



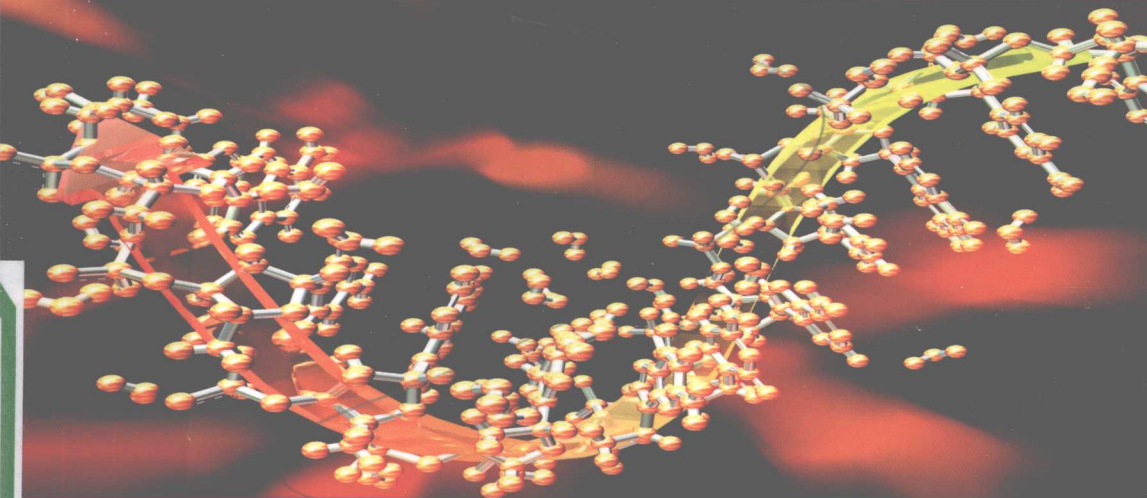
HOW TO WRITE AND ILLUSTRATE A SCIENTIFIC PAPER

Björn Gustavii

剑桥科学素养读本

如何写作科研论文

邱介山 注译



CAMBRIDGE

大连理工大学出版社
DALIAN UNIVERSITY OF TECHNOLOGY PRESS



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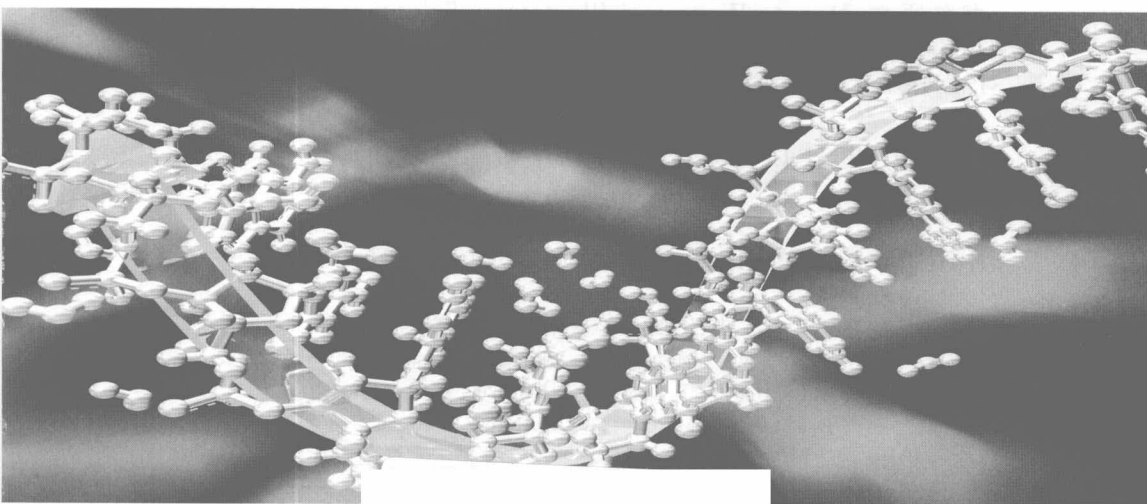
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How to Write and Illustrate a Scientific Paper

Second Edition

This Second Edition of *How to Write and Illustrate a Scientific Paper* will help both first-time writers and more experienced authors, in all biological and medical disciplines, to present their results effectively. Whilst retaining the easy-to-read and well-structured approach of the previous edition, it has been broadened to include comprehensive advice on writing compilation theses for doctoral degrees, and a detailed description of preparing case reports. Illustrations, particularly graphs, are discussed in detail, with poor examples redrawn for comparison. The reader is offered advice on how to present the paper, where and how to submit the manuscript, and finally, how to correct the proofs. Examples of both good and bad writing, selected from actual journal articles, illustrate the author's advice – which has been developed through his extensive teaching experience – in this accessible and informative guide.

BJÖRN GUSTAVI I has been teaching courses in scientific writing for doctoral (Ph. D.) students in medicine for 25 years. He brings his personal experience to this book, both from writing more than 100 of his own research papers and from his work as a journal editor.

如何写作科研论文

本书可帮助初级写作者,以及有经验的作者更有效地展现其科研成果,特别适合生物学、医学相关学科。本版仍然保留了第1版通俗易懂、结构合理的特点,并且增加了博士论文写作的建议,详述实例报告的写作方法;详细讨论了图例,特别是图表的使用,部分实例提供了正反两方面的图示比较。本书从怎样准备论文写作开始,讲解如何确定投稿的杂志,如何提交论文,直到如何校对稿件,对从论文书写到发表的全过程提供了可操作性极强的指导。

BJÖRN GUSTAVII 教授医学博士研究生科技论文写作课程25年,多年从事期刊编辑工作。本书是他教学及实际工作经验的结晶。

剑桥科学素养读本

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编者的话

科学研究的目的是发现新事物并将之应用于改善人类及动物的生活状态。但是,现在的科学研究本身则很费力气,不仅仅需要对科学的热爱。如果你正在考虑将科学研究作为自己一生的职业,或者已经踏上自己的职业之路,或者想有所成就但尚不确定未来的路线,急需一些从事科研工作的建议、训练和指导,《剑桥科学素养读本》丛书将给你提供满意的答案。

《剑桥科学素养读本》丛书全部从英国剑桥大学出版社引进。特邀大连理工大学几位有留学经历、具有丰富相关教学及科研从业经验的教授,对本套丛书逐一进行点评式注译。本系列丛书相辅相成,互为补充,涉及如何规划及实践科研职业,如何写作和发表科研论文,乃至如何作科学报告。我们认为,这套丛书将成为中国读者案头一套必备的科研实战指南。对于有志于从事科研事业的读者来说,实为甘醇雨露,春风化雨。

本套丛书具有以下特色:

- **题材广泛,内容丰富,表达地道** 本套丛书直接选自国外原版,内容广泛。读者可细细品味欣赏,也可随手借鉴,均有开拓视野、提升能力之功效。

- **作者学识渊博,有丰富的教学科研经验** 作者均是在各自学科领域颇有建树的专家学者,他们绝不单纯是知识技能的传授者,更是引导人生道路的前辈。读者在书中可随时感觉到其爱心和耐心,也感受到科学研究作为职业乃至事业的独具魅力的意境。他们的写作风格不尽相同,但能够洞悉母语为非英语的学生学习和使用英语的心态,均使用浅显易懂的语言对各种问题及对策加以解说、诠释,像和朋友在聊天,更像导师在引导你一步步上路。对这套丛书,读者们完全可以用一种轻松的心情去品读。

• **英语原文与中文点评相得益彰,易学易用** 为了让读者品味原文的韵味,丛书采用了点评的注译模式,特别有助于读者在潜移默化中掌握地道的英语、培养英语语感,减少许多不必要的摸索时间。

• **装帧精美,常读常新** 丛书的装帧设计精美大方,品质高雅,以国际水准的精美版面呈现于读者的面前,令读者赏心悦目。加之内容实用可读,在科研的不同阶段,均能从本套丛书中得到不同的收获,颇具收藏价值。不但收藏起图书,更是收藏起你科研道路的足迹。

从作者的“闲言絮语”中,读者尽可体会个中的激情与周到:

“我喜欢作为一名科学家的我。这是一个让我为之陶醉、为之痴迷的职业。科学领域中像我这样的人比比皆是,他们都专注于在常人看来很抽象的目标。他们很忙碌,甚至全神贯注。这使得通常的交往远非容易。一下子投入到科研领域……职业道路很不稳定……对于一个新加入者来说,看起来前途是如此暗淡。但是,如果你能坚持下来,回报将是巨大的……当你发现了前人没有发现的规律时,这种兴奋会使你义无反顾,这就是一切。”

“当人们决定要成为一名科研工作者时,通常是因为他们喜欢科学,而不是因为想成为作家。然而,一旦人们开始职业生涯,很快就会发现,一个管道工可以不会写关于管道的文章,也可以生活得很好,而科学工作者的成功则依赖于其写作能力。”

建议读者通读本套丛书,若时间有限,也可以根据自己的需要,以按图索骥的模式选择性地阅读其中的一本或其中的有关章节。相信读者通过本套丛书的帮助,能够增强自己进行科学研究的兴趣和信心,驾驭未来的能力会有质的飞跃,会更自信地应对未来的各种挑战,满怀信心地踏上科研之路。

我们期待着本套丛书能够为读者的事业之鹰插上腾飞的翅膀,能够帮助读者达成理想,从此走向成功。

Preface

前 言

Dear Novice Writer,
When I was in your shoes and preparing my first paper, I consulted a book on how to write. I found there a sentence encouraging the reader to stand in boiling water for an hour before doing the analysis:

After standing in boiling water for an hour,
examine the contents of the flask.

I had a pretty good idea of what was wrong with the sentence but, at the time, I couldn't figure out how to revise it, and the author didn't tell me. Now I can. If, an hour later, you are still alive:

Place the flask in boiling water for an hour,
then examine its contents.

So, in this book, every unfortunate example is followed by an improved version. Good examples are provided with appropriate bibliographic references. Bad ones, however, are presented with references expunged.

Some examples were taken from manuscripts in

用流畅、地道的英文把工作表述清楚是一种境界,追求这种完美的境界需要从点点滴滴的小事做起。

preparation, presented by participants in my courses on scientific writing. I have been holding such courses for doctoral (Ph. D.) students in medicine since 1980. Other specimens are from manuscripts submitted for publication. They were collected when I served as an editor of *Acta Obstetricia et Gynecologica Scandinavica* from 1986 to 1994. Yet others are from published material.

From class discussions I have learned what candidates want to know. Based on this information, some chapters are more detailed than others, such as the one on how to prepare graphs.

The current edition contains a new and comprehensive chapter on doctoral (Ph. D.) theses. Numerous other changes also appear in this edition, for example, instructions for making drawings and a description of preparing case reports.

相信此书可以成为所有研究生,特别是博士生案头的必备书目之一。

Finally, don't accept all my suggestions, because there is no ultimate truth regarding how to write a paper – as I mistakenly believed when I was a bit younger.

Good luck, my friend.

Björn Gustavii

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I thank the following persons, who have read all or parts of the manuscript of the second edition, for their advice and criticism.

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Special thanks to Tomas Söderblom, a layperson, who read the manuscript for intelligibility; Richard Fisher, who corrected the language; and Eva Dagnegård, who redrew the graphs and prepared the electronic manuscript.

从简短的致谢中,可以领悟如何运用简洁的文字表达深层次的发自内心的感恩之情。可学会如何使用 **advice** 和 **criticism** 这两个与科技论文如影随形的单词。

Contents

目录

- 1 **Basic rules of writing 写作基础 / 1**
 - Brevity / 2
 - Logic and clarity / 2
 - Clean typing / 3
- 2 **Comments on scientific language 科技语言的使用 / 4**
 - English as a foreign language / 5
 - Follow the "leitmotif" / 7
 - Verbosity / 8
 - He/she / 9
 - Active or passive voice / 10
 - Tense / 12
 - Noun clusters and modifiers / 13
 - Prevalence and incidence / 14
 - Avoid the use of "respectively" / 15
 - The "and/or" construction / 15
 - Unnecessary hedging / 16
 - How old is young? / 16
 - Avoid synonyms to achieve elegant variation / 18
 - The remote verb / 18
- 3 **Drafting the manuscript 草稿 / 20**
 - Write down your thoughts as they arise / 21
 - Where and when to write? / 21
 - The other way around / 23
 - Handwriting or word processing? / 24
- 4 **Choosing a journal 选择发表的杂志 / 25**
 - Instructions to authors / 27
- 5 **Preparing a graph 准备图表 / 28**
 - The line graph / 28

How to Write and Illustrate a Scientific Paper

- The chart / 32
- Before submission / 49
- 6 Drawings 绘图 / 50**
- 7 Figure legends 图例 / 53**
- 8 How to design tables 设计表格 / 55**
 - The descriptive title / 55
 - The declarative title / 56
 - Rounding off / 57
 - Table or graph? / 58
- 9 Title 标题 / 62**
 - Whenever possible, use a declarative rather than a neutral title / 62
 - Titles ending with a question mark / 64
 - Begin with the keywords / 64
 - Use verbs instead of abstract nouns / 65
 - Avoid abbreviations in the title / 65
 - A title for your thesis / 66
 - Running title / 67
- 10 Authors 作者 / 69**
 - Guidelines on authorship / 69
 - The contributors list / 71
 - A question of coauthorship / 73
- 11 Abstract 摘要 / 75**
 - The conventional abstract / 76
 - The structured abstract / 76
- 12 Introduction 前言 / 79**
- 13 Methods 方法 / 82**
 - The subjects / 83
 - Informed consent / 84
 - Omissions in reporting of randomized controlled trials / 85
- 14 Results 结果 / 89**
 - Participant flow and follow-up / 89
 - Study outcome / 94
- 15 Discussion 讨论 / 96**
 - Evaluate the results – not the authors / 100
 - Avoid claiming priority / 100
 - The reference-13 trick / 101
- 16 Acknowledgments 致谢 / 103**
 - Always give credit for financial support / 104

- 17 **References 参考文献 / 106**
Vancouver versus Harvard style? / 107
Accuracy of references and quotations / 112
Your own author name / 114
Chinese names / 114
Anonymous / 115
Record titles in the language of publication / 117
Names of journals / 118
How to refer to World Wide Web / 118
- 18 **Ph. D. and other doctoral theses 博士学位论文 / 120**
Compilations: the theses of the future / 121
Contributors / 122
Thesis at a glance / 124
General introduction / 124
Aims / 125
Methods and results / 126
General discussion / 127
Acknowledgments / 128
Cover illustration / 129
A fresh look / 130
The structure of the thesis overview / 131
- 19 **Letters and case reports 快报及事例报告 / 134**
The thalidomide letter / 134
Transforming a paper into a letter / 136
Case reports / 136
- 20 **Numbers 数字 / 140**
Two numbers side by side / 141
Decimal point / 142
Thousands / 142
Numbers with several zeros / 142
Quotients of units / 143
Percentages / 144
Rounding to two significant digits / 145
Enumeration / 146
What do we mean by "often"? / 146
- 21 **Abbreviations 缩写词 / 147**
Units of measure / 148
General principles / 149
- 22 **How to present statistical results 呈现统计结果 / 151**
Using *mean* when *median* is meant / 152
Using *standard error* instead of *standard deviation* / 153

How to Write and Illustrate a Scientific Paper

Failure to distinguish between *statistical significance* and *biological importance* / 153

Selected presentation of multiple statistical testing / 154

Overinterpretation of subgroup effects / 155

Using *relative* instead of *absolute* figures / 156

Some further comments / 157

23 Typing 打印 / 159

Do not mimic the journal's style / 169

The length of the manuscript / 169

The importance of punctuation / 170

24 Dealing with editors and referees 编辑与审稿人 / 172

Do referees delay? / 173

Unpublished work / 174

Shortening the manuscript / 175

Accepted or rejected / 176

25 Correcting proofs 校对 / 178

How to read proof / 178

What to correct / 179

Correction marks / 180

Electronic proof / 181

26 Authors' responsibilities 作者的职责 / 184

Subjects' right to privacy / 184

Duplicate submission / 185

Borrowing published material / 186

Saving your original data / 190

Literature needed on your desk 必备参考资料 / 193

On phraseology / 193

On synonyms / 193

On manuscript preparation / 193

On how to abbreviate a journal's title / 193

Further reading 进一步阅读 / 194

Guides to writing / 194

Punctuation / 195

The English language / 195

Style manuals / 195

Illustrations / 195

Statistics / 195

Literature cited 引用文献 / 196

Index 索引 / 203

1

Basic rules of writing

写作基础

善用文字是对每一个学者的基础要求。丘吉尔是演讲大师,更是用简洁文字表述复杂思想的高手。听他二战期间的演讲录音,阅读他的手稿和文章,都能给人以强烈的震撼。“山虽不能至,但向往之”。在写作能力方面,我们可能永远无法企及大师的水准,但应当以文字大师作为标杆,努力改进、提升我们驾驭文字的能力。

Winston Churchill was sitting at his desk, working on his epic about World War II, when his private secretary entered the room. Churchill had reached the Blitz – the German air strikes against London. His staff of researchers had earlier produced a 150-page brief on the raids. The secretary had been asked to cut it down to about two and a half pages and, after having “worked like stink,” he could now proudly hand over the condensed version.

Churchill took out his red pen and started to ed-

it. "All my sloppy sentences were tightened up and all my useless adjectives obliterated," the secretary tells us in a documentary made about 50 years later (Bennet 1992). In the midst of it all, Churchill said gently, "I hope you don't mind me doing this?" The secretary answered, "Thank you, Sir - you are giving me a free lesson in writing plain English."

Brevity

简洁是所有写作的不二法门。

We should emulate Churchill by excluding every nonessential word. Professional writers do it that way. Brevity is an elementary rule of all writing, not only to save valuable publication space, but also because verbose writing obscures meaning and wastes the reader's time and patience. And that is also the essence of the next basic rule.

Logic and clarity

逻辑性和清晰易懂是准确传达信息、吸引读者的两个主要因素。

To convey information is above all a matter of logic and clarity. What you want to say should be so arranged that the reader can follow your argumentation step by step. Moreover, your sentences should be so clear and easily understood "that the reader forgets that he is reading and knows only that he is absorbing ideas" (Baker 1955).

Now to the importance of making the manuscript physically attractive. Here is an illustrative example.