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Small-sum pairs in abelian groups

Let A and B be subsets of size k in a finite abelian group G . Answering a question of Bihani and Jin, we prove that if $A + B$ and $A + A$ both have size $2k - 1$, then, under suitable technical hypotheses, A must be a translate of B . The main ingredient in the proof is Kemperman's structure theorem. This is joint work with Paul Larson.