

Scientific Writing

- Lecture Four: Writing Basics II

Paragraphs, logic, and organization

Scientific Writing paragraphs

Although the methodological approaches are similar, the questions posed in classic epidemiology and clinical epidemiology are different. In classic epidemiology, epidemiologists pose a question about the etiology of a disease in a population of people. Causal associations are important to identify because, if the causal factor identified can be manipulated or modified, prevention of disease is possible. On the other hand, in clinical epidemiology, clinicians pose a question about the prognosis of a disease in a population of patients. Prognosis can be regarded as a set of outcomes and their associated probabilities following the occurrence of some defining event or diagnosis that can be a symptom, sign, test result or disease.

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What are you trying to say? Idea flow chart (outline)...

I. Classic and clinical epidemiology differ

Main idea of the paragraph

A. Classic epidemiology is about disease etiology and preventing disease

i. Etiology is about this.

Supporting ideas → specifics of how they differ

B. Clinical epidemiology is about improving prognosis

i. Prognosis is about this.

Sub-supporting ideas → definitions

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Despite methodologic similarities, classic epidemiology and clinical epidemiology differ in aim.

I. Classic and clinical
epidemiology differ

Main idea of the
paragraph

Scientific Writing

Classic epidemiologists pose a question about the etiology of a disease in a population of people. Clinical epidemiologists pose a question about the prognosis of a disease in a population of patients.

A. Classic epidemiology is about disease etiology and preventing disease

Supporting ideas → specifics of how they differ

B. Clinical epidemiology is about improving prognosis

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sentence-level editing

Sub-supporting
ideas → definitions

i. Prognosis is about this.

Prognosis can be regarded as a set of outcomes and their associated probabilities following the occurrence of some defining event or diagnosis that can be a symptom, sign, test result or disease.



Prognosis is the probability that an event or diagnosis will result in a particular outcome.

Scientific Writing Altogether...

Despite methodologic similarities, classic epidemiology and clinical epidemiology differ in aim. Classic epidemiologists pose a question about the etiology of disease in a population of people; etiologic factors can be manipulated to prevent disease. Clinical epidemiologists pose a question about the prognosis of a disease in a population of patients; prognosis is the probability that an event or diagnosis will result in a particular outcome.

Scientific Writing compare to outline...

I. Classic and clinical
epidemiology differ

Main idea of the
paragraph

A. Classic epidemiology
is about disease etiology
and preventing disease

i. Etiology is about this.

Supporting ideas →
specifics of how they
differ

B. Clinical
epidemiology is about
improving prognosis

i. Prognosis is about this.

Sub-supporting
ideas → definitions

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Before you start writing, ask:

“What am I trying to say?”

When you finish writing, ask:

“Have I said it?”

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Paragraph organization tips:

1. Avoid a succession of loose sentences (monotonous).
2. Paragraph flow is helped by:
 - parallel sentence structures
 - logical flow of ideas
 - *if necessary*, transition words
3. Your reader remembers the first sentence and the last sentence best. Make the last sentence memorable. Emphasis at the end!

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Paragraph organization tips:

1. Avoid a succession of loose sentences (monotonous).

- Outlining and organizing can help arrange ideas.

- But, when stringing together a series of ideas, don't forget to vary sentence structure for readability.

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Example from *Strunk and White*:

The third concert of the subscription series was given last evening, and a large audience was in attendance. Mr. Edward Appleton was the soloist, and the Boston Symphony Orchestra furnished the instrumental music. The former showed himself to be an artist of the first rank, while the latter proved itself fully deserving of its high reputation. The interest aroused by the series has been very gratifying to the Committee, and it is planned to give a similar series annually hereafter. The fourth concert will be given on Tuesday, May 10, when an equally attractive program will be presented.

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2. Paragraph flow is helped by:
 - parallel sentence structures
 - logical flow of ideas
 - *if necessary*, transition words

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logical flow of ideas:

- Sequential in time
- General → specific
- Logical arguments (if a then b; a; therefore b)

Scientific Writing example

Usually, when a defendant absconds, a bondsman hires a bounty hunter to find and arrest him within the grace period (which, in California, is six months). If that fails, the bondman tries to seize any collateral that the defendant put down to secure the bond, or sues the defendant's "indemnitors," who signed the bail application as guarantors. But Zabala hadn't put down any collateral, and so far Green—one of the few bondsmen who always do their own bounty hunting—had found neither him nor his indemnitors. The grace period was nearly up. Soon, Green would have to pay the court thirty-one thousand dollars.

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organized by: time sequence
and general → specific

1. First, a bondsman hires a bounty hunter to find and arrest the defendant within the grace period.
2. Then, if that fails, the bondman seizes collateral or sues indemnitors.
3. Now, in this specific case, the defendant (Zabala) is AWOL and has no collateral or available indemnitors
4. Conclusion: the bondswoman (Green) is out of options.

Notice how the author didn't need to write "first," "then," "in this specific case," or "conclusion" → the organization of sentences and context gives readers these clues without spelling them out...

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examine the logical structure

A bondsman has these and only these options:

- 1. Hire a bounty hunter to find and arrest the guy within a grace period.**
- 2. If (1) fails, seize collateral or sue indemnitor.**
- 3. Pay the money herself.**

In this case,

- 1. Grace period nearly done without arrest.**
- 2. No collateral, no indemnitors.**

∴ Green (the bondswoman) will be responsible for the \$31,000.

Scientific Writing transitions used

Usually, when a defendant absconds, a bondsman hires a bounty hunter to find and arrest him within the grace period (which, in California, is six months). If that fails, the bondman tries to seize any collateral that the defendant put down to secure the bond, or sues the defendant's "indemnitors," who signed the bail application as guarantors. But Zabala hadn't put down any collateral, and so far Green—one of the few bondsmen who always do their own bounty hunting—had found neither him nor his indemnitors. The grace period was nearly up. Soon, Green would have to pay the court thirty-one thousand dollars.

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3. Your reader remembers the first sentence and the last sentence best. Make the last sentence memorable.

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But Zabala hadn't put down any collateral, and so far Green—one of the few bondsmen who always do their own bounty hunting—had found neither him nor his indemnitors. The grace period was nearly up. Soon, Green would have to pay the court thirty-one thousand dollars.

Long, short, long.

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But Zabala hadn't put down any collateral, and so far Green—one of the few bondsmen who always do their own bounty hunting—had found neither him nor his indemnitors. The grace period was nearly up. Soon, Green would have to pay the court thirty-one thousand dollars.

Long, short, long.

Nice sentence variety and build-up to the conclusion.

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Finally, organizing the whole story...

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Compositional organization:

1. Like ideas should be grouped.
2. Like paragraphs should be grouped.
3. Don't "Bait-and-Switch" your reader too many times.

When discussing a controversy, follow:

arguments (all)

counter-arguments (all)

rebuttals (all)

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Organizing your thoughts...

Do you have a system?

If you don't, get one.

Spend more time organizing and less time writing.
It's just plain less painful!

The 10:1 feature-story ratio:

10 parts organization/research: 1 part writing.

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Develop a road-map....

Think in paragraphs and sections...

Interviews...

- Swap from last time:
- “What brought you to Stanford—spiritually, literally, or otherwise?”
- Then each take 10 minutes to write up a 1-2 paragraph mini profile (SHORT, PUNCHY, CLEVER, HUMOROUS) of the other person. Use at least one dash or colon and at least one sentence with parallel construction.

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And finally...

This week's Top 5 countdown:

Scientific Writing,

1. Do not use “they” or “their” when the antecedent is singular (but can vary gender references)

Every one of us knows ~~they~~ are fallible.

Every one of us knows she is fallible.

Each student pulled out ~~their~~ notebook.

Each student pulled out his notebook.

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2. Prevalence v. Incidence

Incidence is a *RATE*

→ how many new cases develop per unit of population *per unit of time*?

Prevalence is a *PROPORTION*

→ how widespread is a given disease?

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3. principle v. principal

Principle is a fundamental truth or law

Principal is a leader

The school's principal declared it a holiday.

(mnemonic: your “pal”)

Her principles were impeccable.

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4. rational v. rationale

Rational is an adjective, meaning sane or logical.

Rationale is a noun, meaning justification.

She was a rational human being.

Their rationale for the move was that it would save a great deal of money.

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5. To hyphenate or not to hyphenate, that is the question...units...

- Hyphenate multiple adjectives that modify a noun.

The ball was 21 feet in diameter. (noun)

The ball had a 21-foot diameter. (adjective)

The machine carried a 44-pound scientific payload.

The machine carried 44 pounds in science equipment.

Scientific Writing Homework

- Read chapters 11-12 of *Sin and Syntax* (pp. 169-195)
- Exercise: more sentence re-writing exercises

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Preview to next time...

- For next time...

words → sentences → paragraphs → compositions
→ revision

- Bringing it all together and revising.