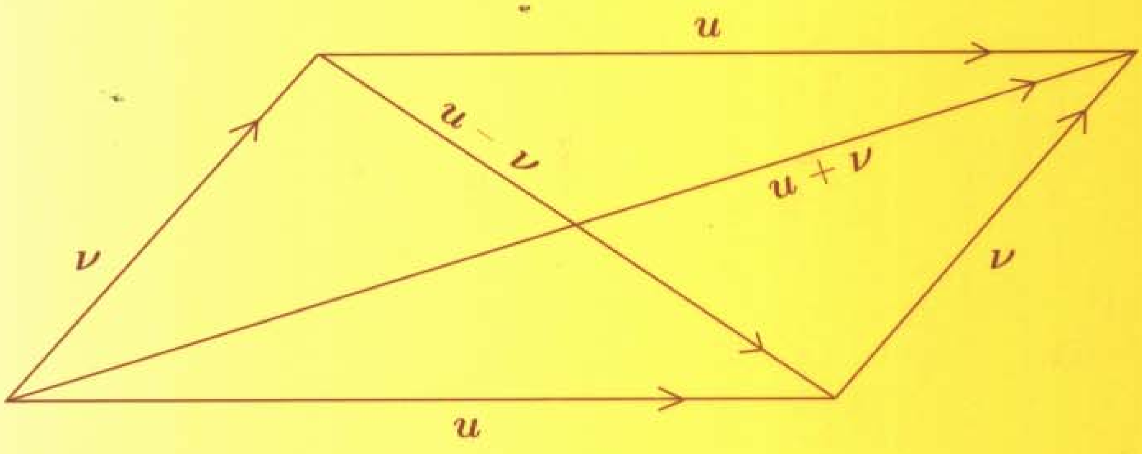
Sheldon Axler

LINEAR ALGEBRA DONE RIGHT

Second Edition



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Contents

UNDERGRADUATE TEXTS IN MATHEMATICS

This text for a second course in linear algebra is aimed at math majors and graduate students. The novel approach taken here banishes determinants to the end of the book and focuses on the central goal of linear algebra: understanding the structure of linear operators on vector spaces.

The author has taken unusual care to motivate concepts and to simplify proofs. For example, the book presents—without having defined determinants—a clean proof that every linear operator on a finite-dimensional complex vector space (or an odd-dimensional real vector space) has an eigenvalue. A variety of interesting exercises in each chapter helps students understand and manipulate the objects of linear algebra.

No prerequisites are assumed other than the usual demand for suitable mathematical maturity. Thus, the text starts by discussing vector spaces, linear independence, span, basis, and dimension. Students are introduced to inner-product spaces in the first half of the book and shortly thereafter to the finite-dimensional spectral theorem.

This second edition includes a new section on orthogonal projections and minimization problems. The sections on self-adjoint operators, normal operators, and the spectral theorem have been rewritten. New examples and new exercises have been added, several proofs have been simplified, and hundreds of minor improvements have been made throughout the text.

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