integral." This may be partially correct, in that the standard presentations of the Lebesgue integral are non-constructive, but it is certainly possible to give a constructive and computable development of the Lebesgue integral: see Bishop and Bridges, ***Constructive analysis*** (JSL LII 1047), Chapter 6.

This links to my final criticism. As in his earlier book on computable mathematics, ***Computable analysis*** (JSL XLIX 988), Aberth nowhere mentions the substantial body of work carried out since 1967 (when Bishop's ***Foundations of constructive analysis***, JSL XXXVII 744, appeared) in Bishop-style constructive mathematics, in which intuitionistic logic, rather than any formal notion of ideal computer, is the key. All Bishop-style constructive mathematics can be adapted, in a relatively straightforward way, to lie within Aberth's framework. While I am not afraid to admit a bias in this matter, I feel that the omission of any indication that there is a large body of alternatively-developed constructive mathematics compatible with Aberth's work is potentially misleading and could prevent students of computable mathematics from viewing the broad picture of constructivity.

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JOHN ARNOLD KALMAN. ***Automated reasoning with Otter.*** With a foreword by Larry Wos. Rinton Press, Princeton 2001, xv + 536 pp. + CD-ROM.

John Kalman's ***Automated reasoning with Otter*** is a complete user's guide for OTTER. William McCune's OTTER is the most widely used automated theorem-proving program. It is the current offering of the Argonne automated reasoning group led by L. Wos. OTTER and its resolution-based variants are often beaten in the annual CADE theorem-proving contests, but it has the most mathematical results of any prover (although the most famous theorem-prover result, the completeness of Robbins's axiomatization of Boolean algebras, belongs to McCune's EQP). This book's author, John Kalman, is noted for solving open problems about equivalential calculus and condensed detachment using OTTER and OTTER's predecessor ITP.

McCune's *OTTER 3.0 reference manual and guide* (report ANL-94/6, available through www.mcs.anl.gov/AR/otter) is the best reference manual for OTTER; it is concise and finding information about flags and parameters is easy. For the beginner seeking a theorem-proving overview, ***Automated reasoning, Introduction and applications*** by Wos et al. (JSL LI 464, LIX 1437) is easier reading but it is not specific to OTTER. But Kalman's book is the best user's guide (a reference describes what the commands do; a user's guide shows how to use the commands). It has 705 examples and exercises which cover the needs of beginning and advanced users. It thoroughly covers OTTER's inference rules (such as binary resolution and hyperresolution, paramodulation), OTTER's theorem-proving strategies (such as set-of-support and term orderings), OTTER's many flags and parameters, and the techniques (such as Skolemization) needed to convert a problem into an equiconsistent set of OTTER-readable clauses (universal disjunctive sentences). The CD included with the book contains version 3.04 of the OTTER program and a 3MB Acrobat file with the complete contents of the text.

Kalman includes advanced and specialized topics involving Skolem function symbols, term ordering, recursive path orderings, dynamic demodulation, and the many paramodulation flags. He includes topics not found elsewhere such as how to use the passive list to handle inequality and how subsumption can lead to derivational incompleteness. He does not cover fringe features such as Veroff's linked resolution, hot lists, ancestor subsumption, and conditional demodulation.

Kalman's book is also a fairly comprehensive guide to OTTER's accomplishments and the type of problems it can solve. About a quarter of the book consists of listings of input and output files for a wide variety of problems OTTER can solve. In areas such as combinatory