Erratum

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Publisher's Erratum

Due to an oversight some references to individual chapter numbers in the "Index of Notations" were incorrect and the "Bibliography" at the end of the book lacked a number of entries. Both chapters have been corrected and are now available as online pdf.

The publisher apologizes for the errors.

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Index of Notations

See also the *Notation for Examples of Categories*

$\Gamma(U,\ E)$	Set of cross sections over U of a bundle E	1(1.5)
$E' \times_B E''$	Fibre product of bundles E', E'' over B	1(3.5)
$\mathrm{Mor}(\mathscr{C})$	Category of morphisms in the category $\mathscr{C}$	1(4.7)
$\mathscr{C}/B$	Subcategory of morphisms over B for an object in $\mathscr{C}$	1(4.8)
F	Denotes either the field $\mathbb{R}$ of real or the field $\mathbb{C}$ of complex numbers, see also 15(6)	2(2.1)
X/A	Quotient space for $A \subset X$, where A is collapsed to a point	2(7.1)
$\lim_{\longrightarrow N} X_N = X$	Inductive limit of (X_N), for example, $\lim_{\longrightarrow N} F^N = F^\infty$	2(4.1)
$C(X)$	$\mathbb{C}$-algebra of continuous complex-valued functions on the space X—see also 4(5.1) and 8(3.5) below	3
$\mathrm{Idem}(R)$	Set of equivalence classes of idempotents in the various $M_n(R)$	3(5.9)
$T(A)$	Localization of an abelian semigroup A or semiring	4(1.4)
$[E]$	Equivalence class of vector bundles	4(2.1)
Vect/X	Semiring of isomorphism classes $[E]$ of vector bundles	4(2.1)
$K(X)$	Grothendieck functor $K(X) = T(\mathrm{Vect}/X)$	4(2.3)
$K(X,\ *)$	Ideal in the supplemented ring	4(2.6)
$K(R)$	Grothendieck functor $K(R) = T(\mathrm{Vect}/R)$	4(3.3)
f^*	$K(f)$ or $K(C(f))$	4(3.5)
$I(R)$	Grothendieck idempotent I-functor $I(R)$, $I(R) = T(\mathrm{Idem}(R))$	4(4.3)

$C(X)$	C^*-algebra of bounded continuous functions on a space X, see also 3 above and 8(3.5) below	4(5.1), 4(5.11)
$\mathscr{B}(H)$	Space of bounded linear operators on a Hilbert space H	4(5.6)
$M_\infty(A)$	Inductive limit of the C^*-algebras of $n \times n$-matrices $M_n(A)$	4(5.14)
$\mathscr{K}$	Space of compact operators on a Hilbert space, $\mathscr{K} \cong \mathscr{K}(\mathbb{C})$	4(5.14)
$\mathscr{K}(A)$	Completion of $M_\infty(A)$ of a C^*-algebra A, $\mathscr{K}(A) \cong A \otimes \mathscr{K}(\mathbb{C})$	4(5.14), 17(3.7)
T	Circle group isomorphic to the 1-sphere S^1	5(1.4)
X/G	Space of right orbits for a right G-action on X	5(1.6)
$G\backslash X$	Space of left orbits for a left G-action on X	5(1.6)
$P \times^G Y = P[Y]$	Associated fibre bundle to a principal G-bundle P and a left G-space Y	5(3.1)
$V_n(E)$	Frame bundle associated with a vector bundle E	5(3.3)
$W_n(A)$	Matrix frame bundle associated with a matrix algebra bundle A	5(3.4)
$\sqcup_{i\in I}$	Disjoint union (coproduct in (set))	5(4.2)
Z	Two stage pseudosimplicial space Z related to an étale map $q : U \to B$	5(4.5)
$\pi_n(X, x_0)$	Homotopy groups of a pointed space $X = (X, x_0)$	6, 6(5.3), 6(5.5)
$\mathrm{Map}(X, Y)$	Space of all continuous mappings from X to Y	6(1)
$\langle L, M\rangle$	Subset in $\mathrm{Map}(X, Y)$ of the maps f with $f(L) \subset M$	6(1)
$[f]$	(Pointed) Homotopy class of a map f	6(4.2)
$[X, Y]$	Set of homotopy classes of maps $f : X \to Y$	6(4.2)
$S' \vee S''$	Joint of spheres	6(5.1)
T^r	r-Dimensional torus	6(5.11)
$B(G)$=B_G=BG	Classifying space of the group G	7
$E(G)$=E_G=EG	Universal principal G-bundle over BG	7(2.7)
$\mathbb{H}$	Quaternions	7(4.3)
S^∞	Infinite sphere	7(4.5), 8(9), 9(1.1)
$P(Y)$	Path space of pointed space (X, x_0)	8(3.3)
$\omega(Y)$	Loop space of the pointed space (X, x_0)	8(3.3)

$C(X)$	Cone on the pointed space (X,x_0), but also the space of (bounded) continuous functions on X, see 3 and 4(5.1)	8(3.5)
$S(X)$	Suspension of the pointed space (X,x_0)	8(3.5), 8(5)
E_f, C_f, Z_f		
$(K(G),n)$	Eilenberg–MacLane space	9, 9(6.1)
ι_n	Canonical class in $H^n(K(G,n),G)$ corresponding to the identity morphism	9
H_q, H^q	Homology and cohomology	9(3.1)
$\widetilde{H}_q$, $\widetilde{H}^q$	Reduced homology and cohomology	9(3.4)
$A^q(M)$	Vector space of differential q-forms on a manifold M	9(4.2)
$H^q_{DR}(M)$	de Rham cohomology	9(4.2)
ab or $a \smile b$	Cup product of $a \in H^p(X)$ and $b \in H^q(X)$	9(7.1)
$\mathbb{F}_2$	The field of two elements, $\mathbb{F}_2 \cong \mathbb{Z}/2$	9(7.3)
$P_\infty(\mathbb{R})$	Infinite real projective space (and correspondingly for $\mathbb{C},\mathbb{H}$)	9(7.3), 10(1.1)
$w_1(L)$	First Stiefel–Whitney class of a real line bundle L	10(1.1)
$c_1(L)$	First Chern class of a complex line bundle L	10(1.2)
$\mathrm{Pic}_{\mathbb{C}}(M)$	Picard group of complex line bundles in M	10(1.3)
$c_i(E)$	Chern classes of a complex vector bundle E	10(3.1)
$w_i(E)$	Stiefel–Whitney classes of a real vector bundle E	10(3.7)
$H^{ev}(B,\mathbb{Z})$	Even cohomology	10(4.1), 10(5.5)
$G^{ev}(B,\mathbb{Z})$	Subset of $H^{ev}(B,\mathbb{Z})$ with zero component equal to 1	10(4.1)
Sq^i	The Steenrod square	10(8.2)
$p_i(E)$	Pontryagin classes of a real vector bundle	10(9.3)
$\omega_M = [M]$	Fundamental class of a manifold M	11
$(\,) \frown [M]$	Cap product	11
ω_K	Orientation class for compact $K \in M$	11(1.4)
$\check{H}^i(K)$	$\check{H}^i(K) = \varinjlim_{K \subset V} H^i(V)$ for compact K	11(2.3)
$Cl(n)$	Clifford algebra to n-dimensional euclidean space, see 15(5.3)	12(1.5)
$Spin^c(n)$	$Spin^c$ group, quotient of $Spin(n) \times U(1)$	12(1.6)
$String(n)$	7-connected covering of $Spin(n)$	12(6.5)
Res	The restriction functor $(G\backslash\mathrm{top}) \to (H\backslash\mathrm{top})$	13(1.1)

Tr	The trivial G-space functor $(\text{top}) \to (G\backslash\text{top})$	13(1.1)
Str	The stripping functor $(G\backslash\text{top}) \to (\text{top})$	13(1.1)
Ind	The induction functor $(H\backslash\text{top}) \to (G\backslash\text{top})$	13(1.2)
Coind	The coinduction functor $(G\backslash\text{top}) \to (H\backslash\text{top})$	13(1.2)
$\text{Quot}(X)$	$\text{Quot}(X) = G\backslash X$ for a G-space X	13(1.3)
$\text{Fix}(X)$	$\text{Fix}(X) = \text{Map}_G(*, X) \subset X$ for a G-space X	13(1.3)
$\dashv$	Adjunction relation	13(1.4), 25(2)
$\text{Vect}_{\mathbb{R}}(X, G)$	Category of real G-vector bundles	13(3.3)
$\text{Rep}_{\mathbb{R}}$	Real (not necessarily finite dimensional) representations of G, see $\text{R}(G)$ 24	13(3.4)
$K_G(X)$	Grothendieck functor of the semi-ring of isomorphism classes of G-vector bundles on a G-space X	13(3.8)
(τ)	The group with two elements	13(6.1)
KR_G		13(6.2)
$(\tau)G$	Cross product of (τ) and G	13(6.3)
$\text{Vect}(X, G, \tau)$	The category of (G, τ)-vector bundles over the $(\tau)G$-space X	13(6.5)
$\widetilde{KR}_G$	The reduced version of KR_G	13(7.1)
$KR_G^{p,\,q}(X, A)$	The (p,q)-suspensiongroups of $KR_G(X,A)$	13(7.3), 14(2.6)
$P(E)$	Projective bundle associated to vector bundle	14(1.1)
$KR(X, A)$	Relative group for $A \subset X$	14(2.5)
$\phi_!$	The Thom morphism	14(3.4)
O, SO, U, SU, Sp	Direct limit groups	15(2.1)
$RR(G)$	The representation ring of (G, τ)-modules	15(4.2)
$C(f)$	The Clifford algebra of a quadratic form f	15(5.3)
$C(q, p)$	The Clifford algebra $C(-x_1 - \ldots - x_q + x_{q+1} + \ldots + x_{q+p})$ over $\mathbb{R}$	15(5.8)
F	$\mathbb{R}$, $\mathbb{C}$ or $\mathbb{H}$, see, however, 2(2.1) where F replaces only $\mathbb{R}$ or $\mathbb{C}$	15(5.9), 15(6)
$CF\langle q\rangle[G]$	The Clifford algebra $F \otimes_{\mathbb{R}} C(q,0)$	15(6)
$MF\langle q\rangle(G)$	The Grothendieck group of the group algebra $CF\langle q\rangle[G]$	15(6.2)
$N(n, R)$	The group of upper triangular invertible n by n matrices with coefficients in a ring R	16(3.4)
$\mathfrak{H}$	upper half plane	16(5.2)

${}_{(G,\,A)}\mathrm{Mod}$	The category of (G,A)-modules and morphisms consisting of A-linear G-equivariant maps, where A is a G-algebra	17(1.5)
$K_G^0(X)$	G-equivariant K-theory	17(1.8)
$K_G(A)$	The Grothendieck group providing the G-equivariant K-theory of a G-algebra A	17(1.9)
$G \ltimes H$	The cross product of groups G, H related to an action of G on H	17(2.1)
$C_c(G,\,A)$	The $*$-algebra of compactly supported continuous functions $G \to A$ on a topological group G with values in a Banach algebra A	17(2.3)
$C(X,A)$	The algebra of all continuous functions $f : X \to A$ which vanish at ∞	17(3.4)
f_*	Induced morphism $\mathrm{Ext}(X) \to \mathrm{Ext}(Y)$	17(4.9)
$\mathrm{Ext}(B,\,A)$	The set of isomorphism classes of extensions of B by A for two given locally convex algebras	17(5.2)
$C(B),\ S(B)$	Continuous cone resp. suspension of a locally convex algebra B	17(6.1)
$C^\vee(A),\ S^\vee(A)$	Dual cone $C^\vee(A)$ resp. dual suspension $S^\vee(A)$ of a locally convex algebra	17(6.10)
$kk_*(A,\,B)$	The biinvariant functor	17(8.1)
$\mathrm{Vect}^n(X)$	The set of isomorphism classes of n- dimensional vector bundles over X, see also 19(6.1)	18(1.2), 15(1.2) 19(3.3)
$\mathrm{Alg}^n(X)$	The set of isomorphism classes of n by n matrix algebra bundles over X	18(1.4)
$\mathrm{Vect}^H(X)$	The set of isomorphism classes of vector bundles over X with fibre the Hilbert space H	18(2.6)
$\mathrm{Alg}^H(X)$	The set of isomorphism classes of infinite-dimensional algebra bundles modeled on $\mathscr{B}(H)$ or $\mathscr{K}(H)$ for a separable infinite-dimensional Hilbert space H	18(2.6)
${}_nH^3(X,\,\mathbb{Z})$	The subgroup of n-torsion points in $H^3(X,\mathbb{Z})$	18(3.8), 18
$KP(X)$		19(4.3)
$\mathrm{Vect}^n(X)$	The set of isomorphism classes of $\mathscr{C}_X$-modules of sheaves locally isomorphic to $\mathscr{C}_X^n$	19(6.1)