Corrections and additions to

Polytopes, rings, and K-theory

W. Bruns and J. Gubeladze

If you should find a mistake in of our book, mathematical or typographical, please let us know by e-mail to

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p. 4, l. 10 $\alpha : V \to \mathbb{R}$

p. 10, 1.B, l. 1 set $\to$ sets

p. 10, l. -1 A subset C

p. 13, l. -16 $C = H^+_{\lambda_1} \cap \cdots \cap H^+_{\lambda_n} \subset V$

p. 29, l. -19 $P'_n \to P_n$

same page, l. -11 Delete $P =$ from $P = \operatorname{conv}(F, x)$.

p. 30, Thm. 1.54, l. 3 $\Gamma \to \Sigma$

same page, l. -8 $\mathbb{R}_+ D$, $D \in \Sigma'$

p. 31, l. 5 connected $\to$ convex

p. 33, l. -10 $n = \#\operatorname{vert}(\Pi)$

same page, l. -3 f is the support function of Π'.

p. 56, proof of 2.16(d) $\Longrightarrow$ (c), dimension $d \to$ dimension r

p. 71, l. −1 $v \equiv \pm q \ \ (p)$ or $vq \equiv \pm 1 \ \ (p)$

p. 86, Exerc. 2.17 add the hypothesis: P different from the unit simplex

p. 139, l. −4 Corollary 2.35(b) $\to$ Proposition 2.35(b)

Chapter 4 The definition of *monomial ideal* was forgotten. It is an ideal in a monoid algebra $R[M]$ generated by elements of M.

p. 137, Theorem 4.32 Replace −− in (b) and (c) by −

p. 147, *Class groups of monoid algebras*, l. 2 monomial ideal in $R \to$ monomial ideal in $R[M]$

p. 198, Notes to Ch. 5 The main source for Section 5.D is W. Bruns and J. Gubeladze, Polytopal linear groups, *J. Algebra* **218** (1999), 715–737.

p. 200, Theorem 6.1, l. 2 all maximal M-sequences in I

p. 207, l. 1 $\varphi_m \to \varphi_{m+1}$

p. 213, Example 6.27(a) $\omega_R = X_1 \cdots X_m R$

p. 214, l. −11 $^*\mathrm{Ext}_S^{n-d}(\omega', \omega_S) = R$

same page, l. −10 $\omega' = {}^*\mathrm{Ext}_S^{n-d}(R, \omega_S)$

same line $(n-d)$th total Betti number

p. 180, l. −2 $y \in M \to y \in \bar{M}$

p. 215, l. 1 $^*\mathrm{Ext}_R^d(\Bbbk, \omega_S) \to {}^*\mathrm{Ext}_R^d(\Bbbk, \omega')$

same page, l. 4 $^*\mathrm{Ext}_R^d(\Bbbk, \omega_S) \to {}^*\mathrm{Ext}_S^d(\Bbbk, \omega')$

p. 217, (6.7) Replace −− by −

p. 217, l. −14 insert space after "splits"

p. 231, Theorem 6.53 In (a)(iii) $r = \operatorname{rank} M$.

p. 247, Exercise 6.11 Delete "normal" from the hypothesis.

p. 247, Exercise 6.15 replace d by r (the number of factors in the denominator of $F(t)$).

p. 316, 8.41, l. 5 rank d → rank $\geq d$

p. 325, l. −4 Lopez → Logar

p. 346, l. 4 suslin → Suslin

p. 350, l. −14 quillen → Quillen

p. 393, l. 17 totaro → Totaro

p. 405, l. −7 $dt \to dT$

p. 426, Exercise 10.5 Franchisco Santos suggested the following fast construction of the "bordism" polytope $\tilde{P}$. Let $Q \subset \mathbb{R}^n$ be any support polytope for a projective unimodular triangulation $\mathscr{F}$ of the fan $\mathcal{N}(P)$. Then the polytope

$$\tilde{P} = \operatorname{conv}\big((P,0),(Q,1)\big) \subset \mathbb{R}^{n+1}$$

has all the properties mentioned in the exercise. In fact, one wants that the vertices of $\tilde{P}$, corresponding to the vertices of Q, are simple (and, hence, unimodular). But if this is not the case then the polytope $R_h = \tilde{P} \cap (\mathbb{R}^n, h)$ with $h \in (0,1)$ is not combinatorially equivalent to Q. On the other hand, $\mathcal{N}(R_h) = \mathcal{N}(P+Q)$ and $\mathcal{N}(P+Q)$ is the smallest common subdivision of $\mathcal{N}(P)$ and $\mathcal{N}(Q)$ (i. e., the intersection of $\mathcal{N}(P)$ and $\mathcal{N}(Q)$; see p. 34). In our situation, the latter condition means $\mathcal{N}(P+Q) = \mathcal{N}(Q)$.

p. 427, l. 13 show → Show

p. 458 Add to index entry *polytope* the subentry *integrally closed, 73*