TRANSACTIONS OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 248, Number 1, February 1979

ERRATUM TO "TORSION IN THE BORDISM OF ORIENTED INVOLUTIONS"

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It has been discovered that the paper [2] contains a serious error. In fact, the main theorem [2, p. 541] is false as stated.

The error is at the bottom of p. 546, where the "homomorphism" d: $W_m(G, F, F') \to \Omega_{m-1}(G, F, F')$ appears. Unfortunately, R. E. Stong has discovered that the construction d is not well defined if $G = Z_2^k$ and $k \geqslant 2$. A full discussion is to appear in [3].

The effect of this mistake is that we can no longer prove that the extension homomorphism e: $\Omega_*(Z_2^{k-1}) \to \Omega_*(Z_2^k)$ is zero on classes of order two. In fact, it is not. To see this, one may define an invariant ω: $\Omega_*(Z_2^2) \to Z_2$ to be the composition

$$\Omega_*(Z_2^2) \xrightarrow{\text{ab}} W(Z_2^2; Z) \xrightarrow{\pi} W(Z_2; Z) \xrightarrow{\text{trs}} Z_2.$$

Here ab is the Atiyah-Bott homomorphism, trs the torsion invariant (for both, see [1]), and π is defined as follows: given a $Z(Z_2^2)$-module V with equivariant inner product, let generators of Z_2^2 act on V by isometries A and B. Then $\pi[V] = [K]$ for $K = \operatorname{Ker}(A - B)$. It is easy to check that this is well defined.

If we remember [1, Theorem 10] that $\operatorname{trs}[W]$ is the number (mod 2) of copies of $Z(Z_2)$ in W, it is also easy to check that $\omega \cdot e(x) = \operatorname{trs}(x)$ for any $x \in \Omega_*(Z_2)$. Then we recall that $\operatorname{trs}(x_0) \neq 0$ if $x_0 \in \Omega_4(Z_2)$ is the element of order two [1, Theorem 4]. Thus $e(x_0) \neq 0$.

Therefore it is not true, as asserted in [2], that any class in $\Omega_*(Z_2^k)$ represented by a stationary-point free action has infinite order. It may still be true that all torsion of $\Omega_*(Z_2^k)$ has order two, but the argument of [2] does not suffice to prove this.

References

1. D. Gibbs, *Some results on orientation-preserving involutions*, Trans. Amer. Math. Soc. **218** (1976), 321–332.

2. R. J. Rowlett, *Torsion in the bordism of oriented involutions*, Trans. Amer. Math. Soc. **231** (1977), 541–548.

3. R. E. Stong, *Wall manifolds* (to appear).

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AMS (MOS) subject classifications (1970). Primary 57D85, 57D15.

0002-9947/79/0000-0061/$01.25