Povzetek. Cilj dela je dokazati trditev, da je vsako polgrupo z lastnostjo krajšanja, ki ima kohomološko razsežnost ena, možno vložiti v neko prosto grupo.

Dokaz izreka poteka postopoma. Vsaka polgrupa S z lastnostjo krajšanja s kohomološko razsežnostjo ena ima lastnosti, ki se izražajo v cikličnih sistemih enačb, zato je taka polgrupa element razreda L_∞. Iz izreka Malceva sledi, da je vsako polgrupo S z omenjenimi lastnostmi možno vložiti v grupo. Izkaže se, da se polgrupa S lahko vloži v svojo univerzalno grupo US. Ker obstaja monomorfizem, ki slika drugo kohomološko grupo univerzalne grupe US s koeficienti v poljubni grupi G v drugo kohomološko grupo polgrupe S s koeficienti v G, ima univerzalna grupa kohomološko razsežnost ena. Iz izreka Stallingsa in Swana sledi, da je univerzalna grupa US prosta.

Abstract. The aim of this work is to prove, that a cancellative semigroup with cohomological dimension one can be embedded in a free group.

The proof of the main theorem is gradual. Certain attributes of a cancellative semigroup with cohomological dimension one express themselves in cyclic systems of equations, this causes, that such semigroups belong to the class L_∞. From the theorem of Malcev follows, that a semigroup S with the attributes mentioned above can be embedded in a group. In particular, semigroup S can be embedded in its universal group US. Since there exists a monomorphism from the second cohomological group of the universal group US with coefficients in a group G to the second cohomological group of the semigroup S with coefficients in G, the universal group US has cohomological dimension one. From the Stallings-Swan theorem follows, that the universal group US is free.

Math. Subj. Class. (1991): 20M50, 20M99, 18G10, 18G15, 18G20
Key words: embedding subgroups in groups, theorem of Malcev, L_p-semigroups, resolutions, standard complexes, cohomology of suplemented algebras, cohomology of monoids, projective dimension, cohomological dimension.

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