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Chapter 8
Publishing a Paper

In the old days, when table making was a handcraft,
some table makers felt that every entry in a table was a theorem
(and so it is) and must be correct. . . .
One famous table maker used to put in errors deliberately
so that he would be able to spot his work
when others reproduced it without his permission.

— PHILIP J. DAVIS, *Fidelity in Mathematical Discourse: Is One and One Really Two?* (1972)

The copy editor is a diamond cutter who refines and polishes,
removes the flaws and shapes the stone into a gem.
The editor searches for errors and inaccuracies, and prunes the useless,
the unnecessary qualifiers and the redundancies.
The editor adds movement to the story by substituting active
verbs for passive ones, specifics for generalities.

— FLOYD K. BASKETTE, JACK Z. SISSORS and BRIAN S. BROOKS, *The Art of Editing* (1992)

Lotka's law states that the number of people producing n papers
is proportional to $1/n^2$.

— FRANK T. MANHEIM, *The Scientific Referee* (1975)

Memo from a Chinese Economic Journal:

We have read your manuscript with boundless delight.
If we were to publish your paper,
it would be impossible for us to publish any work of lower standard.
And as it is unthinkable that in the next thousand years
we shall see its equal, we are, to our regret,
compelled to return your divine composition,
and to beg you a thousand times to overlook our short sight and timidity.

— From *Rotten Rejections* (1990)

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Once your paper has been written, how do you go about publishing it? In this chapter I describe the mechanics of the publication process, from the task of deciding where to submit the manuscript to the final stage of checking the proofs. I do not discuss how to decide whether your work is worth trying to publish, but Halmos offers some suggestions (particularly concerning what not to publish) in [124]. When to publish is an important question on which it is difficult to give general advice. I recommend that you find out the history of some published papers. Authors are usually happy to explain the background to a paper. *Current Contents* (see §14.3) regularly carries articles describing the background to a "Citation Classic", which is a paper that has been heavily cited in the literature. A good example is the article by Buzbee [47] describing the story of the paper "On direct methods for solving Poisson's equations" [B. L. Buzbee, G. H. Golub, and C. W. Nielson. *SIAM J. Numer. Anal.*, 7(4):627–656, 1970]. The article concludes with the following comments.

> So, over a period of about 18 months, with no small amount of mathematical sleuthhounding, we completed this now-*Classic* paper. During that 18 months, we were tempted on several occasions to publish intermediate results. However, we continued to hold out for a full understanding, and, in the end, we were especially pleased that we waited until we had a comprehensive report.

I concentrate here on publishing in a refereed journal. Another important vehicle for publication is conference proceedings. These are more common in computer science than mathematics, and in computer science some conference proceedings are at least as prestigious as journals. It is important to realize that many conference proceedings and a few journals are not refereed, and that when you are considered for hiring or promotion, refereed publications will probably carry greater weight than unrefereed ones.

8.1. Choosing a Journal

There are more journals than ever to which you can send a scientific paper for publication, so how do you choose among them? The most important question to consider is which journals are appropriate given the content of the paper. This can be determined by looking at recent issues and reading the stated objectives of the journal, which are often printed in each issue. Look, too, at your reference list—any journals that are well represented are candidates for submission of your manuscript. Experts in your area will also be able to advise on a suitable journal.

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Several other factors should be considered. One is the prestige and quality of the journal. These rather hard-to-judge attributes depend chiefly on the standard of the papers published, which in turn depends on the standard of the submissions. The higher quality journals tend to have lower acceptance rates, so publishing in these journals is more difficult. Acceptance rates are usually not published, but may be known to members of editorial boards. The figures sent by SIAM to its editors do not give acceptance rates, but they suggest that the rates for SIAM journals are usually between 30% and 50%, depending on the journal.

Gleser [106] states that "the major statistical journals receive many more manuscripts than they can eventually publish and, consequently, have a high rate of rejection", and he remarks that *The Journal of the American Statistical Association* rejects nearly 80% of all papers submitted.

One way to quantify the prestige and quality of a journal is to look at how often papers in that journal are cited in the literature [89], [90]. Such information is provided by the *Journal Citation Reports* published by the Institute for Scientific Information. A study of mathematics journals based on the 1980 report of citation statistics is given by Garfield [92]; his article identifies the fifty most-cited mathematics journals, the most-cited papers from the most-cited journals, and the journals with the highest impact factor (a measure of how often an average article is cited [100]). Based on the 1980 data, the journals with the ten highest impact factors are, from highest to lowest, *Comm. Pure Appl. Math., Ann. Math., Adv. in Math., SIAM Review, Acta Math.—Djursholm, Invent. Math., SIAM J. Numer. Anal., Stud. Appl. Math., Duke Math. J., Math. Program.*

The circulation of a journal should also be considered. If you publish in a journal with a small circulation your paper may not be as widely read as you would like. Relatively new journals from less-established publishers are likely to have small circulations, especially in the light of the budget restrictions imposed on many university libraries. SIAM publishes circulation information in the first issue of the year of each journal; see Table 8.1. The circulation of *SIAM Review* is so high because every SIAM member receives it. For journals published electronically and not requiring a subscription, circulation may be of less concern.

The audience for your paper depends very much on the journal you choose. For example, a paper about numerical solution of large, sparse eigenvalue problems could be published in the *SIAM Journal on Scientific Computing*, where it would be seen by a broad range of workers in scientific computing; in the *SIAM Journal on Matrix Analysis and Applications*, whose readership is more biased towards pure and applied linear algebra; or in the *Journal of Computational Physics*, whose readership is mainly physicists and applied mathematicians, many of whom need to solve practical

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Table 8.1. Circulation figures for some SIAM journals.

Journal	Total Distribution Per Issue, 1997	Issues Per Year
SIAM J. Appl. Math.	2485	6
SIAM J. Comput.	2069	6
SIAM J. Control Optim.	1965	6
SIAM J. Math. Anal.	1612	6
SIAM J. Matrix Anal. Appl.	1659	4
SIAM J. Numer. Anal.	2453	6
SIAM J. Optim.	1450	4
SIAM Review	11531	4
SIAM J. Sci. Comput.	2150	6

eigenvalue problems.

Other factors to consider when choosing a journal are the delays, first in refereeing. How long you have to wait to receive referee reports varies among journals. It depends on how much time the journal allows referees, how efficient an editor is at prompting tardy referees, and, of course, it depends on the referees themselves (who usually act as referees for more than one journal).

The other major delay is the delay in publication: the time from when a paper is accepted to when it appears in print. For a particular article, this delay can be calculated by comparing the date of final submission or acceptance (displayed for each article by most journals) with the cover date of the journal issue. The publication delay depends on the popularity of the journal and the number of pages it publishes each year. A survey of publication delays for mathematics journals appears each year in the *Notices of the American Mathematical Society* journal ("Backlog of Mathematics Research Journals")—it makes interesting reading.

The publication delay also depends, partly, on the author. Ervin Rodin, the editor-in-chief of *Computers and Mathematics with Applications*, explains in an editorial [238] some of the reasons for delays. Four that are not specific to this particular journal are that the figures or graphs are not of high enough quality, the references are not given in full detail, the equations are inconsistently numbered, and the proofs are not returned promptly.

Finally, if your paper has been prepared in TEX (see Chapter 13) you might prefer to send it to a journal that typesets directly from author-supplied TEX source; as well as saving on proofreading this sometimes

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brings the benefit of extra free reprints (nowadays most journals provide some free reprints for all papers—as few as 15 or as many as 100).

8.2. Submitting a Manuscript

Before submitting your manuscript (strictly, it is a paper only after it has been accepted for publication) you should read carefully the instructions for authors that are printed in each issue of your chosen journal. Most of the requirements are common sense and are similar for each journal. Take particular note of the following points.

1. To whom should the manuscript be submitted? Usually it should be sent to the editor-in-chief, but some journals allow manuscripts to be sent directly to members of the editorial board; judgement is required in deciding whether to take advantage of this option (it may be quicker, since the manuscript skips the stage where an editor-in-chief selects an associate editor). Usually, the editorial addresses are printed in each issue of a journal. Look at a recent issue, as editors and their addresses can change.

2. Enclose a covering letter that states to which journal the manuscript is being submitted—this is not obvious if the organization in question has several journals, as does SIAM. State the address for correspondence if there is more than one author. Usually only the designated author receives correspondence, proofs and reprint order forms. If your address will change in the foreseeable future, say so, even if the change is only temporary. (This is particularly important at the typesetting stage, after a paper has been accepted, because proofs must be dealt with quickly.)

3. How many copies of the manuscript are required? SIAM requires five. If the destination is abroad, send them by air mail; don't use surface mail, which can take several weeks. Even if a paper is rejected, the manuscript is not usually returned. You should keep a copy, particularly as you may need it at the proofreading stage.

4. Always submit single-sided copies (not double-sided) and fasten them with a staple to avoid pages being lost (the referees can easily remove the staple if they wish). Provide your full address on the manuscript (some authors forget). Dating the manuscript may help to prick the conscience of a tardy editor or referee.

5. Give key words and the Mathematics Subject Classifications and Computing Reviews classification, if these are required by the journal.

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It is a good policy to include them as a matter of course. You may also include at this stage a "running head"—a shortened title that appears at the tops of pages in the published paper. The running head should not exceed about 50 characters.

6. If your manuscript cites any of your unpublished work it will help the referees if you enclose a copy of that work, particularly if the manuscript relies heavily on it. Doing so avoids delays that might result from the referees asking to see the unpublished work.

7. If you are using LaTeX double check that the cross-references and citations are correct. Adding a new equation or reference at a late stage and not running LaTeX twice (or three times if you are using BibTeX—see Table 13.2) can result in incorrect numbering. I have seen citation errors of this type persist in a published journal article. Also, if the journal accepts TeX papers, use the style files or macros provided by the publisher; you may still be able to convert the paper to the required format once it has been accepted.

8. Most journals require that any material submitted for review and publication has not been published elsewhere. Papers that have appeared in preliminary form in conference proceedings are usually an exception to this rule. SIAM, for instance, requires that papers that have appeared in conference proceedings or in print anywhere in an abbreviated form be significantly revised before they are submitted to a SIAM journal. If your paper has already appeared in published form you must make this clear when the paper is submitted, and you must indicate so by a footnote on the first page.

9. Before putting your manuscripts in the envelope, check that no pages are missing from any of the copies. Again, delays will result if one of the copies is incomplete.

10. You should receive an acknowledgement of receipt of the manuscript within four weeks of submitting it. If you do not, write to ask whether the manuscript was received.

8.3. The Refereeing Process

I will explain how the refereeing process works for SIAM journals (this discussion is partly based on an article by Gear [103]). Procedures for most other journals are similar. If a manuscript is submitted to "The Editor" at the SIAM office, it is logged by SIAM and a letter of acknowledgement

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is sent to the author, giving a manuscript number that should be quoted in future correspondence. The manuscript is then passed on to the editor-in-chief, who assigns it to a member of the editorial board (this stage can take a few weeks). SIAM (or in some cases, the editor-in-chief) mails the submission, the covering letter, and a Manuscript Transmittal Sheet to the chosen editor. The editor writes to two or more people asking them to referee the paper, suggesting a deadline about six weeks from the time they receive the paper.

The editor may send a sheet of "instructions for referees". Figure 8.1 contains an extract from the SIAM instructions (many of the SIAM journals also have more specific instructions), which indicates again the points to consider before submitting a manuscript.

When all the referee reports have been received the editor decides the fate of the paper, informs the author, and notifies SIAM. (In some journals, including some of those published by SIAM and The Institute of Mathematics and Its Applications, the editor makes a recommendation to the editor-in-chief, who then writes to the author, possibly not naming the editor.) The paper can be accepted, accepted subject to changes, returned to the author for a substantial revision, or rejected.

If a referee report is not received on time the editor reminds the referee that the report is due. After six months of inactivity the manuscript is classed as "flagged" by SIAM, and the editor is urged by SIAM to expedite the current stage of the refereeing process. If you have had no response after six months you are quite entitled to contact SIAM or the editor-in-chief to enquire whether any progress has been made in refereeing the paper. Papers are sometimes mislaid or lost and your enquiry will at least reveal whether this has happened.

Few papers are accepted in their original state, if only because of minor typographical errors (typos). When preparing a revised manuscript in response to referee reports it is important to address all the points raised by the referees. In the covering letter for the revised version these points might be summarized, with an indication for each one of the action (if any) that was taken for the revision. If you do not act on some of the referees' recommendations you need to explain why. It greatly helps the editor if you explain which parts of the paper have been changed, as it is an irksome task to compare two versions of a paper to see how they differ. When you submit a revised manuscript it is a good idea to mark on the front page "Revised manuscript for journal X" together with the date. This will prevent the revised version from being confused with the original. When a revised paper is received, the editor may ask the referees to look at it or may make a decision without consulting them.

Keep in mind that the editor and referees are usually on your side. They

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The most important criterion for acceptance of a publication is originality and correctness. Clear exposition and consistent notation are also required. All papers should open with an introduction to orient the reader and explain the purpose of the paper.
You are asked to prepare an unsigned report, in duplicate. We ask that you keep the report formal and impersonal so that the editor can forward it to the author.
A specific recommendation for acceptance or rejection should be excluded from the report. The following checkpoints are suggested for explicit consideration:

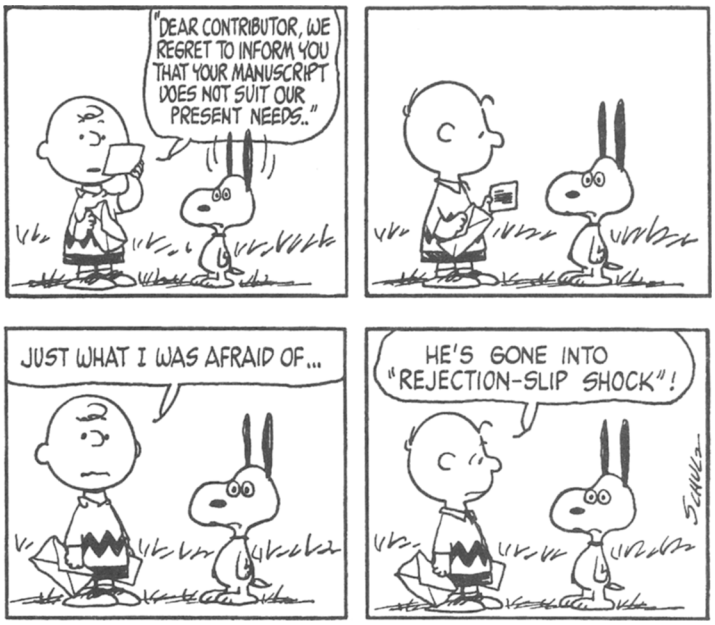
- Is the paper consistent with editorial objectives?
- Is the work correct and original or of wide appeal, if a review paper?
- Is its presentation clear and well organized?
- Is the notation well conceived and consistent?
- How does the paper relate to current literature?
- Are the references complete, relevant, and accurate?
- Does the title accurately characterize the paper?
- Does the abstract properly summarize the paper without being too vague?
- Does the introduction relate the paper to contemporary work and explain the purpose of the paper?
- Are equation numbers and figure numbers consistent?

When the manuscript fails to meet some explicit requirement, what material should the author develop to improve the presentation?

Cover Letter

Please return your report with a cover letter stating your recommendation concerning disposition of the paper. We ask that you justify a recommendation of acceptance as well as one of rejection, and please send the cover letter, report, and manuscript to the editor who requested this review.

Figure 8.1. Extract from SIAM instructions for referees.



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are mostly busy people and would like nothing more than to be able to read your paper, quickly realize that it is correct and deserves publishing, and make that recommendation or decision. Anything you can do to help them is to your benefit. A major advantage of writing in a clear, concise fashion is that your papers may be refereed and edited more quickly!

8.4. How to Referee

The main task of a referee is to help an editor to decide whether a paper is suitable (or will be suitable, after revision) for publication in a journal. Opinions vary on precisely what a referee should do (see the references below), and different referees go about the task in different ways. It is useful to think of the refereeing process as comprising two stages, even though these are often combined. The first stage is an initial scrutiny in which the referee forms an overall view of the paper, without reading it in detail. The question to be considered is whether the paper is original enough and of sufficient interest to the journal's readers to merit publication *assuming* that the paper is free of errors. If a negative conclusion is reached, then there is no need for the referee to check the mathematical details.

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If the overview reveals a paper potentially worth publishing then more detailed study is required, including consideration of the questions listed in Figure 8.1. How carefully the referee should check the mathematics depends partly on the nature of the paper. A paper applying a standard technique to a new problem may need less meticulous checking than one developing a new method of analysis. The referee's time is better concentrated on looking at the key ideas and steps in proofs rather than the low-level details, as this is the way that errors are most likely to be spotted.

The referee has to examine all facets of a paper and decide which lines of investigation will be the most fruitful in coming to a decision about the paper's merit. Experienced referees learn a lot from small clues. If one lemma is imprecisely stated or proved, perhaps other results need to be carefully checked. If an important relevant paper is not cited, perhaps the author is not fully conversant with the existing literature. An unreasonable assumption, perhaps hidden in a piece of analysis, calls into question the value of a result and may lead a referee to an immediate recommendation of rejection.

Some particular advice on refereeing follows.

1. If you are not willing or able to provide a report by the date requested by the editor, return the manuscript immediately. Alternatively, give the editor a date by which you can guarantee a report and ask if that would be acceptable.

2. You can save a lot of time by taking a global view of a paper before starting to examine the details. Twenty minutes spent coming to the suspicion that a paper appears flawed may enable you to pinpoint the errors much sooner than if you read the paper from start to finish, checking every line.

3. Make your recommendation in a cover letter to the editor, but not in the report itself. The report should contain the reasoning that supports your recommendation.

4. It is not necessary for you to summarize the paper if your summary would be similar to the abstract. If you can give a different and perhaps more perceptive overview of the work it will be of much use to the editor.

5. In considering changes to suggest for improving a paper that you think merits publication, you can ask many of the same questions that you would ask when writing and revising your own work. In particular, consider whether the notation, organization, length and bibliography are suitable.

6. If your recommendation is rejection, do not spend much time listing minor errors, typographical or otherwise, in the report (unless you wish, for example, to help an author whose first language is not English improve his or her grammar and spelling). Concentrate on describing the major flaws. Always try to offer some positive comments, though—imagine how you would feel on reading the report if the paper were yours.

7. Always be polite and avoid the use of language that can be interpreted as offensive or over-critical. In particular, avoid using unnecessary adjectives. Thus say "incorrect" rather than "totally incorrect" and "unwarranted" rather than "completely unwarranted".

8. Building a reputation as an efficient, conscientious and perceptive referee is worthwhile for several reasons. You will probably receive important papers to referee, thereby finding out about the work before most other researchers. As a trusted referee, your recommendations will help to influence the direction of a journal. You may even be invited onto editorial boards because of your reputation as a referee. Reputations are not made, though, by providing shallow reports of the form "well written paper, interesting results, recommend publication" when other referees point out serious weaknesses and recommend rejection. As Lindley [179] puts it, "A sound dismissal is harder to write than an advocacy of support."

For further discussion of the refereeing process I recommend the papers by Gleser [106], Lindley [179], Manheim [193], Parberry [216], Smith [250] (intended for "applied areas of computer science and engineering") and Thompson [272]. See also [164, §§15–17] and the collection *Publish or Perish* [142], which includes chapters titled "The Refereeing Process", "The Editor's Viewpoint" and "The Publisher's Viewpoint".

8.5. The Role of the Copy Editor

After a manuscript is accepted for publication it goes to a copy editor. The copy editor of journal papers has three main aims: to do limited rewriting or reorganizing of material in order to make the paper clear and readable; to edit for correctness of grammar, syntax and consistency; and to impose the house style of the journal (a fairly mechanical process). The copy editor tries to make only essential changes and to preserve the author's style.

When you see a copy-marked manuscript for the first time your reaction might be one of horror at the mass of pencilled changes. Most of these

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will be instructions to the printer to set the paper in the house style: instructions on the fonts to use, spacing in equations, placement of section headings, and a host of other details. There may also be some changes to your wording and grammar. The editor will have had a reason for making each change. The editor will probably have made improvements that you overlooked, such as finding words that are unnecessary, improving the punctuation, and correcting inconsistencies (copy editors keep track of words or phrases that have odd spellings, capitalization or hyphenation and make sure that you use them consistently). If you are unhappy with any of the changes a copy editor has made you can attach an explanatory note to the proof, or, if you are sure an error was made, reverse the change on the proof. Copy editors are always willing to reconsider changes and will pay attention to the author's views in cases of disagreement.

8.6. Checking the Proofs

Some time after your manuscript has been accepted, and after you have received and signed a copyright transferral form, you will receive page or galley proofs (galleys are sheets that have not been broken up into pages—if the journal typesets in TEX the galley stage may be nonexistent). You are asked to check these and return the marked proofs within a short period, often two days. For some journals, the original copy-edited manuscript is enclosed, so that you can see which changes the copy editor marked. If the marked manuscript is not enclosed you are at a disadvantage and you should check against your own copy of the manuscript, particularly for omissions, which can be very difficult to spot when you read only the proofs. The proofs you receive are usually photocopies, so if you see imperfections such as blotches and faint characters these might not be present on the original copy.

A thorough check of the proofs requires one read-through in which you do a line by line comparison with the marked manuscript, and another in which you read the proofs by themselves "for meaning". In addition to checking line by line, do a more global check of the proofs: look at equation numbers to make sure they are in sequence with no omissions, check for consistency of the copy editing and typesetting (typefaces, spacing, etc.) and make sure the running heads are correct. As mentioned above, most journals print the date the manuscript was first received and the date it was accepted. Check these dates, as they may help to establish priority if similar work is published by other researchers.

Some specific errors to check for are shown in Figure 8.2. If your paper contains program listings they should be checked with extra care, as printers find them particularly difficult to typeset. Common errors in typeset

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- Unmatched parentheses: $a = (b + c/2$.
- Wrong font: $a = (\mathbf{b} + c)/2$.
- Missing words or phrases.
- Misspelt or wrong words (e.g., complier for compiler, special for spectral).
- Repeated words.
- Missing punctuation symbols (particularly commas).
- Incorrect hyphenation. If your manuscript contains a word hyphenated at the end of a line, the copy editor and printer may not know whether the hyphen is a permanent one or a temporary one induced by the line break.
- Widow: short last line of a paragraph appearing at the top of a page. Or "widow word": last word of a paragraph appearing on a line by itself (can be cured in TEX by binding the last two words together with a tie).
- O (capital Oh) for 0 (zero), l (lower case ell) for 1, wrong kind of asterisk (* instead of $*$).
- Bad line breaks in mathematical equations.
- Incorrectly formatted displayed equations (e.g., poor alignment in a multiline display).
- Change in meaning of words or mathematics resulting from copy editor's rewriting.
- Missing mathematical symbols (e.g., $\eta\|Lx - b\|$ instead of $\eta = \|Lx - b\|$).
- Misplaced mathematical symbols or wrong kind: subscript should be superscript, $\mathbb{R}^{mxn}$ instead of $\mathbb{R}^{m\times n}$, A^t instead of A^T, $||A||$ instead of $\|A\|$.
- Errors in numbers in tables.
- Incorrect citation numbers. E.g., if a new reference [4] is added, every citation $[n]$ must be renumbered to $[n + 1]$ for $n \geq 4$, but this is easily overlooked.

Figure 8.2. Errors to check for when proofreading.

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program listings include incorrect spacing and indentation and undesired line breaks. It is best to have a listing set from camera-ready copy, if possible.

Copy editors on mathematical journals often have mathematical qualifications, but they may still introduce errors in attempts to clarify, so read very carefully. For example, in one set of proofs that I received the phrase "stable in a sense weaker than" had been changed to "stable, and in a sense, weaker than", which altered the meaning. Since the original may have lacked clarity I changed the phrase to "stable in a weaker sense than". In every set of proofs I have received, I have found mistakes to correct. If you receive apparently perfect proofs, perhaps you are not proofreading carefully enough!

As an indication of how hard it can be to spot typographical errors I offer the following story. Abramowitz and Stegun's monumental *Handbook of Mathematical Functions* [2] was first published in 1964 and various corrections have been incorporated into later printings. As late as 1991, a new error was discovered: the right-hand side of equation (26.3.16) should read $Q(h) - P(k)$ instead of $P(h) - Q(k)$ [242]. This error was spotted when a Fortran subroutine from the NAG library that calculates probabilities behaved incorrectly; the error was traced to the incorrect formula in Abramowitz and Stegun's book.

I have spotted typographical errors in virtually every part of journal papers, including the title. The first sentence of one paper says that "One of the best unknown methods ... was developed by Jacobi." In one book preface the author thanks colleagues for helping him to produce a "final prodiuct" that is more accurate than he could have managed on his own. In the introduction of another, the author says that it would "be hard to underestimate" the importance of the subject of the book.

If you still need convincing of the importance of careful proofreading, consider the book on sky diving that was hurriedly recalled so that an erratum slip could be added. It read "On Page 8, line 7, 'State zip code' should read 'Pull rip cord'."

Corrections should be marked using the standard proofreading symbols; these will be listed on a sheet that accompanies the proofs. A list of proofreading symbols is given in Figure 8.3. In my experience it is possible to deviate slightly from the official conventions as long as the marking is clear. But make sure to mark corrections in the margin, which is the only place a printer looks when examining marked proofs; marks in the text should specify only the location of the correction. Take care to answer any queries raised by the copy editor (usually marked *Au.* in the margin). (The American Mathematical Society advises its editors to avoid asking "Is it this or that?" because many mathematicians are likely to answer "yes".) Some

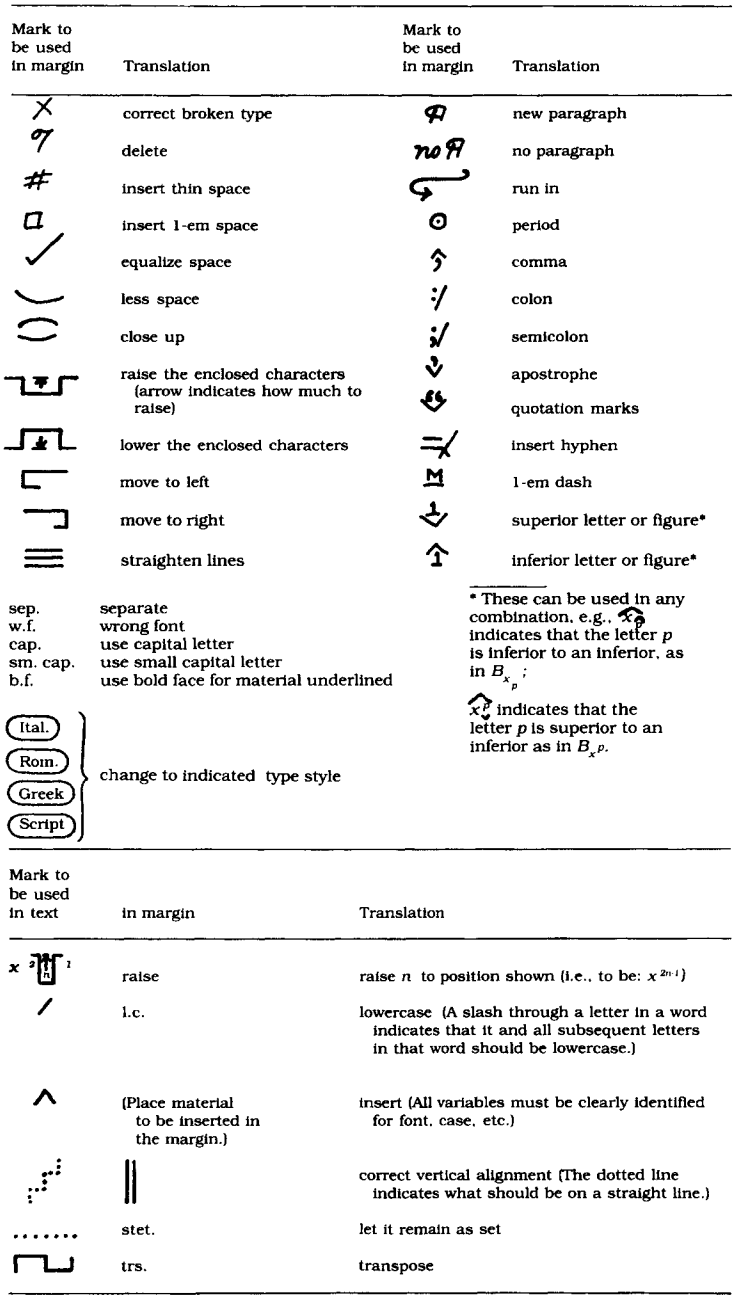

Figure 8.3. Proofreading symbols.

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journals require the printer's errors to be marked in one colour and the author's changes in another. Even if the copy editor doesn't ask, it is advisable to check the reference list to see if any unpublished or "to appear" references can be updated. Don't be afraid of writing notes to the copy editor (I often use yellow stick-on notes), particularly to praise their often under-appreciated work.

You should try to restrict changes you make on the proofs to corrections. If you make other changes you may have to pay for the extra typesetting costs. It is usually possible to add any vital, last-minute remarks (such as a mention of related work that has appeared since you submitted your manuscript) in a paragraph headed "Note Added in Proof" at the end of the paper.

At about the same time as you receive the proofs you will receive a reprint order form and, depending on the publisher, an invitation to pay page charges. Page charges cover the cost of typesetting the article and payment is usually optional for mathematics journals. Even if you request only the free reprints you still need to complete and return the reprint order form.

8.7. Author-Typeset TEX

I now focus on papers that are typeset in TEX by the author (TEX itself is discussed in Chapter 13). Many journals provide macros for use with TEX, LATEX or $\mathcal{AMS}$-LATEX that produce output in the style of the journal. These are usually available from the journal Web page or by electronic mail from the editors or publishers.

In the same way that a computer programmer can write programs that are difficult to understand, an author can produce TEX source that is badly structured and contains esoteric macros, even though it is syntactically correct. Such TEX source is difficult to modify and this can lead to errors being introduced. If you intend to provide TEX source you should try to make it understandable. Watch out for precarious comments, such as those in the following example (the % symbol in TEX signifies that the rest of the line is a comment and should not be printed).

```
The widely used IEEE standard arithmetic
has $\beta=2$. % ANSI/IEEE Standard 754-1985
Double precision has $t=53$, $L=-1021$, $U=1024$,
and $u = 2^{-53} \approx 1.11 \times 10^{-16}$.
% IEEE arithmetic uses round to even.
```

This produces the output

> The widely used IEEE standard arithmetic has $\beta = 2$. Double precision has $t = 53$, $L = -1021$, $U = 1024$, and $u = 2^{-53} \approx 1.11 \times 10^{-16}$.

Suppose that, as these lines are edited on the computer, they are reformatted (either automatically, or upon the user giving a reformatting command) to give

```
The widely used IEEE standard arithmetic has
$\beta=2$. % ANSI/IEEE Standard 754-1985 Double
precision has $t=53$, $L=-1021$, $U=1024$, and
$u = 2^{-53} \approx 1.11 \times 10^{-16}$. % IEEE
arithmetic uses round to even.
```

As the comment symbols now act on different text, this results in the incorrect output

> The widely used IEEE standard arithmetic has $\beta = 2$. precision has $t = 53$, $L = -1021$, $U = 1024$, and $u = 2^{-53} \approx 1.11 \times 10^{-16}$. arithmetic uses round to even.

Because of this possibility I try to keep comments in a separate paragraph. So I would format the above example as

```
The widely used IEEE standard arithmetic has $\beta=2$.
Double precision has $t=53$, $L=-1021$, $U=1024$,
and $u = 2^{-53} \approx 1.11 \times 10^{-16}$.

% ANSI/IEEE Standard 754-1985
% IEEE arithmetic uses round to even.
```

Similar difficulties may arise if you edit with a line length of more than 80 characters (the standard screen width on many computers). A different text editor might wrap characters past the 80th position onto new lines, or, worse, truncate the lines; in either case, the meaning of the TEX source is changed.

Errors can be introduced in the transmission of TEX source by email. Characters such as ^, ~, {, } may be interchanged because of incompatibilities between the ASCII character set and other character sets used by certain computers. To warn of translation you could include test lines such as

```
%%  Exclamation  \!   Double quote  \"   Hash (number) \#
%%  Dollar       \$   Percent       \%   Ampersand     \&
%%  Acute accent \'   Left paren    \(   Right paren   \)
```

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at the top of your file.

Some mail systems object to lines longer than 72 characters. Some interpret a line beginning with the word *from* as being part of a mail message header and corrupt the line. Thus

```
from which it follows that
```

might be converted to

```
>from: which it follows that
```

which would be printed in TEX as

¿from: which it follows that

Another possible problem arises when ASCII files are transferred between Unix machines and DOS and Windows machines, since Unix terminates lines with a line-feed character, whereas DOS and Windows use a carriage-return line-feed pair. Public domain utilities, with names such as `dos2unix` and `unix2dos`, are available for converting between one format and the other.

The conclusions from this discussion are twofold.

(1) You should be aware of the potential problems and guard against them. Limit lines to 80 characters (or 72 characters if you will be mailing the file and are unsure which mail systems will be used), keep comment lines separate from the main text, and prepare source that is easy to read and understand.

(2) Read proofs of papers that are typeset from your source with just as much care as those that are re-typeset. Between submission and printing many errors can, potentially, be introduced.

If your paper is prepared in LATEX and you use nonstandard packages, make sure that you send the packages with the source. If you wish to avoid sending multiple files (which can be inconvenient by email), you can use the `filecontents` environment to put everything in one LATEX file. Suppose your paper uses the package `path`. Then you can insert

```
\begin{filecontents}{path.sty}
contents of path.sty
\end{filecontents}
```

before the `\documentclass` command. When the file is run through LATEX, the file `path.sty` is created if it does not exist; otherwise, a warning message is printed. Any number of `filecontents` environments can be included.

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8.8. Copyright Issues

The responsibility for obtaining permission to reproduce copyrighted material rests with the author, rather than the publisher.

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8.9. A SIAM Journal Article—From Acceptance to Publication

What happens once your paper has been accepted for publication in one of SIAM's journals? The following description answers this question. You may be surprised at how many times your paper is checked for errors! This description also explains why you should not expect to be able to make late changes to the paper after you have dealt with the proofs. Note that this description may not be typical of the processes used by other publishers, especially those less involved with electronic publication.

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TEX Papers

When the editor's acceptance letter arrives at the SIAM publications office, an editorial assistant processes the acceptance and sends acceptance correspondence to the author. Acceptance correspondence includes a request that the author send the TEX source file for the paper to SIAM immediately, or immediately after the SIAM style macros have been applied. Once received, the TEX file is "pre-TEXed" (macro verification and minor editorial changes). The electronic art is included, any non-electronic art is scanned, and the paper is printed out again. This new printout is then copy edited. After the paper is edited it goes to a TEX compositor (who may or may not be an in-house SIAM staffperson) for correction of the TEX file: the editing changes are made to the file, the file is re-run, and "first proofs" are printed. The paper may be proofread at this point. If many corrections are still necessary, a second round of "first pass" corrections may be done and new "first proofs" printed. Proofreading by the SIAM staff consists of checking the edited manuscript against the proofs to ensure that the requested edits were correctly incorporated into the file. The paper is not re-read. In effect, except for author corrections, the paper is completed at this point. First proofs are then mailed to the author, who is asked to return the marked proofs or a list of changes within 48 hours of receipt. Email or faxing of changes is encouraged.

After the author's changes are returned to SIAM, a SIAM staffperson incorporates the necessary corrections into the TEX file, the file is re-run, and "second proofs" are printed. These are proofed by a SIAM staffperson. As long as no typesetting or major editorial errors are found, the text of the paper is considered final at this point.

SIAM's on-line services manager assigns the paper to the issue of the journal that is currently being filled. The volume, issue, year, and page numbers are added to the TEX file. (The year is the year of electronic publication, which is the definitive publication date; the printed volume may appear in a later year.) Then the final PostScript file is generated, as well as `dvi` and PDF files. Finally, the files are published (posted on SIAM's Web server) as part of SIAM Journals Online (`http://epubs.siam.org`), in the appropriate issue. Issues are filled according to the print pagination budget and are (subsequently) printed and mailed according to the same budget.

Non-TEX Papers

When the editorial assistant sends acceptance correspondence to an author who has not already indicated that TEX source is available for the paper, the author is asked to confirm whether or not a TEX file is available. If

there is no TEX file, the paper is copy edited and sent to a TEX compositor to be keyed into LATEX. The compositor prints the corrected paper ("first proofs"); the proofs are checked against the edited manuscript and sent to the author for proofreading. At this time the compositor sends the LATEX files to SIAM, where the remainder of the production process will be completed. The author is asked to return corrections to SIAM within 48 hours of receipt of the proofs. The rest of the process is the same as for TEX papers.

A Brief History of Scholarly Publishing (extract)

50,000 B.C. *Stone Age publisher demands that all manuscripts be double-spaced, and hacked on one side of stone only.*

1483 *Invention of* ibid.

1507 *First use of circumlocution.*

1859 *"Without whom" is used for the first time in list of acknowledgments.*

1916 *First successful divorce case based on failure of author to thank his wife, in the foreword of his book, for typing the manuscript.*

1928 *Early use of ambiguous rejection letter, beginning, "While we have many good things to say about your manuscript, we feel that we are not now in position . . . "*

1962 *Copy editors' anthem "Revise or Delete" is first sung at national convention. Quarrel over hyphenation in second stanza delays official acceptance.*

— DONALD D. JACKSON, in *Science with a Smile* (1992)

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Publication Peculiarities

What is the record for the greatest number of authors of a refereed paper, where the authors are listed on the title page? My nomination is

> P. Aarnio et al. Study of hadronic decays of the Z^0 boson. *Physics Letters B*, 240(1,2):271–282, 1990. DELPHI Collaboration.

This paper has 547 authors from 29 institutions. The list of authors and their addresses occupies three journal pages. Papers with over 1,000 authors almost certainly exist, but the authors of these monster collaborations are usually listed in an appendix. For the shortest titles, I offer

> Charles A. McCarthy. c_p. *Israel J. Math.*, 5:249–271, 1967.
>
> Norman G. Meyers and James Serrin. $H = W$. *Proc. Natl. Acad. Sciences USA*, 51:1055–1056, 1964.

The latter title has the virtue of forming a complete sentence with subject, verb and object. The only title I have seen that contains the word OK is

> Thomas F. Fairgrieve and Allan D. Jepson. O.K. Floquet multipliers. *SIAM J. Numer. Anal.*, 28(5):1446–1462, 1991.

The next paper is famous in physics. Dyson explains that "Bethe had nothing to do with the writing of the paper but allowed his name to be put on it to fill the gap between Alpher and Gamow" [75].

> R. A. Alpher, H. Bethe, and G. Gamow. The origin of chemical elements. *Physical Review*, 73(7):803–804, 1948.

The only paper I know that has an animal as coauthor is

> J. H. Hetherington and F. D. C. Willard. Two-, three-, and four-atom exchange effects in bcc ^{3}He. *Physical Review Letters*, 35(21):1442–1443, 1975.

The story of how his cat (Felix domesticus) Chester, sired by Willard, came to be a coauthor is described by Hetherington in [291, pp. 110–111].