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b-weighted dyadic BMO from dyadic BMO and associated $T(b)$ theorems.

Given a function b , and using adapted Haar wavelets, we define a BMO-type norm which is dependent on b . In both global and local cases, we find the dependence of the bounds on $\|f\|_{\text{BMO}}$ by the bounds on the b -weighted BMO norm of f . We show that the dependence is sharp in the global case. Multiscale analysis is used in the local case. We formulate as corollaries global and local dyadic $T(b)$ theorems whose hypotheses include a bound on the b -weighted BMO-norm of $T^*(1)$. (Received August 17, 2007)