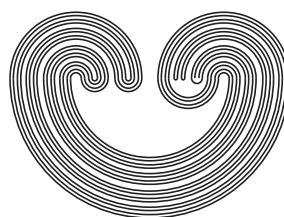


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DESTROYING FRÉCHET-URYSOHN PROPERTY BY FORCING

by

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DESTROYING FRÉCHET-URYSOHN PROPERTY BY FORCING

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ABSTRACT. We study how forcing destroys properties such as Fréchet-Urysohn property, sequentiality and countable tightness. We show that adding a Cohen real destroys Fréchet-Urysohn property of non-strongly Fréchet-Urysohn Hausdorff spaces (Theorem 3.4).

1. INTRODUCTION

Let \mathbf{V} be a ground model and let \mathbb{P} be a forcing. Let $\mathbf{V}^{\mathbb{P}}$ denote the forcing extension of \mathbf{V} by \mathbb{P} . For a topological space (X, τ) in \mathbf{V} , we consider a topological space $(X, \tau^{\mathbb{P}})$ in $\mathbf{V}^{\mathbb{P}}$ such that $\tau^{\mathbb{P}}$ is the topology on X generated by τ in $\mathbf{V}^{\mathbb{P}}$. By definition τ is a base for $\tau^{\mathbb{P}}$. Let φ be a topological property. We say that a forcing \mathbb{P} preserves the property φ , provided whenever a space (X, τ) satisfies φ , $(X, \tau^{\mathbb{P}})$ also satisfies φ . If a forcing \mathbb{P} does not preserve a property φ , then we say that \mathbb{P} destroys the property φ . Grunberg, Junqueira, and Tall in [10] and Fleissner, LaBerge, and Stanley in [6] studied how normality is preserved by adding Cohen reals. In [12], we studied how covering properties are preserved by adding Cohen reals, and in [13], we investigated how forcing preserves countable compactness and pseudocompactness. In this note, we continue this line of research and focus on destroying topological properties by forcing. First, let us observe that forcing preserves first countability.

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Key words and phrases. Fréchet-Urysohn, sequential, countably tight, forcing.

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