

Core Rules for Better Writing

Andrew P. Black

based on material from
David Maier, Todd Leen,
Sandra Oster, and others

Core Rules for Better Writing

- Good writing is clear, concise, and simple.
- Good writing is easy to read. A good paper educates the reader without frustrating him or her. Write to be understood, not to impress.
- The “Core Rules” on the next few slides will help you write better. The rules *do not* cover everything that we will talk about. They *do* provide several important guidelines that, if followed, will dramatically improve your writing.

Use Active Voice

PASSIVE VOICE: It is felt that you should re-write your research proficiency paper. (Notice that the subject is missing.)

ACTIVE VOICE : Professor Black feels you should re-write your research proficiency paper.

(The subject is explicit, so the sentence is more informative.)

PASSIVE: The glass was broken by Tim.

ACTIVE: Tim broke the glass.

(Notice that this is more concise than passive voice.)

Use Active Voice

PASSIVE: Using a probabilistic approach, speech features can be mapped using a Gaussian mixture model.

(Again, the subject is missing.)

ACTIVE: Stylianou et al. [22] use a probabilistic approach to map speech features.

(Including the subject is more informative.)

PASSIVE: My first visit to Boston will always be remembered by me.

ACTIVE: I will always remember my first visit to Boston.

(More concise and more forceful.) [from Strunk and White]

Use Active Voice

PASSIVE: Feibush's actions can be seen as morally right based on the theory of Act Utilitarianism.

ACTIVE: We can use Act Utilitarianism to justify Feibush's actions.

(More concise and more forceful.)

PASSIVE: In the news article [7], it is reported that a property developer

(Subject is missing.)

ACTIVE: The Philadelphia Enquirer reported that a property developer ... [7]

Use Active Voice

Active voice is more specific, and therefore more informative and clearer than passive voice. (In passive voice, the subject is often missing. Bureaucratic statements are loaded with this sort of thing: “mistakes were made”, “it was decided”)

Active voice is frequently more concise than passive voice.

Active voice is more direct and forceful.

If you do nothing more than concentrate on using active voice, your writing will improve!

Organize To Help The Reader: Put Key Ideas In Lead Position

- Within *sections* of a paper (except the introduction):

Put KEY IDEAS in LEAD POSITION. The introductory paragraph in a section should summarize the key ideas in that section. The following paragraphs get more specific about the details of the key ideas. Thus, the paragraphs within a section move from the general to the more specific, from the most important to the least important.

Organize To Help The Reader: Put Key Ideas In Lead Position

Within each *paragraph*

Put KEY IDEAS in LEAD POSITION. The first sentence in a paragraph should carry the most important ideas. The following sentences flesh out the particulars of the ideas. Thus, sentences within a paragraph move from general to more specific.

Organize To Help The Reader: Put Key Ideas In Lead Position

Kantianism states that if, from an action, we can extract a universal rule for all to follow without reaching a contradiction that would “break society”, then that rule is morally right. A rule we could extract from the Ori Feibush situation under discussion might be “I can ignore a property law that I believe to be negatively impacting the neighborhood in which I live or work”. If we expanded this to a universal rule for all to follow, a person could modify anyone else’s property as they see fit, with or without the agreement of the property owner, as long as they believed that it would be an improvement to their neighborhood as a whole. This defeats the entire purpose of property ownership. The point of property ownership is that the owner can decide what to do with their property and when. It protects property from unauthorized parties trying to enter or modify it. **Our society could not function if individuals could not control their own property.**

Organize To Help The Reader: Put Key Ideas In Lead Position

Our society could not function if individuals could not control their own property. Feibush seems to believe that he can ignore the property rights of others if he believes that exercising those rights—in this case, leaving a lot in a derelict and unsightly state—are damaging the neighborhood. If we apply this rule to everyone, as a Kantian analysis demands, then anyone would be able to trample on the rights of others simply because they don't like the way in which others are enjoying their rights.



Photograph: Google Streetview

Organize To Help The Reader: Put Key Ideas In Lead Position

EXCEPTION: When you're trying to persuade the audience, you can lead them along and give the key idea, or punchline, at the end. This is frequently used in mathematical development.

However don't overuse this format, particularly when the argument is long.

When you use it for a mathematical development, the lead sentence in the paragraph should be used to tell the reader what you're about to do. (That is, it helps to give away the punch line up front.)

Organize To Help The Reader: Put Key Ideas In Lead Position

Consider first Newton's second law

$$\mathbf{F} = m \frac{dV}{dt} \quad (1)$$

and integrate both sides over a displacement

$$\int_0^x \mathbf{F} \, dx = m \int_0^x \frac{dV}{dt} \, dx \quad (2)$$

substitute ...

Hence, we've shown that work equals the change in kinetic energy.

Organize To Help The Reader: Put Key Ideas In Lead Position

Next we show that work equals the change in kinetic energy. Consider first Newton's second law

$$F = m \frac{dV}{dt} \quad (1)$$

and integrate both sides over a displacement

$$\int_0^x F dx = m \int_0^x \frac{dV}{dt} dx \quad (2)$$

substitute ...

Organize To Help The Reader: Put Key Ideas In Lead Position

Putting key ideas in lead position

- Helps prepare the reader for what's coming
- Allows the reader to skim efficiently.

Organize To Help The Reader: Tell Them What's Coming

3.2 Application of Poisson Spike Trains. Following the diagonal arrows in the scheme, P is upregulated at each postsynaptic spike proportional to $P(S-U)$, and downregulated at each presynaptic release proportional to $(1-P)(S-U)$. The expected change of P at time t is obtained from the kinetic scheme according to ...

3.2 Application of Poisson Spike Trains. Next we investigate the average behavior of our spike-based learning rule when applying nonstationary Poisson spike trains. Following the diagonal arrows in the scheme, P is ...

Don't Make Unsubstantiated Statements

- Statements of belief or of fact should be backed up either by (i) a specific result of your own work or by (ii) explicit citations to the literature.

Don't Make Unsubstantiated Statements

- Don't use phrases like

“It is common knowledge ...” or “It is generally believed ...”, or “Several researchers have shown ...”.

- Instead use constructs like “Hartman [23], Goolickan [24], and Brotman [25] show that ...” or “Recently several researchers have shown that ... [23,24,25].” or “Many researchers (see for example, references 23, 24 and 25) believe that ...”

Be Concise

Avoid wordiness.

Instead of these:

due to the fact that
in light of the fact that
along the lines of
in order to
in view of
on behalf of
after this is
in case

Use these:

because
because
like
to
since
for
then
if

Be Simple

Avoid “fancy” words

Instead of these: Use these:

subsequently

next

modification

change

necessitate

require

endeavor

try

demonstrate

show

utilize

use

Use A Consistent Lexical Set

- Use the same word to refer to a concept throughout the paper.

Don't use “swoondigger” in one place, and “pomponicator” in another place, unless they are generally accepted synonyms. Although it may be obvious to *you* that these are synonymous, the reader may not know this.

Use A Consistent Lexical Set

- When you make an exception and use several terms to refer to the same concept, make sure you tell your reader that you are using the terms synonymously:

“Here we use a swoondigger (also referred to as a pomponticator), to force coherence between ...”

Example from my ICSE 2009 Paper

The contributions of our work lie in both the experimental method and in the conclusions that we are able to draw about refactoring behavior (Section 3). For example, we note that:

- *several bullet points come here;*
- *they go on a bit, before*
- *eventually ending the sentence.*

In Section 4, we show how these observations affect other researchers' assumptions and conclusions.

Define Terms When First Introduced

Don't make the reader guess what you mean until the last section of the paper, where you finally get specific about the meaning of a term.

Define Terms When First Introduced

Types of definitions:

– Full sentence

- The term has more than one meaning, or the audience probably does not know the term, or the definition is controversial (no agreed standard definition)

– Phrases

- The term has more than one meaning and you are clarifying which meaning you adopt. The audience probably *does* know the term, but you are including a definition to avoid ambiguity. Perhaps the definition was controversial in the past.

Avoid Single-Sentence Paragraphs

Single sentence paragraphs are usually an indication that there's a problem with organization. Figure out where the idea belongs.

It may be that it's not important enough to develop into its own paragraph, but doesn't fit in one of the existing paragraphs. If that is the case, then remove it!

Corollary

Don't use one-word sentences. Ever!

Re-write

When you re-write (especially a section, paragraph, or sentence that you know is difficult to read) keep asking yourself “what do I really mean?” Allow yourself several passes to get rough spots really concise, really simple, and really clear.

A good way to get more concise is to ask yourself if words in a sentence, or sentences in a paragraph are helping you make the key points, or whether they can be discarded.

Core Rules for Better Writing

(Pin them to your monitor so they're in front of you as you write!)

1. **Use active voice.**
2. **Put *Key Ideas* in *Lead Position* of sections and paragraphs.**
3. **Don't make unsubstantiated statements.**
4. **Be concise.**
5. **Be simple.**
6. **Use a consistent lexical set.**
7. **Define terms when first used.**
8. **Avoid single sentence paragraphs.**
9. **Rewrite with an intent to make things simpler, more concise, and clearer.**