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A WEAKENING OF SUBMETRIZABILITY AND PROPERTIES OF SPACES

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ABSTRACT. The notions of weakly jointly compact-metrizable space and of σ -stratifiable mapping are introduced. Corollary 2.5 affirms that a weakly jointly compact-metrizable feebly compact sequential space is metrizable. By Theorem 4.3, X is a strong Σ -space if and only if X is a σ -stratifiable image of some paracompact p -space. This fact leads to general conditions under which a Σ -space is a σ -space (Theorem 5.1 and Corollary 5.2). Some concrete corollaries of these facts are mentioned.

1. INTRODUCTION

Let X be a topological space and let \mathcal{F} be a family of subspaces of X . Following [5] and [6], we say that X is *jointly metrizable on \mathcal{F}* , or that X is *\mathcal{F} -metrizable*, if there is a metric d on X which *metrizes all members \mathcal{F}* (that is, the restriction of d to A generates the subspace topology on A , for any $A \in \mathcal{F}$).

In particular, we say that X is *compactly metrizable*, or that X is *jointly metrizable on compacta*, or is a *JCM-space*, if X is jointly metrizable on the family of all compact subspaces of X (see [5]).

A space is *countably metrizable* if it is jointly metrizable on all countable subspaces [5].

It is natural to give the following definition [5]: A space X will be called *jointly partially metrizable*, or X is a *JPM-space*, if there is a metric d on X which metrizes all metrizable subspaces of X .

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