

MY MATHEMATICAL GENEALOGY

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The terms “PhD”, “PhD supervisor”, etc., are used below in an anachronistic manner, to indicate what would be the best substitute to these terms in the respective times and places.

1. STOCKHOLM BRANCH

I defended my PhD at 2010 in Stockholm, under guidance of DIMITRY LEITES and RIKARD BØGVAD. The latter was helping (very kindly and efficiently) with administrative issues, so I count LEITES only.

According to *Mathematics Genealogy Project* web site (*MG* in the sequel), PhD supervisors of DIMITRY LEITES (Moscow 1981) were ARKADY ONISHCHIK and YURI MANIN, and according to LEITES himself (a CV on his home page), it was MANIN only (ONISHCHIK was his M.Sc. supervisor).

The mathematical ancestry of MANIN, according to *MG*, goes as follows:

MANIN (Moscow 1961)
↑
SHAFAREVICH (Moscow 1946)
↑
DELONE (Kiev 1916)
↑
GRAVE and VORONOV

The year of PhD defense of DELONE is not specified on *MG*, but is taken from the *MacTutor History of Mathematics* web site (*MacTutor* in the sequel). Also, according to the same *MacTutor*, the real PhD supervisor of DELONE was GRAVE only.

The mathematical ancestry of GRAVE, according to *MG*, goes as follows:

GRAVE (St. Petersburg 1896)
↑
KORKIN (St. Petersburg 1860)
↑
CHEBYSHEV (St. Petersburg 1849)
↑
BRASHMAN

According to *MG*, the PhD advisors of BRASHMAN were JOSEPH JOHANN VON LITTROW and LOBACHEVSKY (Kazan’ and Moscow, 1834). The latter places and date do not conform with BRASHMAN’s biography on *MacTutor* (in 1834 he was appointed as professor in Moscow, so his PhD defense should take place earlier). According to *MacTutor* (though *MacTutor* does not mention the PhD advisors explicitly) and (Russian) *Wikipedia*, it is plausible that the real BRASHMAN’s advisor was VON LITTROW only.

VON LITTROW was really an astronomer and not a mathematician (see [D] and also his list of publications in [C]), so I will stop this genealogy branch on NIKOLAI BRASHMAN.

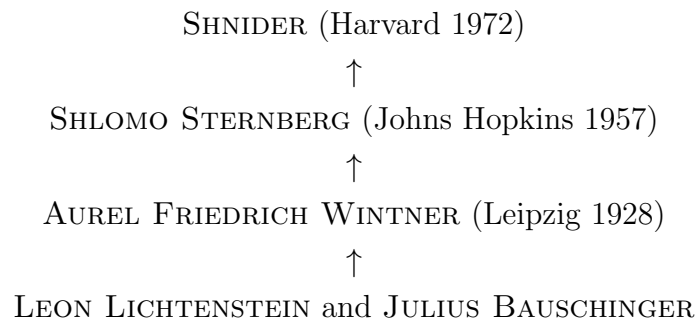


He was a Czech (or, rather, Austro-Hungarian) Jew on Russian service and a founder of Moscow Mathematical Society and *Matematicheskii Sbornik*, the second math journal in Russia (and the first among major and existing ones). The first paper in *Matematicheskii Sbornik* [Br] is his obituary. During his 1842 visit to England he impressed John Herschel: “There is a pundit from Russia among us, who wrote a treatise of the greatest importance. Just not a long time ago we would consider a mathematical treatise in the Russian language as an extraordinary curiosity, but Science moves forward and the achievements of Russia are tremendous!” BRASHMAN’s main interests lie in mechanics (a list of his publications can be found in [Br]).

2. BAR-ILAN BRANCH

My PhD thesis at Stockholm was a slightly amended thesis written at Bar-Ilan University, which I left in 1995 without defending PhD. My advisor there was STEVE SHNIDER.

The mathematical ancestry of SHNIDER, according to *MG*, goes as follows:



WINTNER’s biography on *MG* does not mention BAUSCHINGER anywhere (and does mention a big influence of LICHTENSTEIN; also, the date of his PhD defense is specified there as 1929). (English and German) *Wikipedia* confirms a plausible conclusion that LICHTENSTEIN was a sole real PhD advisor of WINTNER.

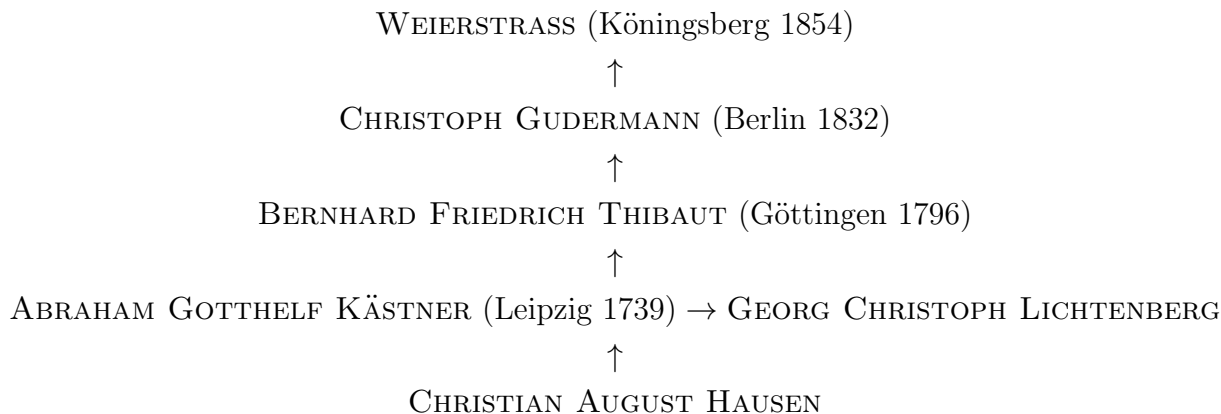
MG specifies two PhD theses of LICHTENSTEIN, one in Engineering, and the other in Mathematics. Those in Mathematics was defended in 1909 in Berlin under the guidance of HERMANN AMANDUS SCHWARZ and FRIEDRICH HERMANN SCHOTTKY. (English and German) *Wikipedia* also specifies both SCHWARZ and SCHOTTKY as LICHTENSTEIN advisors. *MacTutor* does not specify PhD advisors of LICHTENSTEIN, but mentions both SCHWARZ and SCHOTTKY as those who influenced him. Thus, it seems plausible (for the first time!) that in this case we have a genuine dual advisorship.

According to *MG*, PhD advisors of SCHWARZ were KUMMER and WEIERSTRASS (Berlin 1864). *MacTutor* mentions WEIERSTRASS as advisor and KUMMER as examiner, so it is plausible that the sole real advisor was WEIERSTRASS.

Further, according to *MG* and (German) *Wikipedia*, SCHOTTKY’s supervisors were WEIERSTRASS and HELMHOLTZ (Berlin 1875). *MacTutor* tells that the thesis examiners were WEIERSTRASS and

KUMMER. Though HELMHOLTZ was primarily a physiologist, he made important contributions to Mathematical Physics and foundations of geometry (see his *MacTutor* entry), so we count him as mathematician, and count both him and WEIERSTRASS as SCHOTTKY's PhD advisors. According to *MG*, HELMHOLTZ's (Bonn 1822) advisor was JOHANNES PETER MÜLLER, who was a biologist, and the subject was entirely physiological, so we stop this branch here.

The further ancestry in the WEIERSTRASS branch, according to *MG*, goes as follows:



Concerning WEIERSTRASS: *MG* mentions GUDERMANN as his advisor (Münster, year unknown). The full complicated picture emerges from *MacTutor*: WEIERSTRASS did not defend his PhD thesis in due time and in an ordered fashion, but was awarded a honorary degree in Königsberg much later. But he was taught and strongly influenced in his earlier works by GUDERMANN, so it is safe to count the latter as WEIERSTRASS' advisor.

Concerning THIBAUT: (German) *Wikipedia* mentions both KÄSTNER and LICHTENBERG as his teachers, without mentioning explicitly his advisors. On the other hand, KÄSTNER was also PhD advisor of LICHTENBERG. According to (English) *Wikipedia*, the latter was a physicist and not a mathematician. [Bu, p.62] confirms that.

Similarly, according to (German) *Wikipedia*, though HAUSEN was appointed as a professor of Mathematics, he was almost exclusively physicist and mineralogist, so I will stop this branch on KÄSTNER. He was a German, destined to study jurisprudence, and has embarked into mathematics



FIGURE 1. KÄSTNER and GAUSS' caricature of him

against his father will. GAUSS was KÄSTNER's student at Göttingen, and he did not appreciate his teacher ([Bu, Chapter 2] and [K]). KÄSTNER's interests lie in axiomatization of geometry, optics, philosophy and history of mathematics, and epigrammatic poems. He was apparently the author of the first textbook on mathematical analysis (1761) written in "modern tradition", i.e. using

limits and infinitesimals ([Y, p. 48]). It could be that, GAUSS opinion notwithstanding, KÄSTNER anticipated and influenced discovery of non-Euclidean geometries by influencing GAUSS and FARKAS (WOLFGANG) VON BOLYAI (JÁNOS BOLYAI's father, whose PhD advisor he was; [Bu, pp. 17,99]).

Note the difference between the two branches: the Stockholm one goes mainly in Russia, ends at the first half of XIX century, and is entirely linear; the Bar-Ilan one is one century deeper, goes mainly in Germany and contains one loop: a person (SCHOTTKY) supervises a PhD (LICHTENSTEIN) together with his own supervisor (WEIERSTRASS).

3. ALMA-ATA BRANCH

My (undefended) PhD thesis written in Bar-Ilan was a development of work done in Alma-Ata, under the guidance of ASKAR DZHUMADIL'DAEV. If at that time business would go as usual and the Soviet Union would not collapse, I certainly would defend a PhD under him.

DZHUMADIL'DAEV's ancestry goes as follows:



and, from SHAFAREVICH on, it proceeds as in Stockholm branch, ending on BRASHMAN in the same 8 steps. So, from the genealogical viewpoint, it does not matter much whether I would have defended my PhD at Alma-Ata, say, in the beginning of 1990's, or at Stockholm in 2010. On the other hand, if I would defend a PhD in Bar-Ilan, the story would go in an entirely different direction.

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