shown to...

it was observed that...

it is reasonable to assume that...

evidence has been presented that

shows that...

it is speculated that...

it has been found that...

it has been demonstrated...

it has been reported that...

it has long been known that...

Phrases that can be shortened

Omit needless words and phrases.

Avoid	Better
a considerable number of	many
an adequate amount of	enough
an example of this is the fact that	for example
as a consequence of	because
at no time	never
based on the fact that	because
by means of	by
considerable amount of	much
despite the fact that	although
due to the fact that	due to
during the time that	while, when
first of all	first
for the purpose of	to
has the capability of	can, is able
in light of the fact that	because
in many cases	often
in order to	to
in some cases	sometimes

Avoid	Better
in the absence of	without
in view of the fact that	because, as
in the event that	if
it is of interest to note that	note that
it is often the case that	often
majority of	most
no later than	by
on the basis of	by
number of	many
prior to	before
referred to as	called
regardless of the fact that	even though
so as to	to
utilization	use
make use of	use
with reference/regard to	about (or omit)
with respect to	about
with the exception of	except

“The”

You can frequently omit the article “the” from your text without any loss of meaning.

Deleting many of the articles produces a shorter, crisper sentence.

Certainly, **the** merit of your scientific writing rests as much on **the** content as on **the** style. Equally important are **the** questions, **the** hypotheses, **the** experimental designs, and **the** interpretations you describe.	Certainly, the merit of your scientific writing rests as much on content as on style. Equally important are the questions, hypotheses, experimental designs, and interpretations you describe.

Articles

ARTICLE	USE	EXAMPLE
Definite “the”	to show which particular item you mean in connection with the phrases before a noun that names something that has already been mentioned	**The** culture that was contaminated was discarded. ...in **the** presence of... The technician looked at **the** sample we had measured earlier.
Indefinite “a” “an”	when the noun is one of a group or new to the reader when the noun is generalized	**A** scientist needs to write well. She used **a** spectrum to measure the velocity.
No article	before a plural noun that has not yet been referred to before a proper or abstract noun	She collected samples for various analyses. Berlin was a divided city. Degradation occurs after 24 hrs. In conclusion, we determine that...
“the”, “a”, “an”	if you use proper or abstract nouns as common nouns	**The** Berlin that was divided is gone. **The** degradation we observed occurred after 24 hrs. **A** conclusion about X cannot be drawn.

Summary: word choice

- Use precise words.
- Use simple words (usually shorter words are better).
- Keep terms the same.
- Omit needless words or phrases.
- Avoid too many abbreviations and acronyms.
- Use correct nomenclature and terminology.
- Use gender-neutral language.

More advice for CLEAR and CONCISE style

Make lists parallel

Two or more pieces of information and easier to read and remember if their structures are parallel.

Two or more ideas in a sentence of equal importance, either being compared, contrasted, or described, should be treated with the same grammatical structures, i.e., **structure each phrase the same way.**

Write sentences in parallel form and join parallel ideas with. e.g., "and", "or", "but".

Prolonged febrile illness together with subcutaneous nodules in a child could be due to an infection with a Gram+ organism, but it could also be that the child suffers from rheumatic disease.	Prolonged febrile illness together with subcutaneous nodules in a child could be due to an infection with a Gram+ organism, but it could also be **due to rheumatic disease.**
These similarities include an early sensitive period, an innate filtering mechanism that isolates conspecific vocalizations, a babbling development phase, and the importance of social variables in vocal learning.	The similarities include an early sensitive phase, a filtering phase, a babbling phase, and a social phase.

Make lists parallel

How would you fix this sentence?

> We provide a broad overview of the project, including the methods applied for measuring black hole masses and accretion rates, the main results on the evolution of the Eddington ratio, and discuss these results in the context of previous work.

Avoid faulty comparisons

One of the most common problems in scientific writing!

Always maintain parallelism in your comparisons. Avoid ambiguous and faulty comparisons.

Useful tip: use “than” not “compared to” for comparative terms such as “smaller”, “more”, “greater”, “fewer” etc.

Our conclusions are consistent with Tamseela et al. (2013).	Our conclusions are consistent with those of Tamseela et al. (2013).
This study tested 24 networks compared to Menon’s study.	This study tested 24 networks; Menon’s study tested only 8 networks.
RNA isolation is more difficult.	RNA isolation is more difficult than DNA isolation.
We found more fertilized eggs in buffer A compared to buffer B.	We found more fertilized eggs in buffer A than in buffer B.
X increased over time compared to Y.	X increased over time, but Y did not.

Avoid faulty comparisons

How would you fix these?

1) To first order, the high-excitation radio-loud AGNs are high-accretion rate systems and are believed to evolve strongly with redshift, a behaviour that would be similar to radio-quiet Seyfert galaxies and quasars.

2) However, given these limitations, in general, it appears that the luminosity and Eddington ratio distributions of obscured quasars are broadly similar to unobscured quasars detected using similar techniques.

3) ...with AGN host galaxies showing similar overall properties to inactive galaxies of comparable stellar mass.

Prepositional phrases vs compound nouns

rate of reaction

prepositional phrase (modifier + preposition + object)

reaction rate

compound noun

Prepositional phrases are often longer and clunkier than the compound noun. They also have a strange attraction to nominalizations (zombie nouns) and passive verbs.

Rule of thumb:

2 nouns – usually compound is better

4 nouns – break it into manageable pieces using prepositions

3 nouns – consider word complexity and whether we intuitively lump two of the words into a single unit

Break up noun strings (compound nouns)

In English, nouns (and adjectives) can be used to modify other nouns. However, when nouns appear one right after the other, it can be difficult for the reader to tell how they relate to each other and what the real meaning of the cluster is.

Instead, work your way from the back to the front and use prepositions to link the nouns. The prepositions add clarity to the phrase – they show more fully how nouns relate to one another.

Use a prepositional phrase to break up noun strings.

porcine tracheal fluid samples	fluid samples from the trachea of pigs
Peter Carri is a condensed matter and quantum many-body theoretical physicist.	Peter Carri is a theoretical physicist studying condensed matter and quantum many-body physics.

Current theory suggests that microbial community composition influences are most likely to be observed for physiologically narrow processes.	Current theory suggests that the influences of microbial community composition are most likely to be observed for physiologically narrow processes.

"Influences" is a nominalization, but could be a verb – adds ambiguity to the sentence.

The reader might guess wrong whether to reads as a verb or noun. In this case the prepositional phrase adds words but makes the idea clearer.

One final way you can use prepositional phrases is to **control which word lands in a sentence's stress position.**

Example:

Ecosystems can be managed to limit the effects of global warming.

Ecosystems can be managed to limit the global warming effects.

hyphens

Note: hyfens in noun clusters

- Two-word terms that are used together (e.g., high-redshift galaxy, low-density cloud, mass-dependent evolution)
- Adjectives that consist of three or more words (e.g., four-to-one ratio)
- Terms that contain a capital letter or a number and a noun (e.g., 10-fold increase, M-type dwarf)

Use clear pronouns

Pronouns: words that take the place of nouns; e.g., *it, none, they, these, them, this, that, which, who, whose*

Unclear/ambiguous pronouns are one of the most common problems of scientific writing. Most commonly used ambiguous pronoun: "**this**".

As an author, you know what you mean by "This". The reader is not necessarily in the same position.
Make their life easier: modify the sentence so there is no ambiguity ("this technique", "this trend", etc). Don't ever use "They" (or rarely).

Anaerobic organisms typically live in the intestines. Thus, they are of interest to us.	Anaerobic organisms typically live in the intestines. Thus, **intestines** are of interest to us. - or - **Intestines** are of interest to us because **they** typically contain anaerobic organisms.
If a specimen is frozen in a bath containing dry ice and acetone, the water of the cell can be removed by sublimation to prevent damage to the cell. This is commonly used for preservation of cultures.	If a specimen is frozen in a bath containing dry ice and acetone, the water of the cell can be removed by sublimation to prevent damage to the cell. **This technique** is commonly used for preservation of cultures.

Subject-Verb correspondence

The subject and verb of a sentence must agree.

A singular subject must have a singular verb, and a plural subject must have a plural verb (this is easier when you make sure you keep subject and verb together in a sentence!).

Note: “data”, “spectra”, “media”, and “criteria” are plural nouns! Though Merriam-Webster dictionary says common usage is changing and acceptable .

The sugar content and protein composition of each sample was determined.	The sugar content and protein composition of each sample were determined.
Our data shows that AGN emit X-rays.	Our data show that AGN emit X-rays.
Our main selection criteria is a blue B-V colour.	Our main selection criterion is a blue B-V colour.

Singular and plural noun forms

SINGULAR	PLURAL
analysis	analyses
criterion	criteria
datum	data
hypothesis	hypotheses
matrix	matrices
medium	media
nucleus	nuclei
phenomenon	phenomena
spectrum	spectra

Pay attention to the true subject of a sentence

The formation of stars **has** been studied in detail.

subject

Here, “formation” is the subject, not “stars”. “Stars” is the object of the preposition “of” and describes or qualifies “formation”. Objects of prepositions are never the subject of a sentence. Thus, the verb should be singular.

Singular and plural verb forms

RULE	SUBJECT	EXAMPLE
Certain indefinite pronouns are singular	one, no one, anyone, each, everything, something, someone, everybody	**Each** galaxy **was** observed.
Certain indefinite pronouns are plural	both, few, many, several	**Both** galaxies **were** observed.
Some indefinite pronouns can be singular or plural	most, some, none, part, any, all	**Some** galaxies **were** observed. **Some** of the sample **was** lost.
Collective nouns are singular	audience, class, group, committee, team, politics, news	This **class** of galaxies **is** known as...
Some collective nouns can be singular or plural	staff, faculty, (fractions such as) one third	**One third** of the galaxies **were** AGN. **One third** of the sample **was** used.
Certain abstract nouns are singular despite their plural appearance	news, physics, kinetics, dynamics	**Physics has** been transformed by Einstein.
Compound subjects joined by "and" are plural	Subject joined by "and"	**Gas and dust are** both important components of the ISM.
For compound subjects joined by "either, or"; "neither, nor"; "or"; and "not only, but also", the verb must agree with the closest subject	Subjects joined by (either, or...) (neither, nor...) or (not only, but also...)	Neither the star nor **the planets were** observed. Not only the moons, but also **the planet was** detected.

Unclear modifiers

Avoid dangling or misplaced modifiers.

Unclear modifiers are words or phrases that modify an element of a sentence in an ambiguous manner because they could either be modifying the subject or the object or the clause.

Avoid confusion: place the modifiers next to the word they are modifying (add missing words as necessary).

Dangling modifiers most frequently occur at the beginning of sentences (often introductory clauses or phrases) but can also appear at the end. They often have an "-ing" word (gerund) or an infinitive phrase at the start of the sentence.

While incubating, we inverted the plates gently.	While incubating the plates, we inverted them gently.
Having tested positive for HIV, we disqualified the patients for participation in the study.	Having tested positive for HIV, the patients were disqualified for participation in the study. - or - We disqualified patients who tested positive for HIV for participation in the study.

Prepositions

Prepositions: “little words” that link nouns, pronouns, and phrases to other words in a sentence, indicating their relationship to the rest of the sentence.

Examples:

about	**into**	**by**
from	**at**	**off**
out	**like**	**up**
above	**through**	**for**
in	**below**	**on**
over	**of**	**with**
after	**to**	

Most verbs can be used with more than one preposition, but you should be sure to choose the preposition that reflects your intended meaning. If you are unsure, consult a dictionary.

Commonly (mis)used prepositions

in connection **with**	compared **to/with**
in contrast **to**	correlated **with**
similar **to**	analogous **to**

Compared

to when it refers to unlike things (“The human brain is sometimes compared to a computer.”)

with when two like things are examined (“When we compared our results with those of Pauling et al., …”)

Comparison

of A and/with B

between A and B

Different

Do not use different **than** when you should use different **from**. Different than is only acceptable in sentences such as “We obtained different magnitude values for our galaxies than Roberts et al. (2012)”.

Commonly misused words (I)

WHICH / THAT	***That*** is the defining, or restrictive, pronoun. ***Which*** is the non-defining, or non-restrictive. The lawn mower that is broken is in the garage. [Tells which one] The lawn mower, which is broken, is in the garage. [Adds a fact about the only mower in question]
WHO / THAT	When you are referring to a person/people (as opposed to a thing), use ***who*** instead of ***that***. The researcher who discovered the mutation won a Nobel Prize. This contradicts the results of Smith et al., who found a positive correlation between the two quantities.
AFFECT / EFFECT	They sound similar, but have very different meanings. Most commonly, ***affect*** is used as a verb, and ***effect*** is used as a noun. Although the candidate was not affected, the incident did have an effect on the campaign.
THEN / THAN	***Then*** can be used as an adverb that means "at that time" or "next in a series". ***Than*** is a conjunction and preposition that is used to link two things that are being compared. First we tested sample A, then we tested sample B. Group A decreased more rapidly than the control group.

Commonly misused words (II)

ALTHOUGH / WHILE	***Although*** is a conjunction that is used to indicate contrast. ***While*** is a conjunction that is used to indicate a time and can also be a noun when it refers to a period of time. Although the data seemed correct, the researcher attempted to verify the results. The experiment was conducted while it was raining.
SINCE / BECAUSE	***Since*** can be used as a preposition, a conjunction, or an adverb, and it refers to the time between the intervening period and the time under consideration. ***Because*** is a conjunction that is used to show causation. The student has not been home since he started college. I want to analyse the data because I am curious about the results.
IF / WHETHER	***If*** is used to explain the result or the effect of something that may happen or be true, i.e., it can be used to start a particular condition. ***Whether*** refers to a choice between alternatives. Our goal is to check if the galaxy is dusty. Our goal is to check whether the galaxy is dusty or not.

Commonly misused words (III)

FEWER / LESS	Generally, ***fewer*** is used when the number of things is counted. ***Less*** is used when the number is measured. Note: not a strict rule; there are exceptions, e.g., “250 words or less”, “3 items or less”, especially money and distance: “less than $20”, “less than 3 miles” Fewer galaxies in that sample show strong emission lines. This galaxy shows has less gas in its interstellar medium.
FARTHER / FURTHER	***Farther*** for distance; ***further*** for time or quantity. The outflow reaches farther in the circum-galactic medium. We investigate this further by obtaining more observations.
THIS / THAT THESE / THOSE	The main difference between these words (demonstrative pronouns) is the distance they suggest. This and these suggest closeness; that and those suggest more distance. You should use the words to refer to something you just mentioned, so usually this or that are a better choice. The study was inconclusive. This suggests more research is needed.

Note: adjective placement

From, *The Elements of Eloquence*, by Mark Forsyth

You know it's proper to say "silly old fool" and wrong to say "old silly fool", but you might never have thought about why – or if you did you probably imagined it was just some time-honoured convention you picked up by rote. But it isn't. There's a rule.

The rule is that multiple adjectives are always ranked accordingly:

opinion, size, age, shape, colour, origin, material, purpose.

Unlike many laws of grammar or syntax, this one is virtually inviolable, even in informal speech. You simply can't say My Greek Fat Big Wedding, or leather walking brown boots

Tim Dowling, *The Guardian*

Some rules of punctuation

1. Use simple punctuation.
2. Use a period to end a sentence. Avoid semicolons where possible.
3. Use semicolons to connect two independent sentences [older style].
4. Use commas for clarity and emphasis [helps avoid misinterpretations].
5. Place a comma between the items in a series as well as before the word “and” [Oxford comma]
6. Use semicolons and/or numerals to punctuate complex series [Use a colon to introduce the list or series]
7. Avoid weak connectors (and, but, for, or, nor). For stronger writing, consider making each statement a separate sentence.
8. Avoid hyphenation. Write “cooperation” and “rearranged”, but hyphenate “English-speaking”, “high-redshift”, “N-body”, “10-fold”