ERRATA FOR
INTRODUCTION TO SYMPLECTIC TOPOLOGY
THIRD EDITION
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ABSTRACT. These notes correct a few typos and errors in Introduction to Symplectic Topology (3rd edition, Oxford University Press 2017). We thank Katrin Wehrheim, Chris Wendl, and Fabian Ziltener for pointing out errors.

p 100: The factor in equation (3.1.4) should be $-1$ instead of $1/2$. The correct formula is
\[ \{F, \{G,H\}\} + \{G, \{H,F\}\} + \{H, \{F,G\}\} = d\tau(X_F, X_G, X_H). \]

p 109, Lemma 3.2.1: The Moser Isotopy Lemma can be strengthened.
Let $(M, \omega)$ be a $2n$-dimensional smooth manifold, let $Q \subset M$ be a closed submanifold, and let $\omega_0$ and $\omega_1$ be two symplectic forms on $M$ that agree on $T_Q M$. Then there exist open neighbourhoods $N_0$ and $N_1$ of $Q$ and a diffeomorphism $\psi : N_0 \to N_1$ of $Q$ such that $\psi^* \omega_1 = \omega_0$ and

(1) $q \in Q, \ v \in T_q M \implies \psi(q) = q$ and $d\psi(q)v = v.$

The proof does not change. The key observation is that an isotopy $\psi_t$ satisfies (1) if and only if it is generated by a family of smooth vector fields $X_t$ on $M$ that satisfy

(2) $X_t|_Q = 0, \ [X_t, Y]|_Q = 0$

for all $t$ and every vector field $Y$ on $M$. For the 1-form $\sigma$ in the proof of Lemma 3.2.1 this translates into the condition that, for every vector field $Y$ on $M$, the function $f_Y := \iota(Y)\sigma : M \to \mathbb{R}$ vanishes to first order along $Q$, i.e.

(3) $q \in Q, \ v \in T_q M \implies f_Y(q) = 0$ and $df_Y(q)v = 0.$

The 1-form $\sigma$ on a neighbourhood of $Q$, defined on page 110, satisfies (3) because $\partial_t \phi_t(q) = 0$ and $\tau(q; v, w) = 0$ for all $q \in Q$ and all $v, w \in T_q M$.

p 114, line -16: At the end of the proof of Step 3 it should be mentioned that one must use Step 1 to obtain a Hamiltonian isotopy $\{\phi_t\}_{0 \leq t \leq 1}$ of $M$ that satisfies $\phi_0 = \text{id}$ and $\phi_t \circ \Psi_0 \circ \chi_{1,t} = \Psi_t \circ \chi_{1,t}$ for all $t$, and that this Hamiltonian isotopy satisfies the requirements of part (ii) of Theorem 3.3.1.

p 114, line -7: The term “$\Psi^*_t \omega \in \Omega^2(M)$” should read “$\Psi^*_t \omega \in \Omega^2(\mathbb{R}^{2n})$”.

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p 120, Theorem 3.4.10: The proof of the Symplectic Neighbourhood Theorem requires the strengthened form of the Moser Isotopy Lemma mentioned above (see page 109).

p 147, line -19: The sentence should read “Examples by Eliashberg [184] show that weak and strong fillability differ in dimension 3 and Massot–Niederkrüger–Wendl [440] proved that they differ in dimension 5. The question of weak versus strong fillability is open in dimensions 7 and higher.”

p 147, line -17: The sentence should be expanded as follows: “By a result of Eliashberg [178] and Gromov [287] overtwisted contact 3-manifolds are never weakly fillable. A similar result holds in higher dimensions by results of Niederkrüger [N], Massot–Niederkrüger–Wendl [440], and Borman–Eliashberg–Murphy [75]. The heart of the proof is a result by Niederkrüger [N] which asserts that a contact manifold containing a ‘plastikstufe’ is not strongly fillable. In Massot–Niederkrüger–Wendl [440] it is explained how the same argument shows that a ‘small plastikstufe’ obstructs weak fillability, and the existence of a ‘small plastikstufe’ is an easy consequence of Borman–Eliashberg–Murphy flexibility.”

p 147, last paragraph: There are some inaccuracies in the discussion of the literature. The paragraph should be rewritten as follows. “An elementary 2-dimensional argument shows that a Liouville domain can have a disconnected (convex) boundary (Example 3.5.29 and Definition 3.5.32). That this phenomenon also occurs in higher dimensions was shown by McDuff [451] and Mitsumatsu [M] in dimension four and by Geiges [260] in dimensions four and six. Thus fillable contact manifolds do not have to be connected. Examples in all dimensions appear in the work of Massot–Niederkrüger–Wendl [440], where they are an essential ingredient in their construction of nonfillable tight contact manifolds. Using fillable disconnected contact 3-manifolds, Albers–Bramham–Wendl [19] constructed examples (attributed to Etnyre) of nonseparating contact hypersurfaces in certain closed 4-dimensional symplectic manifolds. However not all contact manifolds support such an embedding, and also there are restrictions on the ambient symplectic manifold.”

p 425: The path $\beta : [0, 1] \to [0, 1]$ in Exercise 11.1.11 is required to satisfy the condition $\beta(0) = 0$.

p 531: The first sentence in part (ii) of Remark 13.3.28 should read: “In [431], Liu also proved that a minimal closed symplectic four-manifold $(M, \omega)$ is rational or ruled if and only if the symplectic form $\omega$ is homotopic to a symplectic form $\omega'$ that satisfies $K \cdot [\omega'] < 0$.” (Ruled surfaces over curves of genus at least two admit symplectic forms $\omega$ that satisfy $K \cdot [\omega] \geq 0$.)

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