It is proved that, if $\mathfrak{A} = a_1 < a_2 < ... < a_n$ is a sequence of positive integers such that no integer can be expressed as a sum $a_i + a_j$ in more than k ways, then $\mathfrak{A}$ is the union of $C_1(k)n^{1/3}$ B_2- sequences, a B_2-sequence being a sequence with all two-element sums distinct. On the other hand, such an $\mathfrak{A}$ exists which is not the union of $C_2(k)n^{1/3}$ B_2- sequences. Proofs are couched in terms of hypergraphs.

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