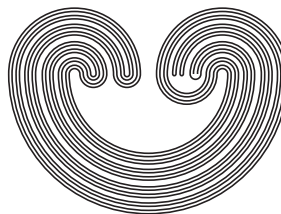


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## CLOSED DISCRETE SELECTION IN THE COMPACT OPEN TOPOLOGY

by

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## CLOSED DISCRETE SELECTION IN THE COMPACT OPEN TOPOLOGY

CHRISTOPHER CARUVANA AND JARED HOLSHOUSER

ABSTRACT. V. V. Tkachuk [*Closed discrete selections for sequences of open sets in function spaces*, Acta Math. Hungar. **154** (2018), no. 1, 56–68] isolates the closed discrete selection property while working on problems related to function spaces. In this paper, we study the closed discrete selection property and the related games and strategies on  $C_k(X)$ . Steven Clontz and Jared Holshouser [*Limited information strategies and discrete selectivity* Preprint. Available at arXiv:1806.06001v1 [math.GN]] show that the closed discrete selection game on  $C_p(X)$  is equivalent to a modification of the point-open game on  $X$ . In this paper, we show that the closed discrete selection game on  $C_k(X)$  is equivalent to a modification of the compact-open game on  $X$ . We also connect discrete selection properties on  $C_k(X)$  to a variety of other properties on  $X$ ,  $C_k(X)$ , and hyperspaces of  $X$ .

### 1. INTRODUCTION

In a 2018 paper [20], V. V. Tkachuk isolates the closed discrete selection property while working on problems related to function spaces. He connects this property for  $C_p(X)$  and  $C_p(X, [0, 1])$  to topological properties of  $X$ . He also studies the game version of the closed discrete selection property and connects strategies in that game on  $C_p(X)$  to strategies in Gruenhage's  $W$ -game on  $C_p(X)$  and the point open game on  $X$  [21]. Steven Clontz and Jared Holshouser [5] strengthen this relationship, showing that strategies for the discrete selection game on  $C_p(X)$  are equivalent to strategies in a non-trivial modification of the point-open game on  $X$ .

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