

Foreword

*Hofstadter's Law: It always takes longer than you think it will take,
even if you take into account Hofstadter's Law.*
(Douglas R. Hofstadter)

Dear Reader,

why did we begin the foreword of this second volume with the same quote as the first? There we wrote that it took three years of intense work just to fill three centimeters of your bookshelf. The completion of this volume took four years and it is about four centimeters thick. Thus we have a confirmed invariant which governs our writing: our velocity is one centimeter per year, after all effects due to Hofstadter's Law have been taken into account. When we started this project in the last millennium, we planned a book for learning, teaching, reading and, most of all, enjoying the topic at hand. Surely there is no law which says that a mathematical book has to be dull, boring, dry, or tedious. But how do you make it enjoyable?

Our approach has been to fill it with amusing quotes, varied jokes, funny word games, flowery metaphors and occasional literary efforts. There are two possible drawbacks of this method. Firstly, not everyone has the same sense of humour and not every metaphor works as intended. For instance, it is easy to joke about certain politicians, but what happens if they read this book? And when we wrote of a small boat sailing slowly into the Brazilian sunset, it was pointed out to us that this entails a geographical problem. Secondly, it is very difficult to write humorously in a foreign language. In the foreword of our first book, we acknowledged a modest lack of linguistic sophistication. This time around, our scribbling has utterly changed for the worse. When confronted with a concoction such as

... and if the whole section was a piece of cake for you, bring your bite to bear on Tutorials 47 and 48 [...].

even our hardest, steadfastest advisors John Abbott and Tony Geramita had to concede soft spots. The most enthusiastic remark we could wring from them was that one can find almost every word we use in an English dictionary. But if a word in the dictionary were *misspelled*, how would we know? Should we have taken more heed of the suggestions of our readers, one of whom

recommended correcting “*I* is an ideal” to “*I* am an ideal”? And what about definitions like “A flower is an educated weed”?

Another source for trouble were commas. Their distribution in this volume is rather random, because we were puzzled by rules such as the following one: “If you use then after an if, then don’t put a comma before then.”

*I must thank my parents,
but mostly my mother and my father.
 (“Spillo” Altobelli)*

As with the first volume, the second is really a joint effort of many people. We won’t bore you with platitudes about how many people contributed to this book; we’ll just bore you with a complete list of those people. A special mention goes to John Abbott who spent a lot of time, and almost all his patience, to help us improve our text. Moreover, he continually stimulated our writing with profound and enlightening remarks. Further substantial proofreading was done by Valentina Bertella, Anna Bigatti, Achim Kehrein, and Tony Geramita. We are also grateful to Laura Bazzotti, Henrik Bresinsky, Aldo Conca, Giorgio Dalzotto, Giulio Genovese, Daniel Heldt, Eva Ludwig, Matthias Machnik, and Maria Evelina Rossi for helpful remarks. In spite of this extensive proofreading, the book still contains infinitely many errors. (Proof by induction: You can always find another one.) We shoulder the full responsibility for everything that is still wrong, in particular if we have any words out.

Let us also not forget the many other people who have contributed to this book in more indirect ways: all famous and infamous people (including ourselves) whose quotes we abused, the soccer players of our favourite teams Bayern München and Juventus Turin who showed us that we were not the only ones who had their ups and downs, and the central bankers of this world who furnished us with never-ending amazement about their uncanny ability to create money out of nothing. Very instrumental in the writing of this book was the support we received from our families. Our wives Bettina and Gabriella and our children Chiara, Francesco, Katharina, Veronika, as well as the latest addition, Martin junior, devoted a significant part of their lives to aid us as much as possible.

A very special “thank you” goes to the Springer team, in particular to Dr. Martin Peters and his assistant Ruth Allewelt, for their efficient and professional help in the editorial and production part of this endeavour. Last, but not least, we acknowledge the book itself: after we have spent the better part of eight years putting much of what we know about computer algebra into it, the book knows more than we do since it also remembers what we have already forgotten. May it be as enjoyable and instructive to you as it is to us!

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Dortmund and Genova, March 2005



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