

Ordered continuous bands on the positive real numbers and distribution

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Dedicated to Professor Jun Tomiyama on his 90th birthday

Abstract. Let \mathbf{R}_+ be the space of positive numbers with the ordinary topology and the ordinary order, and let \ddagger be any ordered continuous band on \mathbf{R}_+ . We show that there is no cancellative continuous semigroup operation on \mathbf{R}_+ which is distributed by \ddagger . Additionally, we show that if \ddagger is not homeomorphically isomorphic to any of three bands called *min*, *left-zero* and *right-zero*, then there is no cancellative continuous semigroup operation on \mathbf{R}_+ which is distributive over \ddagger . Moreover, we show that if \ddagger is homeomorphically isomorphic to any of these three bands, then all cancellative continuous semigroup operations on \mathbf{R}_+ are distributive over \ddagger .

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