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Title: Certain bilinear operators on power-weighted Morrey spaces

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In this paper, we consider the boundedness properties of two classes of bilinear operators on Morrey spaces with power weights. The first operator is the bilinear maximal operator $T^*(f,g)(x) = \sup_j |T_j(f,g)(x)|$, where $T_j(f,g)$ is a bilinear operator with the kernel K_j satisfying the uniform estimate

$$|K_j(x, y_1, y_2)| \preceq \frac{1}{(|x-y_1| + |x-y_2|)^{2n}},$$

where x, y_1, $y_2 \in \mathbb{R}^n$ with $x \neq y_k$ for some $k \in \{1,2\}$. The second operator is $\mathcal{T}(f,g)$, which, being a bilinear operator, satisfies

$$|\mathcal{T}(f,g)(x)| \preceq \int_{\mathbb{R}^n} \frac{|f(x-ty)g(x-y)|}{|y|^n} dy$$

for $x \in \mathbb{R}^n$ and $0 < |t| \leq 1$ such that $0 \notin \operatorname{supp}\,(f(x-t\cdot)) \cap \operatorname{supp}\,(g(x+\cdot))$. We obtain that these two operators are bounded operators from the product weighted Morrey spaces $L^{q,\lambda_1}(\mathbb{R}^n, |x|^\beta dx) \times L^{r,\lambda_2}(\mathbb{R}^n, |x|^\tau dx)$ to the weighted Morrey spaces $L^{p,\lambda}(\mathbb{R}^n, |x|^\alpha dx)$ with the assumption of the boundedness on Lebesgue spaces. As applications, we yield that many well-known bilinear operators are bounded on power-weighted Morrey spaces.

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