Modern books on computer arithmetic tend to only vary in the depth and breadth of their exposition of standard topics: binary integer representation and arithmetic, IEEE 754 standard floating-point representation and arithmetic, with some additional chapters on more specialized topics added to the mix—say, modular arithmetic—depending on the background and purpose of the authors.

The book by Kornerup and Matula is different from the very beginning, even though its table of contents appears to follow a standard outline (a first part on number representation, a part on integer arithmetic, a part on floating-point arithmetic, a part on modular arithmetic, and a part on rational arithmetic). The most defining feature of the book is it dealing with *redundant representation* throughout. As advocated by the authors in the introduction, redundant representation is a key to successfully exploiting the parallelism intrinsic to new multicore processors architecture. So far, the description of redundant representation and associated algorithms had been confined to research papers and books targeted to a very narrow audience of experts in the domain.

The book is organized in five parts and nine chapters; each chapter contains problems and exercices, an annotated bibliography, and references.

The first part (two chapters) presents the representation of numbers using radix systems and the conversion between different bases and digit sets. A strong emphasis is put on the choice of the digit sets to allow for redundant representations. The presentation is strongly mathematical and it sets the whole book on a firm footing, even though its theoretical rigor might put off some students and practitioners.

The second part (four chapters) presents the methods used to implement the addition (and subtraction), the multiplication, the division and the square root of integers using non-redundant as well as redundant representations. The algorithms are given with enough details to be non-ambiguous implementable specifications. Their translation into combinatorial/sequential electronic circuits is often given, though the level of details attained here does not make that a strong point of the book. In this part, the accent is put on how to take advantage of redundant representations to accelerate computation (e.g., from a linear-time addition algorithm to a constant time one).

The third part (one chapter) describes floating-point number systems. The IEEE 754 standard is introduced *at the end* of the chapter, which says something about the authors' purpose: this book is not about documenting what is already widespread; it is rather about broadening the perspective of the readers by presenting a unified theoretical framework that encompasses both classical representations and algorithms, and lesser known/used promising representations for the future. As a consequence, readers interested in a solid and comprehensive exposition of the IEEE 754 standard and floating-point arithmetic will be disappointed by this book and should turn to more specialized ones, such as Muller et al.'s [MR2568265].

The fourth part (one chapter) presents modular arithmetic and Residue Number Systems (RNS). The conversion between RNS and radix systems is described in details. All in all, the chapter is very complete and puts to shame even recent more specialized books on the subject.

The fifth part (one chapter) presents rational arithmetic. The chapter presents a very detailed and unified view of the authors' own work on the subject, both old and recent.

According to the authors, students at the graduate level, engineers and researchers constitute the intended audience for this book. In all fairness, this book may prove less attractive to a sizeable fraction of students and to more practically-oriented readers, due to the authors' choice of a strongly mathematical presentation. For researchers and more mathematically-oriented readers, this book is a treasure trove of algorithms difficult or impossible to find elsewhere. For practitioners interested in today's technology, there are better-suited books out there (Brent and Zimmermann's [MR2760886] for multiprecision arithmetic, or Muller et .al.'s [MR2568265] for floating-point arithmetic, to name a few of the most recents). For engineers and researchers interested in tomorrow's technology, this one, written by highly respected experts in the field, is The book to have on one's bookshelf.