



« Lothaire » project

<http://igm.univ-mlv.fr/~berstel/Lothaire/>

Combinatorics on words is a research subject with many developments in various branches of mathematics, like number theory, group theory or probability theory, and it appears frequently in problems issued from theoretical computer science, in relation with automata and formal languages. Combinatorics on words has many applications in mathematics, in data processing, linguistics, text compression, biology and physics.

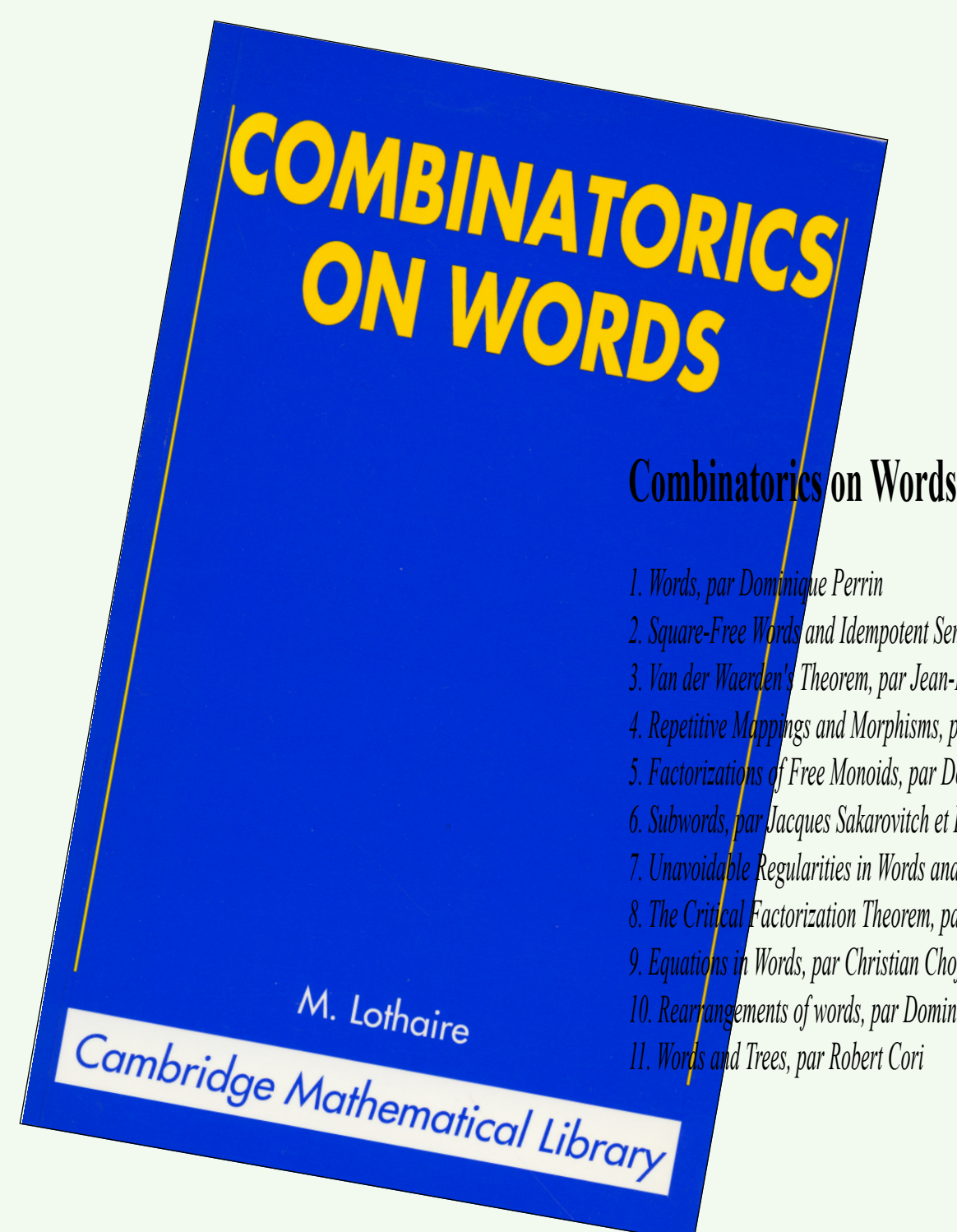
The « Lothaire » project has the ambition to gather together and to publish, in a unified form, the basics and the advanced topics in combinatorics on words. « Lothaire » is a nom de plume for a group of researchers who cooperate on this project, initiated by M.-P. Schützenberger and developed under the editorial guidance of J. Berstel and D. Perrin.

***Combinatorics on Words**, which is the first volume of the series, has appeared in 1984, as the 17th volume of the Encyclopedia of Mathematics. It was reprinted in 1997 in the Cambridge Mathematics Library.*

***Algebraic Combinatorics on Words**, the second volume of the series, focuses on more recent developments. It has appeared in 2002, at Cambridge University Press, and is available in paperback since 2010.*

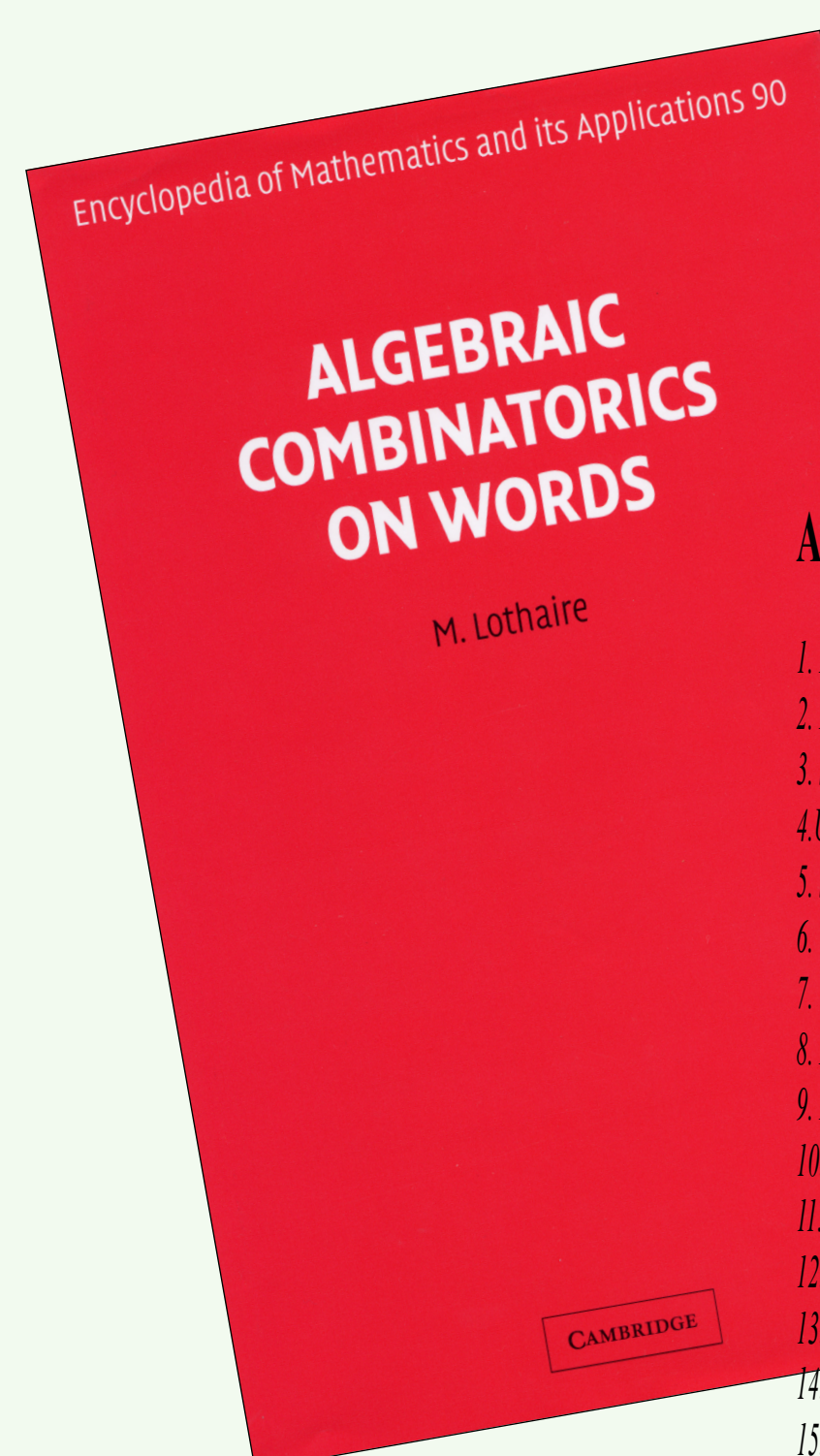
***Applied Combinatorics on Words** is devoted to applications, as the title indicates. It appeared in 2005, also at Cambridge University Press.*

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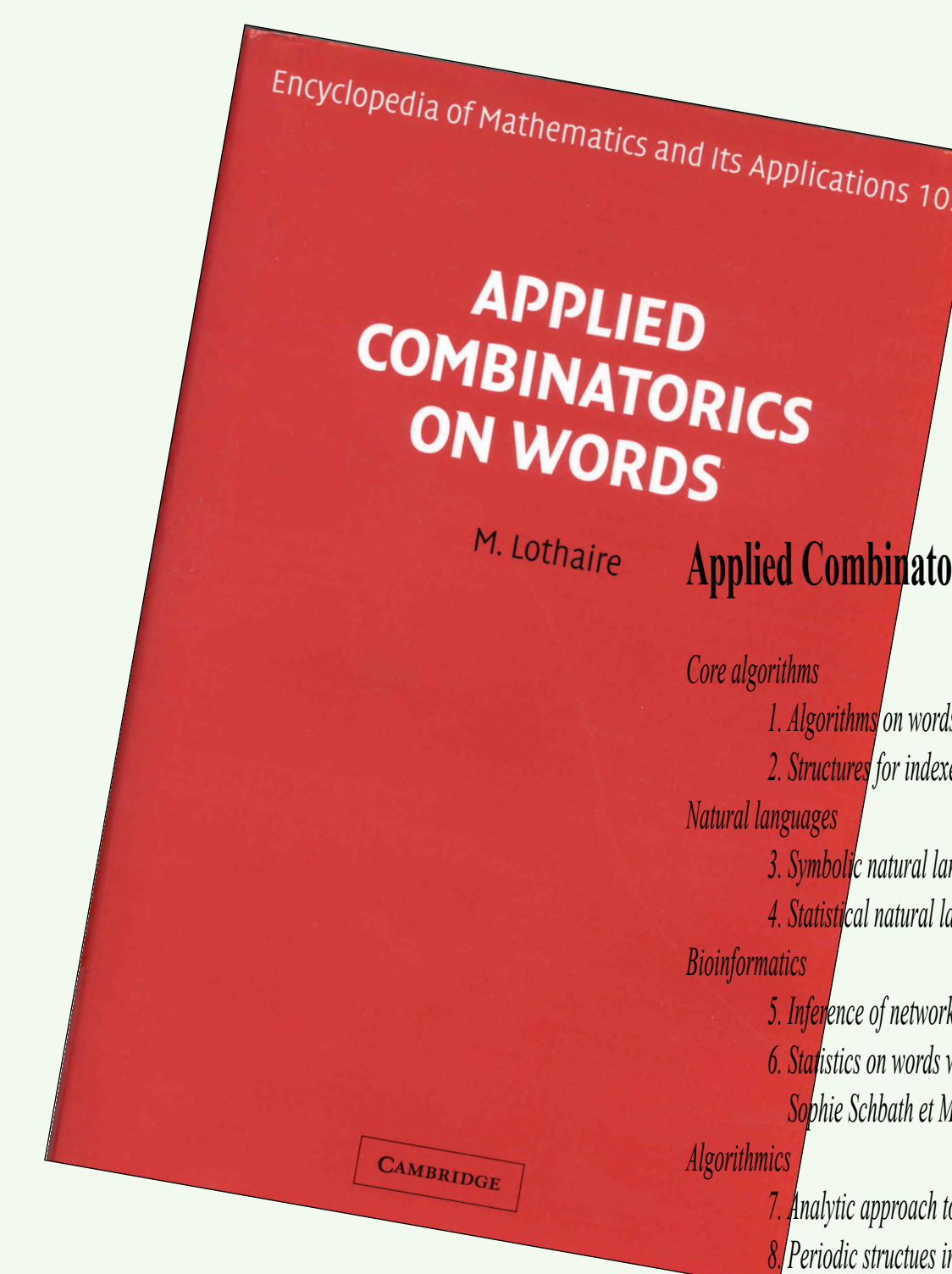
Combinatorics on Words

1. Words, par Dominique Perrin
2. Square-Free Words and Idempotent Semigroups, par Jean Berstel et Christophe Reutenauer
3. Van der Waerden's Theorem, par Jean-Eric Pin
4. Repetitive Mappings and Morphisms, par Giuseppe Pirillo
5. Factorizations of Free Monoids, par Dominique Perrin
6. Subwords, par Jacques Sakarovitch et Imre Simon
7. Unavoidable Regularities in Words and Algebras with Polynomial Identities, par Christophe Reutenauer
8. The Critical Factorization Theorem, par Marcel-Paul Schützenberger
9. Equations in Words, par Christian Choffrut
10. Rearrangements of words, par Dominique Foata
11. Words and Trees, par Robert Cori



Algebraic Combinatorics On Words

1. Preface
2. Finite and Infinite Words (Jean Berstel, Dominique Perrin)
3. Sturmian Words (Jean Berstel, Patrice Séébold)
4. Unavoidable Patterns (Julien Cassaigne)
5. Sequipowers (Aldo de Luca, Stefano Varricchio)
6. The Plactic Monoid (Alain Lascoux, Bernard Leclerc, Jean-Yves Thibon)
7. Codes (Véronique Bruyère)
8. Numeration Systems (Christiane Frougny)
9. Periodicity (Filippo Mignosi, Antonio Restivo)
10. Centralizers of Noncommutative Series and Polynomials (Christophe Reutenauer)
11. Transformations on words and q-Calculus (Dominique Foata, Guo-Niu Han)
12. Statistics on Permutations and Words (Jacques Désarménien)
13. Makanin's Algorithm (Volker Diekert)
14. Independent Systems of Equations (Tero Harju, Juhani Karhumäki, Wojciech Plandowski)
15. Bibliography and index



Applied Combinatorics on Words

Core algorithms

1. Algorithms on words, par Jean Berstel et Dominique Perrin
2. Structures for indexes, par Maxime Crochemore

Natural languages

3. Symbolic natural language processing, par Éric Laporte
4. Statistical natural language processing, par Mehryar Mohri

Bioinformatics

5. Inference of network expressions, par Nadia Pisanti et Marie-France Sagot
6. Statistics on words with applications to biological sequences, par Gesine Reinert, Sophie Schbath et Michael S. Waterman

Algorithms

7. Analytic approach to pattern matching, par Philippe Jacquet et Wojciech Szpankowski
8. Periodic structures in words, par Roman Kolpakov et Gregory Kucherov

Mathematics

9. Counting, coding and sampling with words, par Dominique Poulalhon et Gilles Schaeffer
10. Words in number theory, par Jean-Paul Allouche et Valérie Berthé