Corrections to

by C. A. Weibel


p.101 lines -10,-13,-16: the product ‘∗’ should be ‘◦’
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

$$(1 + a_1 t) *_{gr} (1 + b_1 t) = (1 + (a_1 + b_1) t)/(1 + a_1 t)(1 + b_1 t)$$

extends to an associative product on $W_{gr}(A)$. (To see this, formally factor $1 + a_i t^i = \prod (1 + \alpha_i t).$) 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], 0App, §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 $ch : W_{gr}(A) \rightarrow \prod A_n$ (exercise!). Now suppose that $(1 + a_n t^n) = \prod (1 + \alpha_i t)$, 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.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 $\tilde{K} \rightarrow W_{gr}(A)$ 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 if $K \rightarrow H \times W_{gr}(A)$, $x \mapsto (\varepsilon, c(x))$, is a homomorphism of $\lambda$-rings with unit; see [SGA6, 0App, §I.3].

p.118 line -10: definition is due to E. Witt. (not Knebusch)

p.180 (II.9.4): 'If $B$ is cofinal in $C$' should be 'If $B$ is saturated in $C$, and cofinal in $C$' (saturated in $C$ means if $C_1 \rightarrow C_2$ is a w.e., and one $C_i$ is in $B$ then both are in $B$.)

p.189 (Ex. II.9.14): 'If $B$ is cofinal in $C$' should be 'If $B$ is saturated in $C$, and cofinal in $C$'

p.227 Ex. 3.4: $H_*(R)$ should be $H_{1,*}(R)$.

p.252 l.11 (II.6.1.2): because when $\mathrm{lead}(f) = 1$, then $\mathrm{lead}(1-f)$ is either

pp. 259, 260, 274, 605: 'Artin-Schrieter' should be 'Artin-Schreier' several times

p.272 l.1-: $N_{a/E}x$ 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 l.5-: $K_n^M F(t)$ and $K_n^M F(t)_w$ should be $K_{n+1}^M F(t)$ and $K_{n+1}^M F(t)_v$

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.354 l.-7: \( \prod_{i=1}^{\infty} \) should be \( \prod_{m=1}^{\infty} \)
p.372 (IV.8.9): Before 'close under' insert 'saturated in \( C \),'
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 \( C \).
p.434 l.20 (V.3.11): insert 'pseudocoherent' before 'complexes of flasque'
p.446 l.15: \( i:R \to R/sR \) should be \( i:R \to R/sR \)
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:

“\( H_1(GL_2(F),\mathbb{Z}) = F^\times \), \( H_2(GL_2(F),\mathbb{Z}) = \bigwedge^2 F^\times \oplus K_2(F) \), and” (see p.541, line 6)
p.558 (3 lines before VI.7.1): \( K_2(E) \cong U_2 \oplus \mu(E) \) (not \( \oplus F_q^\times \))
p.558 (line before VI.7.1): \( K_2(V) \cong U_2 \) should be \( K_2(V) \cong U_2 \oplus \mu_{p^\infty}(E) \)
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 \( \mathbb{Z}^{r_1+r_2+|S|-1} \)

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