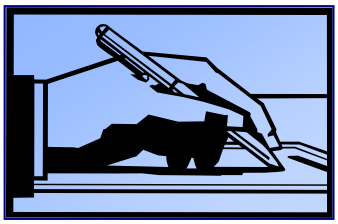


Module 3. Writing Paragraphs: Focus, Order, Sequence, and Continuity

The author is indebted to Joseph Williams (University of Chicago), George Gopen (Duke University), and Judith Swan (Princeton University), for important concepts that contributed to this module.

- Joseph M. Williams. **Ten Lessons in Clarity and Grace,** 5th Edition. Addison-Wesley Educational Publishers Inc., New York, NY,1997.
- Gopen GD and Swan JA. The Science of Scientific Writing. **American Scientist**, 78: 550-558, 1990.

Introduction

Use Precise Words and Clear Structure to Write Good Paragraphs

At the end of the **Module 2: Writing Sentences,** we reviewed the concept that **words** and **structure** are the key elements that allow a writer to communicate with a reader. This module will help you enhance the clarity and force of your writing by learning to **create structure at the paragraph level**. Paragraphs pose challenges to control structure across the sentences that compose them. To address these challenges, I will discuss and illustrate paragraph writing Tips 1-4, listed on the previous page. We will then discuss Tips 5 and 6, which address self-editing at the paragraph level.

Practice Examples

Module 2 offered numerous examples of early draft sentences to practice editing. Likewise, this module provides examples of "unperfected" paragraphs for application of the Tips. We will first revise three paragraphs to illustrate and practice using the first four Tips. Then, after discussing Tips 5 and 6, which address editing, we will revise a particularly challenging fourth paragraph, using all the tips.

To help you with the paragraph revisions, please find **Module 3, Appendix 1: Paragraph Examples in this Module**. This is an MS Word file that contains the original version of all four practice paragraphs, along with my revisions and notes on my revision strategies. Your learning will be greatly enhanced if you keep this Word file open as you work through the module, and ***attempt your own revisions of each paragraph example, preferably before you look at my revisions***. Note that I use color coding to help you link the writing tips under discussion to my revisions (e.g., see page 7). Hence, if you print the module or appendices, be sure to print in color.

When you complete this module, you can use **Module 3, Appendix 2: Additional Paragraphs for Practice Revisions**, to access 6 additional "unperfected" paragraphs, again with my revisions and comments. These represent a variety of research topics. If you find some of the practice paragraphs too challenging to revise on your own, work through them alongside my revisions, to help you learn what to look for, and how to make improvements.

TIP 1: Think of a paragraph as a unit of thought. Focus on a single, well-defined topic, and clearly convey that topic to the reader.

Note on TIP 1:

- Usually, each paragraph should have one primary topic.
- The topic should be articulated at the beginning of the paragraph. Never make the reader wait beyond the second sentence to learn the topic.
- If your paragraph is longer than 10-15 lines, consider subdividing it.
- To avoid overly long or complex paragraphs, you can use several linked paragraphs to build an argument, with one element of the argument in each paragraph. Use first and/or last sentences to articulate the linkages between this sequence of paragraphs.

Read the following paragraph and decide what its topic is. How far into the paragraph do you have to wait to identify the topic?

EXAMPLE 1: FROM INTRODUCTION TO BOOK CHAPTER

In severe cases, spotted fever group rickettsiae can cause noncardiogenic pulmonary edema/adult respiratory distress syndrome, interstitial pneumonia, pre-renal azotemia with renal failure, hemorrhagic rash, peripheral edema and hypovolemic hypotension due to loss of intravascular fluid into the extravascular space. However, the central nervous system (CNS) is the most crucial target organ. The sequelae in untreated and severely ill patients include deafness, impaired vision, intellectual deficits, ataxia, aphasia, paraplegia, behavioral disturbances and other neurologic defects. Rickettsial encephalitis is associated with a fatal outcome as is shown by the higher frequency of coma in fatal cases. Twenty six percent to 28% of Rocky Mountain Spotted Fever (RMSF) patients show clinically apparent rickettsial encephalitis.

Note on Example 1. Few readers will be willing to wait so long to understand what is going on in a paragraph. The main problem here is the order of the sentences. Rickettsial encephalitis (the topic) is not mentioned until the next to the last sentence, and the early sentences are long lists presented out of context. We will come back to this paragraph example for revision, after discussing Tip 2.

TIP 2: Select a principle of order and make it evident to your reader. To save time and enhance clarity, make a brief outline of your main topics before you write.

Choosing a Principle of Order

You may be wondering what this term means. A principle of order is the strategy a writer uses to organize a paragraph: for example, two commonly used ordering principles in scientific writing are logic and chronology. Others included in the table below are equally useful.

Many writers adopt a principle of order rather intuitively. Consciously choosing a principle of order gives you both focus and control as you put a new paragraph together, or revise a paragraph that does not clearly say what you want. As you shape the paragraph, ***keep your principle of order in mind and find ways to clarify and reinforce it for the reader***.

Commonly Used Paragraph Ordering Principles	
1. Chronological or spatial order	In methods sections of articles and grants, descriptions of a process or procedure are usually chronological; descriptions of things like a machine or an organ system are typically spatially organized.
2. Logical order	A paragraph that is building an argument—e.g., analyzing evidence and drawing a conclusion—uses a logical principle of order. Such paragraphs are critical to good scientific writing.
3. Compare and contrast	This is a very common technique in research descriptions. Paragraphs that compare two study groups, or two experimental conditions, or two or more studies, should be tightly controlled to clearly sort out the similar and contrasting elements.
4. Progression from more important to less important	This principle of order is very useful for the background section of an article, or the significance section of grant proposal, where we are systematically laying out data. We usually give the most important evidence first to persuade the reader, then bolster the argument with additional evidence to strengthen our case.
5. Progression from familiar to novel, simple to complex, general to specific, or known to unknown, etc.	These principles of order reflect how the human mind processes information. Most readers need to learn things that are simpler or more familiar before being introduced to things that are more complex or unfamiliar. However, this order is sometimes reversed, e.g., starting with an exciting novel finding, and then reinforcing your interpretation with familiar, well-established information.
6. Psychological order: emphasis falls at beginning and end; middle receives less attention	In persuasive writing, such as the Discussion section of article, a writer typically begins with the strongest points, places the less important, weaker, or more ambiguous points in the middle (where they have less impact), and ends with a summary of the strongest points in a resounding conclusion.
7. Conventions of the writing form	Journal articles and grant proposals are organized by convention as well as by common sense (e.g., Discussion section of a paper, see #6). Adherence to convention often dictates how ideas in required sections are sequenced. These rules are discussed in Module 4 (articles) and Module 5 (grant proposals).

A useful process for organizing ideas in a new paragraph is to create a simple paragraph outline:

- To start, briefly list points to be covered (1-2 words/item is enough)
- Sequence these points, using a principle of order that matches your strategy.
- Then write around this simple outline.

I make this mini outline on the screen, and compose the paragraph around it.

To revise a paragraph, a quick outline in the margin can be helpful. Review the paragraph draft, jot down a list of your points, reorder them as needed, and reconsider a new (or better applied) principle of order. You might decide to divide the paragraph into subparagraphs, using different principles of order in each. We will practice this method on some of the upcoming "unperfected" paragraph examples. I often use this outline approach as an editor, when I am revising a challenging paragraph written by a trainee.

Note on Revision of Example 1

Let us return to the paragraph on rickettsial encephalitis, and apply a combination of Tip 1 (declare topic early in the paragraph) and Tip 2 (choose a principle of order to reorganize the sentences). As you study the original of Example 1, below, note that it begins with the least important information, and ends with the most important. Moving from the most important to the least important would be far more effective here (and in most contexts).

I have planned reorganization of the paragraph by applying the technique described above: 1) write a word or two in the margin for the topic of each sentence, and 2) add numbers to this quick outline **to plan a new order for the topics**. Then it is easy to use the drag-and-drop function to rebuild the paragraph in the new order.

EXAMPLE 1: Preparation for Revision: A Marginal Outline

In severe cases, spotted fever group rickettsiae can cause noncardiogenic pulmonary edema/adult respiratory distress syndrome, interstitial pneumonia, pre-renal azotemia with renal failure, hemorrhagic rash, peripheral edema and hypovolemic hypotension due to loss of intravascular fluid into the extravascular space. However, the central nervous system (CNS) is the most crucial target organ. The sequelae in untreated and severely ill patients include deafness, impaired vision, intellectual deficits, ataxia, aphasia, paraplegia, behavioral disturbances and other neurologic defects. Rickettsial encephalitis is associated with a fatal outcome as is shown by the higher frequency of coma in fatal cases. Twenty six percent to 28% of Rocky Mountain Spotted Fever patients show clinically apparent rickettsial encephalitis.

Non-CNS sequelae #5

Importance of CNS #3

CNS sequelae #4

R.E. mortality #2

R.E. incidence #1

Note on Revision of Example 1 (see below):

Using the numbered outline above, we get a reordered paragraph (below). I moved the original last sentence into first position, in order to announce the topic, rickettsial encephalitis, and then to establish its importance: how common it is, and how serious are its variants. The rest of the paragraph is reorganized so that ideas progress from the most important (incidence and mortality) to the less important (sequelae, first in CNS, then outside CNS). We now have a paragraph that not only announces its topic at the start (Tip 1), but clearly presents an ordered sequence of points about why the topic matters, from most important to least important (Tip 2, Principle 4). I elaborated the first sentence to announce the topic more clearly, and added a new concluding sentence to create a potential transition to the next paragraph. (I made additional small revisions that apply Tips 3 and 4. We will discuss these later.)

PARAGRAPH EXAMPLE 1: Revision

The most severe potential consequence of infection by spotted fever group rickettsiae is encephalitis, which is clinically apparent in 26-28% of patients with Rocky Mountain Spotted Fever. Rickettsial encephalitis can lead to death, as shown by the higher frequency of coma in fatal cases of the disease. Other central nervous system (CNS) sequelae of rickettsial encephalitis in untreated and severely ill patients include deafness, impaired vision, intellectual deficits, ataxia, aphasia, paraplegia, behavioral disturbances and other neurologic defects. Moreover, outside the CNS, spotted fever group rickettsiae can also cause noncardiogenic pulmonary edema/adult respiratory distress syndrome, interstitial pneumonia, pre-renal azotemia with renal failure, hemorrhagic rash, peripheral edema and hypovolemic hypotension due to loss of intravascular fluid into the extravascular space. Given these potentially serious sequelae, clinicians need to understand [main topic of chapter] about the spotted fever group rickettsiae in order to [create bridge to next paragraph].

Application of TIP 2 to another paragraph

Paragraph Example 2 uses an appropriate principle of order (Principle 3. Comparison and contrast), but the principle is not clearly articulated for the reader.

PARAGRAPH EXAMPLE 2: FROM DISCUSSION SECTION OF A PAPER

The effects of urea have been studied in both epithelial and non-epithelial cells. In the frog skin, the addition of 300 mM urea to the external solution (mucosal solution) caused an increase in the paracellular permeability to sodium, chloride, potassium and urea. Using electrophysiological techniques, the addition of 240 mM urea to the mucosal solution of the toad urinary bladder caused a rapid (complete within ~15 seconds) and large increase (10-fold) in tight junction conductance. Of interest is that these authors also reported a two-fold increase in the transcellular conductance, however the effect of mucosal urea on active ion transport was not reported. In contrast, mucosal addition of urea (up to 2 M) to the mammalian urinary bladder did not result in a measurable change in junctional conductance or cell conductance. The different

response of the toad bladder compared to mammalian bladder to mucosal urea is not due to a difference in apical membrane urea permeability since the apical membrane permeability to urea is very low and similar for these epithelia. This suggests that the extra- or intracellular regulation of tight junction conductance is different between these epithelia.

Note on Example 2 (original):

The paragraph above is organized around a comparison between amphibian and mammalian epithelial cells. However, the comparison is set up poorly at the start, because the first sentence suggests that epithelial and non-epithelial cells will be compared, rather than epithelial cells from 2 species. Moreover, markers of the comparisons (what tissues are being compared) are buried within sentences instead of being signaled clearly at the beginning of sentences, where they would be much more useful in guiding the reader.

PARAGRAPH EXAMPLE 2: Revision using strategies to highlight the principle of order. **Be sure to view this and other paragraph revisions in color.**

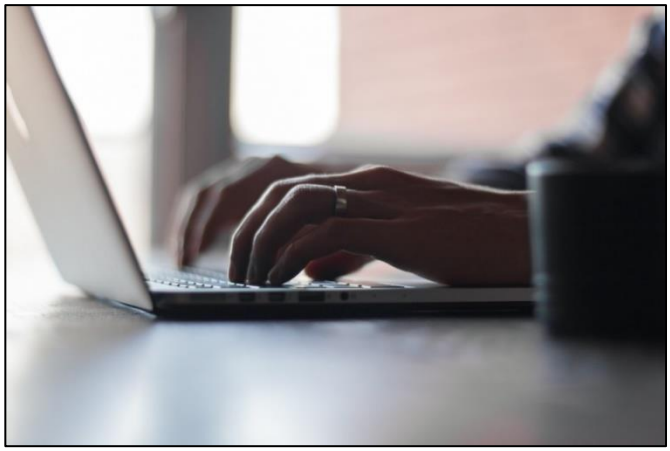
Introductory and concluding statements of comparison Comparison markers

Studies of the effects of urea on the epithelial cells of amphibians and mammals have demonstrated significant differences in transcellular conductance and tight junction conductance. In studies of frog skin, the addition of 300 mM urea to the external (mucosal) solution resulted in an increase in paracellular permeability to sodium, chloride, potassium and urea. In toad urinary bladder, electrophysiological studies showed that the addition of 240 mM urea to the mucosal solution caused an increase in tight junction conductance that was both rapid (complete within ~15 seconds) and large (10-fold). These authors also reported a two-fold increase in the transcellular conductance, but did not report the effect of mucosal urea on active ion transport. In contrast, in mammalian urinary bladder, mucosal addition of urea (up to 2 M) resulted in no measurable change in junctional or cellular conductance. The different responses of toad and mammalian bladder to urea in mucosal solutions cannot be attributed to a difference in apical membrane urea permeability, because this permeability is similar (and very low) in both epithelial types. Hence the differences observed in this study suggest that the extra- or intracellular regulation of tight junction conductance is different between epithelia of amphibians and mammals.

Note on Revision of Example 2:

The revision above first creates introductory and concluding sentences to clarify the paragraph's ***topic*** and ***principle of order***. Although the order of sentences is unchanged in the revision, phrases that identify the tissue being discussed (blue highlights) have been moved to the beginning of sentences so it is easier to track the

comparisons. This example shows how one can greatly improve the intelligibility of a paragraph by making the topic and principle of order clear to the reader.



Paragraph Example 3: Application of Tips 1 and 2

The next paragraph needs to be divided into subparagraphs, with one topic per paragraph. A marginal outline of topics will again help us to decide how to revise this example. Read the original below, identify the main topics, decide where you would divide into subparagraphs, and consider if any sentences might be moved.

PARAGRAPH EXAMPLE 3: BACKGROUND OF GRANT PROPOSAL

Preterm delivery remains the main unresolved problem of obstetrics and society. It is the number one cause of perinatal mortality. Seventy five percent of perinatal mortality not due to congenital malformations is a result of preterm delivery. Neonates with birthweight below 1500 g have a 200 times higher chance of dying in the first year of life than those with normal birthweight at term. Furthermore, survivors of the group weighing less than 1500 g at birth have a 10-fold higher frequency of neurologic impairment. In addition to increased perinatal mortality and neurologic impairment, prematurity also disproportionally contributes to a long list of other very debilitating conditions. These include among others: developmental delay, visual and hearing impairment, chronic lung disease, cerebral palsy, and a group of children healthy at birth, but underachieving at school. Unfortunately, the incidence of preterm delivery has not changed during the last forty years. Moreover, there is a trend toward an increased incidence since the 1980's coinciding with the introduction of tocolysis to obstetrical practice. The most potent demographic risk factor for preterm delivery is a patient's history of a prior preterm delivery. The earlier the prior preterm delivery occurred, the higher is the risk. The risk also increases with the number of prior preterm deliveries. The risk is about 14 % with no history of preterm delivery, 23 – 38 % with a history of one and about 51 % with a history of two prior preterm

Severity of preterm delivery

Mortality, morbidity, sequelae

Incidence

Risk related to maternal history

deliveries. The issue of preterm delivery is confounded by a lack of consensus in regard to diagnostic criteria for preterm labor and thus effectiveness of the current management. This is a direct result of our lack of understanding of the mechanism of labor both preterm and term. It is apparent, therefore, that an understanding of the mechanism, and especially its molecular basis, is of a paramount importance.

What is not known, why we need to understand the mechanism of labor

Note on Revision of Paragraph Example 3 (below):

This example does not require a great deal of reorganization. I moved the 2 sentences of incidence data from the middle to the first paragraph (see below). This helps to establish importance (severity and incidence) at the start. The example reads quite well after it is subdivided into 4 paragraphs, as shown in the revision below. Paragraphs 2 and 3 have a clear topic and principle of order that were in place in the original. Paragraph 4 needs more revision.

Note how the simple addition of paragraph breaks adds dramatically to the clarity and readability of this passage. Each break tells the reader to take a breath and prepare for a new topic to be introduced. This is why paragraphs are best kept fairly brief. The breaks say a lot, with no words required!

Revision of PARAGRAPH EXAMPLE 3 [divided into topical sub-paragraphs, principles of order marked]

Introductory & concluding sentences moved text

Preterm delivery remains the main unresolved problem of obstetrics, and its social impact is great. The incidence of preterm delivery has not changed during the last forty years. In fact, there has been a trend toward increased incidence since the 1980's, when tocolysis was introduced to obstetrical practice.

General statement of problem

More specific (incidence)

Most detailed (Principle of order 5, general to specific)

Preterm delivery, the number one predictor of perinatal mortality, is responsible for 75% of perinatal deaths not caused by congenital malformations. Neonates with birthweight below 1500 g have a 200 times higher chance of dying in the first year of life than those with normal birthweight at term. Furthermore, survivors of the group weighing under 1500 g at birth have a 10-fold higher frequency of neurologic impairment. Prematurity also contributes to a long list of other debilitating conditions, such as chronic lung disease, cerebral palsy, visual and hearing impairment, developmental delay, and school underachievement.

Topic in sentence 1 progresses through paragraph from more to less severe consequences. (Principle of order 4, most to least important.)

The most potent demographic risk factor for preterm delivery is a patient's history of a prior preterm delivery. The earlier the prior preterm delivery occurred, or the higher the number of prior preterm births, the higher is the risk. The risk is about 14% with no prior history, 23 – 38% with a history of one preterm delivery, and about 51% with a history of two prior preterm deliveries.

General statement

More specific

Most detailed (with #s)
(Principle of order 5, general to specific)

Although a good deal is known about the epidemiology of preterm delivery, pinpointing its causes has been difficult. Evaluation of the causes has been confounded by a lack of consensus regarding diagnostic criteria for preterm labor; in consequence, the effectiveness of current management has also proven difficult to evaluate. This confusion is a direct result of our lack of understanding of the mechanism of labor, both preterm and term. Hence an understanding of this mechanism, and especially its molecular basis, is of paramount importance.

Sentence 1 (new): transition to new topic

Then Principle of order 2 (logical): gap in knowledge, reason for it, proposed solution

NOTE: We will return to this Paragraph Example when discussing Tip 3.

TIP 3. Sequence for understanding: Provide a context before introducing new ideas. Paragraphs: Use first sentence to introduce topic and last sentence to summarize or link to next paragraph (or both). Sentences within paragraphs: To create continuity, begin sentences with familiar information and end with new information.

This is an all-important rule for clear writing. Creating a context before presenting details applies to good sentences, paragraphs, sections of documents, and whole documents. It even applies to a writing course (see Course Introduction and Module 1).

In **paragraphs**, use first and last sentences strategically:

- First sentence: to introduce a new topic, link with past information, or both.
- Last sentence: to summarize preceding paragraph or prepare the reader for next topic to come, or both.
- To create continuity, build bridges between paragraphs that smooth the transition between old and new topics.

In **sentences within paragraphs**:

- Begin with previously introduced information and end with new information. The start of a sentence usually creates a context using familiar information, while the end of the sentence typically provides new information.

- Emphasis naturally falls on information at the end of a sentence (in speaking, voice lowers in pitch), which helps it highlight new information.
- When you are introducing new ideas, link the new ideas to previously presented topics. ***Think of a paragraph as a chain whose links need to be welded together by the author, so the reader can follow the chain***. Creating a context before providing new or detailed information helps to connect the links.

An Educational Version of Tip 3:
"Since technical writing builds on a foundation of what the reader already knows, his comprehension and retention of new facts depends in great measure on how closely he associates and integrates them with his prior knowledge. A major function of organization in scientific exposition is to identify and reinforce such associations, reminding the reader of what he already knows and illustrating the bearing of that knowledge on what he is about to learn."
John H. Dirckx. *Dx + Rx, A Physician's Guide to Medical Writing*, p. 119. G.K. Hall and Co., Boston, 1977

Note on Revision of Paragraph Example 1 (sequencing for understanding):

The original version of the rickettsial encephalitis paragraph was a dramatic example of ***not*** sequencing for understanding. No context was created before masses of details were delivered, beginning with the least important.

In the revision of this paragraph below, note several applications of Tip 3:

- The topic is announced in the introductory sentence to create a context for the whole paragraph.
- Each of the two long lists is now introduced with a clear descriptor to establish a context for the details in the lists.
- For the second list, the descriptor clearly distinguishes this list from the prior list (outside the CNS).
- The last sentence is explicitly linked (potentially serious sequelae) to the two preceding sentences (thereby using them for context). When the gaps are filled, it can also create a context for the following paragraph.

REVISION: PARAGRAPH EXAMPLE 1, Revision

Introductory and concluding sentences that create context for paragraph
Introductory list descriptor that creates context for sentences

The most severe potential consequence of infection by spotted fever group rickettsiae is encephalitis, which is clinically apparent in 26-28% of patients with Rocky Mountain Spotted Fever. Rickettsial encephalitis can lead to death, as shown by the higher frequency of coma in fatal cases of the disease. Other central nervous system sequelae of rickettsial encephalitis in untreated and severely ill patients include deafness, impaired vision, intellectual deficits, ataxia, aphasia, paraplegia, behavioral disturbances and other neurologic defects. Moreover, outside the central nervous system, spotted fever group rickettsiae can also cause noncardiogenic pulmonary edema/adult respiratory distress syndrome, interstitial pneumonia, pre-renal azotemia with renal failure, hemorrhagic rash, peripheral edema and hypovolemic hypotension due to loss of intravascular fluid into the extravascular space. Given these potentially serious sequelae, clinicians need to understand [main topic of chapter] about the spotted fever group rickettsiae in order to [create bridge to next paragraph].

Paragraph Example 2: Going back to our revision of the urea paragraph, you can see the value of sequencing for understanding ***at the paragraph level***. Remember that comparison of tissues between two species is the central topic of the paragraph. By starting all sentences that contain comparative data with an identifier of the tissue studied, we created a context for each set of data.

Paragraph Example 3: In our revision of the preterm delivery paragraph, **Paragraph 2** (below) demonstrates how to sequence for understanding within a paragraph ***at the sentence level***. Note below how each sentence begins with familiar information that identifies the context, and ends with new information that belongs in that context. Numerical data are consistently put at the ***end*** of the sentences. Numbers are much easier for the reader to grasp if they have previously been placed in a verbal context. (Discussed in Module 2, Tip 6.)

> Preterm delivery, the number one cause of perinatal mortality, is responsible for 75% of perinatal deaths not caused by congenital malformations. Neonates with birthweight below 1500 g have a 200 times higher chance of dying in the first year of life than those with normal birthweight at term. Furthermore, survivors of the group weighing under 1500 g at birth have a 10-fold higher frequency of neurologic impairment. Prematurity also contributes to a long list of other debilitating conditions, such as chronic lung disease, cerebral palsy, visual and hearing impairment, developmental delay, and school underachievement.

Example 3 illustrates Tip 3 in another way. In the paragraph below, **each sentence provides a context for the sentence that follows**. The first sentence makes a general statement, which prepares for the second sentence's illustration of this concept in more specific and complex terms. This illustration in turn prepares for the third sentence,

which cites the actual data from the literature. Note that the sentence sequence follows Principle of Order 5 (general ➡ specific).

> The most potent demographic risk factor for preterm delivery is a patient's history of a prior preterm delivery. The earlier the prior preterm delivery occurred, or the higher the number of prior preterm births, the higher is the risk. The risk is about 14% with no prior history, 23-38% with a history of one preterm delivery, and about 51% with a history of two prior preterm deliveries.

TIP 4: Connect ideas in a paragraph using verbal linkages: a) summative references to preceding or upcoming ideas, b) repetitions and parallel constructions, and c) transitional linkages to show relationships between sentences or parts of a sentence.

Under **TIP 3**, we compared a paragraph composed of sentences to a **chain composed of links**, where the links are joined by careful control of context. **Verbal linkages** also provide links in a chain of sentences. **These words briefly and simply tell the reader about what has just been said, or what is going to be said next.** An author can create verbal linkages by several methods. We will discuss three of them: summative references, repetitions and parallel constructions, and transitional linkages. (I will define these as we go.)

Let us consider a different metaphor. A paragraph is like **a path through the woods**. For the reader to follow the path, trail markers (e.g., blazes on trees) help point out the way. Verbal linkages serve the same purpose as trail markers. In the two photos below, which trail would you rather be following?

* **Woods photo.** Zserghei, http://commons.wikimedia.org/wiki/File:Forest_ialoveni.jpg Ialoveni County, Moldova, July 24, 2006. Source: Google Images. This image is identified as in the public domain.
* **Path in the woods photo**. Steve Jenkins, http://www.flickr.com/photos/stevejenkins/215317354/ Roakoke, VA 8-12-06. Source: Google Images. This image is posted in the Creative Commons, with permission to copy, distribute and transmit the work with proper attribution.

VERBAL LINKAGE TYPE 1: SUMMATIVE REFERENCES

A summative reference is a brief label that an author attaches to an idea or set of ideas in a paragraph. The reference may refer **back** to the content of preceding sentences, or refer **forward** to an idea that is about to be presented.

Backward summative reference: In the examples below, the summative references (e.g., "This hypothesis") label a set of ideas in the sentences **that came before**. A specific summative reference is far clearer than a vague "this" which refers back to something unspecified.

Examples:

1. **This hypothesis** can be tested by....
   [*Compare:* **This** can be tested by....]

2. **All of these problems** can be avoided when ....
   [*Compare:* **This** can be avoided when…]

3. **This confusion** is a direct result of....
   [*Compare:* **This** is a direct result of....]

In #1, if you follow-up a passage with a new sentence that begins: "This **hypothesis** can be tested by...," the summative reference "hypothesis" assigns a very specific meaning to the preceding sentence(s). It says that these are a planned set of related ideas, and their relationship is going to be tested scientifically. Similarly, in #2 and #3, the phrases "**all these problems"** and **"this confusion"** characterize the preceding information as needing an explanation or solution, and links that information to the clarification that will follow. Note that these summative references say a lot in very few words.

In our revised **Paragraph Example 3** (see below), the summative reference, "**This confusion,**" helps to characterize the complex first half of the paragraph (note the words: "difficult," "confounded," "lack of consensus," "difficult to evaluate"), and to prepare for the final sentence, which states how the research project will solve these problems. In the original of this paragraph, the author used "this" without the summarizing noun "confusion," thus missing a good chance to create more clarity. When the author uses a summative reference, rather than "this," the reference is not only clear in itself, but it can also make the preceding sentences much clearer.

Another summative reference can be found in the first sentence of revised paragraph 4: the term "epidemiology of preterm delivery" is very useful in summarizing the topics of the three preceding paragraphs (incidence, morbidity/mortality/sequelae, and risk factors), in order to transition to the final paragraph.

> Although a good deal is known about the epidemiology of preterm delivery, pinpointing its causes has been difficult. Evaluation of the causes has been confounded by a lack of consensus regarding diagnostic criteria for preterm labor; in consequence, the effectiveness of current management has also proven difficult to evaluate. This confusion is a direct result of our lack of understanding of the mechanism of labor, both preterm and term. Hence an understanding of this mechanism, and especially its molecular basis, is of paramount importance.

Forward summative reference: Summative references that refer forward are similar to backwards summative references. These are particularly useful in introducing a list. In our revised version of **Example 1** (Rickettsial encephalitis, below), the two phrases highlighted are summative references that are indispensable in helping us to understand the list of items that follow. Recall the confusion created in the original paragraph when these lists were unlabeled.

> Other central nervous system sequelae of rickettsial encephalitis in untreated and severely ill patients include deafness, impaired vision, intellectual deficits, ataxia, aphasia, paraplegia, behavioral disturbances and other neurologic defects. Moreover, outside the central nervous system, spotted fever group rickettsiae can also cause noncardiogenic pulmonary edema/adult respiratory distress syndrome, interstitial pneumonia, pre-renal azotemia with renal failure, hemorrhagic rash, peripheral edema and hypovolemic hypotension due to loss of intravascular fluid into the extravascular space.

In our revision of **Example 3** (Preterm delivery), the highlighted summative reference below from paragraph 2 collectively describes the list that follows it. The list is very diverse, but the summative reference tells us in advance how the items listed are interrelated.

> Prematurity also contributes to a long list of other debilitating conditions, such as chronic lung disease, cerebral palsy, visual and hearing impairment, developmental delay, and school underachievement.

Giving readers a "capsule" version of the list saves them time and energy: it allows them to skim through the list, if they choose, rather than having to analyze it in detail (if they bother!) to figure out what links the items.

VERBAL LINKAGE TYPE 2: REPETITIONS AND PARALLEL CONSTRUCTIONS

Repetitions are used routinely to maintain a thread of meaning throughout a paragraph. For example, recall in our revised version of Example 1 (Rickettsial Encephalitis), how our repetition of the word "sequelae" enhanced the clarity and coherence of the paragraph. This simple device can be used very artfully, as in the example below from Abraham Lincoln's Gettysburg Address. I have underlined the repeating phrases.

> Now we are engaged in a great civil war, testing whether that nation or any nation so conceived and so dedicated can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

Note how Lincoln's repetition of the words "war" and "field" create a **spatial zoom effect**, moving our attention from the larger war, to the battlefield of Gettysburg, to the section of that field being dedicated as the burial ground for soldiers who died in that critical battle. There is also a **temporal zoom effect**, moving from the long duration of the war (1861-1865) to the Battle of Gettysburg (July 1863), to today's ceremony to honor those who fought (November 1863). Lincoln is not just playing with words, but ensuring that his audience understands the relevance of the burial ground on which they stand to the larger conflict in which the whole nation is engaged. These words are used very economically, but with powerful effect.

We discussed parallel constructions within sentences in Module 2 of this course. At the paragraph level, parallel constructions can be created by strategic use of repetitions. In the following example from the conclusion of the Gettysburg Address, we can see the power of both repetitions and parallel constructions. (I use color codes to identify words that **either repeat or contrast** with other words in the paragraph.)

> The world will little note, nor long remember, what we say here, but it can never forget what they did here. It is for us the living, rather, to be dedicated here to the unfinished work which they who fought here have thus far so nobly advanced. It is rather for us to be here dedicated to the **great task remaining before us**—that from these honored dead we take increased devotion to that cause for which they gave the last full measure of devotion—that we here highly resolve that these dead shall not have died in vain—that this nation, under God, shall have a new birth of freedom—and that government of the people, by the people, for the people, shall not perish from the earth.

This passage begins with paired repetitions and opposites that juxtapose "us" (the speaker and his audience) vs. "them" (the men who fought in the battle of Gettysburg). While we are only saying, they were doing. Hence posterity will not "long remember" our words, but can "never forget" their service. We are merely dedicating the ground on which they actually fought. To redress the balance, Lincoln asks us to be dedicated to "**the great task remaining before us**," a summative reference for the list follows. To describe the great task, he sets up a series of four parallel "that" clauses: we are asked to 1) take devotion in emulation of their devotion, 2) ensure that the dead have not died in vain, 3) inaugurate a new birth of freedom (opposite of death), and 4) ensure that our form of government shall not perish (become immortal), as the soldiers did. Thus, in his series of four parallel "that" clauses, Lincoln defines the great task as an escalating set of challenges to **turn the tragic loss of life which has occurred at Gettysburg into**

national rebirth: to turn their deaths not only into a memorial, but into a chance for collective revitalization to create immortality of our democracy.

This use of repetition and parallelism, combined with strategic contrasts, is masterful. After we have given it reverent admiration (if you so choose!), we can turn to more mundane uses of parallel constructions in scientific writing. These are always created by repeated words or phrases, as can be seen below in our revisions of Examples 1 and 3.

In **Example 1** (Rickettsial Encephalitis, see revision, p. 6), the two long lists of sequelae are set up in parallel, introduced by "**Other central nervous system sequelae**" and "**Moreover, outside the central nervous system**." These are not only summative references; they create a parallel construction that tells us what is different about the two long lists that follow. Thus we can get the point without having to analyze each list.

Example 3 (below) is full of repetitions and parallelisms. In **paragraph 2**, notice the pair of highlighted parallel constructions. The author uses these to help the reader to grasp the following data quickly and without confusion. In **paragraph 3**, repetition is used skillfully to build a case that "The most potent demographic risk factor for preterm delivery" is prior history. In **paragraph 4**, the parallel phrases "lack of understanding of the mechanism" and "understanding of the mechanism," emphasize the purpose of the project—moving from little knowledge to expanded knowledge, if the grant is funded. Use of opposites in parallel constructions can make an effective point.

> Preterm delivery, the number one cause of perinatal mortality, is responsible for 75% of perinatal deaths not caused by congenital malformations. Neonates with birthweight below 1500 g have a 200 times higher chance of dying in the first year of life than those with normal birthweight at term. Furthermore, survivors of the group weighing under 1500 g at birth have a 10-fold higher frequency of neurologic impairment….
>
> The most potent demographic risk factor for preterm delivery is a patient's history of a prior preterm delivery. The earlier the prior preterm delivery occurred, or the higher the number of prior preterm births, the higher is the risk. The risk is about 14% with no prior history, 23-38% with a history of one preterm delivery, and about 51% with a history of two prior preterm deliveries.
>
> …. This confusion is a direct result of our lack of understanding of the mechanism of labor, both preterm and term. Hence an understanding of this mechanism, and especially its molecular basis, is of paramount importance.

The author of this example of a rationale for a grant proposal uses repetitions and parallel constructions skillfully.

VERBAL LINKAGE TYPE 3: TRANSITIONAL LINKAGES

Transitional linkages help readers find their way through a paragraph; they are analogous to blazes on trees to mark a trail through the woods. All authors use simple conjunctions such as "and" or "but" in their writing. Consider using more informative linkages where a "trail marker" is needed:

Simple or non-specific conjunctions: *and, but, nor, for, yet, or, so*
Complex linkages: *however, moreover, therefore, nonetheless, in contrast*

These complex linkages offer a powerful way to signal your meaning with minimal clutter in the paragraph. When you use "however" or "in contrast," the reader is instantly told that what is coming next is different from what came before. Without such a marker, the reader may become confused because a sentence appears to be contradicting what was just said, and he may waste time and energy (and patience) looking back to see what he may have misunderstood. The words “hence” and "therefore" are indispensable in introducing a logical conclusion. "Moreover" is used for emphasis: it tells the reader to expect supplemental information on the same topic. The table below offers many transitional linkages. The large number tells us how useful these can be to help readers “get the point” efficiently, even in complex sentences.

Purpose	Transitional Linkages*
addition	again, also, and, and then, besides, equally important, finally, first, further, furthermore, in addition, in the first place, last, moreover, next, second, still, too
comparison	also, in the same way, likewise, similarly
concession	granted, naturally, of course
contrast	although, and yet, at the same time, but at the same time, despite that, even so, even though, for all that, however, in contrast, in spite of, instead, nevertheless, notwithstanding, on the contrary, on the other hand, otherwise, regardless, still, though, yet
emphasis	in fact, indeed, certainly, of course
example or illustration	after all, as an illustration, even, for example, for instance, indeed, in fact, in other words, in short, it is true, of course, namely, specifically, that is, to illustrate, thus, truly
summary	all in all, altogether, as has been said, finally, in brief, in conclusion, in other words, in particular, in short, in simpler terms, in summary, on the whole, that is, therefore, to put it differently, to summarize
time sequence	after a while, afterward, again, also, and then, as long as, at last, at length, at that time, before, besides, earlier, eventually, finally, formerly, further, furthermore, in addition, in the first place, in the past, last, lately, meanwhile, moreover, next, now, presently, second, shortly, simultaneously, since, so far, soon, still, subsequently, then, thereafter, too, until, until now, when

logical connection	therefore, hence, consequently, thus, accordingly, so

** Modified from: **Guide to Grammar and Writing**, Coherence: Transitions between Ideas: http:// https://www.guidetogrammar.org/grammar/*

All of our revised paragraph examples include transitional linkages. Note in revised **Example 1** (Rickettsial Encephalitis, p. 6), our revision used the word "Moreover" to add on the second list of sequelae. Note in revised **Example 2** (Epithelial Urea, p. 8), the crucial use of "In contrast" when the topic switches from amphibian to mammalian experiments. In the revision below, from **Example 3** (Preterm Delivery), the highlighting shows examples of all three types of verbal linkages at work.

EXAMPLE 3, Revision 2 [using verbal linkages to improve coherence]

summative references repetitions in parallel constructions transitional linkages

Preterm delivery remains the main unresolved problem of obstetrics, and its social impact is great. The incidence of preterm delivery has not changed during the last forty years. In fact, there has been a trend toward increased incidence since the 1980's, when tocolysis was introduced to obstetrical practice.

Preterm delivery, the number one cause of perinatal mortality, is responsible for 75% of perinatal deaths not caused by congenital malformations. Neonates with birthweight below 1500 g have a 200 times higher chance of dying in the first year of life than those with normal birthweight at term. Furthermore, survivors of the group weighing under 1500 g at birth have a 10-fold higher frequency of neurologic impairment. Prematurity also contributes to a long list of other debilitating conditions, such as chronic lung disease, cerebral palsy, visual and hearing impairment, developmental delay, and school underachievement.

The most potent demographic risk factor for preterm delivery is a patient's history of a prior preterm delivery. The earlier the prior preterm delivery occurred, or the higher the number of prior preterm births, the higher is the risk. The risk is about 14% with no prior history, 23 – 38% with a history of one preterm delivery, and about 51% with a history of two prior preterm deliveries.

Although a good deal is known about the epidemiology of preterm delivery, pinpointing its causes has been difficult. Evaluation of the causes has been confounded by a lack of consensus regarding diagnostic criteria for preterm labor; in consequence, the effectiveness of current management has also proven difficult to evaluate. This confusion is a direct result of our lack of understanding of the mechanism of labor, both preterm and term. Hence an understanding of this mechanism, and especially its molecular basis, is of paramount importance.

Note on EXAMPLE 3, REVISION 2:

We have already studied the summative references, and repetitions/parallel constructions in this passage. Transitional linkages add further to the coherence and

clarity of the piece. "In fact" is used to add corroborative data in paragraph 1. "Furthermore" marks the addition of supplementary information in paragraph 2. In the final paragraph, I have added three transitional linkages. This paragraph is based on a logical principle of order, but in the original, its logic was confused. In the revision, transitional linkages help to weld together the logical connections. "Although" marks a shift in the discussion from what is known (epidemiology) to what is not known (causes). "In consequence" tells the reader that the upcoming statement follows logically from that which precedes. Finally, "hence" is used to emphasize the beginning of a logical conclusion. Logical paragraphs like this one particularly need explicit verbal linkages to enhance clarity.

Tip 5. When editing a paragraph, analyze first for focus, logic, clarity, and emphasis (larger scale), then for continuity, brevity and sound (smaller scale). It helps to read them aloud.

Tip 6. When editing a paragraph, first rethink and reprioritize, then reorganize and rephrase what you have written (as needed).

Because different people prefer different editing/revision strategies, I offer two methods here. **Tip 5** and **Tip 6** overlap and (in my opinion) get to much the same place in the end. They are both about ordering your revisions in an efficient way. I suggest that you try both, and choose either (or one of your own) to suit your writing style, or your document and its purpose.

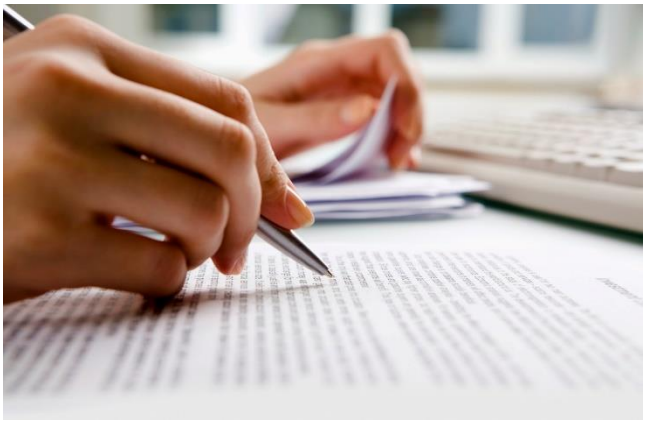
In applying **Tip 5**, I recommend that you follow the steps *in the order listed*. It is most efficient to begin revisions with large scale issues (what topics to include, sequence of ideas, logic + supportive evidence). Then move down to smaller scale issues (paragraph organization, then sentence structure). More specifically:

1. Focus, with clear articulation of the main points (e.g., effectively using first and last sentences in paragraphs)
2. Logical flow of ideas: e.g., coherent transitions, use of complex linkages like “therefore”
3. Strategic use of emphasis: e.g. first and last sentences in paragraph, repetitions, emphasis formatting (discussed in Module 4)
4. Continuity of ideas through use of verbal linkages
5. Avoidance of redundancies and other wordiness (discussed in Module 2)
6. Smooth and varied sound (called “elegance” in Module 1).

In **Tip 6**, the **rethink, reprioritize, reorganize,** and **rephrase** sequence is analogous to the steps in Tip 5, moving from large scale to small. At the end of this module, you will find a **Do It Yourself Guide for Paragraph Revision** which describes explicitly how to apply Tip 6.

Editing paragraphs can be approached in many ways. This is an good time to review your work **from the READER'S perspective**. I usually begin by rereading a paragraph, sounding it out inside my head. Some writers read a paragraph literally out loud to a recorder or another person. Places that sound bumpy often reveal bumpy thinking. We have discussed the use of a marginal outline to assess the content of a particular paragraph. Some writers circle all subjects and verbs, or invent their own color-coding system to analyze the content. Use whatever method helps you to gain a fresh perspective on what you have written, so you can improve it.

With my own writing, it works best to do initial edits of drafts on the computer, but the final edit is best done on a paper printout. You find different and important things when you proofread a document on paper. ***A personal example*:** I edited the 6 modules of this writing course dozens of times on the computer over 2+ years, and I thought it was pretty much done! But when I proofed it on paper, I discovered opportunities for many new improvements. I was surprised, but excited to discover that I could make the course even better in new ways!



What follows is an interesting set of editing tips from a respected former editor of the *Annals of Internal Medicine,* Dr. Edward Huth. In his revision tips, he uses different language to say many of the things we have discussed in Modules 2 and 3.

1. Look at your paragraphs for **length in relation to their content.** Divide paragraphs that are too long but find a logical point for the new division.
2. Check each paragraph for an **internal sequence** that gives the reader a sense of moving along a line of thought.
3. Look at, and revise as needed, the **links between paragraphs**: Consider how the closing sentence of a paragraph and the first sentence of the next paragraph link the paragraphs for clear sequence.
4. Look at the **lengths and structures of sentences** in each paragraph. Do too many have the same length and structure? Should you divide some sentences, or join some? Should some structures be inverted for variety in rhythm and for different emphasis?
5. **Prune out slang, dehumanizing terms, and other details** that make for graceless prose.
6. Look for **empty phrases** that can be discarded.
7. Change word choices to **more active verbs and fewer abstract nouns with weak verbs**; be sure of accurate choices of words and accurate spelling.

[Adapted from Edward J. Huth, *How to Write and Publish Papers in the Medical Sciences***,** p. 112**.** ISI Press, Philadelphia, 1982.]

Note: Tips 5 and 6 are good for self-editing, but they are equally valuable when you give feedback to colleagues or trainees on their writing. If you find many things in a colleague's draft that need revision, prioritize giving the author feedback on ideas and organization first (rethink, reprioritize, reorganize), and save feedback on stylistic matters (rephrase) for a second round of revision. I have learned the hard way that an author can be overwhelmed by receiving too much feedback at too many levels. Moreover, it is more efficient in editing to save stylistic revisions until a document has progressed to a later draft, or you may waste time perfecting material that could later be cut from the document.

All Tips Combined: Revising a Final Practice Paragraph

I have saved **Paragraph Example 4** for the end. This paragraph is a challenge to read because it lacks the benefit of the four sentence writing tips we have just discussed. Hence you will be able to practice all of them in your revision!

Before studying my revision, attempt an edit of this passage yourself. Try to apply all the paragraph writing tips we have learned:

1. Think of each paragraph as a unit of thought. **Focus it on a single main topic**, and be sure that topic is clearly conveyed to the reader.
2. **Select a principle of order** and make it evident to your reader. Make a brief outline of your main topics, and then organize the sequence of ideas.
3. **Sequence for understanding:** Provide a context before introducing new ideas. **Paragraphs:** Use the first sentence to introduce your topic and the last sentence to summarize it. **Sentences in paragraphs:** Begin with familiar information (context) and end with new information.
4. **Connect ideas in a paragraph using verbal linkages**: a) summative references to preceding or following ideas, b) repetitions and parallel constructions, and c) transitional linkages. These help the reader understand how your sentences relate to each other.

Here are some specific suggestions for getting started with Paragraph Example 4:

1. Divide the example into 3 subparagraphs, each on a single topic.
2. Consider adding introductory and/or concluding sentences to these paragraphs.
3. Add words or phrases at the beginning or end of sentences (e.g., summative references) to clarify the meaning.
4. Add verbal linkages between related topics to improve continuity of ideas.

Then read my revision, in which I have applied of all of these steps.

EXAMPLE 4: Introduction to a Paper on Breast Cancer Diagnosis

Both tubular carcinoma (TC) and radial sclerosing lesion (RSL) can have a similar gross and histologic appearance. The crucial diagnostic difference is in the recognition of the outer myoepithelial cell layer surrounding the epithelium of RSL, which is in turn encircled by the basement membrane. Tubules of TC are lined by a single layer of well differentiated malignant epithelium without the outer myoepithelial cell layer. Myoepithelial cells can be highlighted by immunostaining for smooth muscle actin (SMA) or for S-100 protein. Antibodies to SMA also stain myofibroblasts, which can be abundant in the stroma of tubular carcinoma, with some of them approximating the malignant tubules thus creating a false impression of a myoepithelial cell layer. S-100 immunostaining has been reported to have poor specificity for myoepithelial cells in the breast. Maspin, or mammary serpin, is considered to be related to the serpin family of protease inhibitors. Although it appears to have a tumor suppressor effect in *in-vitro* studies, its precise function *in-vivo* is not clear. Metallothionein is a low molecular weight protein with heavy metal binding properties. Maspin and metallothionein have been reported to be expressed at very high levels in mammary myoepithelium. In this study we determined the efficacy of maspin and metallothionein immunohistochemistry in illustrating the myoepithelial cell layer as compared to SMA and S-100 in distinguishing radial sclerosing lesion from tubular carcinoma.

REVISION OF EXAMPLE 4

introductory and concluding sentences
summative reference transitional linkages repetitions in parallel constructions

In the diagnosis of breast cancer, differentiation of tubular carcinoma (TC) and radial sclerosing lesion (RSL) is challenging, because these lesions have a similar gross and histologic appearance. Distinguishing between them depends on visual detection in RSL of a distinctive outer myoepithelial cell layer that surrounds the epithelium, and is in turn encircled by the basement membrane. In contrast, tubules of TC are lined by a single layer of well differentiated malignant epithelium without the outer myoepithelial cell layer.

New sentence

In current practice, myoepithelial cells used for diagnostic studies are highlighted by immunostaining for smooth muscle actin (SMA) or for S-100 protein. Staining with SMA is problematic, because antibodies to SMA can stain myofibroblasts, which may be abundant in the stroma of TC. If some of the myofibroblasts lie near the malignant tubules, they can create the false impression of a myoepithelial cell layer, thus mimicking RSL. S-100 immunostaining is inadequate because it has been reported to have poor specificity for myoepithelial cells in the breast.

New sentence

In this study, we determined the efficacy of two alternative immunohistochemical markers, maspin and metallothionein. Maspin, or mammary serpin, appears to be related to the serpin family of protease inhibitors, ~~it appears to have a tumor suppressor~~

New sentence

~~effect in *in-vitro* studies~~, although its precise function *in vivo* is not clear. Metallothionein is a low molecular weight protein with heavy metal binding properties. Maspin and metallothionein were evaluated for selectively staining the myoepithelial cell layer in RSL, compared to SMA and S-100. Both are reported to be expressed at very high levels in mammary myoepithelium, and are therefore plausible candidates to serve as histochemical markers to distinguish radial sclerosing lesion from tubular carcinoma.

New sentence

Notes on this revision:

To start out this revision, remember editing Tip 5: Analyze paragraphs first for **focus, logic, clarity, and emphasis**, then for **continuity, brevity and sound.** All of these criteria are relevant to **Example 4**. The original paragraph is difficult to follow. Although its content is competent, it lacks a flow of sound and an easily recognizable sequence of ideas. In making this single paragraph a more intelligible introduction to a research article, I have created 3 paragraphs that are well labeled and linked together by a continuous thread of argument.

The revision follows the conventional sequence for a journal article's introduction. The three paragraphs present ***1) the problem, 2) the current solution and its limitations, and 3) the proposed new solution***. Thus, each paragraph has a single main point to make that creates a context for the paragraph that follows; together, they create a clear sequence of ideas. The original uses the same order of ideas, but they are not clearly articulated to the reader. In the revision, introductory and concluding sentences have been added to create a context before new ideas are introduced. Note that the new final sentence returns to the topic introduced in the first sentence of paragraph 1, which neatly rounds off the passage.

Within each paragraph, sentences are revised to clarify linkages and transitions. Note the use of verbal linkages:

- **Summative reference**: "two alternative immunohistochemical markers" is a critical addition. The purposes of SMA and S-100 protein are never described in the original.
- **Repetitions and parallel constructions:** See two highlighted parallel phrases that clarify the limitations of both current markers. Beginning these two sentences with phrases that are parallel in meaning adds needed structure to the paragraph.
- **Transitional linkages: Paragraph 2** begins with a particularly useful transitional linkage ("In current practice") to introduce the paragraph's topic: the current methods used to attempt to differentiate the two lesions. **Paragraph 3** begins with "In this study," another transitional linkage that switches us from previously used methods to potential new ones explored in the current study. (These two phrases resemble parallel constructions in their placement and meaning, although not in their sound.) The vital role played by these two introductory phrases is clear when you look back at the original: in what became paragraph 2, the reader was forced to decipher the significance of SMA and S-100 protein. Similarly, in the sentences that now compose paragraph 3, the reader had to search for clues to the significance of

maspin and metallothionein, which appear without explanation. Few readers will go to such lengths to decipher a piece of writing! More likely, they will move on to another article that is easier to read.

Looking back, our process for editing this example follows all the components of Editing Tip 5 except **brevity**. The main problem with this article introduction is that clarity is defeated by brevity. The author, a student in one of my writing classes, told us that she had written a longer introduction, but shortened it to meet journal requirements for a limited word count. Applying our previous metaphor, if this example were a path through the woods, the author met the word count requirement by keeping all the trees (scientific content), but removing all the trail blazes to help us find our way. Your reader needs both. (Of course, word limits are frustrating for all of us!)

SUMMATION:

The tool on the next page summarizes Module 3, using the structure for paragraph editing offered in Tip 6. This tool, along with the analogous "Do It Yourself Guide to Sentence Revision" at the end of Module 2, are intended to provide you with convenient, brief summaries of the two modules for reference as you write.

Paragraph writing is more challenging than sentence writing, because it combines the challenges of both. In a paragraph, a sentence must work both as an individual unit of thought **and** as an integral part of the paragraph in which it lives. When sentences create context, summarize ideas, and draw conclusions, they participate in the paragraph's broader structure. Hence a good paragraph writer needs to think **big** and think **small**, and move back and forth between them.

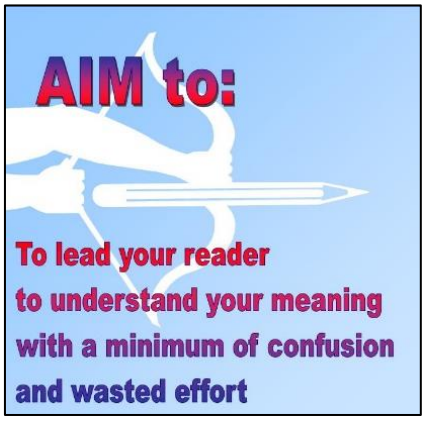
In this module, I am ***not trying to teach how make a final content edit of a research article or a grant proposal***. As we will discuss in detail in Modules 4 and 5, many factors beyond sentence and paragraph composition go into perfecting these complex documents.

TO CLOSE, REMEMBER (from Module 1):

1. Good writing comes from good thinking.

2. Good writing is the product of good re-writing.

3. Good writing comes from understanding your work from the reader's perspective.



DO IT YOURSELF
GUIDE TO PARAGRAPH REVISION

RETHINK

⇨ Conduct preliminary analysis:
- Analyze the meaning by highlighting the main points in each paragraph. **Make a quick outline** if needed.
- Analyze the logical flow from paragraph to paragraph, and within paragraph groups.
- If analysis of meaning is difficult, **clarify your thinking.**

REPRIORITIZE

⇨ Be sure that your most important points stand out clearly.
⇨ If you find extraneous material, **cut it** or **move it** elsewhere.
⇨ If your word count is over the limit, condense less important information.

REORDER

⇨ **Identify the principle of order** that holds each paragraph together; **articulate it** clearly.
⇨ If a paragraph is over 1/3 to 1/2 page, **subdivide**:
- Be sure that each subparagraph has a clearly announced **main point**, and a **principle of order** that creates clear logic and emphasis.
- Create **links between the paragraphs** to clarify progression of ideas.

REPHRASE

⇨ Read aloud and **listen to the flow and logic** of the paragraph—mark gaps or jolts for later remediation. **Make sure that the main point is clearly presented** at the beginning of the paragraph, and rearticulated at the end.
⇨ Reread the paragraph and **where there are gaps, create linkages** between sentences to help the reader progress from one idea to the next. Use verbal linkages (Paragraph Tip 4) to manage the flow of ideas and reinforce critical links in content.
⇨ Listen to the sound of the words, and **eliminate monotony** by:
- Varying the length and structure of sentences
- Avoiding overuse of the same words or phrases
- Using dynamic words and phrases, not bland verbs and unneeded abstractions.

RETHINK AGAIN

⇨ Recall your primary writing strategy, and reread to be sure that the **most important points are prominent.**
⇨ If parts of a paragraph are still contorted or choppy, go back to step one, and **rethink what you are saying.** Awkward language usually reflects confused thinking.

An Evaluation form specific to this module, in MS Word format, is included as Module 3, App. 3 Evaluation Form. Please complete it on your computer and email to: constance_baldwin@urmc.rochester.edu. **Your input will help me to improve this writing course! C. Baldwin**