Errata for Algebraic and Geometric Surgery
by Andrew Ranicki
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This list contains corrections of misprints/errors in the book. Most of the corrections have been included in the second printing in 2003. Please let me know of any further misprints/errors by e-mail to a.ranicki@ed.ac.uk

A.A.R. 23.3.2014

p. 19 l. 18 $\psi : \mathbb{R}^n \to V$

p. 33 l. –1 $i \in \mathbb{Z}$

p. 34 l. 15 $d_{\mathscr{C}(f)} = \begin{pmatrix} d_D & (-1)^{i-1} f \\ 0 & d_C \end{pmatrix}$

p. 36 l. 17 $i \in \mathbb{Z}$

p. 45 l. 13 $\mathbb{Z}[\pi]$-module

p. 56 l. 12 $H_i(M_0)$

p. 81 l. 6 arbitrary

pp. 88–89 Example 5.7. The octonion projective space $\mathbb{O}\mathbb{P}^n$ is only defined for $n = 1, 2$, with a Hopf bundle for $n = 1$ only. See §3.1 of Baez (*The Octonions*, Bull. A.M.S. 39, 145–205 (2002)) for the construction of $\mathbb{O}\mathbb{P} = S^8$, $\mathbb{O}\mathbb{P}^2$, and for the Hopf bundle $S^7 \to S^{15} \to S^8$.

p. 125 l. 9 $I = [0, 1]$

p. 133 l. –3 $i \neq 2^j - 1$

p. 161 l. –3 $C(\widetilde{W}, \widetilde{M}) : \cdots \longrightarrow 0 \longrightarrow \mathbb{Z}[\pi_1(W)]^c \xrightarrow{\lambda} \mathbb{Z}[\pi_1(W)]^c \longrightarrow 0 \longrightarrow \cdots$.

p. 173 l. 8 Replace ‘isomorphism’ by ‘split surjection’.

p. 173 l. –1

$$(d+\Gamma)^{-1} = \begin{pmatrix} 1 & 0 & 0 & \cdots \\ \Gamma^2 & 1 & 0 & \cdots \\ 0 & \Gamma^2 & 1 & \cdots \\ \vdots & \vdots & \vdots & \end{pmatrix}^{-1} \begin{pmatrix} \Gamma & d & 0 & \cdots \\ 0 & \Gamma & d & \cdots \\ 0 & 0 & \Gamma & \cdots \\ \vdots & \vdots & \vdots & \end{pmatrix} : C_{\text{even}} \to C_{\text{odd}}.$$

p. 174 l. 6 $K_1(A)$

p. 183 l. 16 $C(\widetilde{W}, \widetilde{M}')^{m+1-*} \simeq C(\widetilde{W}, \widetilde{M})$

p. 241 l. 6 $x \in \pi_{n+1}(f)$

p. 243 l. 3 $H^n(C) \;=\; H^n(C') \;=\; \ker(d'^* : C'^n \to C'^{n+1})$

p. 243 l. 4 Here is the argument in detail. Since C'_n is projective, if an element $f \in C'^n$ is such that $f(x) = 0 \in A$ for all $x \in C'_n$ then $f = 0$. This shows that the evaluation map is injective. For surjectivity, given $g \in H_n(C')^*$ use the projectivity of C'_n to lift $g : H_n(C') \to A$ to an A-module morphism $h : C'_n \to A$ such that $hd'(y) = 0 \in A$ for all $y \in C'_{n+1}$, so that $h \in \ker(d'^*) = H^n(C')$ has image g under the evaluation map.

p. 248 l. 11 $0 \to \widehat{Q}^{-\epsilon}(K)$

p. 251 l. 5 $\lambda \;=$

p. 255 Replace $Q^\epsilon(\widetilde{A})$, $Q_\epsilon(\widetilde{A})$, $\widehat{Q}^\epsilon(\widetilde{A})$ by $\widetilde{Q}^\epsilon(A)$, $\widetilde{Q}_\epsilon(A)$, $\widetilde{\widehat{Q}}^\epsilon(A)$ respectively.

p. 258, l. 4 Replace the formula by

$$\sum_{(x,y)\in S_2(s_0,s_1)} I(x,y) = \;\chi(g) \in \mathbb{Z}$$

p. 259, l. 1 $d\widetilde{g}(x) = \big(d(g(x)\widetilde{g}) \quad d\widetilde{g}\big) : \tau_N(x_1) \oplus \tau_N(x_2) \to \tau_{\widetilde{M}}(\widetilde{g}(x_2))$

p. 264 l. 6 embedding

p. 285 l. 8 $K_*(W, M) = 0$

p. 286 l. 11 $k = -j'^*\psi j' : L^* \to L$

p. 286 l. 16 replace ψ by ν

p. 294 l. –4 $\epsilon = (-1)^n$

p. 302 ll. –12,–13 Specifically, an n-connected $2n$-dimensional normal map has a unique kernel form, whereas an n-connected $(2n+1)$-dimensional normal map has many kernel formations.

p. 311 l. –7 $X' = X \times \{1\}$

p. 326 l. –1 should read

$$(F, G) \;=\; (F^*, (\begin{pmatrix} \delta \\ (-1)^n\gamma \end{pmatrix}, -\theta)G) \in L_{2n+1}(A)\ .$$

p. 327 l. 7 $(\gamma, 1, 0)$

p. 328 l. 7 $(G, 0)$ not (G, θ)

p. 328 l. –4 should read

$$(F, (\begin{pmatrix} \gamma \\ \delta \end{pmatrix}, \theta)G) \oplus (F^*, (\begin{pmatrix} \delta \\ (-1)^{n+1}\gamma \end{pmatrix}, \theta)G) \to \partial(G, \theta)\ .$$

p. 330 l. –5 replace statement of 12.36 (iii) by
(iii) *The effect of* ℓ *simultaneous geometric* n*-surgeries on* (f,b) *killing* $x_1, x_2, \ldots, x_\ell \in K_n(M)$ *is a bordant* n*-connected* $(2n+1)$*-dimensional normal map* $(f',b') : M' \to X$ *with kernel split formation* (F',G') *obtained by algebraic surgery on* (F,G) *with data* (H,χ,j) *such that*

$$[j^*] = (x_1\, x_2\, \ldots\, x_\ell) : H = \mathbb{Z}[\pi_1(X)]^\ell \to K_n(M) = \mathrm{coker}(\delta : G \to F^*)\,.$$

p. 333 l. 5 $s_b^{fr}(I_{n+1}(f))$

p. 354 l. 2 $\pi_8^S = \mathbb{Z}_2 \oplus \mathbb{Z}_2$

p. 354 l. 10 Example 13.26 is incorrect: the structure set $\mathcal{S}(S^m \times S^n)$ is not an abelian group in general – for explicit computations see the papers of A.R. *A composition formula for manifold structures*, http://arXiv.org/abs/math.AT/0608705, Pure and Applied Mathematics Quarterly 5 (Hirzebruch 80th birthday issue), 701–727 (2009) and Diarmuid Crowley *The smooth structure set of* $S^p \times S^q$ http://arXiv.org/abs/0904.1370 Geom. Dedicata 148 (2010), $15 - 33$.

p. 358 l. 3 middle

p. 362 l. 4 reference [23] was published in 2002.