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# English as a tool in scientific manuscripts

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# I: Papers

- The goal of research is publication.
- A good scientist must be good at "doing" and "writing up" science.
- Main aims are clarity, simplicity, order, honesty, originality.
- Literacy involves clarity and simplicity, leading to understanding.

- Organisation : IMRAD (Introduction, Methods, Results and Discussion).
- Honesty in what you do and its value.
- Originality is the basis of primary (valid) publications.
- Planning and organisation.
- Style.
- The building blocks of writing.
- Syntax, grammar and spelling.

# Syntax:

- "Antibiotic drugs used to treat colds banned by the United States Federal Drugs Administration."
- "Sitting on top of the intestine, you will see a small transparent thread."

- "How many people work in your laboratory, broken down by sex?" - "None, our problem is alcohol."
- "A large mass of data has accumulated on the toxins of dinoflagellates."

# Grammar:

- Verbs and their subjects not agreeing in terms of singular and plural.
  - Nanoflagellates **was** ubiquitous in the northern South China Sea.
  - Nanoflagellates **were** ubiquitous in the northern South China Sea.

# Tenses

- Always use the present tense when you refer to published work.
- For your current study use the past tense.
  - Filter feeding bivalves **accumulate** these toxins in their tissues (Smith, 1996)
  - Toxins **were found** in all specimens examined during this study.
- BUT: when you refer to a Table, Figure, etc. in your paper, use the present tense:
  - The results **are shown** in Table 3.

# Distinguishing between "a" and "the"

- **A** three electrode system was used
- **The** three electrode system we developed was used



# Distinguishing between "a" and "an"

- "an" before the vowels "a", "e", "i", and "o", or before a word that sounds like a vowel
- "a" before a consonant, or before a word that sounds like a consonant
  - an FAD (ef); an LD<sub>5</sub> (el); an M.Phil (em); an NO<sub>3</sub> (en); an RNA (ar); an SD (es); an unusual event (uh); and an X-ray (ex)
  - but a fish (f); a lethal dose (l); a Master's Degree (m); a new coat (n); a ribose (r); a standard deviation (s); a UV light (you) and a xylose molecule (z)

- Watch for the aspirated "h" (huh) – a house; a historical building;
- and the silent "h" – an hour; an honour
- The number "1":
  - a one year old
  - a hundred year old
  - an eleven year old

# Active rather than passive voice

- I (or we) found ...  
(rather than)  
It was found
- Dinoflagellates produce toxins  
(rather than)  
Toxins are produced by dinoflagellates

# Pairs of words

- an *amount* of cash; a *number* of coins
- If I had a dollar for *every* mistake I have made, I would have one dollar but if I had a dollar for *each* mistake I have made, I would probably be a millionaire by now.
- As I have just said, he is very much *like* me.

- *Varying* amounts of plankton were present. *Various* concentrations (5, 10, 15 and 20 mL<sup>-1</sup>) were used.
- You are listening *whilst* I am talking. You live in China *whereas* I live in the United Kingdom.
- Diatoms, *which* are tolerant to higher levels of salinity, can outcompete ...  
Diatoms *that* are tolerant to higher levels of salinity can outcompete ...

# Words to avoid

- *and/or* = and divided by or
- *in this case* = here
- *in most cases* = usually
- *in all cases* = always
- *in no case* = never

# **Use of incorrect words, etc.**

Using words incorrectly can either be a matter of making mistakes in the use of words, or using words that it would be better to avoid.

First, some examples of the incorrect use of words.

This can include grammatical errors, the wrong word, etc.:

- inverse proportioned to glucose concentration
- inversely proportional to glucose concentration
- inverse-proportional to glucose concentration
- inversely proportional to glucose concentration
- to investigate the responsibility of the glucose sensor towards different concentrations of oxygen
- to investigate the response of the glucose sensor towards different concentrations of oxygen
- a little percent of Zobell 2216E medium was added
- a small percentage of Zobell 2216E medium was added
- Bacteria DNA
- Bacterial DNA
- in the process of alga lysing
- in the process of algal lysis



- Many kinds of bacteria live in the *A. tamarensis* phycosphere
- Many different bacteria live in the *A. tamarensis* phycosphere
- got the same conclusion in their recent work
- came to the same conclusion in their recent work
- was performed with the help of the Image Master 2D Elite and Melanie IV
- was performed using the Image Master 2D Elite and Melanie IV
- However, they just compared these methods within a narrow PI range
- However, they only compared these methods within a narrow PI range
- a plenty of PAH-degrading bacteria
- many PAH-degrading bacteria
- Owing to the special recognition of template molecules and structural analogues
- Because of the special recognition of template molecules and structural analogues

- suggesting that such variations greatly respond to variable wind conditions and tides
- suggesting that such variations markedly respond to variable wind conditions and tides
- it was a little bit less than those of urban soils
- it was slightly less than those of urban soils
- The result illuminates that THg concentration
- The result showed that THg concentration
- Although there have been a lot of AP studies
- Although there have been many AP studies
- a big hollow
- a large hollow
- within the range of 4-5
- within the range 4-5
- Statistic analysis
- Statistical analysis

- to test hypotheses about bacterial biogeography
- to test hypotheses concerning bacterial biogeography
- And a recent study
- A recent study
- were carried out in triplicate for at least five times.
- were carried out in triplicate at least five times.
- luciferase activity assay was done by using two additional reporter genes
- luciferase activity assay was carried out using two additional reporter genes
- the analysis of isotopic composition of cell carbon and genomic data proposed that anammox bacteria make use of the acetyl-coenzyme A (CoA) pathway for carbon fixation (Schmid et al., 2003; Schouten et al., 2004; Strous et al., 2006).
- the analysis of isotopic composition of cell carbon and genomic data indicates that anammox bacteria make use of the acetyl-coenzyme A (CoA) pathway for carbon fixation (Schmid et al., 2003; Schouten et al., 2004; Strous et al., 2006).

- Progress on abundance investigation
- Progress in the investigation of abundance
- Before now lots of published studies have concentrated
- Previously, many published studies have concentrated
- highly toxic largely used pesticides
- highly toxic and widely used pesticides
- Microzooplankton preferred to consume nano- and pico- phytoplankton
- Microzooplankton consume nano- and pico- phytoplankton
- Preliminary review in the adaption mechanisms of Prochlorococcus marinus (T)
- Preliminary review of the adaptive mechanisms of Prochlorococcus marinus (T)
- The newly molecular biology research
- Recent molecular biology research
- Researches have been carried out
- Research has been carried out

- Lead isotopic analyses were realized using a Perkin-Elmer ICP-QMS SCIEX Elan 9000
- Lead isotopic analyses were carried out using a Perkin-Elmer ICP-QMS SCIEX Elan 9000
- molecularly imprinted carbon nanotubes BUT Molecularly imprinted technology
- molecularly imprinted carbon nanotubes BUT Molecular imprinting technology
- related to bigger size of the particles
- related to the larger size of the particles
- The main attractions of biosorption are its high selectivity and efficiency, cost effectiveness and good removal from large volumes.
- The main attractions of biosorption are its high selectivity and efficiency, cost effectiveness and efficient removal from large volumes.
- The latter approach is easy to get a snapshot
- The latter approach easily provides a snapshot

- As the precondition is that the ecosystem is running in a QSS,
- Since the precondition is that the ecosystem is running in a QSS,
- can result in larval lethality and morphological defects
- can result in larval mortality and morphological defects
- the range of pH 4-6.9
- the pH range 4-6.9
- were rinsed two times with ice-cold acetone
- were rinsed twice with ice-cold acetone
- in which tubulins annotated as hydrolase activity proteins contributed a lot
- in which tubulins annotated as hydrolase activity proteins contributed significantly
- the gel based LC-MS/MS approach needn't require the isoelectric focusing step
- the gel based LC-MS/MS approach does not require the isoelectric focusing step

- These observations again prompt that
- These observations again suggest that
- increased about two times in zebrafish livers
- increased about twice in zebrafish livers
- have been verified in a great deal of studies
- have been verified in a large number of studies
- we fabricated a novel ethanol biosensor
- we produced a novel ethanol biosensor
- Inhibition of thyroidal status relating with depression of testicular development
- Inhibition of thyroidal status related to depression of testicular development
- lower effective concentration means the less quantity of algicide
- lower effective concentration means a lower quantity of algicide
- Amounts of studies
- A number of studies

- functional groups are getting more attractive
- functional groups are becoming more attractive
- more amount of Pd oxide was produced
- a greater amount of Pd oxide was produced
- Interestingly, there is not any peak at about 2041  $\text{cm}^{-1}$
- Interestingly, there is no peak at about 2041  $\text{cm}^{-1}$
- statistical analysis of Ca-TAlk relation
- statistical analysis of the Ca-TAlk relationship
- for processes like hydrothermal input
- for processes such as hydrothermal input
- the necessary of distinguishing processes
- the necessity of distinguishing processes
- with the advanced technique in present day
- with the advanced techniques now available
- According to the ability
- Based on the ability



- To figure out the possible influence of anionic surfactants
- To understand the possible influence of anionic surfactants
- field working couldn't be processed because of the strong Typhoon Durian
- field work could not proceed because of the strong Typhoon Durian
- The reduction condition using TCEP was chosen according to previous studies in our laboratory<sup>30</sup>
- The reduction condition using TCEP was chosen based on previous studies in our laboratory<sup>30</sup>
- Therefore satisfied quantitative results could not be obtained
- Therefore satisfactory quantitative results could not be obtained
- QDs came into our consideration to be a choice to provide
- We therefore chose QDs to provide
- So far, most researches have fastened on initial bacterial attachment
- So far, most research has concentrated on initial bacterial attachment
- it does not get enough attention
- it has not received much attention

- They were quadruple performed
- Four replicates were used
- to ensure that enough number of cells
- to ensure that a sufficient number of cells
- was about 28
- was approximately 28
- Incoordinately, low concentration of  $\text{CuCl}_2$  (1 and 2  $\mu\text{M}$ ) had no significant effect on  $\mu_s$
- Conversely, low concentration of  $\text{CuCl}_2$  (1 and 2  $\mu\text{M}$ ) had no significant effect on  $\mu_s$
- may cause the environment unfitted for some bacteria
- may cause the environment to become unfit for some bacteria
- both at home and abroad
- both in China and elsewhere
- only a little amount of Fla
- only a small amount of Fla

- showed a quick response
- showed a rapid response
- Varied physical processes (e.g. river outflow and monsoon),
- Various physical processes (e.g. river outflow and monsoon),
- their different characters
- their different characteristics
- dye solutions of varying concentration (25–400 mg L<sup>-1</sup>)
- dye solutions of different concentration (25–400 mg L<sup>-1</sup>)
- a relative long excited state lifetime
- a relatively long excited state lifetime
- Several works have been focused on
- A number of studies have focused on
- The Mn-fibers which be placed more than half a year
- The Mn-fibers which were kept for more than half a year
- few reports about intestinal pathogens of abalones
- few reports concerning intestinal pathogens of abalones

- Afterwards, the PCR product of the positive clone was digested
- Following this, the PCR product of the positive clone was digested
- have provoked research
- have encouraged research
- epifluorescent microscopy
- epifluorescence microscopy
- the most prosperous region in China owing to the adoption of economic reforms
- the most prosperous region in China as a result of the adoption of economic reforms
- Besides the bulk of the money
- In addition to the bulk of the money

## Some other words which are best avoided

- a large blank in our knowledge – gap
- reversely – on the other hand
- raw seawater – natural
- put in a petri dish – placed
- under 28°C – below
- accordant to – agreed with
- a pH meter was employed – used
- methods were applied to – used
- a kind of animal - type

Note particularly not to begin sentences with a numeral or “And”. If possible try not to use an abbreviation to start a sentence, either.

- 8 strains of algicidal bacteria
- Eight strains of algicidal bacteria
- And some studies indicate that the phycosphere bacterial community is obviously different
- Furthermore, some studies indicate that the phycosphere bacterial community is obviously different
- And all persons gave their informed consent
- All persons gave their informed consent

# Use of "by" instead of "using" or "with"

All too often equipment, chemicals and other materials are given the power to do something because of the word "by". Of course it is we who are able to do things – **we** "use" materials. Examples are:

- The glucose sensor was constructed by an oxygen sensing layer and a glucose oxidase layer
- The glucose sensor was constructed of an oxygen sensing layer and a glucose oxidase layer
- a constant volume was injected discretely into the stream by the FIA-2500 flow injection system. The system was controlled by FIALab for Windows 5.0 software.
- a constant volume was injected discretely into the stream using the FIA-2500 flow injection system. The system was controlled using FIALab for Windows 5.0 software.

- The pellet was washed 3 times by ice-cold acetone
- The pellet was washed 3 times with ice-cold acetone
- Data were analyzed by One-Way ANOVA
- Data were analyzed using One-Way ANOVA
- TEM images were obtained by Tecnai F30 300KV (Philips-FEI Co. Holland).
- TEM images were obtained using a Tecnai F30 300KV (Philips-FEI Co. Holland).
- the host proteomic profiles were visualized by the high-resolution 2D-PAGE method
- the host proteomic profiles were visualized using the high-resolution 2D-PAGE method
- Seawater was circulated at  $0.6 \text{ L min}^{-1}$  by a peristaltic pump
- Seawater was circulated at  $0.6 \text{ L min}^{-1}$  using a peristaltic pump



- Strains were isolated by spread plate method
- Strains were isolated using the spread plate method
- hybridization was performed by the method of Seldin & Dubnau (1985).
- hybridization was performed using the method of Seldin & Dubnau (1985).
- was determined by the conventional MTT reduction assay
- was determined using the conventional MTT reduction assay
- was calculated by the following equation
- was calculated using the following equation

# Unnecessary use of "respectively"

I am afraid that it is common sense and not a rule which is important with "respectively". If it is not clear in which order two parts of a sentence are linked then it should be used, otherwise it is not needed.

Examples are:

- stock solutions were obtained by dissolving 0.1298 CoCl<sub>2</sub> and 0.1296 g NiCl<sub>2</sub> in 100 mL 0.1 M HCl, respectively.
- stock solutions were obtained by dissolving 0.1298 CoCl<sub>2</sub> and 0.1296 g NiCl<sub>2</sub> in 100 mL 0.1 M HCl.
- The concentrations of C<sub>0</sub> and C<sub>0</sub><sup>\*</sup> thus estimated were 236.3 μmol C L<sup>-1</sup> and 176.8 μmol C L<sup>-1</sup>, respectively.
- The concentrations of C<sub>0</sub> and C<sub>0</sub><sup>\*</sup> thus estimated were 236.3 μmol C L<sup>-1</sup> and 176.8 μmol C L<sup>-1</sup>.
- To assess the algicidal mode of these algicidal bacteria, bacterial cells and the filtrate from bacterial cultures were inoculated into *A. tamarensis* cultures respectively,
- To assess the algicidal mode of these algicidal bacteria, bacterial cells and the filtrate from bacterial cultures were inoculated into *A. tamarensis* cultures,

- Section 2 explains the data sources and data processing method, and Sections 4 and 5 present a discussion and summary of this study, respectively.
- Section 2 explains the data sources and data processing method, and Sections 4 and 5 present a discussion and summary of this study.
- the IEF strips were equilibrated in Equilibration buffer I (Bio-Rad) and Equilibration buffer II (Bio-Rad) for 15 min, respectively.
- the IEF strips were equilibrated in Equilibration buffer I (Bio-Rad) and Equilibration buffer II (Bio-Rad) for 15 min each.
- where  $P_0$  and  $P_t$  are the initial and final concentrations of Chl *a* respectively
- where  $P_0$  and  $P_t$  are the initial and final concentrations of Chl *a*

# Position of words in a sentence

- *Only* I told him yesterday
- I *only* told him yesterday
- I told *only* him yesterday
- I told him *only* yesterday

# Amounts – plural or singular

- 10g *was* added
- 10g *were* added in 1g aliquots

# Foreign words; singular and plural

- datum – data
- medium – media
- quantum – quanta
- phenomenon – phenomena
- bacterium - bacteria
- flagellum – flagella
- serum – sera
- stratum – strata
- alga - algae

# Common words frequently misspelt

- ampoul – ampoule
- analageous – analogous
- can not - cannot
- dessicate – desiccate
- innocula – inocula
- occurance – occurrence
- students' T test – Student's *t* test
- transfered – transferred
- transferrable – transferable
- Petri dish – petri dish



# Spelling

- Poor spelling is inexcusable
  - use dictionaries, in print and on-line;
  - spell check
- Be consistent with British versus American spelling
  - colour                      color
  - neighbour                 neighbor
  - litre                         liter
  - fibre                         fiber
  - a herb                        an herb

# Amounts rather than numbers

- **high** concentrations – not **large**  
concentrations
- **low** concentrations – not **small**  
concentrations
- **fewer** data – not **less** data
- **few** data - not **little** data
- **many** data – not **much** data
- **small** quantity – not **low** quantity

# Writing numbers

- one, two, three, etc. to nine, then 10, 11, 12 .....
- EXCEPT with units of measure – 1 mL
- OR starting a sentence – One million yuan was required ...

# Abbreviations

- in full on its first use; thereafter the abbreviation only –  
  
robust recursive least squares (RRLS)
- avoid in titles and in the Abstract.

# Verbosity

- be precise and concise
- use simple words and simple sentence constructions

# SIUs

- "one litre" is "1L"
- 1 mg.L<sup>-1</sup> or 1 mg L<sup>-1</sup> **not** 1 mg/L.

# The title -

- a working title
- short but precise and specific;
- word order (SYNTAX);
- what not to put in titles
- an example of a poor title and below a better version is:

- Some preliminary observations on the effects of certain antibiotics on various species of bacteria.
- Inhibition of growth of *Mycobacterium* spp. by streptomycin.



# Authors -

- alphabetical order or seniority based on work done;
- include only important contributors who can take intellectual responsibility for the results presented.

# Addresses -

- where the work was done;
- present address footnotes;
- addresses in the same order as authors

# The Abstract -

- see it as a miniversion of your paper;
- provide a brief summary of each (IMRAD) section;
- written in the past tense;
- no references;
- no abbreviations;
- limited number of words (concise and precise again);
- written first or last.

# Introduction -

- provide enough background to allow readers to understand your study without reference to previous publications;
- provide the rationale for your study, its nature and scope;
- review the relevant literature to orient the reader;

- state the method(s) of investigation;
- state the principal results and conclusions;  
define any specialised terms or  
abbreviations;
- written mainly in the present tense.

# Methods -

- describe the method(s) used in detail;
- include exact technical specifications;
- cook book "how" and "how much";
- watch your syntax;

- previously published methods should be referenced, not explained in detail;
- avoid including results here;
- written mainly in the past tense (what you did).

# Results -

- the core of your paper;
- do not mix in Methods and Materials;
- do not include Discussion;
- start with some kind of overall description of the experiment;
- present representative data only;
- define any negative aspects of your experiments;



- any statistics used must be meaningful;
- write in the past tense;
- avoid repeating in words what is clear from tables or figures;
- as elsewhere in your paper, strive for clarity; keep it short and precise.

# Discussion -

- hardest to write, most difficult to keep short;
- present the principles, relationships and generalisations shown by the results (discuss but do not repeat them);
- point out exceptions, lack of correlation and unsettled points;

- show how your results agree or disagree with previous papers;
- discuss the theoretical implications of your work as well as any potential applications;
- state your conclusions clearly and summarise the evidence for each;
- do not try to reach conclusions beyond those your data support.

# Acknowledgements-

- significant technical support;
- source of materials, cultures etc.;
- financial support by grants, etc.;
- the help of colleagues who read and made significant comments on your manuscript.

# References -

- list only significant primary published references;
- check carefully against the originals;
- check that the citations in the text and in the reference list match;
- match your chosen journal's style for references (both here and in the text);
- get journal abbreviations correct.

# Data presentation -

- whether or not to use a table or figure;
- figures versus tables;
- size of lettering and symbols;
- clarity and simplicity;
- size of figure and photographic reduction.

# II: Reports and theses.

## **Ethics**

- originality;
- ownership and copyright.

# Style of Citation and References

a) one solution. <sup>1,2</sup> Others ... assessment first. <sup>3-8</sup>

1. Meyers HR, de la Chapelle A. Genomic medicine: hereditary colorectal cancer. *N Engl J Med*. 2003; 348: 919-932.

b) (Smith 1998)

(Smith and Jones 2000)

(Smith et al. 2001).

Van der Geer, J., Hanraads, J.A.J., Lipton, R.A., 2000. The art of writing a scientific article. *J. Sci. Commun*. 163, 51-59



c) (Johnson 1995)

(Jones and Smith 1966, 1968)

(Rice et al. 1997)

Kent, M.L., G.S Trexler, D. Kaiser, and T.P.T. Evelyn. 1998.  
Survey of salmonid pathogens in ocean caught fishes. Journal  
of Aquatic animal health 10: 211-219

d) (Allan, 1996a, 1996b, 1999)

(Allan & Jones, 1995)

(Allan et al., 2000)

Ducklow HW, Clausen K, Mitchell R (1981) Ecology of bacterial  
communities. Microb Ecol 7 : 253-274

- e) (Kramer, 1993)  
(Kramer and Wolf, 1996)  
(Kramer *et al.* 1997)

Jones, H.D., Richards, O.G., Southern, T.A., 1992 Gill dimensions, water pumping and body size. *J. Exp. Biol. Ecol.* 155, 213-237

# Style of Citation and References 2

- The use of , . ; :
- Initials before or after names
- and, &, or neither
- Use of bold, italics or neither
- Position of year of publication
- Listed alphabetically or numerically based on their order in the text
- Journal names in full or abbreviated
- Some journals (and “Science” is one) do not even publish paper titles

# Journal Title Abbreviations

- [www.int-res.com/misc/journallist.txt](http://www.int-res.com/misc/journallist.txt)

# Abbreviations and Acronyms

- Abbreviations: deoxyribonucleic acid – DNA
  - » read as “D”, “N”, “A”
- Acronyms: Biosciences Information Service – BIOSIS
  - » read as “biosis”
- Use of abbreviations: “Samples were analysed using a Fourier transform infrared (FT-IR) spectrometer “
- Standard International Units (SIUs):
  - I added several litres of water
  - I added 10Lof water
  - Ten litres of water were added
  - Water (10L) was added

# Formatting and style

These are important details, since Editors often return papers to authors reminding them to use the Journal's formatting and style instructions.

In particular:

- be consistent with headings and subheadings;
- take care with spacing between words, sentences and paragraphs. Note in particular where spaces should occur:
  - after a “.” as in “Fig. 1” or at the end of a sentence, or after a “, : ; ! ?” ;

and where spaces should not occur:

- after an opening bracket or before a closed one, or before a “.”

- always use italics for genera and species names. However, check the journal style for other uses of italics because some prefer Latin names such as “*et al.*” and “*in vivo*” to be in italics, whilst others do not;
- do not use double spaces between sentences;
- it is better not to use spaces to format documents. Use indentations and tabs;

- do not change the size or type of font without good reason to do so;
- in particular, the use of a different font for “°C” or “Δ” can result in a “□” or some other symbol appearing in the text. Try not to do this!
  - 2.5-3.5 □
  - 2.5-3.5 °C
  - (PS □), Photosystem □(PS □),
  - (PS I), Photosystem II (PS II),
  - coefficient and relative error (□ q) were calculated
  - coefficient and relative error (△q) were calculated



**THANK YOU**