Dependence spaces

Ewa Graczyńska

[1]

Abstract. The Steinitz exchange lemma is a basic theorem in linear algebra used, for example, to show that any two bases for a finite-dimensional vector space have the same number of elements. The result is named after the German mathematician Ernst Steinitz.

We present here another proof of the result of N.J.S. Hughes on Steintz' exchange theorem for infinite bases. In our proof we assume Kuratowski-Zorn Maximum Principle instead of well ordering. We present some examples of dependence spaces of general nature with theirs possible applications of the result in other as linear or universal algebra domains of mathematical sciences. The lecture was presented on 77th Workshop on General Algebra, 24th Conference for Young Algebraists in Potsdam (Germany) on 21st March 2009.

Opole University of Technology, Institute of Mathematics
E-mail address: e.graczynska@po.opole.pl www.egracz.po.opole.pl

[1]AMS Mathematical Subject Classification 2000:
Primary: 00A05, 08A99. Secondary: 11J72, 11J85