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On a metric generalization of Ramsey's theorem. (In English)

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An increasing sequence of reals $x = \{x_i\}$ is simple if all gaps $x_{i+1} - x_i$ are different. Two simple sequences x and y are distance similar if the consecutive distances are ordered in the same way, that is $x_{i+1} - x_i < x_{j+1} - x_j$ iff $y_{i+1} - y_i < y_{j+1} - y_j$ for all pairs i, j . The paper proves that given any bounded simple sequence x and any colouring of the pairs of rational numbers by finite number of colours, there is always a sequence y distance similar to x such that all pairs of y are of the same colour. A number of analogous results are proved and some interesting counterexamples are given.

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05D10 Ramsey theory

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Ramsey's theory; Szemerédi's theorem; partition calculus