

CORRIGENDUM TO: “MAXIMAL COMMUTATOR AND COMMUTATOR OF MAXIMAL FUNCTION ON TOTAL MORREY SPACES”

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Abstract. The purpose of this note is to correct an error in an earlier paper by the author : Maximal commutator and commutator of maximal function on total Morrey spaces, J. Math. Inequal.

In [1] we study maximal commutators M_b and commutators of the maximal operator $[b, M]$ in total Morrey spaces $L^{p, \lambda, \mu}(\mathbb{R}^n)$ when b belongs to $BMO(\mathbb{R}^n)$. The main goal of the paper [1] is to give necessary and sufficient conditions for the boundedness of the maximal commutator M_b and the commutators of the maximal operator $[b, M]$ on $L^{p, \lambda, \mu}(\mathbb{R}^n)$ when b belongs to $BMO(\mathbb{R}^n)$. New characterizations of some subclasses of $BMO(\mathbb{R}^n)$ are obtained.

We assume that the reader is familiar with the contents and notation in the aforementioned paper [1].

In the paper [1] the author omitted the condition $\mu \leq \lambda$ in inequalities (1), (2) and in Lemmas 2, 3. Otherwise, inequalities (1), (2) and the statements of Lemmas 2, 3 are false.

Therefore, the correct form of inequalities (1), (2) and Lemmas 2, 3 must be the following form.

$$L^{p, \lambda, \mu}(\mathbb{R}^n) \subsetneq L^{p, \lambda}(\mathbb{R}^n), \quad \mu \leq \lambda \text{ and } \|f\|_{L^{p, \lambda}} \leq \|f\|_{L^{p, \lambda, \mu}}, \quad (1)$$

$$L^{p, \lambda, \mu}(\mathbb{R}^n) \subsetneq L^{p, \mu}(\mathbb{R}^n), \quad \mu \leq \lambda \text{ and } \|f\|_{L^{p, \mu}} \leq \|f\|_{L^{p, \lambda, \mu}}. \quad (2)$$

LEMMA 2. If $0 < p < \infty$, $0 \leq \mu \leq \lambda \leq n$, then

$$L^{p, \lambda, \mu}(\mathbb{R}^n) = L^{p, \lambda}(\mathbb{R}^n) \cap L^{p, \mu}(\mathbb{R}^n)$$

and

$$\|f\|_{L^{p, \lambda, \mu}(\mathbb{R}^n)} = \max \{ \|f\|_{L^{p, \lambda}}, \|f\|_{L^{p, \mu}} \}.$$

LEMMA 3. If $0 < p < \infty$, $0 \leq \mu \leq \lambda \leq n$, then

$$WL^{p, \lambda, \mu}(\mathbb{R}^n) = WL^{p, \lambda}(\mathbb{R}^n) \cap WL^{p, \mu}(\mathbb{R}^n)$$

and

$$\|f\|_{WL^{p, \lambda, \mu}(\mathbb{R}^n)} = \max \{ \|f\|_{WL^{p, \lambda}}, \|f\|_{WL^{p, \mu}} \}.$$

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REFERENCES

- [1] V. S. GULIYEV, *Maximal commutator and commutator of maximal function on total Morrey spaces*, J. Math. Inequal., **16** (2022), no. 4, 1509–1524.

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