Pacific Journal of Mathematics

CORRECTIONS TO: "TORSION FREE ABELIAN GROUPS QUASIPROJECTIVE OVER THEIR ENDOMORPHISM RINGS. II"

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Vol. 79, No. 2 June 1978

Corrections to

ABELIAN GROUPS QUASI-PROJECTIVE OVER THEIR ENDOMORPHISM RINGS II

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Volume 74 (1978), 261-265

1. The synopsis is incorrect and should read as follows: Let R be a commutative ring with 1 and X an R-module. Then $M = X \oplus R$ is quasi-projective as an E-module, where $E = \mathrm{Hom}_R(M, M)$. In this note it is shown that any torsion free abelian group G of finite rank, quasi-projective over its endomorphism ring, is, up to quasi-isomorphism, a direct sum of fully invariant subgroups of the form $M = X \oplus R$, where R is an integrally closed full subring of an algebraic number field, X is an R module, and $\mathrm{Hom}_Z(M, M) = \mathrm{Hom}_R(M, M)$.

2. In the notation preceding Lemma 2, J_i should denote the *nil* radical of E_i.

3. The proof of Proposition 4-Corollary 5, can be greatly simplified. By considering

$$G/EG_1 \cap E\left(\bigoplus_{i=2}^{n} G_i\right) \cong \left[EG_1/EG_1 \cap E\left(\bigoplus_{i=2}^{n} G_i\right)\right] \oplus \left[E\left(\bigoplus_{i=2}^{n} G_i\right) \Big/ EG_1 \cap E\left(\bigoplus_{i=2}^{n} G_i\right)\right]$$

and using Lemma 2 to show projections can't lift, it follows that either G/EG_1 or $G/E(\bigoplus_{i=2}^{n} G_i)$ is bounded. In the latter case, repeat the procedure on $G/EG_2 \cap E(\bigoplus_{i=3}^{n} G_i)$, etc. It follows directly that G/EG_i is bounded for some i.

4. The proof of Proposition 10 is incorrect. However, a result of Beaumont and Pierce in [1] can be used to write E_0 quasi-isomorphic to $S \oplus J_0$ where S is an integral domain. From this point on, the proof of Proposition 10 works.

5. Theorem 11 should read as follows.

If G is a torsion free abelian group of finite rank, then G is $aEqp$ if and only if G is quasi-isomorphic to a group of the form $H = \bigoplus_{i=1}^{m} M_i$ where, for each i, $M_i = R_i \oplus X_i$ is fully invariant in H, R_i is a full subring of an algebraic number field (which can be assumed Dedekind), X_i is an R_i-module, and $\mathrm{Hom}_Z(M_i, M_i) = \mathrm{Hom}_{R_i}(M_i, M_i)$. The last condition is the only change, and follows immediately from the discussion preceding Theorem 11, where it is shown that R_i is contained in the center of $\mathrm{Hom}_Z(M_i, M_i)$.

ACKNOWLEDGMENT. The above corrections were stimulated by some work of J. Reid and G. Niedzewicki who have shown, in an as yet unpublished paper, that torsion free finite rank abelian groups which are cyclic and projective over their endomorphism rings are characterized by having the form of H given above. Thus every $aEqp$ group is quasi-isomorphic to a group which is cyclic projective over its endomorphism ring.

REFERENCES

1. R. A. Beaumont and R. S. Pierce, *Torsion free rings*, Illinois J. Math., **5** (1961), 61-98.

2. C. Vinsonhaler, *Torsion free abelian groups quasi-projective over their endomorphism rings*, Pacific J. Math., (1) **75** (1978), 261-265.

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PUBLISHED BY PACIFIC JOURNAL OF MATHEMATICS, A NON-PROFIT CORPORATION
Printed at Kokusai Bunken Insatsusha (International Academic Printing Co., Ltd.).
8-8, 3-chome, Takadanobaba, Shinjuku-ku, Tokyo 160, Japan.

Pacific Journal of Mathematics
Vol. 79, No. 2 June, 1978