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On surjunctive monoids. (English summary)

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After a technical introduction, this long paper continues with some background material on monoids and uniform spaces, in Sections 2 and 3 respectively. Then cellular automata over monoids are introduced in Section 4, and in Section 5 surjunctive monoids (monoids over which all injective cellular automata with finite alphabets are surjective) are studied. It is shown that the following monoids are surjunctive: all finitely generated commutative monoids, all cancellative commutative monoids, all residually finite monoids, all finitely generated linear monoids, and all cancellative one-sided amenable monoids. It is also shown that “the bicyclic monoid and, more generally, all monoids containing a submonoid isomorphic to the bicyclic monoid are non-surjunctive”. Finally, Section 6 is devoted to marked monoids where it is shown that limits of marked surjunctive monoids are surjunctive, and some open problems are listed in Section 7.

The paper is almost self-contained and gives a good survey on the subject, where for some proofs the readers are referred to the appropriate references. *Saeed Salehi*

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*Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.*