

A good summary from last week*

The essence of all good writing is clarity. Style seems like a separate attribute of good writing. But it's not. Style is really just a byproduct of clarity and concision. It is the personality or other uniqueness of the writer coming through on the page because they write clearly.

*4 paragraphs from a discussion of why Ulysses S. Grant was a great writer...

A good summary from last week

So how does one write clearly? The writing is the easier part of it. Once you know precisely what you mean to say, writing it is usually straightforward if not always easy. At least 90% of poor writing stems from the writer not knowing exactly what it is they mean to say. We're all lazy like this. Half-formed thoughts pop into our heads and we push them out as words that have some relation to the hazy ideas and feelings in our minds. This may do in talking to your coworker or spouse about simple topics over the course of the day. The points are simple. In speaking we have physical cues and intonation. If you're not clear the first time you can try again.

A good summary from last week

Writing is different. If you are writing it down the ideas must be significant or else you wouldn't be writing them down. You only have one shot to make your meaning clear. There is no follow-on interaction to fill in the gaps. Often what you mean to say is still more a feeling than a thought or a not fully worked through set of ideas and connections between them. Jargon and vaguenesses are added to the mix to cover spots in the writer's thinking that aren't clear in their own head. Or they paper over things the writer means but is not ready to say.

A good summary from last week

Take a wordy or clumsy sentence you may write. Examine it and you will almost always see that it is wordy or clumsy because the idea is unclear in your head. Fuzzy parts of your thinking, connections that don't fully bear out or don't connect in a clear way end up on the page in fuzzy or vague groupings of words. If you work at the idea in your head long enough that you know exactly what it is, precisely how one idea or action connects to the idea or actions that came before and after it, the language can be direct, brisk and clear. It all but writes itself ... once you know precisely what you mean to say. Absent that clarity it never can because the language you use to express your ideas can never be clearer than the ideas or thoughts as they exist in your mind. Work over the ideas, how each connects to each other, the order and progression that connects them and the words will, largely, take care of themselves.

Back to our regularly
scheduled program...

Why can't I write?



<http://www.phdcomics.com/comics.php?f=1733>

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“Why can’t I write?”

Lots of reasons, all of
which are fixable.

“Why can’t I write?”

You’re not good at it yet.
No one likes to do things
they suck at.

“Why can’t I write?”

You don’t know what to say.

“Why can’t I write?”

**You don’t know how to
say what you want to say.**

“Why can’t I write?”

You *thought* you knew
how to say what you want
to say, but it’s not actually
working.

“Why can’t I write?”

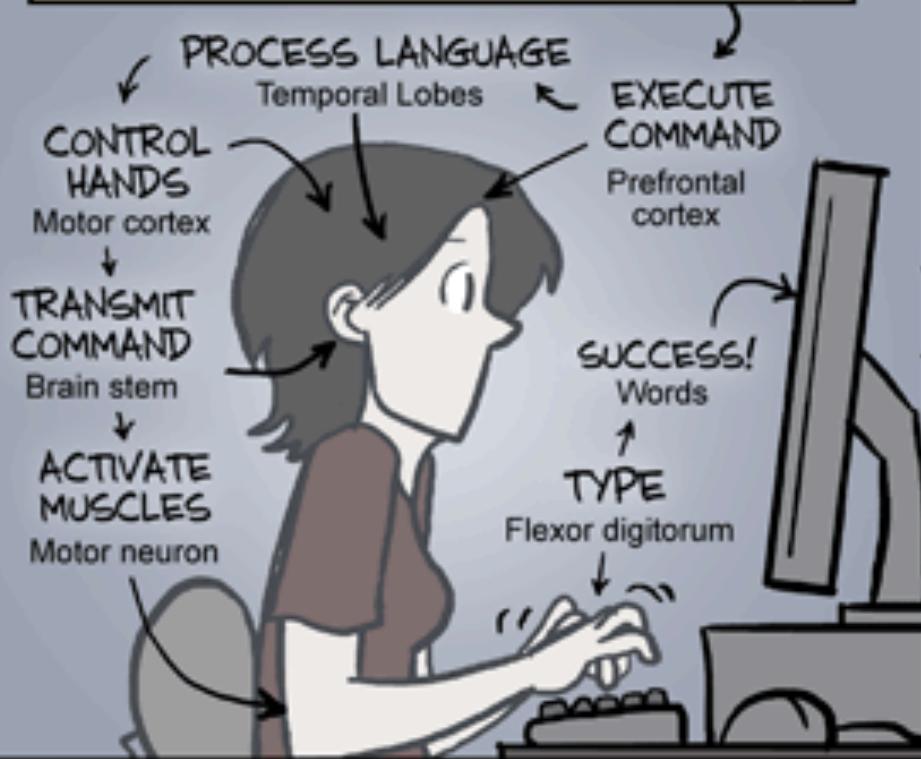
**You are not prioritizing
time to write.**

“Why can’t I write?”

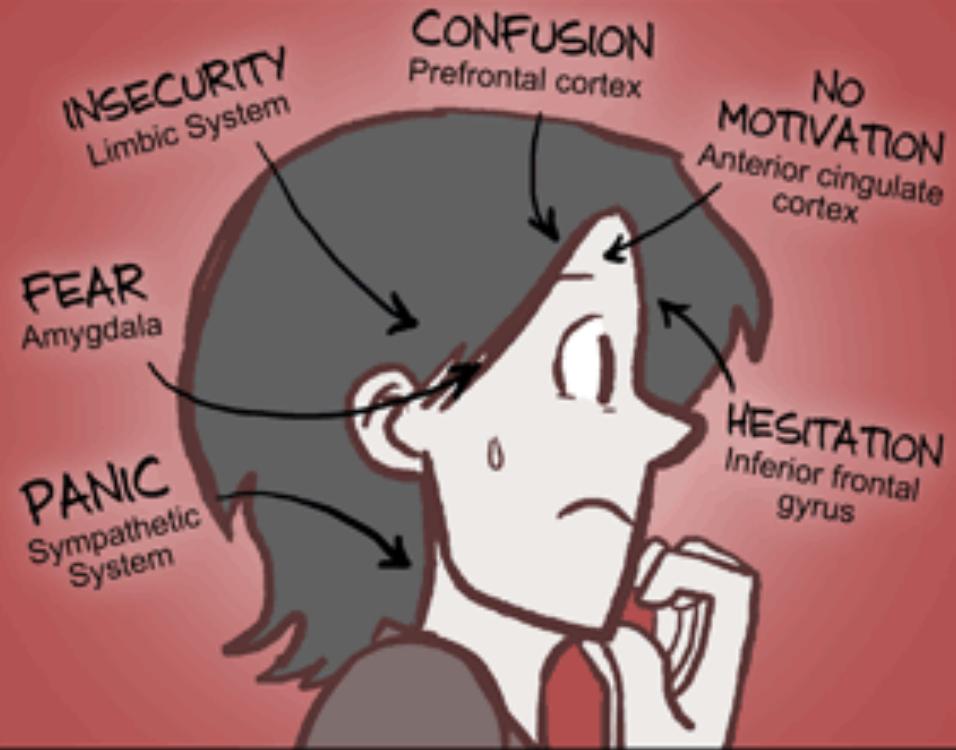
Emotions.

THE NEUROBIOLOGY OF WRITING

HOW IT'S SUPPOSED TO WORK:



HOW IT USUALLY WORKS:



JORGE CHAM © 2014

WWW.PHDCOMICS.COM

“Why can’t I write?”

“I’m bad at writing.”

“I’m stupid.”

“This project sucks. I suck.”

“I’m never going to finish this.”

“I’m never going to get a job/graduate.”

“This is too hard. I’ll do something easy instead.”

“This is boring. I’ll make another plot.”

None of these are true.

“I’m bad at writing.”

“I’m stupid.”

“This project sucks. I suck.”

“I’m never going to finish this.”

“I’m never going to get a job/graduate.”

“This is too hard. I’ll do something easy instead.”

“This is boring. I’ll make another plot.”

Sometimes these concerns are aggravated by mental health issues (anxiety, depression, ADHD), and you should not hesitate to get the support you need.

However, self-sabotaging internal dialog often persists.

“I’m bad at writing.”

“I haven’t yet developed skills in writing”

“This project sucks. I suck.”

“I haven’t contextualized my work yet.”

“I’m never going to finish this.”

“I’m never going to get a job/graduate.”

“This is too hard. I’ll do something easy instead.”

“This is boring. I’ll make another plot.”

“I haven’t yet found an efficient way to write.”

“I don’t yet know what I want to communicate.”

“I haven’t yet practiced this difficult skill enough to find it comfortable.”

These are fixable.

A list of fixable obstacles.

- You don't yet know what you want to say.
- You don't yet know how to say what you want to say.
- You thought you knew how to say what you want to say, but it's not yet working.
- You are not prioritizing time to write.

Identifying your barrier is the first step towards climbing over it.

Today: Making time to practice

- You don't yet know what you want to say.
- You don't yet know how to say what you want to say.
- You thought you knew how to say what you want to say, but it's not yet working.
- You are not prioritizing time to write.



JOEDATOR

"I don't understand it—no matter how much I drink coffee, play on my phone, refresh my e-mail, look up things online, go to the kitchen for snacks, message my friends, scroll through Twitter, and play with the cats, I still can't get any writing done."

How do I jump start writing?

Set realistic, achievable goals.

Prioritize time to write.

What is a reasonable goal?

Word counts on first 3 astro-ph files

15,000 words (25 pages, ~12 pgs text)

32,000 words (25 pages*, ~16 pgs text)

5,000 words (6 pages, ~4.5 pgs text)

*Included gobs of commented out text. Don't do this when you submit to astro-ph...

Word counts on 3 paragraphs in a paper I'm writing:

124 words

292 words

210 words

So, let's say 200 words per paragraph,
1000 words = 5 paragraphs = 1 page

How long will it take to generate a first draft?

| # Text Pages | # Words | # Paragraphs | # of weeks for first draft |
|--------------|---------|--------------|----------------------------|
| ~5 | 5,000 | 25 | 25 = 6 months |
| ~10 | 10,000 | 50 | 50 = 1 year |
| ~15 | 15,000 | 75 | 75 = 1.5 years |

...at a rate of 1 paragraph per week

How long will it take to generate a first draft?

| # Words | # Paragraphs | # of weeks for first draft |
|---------|--------------|----------------------------|
| 5,000 | 25 | 5 = 1 month |
| 10,000 | 50 | 10 = 2 months |
| 15,000 | 75 | 25 = 0.5 years |

...at a rate of 5 paragraphs per week

A paragraph a day is a good target.

| # Words | # Paragraphs | # of Weeks to first draft |
|---------|--------------|---------------------------|
| 5,000 | 25 | 5 = 1 month |
| 10,000 | 50 | 10 = 2 months |
| 15,000 | 75 | 25 = 0.5 years |

That's not that scary!

Here is a good day's work: ~200 words, 7 sentences

As expected, the fraction of reddened stars is 0.5 along the major axis, but diverges to much smaller and larger values with increasing distance from the major axis. There is a steady shift in the fraction of reddened stars from the near side of the disk (upper right) to the far side (lower left). On the near side, the fraction of reddened stars is very high, as would be expected from the optical morphology alone; this side of the disk shows clear dust lanes, which just graze the edge of the PHAT footprint. In contrast, on the far side of the disk (where there are no obvious strong dust lanes) the fraction of reddened stars is extremely low, with only $\sim 10\text{-}15\%$ of stars lying behind the dust layer. This result is essentially by design, given that PHAT specifically targeted the quadrant of M31 that appeared the least affected by dust. That said, the low reddening fraction and the unobscured visual morphology do not actually suggest that there is no dust on the far side of the galaxy, given that the extinction maps clearly show ample dust in this quadrant. Instead, the weakness of visible dust lanes is the result of the dust's lying behind the vast majority of the stars.

If you do this 5 days a week, on average,
you can write a *first draft* of a 10 page
paper in ~2 months

Fact:

If writing is hard for you, you will always avoid it, and it will never get done, and you will always feel bad.

Schedule it so it happens.

Schedule it so it happens.

At what time of day &
at what location are you:

Most effective at writing?
Least likely to be interrupted?
Least likely to freak out*?

*I wrote my thesis from 7pm-2am, after drinking a glass of wine,
because I was too wound up otherwise.

Schedule it so it happens.

Schedule no more than a 1 hour chunk, and don't aim to write more than ~200 words*.

*If you do write more, great! Ride that train! But don't set a goal that sets you up to feel bad.



Jon Winokur @AdviceToWriters · Mar 24

Inspiration usually comes during work,
rather than before it.

MADELEINE L'ENGLÉ

#fiction #writing #writingtips



Ok, back to editing....

More on using punctuation to help clarity.

More on commas...

Use commas to separate two* or more adjectives that describe the same noun.

“I bought whole, organic milk.”

*This is becoming less standard, though.

More on commas...

If some of the adjectives are modifying each other, and not the noun, use a hyphen.

“I bought full-fat, organic milk”



“compound adjective”

³⁵*Do not hyphenate adverbs or “very”, though.

From last class

“*The galaxy is surrounded by shock-heated gas.*”

but

“*The gas was shock heated.*”

More on commas...

Use commas to separate
three or more words,
phrases, or clauses written
in a series.

“The Oxford Comma”

“*I bought milk, eggs, and quinoa*”



versus

“*I bought milk, eggs and quinoa*”

Both are acceptable, and different journals
will have different standards

“The Oxford Comma”

Among those interviewed were Merle Haggard's two ex-wives, Kris Kristofferson and Robert Duvall.

This book is dedicated to my parents, Ayn Rand and God.

Highlights of Peter Ustinov's global tour include encounters with Nelson Mandela, an 800-year-old demigod and a dildo collector.

I find that the Oxford comma removes ambiguities, so I always use it.

“The Oxford Comma”

Among those interviewed were Merle Haggard's two ex-wives, Kris Kristofferson and Robert Duvall.

This book is dedicated to my parents, Ayn Rand and God.

Highlights of Peter Ustinov's global tour include encounters with Nelson Mandela, an 800-year-old demigod and a dildo collector.

If the reader has to stop and figure out what you mean, the text is not working as it should.



The New York Times

@nytimes

Follow



The lack of an Oxford comma ended up costing a Maine company \$5 million



Oxford Comma Dispute Is Settled as Maine Drivers Get \$5 Million

And state lawmakers have dispensed with commas altogether in the relevant provision of the law.

nytimes.com

11:25 AM - 9 Feb 2018

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Use commas to separate three or more words, phrases, or clauses written in a series.

But in scientific writing, these series can get complicated

What do we do with this?

“I went to the store and bought milk, which we need for breakfast, eggs, an essential for making cake, and quinoa, because that’s how I roll.”

Use semicolons to separate a series where the elements of the series contain commas.

A semicolon-separated list

“I went to the store and bought milk, which we need for breakfast; eggs, an essential for making cake; and quinoa, because that’s how I roll.”

Why? It helps the reader to know how each clause is to be interpreted. The next element of the list, or a modifying clause/phrase?

Semicolons

Can also be used to join two independent clauses to indicate a closer connection than would be indicated by a period

“I went to the store. We needed many supplies.”

versus

“I went to the store; we needed many supplies.”

Semicolons

Can also be used to join two independent clauses to indicate a closer connection than would be indicated by a period

“We observed with HST; we needed resolution.”

In scientific writing, this choice is rarely the best one. Subtle connections are not as clear as direct statements of connections.

“We observed with HST because we needed resolution.”



Colons

“Used to announce, introduce, or direct attention to a list, a noun or noun phrase, or an example/explanation”

“*The purpose of this experiment is clear: to fundamentally change our perception of matter, space, and time.*”

Colons are good introductions to semicolon-separated lists, to emphasize that what follows is more important.

“I went to the store and bought the following: milk, which we need for breakfast; eggs, an essential for making cake; and quinoa, because that’s how I roll.”

Colon + Semicolon-separated lists are useful organizational tools for complex sentences in scientific writing.

“We *cannot make this measurement without HST*: (1) *the sources are too small to resolve from the ground*; (2) *UV imaging is needed to measure temperatures*; and (3) *we require the PSF to be stable over hour long timescales*.”

You could also use a “First... Second.... Finally....” construction.

“We cannot make this measurement without HST. First, the sources are too small to resolve from the ground. Second, UV imaging is needed to measure temperatures. Finally, we require the PSF to be stable over hour long timescales.”

But that approach is better reserved for when the items cannot be given as short, declarative sentences, and when the items have more of a narrative connection..

A more appropriate “First... Second.... Finally....” construction.

“We cannot make this measurement without HST. First, the sources are too small to resolve from the ground. The typical size of the clusters is 5 pc, which is less than 0.3” at the distance of our targets. Only HST can resolve this angular scale over large fields of view. Second, HST’s UV capability is needed to measure temperatures. The clusters are expected to contain hot O and B stars, whose flux peaks shortward of 300nm. These wavelengths are blocked by Earth’s atmosphere, but are detectable with HST. Finally, we require the PSF to be stable over hour long timescales...”

An aside: This text is for a proposal. Note the repeated referencing of the main point. This reminds the reader and reinforces the argument.

“We cannot make this measurement without HST. First, the sources are too small to resolve from the ground. The typical size of the clusters is 5 pc, which is less than 0.3” at the distance of our targets. Only HST can resolve this angular scale over large fields of view. Second, HST’s UV capability is needed to measure temperatures. The clusters are expected to contain hot O and B stars, whose flux peaks shortward of 300nm. These wavelengths are blocked by Earth’s atmosphere, but are detectable with HST. Finally, we require the PSF to be stable over hour long timescales...”

Parallelism in sequential clauses

Maximize parallelism among elements of a list

- Grammatical tense
- Singular vs plural
- Use of prepositions
- Use of articles

~~Parallelism~~ in sequential clauses

“This telescope will be used
to find earth-like planets and
for characterizing their
atmospheres”

No.

Parallelism in sequential clauses

“This telescope will be used
to find earth-like planets and
to characterize their
atmospheres”

Yes.

Repeating the preposition helps the reader

“*This telescope will be used to find
earth-like planets and to characterize
their atmospheres*”

is less ambiguous than

“*This telescope will be used to find
earth-like planets and characterize
their atmospheres*”

Parallelism in sequential clauses

Easy to miss when the sentence gets complex.

“This telescope will be used to find earth-like planets orbiting sun-like stars and for characterizing their atmospheres”

Easy to miss parallelism when the sentence gets complex.

“These problems are most severe for the youngest stars that define the recent SF, dominate the stellar energy output, and are typically found in dusty regions.”

went from active to passive voice

“These problems are most severe for the youngest stars that define the recent SF, dominate the stellar energy output, and typically occupy dusty regions.”

Ok, let's do some editing...

“In Figure 5, the effect of the use of kernels of different sizes on the derived surface density maps is demonstrated.”

Problem #1

“In Figure 5, the effect of the use of kernels of different sizes on the derived surface density maps is demonstrated.”

- Subject and verb are far, far apart
- Passive voice (which isn't always bad, but is not useful here)

Problem #2

“In Figure 5, the effect of the use of kernels of different sizes on the derived surface density maps is demonstrated.”

So. Many. Prepositions.

Indicates complexity that a reader may have a hard time untangling

Rewrite....

“In Figure 5, the effect of the use of kernels of different sizes on the derived surface density maps is demonstrated.”

First fix subject+verb,
& passive voice

“Figure 5 demonstrates the effect of the use of kernels of different sizes on the derived surface density maps.”

Rewrite....

“Figure 5 demonstrates the effect of the use of kernels of different sizes on the derived surface density maps.”

Is this really needed? Nope.

“Figure 5 demonstrates the effect of kernels of different sizes on the derived surface density maps.”

“Figure 5 demonstrates the effect of kernels of different sizes on the derived surface density maps.”

Is this the correct emphasis? The key bit is really “different sizes”, so emphasize that.

“Figure 5 demonstrates the effect of different size kernels on the derived surface density maps.”

“Figure 5 demonstrates the effect of different size kernels on the derived surface density maps.”

Is this the right word? It may not be necessary, or, it may be better to reinforce that the kernels were used in smoothing.

“Figure 5 demonstrates the effect of different size kernels on the smoothed surface density maps.”

Before (21 words)

“In Figure 5, the effect of the use of kernels of different sizes on the derived surface density maps is demonstrated.”

After (15 words)

“Figure 5 demonstrates the effect of different size kernels on the smoothed surface density maps.”

Next ingredient for writing
clear sentences:

Making text precise.

The importance of precision

Any time a text is ambiguous, you slow down the reader.

Improving precision

A common way to confuse a reader is through misuse of “demonstrative pronouns”

Demonstrative pronouns

“*This*”, “*That*”, “*Those*”, “*These*”

These terms can replace
noun phrases in a sentence.

Demonstrative pronouns

“The class I am taking is boring.”

versus

“This is boring.”

“The plot you made is wonderful.”

versus

“That is wonderful.”

Demonstrative pronouns

“The class I am taking is boring.”

versus

“This is boring.”

In spoken English, this usage is fine, because the implied noun phrase is obvious from context or gesture.

Demonstrative pronouns

“The class I am taking is boring.”

versus

“This is boring.”

In scientific writing, however, demonstrative pronouns should always be avoided.

The perils of demonstrative pronouns

“A basic prediction of CDM galaxy-formation models is the existence of a hot halo of gas accreted from the intergalactic medium around Milky Way-sized galaxies, which forms as infalling gas is heated to the virial temperature at an accretion shock. These may provide most of the fuel for long-term star formation.”

What does “these” refer to?

What does “these” refer to?

“A basic prediction of CDM galaxy-formation models is the existence of a hot halo of gas accreted from the intergalactic medium around Milky Way-sized galaxies, which forms as infalling gas is heated to the virial temperature at an accretion shock. These may provide most of the fuel for long-term star formation.”

There are many possibilities!

Demonstrative adjectives:
Same words, but modifies a
noun.

“The class I am taking is boring.”

versus

“This class is boring.”

“This”, “That”, “These”, “Those” as demonstrative adjectives

“A basic prediction of CDM galaxy-formation models is the existence of a hot halo of gas accreted from the intergalactic medium around Milky Way-sized galaxies, which forms as infalling gas is heated to the virial temperature at an accretion shock. These hot halos may provide most of the fuel for long-term star formation.”

or

“This accreted gas may provide most of the fuel for long-term star formation.”

Demonstrative adjectives modify a noun, so the reference becomes unambiguous

“This accreted gas may provide most of the fuel for long-term star formation.”

Adds both clarity and emphasis

Short form



“Never use “*this*” as the subject
of a sentence.” — NdGT, to JD

No:

“This is...”

Yes:

“*This method is...*”

“*This theory is...*”

“*This measurement is...*”

“*This spectrum is...*”

“*This star is...*”

No*:

~~“...but when *this* occurs...”~~

Yes:

“...but when *this process* occurs...”

“...but when *this event* occurs...”

“...but when *this shock* occurs...”

“...but when *this merger* occurs...”

*i.e., don't use “this” as the subject of a noun clause either.

Similar problems possible w/ “it”
~~“...but when it occurs...”~~

Compared to:

“...but when the process occurs...”

“...but when the event occurs...”

“...but when the shock occurs...”

“...but when the merger occurs...”

*i.e., Be careful when “it” is meant to refer to a specific thing

Can also add precision when
using “*the*”

Article “*the*” implies a specific
instance

“*the (red) book*”

“*the store (that sells ice cream)*”

“*the model...*”

Which model?

“*the planet formation model...*”

“*the author’s model...*”

“*our model...*”

Important if more than one
instance is being discussed!

Another example of lack of precision

Over-qualifying & intensifying

“*relatively*”, “*somewhat*”, “*a lot*”
“*mostly*”, “*significantly*”, “*very*”

Over-qualifying & intensifying

“*relatively*”, “*somewhat*”,
“*mostly*”, “*significantly*”, “*very*”

These are totally fine in your first draft, but should be made precise during revisions.

| | |
|-----------------|-----------------------------|
| “relatively” | = “ <i>2x larger than</i> ” |
| “somewhat” | = “ <i><15%</i> ” |
| “mostly” | = “ <i>>75%</i> ” |
| “significantly” | = “ <i>>3.4 sigma</i> ” |
| “very” | = “...” |

You’re scientists.

Lay those measurements down!