Errata for Exact Sequences in the Algebraic Theory of Surgery
by Andrew Ranicki
Mathematical Notes 26, Princeton (1981)

This list contains corrections of misprints/errors in the book. Please let me know of any further misprints/errors by e-mail to a.ranicki@ed.ac.uk

A.A.R. 7.4.2006

p. 4, l. −11 $H^{r+1}(f)$

p. 5, l. −5 $T_\epsilon\ :\ \mathrm{Hom}_A(C^p, C_q) \to \mathrm{Hom}_A(C^q, C_p)\ ;\ f \mapsto (-1)^{pq}\epsilon f^*$

p. 5, l. 3 $C_p^t \otimes_A D_q$

p. 5, l. −2, −3 $\begin{cases} \epsilon\text{-symmetric} \\ \epsilon\text{-quadratic} \\ \epsilon\text{-hyperquadratic} \end{cases}$

p. 14, l. 11 $\begin{cases} \epsilon\text{-symmetric} \\ \epsilon\text{-quadratic} \\ \epsilon\text{-hyperquadratic} \end{cases}$

p. 31, l. 10 $\dot\psi_F(x,y,z) = (\Sigma_Y^{p\%}\dot\Delta_Y(y) - F^{\%}\Sigma_X^p\dot\Delta_X(x), F^{\%}h_X^p(x) - h_Y^p(y) - \dot\Delta_{\Sigma^p Y}(z))$

p. 31, l. 13 replace Ω by Σ

p. 46, l. 7 $\begin{cases} (\delta\phi/\phi)_s\ =\ \begin{pmatrix} \delta\phi_s & \cdot \\ \cdot & \cdot \end{pmatrix} \\ (\delta\psi/\psi)_s\ =\ \begin{pmatrix} \delta\psi_s & \cdot \\ \cdot & \cdot \end{pmatrix} \end{cases}$

p. 47, l. −1 $\partial C_r\ =\ C_{r+1} \oplus C^{n-r}$

p. 54, l. −8 Proposition 1.2.3 i), ii)

p. 61, l. 8 $f^*\phi' f\ =\ \phi \in Q^\epsilon(M)$

p. 76, l. −5 Highly-connected Poincaré complexes

p. 78, l. 10 $\delta\phi''_s\ =\ \begin{pmatrix} \delta\phi_s & 0 & 0 \\ (-)^{n-r}\phi'_s f^*_{C'} & (-)^{n-r+s}T_\epsilon\phi'_{s-1} & 0 \\ 0 & (-)^s f'_{C'}\phi'_s & \delta\phi'_s \end{pmatrix}$

p. 78, l. −2 $D'^{n-r-s+1}$

p. 99, l. 5 $\mathrm{Hom}_B(D^*, D)_{n-s}$

p. 116, l. 7 $C \xrightarrow{\ f\ } D$

p. 119, l. 6–9 $\delta\nu''_s \;=\; \begin{pmatrix} \delta\nu_s & 0 & 0 \\ (-)^{n-r+1}\phi'_s h'^* & (-)^{n-r+s+2}T_\epsilon\delta\phi'_{s-1} & 0 \\ 0 & (-)^s\widetilde{h}'\phi'_s & \delta\nu'_s \end{pmatrix}$

p. 119, l. 12–15 $\delta\chi''_s \;=\; \begin{pmatrix} \delta\chi_s & 0 & 0 \\ (-)^{n-r+1}\psi'_s h'^* & (-)^{n-r+s+1}T_\epsilon\delta\psi'_{s+1} & 0 \\ 0 & (-)^s\widetilde{h}'\psi'_s & \delta\chi'_s \end{pmatrix}$

p. 174, l. 10 $\mathrm{im}(\widehat{H}^0(\mathbb{Z}_2;\widehat{S}^{-1}\widehat{A},\epsilon) \to \widehat{H}^1(\mathbb{Z}_2;A,\epsilon)) \;=\; 0$

p. 190, l. 6 $0 \leqslant r \leqslant n+1$

p. 190, l. 9 (P,Q,f,g,h,i,j,k)

p. 191, l. 5 $Q_0 = D_1 \oplus D_3 \oplus D_5 \oplus \dots$

p. 192, l. −1 $\phi \mapsto (\epsilon\phi\widehat{\ };\ x \mapsto (y \mapsto (-)^{pq}\epsilon\overline{\phi(y)(x)}))$

p. 230, l. 11 complexes

p. 252, l. −5 $(F,(\begin{pmatrix} -\gamma \\ \mu \end{pmatrix},-\theta)G) \oplus (F,(\begin{pmatrix} \gamma \\ \mu \end{pmatrix},\theta')G)$

p. 255, l. 11 with

p. 257, l. −2 $\theta_{-1} : D^0 \to D_1$

p. 258, l. 2 $\theta_0 - \epsilon\theta^*_0 = 0,\ \widetilde{d}\theta_0 - \widetilde{\theta}_{-1} + \epsilon\theta^*_{-1} = 0,\ \theta_0\widetilde{d}^* + \theta_{-1} - \epsilon\widetilde{\theta}^*_{-1} = 0$

p. 258, l. −4 on the chain level $f_\%(\psi'_0) = \theta_{-1},\ f_\%(\widetilde{\psi}'_0) = \widetilde{\theta}_{-1},\ f_\%(\psi'_1) = \widetilde{d}\chi\widetilde{d}^* - \tilde{\theta}_{-1}\widetilde{d}^*$

p. 259, l. 4 with $\delta\psi' = \{\delta\psi'_0 = -\epsilon\chi^*,\ \delta\psi'_1 = -\chi\tilde{d}^*,\ \widetilde{\delta\psi}'_1 = \tilde{\theta}_{-1},\ \delta\psi'_2 = 0\}$

p. 372, l. 5 $\dots \to \dots \to \dots \to$

p. 375, l. 3 $L_n(A,\epsilon)$

p. 420, l. 3 $n \geqslant -2$

p. 431, l. 13 $(\sum\limits_{j=0}^{\infty} a_j x^j)(\sum\limits_{k=0}^{\infty} b_k x^k) \;=\; \sum\limits_{j=0}^{\infty}\sum\limits_{k=0}^{\infty} a_j\alpha^{-j}(b_k)x^{j+k}$

p. 445, l. 6 $(C,\nu,\delta\phi,\phi) \mapsto (C_\alpha[x,x^{-1}],[\nu,\delta\phi,\phi]) \oplus (C_\alpha[x,x^{-1}],-\phi)$

p. 445, l. 8 $(C,\nu,\delta\psi,\psi) \mapsto (C_\alpha[x,x^{-1}],[\nu,\delta\psi,\psi]) \oplus (C_\alpha[x,x^{-1}],-\psi)$

p. 457, l. –5 nilcomplexes

p. 477, l. 3 $\to\ \ \dots \to \dots$

p. 490, l. −1 $\partial \;=\; \partial_f \delta \;=\; \widehat{\delta}\gamma_{g'}$

p. 514, l. −6 $(\theta + \mu^* \psi_B \mu + \chi_B + \epsilon\chi_B^*, \theta' + \mu'^* \psi_{B'} \mu' + \chi_{B'} + \epsilon\chi_{B'}^*)$

p. 514, l. −2 $\beta^*(1 \otimes_{B'} \theta')\beta - 1 \otimes_B \theta - (1 \otimes_B \mu^*)\psi(1 \otimes_B \mu)$
$= \beta^*(1 \otimes (\chi_{B'} + \epsilon\chi_{B'}^*))\beta - 1 \otimes (\chi_B + \epsilon\chi_B^*) \in \mathrm{Hom}_{A'}(A' \otimes_B G, A' \otimes_B G^*)$

p. 519, l. 4 $(\psi - (\psi + \epsilon\psi^*)\chi(\psi + \epsilon\psi^*), 0)(B^q, \psi' + \epsilon\psi'^*, B'^q))$

p. 534, l. 1 $L_2(\mathbb{Z}) \oplus L_2(\mathbb{Z}) \to L_2(\mathbb{Z}_2) \to L_1(\mathbb{Z}[\mathbb{Z}_2]) \to L_1(\mathbb{Z}) \oplus L_1(\mathbb{Z})$

p. 557, l. −3 of

p. 584, l. 2 $[X, G/TOP] \;=\; \mathcal{T}^{TOP}(X) \;=\; \mathcal{T}^{TOP}(X, Y, \widetilde{\xi}) \;=\; H_n(X; \mathbb{L}_0)$

p. 604, l. −9 $T(\nu_M)$

p. 606, l. 3 $C(f; \mathbb{Z}_2)$

p. 622, l. 5 $Q_{n-1}(C') \to Q^{n-1}(C') \oplus Q_n(SC') \to Q^n(SC')$

p. 644, l. 9 is

p. 663, l. −2 $Wh_*(\pi_1(X)) \to \widetilde{\mathrm{Nil}}_*(\Phi)$

p. 669, l. −10 ∂x

p. 672, l. 8 $1 \otimes_A \psi$

p. 672, l. −9 $\to D_k$

p. 672, l. −8 $\widetilde{B}_k \otimes_A$

p. 673, l. −10 $D_+ \oplus D_-$

p. 674, l. −1 $a =$

p. 677, l. −11 injection, not surjection

p. 695, l. 10 $p\psi$ not $p^!\xi$

p. 704, l. −4 The chain map $j : p^!C \to E$ is ill-defined. It should be replaced by the $\mathbb{Z}[\pi']$-module chain map $j' : p^!C \to E' = C(f)$ defined by

$$j' \;:\; p^!C_r \;=\; p^!D_r \oplus p^!p_!p^!D_{r-1} \oplus p^!p_!E_r \to E'_r \;=\; p^!D_{r-1} \oplus E_r \;;$$
$$(x, a \otimes y, b \otimes z) \mapsto ([a]y, [b]z) \quad (a, b \in \mathbb{Z}[\pi], x \in D_r, y \in D_{r-1}, z \in E_r)$$

The paper *The L-theory of twisted quadratic extensions* (Canadian J. Math. XXXIX, 345–364 (1987)) contains a generalization of Proposition 7.6.4.

p. 737, l. −13 $\oplus\widetilde{LNil}_n(A, \alpha^{-1}, \epsilon)$

p. 738, l. −8 $\widehat{L}^n(p^!)$

p. 739, l. 9 $\pi \times_\alpha D_\infty$

p. 740, l. 6 $(Q_1; \partial_+ Q_1, \partial_- Q_1) = (M \times \overline{P_1^k - D^k}; \partial M \times \overline{P_1^k - D^k}, M \times S^{k-1})$

p. 740, l. 8 $(Q^{n-2}, \partial Q^{n-3}) = (Q_1 \cup_{M \times S^{k-1}} Q_2, \partial_+ Q_1 \cup_{\partial M \times S^{k-1}} \partial_+ Q_2)$

p. 742, l. −5, −10 $L_{n-2}(\mathbb{Z}[\pi \times_\alpha D_\infty^{-\epsilon}])$

p. 767, l. 15 obtain

p. 789, l. −9 if $r = 1$ let $g' = \begin{pmatrix} 1 \\ -1 \end{pmatrix} : \mathbb{Z}[\pi'] \ \to C(\overline{S}^0) = \mathbb{Z}[\pi'] \oplus \mathbb{Z}[\pi']$

p. 797, l. −9 $(H_{(-)^i}(M'); M', \mathrm{im}(\begin{pmatrix} 1-t \\ \alpha'\psi' + (-)^i t \psi'^* \end{pmatrix} : \alpha' M' \to M' \oplus M'^{*, w'^{\xi}}))$

p. 798, l. −6 $\alpha SC(\widetilde{X})_r \ = \ \alpha C_{r-1}$

p. 807, l. 1 $C(g^!)$

p. 811, l. 16 $\nu_{K \subset U} : K \to BG(2)$

p. 813, l. 4 The asserted "mild generalization of the splitting theorem of Shaneson [1]" is wrong. If $\omega : \pi \to \mathrm{Aut}(\mathbb{Z}) = \mathbb{Z}_2$ is a non-trivial group morphism the semi-direct product $\pi' = \pi \ltimes_\omega \mathbb{Z}$ can also be expressed as a free product with amalgamation $\pi' = \pi *_\rho \pi$ of two copies of π along the index 2 subgroup $\rho = \ker(\omega) \subset \pi$ (cf. the two expressions for the infinite dihedral group D_∞ on p. 739, which is the special case $\pi = \mathbb{Z}_2$, $\rho = \{1\}$). Cappell's splitting theorem gives

$$L_n(\mathbb{Z}[\pi'^{\,w'}]) \ = \ L_n(\mathbb{Z}[\pi^w]) \oplus L_n^X(\mathbb{Z}[\rho^v] \to \mathbb{Z}[\pi^w]) \oplus \mathrm{Unil}_n(\Phi) \quad (n \in \mathbb{Z})$$

with

$$\begin{aligned} w' \ &: \ \pi' \longrightarrow \pi \xrightarrow{\ w\ } \mathbb{Z}_2 \ , \\ v \ &: \ \rho \longrightarrow \pi \xrightarrow{\ w\ } \mathbb{Z}_2 \end{aligned}$$

for any map $w : \pi \to \mathbb{Z}_2$, $X = \ker(Wh(\rho) \to Wh(\pi))$ and

$$\begin{array}{ccc} \mathbb{Z}[\rho^v] & \longrightarrow & \mathbb{Z}[\pi^w] \\ \big\downarrow & \Phi & \big\downarrow \\ \mathbb{Z}[\pi^w] & \longrightarrow & \mathbb{Z}[\pi'^{\,w'}] \end{array}$$

The discussion on p. 812–814 should therefore be restricted to the case $\omega = +1$ only.

p. 817, l. 7 $\widehat{\psi}_F : \dot{H}_{n+1}(X/\pi) \to Q_n^{[0,0]}(C(f)) \ = \ \widehat{Q}_n(C(f)) \quad (n \geqslant 0)$

p. 818, l. −12 $\widetilde{M} \times D^1 \subset \widetilde{W}$

p. 820, l. 2 indeterminate

p. 820, l. −2 $\widetilde{X} \;=\; \bigcup_{j=-\infty}^{\infty} z^j N$

p. 823, l. 14 delete a

p. 828, l. 1 Seifert [2]