

Recognizer Membrane Systems

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Abstract

The different variants of P systems found in the literature are generally thought as generating devices. Many of them have been proved to be computationally complete: they compute all Turing computable sets of natural numbers or all recursively enumerable languages, depending on the variant considered.

In this talk *recognizer language devices* are presented in the framework of membrane computing.

Usually we consider that a problem is solved only when a *general method* is given, although in practice, such method can be used only for a finite number of instances, because the computational devices only have a finite amount of available resources. The methods considered in this talk are described in terms of a model of computation: *recognizer P systems*.

This model is specially suitable when trying to solve decision problems, that is, roughly speaking, problems that require either a *yes* or a *no* answer.

Basically, a recognizer membrane system is a P systems with input (for each multiset of the input alphabet there is an initial configuration associated with that multiset), with external output (the result of a successful computation is collected in the environment), all of whose all computations halts, and *confluent* (either all its computations with identical initial configurations are accepting computations, or all of them are rejecting ones).

In this talk several recognizer membrane systems are studied: cell-like systems with active membrane using symbol-objects, and tissue-like membrane systems using symbol-conformons.

References

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