Jan Pelant; Alexander P. Šostak
Inclusion ordering of classes of $E$-compactness

Commentationes Mathematicae Universitatis Carolinae, Vol. 20 (1979), No. 1, 192

Persistent URL: http://dml.cz/dmlcz/105915

Terms of use:
© Charles University in Prague, Faculty of Mathematics and Physics, 1979

Institute of Mathematics of the Academy of Sciences of the Czech Republic provides access to
digitized documents strictly for personal use. Each copy of any part of this document must contain these Terms of use.

This paper has been digitized, optimized for electronic delivery and
stamped with digital signature within the project DML-CZ: The Czech Digital
Mathematics Library http://project.dml.cz
We answered negatively Mrówka's question [M] of whether classes between \( \mathcal{K}(T(\omega_\alpha)) \) and \( \mathcal{K}(\mathbb{S}) \) are linearly ordered by inclusion \( c \). (\( \mathbb{S} \) denotes the two point discrete space, \( T(\omega_\alpha) \) denotes the ordered space of ordinals less than \( \omega_\alpha \)). Our results can be divided into two parts:

1. More general results: using the Solovay theorem on stationary sets we proved:

   **Theorem:** Let \( \alpha_\omega \) be an uncountable regular initial ordinal. Then there are \( 2^{\alpha_\omega} \) classes of E-compactness which are contained in \( \mathcal{K}(T(\omega_\alpha)) \), contain \( \mathcal{K}(\mathbb{S}) \) and are not comparable by inclusion.

2. More concrete results: we constructed several particular examples which solve Mrówka's question as well. In one of these constructions we used the compactification \( cN \) of a countable discrete space \( N \) satisfying: 1) no subsequence of \( N \) converges in \( cN \), 2) there is no \( M \subset N \) such that \( M \cap N = \beta N \) (= the Čech-Stone compactification)

These results were achieved mainly during the second author's visit to Prague in December 1973.

P. Simon has recently constructed a very similar compactification \( b(N) \) of \( N \) for which \( b(N) = N \) is sequentially compact.

**Reference:**


ORDERABILITY OF SPACES WITH LINEARLY ORDERED UNIFORM BASE

M. Hušek (Karlova Universita, 18600 Praha, Československo), received 30.11.1978

**Theorem:** Let \( X \) be a nonmetrizable topological \( T_1 \)-space induced by a uniformity with a linearly ordered base. Then the topology of \( X \) is an order-topology.

This result generalizes that for topological groups proved by P.J. Nyikos, H.-C. Reichel (Gen. Top. Appl. 5(1975), 195-204) and that for spaces without isolated points proved by R. Frankiewicz, W. Kulpa (this issue). The result for metrizable 0-dimensional spaces was proved by H. Herrlich (Math. Ann. 159(1965), 77-80).

MODEL THEORETIC APPROACH TO CONCRETE CATEGORIES

Jiří Rosický (Universita J.E. Purkyně, Brno, Československo), received 24.11.1978

An infinitary first-order language \( L_{\omega_1\omega} \) has a class of function symbols, a class of relation symbols and a class of