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BICOMMUTATORS OF COFAITHFUL, FULLY DIVISIBLE MODULES*: CORRIGENDUM

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It has been pointed out to me by E. A. Rutter that Proposition 2.4 (i) is incorrect in that the proof does not establish the uniqueness of the $Q_M(R)$-module structure defined on ${}_RN$. (Notation is that of the original paper.) It is true that N is a $Q_M(R)$-module under the multiplication defined for all $q \in Q_M(R)$ and $n \in N$ by $qn = \phi_n(q)$, where $\phi_n : I \to N$ is any extension of $[r \rightarrowtail rn] = f_n : R \to N$ to I instead of just to $Q_M(R)$. Note that if ϕ_n and ϕ_n' both extend f_n, then they agree on $Q_M(R)$. This might be called the $Q_M(R)$-module structure induced on N by I. Using this particular $Q_M(R)$-module structure, all subsequent results remain valid. The point is that the homomorphism

$$[q \rightarrowtail qn]$$

defining multiplication by $q \in Q_M(R)$ might not have an extension to I. An extension exists if ${}_RN$ is injective, and so the original proposition is correct in this case. The following proposition, whose proof is immediate, addresses itself to the general question.

PROPOSITION. *Let ρ be a radical with $\rho \leqq \text{rad}_I$, and let N be a $Q_\rho(R)$-module which is fully divisible and ρ-torsionfree as an R-module. Then the $Q_\rho(R)$-module structure of ${}_RN$ is the one induced on N by I if and only if N is a fully divisible $Q_\rho(R)$-module.*

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