

Scientific Writing: Making Your Work More Scannable

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Game Plan: Three Lectures

- Last time: Higher-order writing concerns (purpose and audience)
- Today: Lower-order writing concerns
- Third time (ideal): Live consultations on each of your assignments

Exercise

- Think about one of your hobbies (not computer science) and write a paragraph blurb about it. Describe your hobby to someone who doesn't know much about it, and explain (persuade) why they should look into doing your hobby as well.
- Time: 10 minutes
- Space: 3 x 5 index card (I'll take up at end of class)

How do you read articles?

- When you're looking for articles, do you...
 - look at every section?
 - examine every paragraph?
 - take note of every sentence?
 - read every word?
- Probably not.
 - How do YOU read?



Searching for Articles

1. Read the title/search for keywords
2. Read the abstract
3. Read the Introduction section
4. Look at figures and captions
5. Read the Results and Discussion section
6. Decide if I want to read more

Put yourself in the reader's position

- Make your writing more scannable
 - High-order (revision)
 - Addressing audience/purpose of each section (content)
 - Ensuring ideas are logically sequenced (organization)
 - Low-order (editing)
 - Making sentence subjects and verbs agree
 - Using correct word choice

Audience

- Ask yourself the following questions:
 - “What does the reader already know?”
 - “What does the reader need to know?”
- Answering those questions will make information:
 - Relevant
 - Non-repetitive
- Keep the reader’s interest without losing them



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Workshop: Organizing Sentences

- To insert the tools in the abdomen of the patient, the surgeon set up previous tools where the surgical instruments will be inserted, this first instrument is called trocar. **They help to cut the skin and to insert surgical tools.** Unfortunately, it happens that the surgeons cuts or damaged with the trocar an artery. **In general, the patient's anatomy remains the same between two patients to avoid this problem.** Nevertheless, complications due to this problem occur and are not inevitable. **The problem for the surgeons is that these complications extend the time of the procedure because they have to suture the artery.** In worst case, the surgeon misses the bleeding and sees it after the beginning of the surgery. **The trocar positioning in respect to the arteries and the organs of the patient is really important to maximize the operation but the surgeon can only rely on his knowledge.**

Workshop: Organizing Sentences

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— Definition of tool

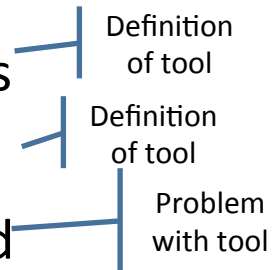
Workshop: Organizing Sentences

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Definition of tool
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Workshop: Organizing Sentences

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- Annotations for sentence organization:
- Definition of tool
 - Definition of tool
 - Problem with tool
 - Explanation of status quo
 - General effect of problem
 - Effect of problem
 - Effect of problem
 - Explanation of status quo

Workshop: Organizing Sentences

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-
- The diagram consists of a vertical line on the right side of the text. From this line, several horizontal lines branch out to the left, pointing to specific parts of the text. Each branch is labeled with a category. The labels and their corresponding text segments are: 'Definition of tool' pointing to 'Trocar'; 'Problem with tool' pointing to 'cuts or damaged with the trocar an artery'; 'Explanation of status quo' pointing to 'In general, the patient's anatomy remains the same between two patients to avoid this problem'; 'General effect of problem' pointing to 'complications due to this problem occur and are not inevitable'; 'Effect of problem' pointing to 'The problem for the surgeons is that these complications extend the time of the procedure because they have to suture the artery'; and another 'Explanation of status quo' pointing to 'The trocar positioning in respect to the arteries and the organs of the patient is really important to maximize the operation but the surgeon can only rely on his knowledge'.

How would you reorganize?

Workshop: Organizing Sentences (rewrite)

Workshop: Organizing Sentences

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Put yourself in the reader's position

- Make your writing more scannable
 - High-order (revision)
 - Addressing audience/purpose of each section (content)
 - Ensuring ideas are logically sequenced (organization)
 - Low-order (editing)
 - **Focusing on subjects and verbs**
 - Using correct word choice

Top Left

Prime real estate in writing

– Location

- Beginning of paragraph
- Beginning of sentence

– Most important information goes here

- Make the subject the subject
- Make the verb the verb

When a mother and daughter are found brutally murdered in 19th century Baltimore, Detective Emmett Fields (Luke Evans) makes a startling discovery: the crime resembles a fictional murder described in gory detail in the local newspaper—part of a collection of stories penned by struggling writer and social pariah Edgar Allan Poe. But even as Poe is questioned by police, another grisly murder occurs, also inspired by a popular Poe story. Realizing a serial killer is on the loose using Poe's writings as the backdrop for his bloody rampage, Fields enlists the author's help in stopping the attacks. But when it appears someone close to Poe may become the murderer's next victim, the stakes become even higher and the inventor of modern detective story calls on his own powers of deduction to try to solve the case before it's too late. The killer is Ivan (played by Sam Hazeldine) who works as a typesetter in the offices of the Baltimore Patriot, which is a newspaper where Poe attempts to have his work published. During the period in which the film is set, Poe's great works are all long behind him and he's reduced to churning out critiques of other poets' works (such as Longfellow) to eek out drinking money from the editor of the paper (who keeps pressing Poe to write more of his gory works about the supernatural and murders, since those are what people clamor for...and since the editor's obsession with gruesome things is a red herring that later makes the audience think the editor is the killer when it's actually the typesetter). Ivan became an obsessed fan who later admits to going crazy when Poe stopped writing since Ivan needed his fix of gruesome fiction -- and in that time period, Poe was the only writer who delved into the macabre and deranged in this fashion.



Subjects and Verbs

Make the subject the subject

- Smartphone probes is on the spotlight in recent five years. Comparing with traditional methods which are using fixed-location sensing infrastructures, for instances, inductive loop detectors, radars or video cameras, it has lower cost, higher scalability.



**Where's the
prime real
estate??**

Subjects and Verbs

Make the subject the subject

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Subjects and Verbs

Is this a
subject?

Make the subject the subject

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Subjects and Verbs

Make the subject the subject

- Smartphone probes is on the spotlight in recent five years. Comparing with traditional methods which are using fixed-location sensing infrastructures, for instances, inductive loop detectors, radars or video cameras, it has lower cost, higher scalability.

Is this a subject?

The REAL subject!

Subjects and Verbs

Make the subject the subject (Rewrite)

- Smartphone probes have been in the spotlight for the past five years. They have lower cost and higher scalability compared to traditional methods that use fixed-location sensing infrastructures such as inductive loop detectors, radars, or video cameras.

Subjects and Verbs

Make the verb the verb

- Top 3 Most Common Verbs?
 - Be, Have, Do

Subjects and Verbs

Make the verb the verb

- Top 3 Most Common Verbs?
 - Be, Have, Do
 - Be, am, is, are, was, were, will, been, being
 - Have, has, had, having
 - Do, does, did, doing
 - Would, could, should
- Auxiliary verbs can weaken your statements

Use Active Voice

To turn the passive voice back to the active voice:

Ask: "Who does what to whom?"

It **was found** that $1+1$ does not equal 2.

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***The agent* found that 1+1 does not equal 2.**

It has been concluded that the data were bogus.

Use Active Voice

To turn the passive voice back to the active voice:

Ask: "Who does what to whom?"

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***The agent* found that 1+1 does not equal 2.**

It has been concluded that the data were bogus.

***The agent* concluded that the data were bogus.**

Use Active Voice

To turn the passive voice back to the active voice:

Ask: "Who does what to whom?"

It was found that 1+1 does not equal 2.

***The agent* found that 1+1 does not equal 2.**

It has been concluded that the data were bogus.

***The agent* concluded that the data were bogus.**

It is believed that the data had been falsified.

***The agent* believed that the data had been falsified.**

A recommendation was made by the DSMB committee that the study be halted.

The DSMB committee recommended that the study be halted.

As is shown in Table 3...

Table 3 shows...

Use Active Verbs

- Don't kill verbs and adjectives by turning them into nouns.

Obtain estimates of

estimate

Has seen an expansion in

has expanded

Provides a methodologic emphasis

emphasizes methodology

Take an assessment of

assess

Pick the right verb

The WHO reports that approximately two-thirds of the world's diabetics are found in developing countries, and estimates that the number of diabetics in these countries will double in the next 25 year.

→

The WHO estimates that two-thirds of the world's diabetics are found in developing countries, and projects that the number of diabetics in these countries will double in the next 25 years.

Linking vs. action verbs

- Chris ***tasted*** the crunchy, honey-roasted grasshopper.
- The crunchy, honey-roasted grasshopper ***tasted*** good.
 - >The grasshopper *is* good.
- The students ***looked*** at the equation until their brains hurt.
- The equation ***looked*** hopelessly confusing.
 - >The equation *is* confusing.

Things to Think About

- Writing Exercise
- Practice thinking about writing
- Practice writing
- Pay attention and be careful
- Know where to find resources
 - Purdue OWL (<https://owl.english.purdue.edu/>)
 - UH Writing Center Graduate Consultations

Any Questions?

Workshop: Organizing Ideas (Old to New)

- To insert tools in the abdomen of the patient, the surgeon installs an instrument called a **trocar**. **Proper trocar positioning** with respect to the arteries and organs helps maximize the operation, but the surgeon can only rely on his **knowledge**. **Knowledge** of patient anatomy helps avoid this problem, but unfortunately, sometimes surgeons **cut or damage arteries** with the trocar. **This problem** leads to complications that extend the **time** of the procedure.