

# Fortunate to Stand on the Shoulders of Giants

## Rafe Donahue's Mathematical Family Tree

Rafe Donahue, 1992  
Colorado State University



Richard Alan Davis, 1979  
University of California, San Diego



Murray Rosenblatt, 1949  
Cornell University



Mark Kac, 1937  
University of Lwów



Wladyslaw Hugo Dyonizy Steinhaus, 1911  
Georg-August-Universität Göttingen



David Hilbert, 1885  
Universität Königsberg



C. L. Ferdinand Lindemann, 1873  
Friedrich-Alexander-Universität Erlangen-Nürnberg



C. Felix Klein, 1868  
Rheinische Friedrich-Wilhelms-Universität Bonn



Julius Plücker, 1823  
Philipps-Universität Marburg



Christian Ludwig Gerling, 1812  
Georg-August-Universität Göttingen



Carl Friedrich Gauss, 1799  
Universität Helmstadt



Johann Pfaff, 1786  
Georg-August-Universität Göttingen



Abraham Gotthelf Kaestner, 1739  
Universität Leipzig



Christian August Hausen, 1713  
Martin-Luther-Universität Halle-Wittenberg



Johann Christoph Wichmannshausen, 1685  
Universität Leipzig



Otto Mencke, 1665, 1666  
Universität Leipzig



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Future branches of the tree?



Peter J Brockwell, 1967  
Australian National University



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The Mathematics Genealogy Project, a service provided by the Department of Mathematics at North Dakota State University, intends to compile information about all the mathematicians of the world, certainly a daunting task. As of 15 October 2005, the database held 91,505 entries. I was fortunate enough to track my ancestors back over three hundred years. Erhard Weigel has approximately one-third (32,885) of all the descendants in the database; however, all come through Lagrange. Poisson and Fourier both have large numbers of offspring, due to their joint tutelage of Dirichlet. In fact, all of Fourier's descendants in the database come via Dirichlet (22,655); Poisson picks up an additional 12,000 through Michel Chasles. (Note that the numbers don't necessarily add up due further joint descendants.)



Rudolf Lipschitz, 1853  
Universität Berlin



Gustav Dirichlet, 1827  
Rheinische Friedrich-Wilhelms-Universität Bonn



Simeon Poisson



Jean-Baptiste Fourier



Joseph Louis Lagrange



Leonhard Euler, 1726  
Universität Basel



Johann Bernoulli, 1694



Jacob Bernoulli



Gottfried Wilhelm Leibniz, 1666  
Universität Altdorf



Erhard Weigel, 1650  
Universität Leipzig



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Martin Ohm, 1811  
Friedrich-Alexander-Universität Erlangen-Nürnberg



Karl Christian von Langsdorf, 1781  
Universität Erfurt



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The other main branch, that started by Mencke, contains roughly one-third (30,557) of all the entries as well. All of these entries can be attributed to Kaestner. Pfaff carries over 29,000 of Kaestner's progeny, most of them carried by Gauss (29,116), although Möbius (known for his one-sided strip) carries over 1100.

Certainly, this concentration of so many descendant mathematicians on so few ancestors is not unexpected, with the careers of the masters well documented. The ability to follow the lines of less prolific mathematicians is much sharper in the 20<sup>th</sup> century. For example, Klein is credited with nearly 22,000 descendants and 55 students, 17 of whom themselves have off-spring.

The Mathematics Genealogy Project can be found online at [www.genealogy.math.ndsu.nodak.edu](http://www.genealogy.math.ndsu.nodak.edu).