

The automorphism group of a scattered set can be non-commutative

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Perhaps the simplest example is the lexicographic sum of copies Z_n of the integers indexed by the integers. If one performs the shift in the 0-indexed summand $m_0 \rightarrow (m+1)_0$ while leaving all the other summands fixed, and follows this with the shift $Z_n \rightarrow Z_{n+1}$ in the index set, then the element 0_0 will be sent on 1_1 ; whereas under these automorphisms performed in the other order, it will be sent on 0_1 . This non-commutativity contradicts Theorem 9 in [1].

Reference

- [1] J.L. Hickman, "Groups of automorphisms of linearly ordered sets",
Bull. Austral. Math. Soc. 15 (1976), 13-32.

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