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ON COMPACTA WHICH ARE l-EQUIVALENT TO I^n

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1. Introduction.

All spaces considered in this paper are assumed to be *metrizable*. A compactum is a compact space. A continuum is a connected compactum, and a mapping is a continuous function. For a space X we denote by $C(X)$ the space of all real-valued mappings on X with the topology of *uniform convergence*. Then by Milutin's interesting work [8], we have known that for each pair of uncountable compacta X and Y, $C(X)$ is linearly isomorphic to $C(Y)$ (see [12] for the details and generalizations). On the other hand, for space X we denote by $C_p(X)$ the space of all real-valued mappings on X with the topology of *pointwise convergence*. Spaces X and Y are said to be *l-equivalent* [1] provided that $C_p(X)$ is linearly isomorphic to $C_p(Y)$, written $C_p(X)\cong C_p(Y)$. Recently, Pavlovskiĭ [11] showed the following.

1.1. THEOREM. (1) *If locally compact spaces X and Y are l-equivalent, then for each non-empty open or closed set $\tilde{X}$ of X, there exists a non-empty open set in $\tilde{X}$ which can be embedded in Y. Therefore,* $\dim X=\dim Y$ (*see also* [4] *and* [13]).

(2) *Non-zero-dimensional compact polyhedra P and Q are l-equivalent if and only if* $\dim P=\dim Q$.

(3) *Let B be the Pontryagin's 2-dimensional continum with the property* $\dim(B\times B)=3$. *Then B is not l-equivalent to I^2, where I is the unit interval* [0, 1].

Being motivated by Theorem 1.1 (2), readers may consider that for $n\geqq 1$, all n-dimensional compact ANR's are l-equivalent to I^n. However, by Theorem 1.1 (1) and [3, Theorem VI. (6.1)], we can easily see that *for each $n\geqq 1$, there exists a collection of $2^{\aleph_0}$ n-dimensional compact AR's in R^{n+1} which are not l-equivalent to each other*. On the other hand, let X be a compactification of the half-open interval [0, 1) whose remainder is I^n. Then X is l-equivalent to I^n, although X is not even locally connected. Therefore it seems to be difficult to

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