



上海交通大学

SHANGHAI JIAO TONG UNIVERSITY



研究生院英语教改试点

研究生学位课

航空航天学术英语

Academic English for Aerospace Graduates

Lecture 11

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Last Week Homework

- ① Introduce the 3-5 table or graphs of your paper in 5 min in your domain on next class
 - Assign 4 students to present and 6 students to question
 - A video camera will record everyone's presentation and replay it on class with a Q & A process.
- ② Find 2 research papers from your own field and choose 3-5 table or graphs, analysis the data commentary structures
- ③ Start the writing of Results section of your manuscript asap



Results

• Data presentation

- data consists of facts and numbers, and these are generally presented in tables and figures
- besides data, result also includes the “statements in the main text that summarize or explain what the data show”

• Data commentary

- using location statements
- rounding numbers and making generalized comparisons
- judging the right strength of claim
- highlighting key findings from the data



Discussions

- ⊙ The discussion section is **optional**
 - Results and Discussions (Combined)
 - Results and Discussions (Separate)
- ⊙ Results sections deal with **actual statements** and their interpretation
- ⊙ Discussion sections deal with **the claims** that might be made, especially **new knowledge claims**
- ⊙ Discussion should **go beyond the results**
- ⊙ In the discussion section, you should step back and take a broad look at your findings and your study **as a whole**



Discussions-Structures

- ④ **Structures used vary from discipline to discipline, but a typical structure can be used**
 - Points to integrate your research scope (obligatory)
 - Report your accomplishments by highlighting major findings
 - Relate and evaluate your results in the light of the state of the art
 - Interpret your data by making suggestions
 - Identify areas
 - Points to indicate the limitations of your research (optional but common)
 - Points to recommend a course of action and possible areas of future research (optional)



Discussion

Potential limitations should be considered. Although every effort was made to maximize validity, minimize bias, and incorporate heterogeneity and uncertainty, the study's comparative risk assessment model does not prove that changes in these dietary habits reduce disease risk. Causality is different from identifying associations. Estimated relative risks of individual dietary components could be limited by measurement error (typically causing underestimation of effects) and residual confounding (typically causing overestimation of effects). For any person, the contribution to health of each dietary component may be modified by other factors such as other dietary habits as well as age, sex, activity, adiposity, and genetics. Thus, as with any medical or public health intervention, our findings should be considered as estimates of the average population relationships. Dietary habits are intercorrelated, increasing complexity of estimating associations. Yet separate validity analyses of dietary pattern studies, including from interventional studies, suggested that the estimated relative risks for both individual components and their joint associations were reasonable. We limited our investigation to

Transition



Discussions-Limitations

You think that you may have just obtained some **perfect/excellent/faultless/ideal/precise/exact solutions, but hang on, for most of the times, there could be some limitations**

- ④ Identifying the weakness in the results is a possible option
- ④ It demonstrate the better understanding for the authors on the results
- ④ It provides **an excellent opportunity** for writers to show that they understand how evidence is evaluated in a particular fields
- ④ **Some common phrases:**
 - It should be noted that this study has mainly focused on...
 - The analysis in the paper has concentrated on ...
 - The findings are restricted to ...
 - The limitations of this study are clear...
 - However, the findings do not imply that ...
 - Despite its preliminary nature, the study does suggest that ...
 - However exploratory, this research may offer some insight ...



Discussions-Limitations

Examples for limitations:

It should also be noted that the turbine layouts investigated in the present study represent only the first 2 or 3 rows of a wind farm. As noted by Chamorro et al,¹⁹ the turbine wake flow in a large wind farm can be divided into a developing region and a developed region. The turbine wake flows would develop and reach an equilibrium state after a certain number of rows. The focus of the present study is on the developing region of a wind farm, where the turbine wake flows have not yet reached the equilibrium state. More extensive researches are still needed to quantify the characteristics of the turbine wake flows and to evaluate their effects on the aeromechanic performances of wind turbines in the developed region of a wind farm.

本项研究在遵循飞行器和潜航器基本设计原则的基础上，基于仿生学原理，完成了仿旗鱼可倾转旋翼飞行器和仿飞鱼可旋转组合式机翼飞行器的气、水动布局设计，分析了两种布局方案在跨介质使用时的优缺点，并对其技术可行性进行了综合评估。研究发现，提出的仿生系列跨介质新概念飞行器气、水动布局方案基本合理，具有一定的技术可行性工程应用转化能力，但主要适用于中小型跨介质飞行器的设计。后期可对技术方案进行完善和细化，逐步开展小型缩比样机研制和试验验证工作。

It does not really matter what language you use in academic writing.

The thinking and logic are more important!



Conclusions

- ⑥ Conclusion is a more “general” Discussion
- ⑥ The rules mentioned in Discussion section can be applied

- ⑥ The common structure of Conclusion Sections
 - ① Background information (research purpose, theory, methodology) **(Obligatory)**
 - ② Summarizing and reporting key results **(Obligatory)**
 - ③ Commenting on the key results (make claims, explaining the results, comparing the new work with the previous studies, offering alternative explanations) **(Obligatory)**
 - ④ Starting the limitations of the study **(Optional)**
 - ⑤ Making recommendations for future implementation and/or for future research **(Optional)**



Acknowledgments

- ④ **The people who contribute this paper but not in the author list**
- ④ **The funding number**
- ④ **Others...**
- ④ **Ask your advisor before you submit the paper!**

- ④ **Example:**

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Appendix (Optional)

- ④ **What can be included in the Appendix section?**
 - Supplementary raw data, graphs, maps, tables, photographs (For example: a table which holds more than 100 numbers may be best to put in an appendix)
 - Equipment
 - Technologies
 - Computer program
 - Mathematical derivation
 - Structure chart
 - ...
- ④ **In the main body of the article, you should **specify that the Appendix is quoted****
- ④ **The **critical evidence/results** should not put in the Appendix section**

If too long to put in the main body of the article



English Writing



English Writing-Some Important Issues

Style-Examples of poor style

Poor style	Reason
How to make people work harder...	Imprecise vocabulary-use “motivation”
... lots of people...	Vague-give names
...the last few years.	Vague-give dates
lots of different...	Avoid “lots of”
...etc...	Avoid using “etc.” and “so on”
...I think...	Too personal
...are ok.	Too informal
When we think about this...	Too personal
So how so we increase production?	Avoid rhetorical questions
It’s quite a	Avoid contractions
...I’ll just talk about a couple...	Too informal and personal



English Writing



Style-Guidelines

- There are **no rules** for academic style that apply to **all situations, and all academic disciplines**
- Be as precise as possible when dealing with facts or figures. Use *approximately* rather than *about*
- Conclusions should use tentative language
- Avoid adverbs that show your personal attitude: *likely, surprisingly*
- Do not contract verb forms. *don't, can't*. use the full form: *do not, cannot*
- Do not overuse the passive tense
- Avoid use *lots of*. Use *significant/considerable number*
- Do not use question such as *Why did the velocity decrease?* Instead, use statement: *There were three reasons for the decrease of the velocity...*
- When writing lists, avoid using *etc.* or *and so on*. Insert *and* before the last items.
- A cautious style is necessary to avoid making statements excessively: *usually, most, tend to, may, maybe, might, could*



Criterion for words and expressions

⊗		
⊗	a considerable amount of	much
⊗	on account of	because
⊗	a number of	several
⊗	Referred to as	called
⊗	In a number of cases	some
⊗	Has the capacity to	can
⊗	It is clear that	clearly
⊗	It is apparent that	apparently
⊗	Employ	use
⊗	Fabricate	make



English Writing



Past and present tense - general comment

- This is partly a matter of **style and preference**
- **Introduction section:** It is usually presented in the present tense.
- **Methods section:** Past tense to describe what was done
- **Results section:**
 - Past tense for results obtained
 - Present tense to refer to figures, tables and graphs
- **Discussions section:**
 - Present tense to explain significance of results
 - Past tense to summaries findings, with present
- **Conclusion section:**
 - A combination of tenses to highlight past research and future directions
- One approach is that if some relationship was proven to be true in the past, and is still true today, then use the present tense to describe that relationship. Use the past tense to describe the derivation of that relationship.

Source:

<http://www.writeenglish.org/uncategorized/correct-tense-technical-writing/>

http://services.unimelb.edu.au/__data/assets/pdf_file/0009/471294/Using_tenses_in_scientific_writing_Update_051112.pdf



Present Progressive Tense

Table 3.3 Examples of Inappropriate Tenses from Unpublished Papers

Inappropriate Tense	Tense Preferred in Science
Sodium is reacting with water.	Sodium reacts with water
Sodium reacted with water	Sodium reacts with water
The results are showing that . . .	The results show that . . .
Results showed that . . .	Results show that . . .
Our group has been proposing that . . .	We propose that . . .
Some researchers are arguing that . . .	Some researchers argue that . . .



English Writing

⊙ Long/short sentences

- Avoid using very long sentences, use several short sentences instead
- Try to keep the average sentence length of your document around **20–25 words**
- This is a good rule of thumb to convey your meaning in a balanced way and avoiding a marathon or choppy sentences
- The number varies as per the field, audience, or the nature of writing
- Avoid using two or more clauses in one sentences
- Sentences of smaller lengths can also be too long if they contain multiple statements that confuse the main idea
- Long sentences can be avoided by limiting each sentence to one or two topics.



English Writing

⊙ Active and passive voice

- This is partly a matter of style and preference
- Generally depending on which part you want to emphasize
- The passive is used when the writer wants to focus on **the results**, not on **the cause**
- The cause of the action can be shown by adding “by...”
- The passive is also in written work to provide a more impersonal style



Table 3.1 Examples of Indirect or Unnecessary Language from Unpublished Papers

Indirect language	Direct, clear language
It will be the end of the year before we can expect results to be ready.	We expect results by the end of the year.
It was discovered in our laboratories that sulfur dichloride reacts with . . .	We discovered sulfur dichloride reacts with . . .
It is vital to recognize the importance of the variance among lengths of multiple bonds.	Recognizing variance in the length of multiple bonds is vital.
It is very important to realize that the aforementioned results are . . .	The results are important because . . .
If my group had been able to, we would have prepared the compound but . . .	We have not prepared the compound because . . .
There have been recent developments in NMR which allow . . .	Recent developments in NMR allow . . .
There are three molecular orbitals, namely, 1) . . . 2) . . . , 3) . . .	The three molecular orbitals are: 1) . . . , 2) . . . , 3) . . .



English Writing

• Singular or Plural - Area of difficulty

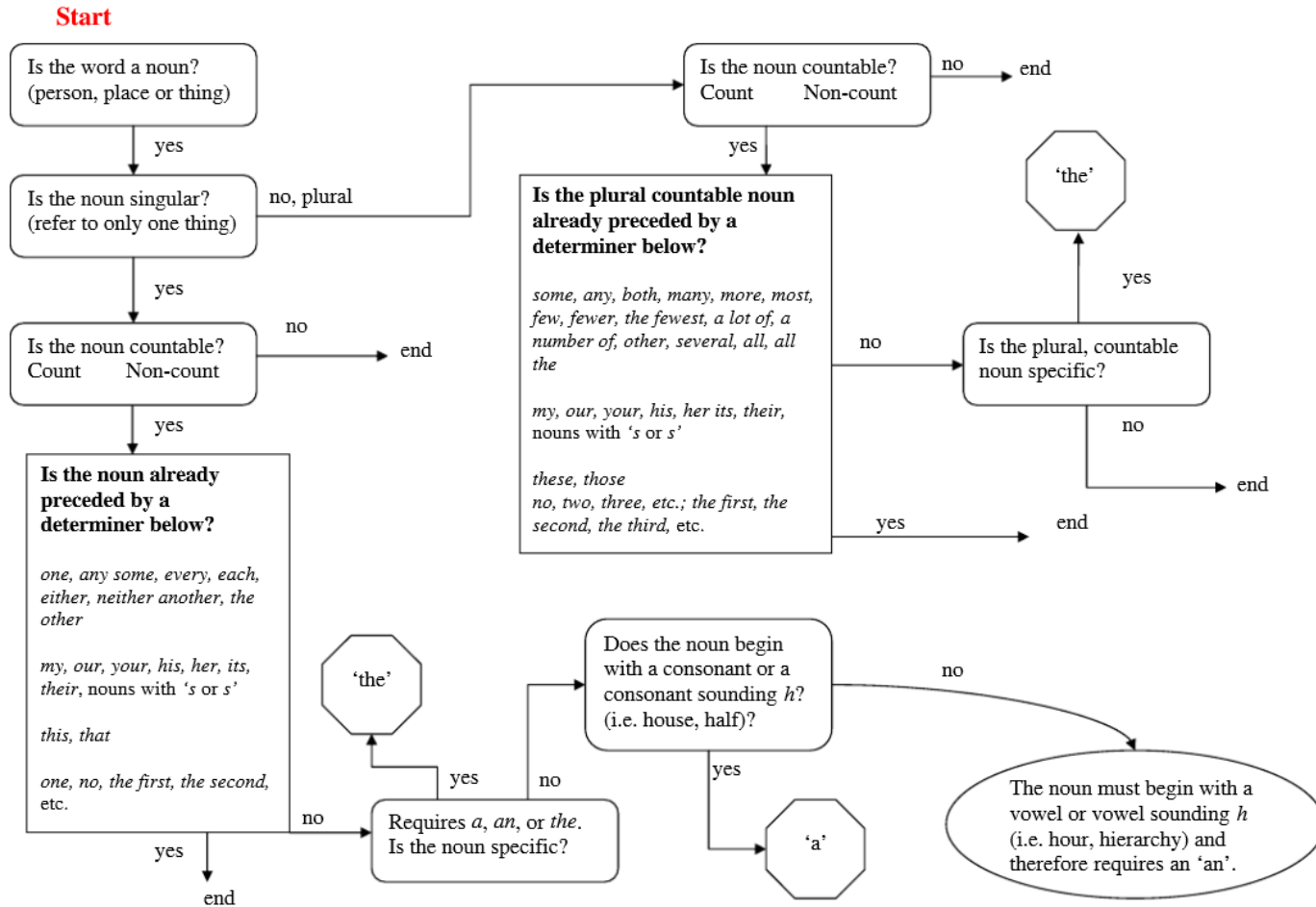
- Nouns should agree with verbs, and pronouns with nouns;
- Uncountable nouns and irregular plurals usually have no final “s”
- General statements normally use the plural
- “each/every” are followed by singular noun and verb forms
- Two linked nouns should agree
- If a verb has more than one subject it must be plural, even if the preceding noun is singular
- Certain “group” nouns (e.g. team/army/government) can be followed by either a singular or plural verb



English Writing



“a, an, the”



Source: Felicia Brittman, *The Most Common Habits from more than 200 English Papers written by Graduate Chinese Engineering Students*



English Writing - More Issues



More issues

- Bring the main idea to the beginning of the sentence stating any purpose, locations, reasons, etc., afterwards.
- Use *in this study* instead of *in this paper*
- The Arabic numerals should never be used at the beginning of sentences (use *Three temperatures* instead of *3 temperatures*)
- Equations should be introduced as much as possible, not inserted in place of words (use *A is greater than B* instead of $A > B$)
- Following conventions (α is often used to refer to *Angle of attack* in aerodynamics, avoid using it for something else)
- **Others.....**



The Word ‘Very’

- ④ ‘very’ is another word everyone should avoid.
- ④ ‘very’ is so common that your writing is stronger if you omit it.
- ④ You can consider using intensifiers that are more effective at adding emphasis, such as ‘extremely’, ‘highly’, ‘strongly’, ‘surprisingly’.
- ④ Use all intensifiers infrequently or they will lose their power and sound unscientific.



Other Overused Words

- ⊗ Replace words such as ‘a lot’ and ‘many’ with more specific meaningful words.
- ⊗ Also improve the impact of your words by omitting those that are not only overused but judgmental, such as ‘good’ or ‘nice’.
- ⊗ Avoid words that praise instead of explain: Good science explains not praises.



Exclamation Marks

- ⊗ Exclamation marks are not in research reports.
- ⊗ Remember if you leave an exclamation mark in, the journal will delete it so do them a favor and delete it yourself.
- ⊗ Check your spreadsheet and photocopied articles to note that they do not contain exclamation marks.



Clichés

- ❁ Clichés are over-used idioms and using them is not respected in English.
- ❁ Although such phrases may seem to be colorful and sound like a native English speaker, don't use them.
- ❁ They are considerably less effective than the simple direct words.



Table 3.2 Examples of Inappropriate Clichés and Unnecessary Words from Unpublished Papers

Inappropriate	Appropriate
Attempting to do this was like <u>trying to put a square peg in a round hole</u> . . .	Attempting this was difficult because . . .
<u>In high hopes</u> we studied the spectrometer printout and found . . .	Results of the spectrometer reading indicate . . .
Darwin's <u>tried and true</u> method of . . .	Darwin's method of . . .
We believe that sooner or later these results will . . .	We believe that these results will . . .
We are pleased to be able to report that the structure . . .	The structure is . . .
The findings of the results of the study show . . . that the end product has indicated . . .	The end product indicates . . .
The product is <u>black as coal</u> . . .	The product is an intense black color.
This result is <u>the cherry on top</u> .	This result adds to the evidence that . . .
This result is <u>beyond our wildest dreams</u> .	This result encourages us that . . .



Following Academic Writing Rules

Let's see a **real** review comment:

The authors do not always adhere to the rules of sound scientific reporting

1. **Notation is inconsistent:**

- (1) the use of lowercase and uppercase;
- (2) In equations 2 and 3 the velocity is given as **U** whereas in equations 6 and 7 on the same page it is given as **v**.
- (2) thermal expansion coefficient is first gamma, then later beta;
- (3) nomenclature is incomplete (no gamma, beta, lowercase omega, Rc, ...);
- (4) the unit of the rotation rate is supposed to be rad/s, not rev/min.
- (5) Please check ***ALL*** symbols and make sure to use ***CONSISTENT*** notation with correct units (also mention them in the nomenclature).

2. **Measurement uncertainty** and its propagation into derived results is an ***ESSENTIAL*** part of any experimental study. Why are there no **error bars** in any of the graphs?

3. **Add units to all figure axis labels.**

4. **Add correct definitions of dimensionless quantities used in the paper.** The exact definitions of Re, Ro, Buo, and the mysterious Rc should be **crystal clear** for an honest appraisal of the results!

5. **Equation numbering is a mess.**

6. **Only surname is required.** Xiaoping Wang et al. [5] investigated...

Simple but very important! Give very bad impression to reviewers!



Next Lecture

Submission/Annex/Attachment



Homework

- ① Introduce the discussion of your paper in 5 min in your domain on next class
 - Assign 4 students to present and 6 students to question
 - A video camera will record everyone's presentation and replay it on class with a Q & A process.

- ② Find 2 research papers from your own field and analysis the structure of discussions/conclusions section. Meanwhile find the English writing problems of the papers as possible as you can.

- ③ Finish the writing of Results section of your manuscript asap