Corrigendum to ”On \((σ, τ)\)-module extension Banach algebras”

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Abstract. In this corrigendum, we give a correction of one result in reference [1].

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The proof of Theorem 2.4, part (ii) of [1] is not correct. Indeed, the proof of \(I \times J \subseteq M\) is wrong, because we take \(a_0 \in I, x_0 \in J\) and then conclude that

\[
(a_0, 0) \cdot (a_0, x_0) = (a_0 a_0, σ(a_0) \cdot x_0) \to (a_0, x_0).
\]

Our mistake happen here, since we assume that \((a_0, 0) \cdot (a_0, x_0)\) is in \(M\) and closedness of \(M\) implied that \((a_0, x_0) \in M\). But, generally \((a_0, 0) \cdot (a_0, x_0)\) is not in \(M\).

But, if the left module action of \(X\) is zero, then we have \(M = I \times J\). To see this, let \(a_0 \in I\). So, there exists an \(x \in X\) such that \((a_0, x) \in M\) and by \(x_0 \in J\), there exists an \(a \in A\) such that \((a, x_0) \in M\) Now

\[
(a_0, 0) \cdot (a, x) = (a_0 a_0, 0) \to (a_0, 0) \in M
\]

\[
(a_0, 0) \cdot (a, x) = (a_0 a, 0) \to (a, 0) \in M
\]

\[
(a, x_0) - (a, 0) = (0, x_0) \in M.
\]

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Therefore, \((a_0, x_0) \in M\). Now, one can remove the hypothesis that \((\sigma(a_0))\) is a left approximate identity for \(X\).

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References