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# On Mathematicians' Eccentricity

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## Synopsis

Eccentricity, though not inevitable, happens. Lightheartedly classifying examples, the author traces it back to factors, like creativity and absorption, essential to mathematical success, and recommends an attitude of amused tolerance towards others as well as to ourselves.

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Both biographical accounts and popular reputation suggest that mathematicians may tend to be eccentric. We mathematicians might react in several ways to this assertion. We might deny it. But that requires making either subtle philosophical distinctions—what, precisely, is “eccentricity”?—or a complicated psychometric statistical analysis—are mathematicians significantly *more* eccentric than stockbrokers, physicists, lyric poets, or some other populations, when matched by age, socioeconomic status, and comparable stress from unprepared students, uncomprehending deans, and so forth? We might simply ignore it. But why miss the fun of responding? Why remain silent (giving tacit consent?) to an accusation so direct and personal? The present essay explores, as a third alternative, to treat it *mathematically*: an interesting hypothesis to analyze and, if possible, derive as a corollary of other conclusions.

A first step in the analysis is to classify eccentricity into subtypes. One category involves *deliberate*, if novel, behavior. If, for example, David Hilbert felt a draft at a concert or restaurant, he simply borrowed a fur or a feather boa from one of the ladies [7, page 131]. Distinguished German professors at that time did not typically wrap themselves in women’s furs. But to that objection Hilbert might simply have answered “And why not?” By a deliberate act of his superior intelligence and creativity he had found a

good new solution to a practical problem: Hilbert stayed warm, and the lady, besides having a good excuse for her *décolletage*, could enjoy the warm feeling that she might be aiding the progress of higher mathematics—a win-win outcome beneficial to all.

Similarly deliberate novel behavior is recorded for the American topologist James W. Alexander, who was an expert rock climber. Rather than taking the stairs up to his office on the top floor of Princeton’s Fine Hall, he liked to climb the outside of the building and enter his office through the window—thereby also saving himself the bother of fumbling for his keys to unlock his door [4, page 127].

A larger proportion of mathematicians’ eccentric behavior, however, seems unconscious: the person was too absorbed in doing mathematics to notice anything else. Thus mathematicians in the midst of their work often ignored food. Isaac Newton’s cat grew fat on the food its master left standing on his tray [8, pages 103–104; see also page 406]. William Rowan Hamilton ignored so many meals while working that eventually “innumerable dinner plates with the remains of desiccated, unviolated chops were found buried in the mountainous piles of papers, and dishes enough to supply a large household” [1, page 361].

Famous stories record Archimedes’ obliviousness to the world when at work, running naked through the street shouting “Eureka!” when he discovered the first law of hydrostatics, and being killed for his “Don’t disturb my circles” reply to an invading Roman soldier.<sup>1</sup> Absorption in mathematics doubtless also explains some absent-mindedness. Norbert Wiener was the subject of (and good-humoredly enjoyed hearing) many such stories. According to one, at the end of one midday conversation with a student he had to ask in confusion: “Do you remember the direction I was walking when we met? Was I going or coming from lunch?” [3, page 333].

Such absorption over an extended period, or otherwise missing ordinary maturational experiences because of a mathematician’s higher-than-average intelligence (Wiener graduated from high school at age eleven), can also lead

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<sup>1</sup>See [1, pages 28–34]. The main account of the death of Archimedes can be found in [5, pages 252–255]. Chris Rorres has an extensive website on Archimedes at <http://www.math.nyu.edu/~crrorres/Archimedes/contents.html>, accessed on July 17, 2015.

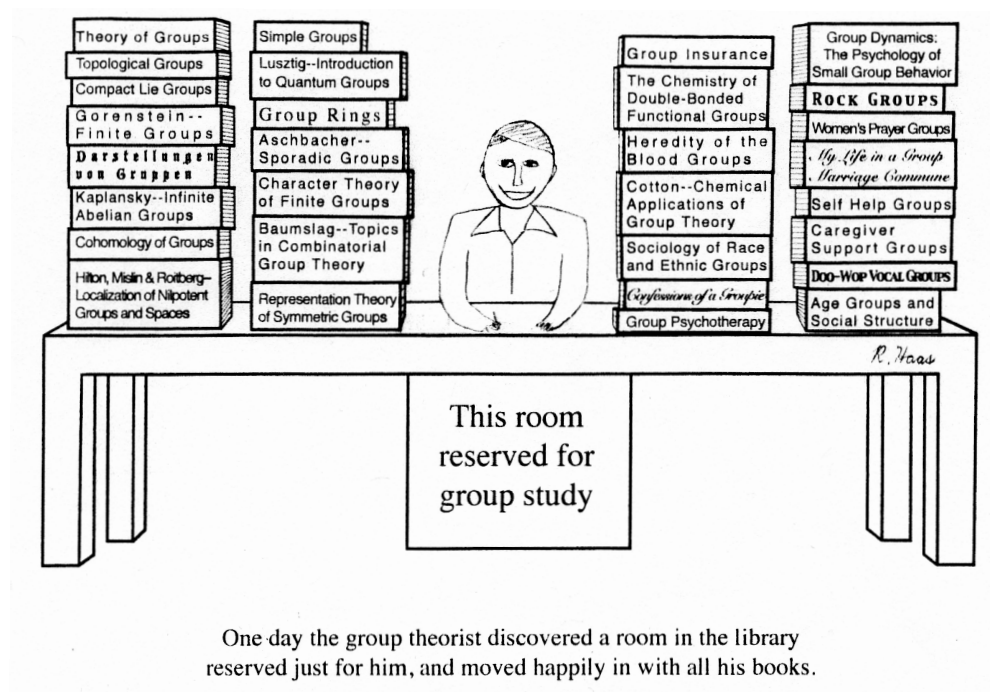


Figure 1: Robert Haas, “Group Study”. A modified version appeared previously in the *Journal of Irreproducible Results* (Volume 51 Number 4 (August, 2011), page 5).

to emotional and social ignorance, with eccentric or ludicrous consequences [3, pages 11 and 148]. The cartoon in Figure 1 illustrates with a broadly knowledgeable group theorist (note the intellectual range of his books) blissfully unaware of the conventional meaning of “group study.”

Of course being a mathematician need not *invariably* lead to eccentricity, for many personality factors might inhibit it. Hilbert’s early companion and teacher Adolf Hurwitz, for example, was far too sensitive (a fine pianist) and conscientious (he suffered migraine headaches, perhaps in part from his twenty-one Ph.D. students—“A Ph.D. dissertation is a paper of the professor written under aggravating circumstances,” he once joked) to ever behave strangely in public: “He was always correct, reserved, inconspicuous, exceedingly modest, lifting his hat to the servants of the neighbors”.<sup>2</sup>

<sup>2</sup>Both quotes are from [6, page 751]; see also [2] and [7, pages 13–14].

But as the examples above show, many mathematicians, including some of the greatest, have on occasion behaved eccentrically. And the above classification into subtypes suggests why. For the root of the eccentricity can be some of the same personality traits needed for mathematical success. Hilbert was a great mathematician in part because of his creativity, boldness, and courage, defying convention to strike out into new intellectual paths. The very same habits of thought might easily lead him into the unconventional-ity of borrowing a woman's fur coat. The other eccentricity-conducive trait, deep absorption in mathematics, is equally the source of most mathematical success. How did Newton discover the law of universal gravitation? "By thinking on it continually," he said [8, page 105].<sup>3</sup>

The suggested conclusion is that we should be indulgent of eccentricity, in others as well as in ourselves, since its roots may be nearly identical with those of our mathematics. Considering the good mathematics creates in the world, and the joy and fulfillment it gives to us mathematicians, why worry about an occasional amused chuckle among the bystanders?

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<sup>3</sup>As Westfall explains, this epigram has "somewhat shaky authority," coming, posthumously and in French, through Voltaire. The thought is authentic, though, as confirmed by another Newton quote: "I keep the subject constantly before me, and wait 'till the first dawns open slowly, by little and little, into a full and clear light" [8, page 174].

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