Ω with boundary condition $u = 0$ on $\partial\Omega$. When deriving an error expansion for the 5-point scheme it is said on page 214 that the solution is smooth for reasonable data. However, for $f \equiv 1$ (unreasonable?) the solution is not smooth up to the boundary, which makes the error expansion invalid. Another example occurs in section 5.5 on the Lax equivalence theorem. To formulate the theorem, the authors need the notion of a well-posed initial value problem, and they dare to define well-posedness without any function spaces. Not surprisingly, the definition is not correct.

Despite this criticism, the book offers a good introduction to the numerical solution of PDEs. As already mentioned, it is very well written. The reader obtains at least a good intuitive understanding of many important concepts of the field, even if these are not always perfectly formalized.

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Fearless Symmetry: Exposing the Hidden Patterns of Numbers. *By Avner Ash and Robert Gross.* Princeton University Press, Princeton, NJ, 2006. $24.95. xxv+271 pp., hardcover. ISBN 0-691-12492-2.

This is a popular exposition of the ideas behind the recent proof of Fermat's last theorem by Wiles and Taylor, together with other related research in number theory. It is an expanded version of an article [1] on the same topic written by the authors in 2000. Starting with the very powerful (but rarely discussed) idea of representing one kind of mathematical object by another, it sketches the definitions of groups, modular numbers, complex numbers, and equations and varieties, all building up to Galois groups of polynomials and their representations. Quadratic reciprocity is discussed in some detail, as preparation for the "generalized reciprocity laws" which form the technical heart of the book. Along the way elliptic curves and representations of groups by matrices also make an appearance. In the last part of the book all of these ingredients come together as Wiles and Taylor's proof of Fermat's last theorem is sketched, together with later work by Darmon and Merel.

Overall, as noted by Barry Mazur in the foreword, the book amounts to a beautiful "balancing act" that does a remarkable job in making the work it describes accessible to an audience without technical training in mathematics, while at the same time remaining faithful to the richness and power of this work. I recommend it to mathematicians and nonmathematicians alike with any interest in this subject.

REFERENCE

[1] A. ASH AND R. GROSS, *Generalized nonabelian reciprocity laws: A context for Wiles' proof*, Bull. London Math. Soc., 32 (2000), pp. 385–397.

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How to Prove It: A Structured Approach. Second Edition. *By Daniel J. Velleman.* Cambridge University Press, Cambridge, UK, 2006. $29.99. xiv+384 pp., softcover. ISBN 0-521-67599-5.

This is a textbook for a transition course, designed to introduce undergraduates to mathematical proofs without requiring extensive background. In fact, no knowledge beyond standard high school mathematics is assumed. The premise of the book is that students can learn how to reason mathematically more effectively from proofs which combine basic constructs in a nested way (analogous to structured programs, whence the title) than from traditional high school geometry proofs that consist of an ordered list of statements and reasons. Accordingly, after two chapters on logical connectives and quantifiers, the third chapter runs through the various forms that mathematical statements take and discusses for each one the structure the corresponding proof typically has. The next two chapters deal with functions and relations, introducing fundamental concepts about these as well as providing concrete material for the techniques of proof developed in Chapter 3. Mathematical induction is treated in Chap-