Erdős-Rado theorem

Canonical name	ErdHosRadoTheorem
Date of creation	2013-03-22 12:59:30
Last modified on	2013-03-22 12:59:30
Owner	Henry (455)
Last modified by	Henry (455)
Numerical id	9
Author	Henry (455)
Entry type	Theorem
Classification	msc 05D10
Classification	msc 03E05
Related topic	arrowsrelation
Related topic	ArrowsRelation

Repeated exponentiation for cardinals is denoted $\exp_i(\kappa)$, where $i < \omega$. It is defined by:

$$\exp_0(\kappa) = \kappa$$

and

$$\exp_{i+1}(\kappa) = 2^{\exp_i(\kappa)}$$

The Erdős-Rado theorem states that:

$$\exp_i(\kappa)^+ \to (\kappa^+)^{i+1}_\kappa$$

That is, if $f : [\exp_i(\kappa)^+]^{i+1} \to \kappa$ then there is a homogeneous set of size κ^+.

As special cases, $(2^\kappa)^+ \to (\kappa^+)^2_\kappa$ and $(2^{\aleph_0})^+ \to (\aleph_1)^2_{\aleph_0}$.