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**Elemente der Mathematik**

# Rezensionen

**A.E. Kossovsky: Benford's law. Theory, the general law of relative quantities, and forensic detection applications.** xxi + 649 pages, GBP43.00. World Scientific Publishing Co. Pte. Ltd. Singapore, 2015; ISBN 978-981-4651-20-2 (soft cover).

The so-called Benford's Law (hereafter BL) is the observation that, in many diverse collections of numerical data, the occurrence of the first digit is not uniform. More precisely the digit 1 appears more often than 2 as leading digit, in turn, 2 appears more frequently than 3 and so on, the digit 9 appearing approximately only 5% of the time. Quantitatively, a set of numerical data satisfies BL if, for every digit $d \in \{1, 2, \ldots, 9\}$, the probability that the first digit be $d$ is equal to $\log_{10}(1 + 1/d)$. It was discovered first in 1881 by the astronomer Simon Newcomb but his article passed completely unnoticed. Newcomb observed that the pages of logarithms tables were more worn in the first digits than in the last ones. BL was re-discovered, apparently independently, by Frank Benford in 1938.

In a previous issue, I wrote a common review on two books on BL which are complementary: *An Introduction to Benford's Law* by A. Berger and T. Hill, and *Benford's Law* (*Theory & Applications*) by S.J. Miller (Ed.). Both books are mathematically reliable and they present serious and interesting introductions to the subject. The interested reader is advised to refer to these two monographs for further details on BL.

I decided to write an independent review on Kossovsky's book because it is substantially different in many aspects. In fact, it seems to be intended to non-mathematicians and it is written in a weird and somehow naive style; for instance, here is the beginning of Chapter 86 entitled *Mother Nature builds and destroys with digits in mind*: "Mother Nature is always quite busy, simultaneously forming planets, stars, galaxies, rivers, cities and towns" (*sic*).

It is subdivided into 147 short chapters gathered together into seven sections that are essentially devoted to numerical examples taken either from well-known data sets (fraud in accounting data sets, physical constants,...) or from standard sequences such as geometric progressions. It even contains a chapter (Chapter 19) explaining with much detail that the set of all integral powers of 10 do not satisfy BL!

In fact, I have the impression that the aim of the author is to convince the reader that BL holds in almost every numerical data set. The book contains plenty of lengthy explanations (I can't honestly call them 'proofs') on why some data set satisfies BL, information that any reader could find in a much more convenient form in one of the above mentionned books for instance.

Furthermore, the author seems to ignore that there are nowadays very good typesetting means to write mathematical texts, because the one used in his monograph is not suited for writing mathematical expressions.

In conclusion, Kossovsky's book might be of some interest for non-mathemati-cians but definitely not for mathematicians.

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