

Baber, Robert Laurence

The language of mathematics. Utilizing math in practice. (English) Zbl 1230.00013

Hoboken, NJ: John Wiley & Sons (ISBN 978-0-470-87889-7/hbk; 978-1-118-06177-0/ebook). xx, 416 p. (2011).

This is an interesting book where Professor Baber views mathematics from a bit unusual point of view, through the “Language of Mathematics,” a special language and notation developed by mathematicians for communicating and recording ideas and results, as well as for the formulation and analysis of problems. Interpreting reformulation of the English text into mathematical expressions as a translation, and thus, as a language problem, rather than a mathematical task, the author argues that “the language-oriented approach will make mathematics more accessible to those who like language and languages, but who have until now avoided - even disliked - mathematics. (...) My own experience in learning, utilizing, and teaching mathematics has led me to the conclusion that mathematics should be introduced by examining the basics of the Language of Mathematics. I believe that presenting word problems as language problems will draw students’ conscious attention to the real issues involved in applying mathematics and will make learning this material easier.”

Although the idea of viewing mathematics as a language is not completely new, Professor Baber stresses that “the particular approach in this book is new. Whereas other works nominally dealing with linguistic aspects of mathematics tend to view the topic from the standpoint of *mathematics*, this book quite intentionally views the Language of Mathematics from the opposite side: from the standpoint of *language*. (...) This book deals explicitly and extensively with translating English statements into the Language of Mathematics, pointing out grammatical clues useful as guidelines. (...) Also new in this book is the observation that all verbs implicit in expressions in the Language of Mathematics are stative in nature (timeless, tensless verbs or state of being), a characteristic that has significant implications for translating from English to the Language of Mathematics.”

The material in book is organized into the four main parts. Part A, Introductory Overview, briefly describes the topics discussed in the book: mathematics, language, mathematical models, the role of translating English into mathematics in applied problems. A number of concepts beneficial for applications of mathematics and important for the form and structure of the Language of Mathematics are presented in Part B, Mathematics and Its Language. Important characteristics of English and the Language of Mathematics are analyzed in Part C, English, the Language of Mathematics, and Translating Between Them. Similarities and differences of English and the Language of Mathematics and the implications of their differences for translation are also discussed here, along with the guidelines to translation between English and the Language of Mathematics. The main ideas developed in the book are summarized in the final Part D, Conclusions. Appendices in the end of the book provide additional information on representation of numbers, symbols in the Language of Mathematics, sets of numbers, special structures in mathematics, mathematical logic, waves and the wave equation, glossary of English words and their translation into the Language of Mathematics, relationship between programming languages and the Language of Mathematics, and the author’s reflections on further reading on the subject.

This text presents a new and original point of view on mathematics that will be useful for simplifying applications of mathematics to practical problems by translating English statements of a problem into the Language of Mathematics. The reviewer shares the author’s opinion that “this book will improve and increase the reader’s insight into mathematics and how to utilize it in practice.”

Reviewer: [Yuri V. Rogovchenko \(Umeå\)](#)

MSC:

[00A09](#) Popularization of mathematics

[00A08](#) Recreational mathematics

[97-02](#) Research exposition (monographs, survey articles) pertaining to mathematics education

[97E40](#) Language of mathematics (educational aspects)

Cited in 1 Review

Keywords:

language and mathematics; solving mathematical problems; translating English to mathematics; linguistic characteristics

Full Text: [DOI](#)