

Erratum: The Converse to the Fixed Point Theorem of P. A. Smith: II, Vol. 22 (1972), 309-325

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Theorem B on page 322 of Reference [2] is not true. In fact R. Schultz has proved the following result (see reference [3]).

Theorem (Schultz). *For p an odd prime, suppose \mathbf{Z}_p acts smoothly on a closed \mathbf{Z}_p -homology sphere M^{2n} with fixed point set F^{2r} ($\dim(F^{2r}) = 2r$, $\dim(M^{2n}) = 2n$). Let $\tau \sim \bigoplus_{i=1}^r \tau_i$ denote the equivariant normal bundle split into its complex factors as described in no. 3 of p. 309 of [2]. If either $p = 3, 5, 7$ or $r > 2 \log_2(p) - 1$, then the rational Chern classes of each bundle τ_i are all trivial.*

I am also unable to prove Theorem A on p. 321 in [2]. But that theorem is a corollary of Schultz's theorem if (in the notation of Theorem A [2]) n has an odd prime divisor p satisfying $p = 3, 5, 7$ or $\dim(F_r) > 2 \log_2(p) - 1$.

The mistakes and shortcomings I have just described appear as calculational errors in Lemmas 5.1, 5.2 and Theorem 5.5 of [2].

If $G = SO(d)$ (i.e. the case of involutions), then 5.1 and 5.2 are correctly stated and proved in [2]. In Theorem 5.5 the hypothesis has been stated only for $G \neq SO(d)$. A correct statement of Theorem 5.5 for $G = SO(d)$ is gotten by replacing the inequality $m < 2d_i + d(G) - 5$ by the inequality $m < 2d(G) - 5$, and setting $F_{m+1} = F_m = 0$.

For the case of \mathbf{Z}_n -actions, where n equals a power of 2, I do not know the correct calculations that should appear in 5.1, 5.2, 5.5 of [2].

Now I shall consider separately the corrections to be made for 5.1, 5.2, 5.5 in the case of \mathbf{Z}_n -actions where n has an odd prime divisor p .

In Lemma 5.1 a third hypothesis must be added: $p = 3, 5, 7$ or $m - d(G) + 1 > 2 \log_2(p) - 1$. Now the correct calculation for

$$\text{kernel } (v: \bar{C}_m(d_1 \cdots d_t) \rightarrow C_m(d_1, \cdots, d_t))$$