

# Writing from the Reader's Perspective

Bonnie's attempt at reiterating Prof. George Gopen's work

Put together by Dr. Bonnie Schmittberger, March 2017

Part I:  
Structure and wording

# Mental breaths

Every reader takes a mental breath at the beginning of each

- Chapter
- Section
- Paragraph
- Sentence

**If you exhaust your reader's mental breath before you communicate the important facts, you are not communicating well!**

# How to communicate well while preserving your reader's mental breaths

1. Follow the theme of the chapter/section/paragraph/sentence.
2. Make sure each unit of discourse has a point and is in the right place.
3. Structure is key! Use the right stress position placement.

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# Themes

Theme paragraphs/sentences help the reader understand the context for the next mental breath.

- The first paragraph of every chapter should be a theme paragraph that summarizes the contents of the upcoming chapter.
- The first sentence of each paragraph should be a theme paragraph that introduces the contents of the upcoming paragraph.

***If a unit of discourse does not match the theme sentence of that paragraph, it does not belong in that paragraph. It needs a new paragraph (before the reader runs out of mental breath)!***

# Themes

- The last paragraph of every chapter should tie back to the theme paragraph.
- The last sentence of every paragraph should tie back to the theme sentence of that paragraph AND lead easily into the next paragraph's theme sentence.

# How to communicate well while preserving your reader's mental breaths

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# Make sure everything has a point

A sentence or paragraph that is too long or disjoint is too difficult for the reader.

Think about the reader: The reader should not have to do work to understand the connection between a previous sentence/paragraph and the current one.

If you find yourself making a long list of details that are not contributing strongly to the point summarized by your theme sentence, you should consider condensing/deleting the list or re-wording it.

# Make sure everything has a point

*This is especially difficult with lists! For example:*

- **Option A:** Maximum left ventricular wall velocity, mean left ventricular wall velocity, and amplitude of posterior left ventricular wall excursion were calculated directly by previously described techniques.

*(Long mental breath needed to know what the authors did.)*

- **Option B:** We used previously described techniques to directly calculate maximum left ventricular wall velocity, mean left ventricular wall velocity, and amplitude of posterior left ventricular wall excursion.

*(Short mental breath needed to know what the authors did; the details are placed later, and the reader can process them if interested.)*

# How to communicate well while preserving your reader's mental breaths

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# Stress position placement

“The inclination to direct more energy to that which arrives last in a sentence seems to correspond to the way we work at tasks through time. We tend to take something like a ‘mental breath’ as we begin to read each new sentence, thereby summoning the tension with which we pay attention to the unfolding of the syntax. As we recognize that the sentence is drawing toward its conclusion, we begin to exhale that mental breath. The exhalation produces a sense of emphasis. Moreover, we delight in being rewarded at the end of a labor with something that makes the ongoing effort worthwhile. Beginning with the exciting material and ending with a lack of luster often leaves us disappointed and destroys our sense of momentum. We do not start with a strawberry shortcake and work our way up to the broccoli.”

-from “The Science of Scientific Writing” by George Gopen and Judith Swan.

# Stress position placement

The stress position is typically at the end of a sentence or before a semi-colon.

Endplacement can change the tone of your sentence!

- More negative: The trial court's conclusion is clearly erroneous.
- Less negative: The trial court clearly erred in concluding that.

The “more negative” example places a negative action in the stress position (at the end of the sentence). The reader interprets words in this position to carry more weight.

# Stress position placement

*Decide what you want to stress, and put it in the stress position.*

Example 1:

- Fred is a nice guy, but he launders money.
- Fred launders money, but he's a nice guy.

Example 2:

- Although the work is scientifically sound, this proposal lacks innovation.
- Although the proposal lacks innovation, the work is scientifically sound.

# Wording is important!

## 1. Use active voice.

- Active voice: Jack loves Jill.
- Passive voice: Jill is loved by Jack. (Have to use the verb “to be.”)

In addition, look carefully every time you use the words “should, could, would, has been, would be, are being, etc.” See if you can change the verb so that it has more power and avoids nominalizations.

## 2. Use present tense.

## 3. Put the action near the verb where applicable for desired tone.

“Want to make something marshmallowy? Don’t put the action in the verb.” – George Gopen

- Action far away from verb: The Dean made a decision to conduct a review of the matter.
- Action with the verb: The Dean decided to review the matter.

# Nominalizations and stress object placement

George Gopen's "favorite paragraph in the world" from a recall letter for his car:

A defect which involves the possible failure of a frame support plate may exist on your vehicle. This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame, and its failure could affect vehicle directional control, particularly during heavy brake application. In addition your vehicle may require adjustment service to the hood secondary catch system. The secondary catch may be misaligned so that the hood may not be adequately restrained to prevent hood fly-up in the event the primary latch is inadvertently left unengaged. Sudden hood fly-up beyond the secondary catch while driving could impair driver visibility. In certain circumstances, occurrences of either of the above conditions could result in vehicle crash without prior warning.

# Nominalizations and stress object placement

This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame, and its failure could affect vehicle directional control, particularly during heavy brake application.

vs.

This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame. Particularly during heavy braking, this plate could fail and cause you to lose control of your vehicle.

## Nominalizations and stress object placement

This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame, and its failure could **affect vehicle directional control**, particularly during heavy brake application.

vs.

This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame. Particularly during heavy braking, this plate could fail and **cause you to lose control of your vehicle**.

# Nominalizations and stress object placement

This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame, and **its failure could affect vehicle directional control**, particularly during heavy brake application.

vs.

This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame. Particularly during heavy braking, this plate could fail and **cause you to lose control of your vehicle**.

# Nominalizations and stress object placement

A defect which involves the possible failure of a frame support plate may exist on your vehicle. This plate (front suspension pivot bar support plate) connects a portion of the front suspension to the vehicle frame, and its failure could affect vehicle directional control, particularly during heavy brake application. In addition your vehicle may require adjustment service to the hood secondary catch system. The secondary catch may be misaligned so that the hood may not be adequately restrained to prevent hood fly-up in the event the primary latch is inadvertently left unengaged. Sudden hood fly-up beyond the secondary catch while driving could impair driver visibility. In certain circumstances, occurrences of either of the above conditions could result in vehicle crash without prior warning.

***Now I will take this paragraph and apply the aforementioned rules. I will change the stress object placement, put the action closer to the verb, and divide this into two paragraphs that have two different themes.***

# Nominalizations and stress object placement

Your vehicle may possess a defect that causes the frame support plate to fail. This plate connects a portion of the front suspension to the vehicle frame. Particularly during heavy braking, this plate could fail and cause you to lose control of the vehicle.

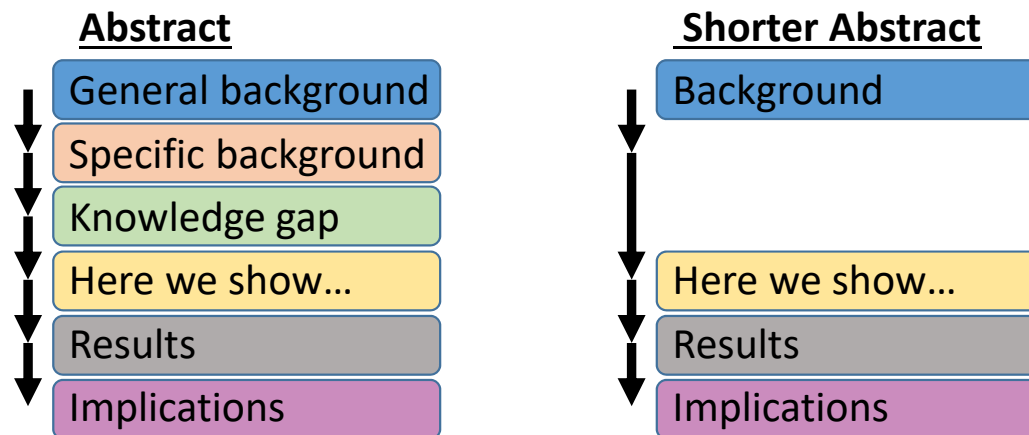
In addition, the hood secondary catch system of your vehicle may require adjustments. The secondary catch may be misaligned so that if the primary latch is inadvertently left unengaged, the hood may fly up and impair the visibility of the driver. In certain circumstances, occurrences of either of the above conditions could lead to a sudden crash.

***(Now that is scary! Better get that car in for repairs immediately!)***

Part II:  
Structure and content of a  
research article

# Abstracts

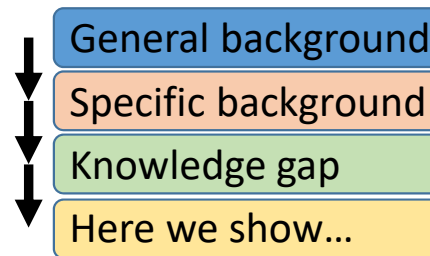
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- Convince your reader that your work is addressing an authentic, pressing problem in science or engineering
- Convey the essence of your results
- Explain what those results mean for the state of the field and for future work

\*Remember to avoid jargon in the abstract (e.g., instead of “titanium sapphire laser,” just say “laser”)\*

# Introduction



The introduction should:

- Define the overall scientific settings of your research (in the “General Background”).
- Impart the minimum essential information about the key actors: e.g., chemical reactions, signaling pathways, techniques, mathematical models (in the “Specific Background”).
- Give evidence of the incompleteness of the current understanding and of the value of investigating the field further (in the “Knowledge Gap”).
- Give a brief preview of your findings and how they relate to the central question (in the “Here we show”).

# Methods and Results

Stick to wording rules.

These sections are full of details and giant lists, so it is more difficult to stick to the themes.

Remember mental breaths.

Tie sections/paragraphs back to the introduction and address the context of the results in terms of the study's goals.

# Discussion

- Summary of paper's main concerns
- Comparison with existing results/theories
- Implications of this work
- Paper's limitations in scope
- Forward-looking statement (How will this work be applied to answering the big questions?)

# Part III: Format and Punctuation

# Format and punctuation

1. The phrase “et al.” is an abbreviation for “et alia.” Thus, the period only goes after “al.”
2. When referencing an author list of another paper inside your paper (e.g., “In *Doe et al.*, ...”), there should *not* be a comma between the first author’s last name and the “et al.”
3. You should have a space between the number and the unit (e.g., 10 MHz is correct. 10MHz is incorrect).
4. Equations are always punctuated as if you were reading the equations as in-line text. You should never put a colon after the word that occurs just before an equation.
5. You should never start a sentence with an acronym or with an abbreviation. (“Fig. 5” should be written as “Figure 5” if it is the beginning of a sentence.)
6. All citations should end with a period.
7. You should never start a section with a figure.
8. Colons: What comes before a colon must be able to stand by itself as a whole clause; it must be able to be replaced with a period. After the colon, there can be one of two things:
  - a) A restatement of what came before the colon, in which case it must begin with a capital letter and act as a whole clause by itself, or
  - b) A list of things, separated by semi-colons.
    - i. The four most important things to consider are: ← This is not a main clause, and thus it is wrong.
    - ii. The four most important things to consider are the following: ← This is correct.
9. Semi-colons are your friend.
  - a) What comes before and after the semi-colon must be able to stand alone.
  - b) It says: this is a unit; this is a related unit. And thus, together, they are also one unit.
10. Adverbs: For the adverb and the verb that it describes, it is technically correct to use them in either order.  
“directly calculate” vs. “calculate directly” → Choose which word you want to emphasize, and put that second.

# Final Editing Advice

1. Take a paragraph, and look at all the verbs. Are they active or passive?
2. Circle all the actions and verbs. Are they too far apart?
3. Find the link between the end of the paragraph and the beginning. Did you forget it? Is the paragraph too long or too short?
4. Look at all the stress positions. Are they well-filled? Where is the intended emphasis?
5. Make sure you're not ending sentences with prepositional phrases.