SECOND ERRATUM TO "A BIASED VIEW OF SYMPLECTIC COHOMOLOGY"

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Abstract. We correct two errors in [1]. This Erratum will not be published.

The discussion of operations in equivariant symplectic cohomology [1, Section 8b] contains two mistakes (in one case, the supporting argument is wrong; the other erroneous statement was made without proof).

First, when considering the $(S^1)^3$-equivariant homology of $\mathcal{M}$, the roles of positive and negative ends should be swapped. The outcome is that the nontrivial element of that homology group is now in degree 1 (rather than 2), and therefore the operation (8.11) has a shift $[n-1]$ rather than $[n-2]$.

Secondly, concerning the map $H^{*+n}(M) \to SH^*_{eq}(M)$, the statement that its image is an ideal for the Lie bracket is incorrect: the bracket with the image of $1 \in H^0(M)$ is trivial, but the images of other elements may not satisfy that property. For instance, consider the case of $M = T^*S^1$, where

$$SH^{*-n}(M) \cong \mathbb{K}[x, x^{-1}] \oplus \mathbb{K}[x, x^{-1}]\partial_x,$$

with ∂_x of degree 1. In the same notation, the bracket is the Lie action of vector fields, and the image of $H^*(S^1)$ is the subspace spanned by 1 and $x\partial_x$. One has

$$[x\partial_x, x^k] = kx^k,$$

and (for degree reasons) this survives to a nonzero bracket in equivariant symplectic cohomology.

References

[1] P. Seidel. A biased survey of symplectic cohomology. In *Current Developments in Mathematics (Harvard, 2006)*, pages 211–253. Intl. Press, 2008.