Title: On extensions of the generalized cosine functions from some large sets

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Let $(G, +)$ be a commutative semigroup, $\tau$ be an endomorphism of $G$ and involution, $D$ be a nonempty subset of $G$, and $P$ be a quadratically closed field with $\text{char} P \neq 2$. We show that if the set $D \setminus g^{-1} \{ 0 \}$ is ‘sufficiently large’, then each function $g : D \to P$, satisfying the condition: $g(x + y) + g(x + \tau(y)) = 2g(x)g(y)$ for $x, y \in D$ with $x + y, x + \tau(y) \in D$, can be extended to a unique solution $f : G \to P$ of the functional equation $f(x + y) + f(x + \tau(y)) = 2f(x)f(y)$ for $x, y \in G$. 

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