Corrections to
by C. A. Weibel

p.16 line -4: \((1 + xe)e(1 + xe)^{-1}\) should be \((1 + x)e(1 + x)^{-1}\)
p.18 line -9: \(gf^{-1}h\) should be \(hf^{-1}g\)
p.19 line -3: 'contravariant' should be 'covariant'
p.59 line -3: \((\rho \pi)^*\) should be \((\pi p)^*\)
p.80 line 15: replace ' \(\cdots \times S_c\)', so by: ' \(\cdots \times S_n\)', if \(k\) is algebraically closed then \(n = c\), so'
p.91 line 6: \(\text{VB}(X)\) should be \(\text{VB}_n(X)\)
p.95 line -2: "isomorphism" should be "injection"
p.101 Example 4.3: All the minus signs should be plus signs (replace 1− by 1+ in lines -16, -14, -13, -8, -4)
p.101 line -8: \(\exp(1 - r_n t^n/n)\) should be \(\exp(r_n t^n/n)\)
p.102 line 12: insert example:

**Example 4.3.3. (Chern ring)** If \(A\) is a graded ring, let \(W_{gr}(A)\) denote the subgroup of \(W(A)\) consisting of all terms \(1 + \sum a_i t^i\) with \(a_i \in A_i\). Then the formula

\[
(1 + at)^*_{gr} (1 + bt) = (1 + (a_1 + b_1)t)/(1 + at)(1 + bt)
\]

extends to an associative product on \(W_{gr}(A)\). (To see this, formally factor \(1 + at^i = \prod (1 + \alpha^t_\iota)\). Grothendieck observed that \(\mathbb{Z} \times W_{gr}(A)\) is a (special) \(\lambda\)-ring, and that the \((1, 1 + at)\) are line elements. See [SGA6, 0\text{App}§I.3] and V.6.1.

If \(A\) is a graded \(\mathbb{Q}\)-algebra, the formula \(ch(1 + at) = e^a - 1\) defines a ring isomorphism \(ch : W_{gr}(A) \to \prod A_n\) (exercise!). Now suppose that \((1 + a_n t^n)^i = \prod (1 + \alpha_\iota t^i)\), so that the elementary symmetric polynomials \(s_k \) in the \(\alpha_i\) vanish for \(k < n\), and \(s_n = a_n\). For \(k < n\) this implies that \(\sum \alpha_i^k = 0\), and \(\sum \alpha_i^n = (-1)^{n-1} n a_n\). It follows that the lowest term in \(ch(1 + a_n t^n)\) is \((-1)^{n-1} a_n/(n-1)!\).

p.110 line -12: "isomorphically onto" should be "injectively into"
p.109 line -5: The subscripts on the sums should be \(i = 1,\) not \(i = 0\).
p.114: insert exercise:

**4.15** If \(K\) is a \(\lambda\)-ring with a positive structure, show that the total Chern class \(\widetilde{K} \xrightarrow{\gamma} W_{gr}(A)\) is a homomorphism of \(\lambda\)-rings without unit. (See Example 4.3.3.) Hint: Use the Chern roots \(a_i\) of \(p\) to evaluate \(c(\lambda^n p)\) as a product of terms \(1 + (a_{i_1} + \cdots + a_{i_n})\), \(i_1 < \cdots < i_n\).

Using the \(\lambda\)-ring structure on \(H \times W_{gr}(A)\) of Example 4.3.3, show that \(K \to H \times W_{gr}(A)\), \(x \mapsto (\varepsilon, c(x))\), is a homomorphism of \(\lambda\)-rings with unit; see [SGA6, 0\text{App}§I.3].

p.118 line -10: definition is due to E. Witt. (not Knebusch)
p.147 7.6(b): 'C is closed' should be '\(\text{CandP}\) are closed'
p.148 line -6: ‘min’ should be ‘max’
p.151 line 16: delete ‘of any projective resolution’
p.145 line -15: $\rightarrow P(R)$ should be $\rightarrow K_0(R)$
p.177 last line of 9.2.2: ‘we have’ should be ‘[C] equals’
p.180 (II.9.4): ‘If $\mathcal{B}$ is cofinal in $\mathcal{C}$’ should be ‘If $\mathcal{B}$ is saturated in $\mathcal{C}$, and cofinal in $\mathcal{C}$’

(saturated in $\mathcal{C}$ means if $C_1 \rightarrow C_2$ is a w.e., and one $C_i$ is in $\mathcal{B}$ then both are in $\mathcal{B}$.)
p.184 line 3: $H_i(A)$ should be $H_i(C)$
p.189 (Ex. II.9.14): ‘$\mathcal{B}$ is cofinal in $\mathcal{C}$’ should be ‘If $\mathcal{B}$ is saturated in $\mathcal{C}$, and cofinal in $\mathcal{C}$’
p.200 line -17: Platanov should be Platonov
p.227 Ex.3.4: $H_S(R)$ should be $H_{1,S}(R)$.

p.245 1.20: ‘lifting their commutator to $St(R)$’ should be ‘taking the commutator in $St(R)$ of their lifts’
p.247 1.7-5: $R^{m+n}$ should be $R^{mn}$; $M_{m+n}(R)$ should be $M_{mn}(R)$
p.252 1.11 (II.6.1.2): because when $\text{lead}(f) = 1$, then $\text{lead}(1 - f)$ is either

pp. 259, 260, 274, 605: ‘Artin-Schrier’ should be ‘Artin-Schreier’ several times
p.272 1.1: $N_{a/F,x}$ should be $N_{a/E,x}$
p.280 Ex.7.1: The map $\partial$ is independent of the choice of $\pi$, but the specialization map $\lambda$ does depend on this choice.
p.281 1.5: $K_n^M F(t)$ and $K_n^M F(t)_w$ should be $K_{n+1}^M F(t)$ and $K_{n+1}^M F(t)_w$
p.318 (IV.3.6.1(ii)): insert before ‘and’: $X$ is the nerve of $I \int F$ for a functor $F(i) = f^{-1}(i, \bullet)$, $f$ is the nerve of $I \int F \rightarrow F$
p.332 before 4.6.1: ‘respectively’ is misspelled
p.340 line -5: $S \rightarrow \hat{S}$ is a cofinal monoidal functor when each $\text{End}(s)$ is an abelian group.
p.353 (6.6.3): $BQC$ should be $BQQC$
p.354 1.7: $\prod_{i=1}^{\infty}$ should be $\prod_{n=1}^{\infty}$
p.369 (IV.8.5.4): The last sentence of the proof should read

“These are contractible since $S_0C$ and $wS \cdot S_0C$ are.”
p.371 line 4 (IV.8.8): insert (v) $T$ preserves pushouts along cofibrations
p.372 (IV.8.9): Before ‘closed under’ insert ‘saturated in $\mathcal{C}$,’
p.381 1.4: in the diagram, $\alpha\beta$ should be $\beta\alpha$
p.387 1.4: delete the ‘+’ superscript
p.393 (Ex. IV.11.9): the even permutation matrices lie in $E(R)$
p.417 (V.2.3.1): After ‘closed under extensions’ insert and saturated in $\mathcal{C}$.’
p.434 1.20 (V.3.11): insert ‘pseudocoherent’ before ‘complexes of flasque’
p.434 Ex.V.3.4: $\otimes S$ should be $\otimes_R S$
p.442 1.8: ‘Theorem A (see IV.3.7)’ should be ‘Theorem B (see IV.3.8)’
p.446 1.15: $i : \rightarrow R/sR$ should be $i : R \rightarrow R/sR$
p.460 Ex.V.6.4: the map in the exact sequence should be $\phi_* - 1$, not $\phi_*$

p.496 line 5–7: The two ‘∗’ should be ‘◦’ and II.4.3 should be II.4.3.3.

p.497 line 19: ‘∗’ should be ‘◦’

p.506 (Ex. 11.3): ...write $W_{gr}(H)$ for the nonunital ring of Example 4.3.3. Show that... In the display , * should be $*_{gr}$. The hint should read: In the universal case $H = \mathbb{Z}[x, y]$, $W_{gr}(H)$ embeds in $W_{gr}(H \otimes \mathbb{Q})$. Now use the isomorphism $ch$ of Example 4.3.3.

p.536 (VI.5.2): 'infinite field’ should be just 'field’

p.540 (VI.5.7): “$H_2(GL_2(F), \mathbb{Z}) = F^\times$, and” should be:
“$H_1(GL_2(F), \mathbb{Z}) = F^\times$, $H_2(GL_2(F), \mathbb{Z}) = F^\times \otimes K_2(F)$, and” (see p.541, line 6)

p.558 (3 lines before VI.7.1): $K_2(E) \cong U_2 \oplus \mu(E)$ (not ...$\oplus \mathbb{F}_q^\times$)

p.558 (line before VI.7.1): $K_2(V) \cong U_2$ should be $K_2(V) \cong U_2 \oplus \mu_p(E)$

p.558 (VI.7.1): “sum of $F_q^\times$” should be “sum of $\mu(E)$”

p.564 line -6: $\mathbb{Z}^{r_2+|S|-1}$ should be $\mathbb{Z}^{r_2+|S|-1}$