A NOTE ON "ON MANIFOLDS WITH CONJUGATION"

BY

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It has been pointed out to me by Allan Edelson that Proposition 4 of my paper *On manifolds with conjugation*, Illinois J. Math., vol. 15 (1971), pp. 338–353, gives groups $\hat{\Omega}_n^{AR}$ for which the torsion subgroup is a negative dimensional vector space over Z_2. The entire treatment of free involutions is incorrect; in particular Proposition 3 cannot hold.

I believe the error is in the treatment of bundle isomorphisms. If M^n is an AR manifold with normal bundle ν in R^{n+2k}, then $\nu \cong \mu^*\nu$ (being the normal bundles of two imbeddings) and if ξ is the complex bundle with $\xi \cong \nu$, the AR structure gives $\xi \cong (\mu^*\xi)^-$, and as real bundles $(\mu^*\xi)^- \cong \mu^*\nu$. Thus one has the composite $\nu \cong \xi \cong (\mu^*\xi)^- \cong \mu^*\nu \cong \nu$ giving an isomorphism of ν with itself or a map $M \to 0$ (the orthogonal group). Being given a stably almost complex M^n with ξ a complex bundle isomorphic to the normal bundle ν of M in R^{n+2k}, $M \cup M$ imbeds in R^{n+2k} with normal bundle $\nu \cup \nu$. Letting μ interchange copies and forming $\xi \cup \bar{\xi}$, ξ is identified with ν so $\bar{\xi} \cong \xi \cong \nu$. If one has a map $M \to 0$, giving an isomorphism $\nu \cong \nu$, one identifies $\bar{\xi}$ with the normal bundle of the second component by the composite $\bar{\xi} \cong \xi \cong \nu \cong \nu$. The orientation phenomena discussed in the paper correspond to the two components of 0. This suggests that the middle term of the Smith sequence (Proposition 3) should be $\Omega_*^U(0)$; it cannot be $\Omega_*^U \oplus \Omega_*^U$.

Since all nontrivial parts of the paper depend on Proposition 3, the reader would be safest in regarding the entire paper as nonsense.

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