

We invited the strippers, JFK, and Stalin.
The woods were lovely, dark and deep,

COMMA:

❖ *Joining comma:*

- Joins two complete sentences into a single sentence, and it must be followed by a suitable connecting word: and, or, but, while and yet.
- ➔ Norway has applied for EC membership, and Sweden is expected to do the same.
- ➔ Many airlines use a combination of hub-and-spokes and direct routings, and Jeng has shown that a mixed system is generally more efficient.

Punctuation

COMMA:

❖ *Gapping comma:*

- To show that one or more words have been left out when the missing words would simply repeat the words already used earlier in the sentence.
- ➔ Some Norwegians wanted to base their national language on the speech of the capital city; others, on the speech of the rural countryside.

❖ *Bracketing comma:*

- A **pair** of bracketing commas is used to mark off a weak interruption of the sentence—that is, an interruption which does not disturb the smooth flow of the sentence.
- ➔ These findings, we would suggest, cast doubt upon his hypothesis.
- ➔ An airline schedule, for our purposes, is a list of flight legs that the airline plans to fly.

from R.L. Track, Penguin Guide to Punctuation

Punctuation

❖ Do not join **independent clauses** by a comma.

If you join two or more clauses, that are

- Grammatically complete and
- Not joined by a conjunction

➔ Use a **semicolon**

⦿ It is nearly half past five; we cannot reach town before dark.

We could just write it as two sentences.

⦿ It is nearly half past five. We cannot reach town before dark.

If we insert a conjunction, the proper mark is a comma.

⦿ It is nearly half past five, and we cannot reach town before dark.

If the second clause is preceded by an adverb (accordingly, besides, so, then, therefore, or thus), and not by a conjunction, the semicolon is still required.

It is nearly half past five; thus, we cannot reach town before dark.

[Strunk, W., Jr. and White, E.B.: The Elements of Style]

Punctuation

COLON:

- ❖ A colon signifies that what follows it expands on or explains what precedes it.**
- ❖ To introduce a list, quote, explanation, conclusion, or amplification.
 - ⦿ Participants of this course are: , , ...
 - ⦿ In the following, passenger travel time components are grouped into three categories: In-flight time, ground time [...], planned delay time included in the schedule as a buffer against random delays.
 - ⦿ Washington has a simple solution to most governments it doesn't like: isolate them, slap sanctions on them, and wait for their downfall.*
- “The colon has more effect than the comma, less power to separate than the semicolon, and more formality than the dash.” [Strunk, W., Jr. and White, E.B.: The Elements of Style]
- ❖ To divide the title of a manuscript into two halves.
 - ⦿ Selecting Aircraft Routes for Long-Haul Operations: A Formulation and Solution Method
 - ⦿ The Fleet Assignment Problem: Solving a Large-Scale Integer Program
 - ⦿ Airline Scheduling: An Overview

*from Kristin Sainani, Stanford online course “Writing in the Sciences”

**from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

COLON misuse*:

- 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.

*from Kristin Sainani, Stanford online course “Writing in the Sciences”

Punctuation

SEMICOLON:

- ❖ Connects two independent, complete clauses into a single sentence when all of the following conditions are met:
 - The two sentences are felt to be too closely related to be separated by a full stop.
 - There is no connecting word which would require a comma, such as and or but.
 - The special conditions requiring a colon are absent.
- ➔ It was the best of times; it was the worst of times.*
- ❖ Separates items in lists that contain internal punctuation.
 - 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. **

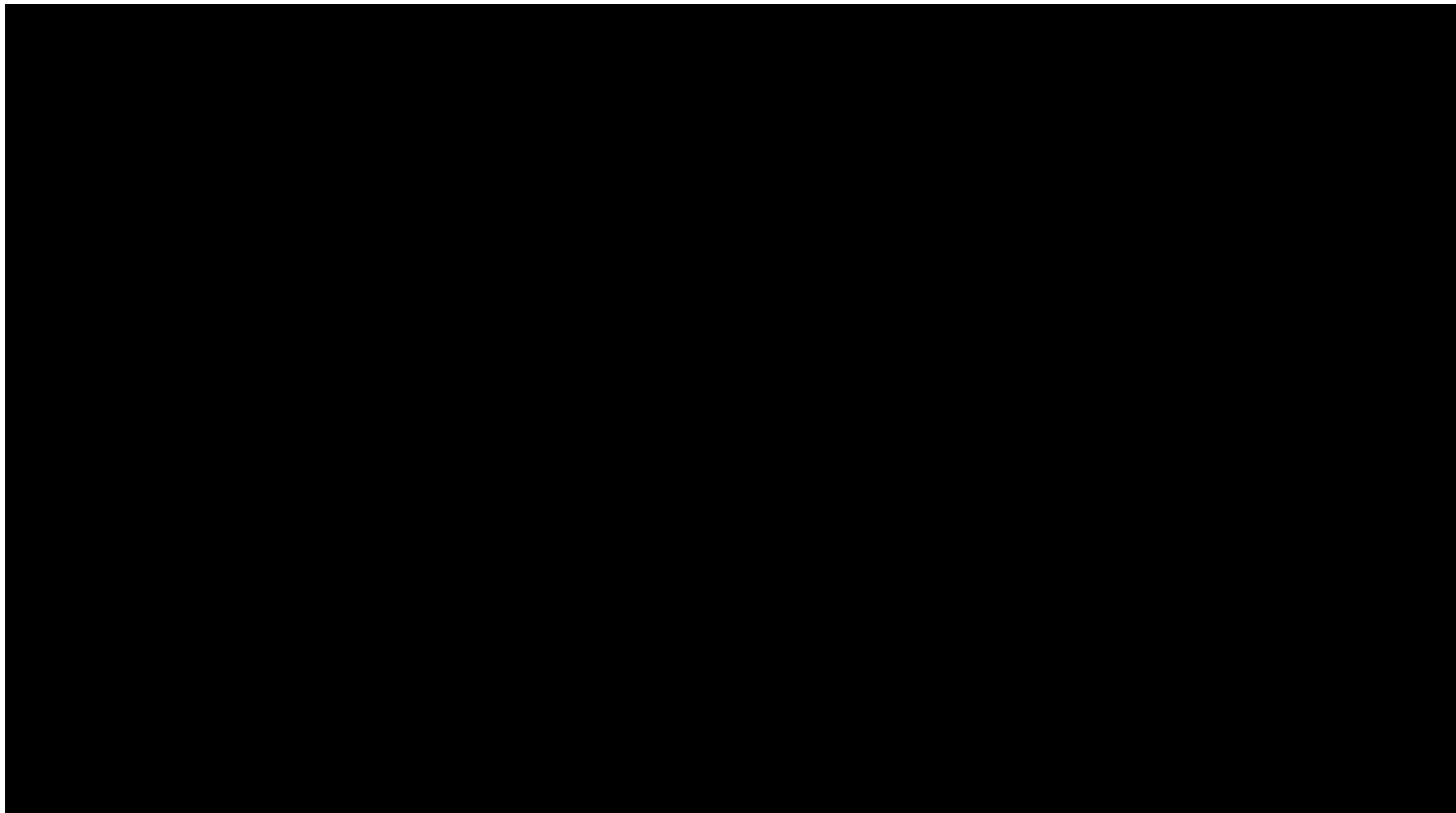
from R.L. Track, Penguin Guide to Punctuation

*Charles Dickens, A Tale of Two Cities

**from Kristin Sainani, Stanford online course "Writing in the Sciences"

Punctuation

SEMICOLON:



<https://www.youtube.com/watch?v=-OoNjz6s4jg>

Punctuation

A semicolon must be preceded by a complete sentence and followed by a complete sentence!!

SEMICOLON:

- ❖ I don't like him; not at all.
- ❖ In 1991 the music world was shaken by a tragic event; the death of Freddy Mercury.

Correct?

- ❖ I don't like him, not at all. (bracketing comma)
- ❖ In 1991 the music world was shaken by a tragic event: the death of Freddy Mercury.

from R.L. Track, Penguin Guide to Punctuation

PARENTHESES:

- ❖ Use parentheses to insert text (an afterthought or explanation) into a sentence that is grammatically complete without it.
 - ⦿ Large simulation models are required to determine to what extent some disturbance of the schedule (e.g., through inclement weather, or through airspace congestion) propagates throughout the system.
 - ➔ If you remove the text in parentheses, the rest of the sentence should not change.
 - ➔ Allow reader to skip over the material.

DASH:

- ❖ To add emphasis.
 - ❖ To insert an abrupt definition of description almost anywhere in the sentence.
 - ❖ To set off a short summary after a complete main clause.
 - ❖ Do not overuse it!
-
- “A dash is a mark of separation stronger than a comma, less formal than a colon, and more relaxed than parentheses.” [Strunk, W., Jr. and White, E.B.: The Elements of Style]
 - “Use a dash only when a more common mark of punctuation seems inadequate.” [Strunk, W., Jr. and White, E.B.: The Elements of Style]

DASH:

- At the bottom of Pandora's box lay the final gift—hope.
- Through various forms of discount fares, it is possible to change the time preference and—to a lesser extent—even the destination of a sizeable part of the passenger demand.

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

With commas instead:

- Through various forms of discount fares, it is possible to change the time preference and, to a lesser extent, even the destination of a sizeable part of the passenger demand.

clunky and long...

With parentheses instead:

- At the bottom of Pandora's box lay the final gift (hope).
- Through various forms of discount fares, it is possible to change the time preference and (to a lesser extent) even the destination of a sizeable part of the passenger demand.

buries the info

Punctuation

Researchers who study shipworms say these mislabeled animals—they're clams, not worms—are actually a scientific treasure.

emphasis and added information

Researchers who study shipworms say these mislabeled animals, they're clams, not worms, are actually a scientific treasure.

not strong enough to set off a clause

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

buries the information

from Kristin Sainani, Stanford online course "Writing in the Sciences"

Punctuation

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

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

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 natio) 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

from Kristin Sainani, Stanford online course “Writing in the Sciences”

EXCLAMATION MARK:

- ❖ Used at the end of a sentence or short phrase which expresses very strong feeling.
- ❖ Do not use. (Exception: math notation $n!$)

QUESTION MARK:

- ❖ At the end of a sentence which is a direct question.
- ❖ Used in introduction and discussion parts of a paper.

Punctuation

Three kinds of dash:

- hyphen
- en dash
- em dash

HYPHEN:

- ❖ Tie together two words that modify a third, when the third follows the first two.
Compound adjectives.
- ❖ You should not place a hyphen between two words:
 - That together constitute a noun
 - That together describe an activity
- ⦿BAD: Decision-making under uncertainty can be stressful.
- ⦿But: BAD: Decision making paradigms are scarce.
- ⦿GOOD: We have not used pre-processing strategies.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Punctuation

Three kinds of dash:

- hyphen
- en dash
- em dash

EN DASH:

- ❖ Use an en dash when you use a dash to indicate a range.
- ❖ Use an en dash to indicate an equal-weighted pair that is currently serving an adjective.
 - GOOD: If you travel the San Francisco–New York route, you can use a red-eye flight.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Punctuation

Three kinds of dash:

<https://www.youtube.com/watch?v=NnAaywvd1uk>

Punctuation

APOSTROPHE:

❖ **Contractions.** Shortened forms of words from which one or more letters have been omitted: it's, we'll, they've, can't, o'clock (of the clock).

❖ **Unusual Plurals.** As a general rule, we never use an apostrophe in writing plural forms.

In the rare case in which you need to pluralise a letter of the alphabet or some other unusual form which would become unrecognisable with a plural ending stuck to it.

➡ Mind your p's and q's.

➡ How many s's are there in Mississippi?

❖ **Possesives.** The basic rule is: a possessive form is spelled with 's at the end.

➡ my brother's house

The rule applies in most cases even with a name ending in s:

➡ Thomas's job

Three types of exception:

1. A plural noun which already ends in s takes only a following apostrophe: the girls' excitement.

2. A name ending in s takes only an apostrophe if the possessive form is not pronounced with an extra s: Socrates' philosophy, Ulysses' companions.

3. Pronouns: The cow lowered its head.

from R.L. Track, Penguin Guide to Punctuation

Punctuation - Practice

Colon:

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.

Practice

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.

*from Kristin Sainani, Stanford online course “Writing in the Sciences”

Punctuation - Practice

Dash:

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

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.

Practice

No transition.

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.

*from Kristin Sainani, Stanford online course "Writing in the Sciences"

Paragraphs

“Make the paragraph the unit of composition:
one paragraph to each topic.”

[Strunk, W., Jr. and White, E.B.: The Elements of Style]

Paragraphs

“But how do you make a paragraph [...] a unit of composition?”

What do those terms even mean?

Paragraphs tell stories.

Not surprisingly, therefore, a paragraph becomes a unit of composition when it tells a complete short story with a coherent structure, a story that fits into and contributes to the larger work.

If you string sentences together until you need to come up for air, and then throw in a paragraph break, you will not have a unit of composition.”



one paragraph

Joshua Schimel, Writing Science; how to write papers that get cited and proposals that get funded.

Paragraphs

- ❖ 1 paragraph = 1 idea
- ❖ Beginning of each paragraph: signal to the reader that a new step in the development of the subject has been reached.
- ❖ As a rule, begin each paragraph with a topic sentence; end it in conformity with the beginning. [Strunk, W., Jr. and White, E.B.: The Elements of Style]
 - Reader remembers the first sentence and the last sentence best.
 - ➔ Make the last sentence stick!
- ❖ Point-first paragraph:*
 - topic sentence that makes a point, which the rest of the paragraph develops
- ❖ Point-last paragraph:*
 - assemble an argument, pulling threads together to weave them into a conclusion
- ❖ Logical flow of ideas.
- ❖ Parallel sentence structure.

*Joshua Schimel, Writing Science; how to write papers that get cited and proposals that get funded.

Logical flow of ideas:*

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

*from Kristin Sainani, Stanford online course “Writing in the Sciences”

Paragraphs

In deregulated markets, passenger airlines have the freedom to choose flight schedules and prices for routes generated by flight schedules. These decisions are very important for an airline that wishes to maximize its profit. The flight schedule fixes a large fraction of an airline's cost, and also the routes the airline can offer. The schedule determines the quality of the airline's service in terms of departure times and transit durations of routes. Quality of service and prices affect the airline's ability to attract travelers.

Logical structure:

1. Airlines have freedom to choose flight schedules and prices for routes.
2. Flight schedule fixes large fraction of cost, the routes, and quality of service.
3. Quality of service and prices affect choice of travelers.

G. Dobson and P.J. Lederer: Airline Scheduling and Routing in a Hub-and-Spoke System.

Paragraphs

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 (absent without leave) and has no collateral or available indemnitors
4. Conclusion: the bondswoman (Green) is out of options.

Writer didn't write "first", "then", the organization of sentences gives readers these clues without spelling them out.

*from Kristin Sainani, Stanford online course "Writing in the Sciences"
example from *The New Yorker*

Paragraphs

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.

Logical structure:

Transition words used
long short long

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.

*from Kristin Sainani, Stanford online course "Writing in the Sciences"
example from *The New Yorker*

Paragraphs

topic sentence that makes a point, which the rest of the paragraph develops

An Argument: We conclude that the increase of the diurnal temperature [DTR] over the United States during the three-day grounding period of 11-14 September 2001 cannot be attributed to the absence of contrails. While missing contrails may have affected the DTR, their impact is probably too small to detect with a statistical significance. The variations in high cloud cover, including contrails and contrail-induced cirrus clouds, contribute weakly to the changes in the diurnal temperature range, which is governed primarily by lower altitude clouds, winds, and humidity.

G.P. Yanh Hong, P:Minnis, Y.X. HU, and G.North, "Do Contrails Significantly Reduce Daily Temperature Range?" *Geophysical Research Letters* 35 (2008): L23815
FROM: Joshua Schimel, Writing Science; how to write papers that get cited and proposals that get funded.

Paragraphs - 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.

from Kristin Sainani, Stanford online course “Writing in the Sciences”

Paragraphs - Practice

repetition not wrong, can sometimes help transitions, but here just repetitive!

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.

from Kristin Sainani, Stanford online course “Writing in the Sciences”

Paragraphs - Practice

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.

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Paragraphs - Practice

Outline ideas:

- I. The IHS classifies headaches by cause, which may be primary or secondary.
 - a. Primary headache disorders are...
 - i. Most common examples include: migraine...
 - b. Secondary headache disorders are...
 - i. Examples include: brain tumor, a systematic infection or a head injury

Main idea of the paragraph

Supporting ideas: define primary and secondary

Sub-supporting ideas: examples of primary and secondary

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Paragraphs - 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.

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

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Paragraphs - Practice

unnecessary repetition
empty words

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.

effect ← cause, illogical order!

Plus, consider ordering: first (primary) then second (secondary)

from Kristin Sainani, Stanford online course "Writing in the Sciences"

Paragraphs - Practice

compare with outline:

a. Primary headache disorders are...
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. Secondary headache disorders result from an underlying condition, such as a brain tumor, a systemic infection, or a head injury.

b. Secondary headache disorders are...
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. 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: migraine...
The two most common examples of primary and secondary

ii. Examples include: brain tumor, a systematic infection or a head injury
Sub-supporting ideas.

Supporting ideas:
define primary and secondary

Sub-supporting ideas:
The two most common examples of primary and secondary

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.

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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.

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Paragraphs - 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.

from Kristin Sainani, Stanford online course “Writing in the Sciences”

Sentences

“A sentence tells a story, just the shortest one possible.”

Joshua Schimel, *Writing Science*; how to write papers that get cited and proposals that get funded.

“You can’t write strong papers with weak sentences.”

Joshua Schimel, *Writing Science*; how to write papers that get cited and proposals that get funded.

Sentences

A sentence tells a story \Rightarrow principles of story structure that we already saw apply:

- Readers need to meet the characters (opening)
- Readers need to learn what they did (action)
- Readers need to learn what the outcome was (resolution)

O	Opening: Who is the story about?	Subject
C/A	Challenge/action: what happened	Verb
R	Resolution: what was its outcome?	Object

Give the information in order, otherwise the reader has to hold it aside until you provide the essential pieces.

In English, the last word or phrase in a sentence's main clause carries the strongest emotional weight.

Joshua Schimel, *Writing Science*; how to write papers that get cited and proposals that get funded.

Sentences

- ❖ A sentence has a single topic.
- ❖ Whatever you put at the beginning of a sentence, readers interpret as the topic: who or what the sentence is about.
- ❖ It should be a schema or character the readers are familiar with. (Common knowledge or introduced earlier)
- ❖ Then develop the schema by adding new information.
- ❖ If you put new information at the beginning of a sentence, you possibly confuse your reader: you give them new information, but you suggest it is old.

- ❖ Endings are power positions = stress
- ❖ Use the power of the stress by putting key words there: the main message and new ideas or terms.

Joshua Schimel, Writing Science; how to write papers that get cited and proposals that get funded.

Sentences

Viruses = “old information”
Expands understanding of where viruses are important

1. Viruses were not studied in the sea until 1989 yet are its most abundant biological entities.
2. The most abundant biological entities in the sea are viruses, yet they were not studied until 1989.
3. The most abundant biological entities in the sea were not studied until 1989: viruses.

both about biological entities in the sea - “sea creature” schema

Emphasises when they were first studied

Emphasises that the surprising information is that the most abundant entities are viruses.

Joshua Schimel, Writing Science; how to write papers that get cited and proposals that get funded.

Sentences

- 1.The topic should be short and clear.
- 2.The main verb should follow it immediately.
- 3.The key message should come at the stress.

Joshua Schimel, Writing Science; how to write papers that get cited and proposals that get funded.

Sentences

- ❖ Use a mixture of short and long sentences.
- ❖ Good long sentence: make the key point in a short initial clause, and then add others to add depth and nuance.

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Spelling

Spelling

A New Language For California

The new Californian Governor has just announced an agreement whereby English will be the official language of the state, rather than German, which was the other possibility. As part of the negotiations, the Terminator's Government conceded that English spelling had some room for improvement and has accepted a 5-year phase-in plan that would become known as "Austro-English" (or, perhaps even better, "Austrionics"). In the first year, "s" will replace the soft "c". Certainly, this will make the sivil servants jump with joy. The hard "c" will be dropped in favour of the "k". This should klear up konfusion, and keyboards kan have one less letter. There will be growing publik enthusiasm in the sekond year when the troublesome "ph" will be replaced with the "f". This will make words like fotograf 20% shorter. In the 3rd year, publik akseptanse of the new spelling kan be expekted to reach the stage where more komplikated changes are possible. Governments will enkourage the removal of double letters which have always ben a deterrent to akurate speling. Also, al wil agre that the horibl met of the silent "e" in the languag is disgrasful and it should go away. By the 4th yer peopl wil be reseptiv to steps such as replasing "th" with "z" and "w" with "v". During ze fifz yer, ze unesesary "o" kan be dropd from vords kontaining "ou" and after ziz fifz yer, ve vil hav a reil sensibl riten styl. Zer vil be no mor trubl or difikultis and evrivun vil find it ezi tu understand ech oza. Ze drem of a united urop vil finali kum tru. If zis mad yu smil, pleas pas it on to oza pepl.

from Tim Skern, Writing Scientific English

Please use a spell checker!

BUT: a spell checker will not find all mistakes!

Each sentence except one possesses a word that is spelled wrongly because it is used in an incorrect context:

1. You must proof that two plus two equals four!
2. A prove that two plus two equals four is given on the first page.
3. Vaccines safe lives.
4. Spellcheckers chance the way we read our texts.
5. The theory of global warming remains to be proven.
6. Spellcheckers effect our ability to spell.
7. How do tortoises remain a life when hibernating?
8. Only a few scientists have received two Nobel Prices.
9. The affect of technology on the environment is substantial.
10. Tumour cells loose the normal controls of growth.
11. We judge how we live our lives form our own perspective.
12. The ability to write concisely and accurately is not heredity.

Each sentence except one possesses a word that is spelled wrongly because it is used in an incorrect context:

1. You must proof that two plus two equals four!
1. You must **prove** that two plus two equals four!
2. A prove that two plus two equals four is given on the first page.
2. A **proof** that two plus two equals four is given on the first page.
3. Vaccines safe lives.
3. Vaccines **save** lives.
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4. Spellcheckers **change** the way we read our texts.
5. The theory of global warming remains to be proven.
6. Spellcheckers effect our ability to spell.
6. Spellcheckers **affect** our ability to spell.

Spelling

Each sentence except one possesses a word that is spelled wrongly because it is used in an incorrect context:

7. How do tortoises remain a life when hibernating?

7. How do tortoises remain **alive** when hibernating?

8. Only a few scientists have received two Nobel Prices.

8. Only a few scientists have received two Nobel **Prizes**.

9. The affect of technology on the environment is substantial.

9. The **effect** of technology on the environment is substantial.

10. Tumour cells loose the normal controls of growth.

10. Tumour cells **lose** the normal controls of growth.

11. We judge how we live our lives form our own perspective.

11. We judge how we live our lives **from** our own perspective.

12. The ability to write concisely and accurately is not heredity.

12. The ability to write concisely and accurately is not **hereditary**.

Common mistakes

From the book “BUGS in Writing: A Guide to Debugging Your Prose” by Lyn Dupré

BAD: The example sentence contains a genuine error or mistake (for example, bad grammar); you should avoid the bad portion completely.

UGLY: The example sentence is technically correct, but is not acceptable for one reason or another; you should avoid the ugly portion.

GOOD: The example sentence is acceptable and correct.

SPLENDID: The example sentence demonstrates an improvement over a given good solution or example, or represents correct application of several points under discussion.

Common mistakes

If you are the sole author, do not be afraid to refer to yourself as *I*.

If you have coauthors, then say *we*.

In almost all cases, you should call your reader *you*.

UGLY: The author wishes to remind the reader that it is often helpful to know the probabilities of class memberships, rather than knowing only the class memberships themselves.

GOOD: We suggest here a novel neural-network algorithm for cluster formation.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

So, So That, Such That have distinct meanings.

- ❖ *So* means therefore.
- ❖ *So that* means in order that.
- ❖ *Such that* means in such a way that.

GOOD: Peter flew from San Francisco to Boston, so he took Lyn out to dinner.

GOOD: Peter flew from San Francisco to Boston, so that he could get a chestful of fresh air.

GOOD: Peter flew from San Francisco to Boston, such that he was tired and sore the next day.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

Which versus That

That identifies the objects about which you are speaking, whereas *which* merely provides further information about those objects.

We can answer the question Which airplane is about to accelerate?
(The one that is on the runway.)

GOOD: The airplane that is on the runway is about to accelerate.

GOOD: The airplane, which is on the runway, is about to accelerate.

Does not answer the question.

What we have is a parenthetical remark that informs us that the airplane, in addition to being about to accelerate, is on the runway.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes

Which versus That

A *that* clause picks out one among many, whereas a *which* clause often implies that there is only one.

ABC makes several computers. Among this set, the one that will sell fastest is the one with the most features.

GOOD: The ABC computer that has the most bells and whistles will sell faster.

GOOD: The ABC computer, which has the most bells and whistles, will sell faster.

We might draw the conclusion, that ABC makes only one computer, or at least only one computer that ABC makes is relevant for our discussion. This ABC computer is in competition with other brands of machine, yet we are assured, that it will sell fastest, because we have the added information that it has more features than do its competitors.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes

Which versus That

You should **not** set off **that** clauses by commas, whereas you **should** set off **which** clauses by commas.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

Which versus That



<https://www.youtube.com/watch?v=yV34JvZ-IQI>

Common mistakes

Which versus That

One more thing: Which always refers to whatever happens to be sitting in front of the comma preceding the which.

BAD: Richard argued with the lamp, which was foolish.

GOOD: Richard argued with the lamp, which behaviour was foolish.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes

Missing That

UGLY: Max believes Brian is a superb programmer.

GOOD: Max believes that Brian is a superb programmer.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Note that vs. notice that

Note that: strong emphasis

Notice that: weaker emphasis

In many cases, even note that is redundant.

GOOD: In interpreting our report, note that seven of the 10 subjects in this study died before all the data had been collected; thus, the results may be slightly unreliable.

SPLendid: Seven of the 10 subjects in this study died before all the data had been collected; thus, the results may be slightly unreliable.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

Affect vs. Effect

- ❖ The noun effect denotes the result of a process, event, or activity.
- ❖ The verb effect denotes bringing an object into existence, or bringing about a state of affairs.
- ❖ The noun affect denotes an emotional state.
- ❖ The verb affect denoted producing an influence on, or producing an effect. It also means having a fondness for, or pretending.
- The most pronounced effect of Lyn's vacation in Canada was a noticeable disappearance of Lyn's sense of humor. Effect used as a noun.
- Max effected a change in Lyn's outlook by meeting her at the gate and holding her extremely tight. Effect used as a verb.
- Max having thus arranged Lyn's homecoming, Lyn's affect changed to one of buoyant delight and glee. Affect used as a noun.
- Max and Lyn thus demonstrated how companions can affect each other's moods. Affect used as a verb.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes



<https://www.youtube.com/watch?v=8Q-2SuqvdJw>

Indices vs. Indexes

Both comprise more than one index, but the type of index denoted is different.

- ❖ Use indices to refer to a number of expression that indicates a position or location in mathematics.
 - The indices i and j indicate that the entry a_{ij} lies in the i -th row and j -th column of A .
- ❖ Use indexes to refer to the plural of all other types of index.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

Only:

The location of only in your sentence determines the meaning.

GOOD: Only I love you.

GOOD: I only love you.

GOOD: I love only you.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

also:

The placement of also modifies the meaning of your sentence.

GOOD: Max also loves Lyn.

GOOD: Max loves Lyn also.

expanded versions:

GOOD: Max is angry at Lyn; Max also loves Lyn.

GOOD: Dona loves Lyn; Max also loves Lyn.

GOOD: Max loves Sarah; Max loves Lyn also.

Place also before the verb when also modifies either the agent (for example Max) or the activity (for example, loves).

- He is one way and she also is that way.
- He also is = He too is ...

Place also after the verb (and, usually, after the recipient) when also modifies the recipient of the activity (for example Lyn).

- He is one way and he is also another way.
- He is also = He is, in addition, ...

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes

Set *someone* (meaning a person) and *everyone* (meaning all people under discussion) as one word.

BAD: I wish I had some one with whom to work.

GOOD: Someone just told me the exam time.

BAD: Not every one at university appreciates good writing.

GOOD: Everyone prefers to read well-written prose, given the alternative of reading garbage in a downpour.

Set *every one* (meaning not just certain of the individuals, but rather every one of them) as two words.

BAD: Everyone of the files was a text file.

GOOD: Every one of the files was a text file.

Set *no one* (meaning not one person) as two words.

BAD: Noone turned up at the meeting.

None can mean *not any* or *not one*.

If your phrase would be recast as *none of them*, then you should use a plural form of the verb;

if the phrase would be recast as *none of it*, then you should use a singular verb.

BAD: None of the rats is squeaking.

GOOD: None of the kittens are lonely.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes

“If you use numerous abbreviations and acronyms, you make it difficult for your reader to understand your meaning.[...]

Avoid the temptation to shorten every term in sight.”

- ❖ Use the most standard abbreviations.
- ❖ Define them on *first* use, and use them *always* thereafter.
- ❖ Use standard abbreviations for units of measure.
- ❖ You can use standard Latin abbreviations.
 - *E.g.* means *for example* (always followed by a comma)
 - *I.e.* means *that is* (always followed by a comma)
 - *Etc.* means *and so on* (always preceded by a comma)
 - *Et al.* means *and others*, use only in reference citations.

BUT: Use Latin abbreviations only in parentheses,
do not use them in a regular text line.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Plural abbreviations

You should (usually) simply append an s to an abbreviation to form the plural; you should not use an apostrophe.

GOOD: Construction of (parts of) the solution by pushing off the "innermost" structures (the runways), and the design of the "middle-ware" (STARs/SIDs and control sectors within the TMA) are topics of forthcoming work in the project.*

* STARs: SStandard Arrival Routes, SIDs: Standard Instrument Departures, TMA: Terminal Manoeuvring Area

- ❖ Contraction: A term formed of multiple words which missing letters are signified by an apostrophe.
 - They're
 - He's
 - We've
 - ...
- ❖ Part of spoken language and ok in casual writing.
- ❖ You should not use contractions in formal writing.

Common mistakes

- ❖ *Data* is a plural; the singular is *datum*.

Common mistakes

- ❖ Above and below are not substitutes for preceding and following.
- ❖ Preferably tell your reader exactly where he can find something.
 - GOOD: Several test problems were run using the heuristic techniques described in Section 1.
- ❖ When you refer by number to a part of a document, you should set the word denoting the part with a lead capital letter: Chapter 4, Section 2, Figure 2.3, Table 5, Equation 6,
- ❖ Do not use capital letters for, for example, step 1, phase 2, day 5.

Whether versus If

- ❖ You should use *whether* when you could substitute *whether or not* without destroying the meaning of your sentence.
 - BAD: He wanted to check if she has time tonight.
 - GOOD: He wanted to check whether she has time tonight.
- ❖ You should use *if* when you are simply placing a constraint.
 - GOOD: If the distance between cities is very small, then direct service is optimal; otherwise, other networks, such as hub and spoke are optimal.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Its versus **It's**

- ❖ Its: belonging to it
- ❖ It's: it is
- ❖ Avoid it's in formal writing
 - BAD: Forecasting is an extensive topic on it's own, and its beyond the scope of this paper to survey the methodologies used for forecasting.
 - GOOD: Forecasting is an extensive topic on its own, and it is beyond the scope of this paper to survey the methodologies used for forecasting.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Common mistakes

Literally means **not metaphorically**.

It is not a substitute for extremely, substantially, hugely, vastly, etc.

BAD: There was a literal explosion of science at the new research laboratory.

BAD: She was literally green with envy when she thought about the fun Steve and Judy were having in Geneva.

Use literally to underline that you do *not* mean metaphorically.

GOOD: When Max heard the news, his jaw literally dropped.

Use literal to mean accurate, or word for word, as well as not metaphorical.

GOOD: I would like to know the literal translation of *mors certa, amor incerta est*.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

Use virtual to mean in effect, or in essence—to denote an object that serves the same purpose or has the same function as, but for whatever reason is not the same as, another.

It does not mean actual.

BAD: During a nasty argument about summer plans, Lyn was so frustrated that she virtually sat down on the trail and refused to budge.

GOOD: The system provides a virtual address space.

You can use virtually to mean almost entirely (but not entirely), or nearly.

GOOD: Max was so exhausted that he was virtually on the verge of collapsing into the linguini.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Common mistakes

- ❖ Stick with the same tense, and do not change to another without good cause.
- ⦿ BAD: Lyn was trying to reach Max. She dials the telephone, but the ring went on and on. She had wondered whether she will call him later. Or, perhaps she has just gone to bed.
- ❖ When you write similar sections, you should use the same tense across sections.
- ❖ When you inform your reader of what topics you intend to discuss in a later portion of your manuscript, you can use future tense or present tense.
- ❖ When you remind your reader of topics you have discussed in an earlier portion of your manuscript, use the simple past tense: Write we did.
- ❖ In both cases: Add the information where to find the discussion (Section 3).

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

- ❖ In general, you should place adverbs *after* the verbs they modify, and usually should place them at the end of the phrase or clause to which they belong.
 - GOOD: If a large plane is assigned to fly a leg with very little demand, it is a waste of fuel and high fixed landing costs are incurred unnecessarily.
 - (But: passive↑)
- ❖ If you place the adverb *before* the verb, you emphasise the adverb.
 - Once you get to the auditorium, slowly walk through the door, even if your desire is to rush in headlong is powerful.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Lists: Intext lists

- ❖ You should use intext lists for short items that do not require special emphasis. Intext lists all constitute one sentence, so each entry obviously cannot be itself a sentence.
 - BAD: There are many errors that you can make: (1) You can forget that entries in an intext numbered list must together constitute a sentence. (2) You can put periods at the end of the entries of intext numbered lists.
 - GOOD: Instead, just remember two rules: (1) the entire are only clauses in a sentence, and (2) they should be separated by commas or semicolons.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Lists: Intext lists

- ❖ You should use unnumbered intext lists in most cases. Exemptions:
 - You specify the number of entries in the list,
 - You want to emphasise the number of entries,
 - You want to refer later to the entries by number.
- ❖ If no entry contains a comma ⇒ separate entries with a comma
- ❖ If any entry itself contains a comma ⇒ use a semicolon
- ❖ Do not use a colon to introduce an intext list that has sentences as entries (that is, the list has periods in it).
- ❖ Always use both a left and a right parenthesis around a number in an intext numbered list. That is: (1), (2), etc.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Lists

- ❖ Use displayed lists to emphasise list entries.
- ❖ Types of displayed lists:
 - Unnumbered displayed lists (not easy to read)
 - Bullet displayed lists
 - Numbered displayed lists
 - Multicolumn lists
- ❖ You can start each entry with a tag. Follow it with a colon, a period or an em space:
 - GOOD:
We suggest three levels of constraints:
 1. Coupling constraints. This concerns rules that relate to the whole set of selected duties of rosters. [...]
 2. Path feasibility constraints. Rules at this level determine the feasibility of a duty or roster[...].[...]
 3. Node/arc feasibility constraints: A constraint at this level determines if a particular task can be assigned to a certain crew member due to licenses [...].[...]

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

- ❖ Use a period after the number in a numbered displayed list.
- ❖ Do not use only right parenthesis, only left parenthesis or pairs of parentheses in a numbered displayed list.
- ❖ You should always begin each entry in a displayed list with a **capital letter**, whether the entry is a word, a sentence fragment, a full sentence, or numerous sentences.
 - BAD: The system helps the management to determine:
 - the capacity needed to perform the tasks.
 - the permanent and temporarily staffing levels needed to meet the required capacity.
 - allowed vacations, standbys required etc. for the given period.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

- ❖ No end punctuation for those entries that constitute less than one full sentence.
- ❖ Never use commas or semicolons in such cases (as you would with an intext list).
 - BAD: The system helps the management to determine:
 - the capacity needed to perform the tasks.
 - the permanent and temporarily staffing levels needed to meet the required capacity.
 - allowed vacations, standbys required etc. for the given period.
 - GOOD: The following is correct:
 1. No end punctuation for fragments
 2. No “and” at the beginning of the final entry
- ❖ Use a period as end punctuation if your entry constitutes one or more sentences.
- ❖ Do not mix sentences and fragments as entries of the same list.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Numbers

- ❖ Spell out zero through nine, use numerals thereafter.
 - GOOD: The airplane is 231 feet and 10 inches long.
- ❖ Spell out all numbers at the beginning of a sentence that follows a period or a colon.
- ❖ You should use numerals for all units of measure.
 - BAD: The runway had a length of four kilometers.
 - GOOD: The runway had a length of 4 kilometers.
- ❖ You should use numerals when you are referring to the number itself.
- ❖ You should use numerals when you are counting.
 - GOOD: The figure on page 3 shows xy.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Cap/Ic for Chapter Titles, Section Headings

Nine rules in order of precedence:

1. Always capitalize the first word, unless, for another reason, the first letter would never be set as a capital.
2. Always capitalize the final word (unless, again, for another reason, the first letter would never be set as a capital).
3. Always capitalize words containing five or more letters (unless the first letter would never be capitalized).
4. Do not capitalize prepositions (*on, in, over, from, to, with* and so on).
5. Do not capitalize articles (*a, an, the*).
6. Do not capitalize the *to* in an infinitive. Do capitalize the other part of the infinitive.
7. Do not capitalize connectives (*and, or*, and so on).
8. Capitalize every word.
9. Consider each word in a hyphenated word to stand alone, and capitalise it or do not capitalise it according to the preceding rules.

from Lyn Dupré: "BUGS in Writing: A Guide to Debugging Your Prose", Addison-Wesley

Rules for using percentages:

- ❖ You should spell out percent in most contexts, rather than using the percent sign (%).
 - ⦿ BAD: The average dwell time was improved for many sectors, whereas workload balance was slightly degraded as a result of 23.4% increase in tz-hit count of sector 10.
 - ⦿ GOOD: The average dwell time was improved for many sectors, whereas workload balance was slightly degraded as a result of 23.4 percent increase in tz-hit count of sector 10.
- ❖ You should always use numerals, rather than spelled-out numbers, with percent.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Respectively

- ❖ Use respectively when you write about n items, each of which is associated with one of another n items.
- ❖ Without respectively, the first n items are assumed to be associated with all n of the second set of items.
- ⦿ BAD: Sarah, Jane, and Helen are mothers to Lisa, Mary, and Jenny.
- ❖ You should use a comma before respectively when you set respectively after the terms to which it applies.
- ⦿ BAD: Soren and Lois know nothing about accounting and motion physics respectively; the negation of this assertion, however, is not true.
- ⦿ GOOD: Sarah, Jane, and Helen are mothers to Lisa, Mary, and Jenny, respectively.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

Parts of a scientific paper

Parts of a scientific paper



Title (Authors)
Abstract (Keywords)
Introduction
Materials + Methods
Results + Discussion
Conclusions
Bibliography
Appendix

How we read

Materials + Methods
Bibliography
Appendix
Results + Discussion
Conclusions
Introduction
Abstract (Keywords)
Title



How we write

Parts of a scientific paper

Definitions, experimental setup,
“ingredients” of research

Materials + Methods

Bibliography

Appendix

(experimental) outcome
of the results: expected, unexpected....

Results + Discussion

recap results, limitations, future work

Conclusions

basics, why is this work interesting/
important; relation to other papers

Introduction

Abstract (Keywords)

summary of the paper, main results

Title

Start with big picture, fill in details later!

An abstract tells your reader what the contents of your document are.

- ❖ Keep your abstract short, clear, and directly to the point.
- ❖ Be aware of your audience.
- ❖ “Assume that your reader is tired, bored and pressed for time. Give her a clear notion of what your document contains, and convince her that what you have to say is important.”
- ❖ Provide an overall picture of your topic.
- ❖ Do not go into details.
- ❖ Write it last, after you have finished the rest of your document.

from Lyn Dupré: “BUGS in Writing: A Guide to Debugging Your Prose”, Addison-Wesley

References

Use a consistent style.

If you do not use bibtex or the like:

- ❖ Include the author's or editor's names.
- ❖ Set in italics, and in mixed capital and lowercase letters the title of the book or journal. Place a period at the end of the title.
- ❖ Give the location of the publisher as a city and country.
- ❖ Give the publisher's name
- ❖ A reference to a book should include: the authors, the title, the publisher, the location of the publisher and the year of publication.
 - ❖ T. C. Hu, *Integer Programming and Network Flows*, Addison-Wesley, Reading, MA, 1969
- ❖ A reference to a journal article should include: the authors, the title, the journal name, the volume, the page numbers, and the year of publication.
 - M. Xue. Airspace sector redesign based on Voronoi diagrams. *Journal of Aerospace Computing, Information, and Communication*, 6(12):624–634, Dec. 2009.
- ❖ A reference to a paper published in the proceedings of a conference should include: the authors, the title, the title of the proceedings, the page numbers, the location of the conference, and the month and year of the conference.
 - G. Sabhnani, A. Yousefi, and J. S. B. Mitchell. Flow Conforming Operational Airspace Sector Design. In *10th AIAA Aviation Technology, Integration, and Operations (ATIO) Conference*, Fort Worth, TX, Sept. 2010.

Figure Captions

- ❖ Includes the figure number, possibly a title and further explanation of the figures content.

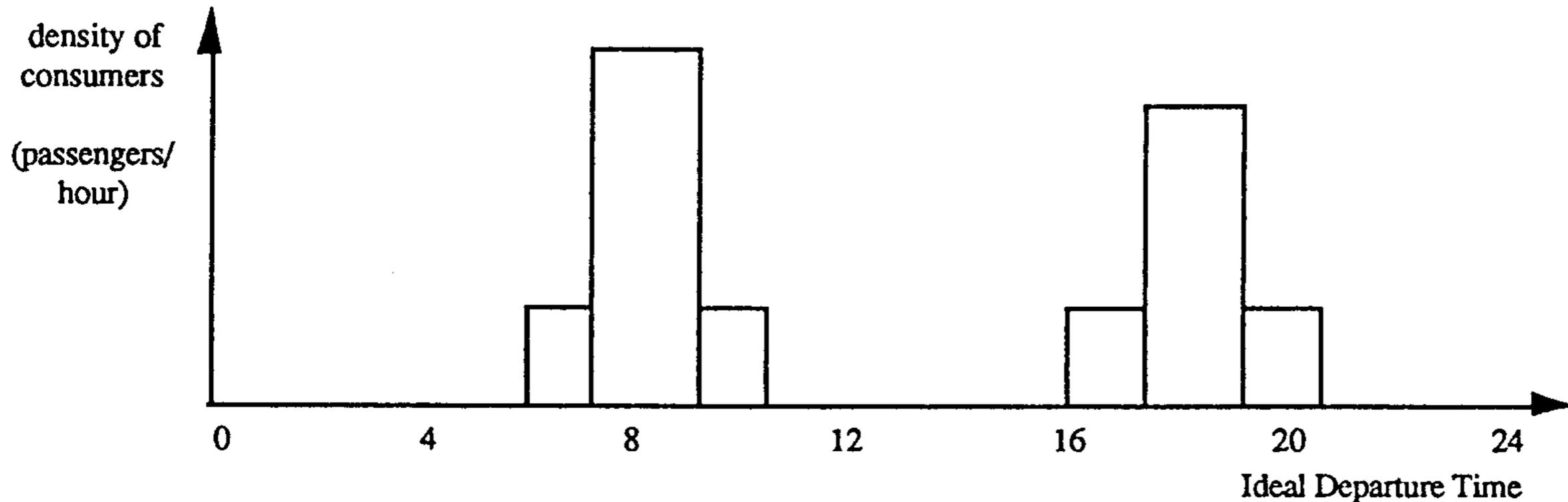


Fig. 1. Example of consumer density.

From: G. Dobson, and P.J. Lederer, *Airline Scheduling and Routing in a Hub-and-Spoke System*, *Transp. Science*, Vol. 27, No.3, pp. 281-297, August 1993.

All figures, tables, algorithms should be referenced in the text.

You can use footnotes to add information to your document that is relevant/interesting, but does not belong in the text.

Use full sentences for your footnotes, rather than only fragments.^{1,2}

1.This footnote is an example for a full sentence.

2.just a fragment

The writing process

How to write

Putting your facts and ideas together in organized prose

1. Prewriting/Organization
2. First draft
3. Revision

- Collect, synthesize, and organise information
- Brainstorm take-home messages
- Work out ideas away from the computer
- Develop a road map/outline

- Read your work out loud
- Get rid of clutter
- Do a verb check
- Get feedback from others

from Kristin Sainani, Stanford online course “Writing in the Sciences”

1. Prewriting:

- ❖ Gather information first THEN write the first draft.
- ❖ Create an organisational system that suits you.
- ❖ Develop a road map:
 - Arrange key facts and citations from the literature into a road map
 - Think in paragraphs and sections
- ❖ Work out take-home messages

from Kristin Sainani, Stanford online course “Writing in the Sciences”

2. First draft:

- ❖ Don't be a perfectionist!
- ❖ Goal: get ideas down in complete sentences in the right order.
- ❖ “Writing the first draft is the hardest step for most people. Minimise the pain by writing the first draft quickly and efficiently!”

from Kristin Sainani, Stanford online course “Writing in the Sciences”

3. Revision:

- ❖ Read your work out loud
- ❖ Do a verb check
- ❖ Cut clutter
- ❖ Do an organisational review
- ❖ Get feedback from others

Underline the main verb in each sentence. Watch for:

(1) lackluster verbs (e.g., There are many students who struggle with chemistry.)

(2) passive verbs (e.g., The reaction was observed by her.)

(3) buried verbs (e.g., A careful monitoring of achievement levels before and after the introduction of computers in the teaching of our course revealed no appreciable change in students' performances.).

from Kristin Sainani, Stanford online course "Writing in the Sciences"

3. Revision:

- ❖ Read your work out loud
- ❖ Do a verb check
- ❖ Cut clutter
- ❖ Do an organisational review
- ❖ Get feedback from others

Watch for:

- Dead weight words and phrases (it should be emphasized that)
- Empty words and phrases (basic tenets of, important)
- Long words or phrases that could be short (muscular and cardiorespiratory performance)
- Unnecessary jargon and acronyms
- Repetitive words or phrases (teaches clinicians/guides clinicians)
- Adverbs (very, really, quite, basically)

from Kristin Sainani, Stanford online course “Writing in the Sciences”

3. Revision:

- ❖ Read your work out loud
- ❖ Do a verb check
- ❖ Cut clutter
- ❖ Do an organisational review
- ❖ Get feedback from others

In the margins of your paper, tag each paragraph with a phrase or sentence that sums up the main point. Then move paragraphs around to improve logical flow and bring similar ideas together.

from Kristin Sainani, Stanford online course “Writing in the Sciences”

3. Revision:

- ❖ Read your work out loud
- ❖ Do a verb check
- ❖ Cut clutter
- ❖ Do an organisational review
- ❖ Get feedback from others

Without any technical background, they should easily grasp:

- the main findings
- take-home messages
- significance of your work

Ask them to point out particularly hard-to-read sentences and paragraphs!

from Kristin Sainani, Stanford online course “Writing in the Sciences”

Final draft:

- ❖ Check for consistency
- ❖ Check for numerical consistency
- ❖ Check your references
- ❖ Use a spellchecker

from Kristin Sainani, Stanford online course “Writing in the Sciences”

Editor's Corner

A letter from the frustrated author of a journal paper

Editor's Note: It seems appropriate, in this issue of JSS containing the findings of our annual Top Scholars/Institutions study, to pay tribute to the persistent authors who make a journal like this, and a study like that, possible. In their honor, we dedicate the following humorous, anonymously-authored, letter!

Dear Sir, Madame, or Other:

Enclosed is our latest version of Ms. #1996-02-22-RRRRR, that is the re-re-re-revised revision of our paper. Choke on it. We have again rewritten the entire manuscript from start to finish. We even changed the g-d-running head! Hopefully, we have suffered enough now to satisfy even you and the bloodthirsty reviewers.

I shall skip the usual point-by-point description of every single change we made in response to the critiques. After all, it is fairly clear that your anonymous reviewers are less interested in the details of scientific procedure than in working out their personality problems and sexual frustrations by seeking some kind of demented glee in the sadistic and arbitrary exercise of tyrannical power over hapless authors like ourselves who happen to fall into their clutches. We do understand that, in view of the misanthropic psychopaths you have on your editorial board, you need to keep sending them papers, for if they were not reviewing manuscripts they would probably be out mugging little old ladies or clubbing baby seals to death. Still, from this batch of reviewers, C was clearly the most hostile, and we request that you not ask him to review this revision. Indeed, we have mailed letter bombs to four or five people we suspected of being reviewer C, so if you send the manuscript back to them, the review process could be unduly delayed.

Some of the reviewers' comments we could not do anything about. For example, if (as C suggested) several of my recent ancestors were indeed drawn from other species, it is too late to change that. Other suggestions were implemented, however, and the paper has been improved and benefited. Plus, you suggested that we shorten the manuscript by five pages, and we were able to accomplish this very effectively by altering the margins and printing the paper in a different font with a smaller typeface. We agree with you that the paper is much better this way.

One perplexing problem was dealing with suggestions 13–28 by reviewer B. As you may recall (that is, if you even bother reading the reviews before sending your decision letter), that reviewer listed 16 works that he/she felt we should cite in this paper. These were on a variety of different topics, none of which had any relevance to our work that we could see. Indeed, one was an essay on the Spanish–American war from a high school literary magazine. The only common thread was that all 16 were by the same author, presumably someone whom reviewer B greatly admires and feels should be more widely cited. To handle this, we have modified the Introduction and added, after the review of the relevant literature, a subsection entitled “Review of Irrelevant Literature” that discusses these articles and also duly addresses some of the more asinine suggestions from other reviewers.

We hope you will be pleased with this revision and will finally recognize how urgently deserving of publication this work is. If not, then you are an unscrupulous, depraved monster with no shred of human decency. You ought to be in a cage. May whatever heritage you come from be the butt of the next round of ethnic jokes. If you do accept it, however, we wish to thank you for your patience and wisdom throughout this process, and to express our appreciation for your scholarly insights. To repay you, we would be happy to review some manuscripts for you; please send us the next manuscript that any of these reviewers submits to this journal.

Assuming you accept this paper, we would also like to add a footnote acknowledging your help with this manuscript and to point out that we liked the paper much better the way we originally submitted it, but you held the editorial shotgun to our heads and forced us to chop, reshuffle, hedge, expand, shorten, and in general convert a meaty paper into stir-fried vegetables. We could not – or would not – have done it without your input.

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