


Scientific Writing in English
—英语科研论文写作—

MODULE 2



Lecture 9: Monday 19.10.2015
(7.30-9.10am/1.30-3.10pm)

Scientific Writing in English
—英语科研论文写作—

Overview

1. Feedback
2. Summary last class
3. Task 14 Formal Grammar Style – Solutions
4. Module 2 - Flow

SUMMARY

DO NOT use in academic writing:

- * informal verb forms
- * apostrophes (can't, couldn't, shouldn't)
- * etc., and so on,
- * direct questions
- * adverbs in front or end of sentence

Scientific Writing in English
— 英语科研论文写作 —

OVERVIEW - Module 2

Unit 1: Approach to Academic Writing
 Unit 2: Writing General -> Specific
 Unit 3: Structure of Problem-Solution Texts
 Unit 4: Data Commentary
 Unit 5: Writing Summaries
 Unit 6: Writing Critiques
 Unit 7: Constructing a Research Paper I and II

Scientific Writing in English
— 英语科研论文写作 —

OVERVIEW - Module 2

Unit 1: Approach to Academic Writing

1. Audience
 2. Purpose and Strategy
 3. Organization
 4. Style
 Language Focus: The Vocabulary Shift
 Language Focus: Formal Grammar Style
 5. Flow
 Language Focus: Linking Words and Phrases
 Language Focus: *this* + Summary Word

Scientific Writing in English
— 英语科研论文写作 —

1. Task 14 Formal Grammar Style – Possible Answers

Style

Formal Grammar Style – some recommendations

8. Efficient use of words

* use as few words as possible, but as many as necessary to achieve:

CLARITY, LOGIC, PRECISION!

Style

Formal Grammar Style – some recommendations

8. Efficient use of words

It may be difficult to make a decision about the method that we should use.

There are some inorganic materials that can be used by bioengineers in the process of tissue engineering that have been shown to be very promising indeed.

Scientific Writing in English
— 英语科研论文写作 —

OVERVIEW - Module 2

Unit 1: Approach to Academic Writing

1. Audience
2. Purpose and Strategy
3. Organization
4. Style
 - Language Focus: The Vocabulary Shift
 - Language Focus: Formal Grammar Style
5. Flow
 - Language Focus: Linking Words and Phrases
 - Language Focus: *this* + Summary Word

Flow

* Flow is concerned with how thoughts move from one sentence/statement to the next

* establishing a CLEAR and PRECISE connection between ideas is crucial for **clarity** and **logic** of argument, and is essential for your reader to follow your line of thought

Flow

TASK 15 (T14, p26)

Compare the two texts and write down a few thoughts why you think Text B flows better.

in-class 10 min time
group discussion 10 min
discussion

Scientific Writing in English
— 英语科研论文写作 —

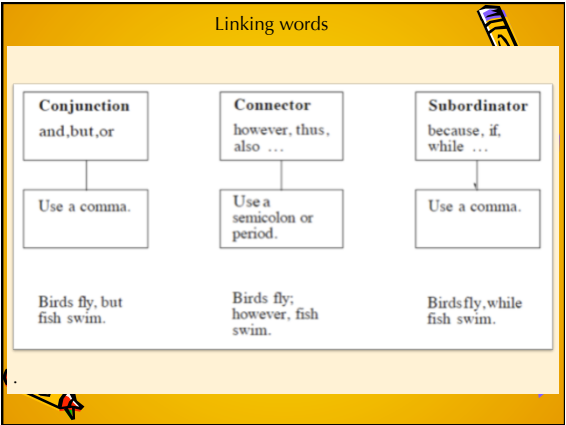
OVERVIEW - Module 2

Unit 1: Approach to Academic Writing

1. Audience
2. Purpose and Strategy
3. Organization
4. Style
 - Language Focus: The Vocabulary Shift
 - Language Focus: Formal Grammar Style
5. Flow
 - Language Focus: Linking Words and Phrases
 - Language Focus: *this* + Summary Word

TABLE 1. Linking Words and Phrases

Linking words	Subordinators	Sentence Connectors	Phrase Linkers
Addition		furthermore in addition moreover	in addition to
Adversative	although even though despite the fact that	however nevertheless	despite in spite of
Cause and Effect	because since	therefore as a result consequently hence thus*	because of due to as a result of
Clarification		in other words that is i.e.	
Contrast	while whereas	in contrast however on the other hand conversely	unlike
Illustration		for example for instance	
Intensification		on the contrary as a matter of fact in fact	



Common use of 'But', 'And' or 'Though' at the beginning of a sentence

Original:

The poverty levels were found to be reduced. **Though** the unemployment levels remained high. **And** the illiteracy levels also. **BUT** no changes in income distribution were observed during the time of this study.

Instead of 'But', 'And' or 'Though'

BUT: In contrast/However/Unexpectedly/Surprisingly;

AND: In addition/Also/Furthermore/Importantly;

THOUGH: Only use after comma as part of a clause (even though)

Linking words

Addition	furthermore in addition moreover	in addition to
-----------------	--	----------------


Theoretical and experimental studies have begun to outline the basic principles of robust biological design. Furthermore, in the case of bacteria, cells often seem to economize; network motifs tend to be the circuits with the fewest components that are able to robustly perform a given function.

In such networks, the distribution of nodal connections follows a power law; furthermore, the network architecture is assumed to be generated by 'growth and preferential attachment'.

Linking words

Addition	furthermore in addition moreover	in addition to
-----------------	--	----------------


When the control system senses such conditions, it must trigger death irreversibly. In addition, the control system must not respond to inevitable pro-death fluctuations that are beneath the threshold for commitment to programmed cell death.

Linking words 

Addition	furthermore in addition moreover	in addition to
-----------------	--	----------------

Cooperation is a necessary innovation but it is not sufficient. Also required is group reproduction and a way to minimize the disruptive effects of cheats. Moreover, these three major events need to occur more or less simultaneously.


A group comprised of few cooperating cells will rapidly be destroyed by cheats; moreover, once the group is destroyed, cheats no longer prosper.

Linking words 

Addition	furthermore in addition moreover	in addition to similarly
-----------------	--	-----------------------------

Satellite-based astronomy has overthrown our most cherished ideas of cosmology, especially those relating to the size, dynamics and composition of the Universe.

Similarly, the convergence of fresh theoretical ideas in evolution and the coming avalanche of genomic data will profoundly alter our understanding of the biosphere.


Linking words 

Adversative	although even though despite the fact that	however nevertheless	despite in spite of
--------------------	---	-------------------------	------------------------

Yet the Internet itself has turned out to be wildly different from Baran's hubless ideal. Although decentralized like Baran's meshwork, it is in fact conspicuous* for its communications hubs — network routers (or clusters of routers) that accumulate far more connections than most others.

-> very commonly found at the beginning of a sentence

* standing out, clearly visible


Linking words 

Adversative	although even though despite the fact that	however nevertheless	despite in spite of
--------------------	---	-------------------------	------------------------

Public-health measures are often examined prospectively* in models (although many retrospective studies of outbreaks only crudely capture the complexity of controls implemented on the ground).


-> rarely seen in original publications


* likely to happen in the future

Linking words 

Adversative	although even though despite the fact that	however nevertheless	despite in spite of
--------------------	---	-------------------------	------------------------

As a result, despite the avalanche of publications and breathless headlines, it is probably true that little has been learned about real social processes.




Linking words 

Adversative	although even though despite the fact that	however nevertheless	despite in spite of
--------------------	---	-------------------------	------------------------

The transition from unicellular to multicellular life brought with it division of labour, development and a panoply* of animal and plant forms. But despite its pivotal role in the history of life, the evolution of multicellularity is poorly understood.


* a complete or impressive collection of things (全副盔甲)


Linking words 

Adversative	although even though despite the fact that	however nevertheless	despite in spite of
--------------------	---	-------------------------	------------------------

As a result, despite the avalanche of publications and breathless headlines, it is probably true that little has been learned about real social processes.


Nevertheless, the near future looks promising, especially if a few fundamental features of social networks can be emphasized.




Linking words 

Cause and Effect	because since	therefore as a result consequently hence thus*	because of due to as a result of
-------------------------	------------------	--	--


Because eukaryotes are derived from archaeobacteria and eubacteria, one might expect to find an archaeobacterial and a eubacterial copy of each nuclear gene.




Linking words 

Cause and Effect	because since	therefore as a result consequently hence thus*	because of due to as a result of
-------------------------	------------------	--	--


This well-documented correlation between phylogenetic origin and gene disappearance is paradoxical because no one understands how these classes of genes disappeared.




Linking words 

Cause and Effect	because	therefore	because of
	since	as a result	due to
		consequently	as a result of
		hence	
		thus*	


Since Lohmann and Jendrassik's interpretation of the delayed reaction is not correct, their criticisms of our technique are altogether pointless.



Linking words 


Cause and Effect	because	therefore	because of
	since	as a result	due to
		consequently	as a result of
		hence	
		thus*	


Refinement through the horizontal sharing of genetic innovations would have triggered an explosion of genetic novelty, until the level of complexity required a transition to the current era of vertical evolution. Thus, we regard as regrettable the conventional association of Darwin's name with evolution, because other modalities must also be considered.

Linking words 

Cause and Effect	because	therefore	because of
	since	as a result	due to
		consequently	as a result of
		hence	
		thus*	


In each ant colony, the queen is merely an egg-layer, not an authority figure, and no ant directs the behaviour of others. Thus the coordinated behaviour of colonies arises from the ways that workers use local information.




Linking words 

Cause and Effect	because	therefore	because of
	since	as a result	due to
		consequently	as a result of
		hence	
		thus*	


In 1944, Chargaff read Oswald Avery's report that the hereditary units, the genes, were composed of DNA. This had a profound impact on Chargaff, as he recollected, "Avery gave us the first text of a new language, or rather he showed us where to look for it. I resolved to search for this text. Consequently, I decided to relinquish all that we had been working on or to bring it to a quick conclusion".




Linking words 

Cause and Effect	because	therefore	because of
	since	as a result	due to
		consequently	as a result of
		hence	
		thus*	


In addition to uridine, the co-factor was found to contain glucose and two phosphates and hence was named uridine diphosphate glucose (UDPG).




Linking words 

Cause and Effect	because	therefore	because of
	since	as a result	due to
		consequently	as a result of
		hence	
		thus*	


When I returned to Duke Medical School, Philip Handler indicated that I should quit working on xanthine oxidase and branch out into other areas. Hence during the early 1960s I followed up on several chance observations I had made previously.



Linking words 


Cause and Effect	because since	therefore as a result consequently hence thus*	because of due to as a result of
-------------------------	------------------	--	--


The biological reasoning behind this noise reduction hypothesis is as follows: high noise in essential proteins increases the chances that cells will lose the protein and hence mimic a lethal null mutant. Hence, high noise in essential proteins should be subject to evolutionary pressure.

Linking words 

Clarification	in other words that is i.e.
----------------------	-----------------------------------

The mobile larger organisms interact with this landscape of species variability in a way that prevents any single species from monopolizing space and energy. The large organisms, in other words, promote the balance and maintenance of a diverse and variable assemblage of organisms, which in turn buffers against an ever-changing world.




Linking words 

Clarification	in other words that is i.e.
----------------------	-----------------------------------


Harry G. Day was a student in McCollum's department at Johns Hopkins. He, along with his students and colleagues at the University of Indiana and collaborators at Procter and Gamble, developed stannous* fluoride as the first fluoride supplement for toothpaste, i.e. Crest.

*of tin with a valence of two; of tin(II)

Linking words 


Clarification	in other words that is i.e.
----------------------	-----------------------------------

If environmental inputs manage to perturb ongoing activity for a sufficiently long time, their effect will be noticed; that is, we will become conscious of them. In contrast, the locally organized cerebellar cortex, used largely for sensorimotor integration, does not give rise to self-generated or spontaneous activity, and its response to input remains local and non-persistent.

Linking words 

Contrast	while whereas	in contrast however on the other hand conversely	unlike
-----------------	------------------	--	--------


If environmental inputs manage to perturb ongoing activity for a sufficiently long time, their effect will be noticed; that is, we will become conscious of them. In contrast, the locally organized cerebellar cortex, used largely for sensorimotor integration, does not give rise to self-generated or spontaneous activity, and its response to input remains local and non-persistent.

Linking words 

Contrast	while whereas	in contrast however on the other hand conversely	unlike
-----------------	------------------	--	--------

Classical critical points are driven by thermal noise, but today we are particularly interested in 'quantum phase transitions' involving quantum noise: jiggings* that result from Heisenberg's uncertainty principle. Unlike its thermal counterpart, quantum noise results in diverging correlations that spread out not just in space, but also in time.

* jiggle: move about lightly and quickly from side to side or up and down

Linking words 

Contrast	while whereas	in contrast however on the other hand conversely	unlike
-----------------	------------------	--	--------

During an earlier revolution, Antoine Lavoisier observed that scientific progress, like evolution, must overcome a challenge of communication: "We cannot improve the language of any science without at the same time improving the science itself; neither can we, on the other hand, improve a science without improving the language or nomenclature which belongs to it."



Linking words 

Illustration	for example for instance
---------------------	-----------------------------

More than two-thirds of the nuclear genes of the yeast *Saccharomyces cerevisiae*, for instance, are derived from eubacteria, and the balance from archaebacteria.

.





Linking words 

Illustration	for example for instance
---------------------	-----------------------------

Take, for instance, the pressure of a gas — a cooperative property of large numbers of particles that is not anticipated from the behaviour of one particle alone. Although Newton's laws of motion account for it, it wasn't until more than a century after Newton that James Clerk Maxwell developed the statistical description of atoms necessary for understanding pressure.





Linking words 

Illustration	for example for instance
--------------	-----------------------------

Take, for instance, the pressure of a gas — a cooperative property of large numbers of particles that is not anticipated from the behaviour of one particle alone. Although Newton's laws of motion account for it, it wasn't until more than a century after Newton that James Clerk Maxwell developed the statistical description of atoms necessary for understanding pressure.






Linking words 

Illustration	for example for instance
--------------	-----------------------------


In various ways, gene transfers between prokaryotes mimic patterns of telephone use. Some people only call their family and friends, for instance.




Linking words 

Intensification	on the contrary as a matter of fact in fact
-----------------	--

Selection therefore favors the evolution of cheats, which although destructive to the group, may act as the seeds for the emergence of new groups. In fact, in our experimental populations the cheats are able to swim away from the group.




Flow 

Full stops -> .

- * they do **NOT** break up your line of thought!
- * instead, they help your reader breathing regularly!
- * they give you the opportunity to introduce a sentence connector/conjunction
- * they help you finish one thought before starting the next!
- * in academic writing, shorter sentences are better (forget your teacher's advice!)


-> use them generously!

Flow 

Comma -> ,

- * used for clauses (The book, which is rare, cannot be found in the library)
- * used for lists (The FIFA president, the head of communications, the FIFA spokes person and the FIFA general secretary sit in a car.)
- * often used with subordinators (Although...,... If...,... ..., whereas...)
- * danger of losing your line of argument when overused


-> Use them cautiously!

Flow 

Semicolons ;

- * join two completely independent sentences
- * can be used with sentence connectors (; however, ; thus, ; for example,)
- * used to break up longer sentences
- * useful for separating long items in a list

-> only use them occasionally

Flow 

Colons -> :


* used to introduce a list

There are four main causes of airport congestion: bad weather, excessive volume, runway closures, and equipment outages.

compare with


There are four main causes of airport congestion: bad weather, such as snow storm, may ground planes; too many planes may be scheduled to arrive or depart within a short period; runways may be closed; and equipment may be out of service.

-> mixed use of colon, comma, semicolons
-> to be avoided when formulating a clear scientific thought


Bad Example 

They will never win a beauty contest, naked mole rats may hold a lesson or two for humans, with two studies in 2013 finding clues to why these rodents can live 30 years, cancer-free, with one of the secrets being that the ribosome that excels at producing error-free proteins; misformed proteins can clog up the body's systems and accelerate aging; another could be a supersized version of a complex sugar that seems to protect against cancer; naked mole rats do not break this compound down as fast as other animals, so it builds up in the spaces between cells and may keep the cells from clumping together and forming tumors.

words: 112 commas: 6 full stops: 1 semicolons: 3

Improved version 

They will never win a beauty contest, **but** naked mole rats may hold a lesson or two for humans. **Recently**, two studies found clues to why **these** rodents can live 30 years. **Intriguingly**, they not only live long lives, they also remain cancer-free. **Interestingly**, one secret might be that **their** ribosomes excel at producing error-free proteins. This is important for overall health, **as** misformed proteins can clog up the body's systems, resulting in accelerated aging. **In addition**, the presence of a supersized version of a complex sugar appears to protect **them** against cancer. **Importantly**, it seems that naked mole rats do not break this compound down as fast as other animals. **As a consequence**, it builds up in the spaces between cells, where it may keep the cells from clumping together and forming tumors.

Improved version 
<p>They will never win a beauty contest, but naked mole rats may hold a lesson or two for humans. Recently, two studies found clues to why these rodents can live 30 years. Intriguingly, they not only live long lives, they also remain cancer-free. Interestingly, one secret might be that their ribosomes excel at producing error-free proteins. This is important for overall health, as misformed proteins can clog up the body's systems, resulting in accelerated aging. In addition, the presence of a supersized version of a complex sugar appears to protect them against cancer. Importantly, it seems that naked mole rats do not break this compound down as fast as other animals. As a consequence, it builds up in the spaces between cells, where it may keep the cells from clumping together and forming tumors.</p>
words: 125 commas:6 full stops: 8 words per sentence: ~15
