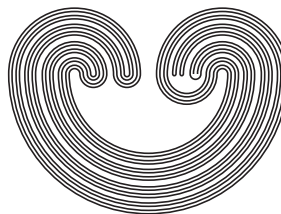


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## THE STRUCTURE OF THE LINEARLY ORDERED COMPACTIFICATIONS OF GO-SPACES

by

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## THE STRUCTURE OF THE LINEARLY ORDERED COMPACTIFICATIONS OF GO-SPACES

NOBUYUKI KEMOTO

**ABSTRACT.** A linearly ordered extension of a GO-space  $X$  is a LOTS  $L$  such that the LOTS  $L$  contains the GO-space  $X$  as a subspace and the order  $<_L$  on  $L$  extends the order  $<_X$  on  $X$ ; moreover, if  $X$  is dense in  $L$ , then  $L$  is called a linearly ordered d-extension. A linearly ordered compactification of a GO-space  $X$  is a compact linearly ordered d-extension of  $X$ . We will visualize all linearly ordered compactifications of a given GO-space in a certain way. For a given linearly ordered set  $\langle X, <_X \rangle$ ,  $\mathbb{L}_X$  denotes the class of all linearly ordered compactifications of GO-spaces whose underlying linearly ordered set is  $\langle X, <_X \rangle$ . We will also see the partial order structure  $\langle \mathbb{L}_X, \leq \rangle$ , where  $L_0 \leq L_1$  if there is a continuous map  $f : L_1 \rightarrow L_0$  such that  $f(x) = x$  for every  $x \in X$ , is order isomorphic to the product  $\langle \mathcal{P}(A), \subseteq \rangle \times \langle \mathcal{P}(B), \subseteq \rangle \times \langle \mathcal{P}(C), \subseteq \rangle$  for some sets  $A$ ,  $B$ , and  $C$ , where  $\langle \mathcal{P}(A), \subseteq \rangle$  denotes the partial ordered set of the set of all subsets of  $A$  with the usual inclusion. The sets  $A$ ,  $B$ , and  $C$  will be described exactly. Moreover, we will see that the partial order structure on the class of all linearly ordered compactifications of a fixed GO-space depends only on its underlying linearly ordered set, not on its topology.

### 1. INTRODUCTION

We assume that all topological spaces have cardinality at least 2. At first, we give precise definitions for later arguments.

A linearly ordered set  $\langle L, <_L \rangle$  (see [1]) has a natural  $T_2$ -topology  $\lambda(<_L)$  called the *interval topology* which is the topology generated by  $\{(\leftarrow, u)_L :$

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*Key words and phrases.* compact, connected, GO-space, linearly ordered extensions, LOTS.

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