Writing in the Sciences

Module 3.1: Experiment with punctuation

Experiment with punctuation

Our friends the dash, colon, semicolon, and parenthesis...

Use them to vary sentence structure!

Example

Original: Many types of cells and tissues develop a kind of directionality. Certain events happen toward one end of the cell or tissue or the other. It's a phenomenon called cell polarity.

Using a colon: Many cells and tissues develop a kind of directionality called cell polarity: certain events happen toward one end of the cell or tissue.

Experiment with punctuation

Increasing power to separate:

Comma

Colon

Dash

Parentheses

Semicolon

Period

Strunk and White, *The Elements of Style*

Experiment with punctuation

Increasing formality:

Dash

Parentheses

The Others (Comma,Colon,Semicolon,Period)

Semicolon

The semicolon connects two independent clauses.

(Note: a clause is a unit of grammatical organization just below a sentence in rank; it always contains a subject and predicate.)

Example: Kennedy could be a cold and vain man, and he led a life of privilege. But he knew something about the world; he also cared about it.

Example: It was the best of times; it was the worst of times.

Semicolon

Semicolons are also used to separate items in lists that contain internal punctuation.

Example: They dramatically reduced the number of series in production: in 1935, fourteen series were circulating; in 1940, nine; by 1980, when the syndicate was in its final years, only four.

Parentheses

Parenthesis (parenthetical expression):

Use parentheses to insert an afterthought or explanation (a word, phrase, or sentence) into a passage that is grammatically complete without it.

→If you remove the material within the parentheses, the main point of the sentence should not change.

→Parentheses give the reader permission to skip over the material.

Parentheses, example

What kind of teenager beats up on the misfit, sissy kid, pinning him down and violently cutting his hair with a pair of school scissors—the incident from Romney's youth that *the Washington Post* famously reported (and Romney famously didn't really deny) back in May?

(Michael Tomasky, A Mouse in the Whitehouse, *Newsweek*)

Parentheses, example

This is troubling because, while there are plausible biological stories to connect red meat with cancer and heart disease, it seems unlikely that eating too much red meat could directly cause accidents and injuries. (Unless, as one of my students quipped, red meat eaters are swerving to avoid cows!)

Colon

Use a colon after an independent clause to introduce a list, quote, explanation, conclusion, or amplification.

"The colon has more effect than the comma, less power to separate than the semicolon, and more formality than the dash."--*Strunk and White*

Colon (list or explanation)

The hydrogen bonds are made as follows: purine position 1 to pyrimidine position 1; purine position 6 to pyrimidine position 6.

From: "*A structure for Deoxyribose Nucleic Acid*"—Watson and Crick 1953

Colon (list or amplification)

Washington has a simple solution to most governments it doesn't like: isolate them, slap sanctions on them, and wait for their downfall.

The woman suffers from lack of experience and a chronic Democratic disease: compound sentences.

Colon (quote, list of quotes)

The “Ask not” line follows right after an exhortation modeled on Franklin Roosevelt’s “rendezvous with destiny”: “In the long history of the world, only a few generations have been granted the role of defending freedom in its hour of maximum danger. I do not shrink from this responsibility—I welcome it.” The note throughout is one of alarm: “The trumpet summons us again”; “the burden of a long twilight struggle”; “that uncertain balance of terror.”

The rule of three's (lists, examples)

- NOTE: The "rule of three's" for lists and examples.

- Example: They gradually reduced the number of employees: in 1980, the company had 300 employees; in 1995, 150; by 2005, when the company was in its final years, only 11.

Colon (to amplify or extend)

Use a colon to join two independent clauses if the second amplifies or extends the first.

Companies use Marsh for the same reason that home sellers use real-estate agents: the agent's knowledge and experience is supposed to help the client get the right deal at the right price.

Colon misuse

EXAMPLE, what not to do!:

Two aspects of alcohol use are related to brain injuries: as a factor associated with risk of an injury such as a motor vehicle crash, and as a factor in TBI diagnosis, recovery, or survival after injury.

→

Two aspects of alcohol use are related to brain injuries: its association with risk of injury, such as motor vehicle crash, and its post-injury influences on TBI diagnosis, recovery, or survival after injury.

Colon misuse

EXAMPLE, what not to do!:

In one project we have a nutritionist, a psychologist, statisticians, a computer specialist, and dietitians: a whole range of specialties.

→

In one project we have a whole range of specialties: a nutritionist, a psychologist, statisticians, a computer specialist, and dietitians.

Dash

Use the dash to add emphasis or to insert an abrupt definition or description almost anywhere in the sentence. Just don't overuse it, or it loses its impact.

- "A dash is a mark of separation stronger than a comma, less formal than a colon, and more relaxed than parentheses."—*Strunk and White*
- "Use a dash only when a more common mark of punctuation seems inadequate."—*Strunk and White*

i.e. Reserve this tool for the really tough jobs!

Dash

The drugs did more than prevent new fat accumulation. They also triggered overweight mice to shed significant amounts of fat—up to half their body weight. (*emphasis*)

To establish that the marrow cells—also called adult stem cells or endothelial precursor cells—can colonize the eye, Friedlander and his colleagues first transplanted stem cells from an adult mouse into the eyes of newborn mice. (*definition*)

How would the feel of these sentences change with parentheses or commas?

Dash

With commas instead...(clunky and long...)

The drugs did more than prevent new fat accumulation. They also triggered overweight mice to shed significant amounts of fat, up to half their body weight.

To establish that the marrow cells, also called adult stem cells or endothelial precursor cells, can colonize the eye, Friedlander and his colleagues first transplanted stem cells from an adult mouse into the eyes of newborn mice.

Dash

With parentheses instead...(buries the info.)

The drugs did more then prevent new fat accumulation. They also triggered overweight mice to shed significant amounts of fat (up to half their body weight).

To establish that the marrow cells (also called adult stem cells or endothelial precursor cells) can colonize the eye, Friedlander and his colleagues first transplanted stem cells from an adult mouse into the eyes of newborn mice.

Dash

Researchers who study shipworms say these mislabeled animals—they're clams, not worms—are actually a scientific treasure. (*emphasis and added information)*

The store—which is windowless and has clusters of unsmiling security guards standing at its entrances, as if it were the embassy of a particularly beleaguered nation—caters to rich Brazilians, members of the ten per cent of the population who command nearly half the national income, and wear Chanel, Valentino, or Dolce & Gabbana. (*long description*)

Dash

Commas instead…

Researchers who study shipworms say these mislabeled animals, they're clams, not worms, are actually a scientific treasure. (*commas aren't strong enough to set off a clause*)

The store, which is windowless and has clusters of unsmiling security guards standing at its entrances, as if it were the embassy of a particularly beleaguered nation, caters to rich Brazilians, members of the ten per cent of the population who command nearly half the national income, and wear Chanel, Valentino, or Dolce & Gabbana. (*too long-winded without an abrupt pause*)

Dash

Parentheses instead…

Researchers who study shipworms say these mislabeled animals (they're clams, not worms) are actually a scientific treasure. (*buries the information*)

The store (which is windowless and has clusters of unsmiling security guards standing at its entrances, as if it were the embassy of a particularly beleaguered nation) caters to rich Brazilians, members of the ten per cent of the population who command nearly half the national income, and wear Chanel, Valentino, or Dolce & Gabbana. (*takes away from the description*)

Dash

One more example...

Baseball is the only game that’s played every day, which is why its season often seems endless, right up to the inning and the out—the little toss over to first base—when, wow, it ends.

Dash

Comma instead…

Baseball is the only game that's played every day, which is why its season often seems endless, right up to the inning and the out, the little toss over to first base, when, wow, it ends. (no emphasis on the image)

Parentheses instead…

Baseball is the only game that's played every day, which is why its season often seems endless, right up to the inning and the out (the little toss over to first base) when, wow, it ends. (makes it seem unimportant)

References/citations

Strunk and White's classic, *The Elements of Style*, http://www.bartleby.com/141/.

Examples from: Watson & Crick, Dickens, Michael Tomasky, Fareed Zakaria, James Suroweiki, Nathan Seppa, Louis Menand, Joe Klein, Roger Angell

Writing in the Sciences

Module 3.2: Practice, colon and dash

Colon: Practice

Evidence-based medicine teaches clinicians the practical application of clinical epidemiology, as needed to address specific problems of specific patients. It guides clinicians on how to find the best evidence relevant to a specific problem, how to assess the quality of that evidence, and perhaps most difficult, how to decide if the evidence applies to a specific patient.

Colon: join and condense

Evidence-based medicine teaches clinicians the practical application of clinical epidemiology: how to find the best evidence relevant to a specific problem, how to assess the quality of that evidence, and how to decide if the evidence applies to a specific patient.

Colon: join and condense

Evidence-based medicine teaches clinicians how to find the best evidence relevant to a specific problem, how to assess the quality of that evidence, and how to decide if the evidence applies to a specific patient.

Dash: Practice

Finally, the lessons of clinical epidemiology are not meant to be limited to academic physician-epidemiologists, who sometimes have more interest in analyzing data than caring for patients. Clinical epidemiology holds the promise of providing clinicians with the tools necessary to improve the outcomes of their patients.

A long descriptive clause that could be set off by a dash.

No transition.

Dash: join and condense

Finally, clinical epidemiology is not limited to academic physician-epidemiologists—who are sometimes more interested in analyzing data than caring for patients—but provides clinicians with the tools to improve their patients' outcomes.

Writing in the Sciences

Module 3.3: Parallelism

Parallelism

Unparallel:

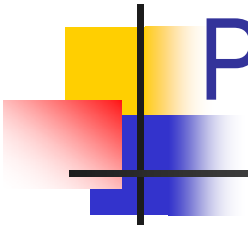
Locusts denuded fields in Utah, rural Iowa was washed away by torrents, and in Arizona the cotton was shriveled by the placing heat.

Vs.

Parallel:

Locusts denuded fields in Utah, torrents washed away rural Iowa, and blazing heat shriveled Arizona's cotton.

From: Strunk and White. *The Elements of Style*



Parallelism

Make a choice and stick to it!

Parallel example:

NASA's intrepid Mars rover, Curiosity, has been through a lot in the past year. It flew 354 million miles, blasted through the Mars atmosphere, deployed a supersonic parachute, unfurled a giant sky crane, and touched down gently on the surface of Mars.

Citation: Jenny Marder. “Mars Curiosity Rover Gets 'Brain Transplant,' Prepares for Mountain Trek”, pbs.org

Parallelism

Pairs of ideas joined by "and", "or", or "but" should be written in parallel form.

The velocity decreased by 50% but the pressure decreased by only 10%.

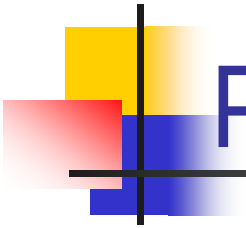
SVX but SVX

Parallelism

Pairs of ideas joined by "and", "or", or "but" should be written in parallel form.

We aimed to increase the resolution and to improve picture quality.

Infinitive phrase and infinitive phrase.



Parallelism

Lists of ideas (and numbered lists of ideas) should be written in parallel form.

(Remember the rule of 3's!)

Parallelism

Not Parallel:

If you want to be a good doctor, you must study hard, critically think about the medical literature, and you should be a good listener.

Parallel:

If you want to be a good doctor you must study hard, listen well, and think critically about the medical literature. (imperative, imperative, imperative)

Parallel:

If you want to be a good doctor, you must be a good student, a good listener, and a critical thinker about the medical literature. (noun, noun, noun)

Parallelism

Not Parallel:

This research follows four distinct phases: (1) establishing measurement instruments (2) pattern measurement (3) developing interventions and (4) the dissemination of successful interventions to other settings and institutions.

Parallel:

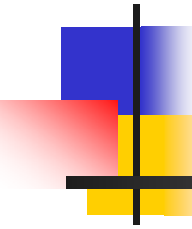
This research follows four distinct phases: (1) establishing measurement instruments (2) measuring patterns (3) developing interventions and (4) disseminating successful interventions to other settings and institutions.

Practice example

Bates describes the five principles for the success of decision support systems in clinical settings: speed, real-time delivery, integration into workflow, simplicity and to avoid data entry.

Practice example

Bates describes the five principles for the success of decision support systems in clinical settings: speed, real-time delivery, integration into workflow, simplicity, and the avoidance of data entry.

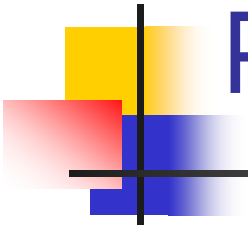


Writing in the Sciences

Module 3.4: Paragraphs

Paragraph-level tips

- 1 paragraph = 1 idea
- Give away the punch line early.
- Paragraph flow is helped by:
  - logical flow of ideas
  - parallel sentence structures
  - *if necessary*, transition words
- Your reader remembers the first sentence and the last sentence best. Make the last sentence memorable. Emphasis at the end!



Paragraph-level tips

logical flow of ideas:

- Sequential in time (avoid the *Memento* approach!)
- General→ specific (take-home message first!)
- Logical arguments (if a then b; a; therefore b)

Example (from *The New Yorker*)

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.

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…

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. **<u>No collaterol, no indemnitors.</u>**

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

Transition words 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.

Emphasis at the end!

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.

Example: paragraph for editing

Most scents remain constant in their quality over orders of magnitude of concentration (12). Nevertheless, at high concentrations, quality tends to be negatively correlated with intensity, as was the case, for example, for the cinnamon oil used in this study. Hence, reliability of absolute scorings was achieved by calibrating the amount of perfume ingredients with initial ratings for intensity against a reference substance of known concentration. The final concentrations were in principal chosen in a way such that individual ratings showed variance among participants within the sliding scale between 0 and 10 (meaning that people could decide whether they liked a scent or not). This procedure seemed successful for most scents; however, the concentrations for bergamot (highest average ratings) and vetiver (lowest average rating) could probably been reduced even more, as both scents did not show any discriminating power at the level of common alleles (people agreed largely on the quality of these two scents) (see Table 2). Interestingly, the pooled rare alleles showed discriminating power for…

Word count: 212

Example: paragraph for editing

Most scents remain constant in their quality over orders of magnitude of concentration (12). **Nevertheless**, at high concentrations, quality tends to be negatively correlated with intensity, as was the case, for example, for the cinnamon oil used in this study. **Hence**, reliability of absolute scorings was achieved by calibrating the amount of perfume ingredients with initial ratings for intensity against a reference substance of known concentration. The final concentrations were in principal chosen in a way such that individual ratings showed variance among participants within the sliding scale between 0 and 10 (meaning that people could decide whether they liked a scent or not). This procedure seemed successful for most scents; **however**, the concentrations for bergamot (highest average ratings) and vetiver (lowest average rating) could probably been reduced even more, as both scents did not show any discriminating power at the level of common alleles (people agreed largely on the quality of these two scents) (see Table 2). **Interestingly**, the pooled rare alleles showed discriminating power for…

Word count: 212

Example: paragraph for editing

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Word count: 212

Example: paragraph for editing

Most scents remain constant in their quality over orders of magnitude of concentration (12). Nevertheless, at high concentrations, quality tends to be negatively correlated with intensity, as was the case, for example, for the cinnamon oil used in this study. Hence, reliability of absolute scorings was achieved by calibrating the amount of perfume ingredients with initial ratings for intensity against a reference substance of known concentration. The final concentrations were in principal chosen in a way such that individual ratings showed variance among participants within the sliding scale between 0 and 10 **(meaning that people could decide whether they liked a scent or not)**. This procedure seemed successful for most scents; however, the concentrations for bergamot (highest average ratings) and vetiver (lowest average rating) could probably been reduced even more, as both scents did not show any discriminating power at the level of common alleles **(people agreed largely on the quality of these two scents)** (see Table 2). Interestingly, the pooled rare alleles showed discriminating power for…

Word count: 212

What's the paragraph trying to convey? (outline)…

I. Were the perfume concentrations in the experiment appropriate?

Main idea of the paragraph

A. If the concentration is too high, the smell may be too overpowering and this may affect quality ratings.

i. This is not a problem here because we standardized intensity.

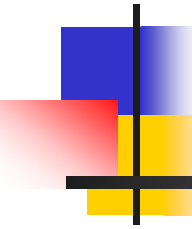
B. The concentrations are appropriate if they produce sufficient variability in quality ratings.

i. This appeared true for most scents, with two exceptions.

Example: paragraph

Perfume quality and intensity may be negatively correlated (if a scent is too strong, most people will reject it independent of their preference). Hence, we chose the final concentration of each perfume ingredient so that it had similar intensity to a reference scent (1-butanol). The resulting concentrations appeared appropriate for most scents, as participants' preferences varied along the sliding scale between 0 and 10. However, people largely agreed on the quality of bergamot (highest average ratings) and vetiver (lowest average rating), so lower or higher concentrations may have been needed for these scents.

Word count: 93



Writing in the Sciences

Module 3.5: More paragraph practice

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders. Secondary headache disorders are a consequence of an underlying condition, such as a brain tumor, a systemic infection or a head injury. In primary headache disorders, the headache disorder is the fundamental problem; it is not symptomatic of another cause. The two most common types of primary headache disorders are episodic tension-type headache (ETTH) and migraine. Although IHS is the most broadly used/recognized classification system used, a brief comment on others would be appropriate – especially if there are uses that have epidemiologic advantages.

verb-tally

to be: 8; to have: 2; passive verbs: 1;
Others→ experiences, distinguishes

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders. Secondary headache disorders are a consequence of an underlying condition, such as a brain tumor, a systemic infection or a head injury. In primary headache disorders, the headache disorder is the fundamental problem; it is not symptomatic of another cause. The two most common types of primary headache disorders are episodic tension-type headache (ETTH) and migraine. Although IHS is the most broadly used/recognized classification system used, a brief comment on others would be appropriate – especially if there are uses that have epidemiologic advantages.

wordiness tally

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders. Secondary headache disorders are a consequence of an underlying condition, such as a brain tumor, a systemic infection or a head injury. In primary headache disorders, the headache disorder is the fundamental problem; it is not symptomatic of another cause. The two most common types of primary headache disorders are episodic tension-type headache (ETTH) and migraine. Although IHS is the most broadly used/recognized classification system used, a brief comment on others would be appropriate – especially if there are uses that have epidemiologic advantages.

watch repetition

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders. Secondary headache disorders are a consequence of an underlying condition,

Repetition can sometimes help transitions, but here it's just repetitive!

avoid meta-comment

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders. Secondary headache disorders are a consequence of an underlying condition, such as a brain tumor, a systemic infection or a head injury. In primary headache disorders, the headache disorder is the fundamental problem; it is not symptomatic of another cause. The two most common types of primary headache disorders are episodic tension-type headache (ETTH) and migraine. Although IHS is the most broadly used/recognized classification system used, a brief comment on others would be appropriate – especially if there are uses that have epidemiologic advantages.

outline ideas

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders. Secondary headache disorders are a consequence of an underlying condition, such as a brain tumor, a systemic infection or a head injury. In primary headache disorders, the headache disorder is the fundamental problem; it is not symptomatic of another cause. The two most common types of primary headache disorders are episodic tension-type headache (ETTH) and migraine. Although IHS is the most broadly used/recognized classification system used, a brief comment on others would be appropriate – especially if there are uses that have epidemiologic advantages.

Idea flow chart (outline)…

I. The IHS classifies headaches by cause, which may be primary or secondary.

Main idea of the paragraph

A. Primary headache disorders are…

Supporting ideas→ define primary and secondary

i. Most common examples include: episodic tension-type headache (ETTH) and migraine

B. Secondary headache disorders are…

Sub-supporting ideas→ illustrative examples of primary and secondary

i. Example include: brain tumor, a systemic infection or a head injury

Sentence-level editing

Headache is an extraordinarily common pain symptom that virtually everyone experiences at one time or another. As a pain symptom, headaches have many causes. The full range of these causes were categorized by the International Headache Society (IHS) in 1988. The IHS distinguishes two broad groups of headache disorders: primary headache disorders and secondary headache disorders.

Main idea

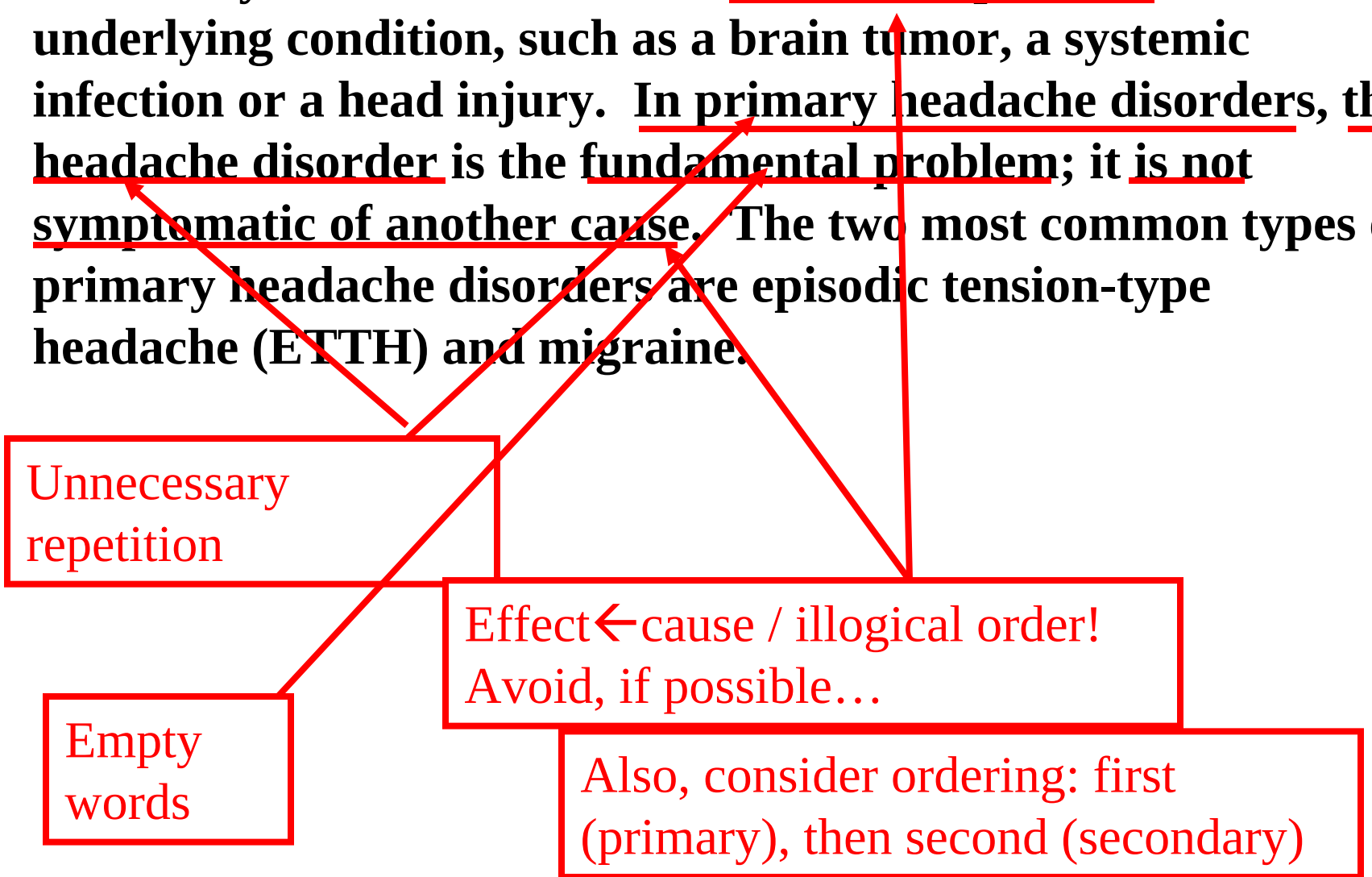
→

Headache is a pain symptom that almost everyone experiences. The International Headache Society (IHS) groups headaches into two types based on cause: primary headache disorders and secondary headache disorders.

I. The IHS classifies headaches by cause, which may be primary or secondary.

Main idea of the paragraph

Secondary headache disorders are a consequence of an underlying condition, such as a brain tumor, a systemic infection or a head injury. In primary headache disorders, the headache disorder is the fundamental problem; it is not symptomatic of another cause. The two most common types of primary headache disorders are episodic tension-type headache (ETTH) and migraine.



Edited version

→

In primary headache disorders, the headache itself is the main complaint. The two most common types of primary headache disorder are episodic tension-type headache (ETTH) and migraine. Secondary headache disorders result from an underlying condition, such as a brain tumor, a systemic infection, or a head injury.

Compare with outline

→

In primary headache disorders, the headache itself is the main complaint. The two most common types of primary headache disorder are episodic tension-type headache (ETTH) and migraine. Secondary headache disorders result from an underlying condition, such as a brain tumor, a systemic infection, or a head injury.

A. Primary headache disorders are…

B. Secondary headache disorders are…

Supporting ideas→ define primary and secondary

Compare with outline

In primary headache disorders, the headache itself is the main complaint. The two most common types of primary headache disorder are episodic tension-type headache (ETTH) and migraine. Secondary headache disorders result from an underlying condition, such as a brain tumor, a systemic infection, or a head injury.

i. Most common examples include: episodic tension-type headache (ETTH) and migraine

i. Example include: brain tumor, a systemic infection or a head injury

Sub-supporting ideas→ illustrative examples of primary and secondary

Altogether…

Headache is a pain symptom that almost everyone experiences. The International Headache Society (IHS) groups headaches into two types based on cause: primary headache disorders and secondary headache disorders. In primary headache disorders, the headache itself is the main complaint. The two most common types of primary headache disorder are episodic tension-type headache (ETTH) and migraine. Secondary headache disorders result from an underlying condition, such as a brain tumor, a systemic infection, or a head injury.

Compare to outline…

I. The IHS classifies headaches by cause, which may be primary or secondary.

Main idea of the paragraph

A. Primary headache disorders are…

Supporting ideas→ define primary and secondary

i. Most common examples include: episodic tension-type headache (ETTH) and migraine

B. Secondary headache disorders are…

Sub-supporting ideas→ illustrative examples of primary and secondary

i. Example include: brain tumor, a systemic infection or a head injury

Example paragraph

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.

What's the paragraph trying to convey? (outline)…

I. Classic and clinical epidemiology differ

Main idea of the paragraph

A. Classic epidemiology is about disease etiology and preventing disease

Supporting ideas→ specifics of how they differ

i. Etiology is about this.

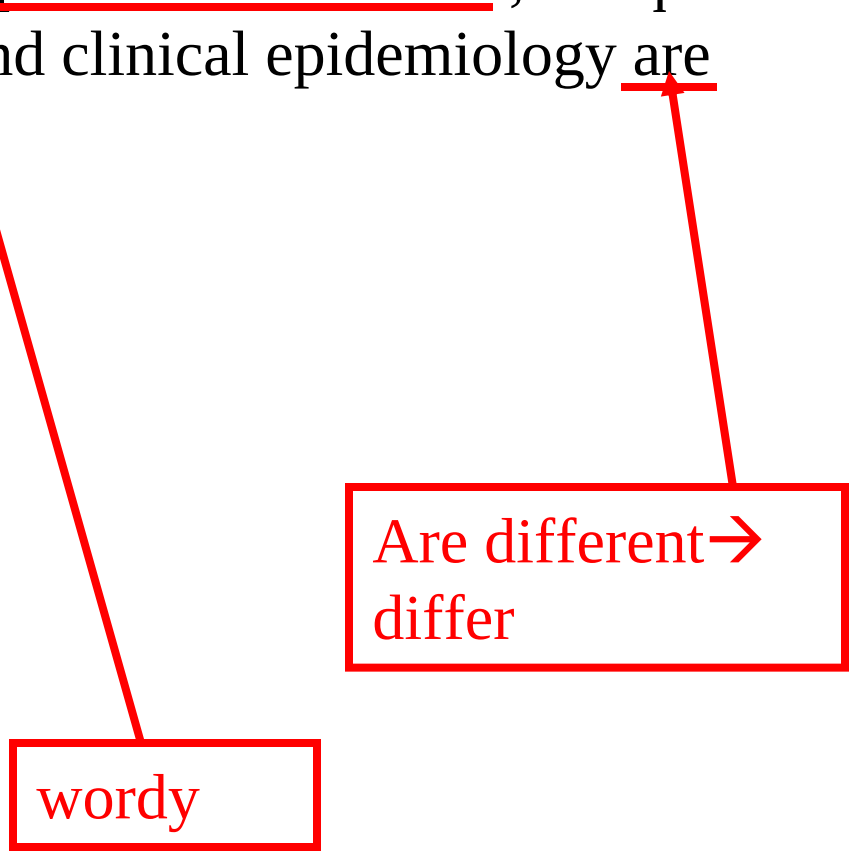
B. Clinical epidemiology is about improving prognosis

Sub-supporting ideas→ definitions

i. Prognosis is about this.

Sentence-level editing

Although the methodological approaches are similar, the questions posed in classic epidemiology and clinical epidemiology are different.



Sentence-level editing

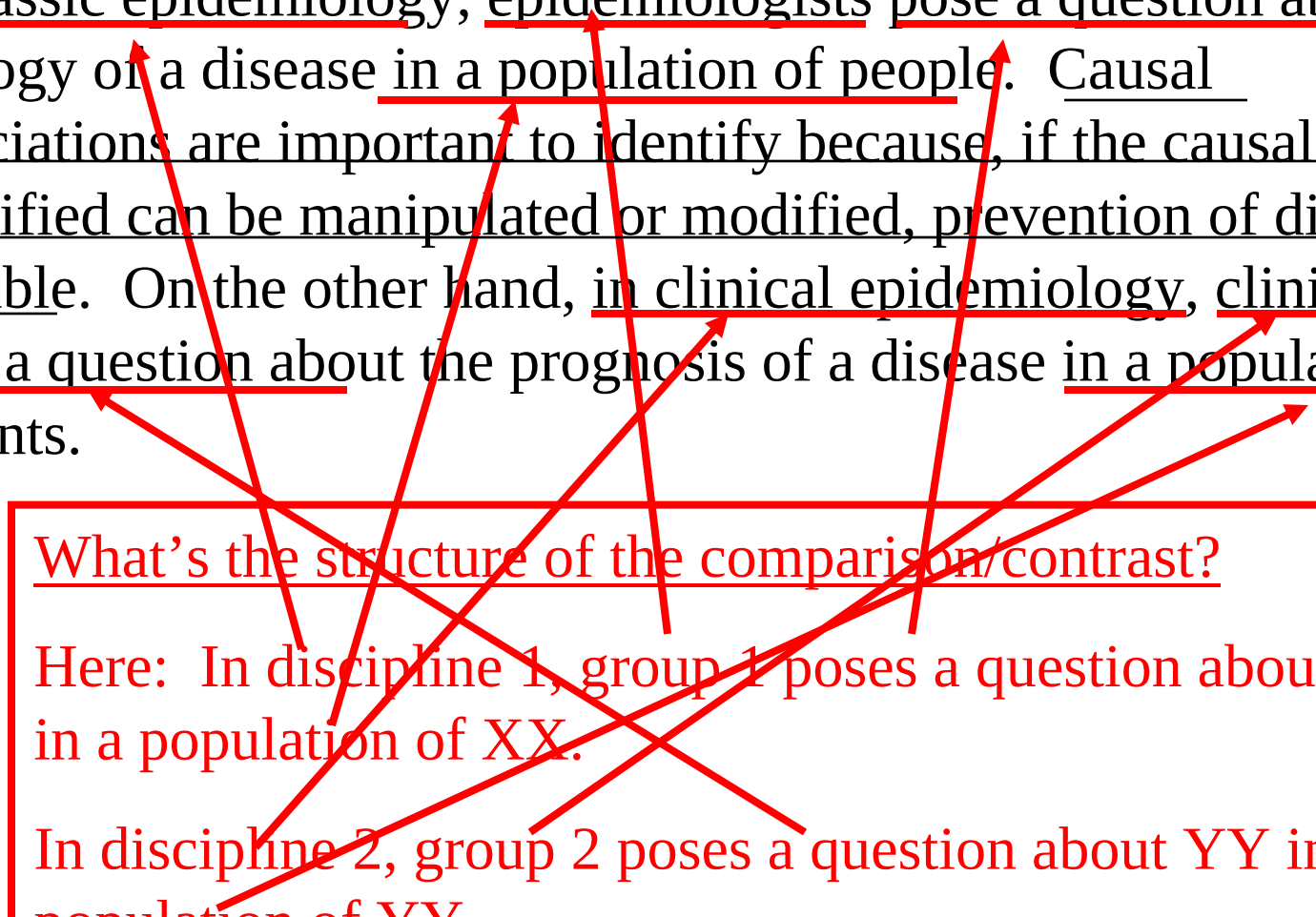
Despite methodologic similarities, classic epidemiology and clinical epidemiology differ in aim.

I. Classic and clinical epidemiology differ

Main idea of the paragraph

Parallel sentences

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.



What's the structure of the comparison/contrast?

Here: In discipline 1, group 1 poses a question about XX in a population of XX.

In discipline 2, group 2 poses a question about YY in a population of YY.

Sentence-level editing

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

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.

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.

Compare to outline...

I. Classic and clinical epidemiology differ

Main idea of the paragraph

A. Classic epidemiology is about disease etiology and preventing disease

Supporting ideas→ specifics of how they differ

i. Etiology is about this.

B. Clinical epidemiology is about improving prognosis

Sub-supporting ideas→ definitions

i. Prognosis is about this.

Writing in the Sciences

Module 3.6: A few more tips: repetition, key words, and acronyms

A note on repetition…

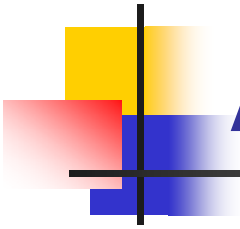
When you find yourself reaching for the thesaurus to avoid using a word twice within the same sentence or even paragraph, ask:

(1) Is the second instance of the word even necessary?

(2) If the word is needed, is a synonym really better than just repeating the word?

Challenges/difficulties
Illustrate/demonstrate
Teaches clinicians/guides clinicians

Repeat key words!
-e.g., names of comparison groups, variables, or instruments



A note on repetition…

It’s OK to repeat a word!

Needless synonyms!

To avoid repetition, writers have needlessly (and amusingly) come up with the following synonyms:

Banana→ “the elongated yellow fruit”

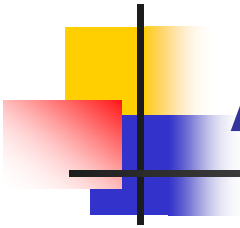
Beaver→ “the furry, paddle-tailed mammal”

Mustache→ “under-nose hair crops”

Milk from a cow→ “the vitamin-laden liquid” from a “bovine milk factory”

Skis→ “the beatified barrel staves”

Examples compiled in: "The Press: Elongated Fruit - TIME." Time. 10 Aug. 1953. Web. 19 Feb. 2012.



A note on repetition…

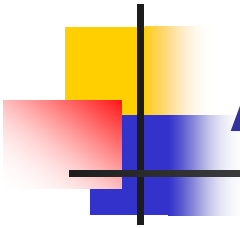
For more, see:

Henry W. Fowler on “Elegant Variation”:
http://www.bartleby.com/116/302.html

Disastrous synonyms!

Whereas it's just amusing or inelegant in some types of writing, in scientific writing it's a disaster.

The reader may think you are referring to a different instrument, model, group, variable, etc.



Acronyms/Initialisms

It's OK to repeat words. Resist the temptation to abbreviate words simply because they recur frequently! (recall: miR instead of microRNA)

Use only standard acryonyms/initialisms (e.g., RNA). Don't make them up!

If you must use acronyms, define them separately in the abstract, each table/figure, and the text. For long papers, redefine occasionally (as readers don't typically read start to finish).