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

\[(1 + a_1 t) \ast_{gr} (1 + b_1 t) = (1 + (a_1 + b_1) t) / (1 + a_1 t)(1 + b_1 t)\]

extends to an associative product on W_{gr}(A). (To see this, formally factor 1 + a_i t^i = \prod (1 + a_i t)\.) Grothendieck observed that \(\mathbb{Z} \times W_{gr}(A)\) is a (special) λ-ring, and that the (1, 1 + at) are line elements. See [SGA6, 0_{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) \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 \(\sum \alpha_i^n = (−1)^{n−1} na_n\). 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 \(1 + (a_i + \cdots + a_i)\), \(i_1 < \cdots < i_n\).

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

(\textit{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): ‘B is cofinal in \(C\)’ should be ‘If B is saturated in \(C\), and cofinal in \(C\)’
p.252 l.11 (II.6.1.2): because when lead(\(f\)) = 1, then lead(1 − \(f\)) is either

pp. 259, 260, 274, 605: ‘Artin-Schreier’ should be ‘Artin-Schreier’ several times
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.372 (IV.8.9): Before ‘close under’ insert ‘saturated in \(C\), ’
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.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.564 line -6: $\mathbb{Z}^{r_2+|S|-1}$ should be $\mathbb{Z}^{r_1+r_2+|S|-1}$

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