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Title: Stability of perturbed sequences as a subbasis

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Let $A = \{a_1 < a_2 < \cdots\}$ be a set of nonnegative integers, and hA be the set of all sums of h not necessarily distinct elements of A. The set A is a *subbasis of order h* if hA contains an infinite arithmetic progression. Furthermore, for any set P of integers, a sequence $B = \{b_1, b_2, \dots\}$ is defined as a *P-perturbation of A* if $b_n - a_n \in P$ for all n. Let $\mathbb{Z}_0$ be the set of nonnegative integers. In this paper, we prove that: (i) for any integers k, l with $0 \le k < l$, every $\{k, l\}$-perturbation of $\mathbb{Z}_0$ is a subbasis of order 2; (ii) for every positive integer k, every $\{0, 3k-1, 3k\}$-perturbation of $\mathbb{Z}_0$ is a subbasis of order 4. This extends a result of John R. Burke and William A. Webb [1]. Related conjectures are also posed in the paper.

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