ting zeros of polynomials and includes an elegant axiomatic treatment of computer arithmetic.

Since the notes were intended for elementary courses, they presuppose little mathematical background on the part of the reader. A thorough familiarity with calculus and elementary linear algebra is all that is required for most of the work. However, this does not greatly limit its scope, since most numerical algorithms can be derived from rather elementary considerations, even though a complete analysis may require a great deal of mathematical apparatus. Moreover, the elementary approach has enabled the author to segregate his topics into essentially independent essays. This is no doubt more the result of the lecture note format than of design, but I find the style quite congenial to the eclectic nature of numerical analysis.

As might be expected from the circumstances of their publication, the notes are uneven, with some parts having more polish than others. More seriously, much of the work is out of date. No mention is made of the use of finite elements to solve partial differential equations; nor is the QR algorithm mentioned in the sections on algebraic eigenvalue problems. I found myself wishing that the editor had appended annotated references to more recent works. Not only would this have increased the value of the notes, but it also would have reduced the chances of the casual reader's being misled about the current state of the art.

However, the virtues of the work far outweigh its defects. It is unfortunate that it is available only in German; for it deserves to be more widely read. Rutishauser's audience is not only the student, but the instructor teaching a numerical analysis course for the first time, and especially the mathematician who wants to find out what this important branch of applied mathematics is all about.

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Lie groups and compact groups, by John F. Price, London Mathematical Society Lecture Note Series, no. 25, Cambridge Univ. Press, Cambridge, London, New York, Melbourne, 1977, ix + 177 pp., $8.95.

There are few truly successful classification theorems in mathematics–that is, theorems which describe all examples of an apparently large class of objects in a relatively simple and constructive way. One of the best such theorems classifies compact connected Lie groups. As is usual in the subject, I shall use the word "simple" to mean what is also called "almost simple": G is simple if it has a finite center C such that G/C has no nontrivial closed normal subgroups. Now let G be any compact, connected Lie group, let Z be the connected component of the identity in the center of G, and let $H = [G, G]$, the closure of the commutator subgroup of G. The classification theorem says that Z is (isomorphic to) a torus and that $G \cong Z \times H/F_0$, where F is a finite central subgroup. Moreover, $H \cong G_1 \times \cdots \times G_n/F$, where $G_1, \ldots, G_n$ are simply connected simple Lie groups (uniquely determined up to order by H) and F is a finite central subgroup. Finally,