Preface

Enumerative combinatorics has undergone enormous development since the publication of the first edition of this book in 1986. It has become more clear what the essential topics are, and many interesting new ancillary results have been discovered. This second edition is an attempt to bring the coverage of the first edition more up to date and to impart a wide variety of additional applications and examples.

The main difference between this edition and the first is the addition of ten new sections (six in Chapter 1 and four in Chapter 3) and more than 350 new exercises. In response to complaints about the difficulty of assigning homework problems whose solutions are included, I have added some relatively easy exercises without solutions, marked by an asterisk. There are also a few organizational changes, the most notable being the transfer of the section on P-partitions from Chapter 4 to Chapter 3, and extending this section to the theory of (P, ω)-partitions for any labeling ω. In addition, the old Section 4.6 has been split into Sections 4.5 and 4.6.

There will be no second edition of volume 2 nor a volume 3. Since the references in volume 2 to information in volume 1 are no longer valid for this second edition, I have included a table entitled "First Edition Numbering," which gives the conversion between the two editions for all numbered results (theorems, examples, exercises, etc., but not equations).

Exercise 4.12 has some sentimental meaning for me. This result, and related results connected to other linear recurrences with constant coefficients, is a product of my earliest research, done around the age of 17 when I was a student at Savannah High School.

I have written my work, not as an essay which is to win the applause of the moment, but as a possession for all time.

It is ridiculous to compare *Enumerative Combinatorics* with *History of the Peloponnesian War*, but I can appreciate the sentiment of Thucydides. I hope this book will bring enjoyment to many future generations of mathematicians and aspiring mathematicians as they are exposed to the beauties and pleasures of enumerative combinatorics.

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