

*Errata: The Group of Homotopy
Equivalences for a Connected Sum
of Closed Aspherical Manifolds,
Vol. 30 (1981), 249–260*

DARRYL McCULLOUGH

While the overall picture presented in [M] is fairly accurate, several incorrect statements appear. In this note, I will indicate the basic error and its correction, and give corrected versions of the affected statements. As penance, I offer a precise formula for the index of the image of $\Phi: \pi_0(EM) \rightarrow \text{Aut}(\pi_1(M))$ when M is a connected sum of closed aspherical n -manifolds ($n \geq 3$). Familiarity with [M] will be assumed.

The homomorphism R on p. 253 of [M] is not well defined, as it need not preserve relations of types (5), (7), and (9) in $\text{Aut}(\pi)$. In its stead, we define a left action of $\text{Aut}(\pi)$ on $\bigoplus_{i=1}^r \mathbf{Z}/2$ by:

$$\mu_{ij}(\omega) \cdot (z_1, \dots, z_i, \dots, z_j, \dots, z_r) = (z_1, \dots, z_i, \dots, \omega_1 z_j, \dots, z_r)$$

$$\phi_i \cdot (z_1, \dots, z_i, \dots, z_r) = (z_1, \dots, \deg(\phi_i^*) z_i, \dots, z_r)$$

$$\omega_{ij} \cdot (z_1, \dots, z_i, \dots, z_j, \dots, z_r) = (z_1, \dots, \deg(\omega_{ij}) z_j, \dots, \deg(\omega_{ij}) z_i, \dots, z_r).$$

Since $\phi \cdot (-z) = -(\phi \cdot z)$, there is also an induced action of $\text{Aut}(\pi)$ on

$$J = \bigoplus_{i=1}^r \mathbf{Z}/2 / z \sim -z \cong \bigoplus_{i=1}^{r-1} \mathbf{Z}/2.$$

Using the standard projections $\pi(a)$, described on p. 254 of [M], we identify $\text{Aut}(\pi_1(M(a)))$ with $\text{Aut}(\pi)$. Thus we obtain actions of the $\text{Aut}(\pi_1(M(a)))$ on $\bigoplus_{i=1}^r \mathbf{Z}/2$ and on J .

The new version of Theorem 3.1 is:

Theorem 3.1. *Let $\phi \in \text{Aut}(\pi)$ and $a \in \bigoplus_{i=1}^r \mathbf{Z}/2$. Then there are homotopy equivalences $f: M(a) \rightarrow M(\phi \cdot a)$ and $hf: M(a) \xrightarrow{i=1} M(-\phi \cdot a)$ inducing ϕ .*