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A characterization of converging Ducci sequences over $\mathbb{Z}_2$,
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Abstract

It is well-known that any Ducci sequence generated by a vector of length a power of 2 will eventually reach the null vector. As an easy consequence, all vectors obtained by concatenating several copies of a vector of length 2 eventually reach the null vector. We prove a converse to this statement for Ducci sequences over the field $\mathbb{Z}_2$. Namely that over $\mathbb{Z}_2$, the only vectors converging to the null vector are the vectors obtained by concatenation of several copies of a vector of length a power of 2.