



ON WEAK ISOMETRIES IN ABELIAN DIRECTED GROUPS

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ABSTRACT. *In the paper abelian directed groups with the basic intrinsic metric are assumed to be metric spaces and weak isometries, i. e. mappings preserving the basic intrinsic metric, are investigated. The main result is that for each weak isometry f in an abelian directed group G the relation $f(U(L(x, y)) \cap L(U(x, y))) = U(L(f(x), f(y))) \cap L(U(f(x), f(y)))$ is valid for each $x, y \in G$, where $U(x, y)$ is the set of all upper bounds and $L(x, y)$ the set of all lower bounds of the set $\{x, y\}$ in G . This proposition generalizes a result of J. Rachůnek concerning isometries in 2-isolated abelian Riesz groups. Further, the notion of a subgroup symmetry is introduced and it is shown that subgroup symmetries and translations are two basic kinds of weak isometries in 2-isolated abelian directed groups and that each weak isometry in a 2-isolated abelian directed group is a composition of a subgroup symmetry and a translation.*

KEY WORDS: *directed group, intrinsic metric, weak isometry*

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