Book review

Term Rewriting Systems by "Terese", Cambridge University Press, 2003.
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Recent years have seen a number of textbooks on the subject of term rewriting, as well as some chapters on the subject in many-voluomed handbooks. Most of those textbooks are written with a student readership in mind, and therefore emphasise the introductory aspects. Only Ohlebusch's *Advanced Topics in Term Rewriting* went a few steps further. Similarly, although the handbook chapters go more deeply into medias res, they had limited room to explore technical details. What was missing was a comprehensive textbook, capturing the whole range of the subject, including details about proof techniques as well as advanced and recent developments – in other words, a reference book that would help professionals track down relevant material. This gap is what this book is trying to fill.

The result is an 800+ page thick book that covers pretty much the whole area of term rewriting, from abstract reduction systems to higher-order and infinitary rewriting, from completion techniques to rewrite logic, from termination proof techniques to strategies. In particular, rewrite logic is a relatively new subject which other books have largely neglected.

The introduction to the subject is quite brief (six pages), which is fine for this kind of book, but I would have liked to see a longer historical overview of the subject, giving people a road map on how the subject emerged and changed. For example, the book fails to mention who originally coined the term "Term Rewriting Systems" – or rather, that nobody seems to know who it was. This is more than just a piece of trivia, because this bears witness to the origins of the subject and changes in its focus.

Most of the chapters pursue their subject matter in considerable detail – only occasionally are we left with only a reference to the literature if we want to know more. Inevitably, the authors of the different chapters focused on their very own contributions to the field, sometimes adapting earlier publications to this changed context. A couple of times I felt that this went a bit too far, mostly in terms of leaving out other people's contributions. For example, the chapter on infinitary rewriting left out some concepts and results from the seminal papers by Kaplan *et al.*, which in my opinion should have been included, and the section on conditional TRSs omitted the "oriented" variety. However, this seems to affect only the fringe chapters of the book, the core is covered comprehensively.

Despite the relatively large number of authors (twelve), a considerable effort was made to unify notations and make the book appear as a coherent whole. In future years this could have the desirable side-effect of standardising notation.

Overall, the book pretty much delivers what it promises – it will soon be a compulsory reference for anyone working in the area.

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