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(q_1, q_2)-QUASIMETRICS BI-LIPSCHITZ EQUIVALENT TO 1-QUASIMETRICS

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We prove that the conditions of $(q_1, 1)$- and $(1, q_2)$-quasimertricity of a distance function ρ are sufficient for the existence of a quasimetric bi-Lipschitz equivalent to ρ. It follows that the Box-quasimetric defined with the use of basis vector fields of class C^1 whose commutators at most sum their degrees is bi-Lipschitz equivalent to some metric. On the other hand, we show that these conditions are not necessary. We prove the existence of (q_1, q_2)-quasimetrics for which there are no Lipschitz equivalent 1-quasimetrics, which in particular implies another proof of a result by V. Schröder.

Key words and phrases: distance function, (q_1, q_2)-quasimetric, generalized triangle inequality, extreme point, chain approximation, Carnot–Carathéodory space

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