Errata

Novikov Conjectures, Index Theorems and Rigidity

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Cambridge Univ. Press, ISBN 0-521-49796-5 and 49795-7)

Volume I

Title Page. Steven Ferry's address should be at Binghamton, not Binghampton.

A history and survey of the Novikov Conjecture, by S. Ferry, A. Ranicki and J. Rosenberg.
page 12, line 3. Change $G/TOP \to G/O$ to $G/O \to G/TOP$.

K-theory, group C^*-algebras, and higher signatures (Conspectus), by G. Kasparov.
page 103, 2nd line from bottom. Change $x \mapsto g(x)$ to $g \mapsto g(x)$.

A coarse approach to the Novikov Conjecture, by S. Ferry and S. Weinberger.
page 154, displayed diagram, and page 155, ¶ before Remark 4.1. In $\mathbb{H}_*(\mathbb{R}^n;\mathbb{L}(e))$ and $\mathbb{H}_*(E\Gamma;\mathbb{L}(e))$, the $\mathbb{H}_*$ should be $\mathbb{H}_*^{\ell f}$.

Assembly maps in bordism-type theories, by F. Quinn.
page 206, line 6. Change 'space' to 'spaces'.
page 207, line 14. Change 'connection' to 'connections'.
page 208, line 3. Change $\mathbf{H}_\bullet(X;\mathbf{J},\omega)$ to $\mathbf{H}_\bullet(X,Y;\mathbf{J},\omega)$.
page 214, line 3. The last spectrum should be $\mathbf{J}(\|K\|)$.
page 221, line $\uparrow$ 13. Delete the $,=$.
page 224, line 7. Change 'with' to 'where'.
page 236, statement of Proposition. H_n should be H^n.
page 254, line 9. Change 'face' to 'faces'.

On the Novikov conjecture, by A. Ranicki.
page 314, lines 8–10 should read

$$\ldots \longrightarrow K_n(S) \oplus \widetilde{\mathrm{Nil}}_n \longrightarrow K_n(R_1) \oplus K_n(R_2) \longrightarrow K_n(R)$$

$$\longrightarrow K_{n-1}(S) \oplus \widetilde{\mathrm{Nil}}_{n-1} \longrightarrow K_{n-1}(R_1) \oplus K_{n-1}(R_2) \longrightarrow K_{n-1}(R) \longrightarrow \ldots$$

with $K_n(R) \longrightarrow \widetilde{\mathrm{Nil}}_{n-1}$ split surjections.

Analytic Novikov for topologists, by J. Rosenberg.
pages 359–360. There is a problem with the argument here, as kindly pointed out to the author by Jonathan Block and Stephan Stolz, but fortunately it is easy to correct. The difficulty is that it is not obvious that

$$F : X \mapsto \mathbb{K}_\bullet^{\mathrm{top}}(C_r^*(\pi(X)))$$

is a functor (in X). There are two reasons for this. First of all, even on the category of discrete groups, $\pi \mapsto C_r^*(\pi)$ is not functorial. This can be remedied by using the full C^*-algebra $C^*(\pi(X))$ in place of the reduced C^*-algebra. The second difficulty comes from the fact that $X \mapsto C^*(\pi(X))$ is not a functor (maps of spaces do not always induce maps of C^*-algebras). However, it turns out that this is not serious since one does indeed obtain a functor *after passage to K-theory*. To see this, note that $\mathbb{K}_\bullet^{\mathrm{top}}(C^*(\pi(X)))$ is equivalent to a direct sum (in the category of spectra) of $\mathbb{K}_\bullet^{\mathrm{top}}(C^*(\pi_1(X, x_0)))$, the sum taken over basepoints x_0 chosen so that one has one in each component of X. Maps of connected spaces induce functorial maps of K-theory spectra, due to the fact that while maps of fundamental groups are only defined up to conjugacy, conjugation by an element of $C^*(\pi_1(X, x_0))$ acts trivially on K-theory. There is also no difficulty with disconnected spaces; one merely obtains a direct sum of maps spectra taken over all pairs consisting of a component of the domain and a component of the target space. Thus the argument given on pages 359–360 is indeed correct for showing that assembly in L-theory matches up with assembly in topological K-theory of the *full* C^*-algebra. To get the same result with the *reduced* C^*-algebra, it suffices then to note that the diagram

$$\begin{array}{ccc} B\pi_1(X)_+ \wedge \mathbb{K}_\bullet^{\mathrm{top}}(\mathbb{R}) & \xrightarrow{\beta_{\max}} & \mathbb{K}_\bullet^{\mathrm{top}}(C^*(\pi_1(X))) \\ \| & & \downarrow \\ B\pi_1(X)_+ \wedge \mathbb{K}_\bullet^{\mathrm{top}}(\mathbb{R}) & \xrightarrow{\beta} & \mathbb{K}_\bullet^{\mathrm{top}}(C_r^*(\pi_1(X))) \end{array}$$

always commutes.

Volume II

On the coarse Baum-Connes conjecture, by N. Higson and J. Roe.
page 237, line 19. We say that T is *pseudolocal* if ....

Assembly, by M. Weiss and B. Williams.
page 335, commutative diagram near bottom. $X_1 \cap Y_2$ should be $X_1 \cap X_2$.

Pro–excisive functors, by M. Weiss and B. Williams.
page 353, middle, of page. The definition of locally finite singular homology here is not correct in general, and should be replaced by

$$H_*^{\ell f}(X) := H_*(\lim_U S(X, U)),$$

where $S(X, U)$ is the (relative) singular chain complex. Note that the inverse limit is not an exact functor, so the natural map $H_*(\lim_U S(X, U)) \to \lim_U H_*(X, U)$ is not an isomorphism in general. In fact, $H_*^{\ell f}(X)$ is the homology of the homotopy inverse limit of the "spacified" $S(X, U)$. See Ferry's paper for details.