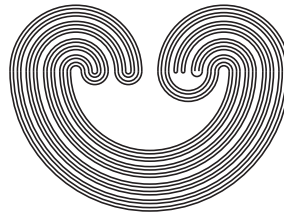


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OPEN INDUCED MAPPINGS, AN EXAMPLE

by

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OPEN INDUCED MAPPINGS, AN EXAMPLE

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ABSTRACT. For a Hausdorff space X , let $S_c(X)$ denote the hyperspace of all nontrivial convergent sequences in X , endowed with the Vietoris topology. Given a mapping between Hausdorff spaces $f : X \rightarrow Y$, the induced mapping $S_c(f) : S_c(X) \rightarrow S_c(Y)$ is defined by $S_c(f)(A) = f(A)$ (the image of A under f). In this paper we show an example of a strong light open mapping between Hausdorff Fréchet-Urysohn spaces $f : X \rightarrow Y$ such that $S_c(f)$ is not open. This answers a question by David Maya, Patricia Pellicer-Covarrubias, and Roberto Pichardo-Mendoza.

1. INTRODUCTION

The symbol \mathbb{N} denotes the set of positive integers. A *mapping* is a continuous function.

All spaces in this paper are Hausdorff spaces. Given a space X , let

$$CL(X) = \{A \subset X : A \text{ is closed and nonempty}\}.$$

Given $n \in \mathbb{N}$ and open subsets U_1, \dots, U_n in X , let

$$\langle U_1, \dots, U_n \rangle = \{A \in CL(X) : A \subset U_1 \cup \dots \cup U_n \text{ and } A \cap U_i \neq \emptyset \text{ for each } i \in \{1, \dots, n\}\}.$$

We consider $CL(X)$ with the Vietoris topology which has as a basis the family of all sets of the form $\langle U_1, \dots, U_n \rangle$.

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Key words and phrases. Fréchet-Urysohn space, hyperspace of nontrivial sequences, induced mappings, open mappings.

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