Simulation Optimization Lab







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Research ethics 科研道德

■ Research ethics 2 学时

■ Research plan 2 学时

Journal articles SCI论文

- Introduction (绪论) 2 学时
- M & M (材料与方法) 2 学时
- Results (结果) 2 学时
- Discussion (讨论) 2 学时

Doctoral dissertation 博士学位论文

- Submission 投稿 2 学时
- Dissertation 博士论文 2 学时





Writing up research



- Thesis
- Dissertation
- Monograph
- Journal Article
- Conference Proceeding
- Poster or oral presentation
- Manuscript
- Preprint
- The secret of academic writing is... learn by do it.





- 爱心 A green heart devoted to forestry
- 专心 Focus on forest research
- 恒心 Tough ain't enough
- What is the purpose of your PhD study?
- No rich, no research?
- 不忘初心 PhD project ~= A never ending project
- \blacksquare E = MC², where E is the efficiency of PhD study
- Conflicts of interest
- Plagiarism



Research ethics, con't



- 数据造假! Fake data!
- 一稿多投! Multi-submission!
- 抄袭同行! Plagiarism! colleagues
- 剽窃同门! Plagiarism! lab mates
- 期刊投稿引用自己文章? Plagiarism! Own articles
- 博士学位论文引用自己期刊文章? Plagiarism! Dissertation
- ■天下熙熙,皆为利来...
- ■天下攘攘,皆为利往...





List a couple of highly cited scientists from your field.

- Google Scholar, Research Gate, Publons
- H index
- List three target journals from your research area.
 - Web of Science, IF index
- Who is the audience of your paper?
- What is the "KISS" rule in academic writing?
- How do you define process writing?
- What is the end-focus technique?
- Chinese vs. Anglo-American style, how they differ?
- And why?





Advice for modern academic writing

The KISS rule: "Keep It Short and Simple"

Clarity

Readability

Non-ambiguity

Writers should aim "to inform, not to impress."



Chinese versus Anglo-American Style

- The Anglo-American writer leads readers by the hand through the text.
- The Chinese writer, in contrast, expects the reader to find his own way.
- Suggestions:
- Make the strategy of your text clear, not implicit.
- Refer immediately to all the main items involved.
- Make your main point clearly and early.
- Make the text talk about the text itself.





General advice for non-native writers

Accept total responsibility for being clear.

The greatest sin is ambiguity.

Careful editing will shorten your texts.

Never translate.

Trust your ear.





Methodology I: process writing

- Write the first draft
 - Never translate.
 - Pour out your thoughts in the language of speech.
 - Write short, simple sentences in simple words.
 - Write "long": Produce a 1,000-word text that will end as 600 words.
 - Use common verbs such as "to be / have / get / see / find out."
 - Let yourself use the spoken forms "there is / are / was / were."
 - Allow yourself passive voice
 - Avoid trying to organize your thoughts well.





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Methodology I: process writing, con't

- In later drafts …
 - Use your shortest sentences for your strongest statements. ("Everyone died.")
 - Cut out every word that performs no task. "There is / are X" => "X exists / occurs / appears / arises"
 - Avoid synonym-collection as a way to avoid repetition. Choose and use one term.
 - Replace most simple rough-draft verbs "to be / have /get" => "determine / detect / assess / confirm / evaluate / characterize"





Methodology I: process writing, con't

For elegance and formality

- "get" => "receive?" "become?"
- "like" => "such as"
- "big" => "large / great"?
- "too" => "also / as well"
- "not" is weak.
 - Substitute negatives such as: "no/none/never",
 - prefixes such as "un- / in- / non-",
 - or negative words: "fail", "lack", "insufficient".
- Convert most verbs from passive to active voice.
 - Avoid ending sentences with passives.
 - Change some passive verbs into adjectives
 - Change the verb itself





- The use of the active rather than the passive, could be encouraged
- Why not let the data speak? (with inanimate agents)
- In active voice, stronger and shorter
- 172 British secondary schools
 - 45% encouraged to use the active voice, 42% passive
- 55 journals in the biological and physical sciences
 - Only two still required use of the passive
- Single authors should avoid "We". They may sound like the Queen of England.





- Basic background information: who, where, when (how? why?) appear early
- The final position is the most important.
- Does the most vital word -- the "what" word -- a key adjective or substantive, end each clause and sentence => to lead, even to drag you into what comes next?
- Does the ending let you predict how the next sentence will begin?





- Such behavior is nowadays unacceptable. The police would arrest anyone who did this.
- Such behavior is unacceptable, nowadays. In 1700, however, cats suffered treatment we consider cruel. (Continue ...)
- Nowadays, no one accepts such behavior. Tormenting animals is, in adults, at least, a symptom of a psychiatric problem. (Continue ...)
- Unacceptable behavior nowadays includes mistreatment of animals. Cats, for example, used to be tormented for public amusement. Modern amusements are far more gentle. (Continue ...)



Methodology III: the end-focus technique, con't



- It has been shown by previous research that an active role in the X-process is played by substance Y (Cao 1999), which was found in this study to be greatly increased in the infants with this disease. (36 words)
- Research has shown that, in infants with this disease, substance Y, which plays an active role in the X process (Cao 1999), greatly increased. (22 words)
- We found that substance Y, which in infants with this disease plays an active role in the X process (Cao 1999), increased greatly. (21 words)
- In infants with this disease, substance Y, which plays an active role in the X process (Cao 1999), increased greatly. (18 words!)





- "By all means, marry. If you get a good wife, you'll become happy; if you get a bad one, you'll become a philosopher." -- Socrates
- Being powerful is like being a lady. If you have to tell people you are, you aren't." -- Margaret Thatcher
- "...it doesn't matter how you get knocked down in life because that's going to happen. All that matters is you gotta get up. " -- Ben Affleck



Article sections



Introduction tells what question you will be asking

Methods tell how it was studied

- Results tells what you found
- And

Discussion explains what the findings mean

This produces the acronym IMRAD.





Article sections, con't

Abstract:

- why what was done was done,
- what was done,
- what was found,
- what was concluded
- End the Introduction with what you are seeking
- Begin the **Discussion** with what you found





Research Question

Hypothesis

Exercises

Assignment 1



Assignment 1 (5 points)



- Select an area of interest, with a group of classmates.
- Begin with accepted statements of fact related to your general area. 1 point
- Within the general area, identify one subarea. 1 point
- Indicate your topic. 1 point
- Write a research question that focuses on one aspect of your topic. 1 point.
- Formulate a hypothesis that is a possible response to your research question. 1 point.





Controlled scientific experiment

identify and controll as many factors as possible that may affect the outcome of the study.

- Correlational
 - compare two or more different variables to determine if any predictable relationships exist among them.
- Survey questionnaires
 - deal with information obtained from survey questionnaires or from case studies.
- Computer-generated models
 - explain or predict phenomena observed in the laboratory or in nature.





Formulating a research question

- The research question is the basis on which the study is planned and carried out.
- After researchers have focused on a specific topic of investigation, they formulate a question that addresses a specific aspect of the topic in which they are interested.
- Prepare to answer referees / opponent the research question.



Formulating a hypothesis



- In formal research work, it is necessary to formulate a statement of expected results. This is called the hypothesis.
- The poupose of the experiment is to determine whether the hypothesis can be rejected or not.
- The hypothesis is a possible response to the research question.
- When the hypothesis is stated in this negative way, it is called the null hypothesis.





Research question and hypothesis

An example, p. 3-12

- Q1. How many major sections does this experimental research report contain? Are all of these sections indicated by headings? Which major section does not have a heading?
- Q2. What kind of information does each major section contain? Do any major sections have more than one kind of information? Which ones?
- Q3. How does the format of this report compare with the general model (Fig. 1.1, p. 3)?
- Q4. Research question? 5 points.
- Q5. Hypothesis? Null hypotheses?





Exercises 1.2-3, p. 13-18

- Q1. Where each major section begins and ends, label each section with the appropriate heading.
- Q2. What research question were the authors trying to answer?
- Q3. Can you formulate a hypothesis that would answer this question?
- Find the name of a professional journal in your field of study that publishes reports of experimental research.
- Find a recent issue of the jouranal and locate in it an article reporting on a topic that interests you.
- Examine your article in terms of its general format.





Forest protection.

- Compared with chemical method, integrated control has gained increasingly attention nowdays, which is more evnironmentally friendly.
- A new biological control method to control disease has been used in this study, which has taken the advantage of edophyte.
- Edophyte, exrated from plants, can inhibite a sort of pathogen.
- Whether the extract from the edophyte has influence on the pathoge or not.
- The metabolite extracted from the edophyte can inhibite the pathogon.





- Grazing intensity is an important fact to affet N2O discharge in grassland.
- Whether the intensity of grazing have an effect on N2O discharge?
- Question: Uncertainty of N2O discharge in grassland.
- Hypothesis: Different intensity of grazing have an vital impact on N2) discharge.





- the forest management
- the effection of thinning on biological diversity
- Finding a good method to calculate biological diversity.
- thinning can change forest density, distribution of diameters, site quality, basal area, ingrowth numbers of individual tree,
- the biologial diversity can change by site quality, basal area, distribution of diameters, forest density.
- we construct a model on biological diversity changes by thinning density and time.



Example 4



- Regeneration of forest, China
- Plant Ecology
- Qinling Forest
- Regeneration of forest in strip cut of the Qinling Mountains
- what is the best way of the regeneration strategy of Betula albossinensis forest
- Life history trais and spatiotemporal disturbance magnitude are important factors to consider in implementing effective *Betula albossinensis* regeneration strategies.





- Organic matter, which is dissolved in low concentrations in the vast waters of oceans.
- To understand global biogeochemical cycles, it is crucial to quantify the sources of marine dissoloved organic cabon (DOC).
- We investigated the impact of mangroves, the dominant intertidal vegetation of the tropics.
- On marine DOC.
- On a global scale, estimate that mangroves account for a small part, while they contribute a lot to DOC which is from mangroves to ocean.





Example 6

- Jujube, Ziziphus jujuba. Mill., is nati e to China, and distributed along the Yellow River.
- Historical origins and domestication center.
- Where is the origiin center of Chinese jujube, and did it develop in single- or multi- origins?
- Where is the domestication center?
- Due to the morphology and genetic diversity, the Yellow River Valley located in Shanxi and Shaanxi province is indicated to be a origin center of Chinese jujube.





- Forest management has an impact on carbon balance
- Considering the carbon sequestration, the optimal thinning regime will change.
- How will the forest management regime change concerning both timber harvesting and carbon sequestration?
- Times of thinning and length of ratation
- Times of thinning and length of rotation will increase conerning both timber harvesting and carbon sequestration.





Example 8

- Root system architecture correlated with soil nutrition conditions.
- Phosphorus starvation would result in primary root growth inhibition and lateral root, root hair growth inactivate.
- Plant root system architecture change is one of the strategies that enable plant to cope with soil phosphorus deficiency.
- Why root system architecture develope in that way?
- More lateral root and root hair increase the area of root contact with soil.





- Postharvest biology and technology of cut roses.
- Vaselife of cut roses is 3-5 days.
- Effects on vaselife of cut roses about proharvest treatment.
- 1-MCP can prolong the vaselife of cut roses.
- What substances lead to flower senescences?
- Accumulation endogenous ABA in petal tissue.




Introduction

Stage I: Establishing a context

Stage II: Reviewing previous research





Introduction: establishing a context

- General -> Specific
- The five stages
 - I. the setting (Background, General->Specific)
 - II. already studied (Previous studies)
 - III. investigation needed (Gap)
 - IV. purpose (Your study)
 - V. value (?)



Recipe for an Introduction



- Move 1: Establish the field: assert briefly how significant, relevant, and important is your chosen topic.
- Move 2: Summarize previous general research.
- Move 3: Focus on your own research project. Indicate a gap in knowledge that should be filled.
- Move 4: Introduce your own research: state the purpose of your research or outline what intend to do or what hypothesis you will test. This is the place for your research question.



Language conventions



Linking ideas through old and new information order
 this..., such..., etc.

General and specific noun phrases

- article, a/an, the
- uncountable/countable, singular/plural
- criterion/criteria, phenomenon/phenomena, fungus/fungi, species, series
- Never equipments, advices, informations
- effect/impact, chapter/section, in print/in press
- general or specific sense, countable or uncountable, Fig. 2.3, p.32

THE USES OF DUCKWEED IN WASTE-WATER TREATMENT (p.25)



1 Clearn water is a basic human need. **2** Its discovery, transport, and systematic renewal have always been crucial to all but the least densely populated societies. **3** Increasing population and industrial wastes, together with diminishing sources of easily available energy with which to manage them, are converging to emphasize that all the earth's resources are finite. **4** But the supply of clean water, thought also finite, is at least infinitely renewable.

5 Among the various approaches to improving present technologies for waste-water treatment, several involve the use of plants, which can remove pollutants and provide materials useful as animal feeds or energy sources. **6** Various aquatic plants are being proposed in such approaches, and the duckweeds in particular, an essentially unique group of higher aquatic plants, might be especially advantageous in such systems.



Stage I: the setting



- Q1. Which sentences in the preceding introduction make obvious statements or statements that would be accepted as fact concerning the general area?
- Q2. Which sentence focuses on one subarea of the general area of study?
- Q3. Which sentence indicates the authors' topic?





Literature review

Citation style, p.42

- Citation order, p.46
- Tense, p.50





- What is referencing?
 - Referencing is a standardised way of acknowledging the sources of information and ideas that you have used in your document.
- Why reference?
 - Referencing is important to avoid plagiarism, to verify quotations and to enable readers to follow up what you have written and locate the cited author's work.
- Citation style
 - Harvard style
 - Vancouver style







- The "Harvard style" is a generic author-date style for citing and referencing information in assignments and publications.
- In an author-date style, in-text citations usually require the name of the author(s) and the year of publication.
- A page number is included if you have a direct quote, paraphrase a passage or you want to direct the reader to a specific page. Page numbers may also be included if the you are referring to a long work and the page numbers might be useful to the reader.



Vancouver Style



- In the Vancouver Style, citations within the text of the essay/paper are identified by Arabic numbers in round brackets or Arabic numbers in superscript. This applies to references in text, tables and figures.
- The EndNote referencing style software uses the Arabic number in brackets eg. (2)
- The identification of references within the text of the essay/paper may vary according to the preferred style of the journal



Order of Citations



Location

Citations grouped by approach

- One approach
- another approach
- still another approach
- Citations ordered from distant to close
 - most distantly related to your study
 - most closedly related
- Citations ordered chronologiclly
 - earliest -> latest



Tense

Tense in information prominent citations present tense (information, scientfic fact) Tense in weak author prominent citations present perfect (several authors) General statements about the research present perfect (level of research activity) Tense in author prominent citations simple past tense (findings of indivudual studies) closely related to your own) Attitude and tense in reported findings

present tense (fact)

- past tense (specific study)
- past tense (tentative verbs) + modal auxiliary





Introduction

Stage III: A gap should be filled

Stuage IV: Purpose of your research





1 Food expense is one of the largest recurring items in the budgets of most families. 2 Today, food purchases take more than one-sixth (17.8%) of the total consumer disposable income in the United States (3). **3** This expenditure includes money spent for meals away from home as well as for food bought for use at home. 4 Many demographic factors affect food-buying decisions, including age, education, income, and experience (10). 5 However, student wives are a specialized population group about which little is known. 6 The purpose of this study was to learn more about the food-buying practices of wives of university students. 7 It is hoped that information from this study maybe useful in identifying areas of weakness or lack of knowledge to those who are responsible for planning courses and programs in consumer education.



What you have observed?



What is the function of sentence 5?

- How does sentence 5 relate to the previous sentences in this introduction?
- What connection exists between sentence 5 and sentence 6?
- What is the author trying to suggest about the research in sentence 7?



Introduction: stage III



Alternatives for stage III, P.67

- in adequate -> an important aspect ... has been ignored
- unresolved conflict -> theoretical or methodological disagreement
- an extension -> raises a new research question





- ¹There is considerable current interest in methods of limiting the business risk to which farmers are exposed. ²Some approaches to business risk modification involve insurance, government programs, weather modification, and innovations, and innovations of individual farmers.
- ³It is recognized that the introduction or modification of risk in the production process affects the pattern of resource allocation and in turn the level of production (Dillon 1979). ⁴We suggest that there is also a financial response to business risk modification. ⁵The difference is important in that business risk and financial risk may well be trade-offs in the risk behavior of farmers. ⁶Thus, a decline in business risk would lead to the acceptance of greater financial risk, reducing the effects of the diminished business risk on total risk.





Exercise 4.1, con't

- ⁷While most of the literature on risk and risk response treats only production and price risk, we intend to introduce the notion of financial risk explicitly into the decision-making process. ⁸In this paper we present a conceptual framework for linking production and investment decisions to the financing decision via a risk constraint.
- Which sentence in the preceding introduction contains Stage III?
- Does the entire sentence correspond to Stage III, or only part of the sentence?
- What word helped you recognize the beginning of Stage III?



Introduction: Stage IV



Stage IV, p.70

Report orientation => the report itself The purpose of this thesis The aim of the present paper + is to ... The objective of this report

Research orientation => research activity The purpose of this study + was to ... this investigation this research the research reported here





Analysis, p. 70.

Look at the introduction in Exercise 4.1 and identify the sentence that contains Stage IV, the statement of purpose. Is its orentation towards the report or the report or the research?

Which sentence?

Its orientation?





- This paper describes the results of aerial survey and interviews conducted in Honduras to determine the distribution and staus of manatees in that country.
- In this paper we present a conceptual framework for linking production and investment decisions to the financing decision via a risk constraint.
- The present study was made to determine whether or not genetic differences in germination at low temperature exist in pepper species, and to establish the magnitude of such differences.
- The research reported in this paper was an attempt to develop an alternative analytical approach to machinery selection problems.
- The purpose of this article is to give the most direct answer possible to the direct question of how long advertising affects sales.



Stage V



- Often omitted, journal articles
- thesis, dissertation, proposal
- project reports



Language conventions



- Verb tense, p. 79
 - past => research
 - present / future => report
- Degrees of tentativeness, p.83
 - Sure
 - 🗖 will
 - would
 - should
 - may
 - could
 - Tentative



Introduction: summary



Establish a research territory (I, II)

Establish a niche for yourself (III)

Occupy the niche (IV/IV,V)



Assignment 2 (5 points)



- Writing up your own research: Introduction section
- Select an area of interest with a group. 1 point
- Stage I. 1 point
- Stage II. 1 point
- Stage III. 1 point
- Stage IV. 1 point





Methods

Information elements

Verb tense and voice



Methods: an overview



- Referees seem to focus half their criticism here
- Although they demand that you present sufficient data to allow others to replicate your work, in order to confirm your findings, this section must be **brief**.
- Some journals reduce the font size for Methods or even restrict all methods to the text appearing under tables and figures.
- They may print brief methods in the journal and refer readers to further details on the net.



Methods, con't



- Maintain the past tense
- Write long,
- **and** then **cut**, **cut**, **cut** out any wasted words
- Stay chronological.
- Report each step or event in a clear time-order, as events occurred.
- Never say "X occurred after Y," or "We saw X after Y."
 Say "Y occurred before X" and "We saw Y and then X."





Methods, con't

- **Answer** all the questions the reader will be asking
- Seek aid from a statistician.
- Do you say who did what to whom? When, and precisely how? **Define** all terms: For "high X," "delayed X," or "prolonged X," describe how high, long, or prolonged.
- Describe any controls or control samples as thoroughly as you describe the study -- or test -- population.
- Avoid numbering groups (A, B, C; 1, 2, 3); use names ("Milk, No-Milk," "Tall, Short.")
- If you have complex populations with changes in numbers, or complicated results, consider adding a flowchart.





- Do not end with passive verbs
- hide them in the middle of the sentence
- or substitute adjectives or nouns
- Avoid repeating words
- Avoid ending sentences with passives
- Move them from sentence-end to -middle
- Chang some passive verbs into adj.
- Change the verb itself
 - Patients (were operated ON) underwent sugery
 - The (used) method (used/was used) served as a model



Passive -> active, con't



 To X, some Y was added. -> Y was added to X
 X could be seen. -> X was evident/apparent/visible
 X was always used -> X was always useful
 Children were enrolled at age six. -> The children enrolled were aged six.



Passive -> Active, con't



Omit useless passive constructions
 It has been found that X kills Y (Aho 2001)
 -> X kills Y (Aho 2001)

 Use inamimate agent (a non-human or non-living actor) Table 3 shows..., Figure 5 illustrates... Results indicate that..., The hypothesis predicts X.
 Opinions vary.
 These mice were given injections -> These mice received injections





Elements included in Methods

- Fig, p.92
 - Overview of the experiment
 - Population/sample
 - Location
 - Restrictions/limiting conditions
 - Sampling technique
 - Procedures
 - Materials
 - Variables
 - Statistical treatment





Exercise 5.1, p.93

Read the example of a method section from the field of wildlife science. The study investigated the blood chemistry of bears and its relationship to seasonal changes in bears' activity. Identify the information elements you find in each sentence of the selection.

Exercise 5.3, p.95-96

Read each of the sentences, or groups of sentences. They are all taken from method sections of different published studies. In each case, determine which element is represented.





Materials

Information elements

Verb tense and voice



Materials



- Categories, p.114
 - Laboratory equipment
 - field equipment
 - human or animal subjects
 - natural substances
 - fabricated materials
 - surveys, questionnaires and tests
 - computer models
 - mathematical models




- Step A, overview: This step consists of one or two sentences that give a general idea of the material and the purpose for which it is intended.
- Step B, description of principal parts: Here, each major part or characteristic of the material is described in logical sequence.
- Step C, functional description: This last setp shows how the various features described in Step B function together.





- Read the materials section from an article in the field of soil science. It describes a piece of field equipment used to simulate natural rainfall. Identify Steps A, B, and C in the selection.
- The device described here applies water to an approximately 16*20 foot area with kinetic energy approximating that of natural rainfall.²it samples and records the rates of runoff in such a way that sediment production can also be measured accurately. ³Maximum error of 1% in application and in runoff measurements was a goal in the design, as were ease of assembly and transport. ⁴The apparatus is patterned partly on that described by Meyer and McCune [2], but it is simpler and more easily transported. ⁵The major comonents consist of: (1) a 1500-gallon tank truck for transporting water, and (2) a famework and moving spray assembly for applying water, and (3) a device for sampling and measuring the rate of runoff.





Exercise 6.1, con't

Power is supplied by a 10-horsepower gasoline engine which drives both a centrifugal pump and 2-kw electrical generator. ⁷Water from the tank truck is supplied to the apparatus by the centrifugal pump. ⁸The pressure of the output from the pump is controlled by an adjustable bypass pressure regulator valve plumbed to return the excess water to the tank. ⁹The output from the regulator is connected to the spray assembly by 100 feet of 3/4-inch hose. ¹⁰This moving spray assembly applies water to the plots through eight nozzles, mounted as specified by Meyer and McCune [2]. ¹¹The assembly is moved back and forth along aluminum I-beams by 1/2-inch roller chains.



Materials, step B, p.118



- Spatial arrangement: Describe the features from top to bottom, front to back, left to right, from the center to the ourtside, or in some other spatial way. This arrangement is especially useful for describing equipment consisting of various connected parts.
- Functional arrangement: Describe the principal features in the order in which they function, from beginning to end. This arrangement is best for describing parts that operate in a fixed sequence.





Read the method section from a study about international students in an intensive English program. Then indicate where the description of materials begins. Finally, find Step B (the description of principal parts) and determine what type of arrangement plan is used, spatial or functional.





Integrating materials with procedure

- The materials used in a study are sometimes described separately from the procedures.
 - several different pieces
 - routine procedure
- More commonly, however, materials and methods are described in an integrated form, often with both elements mentioned in each sentence.
- Exercise 6.3, p.121.
- The exercise is written in integrated form--that is, the materials are described together with the procedure, step by step, in each sentence. Indicte each procedural step and the material used in that step.



Verb tense and voice



- samples: past tense, p124
- populations: present tense,
- conventional material: present tense, p.126
- sepcially designed or modified materials, past tense
- The passive voice is usually used when a human agent (the experimenter) is manipulating the materials.p.128
- The active voice is usually used when no human is directly responsible for manipulating the materials -- i.e. when the materials operate "by themselves"
- The passive voice may be used to describe an action involving a nonhuman agent, but a phrase must be include to indicate the agent.



Assignment 3 (5 points)



- Writing up your own research
- Materials and Methods
- Select an area of interest. 1 point
- Verb tense. 1 point
- Verb voice. 1 point
- Elements included in Materials and Methods. 1 point
- Ordering information. 1 point





Results

General advice

Tables and Figures



General advice



- do not Double Document
- Results (the statistical significance), or Discussion (their practical significance)
- past tense, limit passive voice
- do not evaluate
- end the Results without any summary
- the Anglo-American Discussion now usually begins with a statement of your main findings.



Results or Discussion



- Of the 366 staff responding,
 92(25%) approved of the plan.
- The Whammo Method was effective in less than one-third of the groups.
- A four-fold increase in voting occurred in 1996 in districts with populations of less than 10,000; compared with the percentage of women voters aged over 50 in the same election three years previously, 1996 saw a rise in such voters of 56%.

- That only a quarter of the staff approved of the plan seems surprising.
- The Whammo Method's ineffectiveness may stem from its untested premises.
- Such a large increase in voter participation in rural areas--with so many older women voting-supports the suggestion of Smith (1999) that rural women of this age may take more interest in current events than do rural men.





Table Titles and Figure Legends

- Study the target journal's style
- study many tables and figures in that particular journal
- Use full sentences?
- Use telegraphic style without unnecessary temporal verbs and articles?
- Usually drop initial "The" and write
 - "Countries joining the EU in 2004"
 - "Level of reading ability in..."
- Consider how informative your title or legend should be.
- Explain all abbreiations in footnotes or in parentheses in title or column headings.



Table Titles and Figure Legends, con't

 Omit from a table title word-for-word headings immediately apprearing in that table
 Avoid repeating the exact table title or figure legend in

- the text. The line
 - "Table 6 shows the condition of third molars assessed by the Wibble Method"

wastes many words if it spears just above

"Table 6. Condition of third molars assessed by Wibble Method."



Table Titles and Figure Legends, con't

- In the text, at the end of any description of or reference to data in a table or figure, it is efficient merely to give the table or figure number in parentheses, thus
 - "When tested by the Wibble method, conditions ranged from X to Y (Table 6)."



Tables and Figures



- One table per 1000 words is wise
- with data laid out "tall and narrow," not "wide and flat." Editors rarely will print tables across two pages; lines can become skewed.
- Avoid repetition of words, phrases, abbreviations, or figures. If your table includes columns of many (>5?) identical words or figures, re-think its layout.
- Number all tables and figures in the order of their appearance in the text and be sure to mention each one, at least as "(Fig. 3 or Figs. 3-4)"



Tables and Figures, con't



- Each tables and figures must stand alone, independent of the text,
- because readers usually study them before they read the text,
- define all terms and abbreviations, usually in footnotes below table or figure, sometimes in the title or legend itself, as here:

"Figure 1. Population of fat (FP) and lean pigs (LP) across Finland, 2002."



Tables and Figures, con't



- state the number of items/subjects in every title or legend or in the table or on the figure itself, perhaps merely as "N=120)." Or does the journal use "n"?
- be sure that multiple-part figures have clear numbers or letters (1,2,3, or A,B,C), and these are printed near each picture.
- In figures, show your symbols in the legend, or print them right on the figure.
- Say "lines", "areas" in the legend, or put right on the fiugre.
- Otherwise, is this a "filled,""black," or "solid" square? Is the symbol
 an "unfilled,""white," or "open" square?



Tables and Figures, con't



- These are only six of many confusing adjecties to describe such symbols.
- If you must give names instead of examples for lines: Write "broken" or "dashed" (---), "unbroken or "solid" (----) lines, or "dotted" (....) lines.
 A gray area is "shade".
 A dotted area is "stippled"
 Write "hatched" for ///////or "cross-hatched" for XXXXX.
- in each table, be sure that each column is required and cannot be replaced by a footnote or by words in the table title itself.



Outline



- Results
 - General advice
 - Tables and Figures
 - Information conventions
 - Language conventions





Ordering your information

- Results, P.138
- Location of results
- Most important findings
- Comments
- Exercise 7.1, Analysis, p.139
- Which sentence locates the figure where results can be found?
- Which sentences present the most important results?
- Which sentence comments on the results?
- What is the function of the first sentence in the example?





- Elements 1 and 2 (combined): statements that present the most important results and that indicate in parentheses the figure where they can be found.
- Elements 3: statements that comment on the results.
- Example: Caffeine was somewhat more potent than theophylline in preventing leaf-eating (Figs. 1-2). In contrast, caffeine has been reported elsewhere to be ten times weaker than theophylline as an adenosine antagonist (8).



Soil and aquatic fungi in a wastestabilization pond system of the state of Mexico, Mexico



1 A total of 53 samples were examined. **2** Direct microscoic examination of the samples showed 20 different fungal strains, which were isolated by culture and idnetified to the level of genus and/or species (Table 1). 3 These findings show that fungi can tolerate adverse environmental changes in the vegetative form. **4** Table 2 shows the results of the psychological tests applied to the isolates. 5 None of the fungi strains was able to grow in culture media with 500 to 5000 mg L⁻¹ of anionic surfactant. 6 An inhibitory effect on fungal growth and activity might be expected from the anionic surfactant level found the ponds (Tomlinson and Williams, 1975)





Exercise 7.2, Identification

- Results, p. 140-41.
- Sentence 2: Elements,
- Sentence 3: Element,
- Sentence 4: Element,
- Sentence 5: Element,
- Sentence 6: Element,
- What is the function of Sentence 1 in this example?





Two patterns for ordering comments

- Alternating pattern: R1 + C1; R2 + C2; R3 + C3
 Sequential pattern: R1 + R2 + R3 + C
 P.141, R, results; C, comments
- The alternating pattern is best if you have many individual results with specific comments about each result. The sequential pattern is used when there are several individual results to which one general comment applies. (Your professor or editor may ask you to put all comments in a separate section called "Discussion.")

Exercise 7.3 Analysis, p.142, A; p.143, B



Functions of comments



- generalize from the results
- explain possible resasons for the results
- compare the reusits with results from other studies
- **p.144**
- Exercise 7.4, Analysis, p.144



Language conventions



- Locating the figure, p.147
- Presenting the findings, p.148
- Commenting on the results, p.148-149
- Element 2: comarisons among groups, p.150
- Element 2: fluctuation of a variable over time, p.151
- Element 2: relationship between two or more variables, p. 152



Assignment 4 (5 points)



- Writing up your own research
- Locating results (1 point)
- Presenting the most important findings (1 point)
- Ordering comments (1 point)
- Figure/s (1 point)
- Table/s (1 point)



Outline



- Discussions -- How to write them
- Recipe for a Discussion
- Elements in Discussion
- Researcher's position towards the findings
- Exercises





Discussions -- How to Write Them

- Anglo-American writers
 - claim -- as the point of departure
 - give an explanation
 - restate their claim at the end
- The discussion answers the question "What do your findings mean?"
 - Show how your findings relate to existing knowledge.
 - Explain what is new in your work
 - and say why your results are important
 - what the next steps might be
 - other results and hypotheses that are relevant to yours
 - any possible errors or limitations



Recipe for a Discussion



Main message.

This "answers the question posed in the Introduction

includes the main supporting evidence

Next, critique your own study

Critical assessment.

any shortcomings in study design, limitations in methods, flaws in analysis, or validity of assumptions

Comparison with other studies

Your findings. Other studies' findings

So what?

Conclusions, implications, further research





- Avoid priority claims
 - "This is the first report of ..."
 - "We are the first to do ..."
- To the best of our knowledge, this may be/ seems to be the first report of ...
- Aviod promising to publish more



Information Conventions



- p.161. Look at the discusion section from a research report in the field of applied psychology. In this study the productivity of older and younger factory workers was compared. Notice the kinds of information that are included in this example.
- What did the authors of this study find out about their original hypothesis?
- Why do you think the authors ordered the information in their discussion in the way shown here? What does the shape of the shaded area in Figure 8.1 indicate about this order?
- What other kinds of information do you think the authors could have included in this section?





1The decremental theory of aging led us to infer that older workers in speed jobs would have poorer performance, greater absenteeism, and more accidents compared with other workers. **2**The findings, however, go against the theory. **3**The older workers generally earned moe, were absent less, had fewer accidents, and had less turnover than younger workers. **4**One possible conclusion is that the requirements of the speed jobs in the light manufacturing industry under study do not make physical demands on the older workers to the limits of their reserve capacity. 5 The competence and experience of the older workers in these specific jobs may have compensated for their reduced stamina...





6This study has taken a step in the direction of defining the relationship between age, experience, and productivity in one particular industry. **7**It is possible of course that other industries with a differenct complex of speed jobs and skill jobs may produce entirely different results. **8**In addition, it is important to emphasize that methodological problems in the research design limit our interpretations.

9The appraoch outlined in this study should be replicated in other manufacturing plants, as well as in other occupational areas in light, medium, and heavy industries in order to construct a typology of older worker performance in a variety of jobs.





First information elements in discussion, p.162

- A reference to the main purpose or hypothesis of the study
- A review of the most important findings, whether or not they support the original hypothesis, and whether they agree with the findings of other researchers
- Possible explanations for or speculations about the findings
- Limitations of the study
- Later information elements in discussion
 - Implications of the study
 - Recommendations for future research and practical applications.





Identify the elements of information in the example that correspond to those listed in the boxes on p.162.

Information element

- Sentences 1-4
- Sentence 5
- Senetnces 6 and 7
- Sentence 8
- Sentence 9




- 1. The present study offers clear evidence that "hans-on experience" is not sufficient for the productive learning of computer programming by novices.
- These findings lead us to believe that more difficult materials should be used in order to give ESL students additional practice in discerning implicit relationships in English texts.
- 3. What explains this larger than expected gap between the two groups? it may be that dictating to a machine is faster than writing at least for letters of this type.
- 4. We readily acknowledge that our reserach is exploratory and that there are problems with the statistical model.
- 5. From our results, we suggest that that optimal level of indentation for a computer program is 2-4 spaces.
- 6. This finding is of considerable importance since it suggests that the "resetting" of the metabolic machinery (25) is not confined to a single homeostatic compartment.





Researcher's position on information towards the findings. p.164. explanations, implications, limitations, or applications of the findings

Exercise 8.2, p. 165. Determine the information element each sentence represents and indicate the element in the blank space before each statement. Also underline the part of each sentence that indicates the author's position towards the information



Implications of applications



- Implication: A possible effect or result of an action or a decision
- Application: the practical use of sth., esp. a theory, discovery, etc.



Arrangement



- Exercise 8.3, p.166
- The discussion section from a research report in the field of sociology is given here, with the sentences in scrambled order. Rearrange and number the sentences in the order that you think the authors originally write them.



Language conventions



- Complex sentence structure in discussion statements. p.168. Main clause (researcher's position) + that + noun clause
 - We can conclude with certainty + that + both theories are able to explain significant amount variance.
- Expressions indicating the researcher's position, p.174-5. restating the hypothesis, explaining findings, suggesting implications





First Discussion Elements

Simple past tense

referring to the purpose and hypothesis

restating the findings

Past, present, modal auxilaries

explaining the findings

Limiting the findings

Present tense

Comparing findings

Later Elements

Present, modal auxilaries / tentative verbs

implications, recommendations, applications



Assignment 5 (5 points)



- Writing up your own research
- answer the question posed in the Introduction (1 point)
- include the main supporting evidence (1 point)
- Critical assessment (1 point)
- Comparison with other studies (1 point)
- Conclusions, implications, further research (1 point)



Outline



Titles

Authors

Acknowledgements

Abstract



Titles



- These should not be too general or too detailed
- Even before the abstract, we read the title (Hall, 1998)
- A poor title may result in immediate prejudice against your text.
- The title should be descriptive.
- It should tell only what the article is about, telling neigher why you wrote it, nor what you found, nor the conclusions you reached.
- stating the topic as briefly and interestingly as possible, not presenting its contents.





- A comparison of conventional and PCI methods for analyzing diversity of intestinal bacterial community in adult *Dastarcus helophoroides*.
- Photosynthetic characteristics of the endangered Paeonia Iudlowii under Tibetan Plateau conditions.
- EFFECTS OF SILVICULTURAL treatments ON a QUERCUS WUTAISHANICA NATIVE FOREST IN LOESS PLATEAU.
- Effects of alternative Mulching Methods on Water Use Efficiency of Spring Maize.





- Characteristics in coarse woody debris mediated by stand development and biotic disturbances in a natural secondary forest of *Pinus tabulaeformis*.
- Effects of Ecological Factors on active component content and antioxidant activity of *Potentilla fruticosa* Leaves.
- Effects of 6-BA concentration on propagation coefficient in 23 nobile-type *Dendrobium* varieties introduced from Japan.
- Modeling/Predicting/Forecasting Maize Yield Based on Remote Sensing.



Titles, con't



- Experiment evaluation of methods to quantify dissolved organic nitrogen (DON) and dissolved organic carbon (DOC) in forest soil
- Population structure and genetic diversity of Chinese jujube (*Ziziphus jujuba* Mill.) assessed by microsatellite markers
- Morphology and physiology response to organic nitrogen (amino acids) by *populus popularis*
- Development and characterization of microsatellite markers for sour jujube (ziziphus jujuba var. spinaso)
- Refining bio-oil derived from wheat straw to synthesize phenolic resol resins





 Recruitment models on natural secondary forest in Qinlin .
 Effects of water stress on photosynthetic characteristics, dry matter translocation and water use efficiency at different growth stages in two winter wheat genotypes



Authors



- Justify the actual contribution of every author listed
- Editors may require a declaration of participation stating each author's contribution (Original idea? Planning? Statistics? Text-writing?).
- Oftern each author must sign a statement agreeing to be an author and accept responsibility for the article contents.
- The days of automatically adding a professor's name to the end of every author-list are over.
- Contributors" at the end of the article include some not qualified to be authors. You can also Acknowledge some whom you eliminate from the author list.



Acknowledgements



- Acknowledgements require politeness as well as good English and can be risky.
- I acknowledge the aid of NN"
 sounds like merely a cold nod of the head.
- "NN serviced all my needs"
 - sounds like master to servant.
- "I want to/wish to thank N,"
 - which seems to mean, "but I cannot; he ran away with my wife!"



Acknowledgements, con't



- To avoid creating a dozen splendid phrases like:
 - heartfelt thanks
 - deepest appreciation
 - I am deeply indebted to
 - I owe my sincere gratitude to
 - I warmly thank,"

collect into groups the people you will thank. Use one gratitude phrase at the beginning of each groupparagraph, and then say why you are grateful to each.





Informative type of abstract

Includes all sections relevant to your work and contains results in tail, plus implications.

Indicative abstract

- Merely introduces your work and describes what you did. This type may be acceptable for conferences where you will orally present your results. Moreover, a conference may require abstract very early, before any results are ready.
- Review article abstract
 - Usually commissioned by a joural, systematically describes all that has been studies on one topic.





General advice

- An abstract should reveal
 - why what was done was done
 - what was done
 - what was found
 - what was concluded
- An abstract must stand alone
- Each full term plus its abbreviation goes into the abstract.
- Always obey length restrictions.
 - 200 words, 150 unstructured, 250 structured
- Write the first draft as structured



The Article Abstract



- objectives or hypothesis tested
- study design and setting
- sample or subjects
- methods or intervention
- measurements, statistics
- results
- conclusions
- implications





p.185. What have you observed?

- What was the principal activity of this research project?
- Why are the five information elements in the preceding abstract ordered in this particular way?
- Which sentences could be eliminated from this abstract without losing critical information about the study?





Abstract. With a listening typewriter, what an author says would be automatically recognized and displayed in front of him or her. ²However, speech recognition is not yet advanced enough to provide people with a reliable listening typewriter. ³An aim of our experiments was to determine if an imperfect listening typewriter would be useful for composing letters. 4Participants dictated letters, either in isolated words or in consecutive word speech. ⁵They did this with simulations of listening typewriters that recognized either a limited vocabulary or an unlimited vocabulary. ⁶Results indicated that some versions, even upon first using them, were at least as good as traditional methods of handwriting and dictating. 7 Isolated word speech with large vocabularies may provide the basis for a useful listening typewriter.





Abstract elements, Exercise 9.1, Analysis, p.186.

- B(background),
- P(purpose),
- M(method),
- R(results),
- C(conclusion).



$\left|\delta\right|$

Abstract, con't

Abstract. Type A behavior, an established risk factor for coronary heart disease, is characterized by extremes of competitive achievement striving, impatience, hostility, and aggression. ²As part of an effort to understand the origins of this behavior pattern, the present study assessed the impact of performance standards on the social behavior of Type A and Type B children. ³Children performed a five-trial task. ⁴Half were given an explicit standard with which to compare their own performance; half were given no standard. ⁵After 5 trials, all subjects were informed that their total score represented the middle score of the whole group and were asked to select one score for further comparison. 6Results showed no significant differences among groups on the frequency of comparison. ⁷In contrast, the results did show that regardless of the presence or

absence of an explicit standard, Type A children chose to evaluate their performance against the top score, whereas Type B children chose to do so only in the absence of an explicit standard. ⁸The implications of these results for understanding the childhood antecedents of Type A behavior are discussed.



Abstract, con't



- Reducing the abstract, P+M, R, C*. Exercise 9.2, p.188
- Which elements are included in sentence 1?
- Which element is represented by the most number of sentences?
- Which element is represented by the final sentence?





Abstract. To determine the understandability of individual income tax booklets, a Reading Ease score was calculated for the 1977 Federal income tax return form 1040 and tax forms of nine southeastern states. ²The instruction booklets of all states except Virginia were found to be at a reading level higher than the median educational level of the average citizen-taxpayer in those states. ³The South Carolina booklet was three grade levels above the median education level for the state. ⁴The Federal instruction booklet was easiest to read, falling four grade levels below the median education level of U.S. citizens. ⁵If an equitable state income tax system is to be maintained, actions must be taken to reduce the disparity between median education levels and the readability of state income tax instruction booklets.





Exercise 9.3, Reconstruction, p.189

Read the abstract and analyze each sentence for the type of information it contains. Then write out a reducd version, combining method and purpose into one or two sentences and eliminating any nonessential elements.





Abstract. The consensus in the programming community is that indentation aids program comprehension, although many studies do not back this up. ²We tested program comprehension on a Pascal program. ³Two styles of indentation were used—blocked and nonblocked—in addition to four possible levels of indentation (0, 2, 4, 6 spaces). ⁴Both experienced and novice subjects were used. ⁵Although the blocking style made no difference, the level of indentation had a significant effect on program comprehension. 62-4 spaces had the highest mean score for program comprehension. ⁷We recommend that a moderate level of indentation be used to increase program comprehension and user satisfaction.





Verb tenses in the Abstract

- Background
 - Present tense
- Principle activity
 - Past tense/present perfect tense
- Methodology
 - Past tense
- Results
 - Past tense
- Conclusions
 - Present tense/tentative verbs/modal auxiliaries



Outline



- Checklist for Introduction
- Checklist for Materials
- Checklist for Methods
- Checklist for Results
- Checklist for Discussion
- Editing your manuscript



Checklist for Introduction



- p.40. Stage I
- p.64. Stage II
 - Use a logical plan to order your citations
 - Use information prominent and weak author prominent citations at the beginning and at transitional points in Stage II
 - Use author prominent citations to report specific findings later in Stage II
- p.89. Stage III
 - Include all three stages in their proper order
 - Indicate a gap in the research in stage III
 - Choose research or report orientation for stage IV
 - Choose theoretical/applied perspective for Stage V



Checklist for Materials



p.135

- Integrate the materials description with the procedural description
- Briefly identify conventional materials.
- Use three-step order for describing specially designed materials
- Choose spatial or functional arrangement when describing principal parts.



Checklist for Methods



p.112

Include all information necessary for someone to replicate your procedure

Describe the procedure chronologically.

Exercise, editing your own MM



Checklist for Results



p.158

Include three elements of information in presenting results, in either long or short format

- Write comments after each important finding, or put a general comment after the results.
- Write comments for various functions, depending on your findings.
- Exercise, integration, p.155



Checklist for Discussion



p. 183

Include various elements of information, depending on the problems encountered, results obtained, possible applications, and further research needed.

Move from specific reusits to general implications.





- Use complex structures including noun clauses to express your position towards the findings
- Use past tense to refer to the original hypothesis and to review your results.
- Use the simple present tense to compare your findings with those of others.
- Use the simple present and modal auxiliaries or tentative verbs to make implications or recommendations of to suggest applications
- Use special expressions to indicate your position towards any of the information elements included.





Relevance of the paper

- Is the work new and significant enough to deserve publication?
- General and international interest of the results?


Editing your manuscript, con't

Contents of the paper

- Is the aim of the paper clearly stated and unambiguous?
- Are the data clearly and concisely presented?
- Is the study design proper for the aim of the paper?
- Are the methods presented clearly enough to allow other researchers to repeat the study?
- Do the results respond to the aim of the study?
- Is the discussion relevant and adequate on the basis of present knowledge?
- Has the pertinent literature been cited?



Editing your manuscript, con't

- Formal quality
- Is the title of the manuscript clear and informative and does it cover the main items of the study?
- Is the statement good?
- Are the language and the structure of the manuscript clear and logical?
- Should the manuscript be condensed?
- Should some parts be expanded?
- Is any improvement needed in the tables and figures?
- Are all the tables and figures justified?





Submission

Handling reviewers



Submission: target journal



- Study all authors' instructions appearing in the target journal
- Follow these instructions exactly, checking them as you write, and then rechecking
- It is a grave mistake to submit a paper in the style of another journal. It has been rejected recently.
- A serious error that will disturb any editor is to ignore journal instructions and choose the wrong style for your references, say between Harvard and Vancouver.
- Including errors and flaws can harm your reputation as a serious writer, perhaps also as a serious scientist.



Submission: checklist



- E-mail address
- Full postal address
- Telephone and fax numbers
- Keywords
- All figure captions
- All tables (including title, description, footnotes)
- All equations (including notations)
- Spell-check and grammar-check
- References are in the correct format for the journal
- All references are double checked (Reference list, text)



Submission: cover letter



- NNPs vs. NPs
- NNPs wrote long letters (about 79 words each), whereas the NPs averaged only 33 words



NPs Used by only 1 of 25 NPs **Favored by the NPs** Used by none of the NPs **Favored by the NPs** Never used by NPs



Submission: cover letter



- All authors contributed substantially to this work
- This manuscript is not submitted elsewhere
- It duplicates no portions of other texts by the author(s)
- No financial support came from any source benefiting from these results
- The project follows accepted humane and ethical practices
- Mention any revision / editing by a native English-speaker
- Keep cover letter brief
- Always try to use your recipient's name (not "Dear Editor / Madam")



Submission: cover letter, con't

Sample professional cover letter Please find enclosed a manuscript entitle "X," reporting our / my latest / on-going / current /recent research into Y, for consideration by your journal. Its findings indicate that AA may be cause of BB.

The material presented is based on the original research of the author(s) and is not being offered for publication elsewhere.

Correspondence regarding this article should be directed to NN. We / I look forward to hearing from you.







Second-submission cover letter

Thank you for considering / taking into consideration our paper / article, entitled "X in Y." We have made, to the best of our ability, the / all the revisions suggested, and these are outlined / explained point by point on the attached pages / in the accompanying file."

This version has been revised by a native English speaker. We hope that you will find this version more acceptable. Looking forward to / Awaiting your reply / response."





- Extremely rarely is any manuscript accepted without changes
- The most valuable thing you can ever receive is fair and honest criticism
- Seek criticism, invite it, welcome it
- NNPs may have a struggle with referees' language



Handling reviewers, con't



A list of reviewers' colloquial terms:

1. Check, go through, put more simple, tidy up, reword, have another look

2. Drop, leave out, weed out, scrap, cut down, tighten (up) versus give more weight to, emphasize; you forgot to mention

3. Correct accordingly / in accordance with / according to; mistaken, missed the point, should' ve checked, make clearer, you meant to say ...





Handling reviewers, con't

- Check before submission
 - The appropriateness of your title
 - The clarity of your abstract and figures
 - The originality, relevance, and usefulness of your findings
 - Are there any ambiguities, and errors in statistics, facts, or logic?
 - Is there any unjustified speculation?
 - Reply directly to the editor and quote the reviewers' criticisms in full or briefly.



Handling reviewers, con't



- Act on every comment of fully explain why you cannot
- Always be polite to the editor and polite regarding your reviewers
- Be as objective and formal as you were in your manuscript

Sample phrases:

"As advised / suggested / pointed out, I have reworded / added / deleted / corrected X"





- Weissberg, R., and Buker, S. 1990. Writing up research: experimental research report writing for students of English. Prentice Hall, Inc. 202 pp.
- Elsevier, 2007. How to Write a World Class Paper. Elsevier Author Workshop. 205 pp.
- Norris, C.B., 2005. Academic Writing in English. Language Services. University of Helsinki. 70 pp.
- Swales, J.M., Feak, C.B., 1994. Academic Writing for Graduate Students -- Essential Tasks and Skills. The University of Michigan Press. 253 pp.