Zero product preserving maps on $C_1[0,1]$

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We study continuous bilinear maps ϕ from $C_1[0,1] \times C_1[0,1]$ into a Banach space X with the property that $\phi(f,g) = 0$ whenever $fg = 0$. This is applied to the study of zero product preserving operators on $C_1[0,1]$, and operators on $C_1[0,1]$ satisfying a condition similar to locality of an operator.