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**On monotone languages and their characterization by regular expressions. (English summary)**
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For an alphabet $A$, the automaton $\mathcal{A} = (S, A, \delta, i, F)$ with set of states $S$, transition function $\delta$, initial state $i$, and final set of states $F$, is called monotone if there exists a partial ordering $\preceq$ on $S$ such that $s \preceq \delta(s, a)$ for any $s \in S$, $a \in A$. A seminormal chain language is a subset $L \subseteq A^*$ which can be written in the form $L = L_0 a_1 L_1 a_2 \ldots a_{k-1} L_{k-1} a_k L_k$ where $a_i \in A$, each $L_i$ is a product of fundamental languages (i.e., languages in the form $B^*$ for some $B \subseteq A$), and $a_i \notin L_{i-1}$ for any $1 \leq i \leq k$. A main result of [F. Gécseg and B. Imreh, J. Autom. Lang. Comb. **7** (2002), no. 1, 71–82; MR1915291 (2003d:68140)] is that a language is monotone (can be recognized by a monotone automaton) if and only if it is a union of finitely many seminormal chain languages.

In the paper under review, the author generalizes the above result to DR (deterministic root-to-frontier) tree languages by giving a description for regular expressions of DR tree languages that can be recognized by monotone tree automata.

The reader should be familiar with the paper referred to above [op. cit.] and the notions in [F. Gécseg and M. Steinby, *Tree automata*, Akad. Kiadó, Budapest, 1984; MR0735615 (86c:68061)] to be able to follow the paper's arguments.

Reviewed by *Saeed Salehi*