



Plagiarism

And how to avoid it

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Credit where credit is due

The academic research community creates and disseminates new knowledge. That's what we do, and that's what our success is evaluated on: promotion, research funding, teaching load, and even allocation of lab and office space are all influenced by demonstrated research productivity. More important to most of us, however, is the recognition of our peers: ultimately, academic research is a reputation game. So, it's easy to see that claiming someone else's work as your own is the worst form of academic bad manners.

However, there are other, more important reasons to properly acknowledge the work of others. Doing so is *intellectually honest*, it provides a way for readers to see the *complete context* of the material presented, and it allows readers to verify whether the presented information is *accurate* by going to the original source [1]. In short, attributing proper credit helps maintain the integrity of the scholarly process.

Plagiarism

The RMC Graduate Calendar identifies plagiarism as one form of academic misconduct and defines it as:

... the presentation or submission of work as one's own, which originates from some other, unacknowledged source. In term papers, assignments and examinations, the verbatim or almost verbatim presentation of someone else's work without attribution constitutes an example of plagiarism. [2]

Essentially plagiarism includes:

- presenting factual information, ideas or material deriving from an external source without identifying the source (*lack of attribution*);
- reproducing material from an external source (text, diagrams, etc.) in your own work without indicating that the material is copied (*lack of quotation*);
- *inadequate paraphrase* of attributed material.

Each of these is discussed in more detail below, along with a brief discussion of the relationship between plagiarism and copyright violation.

Attribution

In the scholarly context, *attribution* means clearly identifying (attributing) the source of information, ideas, or material that is included in your work but that derives from some external source. Commonly known facts need no attribution, but in an academic work such as a term paper or a journal paper, anything else that is not your original work does.

The specific mechanisms for attribution vary from discipline to discipline, but they all involve some form of *citation* of clearly identified *references*. In Electrical and Computer Engineering we normally follow the IEEE reference style, which is defined in section IV.D. of the IEEE's *Information for Author* guide [3] and described with multiple examples in the *IEEE Editorial Style Manual* [4] starting on page 5. If you plan to use the IEEE style, you should study both documents, as well as other resources found in the *IEEE author digital toolbox* [5].

This document follows the IEEE reference style. It has a list of references in a section at its end, each of which is given an numerical identifier in square brackets. Where references are cited in the text, the same numerical identifier is used in-line, with brackets, inside the punctuation. The IEEE style specifies that references should be listed in the order that they appear in the text. In practice, listing references sorted in alphabetical order by first author surname is equally acceptable---except when submitting articles to IEEE Transactions---and is actually preferable (in my personal opinion) for longer works with many references like dissertations and theses.

The actual format of the references is extremely important, and is different for each kind of cited material (books, journal papers, conference papers, handbooks, theses, online materials, etc). The ordering of bibliographic elements (title, author, publication date, etc) matters, as does punctuation, the use of initials versus names in author names, the use of italics, capitalization, and so on. *Managing, numbering and formatting your references by hand is tedious and error prone*. You will be much better off using a reference management tool like BibTeX with LaTeX, or EndNote with Microsoft Word.

(In printed versions of this document, the formatting of the URLs in the references may not exactly conform to the IEEE standard for technical reasons.)

Quotation

Direct quotation of previous authors' work is relatively rare in Electrical and Computer Engineering; paraphrase and summary are much more common. (See the section on paraphrase below.) However, it is occasionally important and appropriate to present a previous author's words exactly as originally written. In this case, the words must be presented as *quotations*.

There are two accepted styles for text quotation: *run-in* and *block*. A run-in quotation is integrated in the text, in the same type style, and is enclosed in double quotation marks. Short quotations (less than a sentence or so) are usually presented as run-in quotations. Block quotation is used for longer quotes like the extract from the RMC Graduate Calendar above. A block quote is always started on a new line, is indented one level from the main text, and is not enclosed in quotation marks. A quotation should always be immediately followed by a citation of the original source, outside the quotation marks in the case of a run-in quotation.

In term papers or theses, it is often a good idea to follow a quotation, particularly a long one, with a paraphrase of its key ideas. This gives your reader confidence that you have actually understood the material quoted and aren't merely parroting it.

There are many technical issues in formatting quotations, such as when to modify capitalization or punctuation, when to put punctuation inside or outside the quotation marks, when and how to correct obvious errors in quoted material, and so on. The IEEE authority on these matters and other fine points of usage is the *Chicago Manual of Style* [6].

It is also possible (though also generally discouraged) to directly reproduce illustrative material such as photographs, tables, graphs or diagrams from previous authors' works. When this is done, the original source of the illustration must be attributed, either in the text of the document or in the caption of the figure in which the reproduced material. An appropriate form for attribution in a caption is: 'Reproduced from [x] with permission' (or 'without permission' in the case that permission of the copyright holder has not been obtained), where [x] is the citation. If it is necessary to redraw or modify the illustrative material, use 'redrawn from' or 'adapted from' in place of 'reproduced from'. The same phrasing as used in the caption can appear in the main text, for example: 'observed power versus applied voltage is shown in figure 1 (reproduced from [x] with permission)'. Again, the *Chicago Manual of Style* provides detailed guidance.

Paraphrase

One mechanism for representing a previous author's thoughts in later work is to re-express the thoughts in a *paraphrase*. An appropriate paraphrase is usually a shorter, simpler expression of what the original author wrote, worded in a way that is significantly different from the original. The idea is to express the original author's intent, but in an entirely new way. This is perfectly acceptable, provided that a citation of the original is provided.

What is not acceptable is a paraphrase that is so similar to the original that it is essentially a thinly-disguised and unacknowledged quotation. Simply rearranging the order of clauses in a sentence, replacing some of the words with synonyms, or making minor grammatical tweaks will almost certainly lead to unacceptable paraphrase.

Writing good paraphrases is hard work, particularly if you are paraphrasing a relatively short passage rather than summarizing a much longer one. If you simply start from the original and re-word, you will almost certainly end up with an unacceptable result. A much more effective strategy is to:

- read the original attentively, making sure you understand its meaning;
- make brief notes of the key issues you want to express, in your own words;
- put the original aside;
- write your paraphrase, based only on your notes; and finally
- verify your paraphrase against the original to ensure that it isn't too close.

A longer discussion of paraphrasing, with several examples, can be found at [7].

Plagiarism and copyright violation

Plagiarism and copyright violation are frequently confused, which is not surprising since plagiarism involves copying and copyright is a complex legal matter. However, the two issues are quite separate. It is possible to plagiarise without violating copyright; it is also possible to violate copyright without plagiarising.

Copyright is literally 'the right to copy.' Under current Canadian law it is an exclusive right that is granted immediately and automatically to the author of a work on its creation. (The copyright on work created under contract or in the course of employment is usually owned by the employer rather than the author.) Copyright holders can choose to transfer copyright to someone else, to provide a more or less restrictive license to copy---either freely or for a fee---or to release the work entirely into the public domain.

If copyright were absolute, we would not legally be permitted to quote any copyrighted material without explicit permission, since quoting involves the creation of a copy. However, in Canada there is an exception to exclusive copyright called the doctrine of *fair dealing*. This permits copies to be made in certain circumstances, without the copyright holder's permission, as long as certain criteria are met. A detailed description of the legal minutia is beyond the scope of this note; however, the short version is that fair dealing allows copies made for research, private study, criticism, review, or news reporting.

In general, quoting short sections of text or single illustrations in a scholarly work falls under categories of research, criticism and review, so the doctrine of fair dealing applies. Thus, for documents like term papers, dissertations and theses there is normally no copyright concern. However, if the work in which the quotation appears is to be published in a book, journal or conference proceedings, the publisher will sometimes insist that permission of the copyright holder be obtained to prevent potential lawsuits---even when the use is clearly fair dealing. In this case, if permission cannot be obtained the work may have to be modified.

In the case of articles appearing in journals or conference proceedings, it is important to realize that most publishers require the author to transfer copyright to them as a condition of publication. So, for example, an article that is published in an IEEE journal is copyright to the IEEE, not to the original author. Some publishers (including the IEEE and the ACM) allow the author to retain limited rights for private distribution; however, others do not.

— Greg Phillips (<http://last3.in/greg.html>)

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