



# SKKU Natural Sciences Campus Research Writing Workshop

**Presented by:**

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*Academic Trainer, Editage Insights*

# About Me



- Assistant Professor, Chosun University, Department of Political Science and Diplomacy
- PhD Candidate in International Relations from Korea University's Graduate School of International Studies
- 10 years experience teaching English as a Second Language (ESL) and teaching social sciences and humanities using English as a medium of instruction
- Former *English Connection* Associate Editor
- Strong desire to help ESL academics publish in high level international journals

A global, multilingual, learning and discussion platform for authors, journals and other scholarly publishing professionals.

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- Provides comprehensive resources covering all topics related to the publication cycle and publication ethics in **multiple learning formats**.
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Part 1: How to write a manuscript for journal publication.

Part 2: How to paraphrase effectively in scientific writing.

## Part 1: How to write a manuscript for journal publication.

# HOC and LOC

## Higher Order Concerns

- Focus
- Audience
- Purpose
- Organization
- Development

## Lower Order Concerns

- Language
- Spelling
- Word Choice
- Punctuation
- Sentence structure  
(in larger writing)

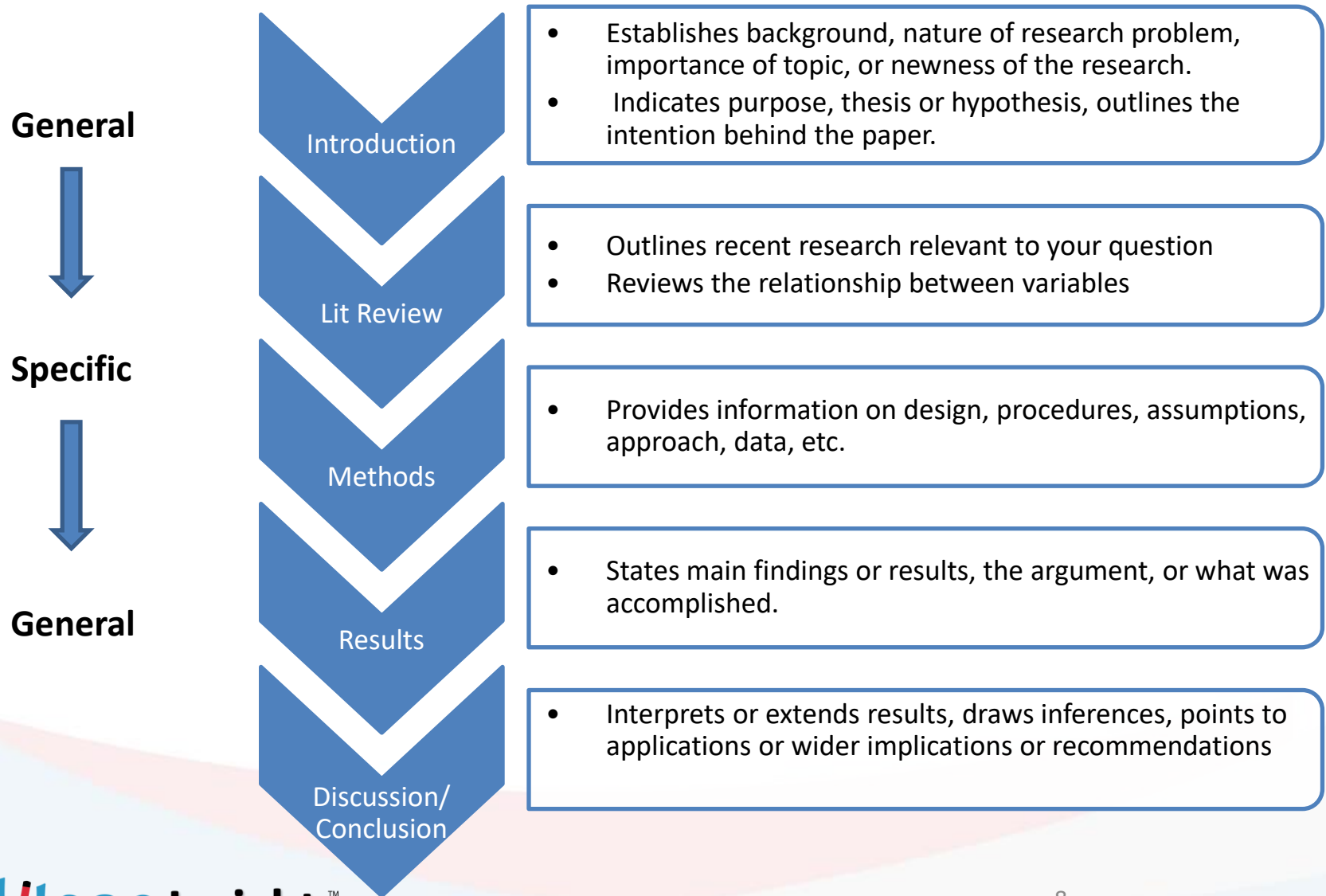


# Basic structure of a research paper

- Title
- Abstract
- Keywords
- Introduction
- Literature Review (maybe)
- Methods
- Results (Findings)
- Discussion
- Conclusion (maybe)

\*\*Of course, every research paper is different and has different purposes. Some of the sections may not be needed; some different sections may be added. You must personalize to fit your needs.

# Structure





# First things first... Write an outline!

- No rule for which outline approach is best
- Although the format of an outline is rigid, it shouldn't make you inflexible about how to write your paper
- If appropriate, organize the main points of your outline in chronological order.
- For a standard research paper of 15-20 pages, your outline should be no more than four pages in length.



# Title



## Basic tips for writing titles:

- Drop article (a/an/the) if it is the first word of the title
- Avoid expressions such as 'an investigation of' or 'research on'

## Basic rules for formatting a title:

- Title should not be a complete sentence
- Capitalize all words (except function words)
  - But check your Journal's requirements!

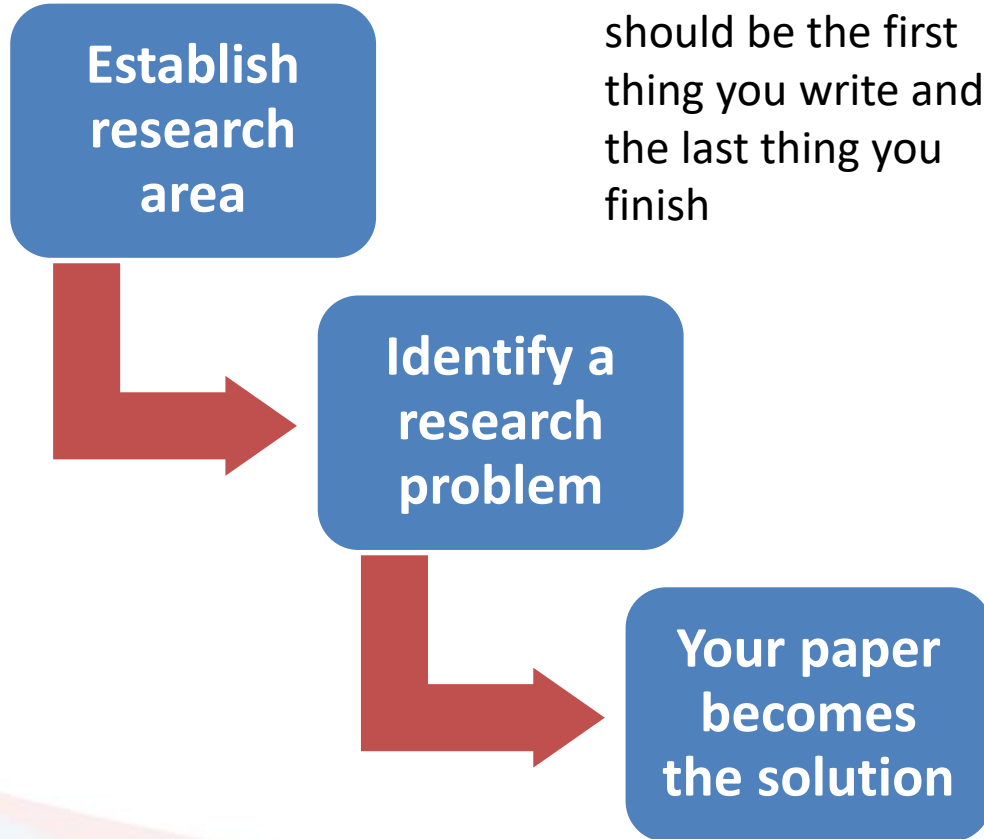
# Keywords

## Choosing Keywords

- Choose only relevant words from title
- Obey the word limit: Usually between 3 and 10 words
  - Have 4-5 ready to go
- Phrases can help refine your topic
- Choose the most important nouns
- Use different variants
- Keywords help your article be found by other researchers



# Introduction



# General phrases in an Introduction

## 1. Establish an area to research by:

- Highlighting the importance of the topic, and/or
- Making general statements about the topic, and/or
- Presenting an brief overview on current research on the subject, and/or
- Defining key terms.

## 2. Identify a research niche by:

- Opposing an existing assumption, and/or
- Revealing a gap in existing research, and/or
- Formulating a research question or problem, and/or
- Continuing a disciplinary tradition.

## 3. Place your research within the research niche by:

- Stating the intent of your study,
- Outlining the key characteristics/differences of your study, and/or
- Introducing basic methodology used, and/or
- Describing important results, and/or
- Giving a brief overview of the structure of the paper.

# Introduction

## Context

The problem you are addressing

*Broad question or issue with some context*

## Your position / thesis statement

*Your answer to the problem*

## Main points

*Overview of  
argument*

Note: Thesis statement  
may come at end of the  
introduction

# Verb tenses in Introductions

**Present tense:** A fact or a practice that is generally accepted in the field.

**Past tense:** Results of individual experimental papers. Finished events in the past with a specific time.

**Present perfect tense:** (have + PP) Summary of generalization about research in the field or general trends in society. No specific time or date.

**Present continuous/passive tense:** An ongoing situation that is currently developing (... is being developed, etc.)

# Step 1: Establish the research area

The cumulative effects of environment pollution on climate change and ecological deterioration **are growing** prominent.

The delta function **has played** an enormous role in the development and advancement of quantum mechanics **since** its introduction by Dirac [1].

General statements are key here.



## Step 2: Identify the research problem

Many Chinese researchers **have studied** the EKC hypothesis with time series data (Zhang, 1999; Zhao, 2005; Song et al., 2007; Chen et al., 2009; Peng, 2006; Ling et al., 2001). Their findings **are inconclusive and sometimes contradictory**.

**However**, the evaluation of the coefficient  $B$  (often called  $U_0$  in literature) **is not obvious** and **has been** the **subject of some disagreement** [8–11].

This is the 'however' statement.

# Step 3: Your paper becomes the solution

**Our purpose in this paper** is to present a unified picture of how by letting the range of the square well approach zero in one, two, and three dimensions, one **may deduce** the bound-state structure in the delta function limit.

In order to explore the interactions and feedback between environment quality and economic growth and measure the time lag between them, **this paper builds** several models on the basis of time series data analyses and **carries out** a comprehensive study of the relationship between industrial pollution and economic factors.

Other key phrases include 'here' or 'in this study'.

# Keys to a good Introduction

Your introduction should clearly identify the subject area of interest

Establish context by providing a brief and balanced review of the pertinent published literature

Clearly state the hypothesis that you investigated

Why did you choose this kind of research study or design?

Explain how this paper solves the research question



# Literature Review

- This is an expanded discussion of what the discipline (your audience) already knows.
- This may include more developed discussions of definitions, histories, and/or theories.
- It may also make connections between similar research and display any contradictions that you found.
- It establishes for your reader that you understand the topic and that your contribution is valuable.
- The object of this portion of the paper is to explain the research thoroughly enough to allow your audience to understand the material without having to do any additional reading.

# Types of Literature Review

## **Argumentative Review**

Examines literature selectively in order to support or refute an argument, deeply imbedded assumption, or philosophical problem already established in the literature.

## **Integrative Review**

Considered a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated.

## **Historical Review**

Historical reviews are focused on examining research throughout a period of time.

## **Methodological Review**

Provides a framework of understanding at different levels and helps highlight many ethical issues which we should be aware of and consider as we go through our study.

## **Systematic Review**

Consists of an overview of existing evidence pertinent to a clearly formulated research question to identify and critically appraise relevant research, and to collect, report, and analyze data from the studies that are included in the review.

## **Theoretical Review**

Concretely examine the corpus of theory that has accumulated in regard to an issue, concept, theory, phenomena.

# Writing the Literature Review

## **Use Evidence**

A literature review is just like any other academic research paper.

## **Be Selective**

Select only most important points to highlight in the review.

## **Use Quotes Sparingly**

Do not use extensive quotes as a substitute for your own summary and interpretation of the literature.

## **Summarize and Synthesize**

Remember to summarize and synthesize your sources within each paragraph as well as throughout the review.

## **Keep Your Own Voice**

The writer's voice should remain clear.

## **Use Caution When Paraphrasing**

Be sure to represent the author's information or opinions accurately and in your own words.

# Getting Organized

<b>Title</b>	
<b>Author</b>	
<b>Year</b>	
<b>The purpose of the study is...</b> (one sentence, your own words)	
<b>Subjects/ Participants</b>	
<b>Type of Study</b>	
<b>Measurement Instruments</b>	
<b>Observation</b>	
<b>Interview or Survey</b>	
<b>Academic Performance Measure</b>	
<b>Intervention(s)</b>	
<b>Outcomes/Results</b>	
<b>Critique Comments</b>	
<b>Relevance to your Study</b>	
<b>Other Comments</b>	



# Getting Organized

<b>Title</b>	The effects of repetition and L1 lexicalization on incidental vocabulary acquisition by Iranian EFL learners.
<b>Author</b>	Mohammad Ali Heidari-Shahreza and Monsoor Tavakoli
<b>Year</b>	2012
<b>The purpose of the study is... (one sentence, your own words)</b>	The purpose of this study was to investigate how repetition and L1 lexicalization contributed to L2 incidental vocabulary acquisition.
<b>Subjects/ Participants</b>	Ninety Persian speaking first year Iranian university students where were deemed (by test) to be intermediate English speakers.
<b>Type of Study</b>	Experimental research study
<b>Measurement Instruments</b>	
<b>Observation</b>	None
<b>Interview or Survey</b>	None
<b>Academic Performance Measure</b>	Pre-test was done mainly to ensure a median equality amongst the participants. Post-tests and delayed post-tests were administered. The tests measured receptive and productive knowledge of orthography, grammar, and semantics.
<b>Intervention(s)</b>	The students were split into three groups. Group one had one repetition of the target words in the reading. Group two had three repetitions and group three had seven repetitions.
<b>Outcomes/Results</b>	There was significance of vocabulary retention between levels of repetition was high in all aspects of vocabulary knowledge. While the retention was slightly lower on the delayed test, the significance remained.  Regarding lexicalization, there were significant differences in tests of vocabulary semantics but no significant difference orthographic or grammatical knowledge.
<b>Critique Comments</b>	The experiment showed that repetition can help learners develop different aspects of vocabulary knowledge. However, this study is very narrow in that it includes only first year university students who were all at a specific level. The sample size was also quite small.
<b>Relevance to your Purpose</b>	This article will help show that repetition is very helpful in helping ELLs learn English vocabulary.
<b>Other Comments</b>	

<b>Title</b>	
<b>Author(s)</b>	
<b>Year</b>	
<b>Publication</b>	
<b>The purpose of the study is... (one sentence, your own words)</b>	
<b>Type of Study (Choose)</b>	<ul style="list-style-type: none"> <li>• Descriptive (e.g., case-study, naturalistic observation, Survey)</li> <li>• Correlational (e.g., case-control study, observational study)</li> <li>• Semi-experimental (e.g., field experiment, quasi-experiment)</li> <li>• Experimental (Experiment with random assignment)</li> <li>• Review (Literature review, Systematic review)</li> <li>• Meta-analytic (Meta-analysis)</li> </ul>
<b>Methodology (Choose)</b>	<ul style="list-style-type: none"> <li>• Qualitative</li> <li>• Quantitative</li> <li>• Formal</li> <li>• Advocative/participatory</li> <li>• Pragmatic</li> </ul>
<b>Research design</b>	
<b>Outcomes/Results</b>	
<b>Implications/ Recommendations</b>	
<b>Critique Comments</b>	
<b>Relevance to your Study</b>	
<b>Other Comments</b>	



# Getting Organized

- Of course, use the electronic resources available to you:
  - EndNote
  - RefWorks
  - Zotero
  - Mendeley
- Your school library may give you free access to one or more of those tools (and some are free online)

# Literature Review Organization

It is up to you on how you organize your lit review. Do what makes sense to you and your topic, but also consider the logic and readability.



# Structure of Literature Review

Potential ways to structure your review:

Chronological

**Chronological**

In order of time

**Chrono** = time

Stories are told **chronologically**

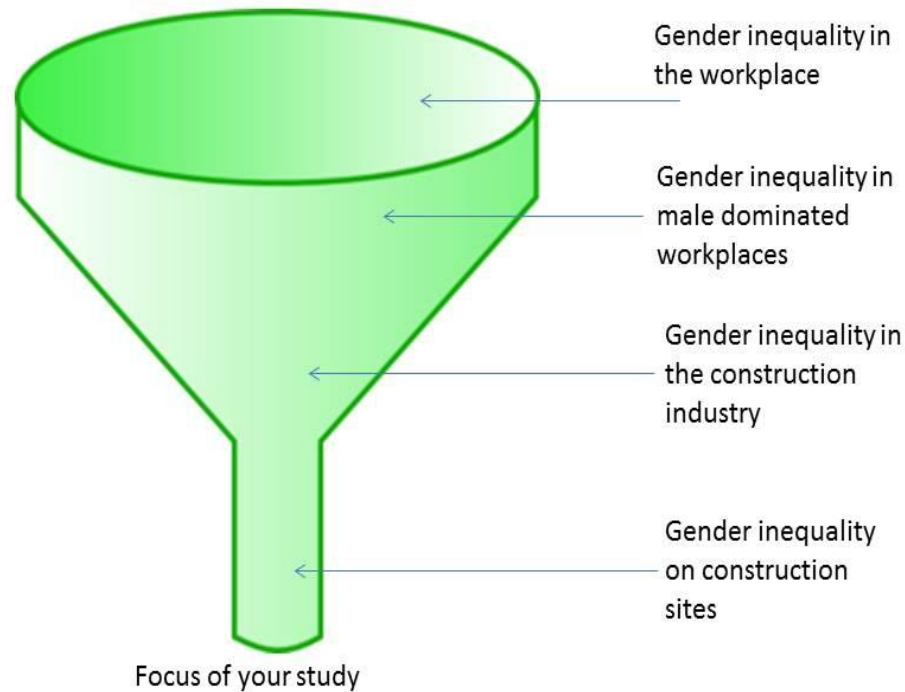
Boy meets girl

Fall in love

Get married



# Structure of Literature Review



Thematic  
(sometimes  
called funnel)

# Structure of Methods section

- Reader needs to understand experimental procedures
- Briefly mention common procedures
- Include enough detail so readers can understand how experiments were done
- Also include a description of statistical methods employed in the study
- Provide a detailed version of procedures Supplemental Data (as needed)
- Who approved the study (as needed)
- Statement of the funding source and Institutional Review Board (IRB) guidelines followed (as needed)



# Structure of Methods section

Variation in Methods Sections	
Condensed	Extended
Tends to describe familiar, standard methods	Tends to describe new or unusual methods
No named subsections	Provides background information
Uses abbreviations and citations as shorthand	Uses longer descriptions
Running series of verbs (e.g. “collected, stained and stored”)	Usually one finite (main) verb per clause
Few “by + verb-ing” statements (explaining “how”)	Several “how” statements
Few definitions and examples	Few definitions and examples
Few justifications (explaining “why”)	Several justifications (“in order to ...”)
Few linking phrases	Wide range of linking phrases

Adapted from Swales JM, Feak CB. Academic Writing for Graduate Students, 2<sup>nd</sup> ed. Ann Arbor: U of Michigan; 2004.

# Use Active Voice in Methods Section

## Form of the active and passive voice

**Active voice puts the person or thing doing the action in the subject (“power”) position.**

### Examples:

1. The researchers obtained the Thomas result variationally as an upper bound.

**The passive voice changes the word order.**

**The object (Thomas result) becomes the subject.**

2. The Thomas result was obtained variationally as an upper bound by the researchers.
3. The Thomas result was obtained variationally as an upper bound.

**Mentioning the actor (researchers) becomes optional.**

# Pop Quiz! Choose the correct verb

1. Therefore, the methodology of the generalized impulse response function **developed / was developed** in order to carry out meaningful analyses on VAR models.
2. To investigate the role of oligomers in NM amyloid formation and growth, the researchers **explored / were explored** the relationship between monomer concentration and polymerization progress.



# Expressions of Time/Sequence

1. **Then/Next** , we gave the post test.
  2. We **then/next** gave the post test.
- 
1. **Also**, idiosyncrasies in the history of a population can determine political allegiance.
  2. Idiosyncrasies in the history of a population can **also** determine political allegiance.
  3. The **next step** in our analysis involves estimating the VAR models mentioned above.
  4. **After conducting** the full array of partial F-tests for the three equations...

# Results section

- These are the answers that your research produced.
- This is not a presentation of raw data, but a presentation of the numbers or facts determined from the analysis.
- If you are using a hypothesis, this is where you state whether you accept or reject that hypothesis.
- Properly formatted tables and charts can make this a very short but very effective section.
- It is not always necessary to repeat in paragraphs what you show in a chart. Text should lead the reader to the chart or table, not repeat what can already be seen.

**Title**-brief, informative & effective

**Experimental design and aim**

**Major findings**

**Interpretation of your findings**

**Point to your figures and tables!!**

## **All TSP Isoforms Induce Synapse Formation**

There are five TSP isoforms in mammals, which fall into two groups according to their domain structure and oligomerization states (Figure 1A). Trimeric subgroup A TSPs, TSP1 and 2, are synaptogenic (Christopherson et al., 2005). **To determine whether pentameric subgroup B TSPs are also synaptogenic, we cultured RGCs in the presence of astrocytes or with TSP 1, 3, 4, or 5. All subgroup B TSPs increased synapse number significantly to similar levels as TSP1 or astrocytes (Figures 1B–1D). These results suggest** that the synaptogenic domain of TSP is located in the conserved C-terminal portion of TSP, which is common to all isoforms spanning the EGF-like repeats, the calcium-binding repeats, and C-terminal L-type lectin-like globular domain.

**Gabapentin Receptor  $\alpha 2\delta$ -1 Is a Neuronal Thrombospondin Receptor Responsible for Excitatory CNS Synaptogenesis**

Çagla Eroglu,<sup>1,2,\*</sup> Nicola J. Allen,<sup>2</sup> Michael W. Susman,<sup>2</sup> Nancy A. O'Rourke,<sup>3</sup> Chan Young Park,<sup>2</sup> Engin Özkan,<sup>3,4</sup> Chandrani Chakraborty,<sup>2</sup> Sara B. Muliyil,<sup>2</sup> Douglas S. Annis,<sup>2</sup> Andrew D. Huberman,<sup>2</sup> Eric M. Green,<sup>2</sup> Jack Lawler,<sup>5</sup> Ricardo Dolmetsch,<sup>2</sup> K. Christopher Garcia,<sup>3,4</sup> Stephen J. Smith,<sup>2</sup> Z. David Luo,<sup>2,7</sup> Arnon Rosenthal,<sup>2</sup> Deane F. Mosher,<sup>6</sup> and Ben A. Barres<sup>2</sup>

<sup>1</sup>Duke University Medical Center, Cell Biology Department, Durham, NC 27710, USA

# Location Statements

## Indicative (passive and active)

- Figure 2 illustrates the conflict resolution of the previous service based on the proposed conflict management method.
- This overall decay can be further decomposed into ..., as shown in Fig. 2.

## Informative (active)

- This effect is most clear in Fig. 3B, where ....
- Fig. 3B clearly shows that the  $b_0$  values increase as ....

## Informative (using '( )')

- Having dried in a vacuum oven at 80 °C for 24 h, complete CNT sheets (Figure 1) were obtained.

# Example Statements

In the adjusted multivariable model, several of these associations persisted (Tables 2 and 3). Teaching hospitals had higher CIT scores (4.6 points higher,  $p = 0.002$ ) than nonteaching hospitals.

**We found no relationship between** the normalized IT expenditure variables and CITAT scores, **indicating that** positive associations in the original analysis (in particular, higher automation scores associated with higher IT expenditures) **diminished** after accounting for bed size.

# Discussion section

**Explanation of results:** comment on whether or not the results were expected and present explanations for the results; go into greater depth when explaining findings that were unexpected or especially profound

**References to previous research:** compare your results with the findings from other studies, or use the studies to support a claim

**Deduction:** a claim for how the results can be applied more generally

**Hypothesis:** a more general claim or possible conclusion arising from the results [which may be proved or disproved in subsequent research]

# Problems to avoid in discussion section

- Do not waste entire sentences restating your results
- Do not repeat your recommendations for further research in both the discussion and conclusion sections
- Do not introduce new results in the discussion
- Use of the first person is acceptable, but too much use of the first person may actually distract the reader from the main points

# Showing certainty about results

**Basic claim:** An increase in smoking among teenagers **caused** long-term health problems.

**Stronger claim:** **Based on these results**, it has become clear that an increase in teen smoking **must have caused** long-term health problems.

**Limited claim:** **We have reason to believe that** the increase in teen **smoking may have been one source** of long-term health problems in adults.





Evolution from the plasmon to exciton state in ligand-protected atomically precise gold nanoparticles

Meng Zhou<sup>1</sup>, Chenjie Zeng<sup>1</sup>, Yuxiang Chen<sup>1</sup>, Shuo Zhao<sup>1</sup>, Matthew Y. Sfeir<sup>2</sup>, Manzhou Zhu<sup>3</sup> & Rongchao Jin<sup>1</sup>

Our results explicitly indicate that the transition from metallic to molecular behaviour in gold nanoparticles occurs between Au<sub>333</sub> and Au<sub>144</sub> (that is, 2.3–1.7 nm; Fig. 6). Au<sub>~520</sub> and Au<sub>~940</sub> behave like metal, while Au<sub>144</sub> and smaller particles exhibit molecular-like behaviour. The Au<sub>333</sub> size exhibits both metallic and molecular behaviour. Based on the optical properties and electron dynamics, gold nanoparticles can be classified into three states: metallic (larger than 2.3 nm), transition regime (between 2.3 and 1.7 nm) and non-metallic (smaller than 1.7 nm). The transition apparently impacts the catalytic properties, as demonstrated in both CO oxidation and electrocatalytic oxidation of alcohol. The determination of the evolution from metallic to molecular gold nanoparticles will open up future exciting opportunities for not only understanding the origin of SPR but also revealing the new properties of metallic nanoparticles in the transition regime.



Describe what your results mean in context



Unanswered questions and future research

# More examples

**Since less than half** of the respondents had past experience in patient enrollment, unsuccessful physician recruiters were **ill-prepared** for practical procedures, such as participant estimation and obtaining informed consent in the clinical trial.

**Perhaps more important than** the age of the building is the newness of its technological infrastructure. The latter **may not** necessarily correlate with the building age, though it **could be** captured in the age of plant variable and **may explain the findings we observed**.

# Conclusion section

- State conclusions in clear, simple language
- Do not simply reiterate results or the discussion
- Indicate opportunities for future research, if not already stated in the discussion section

The conclusion also provides a place for you to persuasively and succinctly restate your research problem, given that the reader has now been presented with all the information about the topic.



# Example phrases

**In this article, we have argued** that democratization spurs states to enter IOs since doing so helps leaders in democratizing states credibly commit to maintain domestic reforms and reduces the ability of future leaders to roll back reforms.

**By using slightly different methods than Hibbs's,** I have estimated that the impact of political party on unemployment rate in the postwar United States is about 1 percent over eight years; this is somewhat less than half of Hibbs's estimate. **Furthermore, there is considerable variance in the impact on unemployment of administrations of the same party label.**

# Example phrases

The Thomas result was obtained variationally as an upper bound, and it referred only to the ground state, **whereas our present treatment** covers all the bound states.

**Further studies**, using a variety of methods, **should examine** what organizational factors, such as policies, norms, and cultures, could explain these relationships.

**Because of** the various study limitations, **further study is warranted** to determine the generalizability of the present findings to other areas and to international settings.

# A short note about references (again)

- Be sure to check with the journal how it prefers references to be cited
  - In-text citation
  - Endnote
  - Footnote
- Loosely follow the preferred style in your field, but always check each journal's preferred style

# Sources Consulted

- [www.editage.com/insights](http://www.editage.com/insights)
- <https://owl.english.purdue.edu/owl/>
- Day, Robert A. *How to Write & Publish a Scientific Paper. 5th ed.* Phoenix: Oryx, 1998.
- Johnson Jr., William. A., Richard P. Rettig, Gregory M. Scott, and Stephen M. Garrison. *The Sociology Student Writer's Manual. 3rd ed.* Upper Saddle River, NJ: Prentice Hall, 2002.
- Van Evera, Stephen. *Guide to Methods for Students of Political Science.* Ithaca, NY: Cornell University Press, 1997.

## Part 2: How to paraphrase effectively in scientific writing.



# Session Outline

- 1. What is paraphrasing**
- 2. How to paraphrase effectively**
- 3. Simple checks for plagiarism**

# Ethical concerns of paraphrasing

- Paraphrasing becomes a problem when it is linked with plagiarism
- Causes are improper paraphrasing and lack of citation

# What is paraphrasing?

## Quoting

- Identical to original text
- A verbatim match

## Paraphrasing

- Original text is slightly condensed
- A passage is put into own words

## Summarizing

Significantly shorter than the original  
Main ideas are put into own words  
A broad overview of source material

# What is paraphrasing?

## Quoting

- Identical to original text
- A verbatim match

## Paraphrasing

**Attribute source material for all**

Condensed words

## Summarizing

Significantly shorter than the original  
Main ideas are put into own words  
A broad overview of source material

# What is paraphrasing?

- A technique that allows you to *borrow* ideas from other works
- To rewrite content from source material into your own words
- Protection against plagiarism
- You must still cite the source.

# A strenuous mental exercise

- Paraphrasing is no easy exercise for ESL writers (or for native English speaking writers...)
  - Must read the original text several times
  - Must understand the meaning very clearly
  - Must have a relatively strong command of the English language
  - Must end up with a completely different sentence but one which contains the same meaning

# Three simple steps

1. Change non-content words (vocabulary)
2. Change the structure of the sentence
3. Change words to different parts of speech

# Change non-content words





# What are content words



The diagram features two large, light red arrows pointing in opposite directions, one to the left and one to the right, which overlap in the center. The word 'Content' is written inside the left-pointing arrow, and the word 'Function' is written inside the right-pointing arrow. The background is white with a light blue and red decorative wave at the bottom.

**Content**

**Function**

# What are content words

- Provides meaning and content
- Signaled by signal words
- Added or deleted as language changes

Nouns, verbs, adjectives, and adverbs

# What are function or non-content words

- Provides structure
- Explains or shows grammar
- Does not usually change with the language

Pronouns, prepositions, conjunctions, determiners, and quantifiers/intensifiers

# What are content words

- But not any **nouns, verbs, adjectives, and adverbs**

**Key terms or indexed terms specific to the text in a scientific paper**

# Change non-content words

- An example

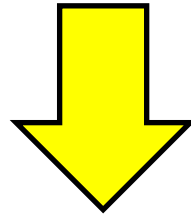
Ninety percent of the respondents said that they were “highly satisfied” with their college experience.

Can you differentiate the **content words**?

# Change non-content words

- An example

Ninety percent of the respondents said that they were “highly satisfied” with their college experience.



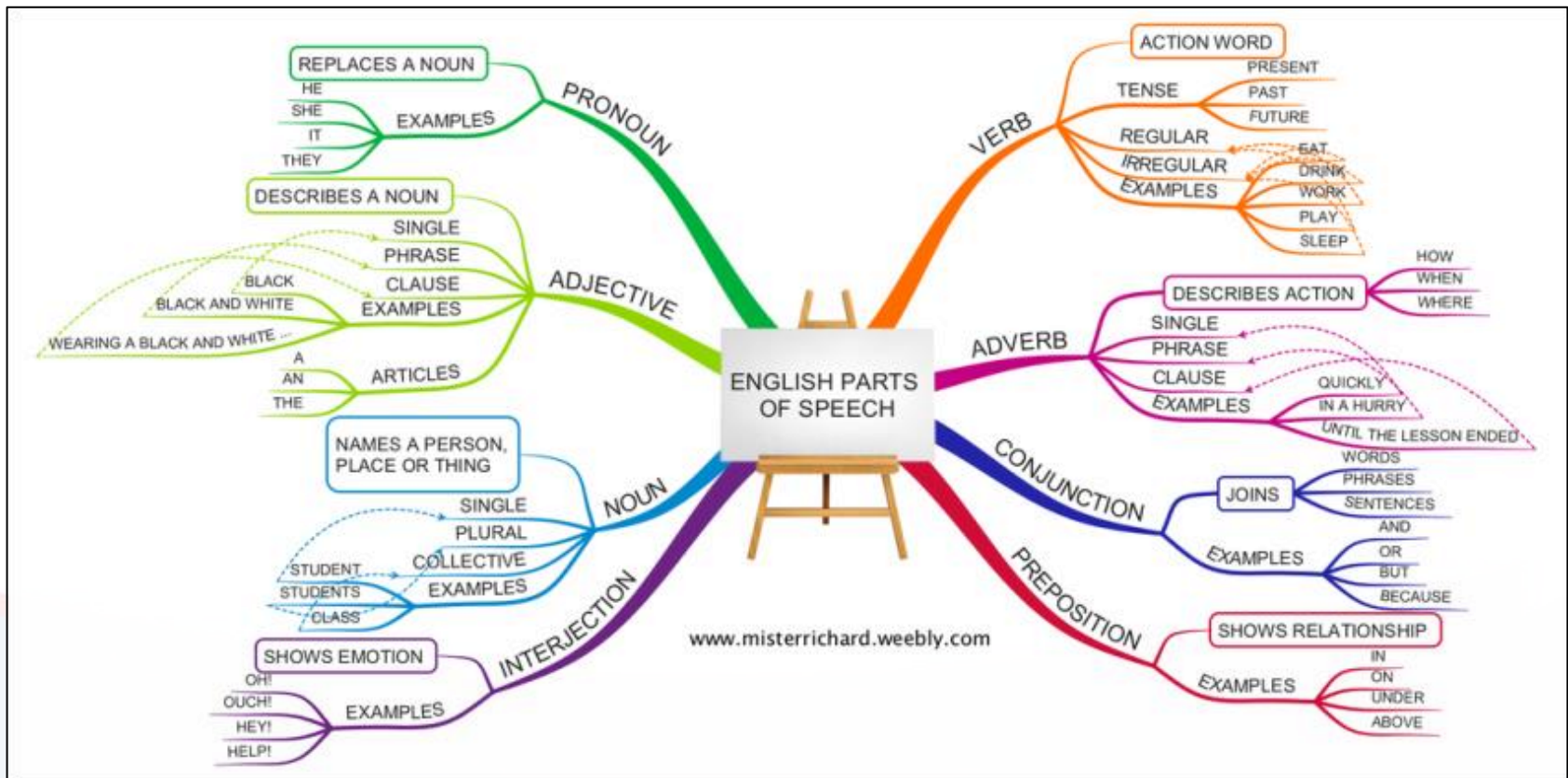
Nine out of 10 people surveyed described being “highly satisfied” with college life.

# Change sentence structure



# Change sentence structure

- Sentences are made up of different parts of speech





# Different structures of the sentence

1. Simple sentences
2. Compound sentences
3. Complex sentences
4. Compound-complex sentences

# Different structures of the sentence

A simple sentence

Independent sentence

The major stages of differentiation and the key genes participating in this process are now well characterized.

Moussy A et al. (2017) PLoS Biology

# Different structures of the sentence

## A compound sentence

Independent clause + Independent clause

We have analyzed this process, and our findings support a much more dynamic view than previously described.

Moussy A et al. (2017) PLoS Biology

# Different structures of the sentence

## A compound sentence

Independent clause + Independent clause

We have analysed this process, **and** our  
findings support a much more dynamic

**Coordinating conjunctions:**

For And Nor But Or Yet So

ology

# Different structures of the sentence

## A complex sentence

Independent clause

+ Dependent clause

### **Adverb clauses:**

when, while, because, although, if, so, that

**Adjective clauses:** who, whom, which, whose, that

**Noun clauses:** wh-question word, that, whether, if

# Different structures of the sentence

## A complex sentence

Independent clause

+ Dependent clause

The transcriptome of the same cell can be analyzed only once, because the cell is destroyed by RNA extraction.

Moussy A et al. (2017) PLoS Biology

# Different structures of the sentence

A complex sentence

Independent clause

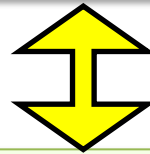
+ Dependent clause

The transcriptome of the same cell **can be analyzed** only once, **because** the cell is destroyed by RNA extraction.

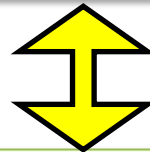
Moussy A et al. (2017) PLoS Biology

# Change sentence structure

Independent sentence



Independent clause + Independent clause



Independent clause

+ Dependent clause



# Change sentence structure

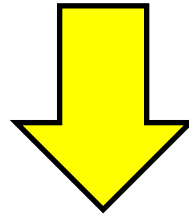
Although correct cell type classification is a key step in understanding the cell fate decision issue, it cannot reveal the dynamic features of the fate commitment process and leaves a number of unanswered questions.

Moussy A et al. (2017) PLoS Biology

# Change sentence structure

Although correct **cell type** classification is a key step in understanding the **cell fate** decision issue, it cannot reveal the dynamic features of the **fate commitment** process and leaves a number of unanswered questions.

Moussy A et al. (2017) PLoS Biology



Classifying cell type correctly is vital to understand how cell fate is decided, but it provides little information on how mechanistic processes underlying fate commitment work.

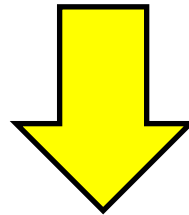
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Moussy A et al. (2017) PLoS Biology

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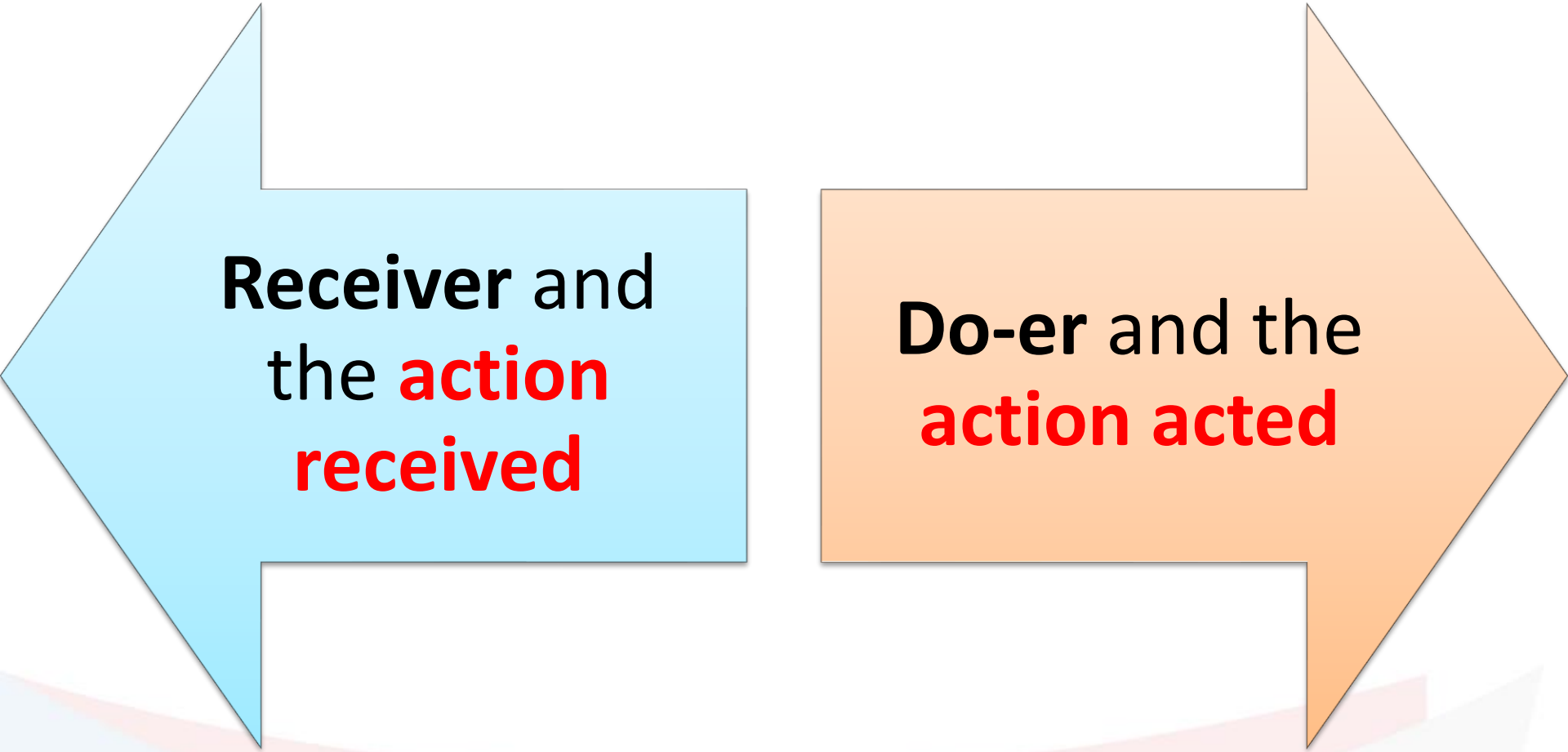
# Change words to different parts of speech



# Voice in scientific writing

- The use of voice should be **selective**
- Voice should be selected on the basis of what needs to be emphasized

# Main differences



The diagram consists of two large, stylized arrows pointing in opposite directions. The left arrow is light blue and points to the left. The right arrow is light orange and points to the right. Both arrows have a rectangular body and a triangular head. Inside the blue arrow is the text 'Receiver and the action received'. Inside the orange arrow is the text 'Do-er and the action acted'. The arrows are positioned horizontally, facing each other, with a small gap between them. The background is white with a decorative wavy line at the bottom in shades of blue and red.

**Receiver and  
the **action**  
received**

**Do-er and the  
**action acted****

# Main differences



**Do-er and the  
action acted**

## **Emphasis**

- The subject
- What the subject *did*
- Stronger subject-verb



# Main differences

Receiver and  
the **action**  
**received**



## Emphasis

- The object
- What *received* the action
- Weaker subject-verb

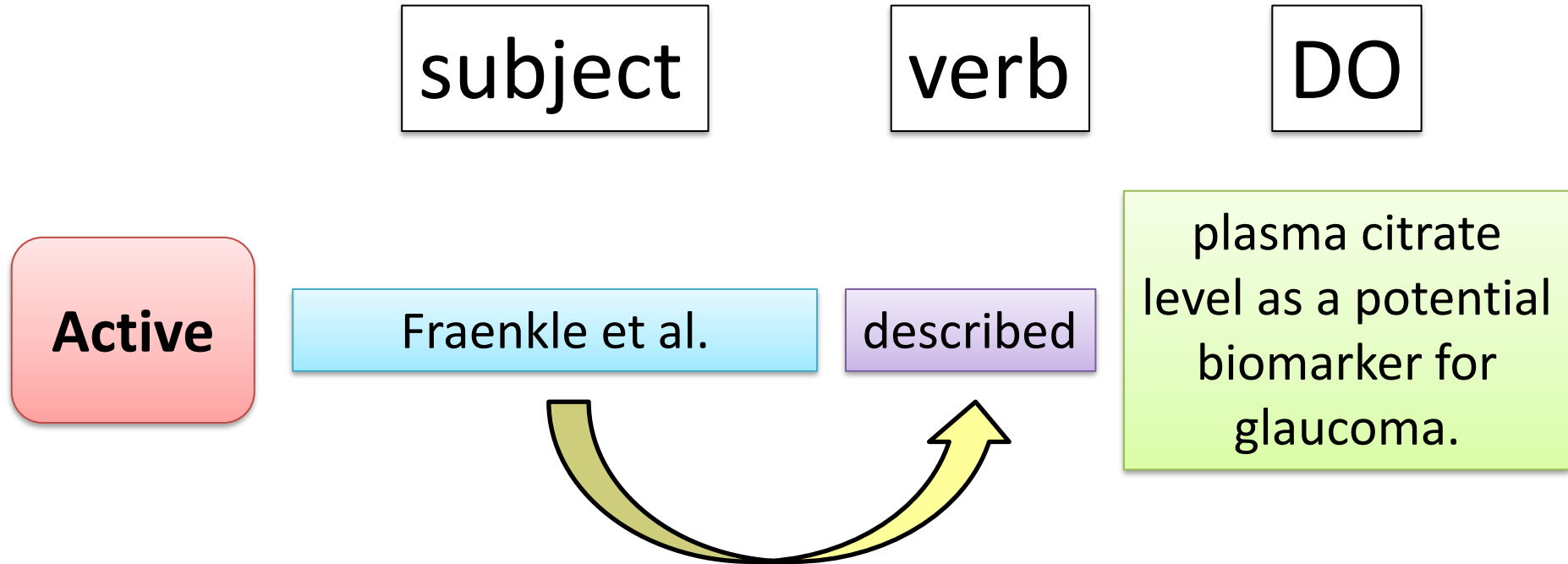
# Verbs followed by direct object

subject

verb

DO

# Verbs followed by direct object



# Verbs followed by direct object

subject

verb

DO

**Active**

Fraenkle et al.

described

plasma citrate  
level as a potential  
biomarker for  
glaucoma.

**Passive**

Plasma citrate  
level as a potential  
biomarker for  
glaucoma

was described

by Fraenkle et al.

# Verbs followed by direct object

subject

verb

DO



**Passive**

Plasma citrate  
level as a potential  
biomarker for  
glaucoma

was described

by Fraenkle et al.

# Verbs followed by direct object

subject

verb

DO

**Active**

**Fraenkle et al.**

**described**

plasma citrate  
level as a potential  
biomarker for  
glaucoma.

**Passive**

**Plasma citrate level  
as a potential  
biomarker for  
glaucoma**

**s described**

by Fraenkle et al.

# Verbs followed by direct object

- Many verbs used in reporting science only require direct objects.

**“Reporting”  
verbs**

*announce*  
*demonstrate*  
*describe*  
*introduce*  
*report*  
*suggest*

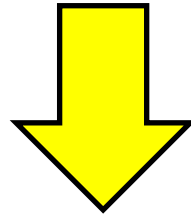
# Changing voice

Plasma citrate level as a potential biomarker for glaucoma was described for the first time by Fraenkl et al. who accidentally found low level of citrate in patients with glaucoma.



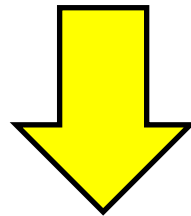
# Changing voice

Plasma citrate level as a potential biomarker for glaucoma **was described** for the first time by Fraenkl et al. *who accidentally found low level of citrate in patients with glaucoma.*



# Changing voice

Plasma citrate level as a potential biomarker for glaucoma **was described** for the first time by Fraenkl et al. **who** accidentally found **low level of citrate** in patients with **glaucoma**



After serendipitously **finding** that **low citrate level** is associated with **glaucoma**, Fraenkle et al. first **suggested** that plasma citrate level may be used as an indicator of glaucoma.

# Danger signs of poor paraphrasing

1. Inconsistency
2. Repetitiveness or excessive detail
3. Lack of cohesion



**Warning**  
**Beware of**  
**POOR**  
**paraphrasing**

# Inconsistency

- Inconsistent **style or quality writing**
- Inconsistent spelling, such as a **mixture of UK and US spelling**
- Inconsistent **terminology and abbreviations**

# Inconsistency

- Inconsistent terminology and abbreviations

## Introduction

Hematopoietic stem and progenitor cells (HSPCs) give rise to all the cellular components of blood. The major stages of differentiation and the key genes participating in this process are now well characterised [1]. According to the classical view, haematopoiesis is a hierarchically organised process of successive fate commitments, in which differentiation potential is progressively restricted in an orderly way over cell divisions. There are several variants of the model [2–6]. In all cases, the first fate decision is a binary choice taken by multipotent progenitors (MPPs), which leads to 2 different committed progenitors (for the purpose of simplicity, these progenitors are designated here as common myeloid progenitors [CMP] and common lymphoid progenitors [CLP]). In molecular terms, the choice is believed to be the result of the strictly regulated activation of master regulator genes and their underlying transcriptional network [7]. However, the strict hierarchical logic of classical models has recently been challenged by a number of in vivo and in vitro studies [8–10]. Single-cell gene expression studies have revealed a much higher heterogeneity of cell subtypes than can be detected using a combination of surface markers [11]. It is not surprising that the number of identifiable cell types increases with the resolution of the detection method. Although correct cell type classification is a key step in understanding the cell fate decision issue, it cannot reveal the dynamic features of the fate commitment process and leaves a number of unanswered questions. Do different phenotypic forms represent different cell types or different stages of the same process? How does the transition between the forms occur? How long does it take?

Moussy A et al. (2017) PLoS Biology

# Repetitiveness or excessive detail

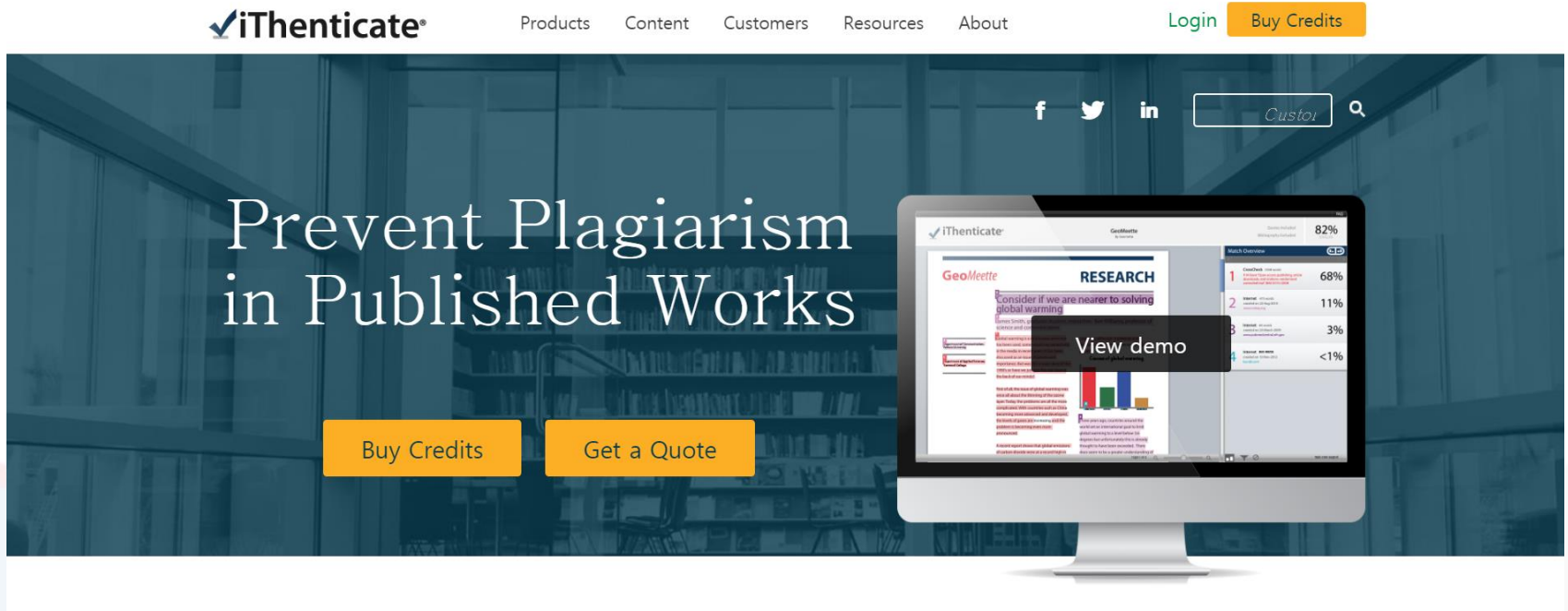
- Repetitiveness or excessive detail

# Lack of cohesion

- Lack of cohesion between sentences or paragraphs
- Especially evident from the use of conjunctionin
- No scientific logic between steps of the writing

# Check for plagiarism

- Many online plagiarism detection programs
- iThenticate, Turnitin, and Grammarly (requires subscription)



The image shows the iThenticate website banner and a preview of the software interface. The banner features the iThenticate logo, navigation links (Products, Content, Customers, Resources, About), and a 'Login' button. The main headline reads 'Prevent Plagiarism in Published Works'. Below this are two orange buttons: 'Buy Credits' and 'Get a Quote'. To the right, a computer monitor displays the iThenticate software interface, which includes a 'GeoMeette' document preview and a 'Match Overview' table.

Match Overview	Score
1. GeoMeette	68%
2. ...	11%
3. ...	3%
4. ...	<1%



# Summary

- Paraphrasing requires a lot of mental work.
- Rewriting the text does not mean it is your original work—must cite the source material ALWAYS
- There are many ways to paraphrase but remember not to lose the original meaning
- Use various techniques of paraphrasing

# Writing resources & references

- Essentials of Writing Biomedical Research Papers—Mimi Zeiger
- AMA Manual of Style: A Guide for Authors and Editors
- <http://www.editage.com/insights/what-are-some-techniques-for-effective-paraphrasing>
- <http://www.editage.com/insights/how-to-paraphrase-english-text-effectively> (video)
- <http://www.editage.com/insights/practical-tips-for-improving-medical-papers>

# Questions?



# Contact Details

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**Lastly, your feedback  
on this session would  
be appreciated!**

Please scan the QR Code and  
provide feedback.

