# **Adrian Wallwork**

# English for Academic Research: Grammar, Usage and Style





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# Introduction

## Who is this book for?

This book is aimed at anyone who writes research papers, whose first language is not English, and who needs guidance regarding the grammar, usage, and style of academic English. It should also be useful for those who edit or proofread research papers.

It is suitable for those whose level of English is mid intermediate or higher.

# How is the book organized?

The book is organized into 28 chapters on various aspects of English usage. This means that in the same chapter you will find all issues related to, for example, the use of tenses. However, some grammatical items are separated for convenience. For example, you will find the use of adverbs in three different sections: Chapter 13 deals with how adverbs are used as link words, Chapter 14 with typical differences between the various adverbs of time and place, and Chapter 17 with where adverbs are located within a phrase.

In each subsection, you will first find numbered guidelines. When there are four or more rules, the last few rules are generally the least important.

In the table below the guidelines, there are examples of sentences that implement (or fail to implement) the rules.

Good and bad examples are contained in the columns of the table entitled 'Yes' and 'No', respectively. The 'No' examples indicate typical mistakes taken from drafts of real papers. Most of the 'Yes' examples have been adapted from sentences written by native English speakers.

Sometimes in alternative to 'Yes' and 'No', one column is devoted to how one word or tense is used, and the other to how a related word or tense is used.

There is an index at the end of the book to help you find the particular grammar or style issue that you wish to review.

# By consulting this book, will I improve my chances of getting my papers published?

Most definitely. This book is based on more than 25 years of experience of correcting the English of research papers. Guidelines and rules for avoiding around 2,000 typical mistakes are given. I have also read hundreds of referees' reports to understand what they pinpoint as being errors with regard to the English of a manuscript.

# Does the book cover every aspect of English usage?

No, it only covers those problems that are generally found in research papers. For example, in this book the usage of tenses is explicitly related to how these are used in a paper, not to how they are used in the general spoken language. The only exception to this is the occasional example taken from 'general' English, where a 'general' example gives a clearer idea of usage than a 'scientific' example would do (this I have done above all in the section on modal verbs).

Aspects which are common to research papers and general English, but whose usage is very similar, are not covered in this book. For such issues, readers should refer to a general English usage guide such as Michael Swan's *Practical English Usage* (Oxford University Press).

By only focusing on those problems that typically arise in a research paper, I have been able to be more detailed in my explanations; for example, there is much more space dedicated to the use of articles (*a, the*, zero article) and the genitive than in other books. I have also been able to explain – I hope – the subtle differences between the present simple and past simple with regard to presenting results. I believe that no other grammar books have attempted to define these differences.

If, after reading a particular guideline in this book, you are still not completely sure how a word or grammatical construction is used, then try Google Scholar. This search engine trawls through thousands of manuscripts written by academics. It is thus a good way to check that you have correctly used, for example, an article (*a, an, the*), a preposition (e.g., *in, into, inside*) or collocation (i.e., a combination of words in a specific order). One good trick is to limit your search to those articles written by native speakers of English. To do this, type in 'Smith' in the 'author' field. Smith is the most common English surname and there are thousands of researchers with this surname. For more suggestions on how to use Google search engines, see Chapter 12 of the companion volume *English for Interacting on Campus*.

# To what extent are the rules given in this book 100% applicable in all cases?

While doing my research for this book I analyzed papers written in a wide range of disciplines. What I discovered confirmed that each discipline (and indeed subdiscipline) tends to use English in very specific ways that are not consistent across disciplines.

An obvious example is the use of we. In some disciplines, we (and even I) are used freely; in other disciplines, they are explicitly banned. Less obvious examples are connected with the use of articles – where in one discipline the use of the and alan in specific cases would be mandatory, in others it is not. Another example: the rules of punctuation, particularly regarding abbreviations and measurements, vary considerably from author to author, and journal to journal.

The exact rules of the genitive also seem to be impossible to define. At one stage of writing this book, I had written 16 pages on the use of the genitive, but in the end I decided that I was more likely to confuse rather than help my readers! So throughout I have tried to focus on the main areas that cause trouble rather than analyzing every conceivable case.

Being aware of this general lack of consistency in English use in academic writing is particularly important for those whose job it is to revise the English of manuscripts. Editors and proofreaders may find examples of constructions and word usage in the paper they are revising that go against the normal rules of English, but be unaware of the fact that this apparent misusage is perfectly acceptable in that particular discipline.

This is why I prefer to use the term 'guideline' rather than 'rule'. They are also very much *my* guidelines. Often they are based on my own intuitions derived from having read thousands of manuscripts, rather than any specific rules that I have been able to find in other grammar books or on the Internet. One big problem is that even native speakers within the exact same discipline do not always follow the same rules!

In this sense, this book should be seen as a draft of an ongoing project aimed at recording how the English language is used in academia. Please send your feedback to: adrian.wallwork@gmail.com

### Other books in this series

English for Academic Research: A Guide for Teachers – tips for experienced EAP, ESP and Scientific English teachers, plus ideas on how to exploit the Writing and Presentation books in the English for Academic series

English for Writing Research Papers – everything you need to know about how to write a paper that referees will recommend for publication.

English for Academic Correspondence – tips for responding to editors and referees, networking at conferences, understanding fast-talking native English speakers, using Google Translate, and much more. No other book like this exists on the market.

English for Interacting on Campus – tips for: socializing with fellow students, addressing professors, participating in lectures, improving listening skills and pronunciation, surviving in a foreign country.

English for Academic Research: Grammar/Vocabulary/Writing Exercises – these three books of exercises practice the rules and guidelines given in this manual. There are also writing exercises that can be combined with chapters from English for Writing Research Papers.

# Cross-referencing between books

See http://www.springer.com/series/13913 to learn how this book can be used in combination with the other books in this series

# Recommended reading

I recommend the following books to learn more about non-language elements, e.g. how to produce bibliographies, cite the literature within the main text, and create tables and figures, plus more information on the use of measurements. Much of this information can also be found on Wikipedia.

A Manual for Writers of Research Papers, Theses, and Dissertations, Kate L. Turabian, the University of Chicago Press

MLA Handbook for Writers of Research Papers, Modern Language Association

Handbook of Writing for the Mathematical Sciences, Nicholas J. Higham, SIAM

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# 1 Nouns: plurals, countable versus uncountable

# 1.1 regular plurals

- 1. To form the plural of most countable (1.6) nouns (including acronyms) simply add s or es to the end of the word.
- 2. In a *noun* + *of* + *noun* construction where the two nouns indicate a single entity, the first noun is made plural.
- 3. Adjectives are never made plural.
- 4. Nouns that act as adjectives are not made plural.
- 5. A noun which follows a number (or an implied number) is used in the singular form when acting as an adjective. Note the use of hyphens (25.6).
- 6. -fold, which is a suffix to indicate a specified number of parts or times, does not have a plural -s. Note the use of hyphens (25.6).

	YES	NO
1	We tested the engines of three cars, two taxis, six trains, and four buses.	
2	Several <b>points of view</b> have been put forward in the literature.	Several <b>point of views</b> have been put forward in the literature.
3	We also analysed three <b>other</b> papers on this topic.	We also analysed three <b>others</b> papers on this topic.
4	<b>Car</b> production is rising, but <b>car</b> sales are falling.	Cars production is rising, but cars sales are falling.
	= The production of cars is rising but the sales of cars are falling.	
5	I have a 24 <b>-year</b> -old student helping me in the lab.	I have a 24 <b>-years</b> -old student helping me in the lab.
	= The student is 24 <b>years</b> old.	
5	This work is part of a three- <b>phase</b> study into psychotic behavior amongst TEFL teachers.	This work is part of a three- <b>phases</b> study into psychotic behavior amongst TEFL teachers.
5	This would require a multi-megabyte memory.	This would require multi megabytes memory
6	The increase was <b>3-fold</b> .	The increase was 3 folds.
	= There was a <b>3-fold</b> increase.	There was a 3 folds increase.

# 1.2 irregular plurals

- 1. Some nouns have irregular plurals: child / children, man / men, woman / women, half / halves, knife / knives, life / lives, foot / feet, tooth / teeth.
- 2. Fish and sheep are not made plural.
- 3. The plural of *mouse* (the animal) is *mice*, for the computer device the plural is *mouses*.
- 4. *Data* can be followed by the singular or plural the plural form is more common in science. The singular form of data is *datum*, but *data* is more commonly used in both the singular and plural.
- 5. Datum / Data is an example of a Latin singular and plural. Other Latin and Greek words commonly used in scientific English are: apex / apices, axis / axes, analysis / analyses, criterion / criteria, lemma / lemmata, optimum / optima, phenomenon / phenomena, vertex / vertices.

	YES	NO
1	The patients consisted of three <b>children</b> , four adult <b>men</b> , and six adult <b>women</b> , all with persistent problems with their <b>teeth</b> .	The patients consisted of three <b>childs</b> , four adult <b>mans</b> , and six adult <b>womans</b> , all with persistent problems with their <b>tooths</b> .
2	This paper compares the relative brain powers of <b>fish</b> and <b>sheep</b> .	This paper compares the relative brain powers of <b>fishes</b> and <b>sheeps</b> .
3	All subjects were provided with PCs, monitors, headphones and <b>mouses</b> .	All subjects were provided with PCs, monitors, headphones and <b>mice</b> .
4	This data is / These data are inconsistent.	
5	This was true of the first analysis, but not of the other <b>analyses</b> .	This was true of the first analysis, but not of the other <b>analysises</b> .

# 1.3 nouns ending in -s

Some singular nouns finish in 's'. Such words behave in different ways:

- 1. Economics, electronics, mathematics, physics, politics, statistics when these words describe a subject of study, they require a verb in its singular form (e.g. *is* not *are*).
- 2. If the words in Rule 1 are not used in the sense of a subject of study, they generally require the verb in the plural, but are also found with a verb in the singular. An exception is *electronics* which is found, indifferently, with a singular or plural verb.
- 3. *Means* can be the plural of *mean* (i.e. average). However, *means* is singular when the meaning is *way*, for example, *a means of transport*.
- 4. News is uncountable (1.8), also medical words such as *diabetes, mumps*, and *pus* are uncountable.
- 5. Nouns that end in -is form their plural with -es (e.g. one analysis / thesis, two analyses / theses).
- 6. Species is both singular and plural.

	YES	YES
1	<b>Economics is</b> one of the most popular subjects amongst students in our university.	
2	<b>Statistics is</b> a distinct mathematical science, rather than a branch.	It is not clear where <b>these statistics come</b> from.
2	In this case <b>the physics are</b> Eulerian invariant.	If <b>the physics is</b> the same in central and peripheral collisions, then Eq. 1 yields
2	Competition is different in knowledge- based industries, because <b>the</b> <b>economics are</b> different.	Climate change is a subject of vital importance but one in which <b>the economics is</b> fairly young.
3	<b>This means</b> of transport <b>is</b> the fastest.	Prison is <b>another means</b> of controlling young offenders.
4	This news is not good.	
5	In my <b>thesis</b> I conducted an <b>analysis</b> of	In their <b>theses</b> they conducted several <b>analyses</b> of
6	Genome transplantation in bacteria: changing <b>one species</b> to another	These species are subdivided into serotypes.

# 1.4 nouns indicating a group of people

- 1. Some nouns that have a plural form are often used in the singular but with either a singular or a plural verb. Such nouns all relate to humans and include: army (navy, air force), audience, board, cabinet (council, government, senate etc.), class (as in group of students), committee, company (firm, corporation etc.), crew, department, faculty, family, jury, majority, media, minority, public, staff, team. The choice of singular or plural depends on whether the people who make up the group are acting as individuals (generally plural verb preferred) or as a collective unit (generally singular verb).
- People requires a plural verb. persons is often used as a more formal version of people. persons is frequently found in medical and psychology research papers, or when talking about the capacity of a machine to hold a certain number of persons. In other cases people is often more appropriate particularly when it refers to people in general, rather than a subset.
- 3. *Police* is followed by a verb in the plural (e.g. *the police* do *not intervene*).

	YES	NO
1	The class <b>is</b> made up of 15 students.	The class <b>are</b> made up of 15 students.
1	The board of examiners <b>is / are</b> authorized to make decisions regarding	The board of examiners <b>are</b> a statutory body established by the department.
2	Under pressure, <b>many people admit</b> that they believe in ghosts.	Under pressure, much people admits that they believe in ghosts.
2	Title: Prevention of heart disease in older <b>persons</b>	
	Title: A hypnotherapy treatment for <b>persons</b> prone to criminal activities	
2	Title: Job satisfaction – How do <b>people</b> feel about their jobs?	Title: Job satisfaction – How do <b>persons</b> feel about their jobs?
3	The police <b>are</b> often perceived as being racist.	The police <b>is</b> often perceived as being racist.

# 1.5 number-verb agreement

- Generally speaking the noun closest to the verb determines whether
  the verb is in a singular or plural form. Example: The majority of books
  have now been digitized by Google. In this example there are two
  nouns majority and books but books is closest to the verb (have
  been digitized).
- A number of requires a verb in its plural form; the number of requires a verb in its singular form.
- A set of or a series of requires a verb in its singular form.
- The verb before *more than one* is in its singular form.

	YES	NO
1	Around 40% of the <b>funds have</b> been deposited.	Around <b>40%</b> of the funds <b>has</b> been deposited.
1	The <b>majority</b> of <b>those</b> interviewed <b>were</b> African <b>Americans</b> .	The <b>majority</b> of those interviewed <b>was</b> African Americans.
1	Only a quarter of <b>these men are</b> still alive.	Only a <b>quarter</b> of all these men <b>is</b> still alive.
2	A number of papers have highlighted this major difference.	A number of papers has highlighted this major difference.
2	The number of papers being published on this topic has increased.	The number of papers being published on this topic have increased.
3	A set of three parameters is obtained.	A set of three parameters are obtained.
3	A series of four experiments was performed.	A series of four experiments were performed.
4	This happens when there <b>is more than one</b> possible answer.	This happens when there are more than one possible answer.

# 1.6 countable nouns: use with articles

A countable noun is something you can count: 30 books, many manuscripts, 100 apples, several PCs.

- 1. Before a singular countable noun you must put an article (a / an or the). For exceptions see 1.7.4.
- 2. If you are talking about something in general, then do not use *the* with plural nouns.
- 3. Scientific / technical acronyms (22) whose last letter stands for a countable noun behave like other countable nouns. They thus require an article when used in the singular, and an -s when used in the plural (22.3).
- 4. After as and in, a few singular countable nouns are used without any article.

	YES	NO
1	A book is still an excellent source of information.	<b>Book</b> is still an excellent source of information.
1	The book that I am reading is about	Book that I am reading is about
1	This acts as an alternative	This acts as alternative
1	When I was a student.	When I was student.
1	You cannot leave <b>the country</b> without <b>a passport</b> .	You cannot leave <b>country</b> without <b>passport</b> .
2	Funds are essential for research.	The funds are essential for research.
2	Throughout the world, <b>full professors</b> tend to earn more than <b>researchers</b> .	Throughout the world, the full professors tend to earn more than the researchers.
3	Access requires <b>a PIN</b> (personal identification number).	Access requires <b>PIN</b> (personal identification number).
3	The number of purchases of <b>CDs</b> is only 1% of what is was 25 years ago.	The number of purchases of <b>CD</b> is only 1% of what is was 25 years ago.
4	We used a 5-kR resistor placed in series.	We used a 5-kR resistor placed in a series.
4	All non dummy variables are <b>in log form</b> .	All non dummy variables are in a log form.
4	We used X as input, and Y as output.	We used X as an input, and Y as an output.

# 1.7 singular countable nouns: use with and without a / an in scientific English

- 1. Some singular countable nouns can be used with or without an article with no difference. There are no clear rules for this, and usage seems to vary from discipline to discipline, and from author to author.
- 2. If the noun is followed by *of* (i.e. to add further details), then this noun is preceded by *a | an*.
- 3. Some singular countable nouns are used without an article when they are used in an extremely generic way.
- 4. When preceded by *by*, means of transport are used without *a / an*; certain time expressions do not require *a / an* when used with prepositions.

WITH A / AN		WITHOUT A / AN
1	It is stored in a compact form	It is stored in <b>compact form</b> .
1	As these parameters are fixed, a grammar is determined, what we call a "core grammar"	We call this kind of abstraction "aggregation."
1	These were obtained by using 3-chloro-1-propanol as the internal standard.	These fats were used as internal standard.
1	<b>An analysis</b> of the data showed that	Analysis of the data showed that
1	with a probability of 0.25	with <b>probability</b> 0.25.
1	The software is used under a license from IBM.	The software is used under <b>license</b> from IBM.
2	This analysis indicated that the number of strata could be reduced considerably <b>without a loss</b> in the precision of the values found.	This analysis indicated that the number of strata could be reduced considerably without loss of precision and without loss of generality.
2	The guinea-pigs were housed singly or in pairs at a room temperature of 20–22°C.	The samples were stored at <b>room</b> temperature.
2	This was followed by etching in an aqueous solution of phosphoric acid and chromic acid.	We examined the reaction between methylchloride and chloride ion in the gas phase and in <b>aqueous solution</b> using techniques based on
3	Their new perfume depicts a strawberry on the label.	Their new perfume smells of strawberry.
4	They rented <b>a car</b> to travel through India.	They traveled through India <b>by car</b> . They drove <b>by night</b> . They discovered that it often rains in India <b>in [the] summer</b> .

# 1.8 uncountable nouns: general rules

An uncountable noun is seen as a mass rather than as several clearly identifiable parts, for example chemicals, gases, metals, and materials. There are hundreds of uncountable nouns, some examples frequently used in research are:

access, accommodation, advertising, advice\*, agriculture (and other subjects of study), capital, cancer (and other diseases and illnesses), consent, electricity (and other intangibles), English (and other languages), equipment\*, evidence\*, expertise, feedback, functionality, furniture\*, gold\* (and other metals), hardware, health, industry, inflation, information\*, intelligence, luck, knowhow, luggage\*, machinery\*, money, news, oxygen (and other gases), personnel, poverty, progress, research, safety, security, software, staff, storage, traffic, training, transport, waste, wealth, welfare, wildlife.

The uncountable nouns listed above with an asterisk (\*) can be used with a piece of. This means that they can be used with a / an, one and be made plural. Examples: a piece of advice, two pieces of equipment, one piece of information.

### Uncountable nouns cannot be:

- 1. Made plural, i.e. you cannot put an 's' at the end of the word; this means that they are not used with plural verbs (e.g. *are, have*).
- 2. Preceded with words such as: *a, an, one, many, few, several, these* (i.e. words that in some way indicate that a distinct number of items is involved).

	YES	NO
1	This information is confidential.	These informations are confidential.
1	<b>Feedback</b> from users on usage of the software <b>has</b> shown that	<b>Feedbacks</b> from users on usage of the software <b>have</b> shown that
1	The <b>news is</b> good – our manuscript has been accepted.	The <b>news are</b> good – our manuscript has been accepted.
2	We need several new pieces new equipment and [some] new software.	We need several new equipments and a new software.
2	Our institute only has a little money available for funding.	Our institute only has <b>few money</b> available for funding.
2	We have not done <b>much research</b> in this area.	We have not done <b>many researches</b> in this area.
2	Written consent was obtained from all patients.	A written consent was obtained from all patients.
2	She has <b>expertise</b> in this field.	She has an expertise in this field.

# 1.9 uncountable nouns: using a different word or form

- 1. To express the plural of certain uncountable words, sometimes you need to choose another word.
- 2. On other occasions you may need to place the uncountable noun in an adjectival position before another noun.

	YES	NO
1	She is <b>an expert</b> in many areas.	She has <b>expertises</b> in many areas.
1	The <b>features</b> of this application <b>are</b> outstanding.	The <b>functionalities</b> of this application are outstanding.
	The <b>functionality</b> of this application <b>is</b> outstanding.	Note: Although theoretically uncountable, <i>functionalities</i> is gaining acceptance
1	They have a new advertisement on TV.	They have <b>a new advertising</b> on TV.
1	I have done <b>several jobs</b> both in industry and research.	I have done <b>several works</b> both in industry and research.
1	They work in research and also for a manufacturing company.	They work in research and also for an industry.
1/2	We need a program / an app.	We need a software.
	We need a software application.	
2	We have a training course tomorrow.	We have a training tomorrow.