

Preface

Mathematical linguistics and formal language theory are two neighbouring fields; the former is one of the sources of the latter, while the latter had already an important impact on the former. At the same time, both mathematical linguistics and formal language theory proved to be able to show their relevance far beyond their boundaries. This issue of "Fundamenta Informaticae" proposes some contributions significant for the above aspects.

Contextual grammars were introduced with linguistic motivations. Longtime this fact was forgotten, but in the last years these grammars show their relevance in respect to natural languages, via computational linguistics. Starting from Joshi's mildly context-sensitive languages, very near to the requirements of computational linguistics, for which one of the conditions is to be parsable in polynomial time, Radu Gramatovici identifies a class of contextual grammars parsable in square time in the length of input words. Manfred Kudlek and Alexandru Mateescu consider some operations between languages which generalize the classical concatenation and the shuffle operation; as it is shown in another paper (published in "Lecture Notes in Computer Science" 1279, Springer, 1997, 269-280), distributed catenation and shuffle lead to a new variant of contextual grammars. Moreover, Carlos Martin Vide, Al. Mateescu and Arto Salomaa have obtained, by means of some contextual languages, an infinite hierarchy of mildly context-sensitive languages, showing again in this way, via Joshi's requirement, the relevance of contextual languages for computational linguistics. To the same area of contextual grammars, belongs the paper of Victor Mitrana, pointing out two strategies of parallel adjoining of contexts.

Two papers are devoted to pure grammars. Pavel Martinek approaches, by means of them, the grammatical inference problem, relevant for language learning processes. Miroslav Novotny introduces an interesting concept of pregrammar, in respect to which pure generalized grammars are considered. This very broad framework leads to surprising applications, related to rough sets and to Lebesgue non-measurable sets of reals.

Last, but not least, Lucian Ilie is concerned with combinatorics on words, strongly related to formal languages. The factor relation and Higman's theorem (asserting that the subword partial order has the finite basis property) are generalized.

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