CITATION GUIDELINES IN MATHEMATICS

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Introduction

This document represents basic citation guidelines for mathematics. It has been compiled with feedback from members of the ETH Zürich Department of Mathematics, including in particular input from IFOR (Operations Research), SAM (Seminar für Angewandte Mathematik) and SfS (Seminar for Statistics).

The content of this text does not intend to be exhaustive or authoritative; in case of doubts, students should discuss any issue or question with a mentor (professor, advisor or postdoctoral mentor).

Comments, suggestions and other remarks can be sent to `kowalski@math.ethz.ch`

1. Ethical issues: citation guidelines

The following guidelines apply to pure mathematics and statistics.

- Citations must have a sound scientific purpose, and in particular an author should not cite his or her own work, or that of friends or colleagues, without good reason.
- When a citation is accompanied by comments on the content of a paper, for instance indicating some ways in which a previous result is weaker than a new theorem, this should be done precisely and without misrepresenting the previous work.
- Any citation of a specific, precise, result, must be accompanied with a precise location in the paper or book that is referenced.
- On the other hand, if a book or paper is cited only to provide background information, context, or information related to what is being discussed, it may be cited without more precision.
- For a "standard" result, the citation need not belong to the original paper where the result is proved, but to a later account (for instance in a textbook). It is then usually clear to the reader that the authors of the work referenced are not the discoverers of the theorem.
- A theorem which is stated without specific attribution, and is not completely standard, is *supposed to have been proved by the author of the text.* If this is not the case, precise attribution is needed.
- It is acceptable in a *research paper* to follow closely the proof of an already published work to prove *an analogue result*, but this fact must be clearly indicated with proper reference.
- When proving an original result, a mathematical text should not cite only those works which contain statements which are used in the proofs, but should also cite

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and acknowledge works which have had an important influence in the search for the proof.

- The final advice is classical: *"When in doubt, cite"*; it is usually better to have too many citations than too few.
- When publishing in a journal aimed at a non-mathematical audience, one should use the conventions of the journal; usually, the journals have LaTeX-templates that correspond to the rules of the actual communities and that have to be used.

2. Citation examples

We illustrate some of the citation guidelines with examples.

(Citing a standard result) To cite the Banach-Steinhaus Theorem, supposing that one wishes to use Bourbaki's "Elements of Mathematics" as the reference, one should write:

> By the Banach-Steinhaus Theorem [2, EVT, III, §4, Cor. 2], we have...

and not

> By the Banach-Steinhaus Theorem [2], we have...

(leaving to the reader the task of finding the theorem in the many volumes of Bourbaki's treatise).

(Background information) The following are examples of such citations:

> Signs of Fourier coefficients of cusp forms have also been studied by Matomaki [8] and Ghosh-Sarnak [6].

or

> For a general introduction to Hodge theory, see for instance the book of Voisin [10].

(Citing outside of the original source It is often useful to hint that one is making a citation to a later source by indicating with "e.g." that it is only one possible reference:

> By the Hahn-Banach Theorem (see, e.g., [2, EVT, II, p. 24]), we have...

(Spelling out names) Write

> It was proved by Fouvry [5] and Bombieri, Friedlander and Iwaniec [1], that certain arithmetic functions have exponent of distribution strictly larger than $1/2$

instead of

> It was proved in [5], [1] that certain arithmetic functions have exponent of distribution strictly larger than $1/2$

(Attribution) Writing

> **Theorem.** *Let a be an integer and let $q \geq 1$ be an integer such that a and q are coprime. Then there are infinitely many primes p congruent to a modulo q.*

without additional precision (in a Bachelor or Master thesis) may mean that the writer claims that he or she has first proved Dirichlet's Theorem on primes in arithmetic progressions. One can instead either begin with

> Dirichlet (see, e.g., [3, Chapter 4]) proved that...

or if, for instance, the text is a Bachelor thesis dedicated to an account, with proof, of the theorem, one may say:

> We will prove in this text:
>
> **Theorem** (Dirichlet). *Let a be an integer and let $q \geq 1$ be an integer such that a and q are coprime. Then there are infinitely many primes p congruent to a modulo q.*

(Adapting a previous argument) One can use the following style to indicate that the proof follows closely a previous argument:

> This lemma is a slight variant of a result of Helfgott [7, Lemma 2.2], and our proof follows his argument closely.

(Undergraduate theses) In a bachelor thesis, semester thesis or master thesis, a student who is showing that he or she understands well the proof and ideas of a known result should attempt as much as possible to write proofs of such results *in his or her own words*. Such accounts should, as discussed in these guidelines, always indicate clearly who proved the original result.

(Acknowledging the influence of previous work) The following are examples of such citations:

> The proof of this theorem was inspired by the analogy pointed out by Deligne [4] between Hodge theory and Galois representations.

or

> The author learnt about the technique in this proof from the work of Venkatesh [9] on sparse equidistribution problems.

References

[1] E. Bombieri, J. Friendlander and H. Iwaniec: *Primes in arithmetic progressions to large moduli*, Acta Math. 156 (1985), 203–251.

[2] N. Bourbaki: *Elements of Mathematics*, Springer.

[3] H. Davenport: *Multiplicative number theory*, Grad. Texts Math. 74, Springer (1980).

[4] P. Deligne: *Théorie de Hodge, III*, Publ. Math. I.H.É.S 44 (1974), 5–77.

[5] É. Fouvry: *Autour du théorème de Bombieri-Vinogradov*, Acta Math. 152 (1984), no. 3-4, 219–244.

[6] A. Ghosh and P. Sarnak: *Real zeros of holomorphic cusp forms*, J. Europ. Math. Soc., to appear.

[7] H. Helfgott: *Growth and generation in* $\mathrm{SL}_2(\mathbf{Z}/p\mathbf{Z})$, Ann. of Math. 167 (2008), 601–623.

[8] K. Matomaki: *Real zeros of holomorphic Hecke cusp forms and sieving short intervals*, preprint (2013).

[9] A. Venkatesh: *Sparse equidistribution problems, period bounds and subconvexity*, Annals of Math. 172 (2010), 989–1094.

[10] C. Voisin: *Hodge theory and complex algebraic geometry*, Cambridge University Press (2002).

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