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Stability in the C -norm and W_∞^1 -norm of classes of Lipschitz functions of one variable.

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Sib. Mat. Zh. 43, No. 5, 1026-1045 (2002); translation in *Sib. Math. J.* 43, No. 5, 827-842 (2002).

In the framework of Kopylov's ω -stability concept, see [*A. P. Kopylov*, *Sib. Math. J.* 25, 274-283 (1984; [Zbl 0546.30019](#))], the author studies some stable classes of Lipschitz functions of one real variable and gives an exhaustive classification for ω -stable classes of Lipschitz mappings of intervals of the real axis \mathbb{R} with values in \mathbb{R}^m , $m \geq 1$. It turns out that each ω -stable class is generated by some compact set $G \subset \mathbb{R}^m$ and partial preorder π on G by the following rule: the class consists of all Lipschitz mappings $g: \Delta \subset \mathbb{R} \rightarrow \mathbb{R}^m$ such that $g'(x) \in G$ a.e. and the derivative g' increases with respect to π (Theorem 1).

Using this complete description for the ω -stable classes of mappings of intervals in \mathbb{R} to \mathbb{R}^m , the author proves that, for all such classes, stability estimates hold in the C -norm as well as in the W_∞^1 -norm (Theorem 2).

Reviewer: [V. Grebenev \(Novosibirsk\)](#)

MSC:

[26A16](#) Lipschitz (Hölder) classes

[46E35](#) Sobolev spaces and other spaces of "smooth" functions, embedding theorems, trace theorems

[26A21](#) Classification of real functions; Baire classification of sets and functions

[26A24](#) Differentiation (real functions of one variable): general theory, generalized derivatives, mean value theorems

Keywords:

stability; classes of Lipschitz functions; ω -stability; functions of one real variable

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