Paragraphs: Coherence & Cohesion

Although paragraphs are disappearing from a lot of business writing (our attention span is diminishing as we become more visual and fill our ears with sounds pretending to be music), they are vital in academic writing. This is because in academic writing you usually have to present a proposition and then defend it by assembling various sets of ideas in support of that proposition. Those sets of ideas need to be coherent elaborations of detail and argument.

This section shows you how to organise the whole paper using paragraphs. This is called **coherence**. Then, within those paragraphs, the writer needs to provide **cohesion** so that the reader can follow what you are saying with minimum **cognitive load**.

Coherent paragraphs: Organising by theme

Paragraphs will be more effective if you:

- state your **purpose** explicitly in the opening of the text
- make the **topic** of each section and paragraph clear
- ensure that your **elaboration** is relevant to the topic sentence and cohesively linked.

Documents achieve coherence if the writer states the purpose as early as possible. In a long document, this overall purpose is stated in the introductory paragraph. This purpose is then demonstrated at the paragraph level by the **topic sentence**. At the sentence level, the important information should ideally be placed first. In this way, the key idea of each sentence links with the topic sentence, which in turn, links with the overall purpose of the document (Martin, 1992, p. 437). These three levels of meaning can be understood as:

1. the macro-theme (the overall purpose of the document)
2. the hyper-theme (the purpose of the paragraph as stated in the topic sentence)
3. the theme (the purpose of the sentence).

Overall Purpose (macro-theme)

You must clarify the purpose of your writing early in your document. You would have produced a **thesis** or **rationale statement** at the pre-writing stage, which has probably been modified in the writing process. You should know as a writer that your purpose is to explain, describe, narrate, or justify. Your macro-theme will be developed through the hyper-themes of each paragraph.

Sample

Australia's freshwater and marine ecosystems display some unusual characteristics, many of which are related to a lack of nutrients (Flannery, 1994, p. 102).

The reader immediately knows that this sentence, the opening sentence of a chapter of Tim Flannery's book, *The Future Eaters*, will examine how nutrient deficiencies have shaped the plant and animal life of Australia's coast and rivers.

If you do not make your purpose clear at the outset, readers might read and understand the individual sentences, but not have a clue what your overall purpose is.

What is this about?

> *The procedure is actually quite simple. First you arrange things into different groups. Of course, one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities, that is the next step; otherwise you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. In the short run this may not seem important but complications can easily arise. A mistake can be expensive as well. At first the whole procedure will seem complicated. Soon, however, it will become just another facet of life. ... After the procedure is completed, one arranges the materials into different groups again. Then they can be put in their appropriate places. Eventually they will be used once more and the whole cycle will then have to be repeated. However, this is part of life.*

When to introduce the macro-theme

When to introduce the macro-theme depends on two factors:

- The size of a document (a book compared with a student assignment)
- The extent to which the reader can cope with inductive rather than deductive writing.

If a document is long, the reader knows that they are in for a big read. As a result, several paragraphs, even pages, of context may be written before the reader comes to the point of the book. In Thomas Friedman's (2008) *Hot, Flat and Crowded,* it takes two and a half pages of context before he provides the macro-theme:

> *The core argument is very simple: America has a problem and the world has a problem. America's problem is that it has lost its way in recent years—partly because of 9/11—and partly because of the bad habits that we let build up over the last three decades, bad habits that have weakened our society's ability and willingness to take on big challenges.*
>
> *The world also has a problem: It is getting hot, flat, and crowded …* (p. 5)

In this instance, the prior pages provide a context rather than reasoning towards a point. In fact, he begins the book with a narrative:

> *In June 2004, I was visiting London with my daughter Orly, and one evening we went to see the play Billy Elliot at a theatre near Victoria Station*.

The narrative ensues: at intermission he meets a Syrian-American who works for a multinational firm that operates in the Middle East. From this, he develops a line of thinking about world geo-politics that leads into the statement above.

CLEAR PARAGRAPH TOPICS (HYPER-THEME)

You should allocate one major topic per paragraph, and clearly indicate that topic in the topic sentence. At the pre-writing stage, you would have organised your main ideas using an idea tree, a flow chart, or perhaps a Venn diagram. These main ideas should dictate the paragraph structure of the overall document.

Sample

Perhaps one of the most striking pieces of information concerning the infertility of Australia's seas concerns the peculiar breeding habits of the Australian sea lion (Neophoca cinerea) (Flannery, 1994, p. 102).

In the third paragraph of this chapter, Flannery cites, in this topic sentence, one particular example of the deficiency/ecosystem relationship, which the reader expects the paragraph to then explore in greater detail.

In the section on Macro-theme (above) we introduced the notion of Deductive writing. Normally, the hyper-theme should be in the first or second sentence of the paragraph. However, inductive writing does not present the *point* of the paragraph until the end.

Inductive writing

Inductive paragraph presents the point of the paragraph **at the end**, not the beginning, of the paragraph. An inductive paragraph, by contrast with the deductive paragraph (topic sentence near the start), develops related material over a series of sentences before making the topic of the paragraph clear only at the end. Such writing is acceptable if handled well. However, you need to contend with **working memory**, which is a limited capacity system used for temporarily storing and manipulating information while cognitive tasks are carried out. Learning, comprehension, and reasoning rely on working memory (Norman, Kemper, & Kynette, 1992). That is, readers have to work out the word, the syntax, and then the sentence. Then they have to relate that to the words that happened in previous sentences (their working memory). All of this is occurring while drawing on schemata in the reader's head (Fairclough (1989) calls this "members' resources"). Some readers are **low-span readers**, those who can't hold much information in their working memory. On the other hand, **high-span readers** can tolerate ambiguity in writing for quite a while until the author makes the point.

The following paragraph is an example of inductive writing because the point comes at the end[1].

> *The millennial generation—those born between 1980 and the mid-1990s—will most likely be the first generation in over one hundred years to earn less income than the preceding generation. The income growth for an average young couple and families in their twenties in seven major economies in North America and Europe has lagged behind the national average for thirty years. The real disposable income for millennials in Italy and USA are the same as thirty years ago. In the US, under-30s are now poorer than retired people, while in the UK pensioners' disposable income has grown three times faster than young people's income. A worrying possible outcome is that such widespread inter-generational inequality will produce social unrest manifested in crime, class-related illness (such as diabetes, heart disease, and depression), ghettos, and homelessness, while also destroying a sense of community, and increasing political apathy. While this is an unhappy prospect for the millennials, in many ways they have only themselves to blame. Blame should not be focused on the older generation who worked for forty years or more and saved, minimised their debt obligations, joined unions to preserve worker entitlements, and voted for governments that would raise and spend taxes to produce greater equality. The millennial generation needs to focus on economic realities and not ephemeral, individualistic aspirations if they want to secure their future.*

As a reader, you could detect the relationship between the sentences to understand that it concerned the different economic outcomes between generations. However, the point of these related sentences is not clear until the second last and last sentences.

[1] The material for this paragraph was developed from Caelinn Barr and Shiv Malik's 'The Betrayal of Generation Y' *The Guardian Weekly* (Vol 194, no 14: 11-17 March 2016; pages 1,13) as well as reader letters in *The Guardian Weekly* (Vol 194; no 16: 25-31 March 2016, page 23).

CLEAR SENTENCES (THEME)

Be sure that the sub-topic (the point) of each sentence is clear to the reader. The best way to do this is to place the important information at the front of the sentence, that is, in the theme position. Below is an example of thematic structure:

Sample

The predominance of intense individualism has given rise to a concern that, as a result, we have lost a sense of community. Lately, another concern has been added to this, that we have lost a sense of the common good. Philosopher and ethicist Dr. Daniel Callahan has criticized the United States Bioethics Advisory Commission's report on human cloning precisely on the grounds that the report focuses only on risks to individuals and fails to take into account the requirements of protection and promotion of the common good and the harmful impact that allowing human cloning would have on the common good.[2]

Notice how the first sentence presents the issue in clear (though slightly modalised, 'Given rise to a concern') terms. The second sentence creates a cumulative effect ('another concern'). Both sentences total 40 words. By the third sentence, the author can then elaborate what she means (although at 61 words the sentence is a little long).

PARAGRAPH PATTERNS

A huge range of possible paragraph patterns exists, some occurring more frequently than others. We are going to look at six of these patterns, which readers expect, based on their previous experience (Flower, 1989) and (Burnett, 2001), and which, because of this familiarity, they understand more easily. The most common paragraph patterns are:

1 Topic-Restriction-Elaboration
2 Problem-solution
3 Cause and effect
4 Chronological order
5 Explaining an idea or concept
6 Compare and contrast.

1 TRE(T)

TRI(T) is the most familiar pattern. TRI stands for:

- Topic
- Restricted development
- Elaboration

The optional (T) stands for re-stated Topic.

Topic is the topic sentence. The Restricted development then narrows this broad topic into a particular sub-topic. Then the Elaboration supplies relevant material to support the Restricted development. This could take the form of evidence, logical argument, analogies, or examples. In this passage taken from Thomas Kolditz's (2007, pp. 93-94) *In Extremis Leadership*, I have deleted a paragraph in order to show more clearly how TRI works. In the first paragraph, the issue of developing knowledge, skills, and abilities is introduced in the first sentence, and then supported by ensuing material in the paragraph. The second paragraph signals to the reader that a different viewpoint is going to be introduced. In fact, it is stated quite clearly in the first

[2] From Somerville, M. (2000). *The Ethical Canary: Science, Society and the Human Spirit*. Ringwood, Australia: Viking, Penguin (p. 64)

sentence: organizations do not perform better after building knowledge, skills, and abilities. The reason for this is then clearly explained.

> *For many years, training developers and human resource managers have focused on knowledge, skills, and abilities as a basis of employment and for constructing programs and developing programs intended to increase performance. The logic of such an approach is undeniable: knowledge, skills and abilities can be objectively measured and tested to ensure that an individual has the capacity and the capability of performing work at a given level of performance. Assessments of knowledge, skills, and abilities can then be matched to job requirements to validate the capabilities of employees. Ideally competence is increased, and the person being developed is therefore a better leader …*
>
> *Interestingly, however, organizations don't perform better after an increase in individuals' knowledge, skills, and abilities. Although there is a host of causes behind such an outcome, one reason is that even after skill training, an individual's fundamental character is so dominant in his or her leadership style that the person simply reverts to his or her original ways of leading. In other words, skill-based leader development may change what a person knows and what a person is capable of doing, but leadership is also about what one is —the "be" component (of the Army's "Be, Know, Do" doctrine). It takes time and powerful experience to change the character of an individual. That's one of the advantages enjoyed by service academies: their character-building, leader development immersion is forty-seven months long.*

TRET Form

Sometimes a paragraph can be a complete argument in itself, with a proposition presented at the start, and then after some elaboration, re-stated at the end. A modified version of the Topic sentence at the end summarises the whole paragraph. Consider this example[3]:

> *Attempts to reconcile the economics of the capitalist market with environmental imperatives are many and increasing. These attempts at reconciliation almost invariably leave the assumptions of market economics intact: it is the environmental paradigm that is required to do the adjusting. Perhaps this is because economists, more than any other category of social scientist (possibly more than the category of scientist, period) are wont to insist that economics proceeds from no contestable assumptions, that it is value-free, that it is in some fundamental sense, 'natural'. So 'natural', in fact, that if biophysical laws are seen to be out of true with economic laws, it is presumably less fundamental biophysical laws that are required to 'bend'. But such attempts at bringing ecology into line with economics might simply prove impossible. It may be that environmental thought contains an* inherent *rejection of the logic of the capitalist market.*

The writer narrows the focus from the general to the particular throughout the paragraph. The first sentence sets up a general statement. Introduced by the deictic 'These attempts', the second sentence then states a strong proposition. The third sentence, telegraphs a less assertive proposition ('Perhaps') that provides a possible explanation for the claim in the second sentence. The fourth sentence builds a conversational tone to develop the silliness of the idea that a social science is more 'natural' than a biophysical science. The penultimate sentence ('But such attempts …') makes a judgment on this absurd proposition in the previous sentence. The final sentence draws a conclusion (modalised by 'may be') from this discussion

[3] From P. Hay (2002). *Main currents in Western environmental thought.* UNSW Press. p. 201

The other paragraph patterns are set out in McKenna et al (2007): Ch 4. For example ***Chronological order.*** Chronological order describes a series of events or the elements of a process as they occur, either forwards or backwards, in a time frame. This process essentially uses a narrative framework, allowing readers to expect what will come next because they can see the narrative unfold as they read. This increases comprehension, as the reader's expectation is constantly met. The topic sentence of a chronological order paragraph might be:

> *There are four stages in the life cycle of an insect. The first stage, the egg, is common to virtually all insect forms, although some are born alive. The larva is the second stage…*

Another common paragraph form is **explaining a concept**. The following short paragraph by Raymond Tallis subtly provides an explanation of what determinism means in the philosophical debate of free will and determinism. He does not announce it as a big definition ("Determinism means …"), but encourages us into reading the meaning:

> *The general argument that free will is an illusion long antedates the rise of neuroscience: it has haunted philosophers since classical times. There are various ways of arguing for determinism: the notion that we do not determine anything but are ourselves determined by things outside of us. The proofs are all pretty straightforward (the arguments are set out in Kane, The Significance of Free Will). The most obvious is that every one of our actions is a physical event. Every physical event has a cause and that cause will in turn have causes. Eventually we shall arrive at causes that have nothing to do with us: for example, events that happened before we were born. So the actual basis for our actions lies outside us* (p. 52).

Cohesive and relevant elaboration

As we have seen, the elaboration of any topic sentence must be relevant to what you have stated in that topic sentence, that is, relevant to the overall purpose of your paragraph. As well, it must be relevant to the broader purpose of the whole text. The logical connectedness from sentence to paragraph to whole text creates a unity called **coherence**.

Cohesion is also important. Cohesiveness, or texture, refers to the smooth transition from sentence to sentence and from paragraph to paragraph in order to maximise reader understanding. Four techniques enhance cohesion:

1 Avoid elegant variation
2. Use Lexical ties
3. Move from Known to New arrangement
4. Use care with pronouns.

1. Avoid Elegant Variation

Some students are taught that repeating the same word is boring, and that they should use synonyms to vary word usage. This is called elegant variation[4]. The trouble with this, particularly in complex or New information writing, is that the reader may not know what the – usually – noun or noun-phrase is referring to. In fact, they may think that the word phrase is a new category that they

[4] This term was devised by Henry W. Fowler in *The King's English* (1906). Later in his book on style guide, *Modern English Usage* (1926), he also used it. It means excessive use of synonyms when referring to the same thing or person.

don't know about. For example, a girl or boy may also be referred to as a youth, a minor, a pre-adolescent, and a young person. Superiority could be referred to as distinction, dominance, eminence, prominence, loftiness, leadership, or hegemony. Elegant variation is frequently seen in journalism[5]. One article states:

> ''Jane Smith is an avid cyclist … ''

Later in the same article, the journalist writes

> "The mother of four also enjoys fishing, knitting and swimming."

The reader has to infer that Jane Smith and "the mother of four" is the same person. Other journalistic synonyms might include "blaze" for fire, "blast" for explosion, and "slay" for kill.

2. LEXICAL TIES

The most common way to maintain continuity or cohesiveness between sentences is to use a lexical tie. Lexical ties, or linking devices, carry no content in themselves, but indicate to the reader the direction that the writer's thinking or argument is about to take. Table 1 below provides lexical ties and the linking effect that each produces.

Table 1 : Common lexical ties and their uses

Continuing the same line of thought	*furthermore, as well, secondly, in addition, moreover*
Explaining or elaborating an idea	*for example, to illustrate, distinctive from, for instance, to take just one example, that is*
Providing an alternative viewpoint	*nevertheless, on the other hand, however, but, in contrast to, (un)like this*
Conceding a point while maintaining your own	*nevertheless, notwithstanding this, although, while, yet*
Providing a similar viewpoint / comparing	*similarly, like, comparable to, proportional to, likewise, in the same way*
Reaching a conclusion	*finally, thus, consequently, it follows that*
Indicating a sequence of time	*while, before, later, first, second, in turn, then, next, subsequently, after, prior to that, following this, since then, immediately, during, simultaneously*
Indicating spatial relationships	*further on, beyond that, above, below, beside, nearby, opposite, adjacent, elsewhere*
Indicating position in an order	*the highest, easiest, slowest, most important, strongest, weakest*
Identifying cause and effect	*evolving from, since, therefore, consequently, because of, it follows that, owing to, due to, causing, accordingly, for this reason, hence, as a result*

[555] These examples taken from: http://blog.vancouvereditor.com/2011/06/inelegant-variation.html [31 03 16]

Avoid the weak use of *and* & *so*

The words *and* and *so* are a form of conjunction (i.e., joining ideas in a sentence: con-join).

And Although **and** is an important linking (or conjoining) word, it is the weakest way to link ideas in writing. This is because the relationship of the linked parts in the sentence (phrases and clauses) is not clear, whereas a lexical tie does make the relationship clear (e.g., elaborating or showing cause and effect). The conjunction*, and*, should be used to link clauses, phrases, or words of the same kind, but not as the universal lexical tie. The following statement[6] uses "and" poorly.

> *The Battle of the Bulge, formally known as the Ardennes Offensive, started on 16 December, 1944. Hitler ordered a massive attack primarily against American forces using three armies to destabilise the allies and regain Antwerp through which the Allies received supplies. The plan was for the Sixth Panzer Army to lead the attack to capture Antwerp, **and** the Fifth Panzer Army would attack the centre of the American forces, **and** the Seventh Army would attack the southern flank.*

While the first "and" is acceptable here because it links related parts of the attack, the use of "while" instead of the final "and" would be better because it shows that the actions are happening contemporaneously.

The overuse of **and** to link ideas suggests to the reader that the writer has set the ideas down in an ill-planned way. Thus, it is common in additive writing, which occurs when writers do not think their ideas and the relationship of those ideas in advance.

If you think of the direction in which the statement that you are about to write is heading, you can begin the sentence with the appropriate lexical tie, and thereby avoid the weak, internal **and**. Here are two examples:

> *I love going to Indian restaurants, **and** I've never cooked a curry myself.*
> ***Although** I love going to Indian restaurants, I've never cooked a curry myself.*
>
> *My brother worked and studied hard for four years **and** became a chef.*
> ***Because** my brother worked and studied hard for four years, he became a chef.*
>
> *Most politicians and business leaders ignored global warming a few years and now they are incorporating it in political and business strategy.*
>
> ***Although** most politicians and business leaders ignored global warming a few years, now they are incorporating it in political and business strategy.*

So The word "so" in the middle of a sentence often indicates that a writer has two ideas in their head, but makes the link between the two only when they are well into the sentence. In the first sentence below, the opening of the sentence tells the reader what AI is, then the closure of the sentence identifies an outcome of this. However, in the second sentence below, the reader is immediately aware that they are about to read about a result.

> *Artificial intelligence is based on a machine's capacity to assimilate huge amounts of information rapidly, **so** now it can perform certain human tasks faster and better than humans.*

[6] Adapted from http://www.historylearningsite.co.uk/world-war-two/world-war-two-in-western-europe/the-battle-of-the-bulge/

The result *of artificial intelligence machine's capacity to assimilate huge amounts of information rapidly is that now it can perform certain human tasks faster and better than humans.*

Here are two examples of an internal so from an engineering report.

A reduction in stage efficiency to 85% will reduce extraction from 87.1% to 83.8% (Figure 5), ***so*** *it is important that adequate retention and good mixing characteristics are maintained in the mixers.*

Due to the design of the generators, no automated filling procedure could be implemented, ***so*** *I put forward the option of controlled filling of the tanks via manually operated ball valves, with a timed controller on the filling pumps, to avoid recirculation in the fuel line should the pump be left running after the filling procedure has been completed.*

Compare these openings

The superiority of sentences that are not conjoined thoughtlessly is evident when contrasting these two passages.

Human capital theory predicts that education, experience, and professional certifications improve performance, and so this paper analyzes the effects of individual manager characteristics on real estate mutual fund performance, but capital markets theory suggests that these things may be irrelevant in the management of mutual funds.

Because human capital theory predicts that education, experience, and professional certifications improve performance, this paper analyzes the effects of individual manager characteristics on real estate mutual fund performance. However, capital markets theory suggests that these things may be irrelevant in the management of mutual funds.

3. KNOWN-NEW ARRANGEMENT

Sentences in paragraphs should have intersecting points of reference. When there are no intersecting points, and each sentence introduces entirely new material, the writing has no direction as there is no overriding idea governing the content. Consider these sentences:

The chemical element, Plutonium (Pu), was first extracted from uranium ore in 1947. Mozart and his sister, Nannerl, played many piano duets during their concert tour of England in 1764. Barramundi is a catadromous fish species in that it matures in freshwater rivers and then travels to the coast to spawn.

These three sentences have no points of intersection. All the information in each sentence is new, and in a document, these sentences become meaningless.

On the other hand, if each sentence contained only old information, that is, material that had already been written, the writing would become totally redundant. Cohesive writing involves the middle path, where there is a degree of **redundancy** from sentence to sentence. Ideally, you should begin the sentence with the old information, and progress to the new. The following sentence describes the breeding cycle of the barramundi:

Barramundi [A] are unusual fish in that they are protoandrous hermaphrodites [B]. These hermaphrodites [B] begin life as males [C]. The small males [C] take three to four years to become mature fish [D]. At about five years of age, the mature fish [D] change gender and become females [E]. In the sea, these large females [E] produce vast numbers of pinkish eggs [F] that hatch within twenty hours, and the cycle commences again.

Certain words and phrases have been labelled to show where new information occurs. You can see how the new information in one sentence becomes the old information (placed first) in the new sentence. In this way, the writer leads the reader from old to new, with a degree of overlap each time, to create a cohesive short paragraph.

Test: Known-New Information

Identify the new concepts in the passage below using A, B, C etc. What do you notice?

[1] The herbivores have keen senses that alert them to predators. [2] Usually herbivores can run very fast to escape these predators. [3] Their ability to run fast is often because they have long spindly legs and because they run on the tips of their toes, which have become specially elongated and strengthened in evolution. [4] At the end of these specialised toes the nails, which we call hooves, have become long and hard. [5] These hooves are familiar in cattle and horses. [6] Cattle have two enlarged `toes', the familiar cloven hoof, at the extremity of each leg. [7] Horses have a similar arrangement, except that, by historical accident they run on one, not two, toes. [8] This running toe was originally the middle of five toes. [9] The other toes disappeared over evolutionary time, although they occasionally reappear in freakish 'throwbacks'. Adapted from R. Dawkins *The Blind Watchmaker*	

STYLE ISSUES & CARRYING IDEAS: PASSIVE VOICE

In the Style lecture, you will learn that readability is enhanced when you use the active voice rather than the passive voice. However, this can sometimes cause a difficulty when you are trying to carry the idea forward in the Theme position of the sentence. Consider the following writing decision posed by Williams (1990, p. 47). Does (a) or (b) carry the idea forward better?

Some astonishing questions about the nature of the universe have been raised by scientists exploring the nature of black holes in space.

a. *A black hole is created by the collapse of a dead star into a point no larger than a marble*.

b. *The collapse of a dead star into a point perhaps no larger than a marble creates a black hole*.

So much matter compressed into so little volume changes the fabric of space around it in profoundly puzzling ways.

Sentence (a) carries the idea forward better because it picks up the 'black hole' from the previous sentence [anaphoric relationship], whereas (b) opens with a new idea. However, (a) is in passive voice form.

4. Careful Pronoun Use

Pronouns (such as *he, she, it, you, they, we, I*), **demonstratives** (*this, that, these, those*), the **indefinite article** (*a, an, such a, such an*), and the **definite article** (*the*) all refer to something nearby (hence they are called references). This section is concerned only with pronouns, demonstratives, and deictics. These are called **anaphoric** references because they refer the reader back to something already in the text. Look at the following statement[7].

The carburettor has been a crucial part of petrol engines since their inception. It blends air and fuel in an internal combustion engine. It has been replaced in modern cars by fuel injection systems. A fuel injection system atomizes the fuel by applying high pressure, whereas a carburettor uses suction.

The first sentence contains three nouns (*carburettor, part, engines*) and one nominalisation (*inception*). The second sentence starts with a pronoun, *It.* Although there is a little ambiguity (which noun or nominalisation does it replace?), the pronoun fairly obviously carries forward (anaphora) *the carburettor*. The third sentence also starts with *It.* However, by this stage, the writer needs to be careful: how far away from the noun-referent can a writer go without losing the reader? The third sentence sensibly carries forward *the fuel injection system* by using the noun-phrase rather than using *It.*

In this way, pronouns help to carry ideas forward without using the actual words used previously. In the following sentence, the word *they* refers to the preceding word *stars,* although this is slightly inaccurate because the previous sentence referred to *a belt of stars* (singular):

In 2003, scientists found a belt of stars in the outer edges of the Milky Way that are chemically different from the other stars in the galaxy. It is believed that they are remnants of a galactic collision 10 billion years ago.

References such as the pronoun, the demonstrative, and the deictic all play an important part in producing textual cohesion by helping to bring ideas forward from the previous part of the text.

We have now seen that pronoun references must be used carefully because the writer might not make clear to the reader the relationship between the **reference word** (the pronoun) and the **noun referent** (the word to which it refers). Compare the following passages. Example 1 is almost incomprehensible because of the excessive use of the pronoun *it*. This problem is rectified in Example 2:

*1: Building a dam in this valley is not necessarily a simple solution to the problem of water shortage caused by climate change. If **it** is susceptible to a bout of extreme*

[7] Adapted from https://en.wikipedia.org/wiki/Carburetor

*rainfall, **it** could cause overtopping, and **it** could then lead to even greater social and economic loss if **it** exceeds existing design specifications.*

2: Building a dam in this valley is not necessarily a simple solution to the problem of water shortage caused by climate change. Such a dam could, for example, be susceptible to a bout of extreme rainfall. If the dam design did not exceed existing design specifications, the extreme rainfall could cause dam overtopping, which, in turn, could lead to even greater social and economic loss.

Is "it" entirely clear in this passage:

*The Olympic ideal makes a major contribution to the ongoing success of the Olympic Games; **it** enables the International Olympic Committee (IOC) to market the Games as an important metaphysical and physical phenomenon. In other words, the Olympics stand for something that is more than good sports competition and in being so **it** elevates itself to command respect. **It** is about the pinnacle of human excellence and is also about striving to be the best more than **it** is about winning.*

Demonstratives

Demonstratives are words such as **this, that, these, and those**. These demonstratives improve cohesion because they refer the reader back to material that the writer has already provided.

*In 1828, Schubert composed the glorious Quintet for Strings in C. **This** is all the more remarkable when we remember that he was just thirty-one years old.*

*Winter or spring pruning of the gardenias is not advisable. **This** will result in losing flower buds that develop in Autumn and bloom in early summer.*

Deictics

A deictic is an extended demonstrative in that it is a demonstrative followed by the noun to which it is referring.

*The Australian band Midnight Oil was engaged with political issues from the release of its first album in 1978. **This political engagement** resulted in the band's becoming the ideological voice of a significant section of a generation of young Australians.*

The deictic, *This political engagement*, makes the second sentence totally unambiguous, and improves the cohesion of the statement.

Summing Up

If you apply these principles of coherence and cohesion to your paragraph writing, you can feel confident that your reader will have a much better chance of understanding what you are trying to communicate. In the passage below, I have adapted a relatively well written section of an academic journal article by applying the paragraph principles. You can see how these improve readability.

Exemplar: Improving Paragraph Structure

Original

Taken from Cowton, C.J. (2004). Managing financial performance at an ethical investment fund. *Accounting*, *Auditing & Accountability Journal*, *17*(2), 249-275.

Ethical investment can be described, in broad terms, as a set of approaches which include social or ethical goals or constraints in addition to more conventional financial criteria in decisions over whether to acquire, hold or dispose of a particular asset, particularly publicly traded shares. In contrast with mainstream or "economic" (Frankel, 1984) investing, risk and return are not the sole dimensions of interest (Anand and Cowton, 1993) - though they are still likely to be important. In ethical investment, it is the nature of the source, and not just the size and risk, of the financial return that is of concern.

Two main approaches have been followed in the UK, either in isolation or in conjunction. In the case of an avoidance approach, certain types of companies are excluded from consideration for investment, perhaps on the grounds of what they produce or how they conduct their business. The number, severity and correlation of the avoidance criteria determine the extent to which an avoidance policy restricts the investment universe available to the investor. It might be argued that such an approach excludes unethical companies but does not result in investment in especially ethical ones. In contrast, what might be termed a supportive approach entails the positive selection of companies whose ethical or social characteristics significantly complement their financial profile. Within these broad approaches many different issues can be pursued; examples include alcohol, tobacco, involvement with repressive regimes, advertising practices (Cowton, 1992), employment practices, military contracting (Cowton, 1993), environmental impact, etc.[1]. Both approaches can be carried out in passive ways. Institutional shareholder activism has been common in the US for many years, but in the UK - where it is often referred to as engagement - it is only recently that it is beginning to show signs of some significance, prompted by debates about corporate governance (Collier, n.d.)

Altered

Ethical investment can be described according to the approach adopted by the investor to avoid or to support [8]certain investments. An ethical investor includes social or ethical goals or constraints in their investment decision to acquire, hold, or dispose of publicly traded shares. Thus, in contrast with mainstream or "economic" (Frankel, 1984) investing, risk and return are not the sole dimensions of decision making (Anand and Cowton, 1993), although they are still likely to be important. In ethical investment, it is the nature of the source, and not just the size and risk, of the financial return that is of concern.

Two main approaches [9]have been followed in the UK, either in isolation or in conjunction: the avoidance approach and the supportive approach. The avoidance approach excludes certain types of companies from consideration for investment, perhaps on the grounds of what they produce or how they conduct their business. The number, severity, and correlation of the avoidance criteria determine the extent to which an avoidance policy restricts the investment universe available to the investor. However[10], although[11] the avoidance approach excludes unethical companies, it does not necessarily result in investment in especially ethical ones. In contrast, [12]those adopting a supportive approach positively select companies whose ethical or social characteristics significantly complement their financial profile. Both[13] these broad approaches have two features in common. Firstly[14], they can focus on different issues that concern the investor such as alcohol, tobacco, involvement with repressive regimes, advertising practices (Cowton, 1992), employment practices, military contracting (Cowton, 1993), and environmental impact. Secondly[15], both approaches can be carried out actively or passively. Institutional shareholder activism has been common in the US for many years, but in the UK - where it is often referred to as engagement - it is only recently beginning to show signs of some significance, prompted by debates about corporate governance (Collier, n.d.).

[8] Advance organiser.
[9] Topic sentence to set up the paragraph.
[10] Lexical cue
[11] Another contrasting cue
[12] Lexical cue
[13] Lets the reader know that writer is comparing like with like.
[14] Lexical cue
[15] Lexical cue

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