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CORRIGENDUM: GROMOV–WITTEN INVARIANTS OF SYMPLECTIC QUOTIENTS AND ADIABATIC LIMITS

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We correct the definition of the local equivariant action in [**1**].

Let (M, ω) be a symplectic manifold equipped with a Hamiltonian action by a compact Lie group G. Identify the Lie algebra $\mathfrak{g} = \mathrm{Lie}(\mathrm{G})$ with its dual by an invariant inner product and let $\mu : M \to \mathfrak{g}$ be a moment map for the action. We assume that μ is proper and G acts freely on $\mu^{-1}(0)$. Identify $S^1 \cong \mathbb{R}/2\pi\mathbb{Z}$ and let $(x, \eta) : S^1 \to M \times \mathfrak{g}$ be a smooth loop. The *equivariant length* of the loop (x, η) is defined by

$$\ell(x, \eta) := \int_0^{2\pi} |\dot{x} + X_\eta(x)| \, d\theta,$$

where $\mathfrak{g} \to \mathrm{Vect}(M) : \xi \mapsto X_\xi$ denotes the infinitesimal action. Fix a neighborhood U of $\mu^{-1}(0)$ with compact closure. In [**1**, Lemma 11.2] it is proved that, if U is sufficiently small, then there is a constant $c > 0$ such that, for every loop $(x, \eta) : S^1 \to U \times \mathfrak{g}$ there is a loop $g_0 : S^1 \to \mathrm{G}$ and an element $x_0 \in \mu^{-1}(0)$ satisfying $g_0(0) = \mathbb{1}$ and

$$(1) \quad \sup_{S^1} \left|\eta + \dot{g}_0 g_0^{-1}\right| \le c\ell(x, \eta), \quad d(x(\theta), g_0(\theta)x_0) \le c\left(|\mu(x(\theta))| + \ell(x, \eta)\right).$$

We shall define the *local equivariant symplectic action* $\mathcal{A}(x, \eta)$ under the assumption that

$$(2) \qquad \sup_{\theta \in S^1} |\mu(x(\theta))| + \ell(x, \eta) < \delta,$$

where δ is sufficiently small.

The mistake in [**1**] is that δ is chosen such that $\mu^{-1}((-\delta, \delta)) \subset U$ and $2c\delta$ is smaller than the injectivity radius of M. Apart from the fact that M might be noncompact and its injectivity radius could be zero, a counterexample (due to Fabian Ziltener, with injectivity radius equal to infinity) shows that this choice of δ does not suffice to obtain uniqueness of the pair (x_0, g_0) up to homotopy. Instead we must choose δ as follows.