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PRODUCTS OF TOPOLOGICAL SPACES REPRESENT ANY SEMIGROUP

(Preliminary communication)

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All semigroups are supposed to be commutative. Let S be a semigroup (with an operation +), C be a class of topological spaces. Any mapping

$$r: S \longrightarrow C$$

such that for any $s, t \in S$

(i) $r(s + t)$ is always homeomorphic to $r(s) \times r(t)$

(ii) if $s \neq t$, then $r(s)$ is not homeomorphic to $r(t)$

is called a representation of S by products of spaces from C .

Theorem 1. Any countable semigroup has a representation by products of locally compact metrizable spaces.

Theorem 2. Any semigroup has a representation by products of Tichonoff spaces.

Theorem 3. If there is no measurable cardinal, then any semigroup has a representation by products of locally compact strongly paracompact Hausdorff spaces.

The full proofs will appear in J. of Algebra under the title "Representation of commutative semigroups by products in a category" (the first part of the proofs) and in Semigroup Forum under the title "On a representation of commutative semigroups" (the remaining part of the proofs).

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