



2022

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Recommended Citation

Klyve, Dominic (2022) "Leonhard Euler's Correspondence Schedule," *Euleriana*: 2(1), p. 51, Article 7.

DOI: <https://doi.org/10.56031/2693-9908.1029>

Available at: <https://scholarlycommons.pacific.edu/euleriana/vol2/iss1/7>

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Leonhard Euler's Correspondence Schedule

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Abstract

In addition to his large number of published articles and books, Leonhard Euler engaged in a prolific correspondence with scientists, mathematicians, and administrators throughout his career. By compiling the dates of all of his known letters, as described in the *Opera Omnia*, we can gain an understanding of Euler's weekly schedule. We report here for the first time Euler's preference, particularly during his Berlin Period, of writing letters on Tuesdays and Saturdays.

Is it possible to know Euler's weekly schedule?

In order to understand a great mathematician of the past (or indeed, any historical figure), it is often helpful to take time to think of them as a "real person" – one who cleaned their teeth, took care of daily chores, and kept a schedule. Often, however, these mundane aspects of life are lost to history; no record is made of much of the minutiae that makes up our days. Sometimes, however, we can find a window into the daily life of someone in the past through unexpected sources. In the case of Leonhard Euler (1707-1783), we can learn something about his weekly schedule – and his devotion to it – though a study of his correspondence.

The Opera Omnia

Volume 1 of Series IV of the *Opera Omnia* [Juškevič et al.] lists 2,829 letters in Euler's correspondence. Of these, 988 were written by Euler, with the remaining 1,841 written to him. The letters include everything from routine administrative correspondence to deep discussions of mathematics and the sciences. The dates of most of the letters are recorded, but 38 letters have no exact date, leaving us with 950 letters by Euler that can be dated precisely. A database was compiled for the Euler Archive of all of these letters, listing the letter writer, the recipient, and the date written; this database forms the basis of the work in this paper.

Given the date of a letter, we can calculate the day of the week on which it was written. In Euler's case, we need to be aware that he wrote under two different calendars. Before he left for St. Petersburg in April 1727 (two of his letters from this period survive),

and during his time in Berlin (July 1741-June 1766), he used the Gregorian calendar (dates taken from [Calinger]). During his time in Russia, he followed local practice and used the older Julian calendar. Before software can be used to calculate the day of the week, the Julian days must be converted to their corresponding Gregorian date. Fortunately, this is not difficult – the difference between the calendars was precisely 11 days throughout the eighteenth century.

When we finish this conversion and calculate the day of the week on which Euler wrote each of his known letters, we find that the distribution of days is far from random. In fact, we find that Euler followed a fairly strict schedule in writing his correspondence for much of his career, and that over 77% of his letters were written on either a Tuesday or a Saturday.

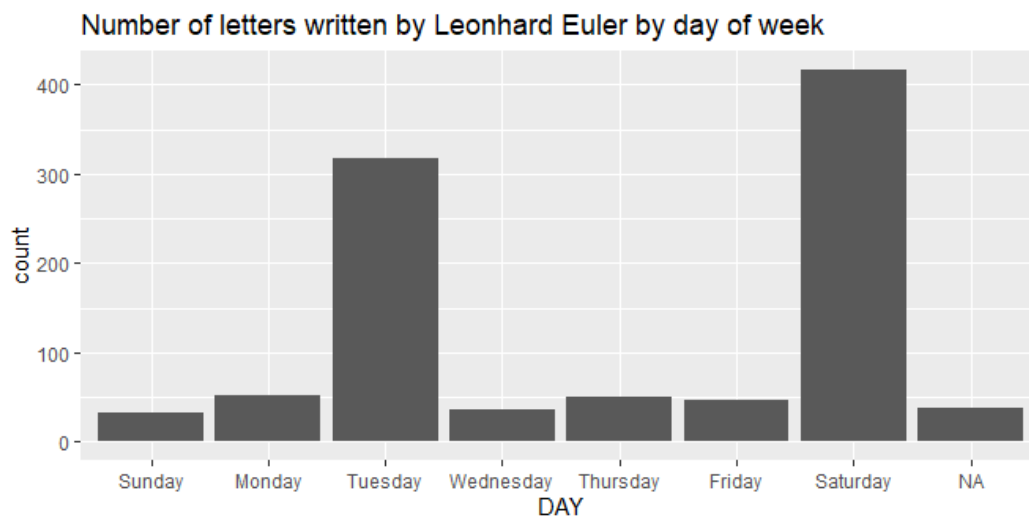


Figure 1: The number of letters written by Leonhard Euler on each day of the week.

Interestingly, this careful schedule seems to be a habit that Euler developed over time, before beginning to abandon it at the end of his career. During his First St. Petersburg Period, we see a fairly uniform distribution over the days of the week, although Saturday is still the day most represented and Sunday letters are rare. His schedule became quite meticulous during his Berlin period – 81.8% of his letters during this time were written either on a Tuesday or a Saturday. It is as if he decided to “let go” of some rigor in his later days, and of the 55 letters from his second St. Petersburg period, less than half were written on Tuesday or Saturday (see Figure 2).

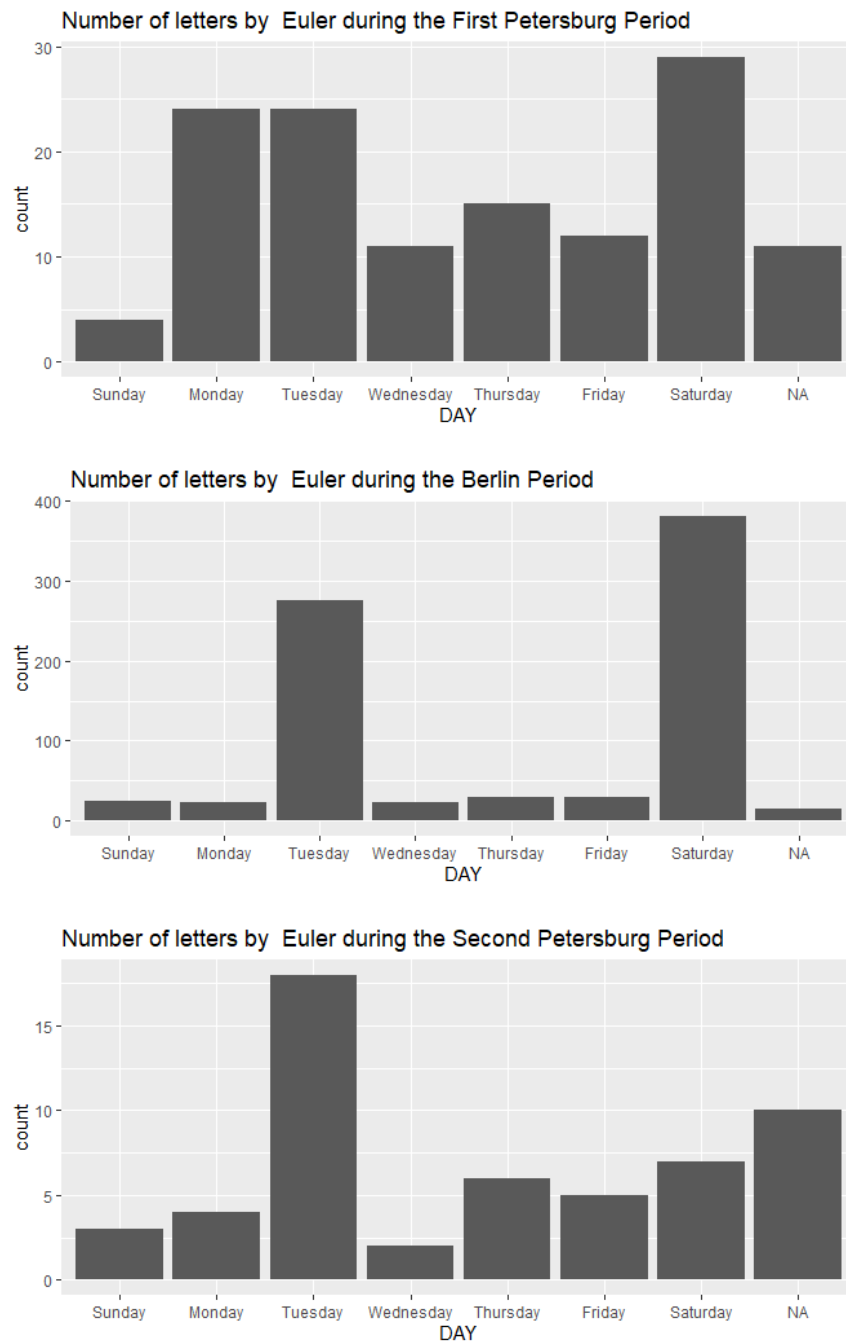


Figure 2: The number of letters Euler wrote on each day of the week, based on the period of his life.

The habit of focusing on correspondence on Saturdays in particular seems to be a practice Euler began during his last years in St. Petersburg – about 30% of his letters during the years 1739, 1740, and 1741 were Saturday letters – and abandoned after leaving Berlin in 1766. During his last full year there, 55% of his 20 known letters were composed on a Saturday. Of the 28 letters written during the first five years of his Second Petersburg period, however, only two were written on a Saturday. It is unknown why his schedule changed in this way¹.

We end this note with one more graph and one more curiosity. Just as we can ask about the day of the week on which a letter is written, so could we ask about the calendar date. A graphical depiction of the number of letters written on each date over Euler's career shows what we might expect – a rather uniform distribution – with one discrepancy. Euler, it seems, rarely composed letters on the first day of the month.

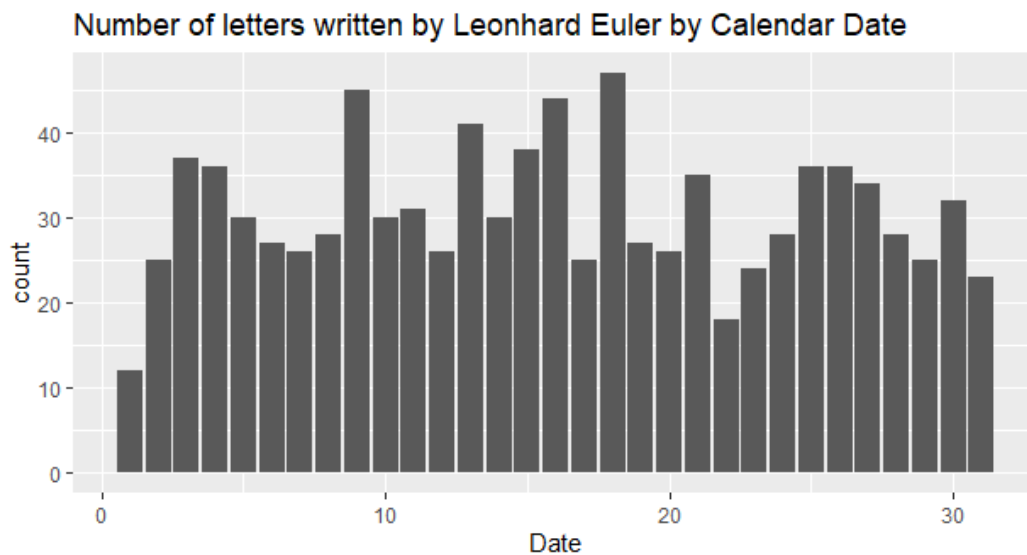


Figure 3: The number of letters written by Euler on each calendar date.

¹ Thanks to the editor for the straightforward suggestion that Euler's administrative duties in Berlin necessitated a more rigorous schedule.

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