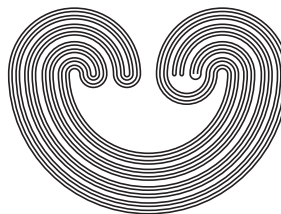


<http://topology.auburn.edu/tp/>

---

# TOPOLOGY PROCEEDINGS



Volume 56, 2020

Pages 219–236

---

<http://topology.nipissingu.ca/tp/>

## A CHARACTERIZATION OF PARACOMPACTNESS OF LEXICOGRAPHIC PRODUCTS

by

YASUSHI HIRATA AND NOBUYUKI KEMOTO

Electronically published on December 10, 2019

This file contains only the first page of the paper. The full version of the paper is available to Topology Proceedings subscribers.

See <http://topology.auburn.edu/tp/subscriptioninfo.html> for information.

---

### Topology Proceedings

**Web:** <http://topology.auburn.edu/tp/>

**Mail:** Topology Proceedings

Department of Mathematics & Statistics

Auburn University, Alabama 36849, USA

**E-mail:** [topolog@auburn.edu](mailto:topolog@auburn.edu)

**ISSN:** (Online) 2331-1290, (Print) 0146-4124

COPYRIGHT © by Topology Proceedings. All rights reserved.

## A CHARACTERIZATION OF PARACOMPACTNESS OF LEXICOGRAPHIC PRODUCTS

YASUSHI HIRATA AND NOBUYUKI KEMOTO

**ABSTRACT.** It is known that lexicographic products of paracompact LOTS's are also paracompact; see M. J. Faber [*Metrizability in Generalized Ordered Spaces*, Mathematical Centre Tracts, No. 53. Amsterdam: Mathematisch Centrum, 1974]. After then the notion of the lexicographic products of GO-spaces is defined and the result above is extended for lexicographic products of GO-spaces and it is asked, When are lexicographic products of GO-spaces paracompact? (See Nobuyuki Kemoto, [Topology Appl., 232 (2017) pp. 267–280]). For this question, paracompactness of lexicographic products of some special cases below are characterized by Kemoto [Topology Appl. 240 (2018), 35–58]:

- lexicographic products of two GO-spaces,
- lexicographic products of any length of ordinal subspaces.

In this paper, we give a complete answer to the question above asked by Kemoto [Topology Appl., 232 (2017) pp. 267–280].

### 1. INTRODUCTION

All spaces are assumed to be regular  $T_1$  and when we consider a product  $\prod_{\alpha < \gamma} X_\alpha$ , all  $X_\alpha$  are assumed to have cardinality at least 2 with  $\gamma \geq 2$ . Set theoretical and topological terminology follows [5] and [1].

A linearly ordered set  $\langle L, <_L \rangle$  has a natural topology  $\lambda_L$ , which is called an *interval topology*, generated by  $\{(\leftarrow, x)_L : x \in L\} \cup \{(x, \rightarrow)_L : x \in L\}$  as a subbase, where  $(x, \rightarrow)_L = \{z \in L : x <_L z\}$ ,  $(x, y)_L = \{z \in L : x <_L z <_L y\}$ ,  $(x, y]_L = \{z \in L : x <_L z \leq_L y\}$ , and so on. The triple  $\langle L, <_L, \lambda_L \rangle$ , which is simply denoted by  $L$ , is called a *LOTS*.

---

2010 *Mathematics Subject Classification.* Primary 54F05, 54B10, 54B05;  
Secondary 54C05.

*Key words and phrases.* GO-space, lexicographic product, LOTS, paracompact.

©2019 Topology Proceedings.

This file contains only the first page of the paper. The full version of the paper is available to Topology Proceedings subscribers. See <http://topology.auburn.edu/tp/subscriptioninfo.html> for information.