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A PROBABILISTIC PROPERTY OF THE SPACE l_2^m

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Abstract: It is shown that for every sequence (x_k) of elements of l_2^m the following two properties are equivalent:

(a) $(x_k/k) \in l_2(l_2^m)$.

(b) $(\|S_n/n\|^2, \mathcal{F}_n)$ is a quasimartingale, where $S_n = \sum_{1 \le k \le n} \varepsilon_k x_k$, (ε_k) being a sequence of independent Rademacher r.v. and $\mathcal{F}_n$ denoting the σ-field generated by $(\varepsilon_1, \ldots, \varepsilon_n)$.

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