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Preface

This special issue of *Mathematical Structures in Computer Science* is devoted to the fourteenth *Italian Conference on Theoretical Computer Science* (ICTCS) held at University of Palermo, Italy, from 9th to 11th September 2013. ICTCS is the conference of the Italian Chapter of the European Association for Theoretical Computer Science and covers a wide spectrum of topics in Theoretical Computer Science, ranging from computational complexity to logic, from algorithms and data structure to programming languages, from combinatorics on words to distributed computing. For this reason, the contributions here included come from very different areas of Theoretical Computer Science. In fact this special issue is motivated by the desire to give people who have presented their ideas at the 14th ICTCS the opportunity to publish papers on their work. Submitted papers have been subject to a careful and severe reviewing process and 11 of them were selected for this special issue.

The content of this issue is briefly described in the following.

In the first paper *Type safe incremental rebinding*, an extension of the simply-typed lambda-calculus with a mechanism for dynamic and incremental rebinding of code is provided. The authors define a type system for the calculus which guarantees soundness by distinguishing types for rebinding on the basis of the allowed subtyping.

In *Structure and properties of strong prefix codes of pictures*, the notion of prefix code is extended from one to two dimensions and the maximality property is studied.

In *Fast circular dictionary-matching algorithm*, the authors show a suboptimal average-case algorithm for the string matching in a circular string, a problem which naturally arises in many biological contexts.

Permutation classes and polyomino classes with excluded submatrices, introduces an analogue of permutation classes in the context of polyominoes. An original characterisation of both classes is given with avoidance constraints, namely, with excluded submatrices.

A Gray code for cross-bifix-free sets considers cross-bifix-free sets of words, i.e. sets in which no prefix of any word is the suffix of any other word. A trace partitioned Gray code for these sets and a CAT algorithm generating it are here proposed.

In *On lookahead equilibria in congestion games*, the authors investigate the issues of existence and efficiency of lookahead equilibria in congestion games. Lookahead equilibria correspond to the natural extension of pure Nash equilibria in which the players, when making use of global information in order to predict subsequent reactions of the other ones, have computationally limited capabilities.

The paper *On merging two trust-networks in one with bipolar preferences*, deals with weighted trust networks, where each edge is associated with a score and, as well, with a distrust relationship, allowing a user to positively or negatively rate other individuals

in his web of acquaintances. An algorithm to compose two of such networks together is proposed.

In *Multi-level dynamo and opinion spreading*, the authors study the evolution of a multi-level opinion spreading model on networks with weights on the nodes which measure the individual conviction of a new idea or product where, in rounds, each node updates its weight according to those of its neighbours. The goal is to minimise the sum of the initial weights of the nodes.

Representing prefix and border tables: results on enumeration is focused on the problem of enumerating prefix or border tables, on words of a given length.

In *The longest common substring problem* the authors present a simple method for solving the LCS problem by using suffix trees and classical union-find data structures. Moreover, they show how this strategy can be adapted in order to work with other space efficient data structures such as the Enhanced Suffix Arrays and the Compressed Suffix Tree.

The paper *Set-syllogistics meet combinatorics* demonstrates the greater expressive power of the existentially-universally prenex sentences of Set Theory (in the relators 'belongs,' 'is equal') with respect to the ones of the pure first-order predicate calculus with equality.

We finally express our gratitude to all authors for their contributions and to the referees for their accurate and helpful reports. A special thank goes to Professor Giuseppe Longo, Chief Editor of MSCS, for his great cooperation and help.

Guest Editors
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