

## REPORT ON NMCA 2010

### The 2nd Workshop on Non-Classical Models of Automata and Applications

23–24 August 2010, Jena

Manfred Kudlek

The second Workshop Non-Classical Models of Automata and Applications (NCMA 2010) was held in **Jena**, from August 23 to 24, 2010, in connection with **CMC11 (CMC 2010)**.

The organizing committee consisted of **Henning Bordihn, Rudolf Freund, Thomas Hinze, Markus Holzer, Martin Kutrib, and Friedrich Otto**.

Sponsors were **DFG (Deutsche Forschungsgemeinschaft)**, and partially also **Institut für Computersprachen, Technische Universität Wien**.

**NCMA 2010** was attended by 24 participants from 10 countries, as given in the following table:

AT	1	DE	10	FR	2	IT	4	PL	1
CZ	2	ES	1	HU	1	JP	1	SK	1

The scientific program consisted of 2 invited talks and 11 contributions, selected from 16 submissions (another one was withdrawn), as given below.

C	I	S	C	I	S	C	I	S	C	I	S
CZ		$1\frac{1}{3}$	ES	1		HU		$\frac{2}{3}$	PL	1	
DE		4	FR		2	IT		2	SK		1

**NCMA 2010** was opened on Monday morning by **Martin Kutrib**, introducing the history of **NCMA** and giving information on program, facilities and social program.

With the first invited lecture ‘*Survey: Tree Transducers in Machine Translation*’, well presented, **Andreas Maletti**, starting with examples from mp3 and Google, gave a good survey on the history of machine translation (phrase, segment, syntax oriented), machine translation, tree transducers, top-down tree transducers, and their properties as expressiveness, symmetry, regularity preservation, and closure under composition.

**Tomasz Jurdziński**, with the second one ‘*Growing Grammars and Length-reducing Automata*’, presented a very good and interesting overview on the gap between CFL and CSL, namely growing CS grammars, their deterministic version, Church Rosser languages, and the relations between them, as well as separating examples. Unfortunately there is only a short abstract in the proceedings.

To mention are also the good and interesting presentations by **Martin Huschenbett** on a Kleene-Schützenberger theorem for trace series over bounded lattices, by **Peter Leupold** on McNaughton families of languages specified by monadic string-rewriting systems, by **György Vaszil** on pushdown automata regulated by blackhole states, by **Maxime Senot** on signal machines and their relation to cellular automata, and the very good one by **Maria Paola Bianchi** on classes of DFA's, NFA's, PFA's over a unary alphabet.

The workshop was partially closed by **Rudolf Freund** on Tuesday noon, announcing next **DCFS**, **DLT**, and **NCMA**.

In the afternoon there were two invited talks, and a session '*Spiking Neural P Systems*', common with **CMC11**.

The first invited lecture, '*Cellular Automata and the Quest for Artificial Self-Reproducing*', presented by **Martin Kutrib** (coauthor **Markus Holzer**), was an excellent survey on fundamental questions (logical universality, constructibility, construction-universality, self-reproduction, evolution), the birth of cellular automata (Ulam, von Neumann, homogeneity, neighbourhoods, Conway's game of life, necessary and sufficient properties for self-reproduction), non-trivial self-reproduction, Herman's and Langdon's cellular automata), Conway's game of life (glider, glider gun, simulation of logical gates), synchronization (firing squad), and signals.

After this talk **Rudolf Freund** officially closed **NCMA 2010**.

**Gabriel Ciobanu** (coauthor **Bogdan Aman**), with the second one '*Mobility in Computer Science and in Membrane Systems*', dedicated to the memory of **Robin Milner**, gave a good and interesting overview on mobility in CS ( $\pi$  calculus, mobile ambients, mobile agents), mobility in brane systems, safe encoding of mobile ambients by mobile membranes, and mutual membranes with objects on surface. At the beginning, as a surprise, he presented to **Gheorghe Păun**, for his 60<sup>th</sup> birthday in 2010, a book *Membrane Computing - Biologically Inspired Process Calculi*, containing articles collected by him and students from **Iași**. Unfortunately, for both invited talks there are only short abstracts in the proceedings of **CMC11**.

To mention are also the good and interesting presentations by **Marian Kogler** on computationally complete spiking neural P systems, and by **Turlough Neary** on a universal spiking neural P system with 11 neurons. **Hendrik Jan Hoogeboom** introduced **Rudi Freund** to introduce himself.

The proceedings, edited by the organizing committee, containing the invited talks and all contributions, although that of **Tomasz Jurdziński** only as abstract, have been published as Band 263 of **Österreichische Computer Gesellschaft**. The proceedings of **CMC11**, edited by **Marian Gheorghe**, **Thomas Hinze**, and **Gheorghe Păun**, have been published by **Friedrich Schiller Universität Jena**.

In the breaks coffee, tea juice, mineral water, fruits, and snacks were offered. The social program of the workshop consisted of a dinner in **Zur Noll**, a nice restaurant in the traditional part of Jena.

Weather was warm with highst temperatures 20 to 25°C, but with some showers.

**NCMA 2010** (and also **CMC11**) was well organized, in a relaxed atmosphere. Next **NCMA** will be held at **Università degli Studi di Milano** (not Bicocca!), most probably from July 17-18, 2011.