Ideals, Varieties and Algorithms, third edition

Errata for the second and subsequent printings as of November 29, 2012

Page 15, line 2 of **Definition 1**: “f/g and h/k” should be “f/g and f’/g’”
Page 15, line 3 of **Definition 1**: “kf = gh” should be “g’f = gf’”
Page 27, Exercise 11.b: “part a” should be “part (a)”
Page 42, parts (i), (ii) and (iii) of **Proposition 6**: “GCD(f,g)” should be “GCD(f, g)” (parentheses in wrong font) (three errors)
Page 43, line 12: “deg(r) > deg(r’) or r = 0” should be “deg(r) > deg(r’) or r’ = 0”
Page 47, line 1 of Exercise 14.b: “(x – a_1)^r_1” should be “(x – a_1)^r_1”
Page 52, line 1: “We rewrite the equations by subtracting the x_i terms from both sides” should be “We rewrite the equations by subtracting the x_i terms and constants from both sides”
Page 54, line –1: “Futhermore” should be “Furthermore”
Page 55, line 13: Add the sentence “A total order is also transitive, so that x^α > x^β and x^β > x^γ always imply x^α > x^γ.”
Page 60, line 2 of Exercise 1: “LM(f), LT(f)” should be “LM(f), LT(f)”
Page 62, second display: “−y + 1” should be “−y + 1”
Page 62, third display: The last three lines should be as follows (two errors):

\[
\begin{align*}
-y + 1 \\
-y - 1 \\
\frac{y}{2}
\end{align*}
\]
Page 66, line 6: “LT(p) < LT(f)” should be “LT(p) ≤ LT(f)”
Page 66, line 7: “multdeg(a_i f_i) < multdeg(f)” should be “multdeg(a_i f_i) ≤ multdeg(f)”
Page 66, line 11: “30 years” should be “40 years”
Page 67, line 2: “LT(f_i)” should be “LT(f_i)”
Page 68, line 1 of Exercise 1: “order set” should be “ordered set”
Page 68, line 1 of Exercise 7: “(f, f_2, f_3) = ⟨x^4 y^2 – z, x^4 y^2 – z, x^3 y^3 – 1, x^2 y^4 – 2z⟩” should be “(f_1, f_2, f_3) = ⟨x^4 y^2 – z, x^3 y^3 – 1, x^2 y^4 – 2z⟩” (multiple errors)
Page 69, Exercise 11.a: “\( \beta \in \Delta_i, \) if and only if \( x^{\alpha(i)} \) divides \( x^\beta \), but” should be “\( \beta \in \Delta_i \) if and only if \( x^{\alpha(i)} \) divides \( x^\beta \) and”

Page 72, first display: The comma at the end of the last line of the display should be a period.

Page 74, line 1 of Exercise 10: “\( k[x_1, \ldots, x_n, \ldots, y_1, \ldots, y_n] \)” should be “\( k[x_1, \ldots, x_n, y_1, \ldots, y_n] \)”

Page 74, line 4 of Exercise 11: “\( \alpha >_u \beta \)” should be “\( \alpha >_u \beta \)”

Page 74, line 1 of Exercise 11.c: “\( u = \)” should be “\( u = \)”

Page 76, line –8: “\( \langle \text{LT}(g_1), \ldots, \text{LT}(g_t) \rangle \)” should be “\( \langle \text{LT}(g_1), \ldots, \text{LT}(g_t) \rangle \)”

Page 77, line 1: “\( \langle \text{LT}(g_1), \ldots, \text{LT}(g_t) \rangle \)” should be “\( \langle \text{LT}(g_1), \ldots, \text{LT}(g_t) \rangle \)”

Page 77, line –7: “\( x^2 \in \langle \langle \text{LT}(I) \rangle \rangle \)” should be “\( x^2 \in \langle \text{LT}(I) \rangle \)”

Page 78, line 1: “\( A g_1 + B g_2 \)” should be “\( A g_1 + B g_2 \)”

Page 80, Exercise 4: “\( \text{LM}(g) \)” should be “\( \text{LM}(g) \)”

Page 81, line 2 of Exercise 15: “\( f_1 = f_2 = \cdots = 0 \)” should be “\( f_1 = f_2 = \cdots = 0 \)”

Page 82, line 1 of Corollary 2: “\( \{g_t, \ldots, g_t\} \)” should be “\( \{g_1, \ldots, g_t\} \)”

Page 85, line 6 of proof of Theorem 6: “\( \langle g_1, \ldots, g_t \rangle \)” should be “\( \langle g_1, \ldots, g_t \rangle \)”

Page 88, line 2 of Exercise 10: Add the new sentence “Assume that \( f \) or \( g \) has at least two terms.”

Page 88, line 1 of Exercise 10.b: “Deduce that” should be “Deduce that \( S(f, g) \neq 0 \) and that”

Page 88, line 4 of Exercise 11: The numerator of right side of the equation should be “\( \text{LCM}(x^\alpha \text{LM}(f), x^\beta \text{LM}(g)) \)”

Page 88, line 3 of Exercise 12.b: “Use part (a)” should be “Use Exercise 1”

Page 89, line 6: “Groebner basis for \( I \)” should be “Groebner basis for \( I \)”

Page 92, line 1 of Definition 5: “A reduced” should be “A reduced”

Page 95, line 5 of Exercise 10: “\( g_t, \ldots, g_t \)” should be “\( g_1, \ldots, g_t \)”

Page 95, line 1 of Exercise 10.b: “\( g_t, \ldots, g_t \)” should be “\( g_1, \ldots, g_t \)”

Page 97, line 3 of first display of Example 3: “2x^2–” should be “2xy–”

Page 99, line 2: “\( t_1, \ldots, t_m \)” should be “\( t_1, \ldots, t_m \)”
Page 103, line 5 of **Definition 1**: “\(a_1 g_1 + \cdots + a_t g_t,\) should be “\(a_1 g_1 + \cdots + a_t g_t, a_i \in k[x_1, \ldots, x_n],\)”

Page 104, line 7: “\(\geq\)” should be “\(\leq\)”

Page 106, line -3: “\(\frac{x^\gamma}{\text{LM}(f_i)}e_i - \frac{x^\gamma}{\text{LM}(f_j)}e_j\)” should be “\(\frac{x^\gamma}{\text{LT}(f_i)}e_i - \frac{x^\gamma}{\text{LT}(f_j)}e_j\)”

Page 107, line -4: “of degree \(\delta\)” should be “of multidegree \(\delta\)”

Page 108, equation (5): “\(\sum_i\)” should be “\(\sum_j\)”

Page 108, line -3: “Note: If” should be “Note: If”

Page 109, line 1: “We leave it as an exercise to” should be “In Exercise 7, you will”

Page 110, lines 16 and 17: “we leave it as an exercise to” should be “in Exercise 9, you will”

Page 110, line -19: “that \(S\) is a” should be “that \(S\) is a”

Page 110, line -9: “\(S_{ik}\) and \(S_{ik}\)” should be “\(S_{ik}\) and \(S_{jk}\)”

Page 112, line -3: “from partial” should be ”from part (a).”

Page 117, line 10: “\(\text{LT}(g) \in [x_{l+1}, \ldots, x_n]\)” should be “\(\text{LT}(g) \in k[x_{l+1}, \ldots, x_n]\)”

Page 119, line 2 of the paragraph beginning “Turning”: “to \(x_i\)” should be “to \(x_1\)”

Page 122, line 10: “\(\beta_i + \cdots + \beta_i\)” should be “\(\beta_1 + \cdots + \beta_i\)”

Page 124, **Theorem 2**: “**Theorem 2.** Given” should be “**Theorem 2 (The Geometric Extension Theorem).** Given”

Page 124, line 2 of **Theorem 2**: “\((f_1, \ldots, f_s)\)” should be “\((f_1, \ldots, f_s)\)” (two errors)

Page 128, line 7: “\(V(I_1) =\)” should be “\(V(I_1) =\)”

Page 133, line -6: “\(g_i(t_1, \ldots, t_m)x_i\)” should be “\(g_i(t_1, \ldots, t_m)x_i\)”

Page 135, line 1 of Exercise 6.c: “only covers the” should be “only covers”

Page 136, parts (b) and (c) of Exercise 10: “part a” should be “part (a)” (two errors)

Page 136, line 3 of Exercise 11: “\(k^m - V(g)\)” should be “\(k^m - V(g)\)”

Page 137, line 6 of Exercise 13: “\(W = V(g)\)” should be “\(W = V(g)\)”

Page 139, line -10: “let \(L\) be line” should be “let \(L\) be the line”
Page 144, line −5: “1688x^2” should be “688x^2”

Page 148, Exercise 8.c: “has no singular points” should be “in \( \mathbb{R}^2 \) has no singular points when \( a > 0 \)”

Page 149, line −6: “(0, 17.4)” should be “(0, 17/4)”

Page 150, line 1 of Exercise 20.b: “find the” should be “to find the”

Page 152, line −9: “d \in k[x_1, \ldots, x_n]” should be “d \in k[x_2, \ldots, x_n]”

Page 153, line −9: “over \( \mathbb{Q} \),” should be “over \( \mathbb{Q} \).” (the comma should be a period)

Page 155, large matrix in Definition 7: There are two large braces at the bottom of the matrix. Under the right-most brace (the ones under the columns with \( b_i \) coefficients), “m columns” should be “l columns”

Page 157, lines 19–21: Delete these lines and replace them with the following:

“where \( c_0, \ldots, c_{m-1}, d_0, \ldots, d_{l-1} \) are unknowns in \( k \). Equation (6) holds if and only if substituting these formulas into (6) gives an equality of polynomials. Comparing coefficients of powers of \( x \), we conclude that (6) is equivalent to the following system of linear equations with unknowns \( c_i, d_i \) and coefficients \( a_i, b_i \) in \( k \):”

Page 159, line −1: “\( f_1 \cdots f_r \)” should be “\( f_1 \cdots f_r \)”

Page 163, statement of Proposition 1: In two places, “\( \text{Res}(f, g, x_1) \)” should be “\( \text{Res}(f, g, x_1) \)” (two errors)

Page 166, line 1 of Exercise 2: “Let \( f, g \in \mathbb{C}[x, y] \)” should be “Let \( f, g \in \mathbb{C}[x, y] \) be nonzero.”

Page 166, line 1 of Exercise 2.b: “[\( x, y \])” should be “[\( x, y \])”

Page 166, line 1 of Exercise 3: “(\( f, g \)) \cap k[y]” should be “(\( f, g \)) \cap k[y]”

Page 167, last line of Exercise 8: “Exercise 11” should be “Exercise 10”

Page 167, first display of Exercise 10.a: “\( \text{Res}(f(x_1, c), g(x_1, c), x_1) \)” should be “\( \text{Res}(f(x_1, c), g(x_1, c), x_1) \)”

Page 172, line −3: “(\( x^n, y^m \))” should be “(\( x^n, y^m \))”

Page 174, line 3 of part (a) of Exercise 7: “\( a_1x^n-1 \)” should be “\( a_1x^n-1y \)”

Page 180, line 1: “the principal ideal” should be “be the principal ideal”

Page 181, line −4: The left side of the equation should be “\( \frac{\partial f}{\partial x_j} \)”
Page 183, line 3 of Proposition 2: “\((f_1, \ldots, f_r)\) and \((g_1, \ldots, g_s)\)” should be “\(\langle f_1, \ldots, f_r \rangle\) and \(\langle g_1, \ldots, g_s \rangle\)”

Page 184, line 2: “\((f_1, \ldots, f_r, g_1, \ldots, g_s)\)” should be “\(\langle f_1, \ldots, f_r, g_1, \ldots, g_s \rangle\)”

Page 184, line 6: “\(\mathbb{R}^3\)” should be “\(\mathbb{R}[x, y, z]\)”

Page 186, line 3 of the proof of Proposition 9: “by any” should be “be any”

Page 192, line 2 of Exercise 13: “\(y \in K^n\)” should be “\(y \in k^n\)”

Page 192, line 1 of Exercise 13.b: “is an ideal” should be “is an ideal in”

Page 192, Exercise 14.d: Add a comma before “with equality”

Page 192, Exercise 15.b: Replace with “\(\alpha^{-1}_A(I' + J') \supset \alpha^{-1}_A(I') + \alpha^{-1}_A(J')\), with equality if \(\alpha_A\) is onto.”

Page 192, Exercise 15.c: Replace “with equality if the right-hand side contains \(K\)” with “with equality if \(\alpha_A\) is onto and the right-hand side contains \(K\)”

Page 193, paragraph following Definition 2: In three places, “\(I(S)\)” should be “\(\mathbf{I}(S)\)”, and in three other places, “\(I(S)\)” should be “\(\mathbf{I}(S)\)” (6 errors total)

Page 197, Exercise 3: “radical ideal,” should be “radical,”

Page 197, Exercise 7.a: “\(I \supset K\) where \(K = \ker(\alpha_A)\)” should be “\(I \supset \ker(\alpha_A)\) and \(\alpha_A\) is onto”

Page 201, line 10: “\((p \circ F) = 0\)” should be “\((q \circ F) = 0\)”

Page 208, line -1: “\(W:\)” should be “\(W =\)”

Page 209, Exercise 5.a: “\(W = V(f)\)” should be “\(W = V(J)\)”

Page 210, line 3 of Exercise 9: “\((f_1 f_2 \cdots f_r)\)” should be “\(\langle f_1 f_2 \cdots f_r \rangle\)”

Page 220, line 5: “\(V \in \mathbb{C}^3\)” should be “\(V \subset \mathbb{C}^3\)”

Page 221, line 1 of Exercise 4.b: “\(\phi^{-1}(a, b)\)” should be “\(\pi^{-1}(a, b)\)”

Page 226, line -9: “[\(j\] + [\(k\] = J/I\)” should be “[\(j\] + [\(k\] \in J/I\)”

Page 229, line 2 of Exercise 10: “\((x^2)\)” should be “\(\langle x^2 \rangle\)”

Page 234, line -18: “(ii) \Rightarrow (iii)” should be “(ii) \Leftrightarrow (iii)”

Page 234, line -17: “\(g \in G\)” should be “\(g \in G\)”

Page 234, line -10: “(iv) \Rightarrow (v)” should be “(iv) \Leftrightarrow (v)”

Page 236, lines -12 and -10: “Corollary 7” should be “Proposition 7” (two errors)

Page 237, Exercise 9: Replace the entire exercise with the following:
9. Suppose that \( I \subset \mathbb{C}[x_1, \ldots, x_n] \) is a radical ideal with a Groebner basis \( f_1, \ldots, f_n \) such that \( \text{LT}(f_i) = x_i^{m_i} \) for each \( i \). Prove that \( V(I) \) contains exactly \( m_1 \cdot m_2 \cdots m_n \) points.

Page 240, part (iii) of Proposition 3: “\( I_V(V_V(J)) \)” should be “\( I_V(V_V(J)) \)”

Page 240, part (iv) of Proposition 3: “\( V_V(I_V(W)) \)” should be “\( V_V(I_V(W)) \)”

Page 256, line 3 of Exercise 4: “\( W \subset k \)” should be “\( W \subset \mathbb{R} \)”

Page 256, line 4 of Exercise 4: “\( k - W \)” should be “\( \mathbb{R} - W \)”

Page 262, line 3: “\( V(I_l) - W_1 \)” should be “\( V(I_l) - W_l \)” and in two places, “\( \pi_1(V - W_0) \)” should be “\( \pi_l(V - W_0) \)” (three errors total)

Page 262, line 19: “\( V_1' \not\subset V_l' \)” should be “\( V_1' \not\subset V_l' \)”

Page 263, line 9: “Exercises 7” should be “Exercise 7”

Page 263, line 15: “\( \pi_1(V) \)” should be “\( \pi_l(V) \)”

Page 264, line 1: “\( \pi_1(V) \not\in W \)” should be “\( \pi_1(V) \not\in \widetilde{W} \)” (two errors)

Page 264, line 3: “\( u_r \in I_1 \)” should be “\( u_r \not\in I_1 \)”

Page 277, line 1 of Exercise 3.a: “trignomometric” should be “trigono metric”

Page 287, line 8: “reasearch” should be “research”

Page 287, line 1 of Exercise 2.b: “solutons” should be “solutions”

Page 321, line 7: “elementary symmetric polynomials” should be “elementary symmetric functions”

Page 326, line 1 of Exercise 13: “total degree \( k \)” should be “total degree \( d \)”

Page 326, line 2 of Exercise 13.a: “\( k = i_1 + 2i_2 + \cdots + ni_n \)” should be “\( d = i_1 + 2i_2 + \cdots + ni_n \)”

Page 329, line 4 of the proof of Proposition 6: “This proves (ii)” should be “This proves (i) and (ii)”

Page 334, line 1 of part (c) of Exercise 6: “\( (xyz) \)” should be “\( (xyz) \)”

Pages 338–339, proof of Theorem 5: The proof uses \( k \) to denote both the field and the total degree of the invariants being considered. This degree should be changed to \( \ell \) as follows:
Changes on Page 338:

line 2: “\(\frac{1}{2}(x^2 - y^2)\)” should be “\(\frac{1}{2}(x^2 + y^2)\)”
line -12: “integer \(k\)” should be “integer “\(\ell\)”
line -11: “\(k \text{ into}\)” should be “\(\ell \text{ into}\)”
line -8: “\((x_1 + \cdots + x_n)^k\)” should be “\((x_1 + \cdots + x_n)^\ell\)”
line -7: “\(|\alpha| = k\)” should be “\(|\alpha| = \ell\)”
line -6: The display should read “\((x_1 + \cdots + x_n)^\ell = \sum_{|\alpha| = \ell} a_\alpha x^\alpha\)”
line -5: “\(|\alpha| = k\)” should be “\(|\alpha| = \ell\)”
line -3: “\(\alpha = (\alpha_1, \ldots, \alpha_n)\)” should be “\(\alpha = (\alpha_1, \ldots, \alpha_n)\)”

Changes on Page 339:

line 5: The display should read “\((u_1 A_1 \cdot x + \cdots + u_n A_n \cdot x)^\ell = \sum_{|\alpha| = \ell} a_\alpha (A \cdot x)^\alpha u^\alpha\)”
lines 7 and 8: On the left side of this two-line display, \(S_k\) should be \(S_\ell\) and the exponent of \((u_1 A_1 \cdot x + \cdots + u_n A_n \cdot x)\) should be \(\ell\) instead of \(k\), and on the right side of the display, two of the summations should be over \(|\alpha| = \ell\) instead of over \(|\alpha| = k\).
line 10: This line should begin with \(\ell\), not \(k\).
line 12: “\(k\)-th power sum \(S_k\)” should be “\(\ell\)-th power sum \(S_\ell\)”
line 14: “\(S_k = S_\ell\)” should be “\(S_\ell = S_k\)”
line 15: “\(S_k\)” should be “\(S_\ell\)”
line 17: “\(S_k = =\)” should be “\(S_\ell = =\)”
line 19: The summation on the left should be over \(|\alpha| = \ell\) instead of over \(|\alpha| = k\).

Page 341, line 4 of the statement of Proposition 7: “\(k[x_1, \ldots, x, y_1, \ldots, y_m]\)” should be “\(k[x_1, \ldots, x_n, y_1, \ldots, y_m]\)”
Page 343, line 3 of Exercise 5.a: “\(k[f_1, \ldots, x_n] \subset k[x_1, \ldots, x_n]^G\)” should be “\(k[f_1, \ldots, f_m] \subset k[x_1, \ldots, x_n]^G\)”
Page 343, line 1 of Exercise 5.c: “total degree \(k\)” should be “total degree \(d\)”
Page 343, line 3 of Exercise 5.d: “degree \(k\)” should be “degree \(d\)”
Page 343, line 2 of Exercise 5.e: “total degree \(< k\)” should be “total degree \(< d\)”
Page 352, line 9: “\(J_F \cap k(x_i, \ldots, x_n, y_1, \ldots, y_m)\)” should be “\(J_F \cap k(x_i, \ldots, x_n, y_1, \ldots, y_m)\)”
Page 353, second display: Insert space after “if” in two places so that the display ends with:

\[
\begin{cases}
0 & \text{if } A \cdot \mathbf{a} \neq \mathbf{a} \\
\neq 0 & \text{if } A \cdot \mathbf{a} = \mathbf{a}
\end{cases}
\]

Page 354, Exercise 2: “\(f_1, \ldots, f_m, \in k[x_1, \ldots, x_n]\)” should be “\(f_1, \ldots, f_m \in k[x_1, \ldots, x_n]\)”
Page 361, line −11: “dividing by x” should be “dividing by x”

Page 366, line 4 of Exercise 3.c: “part(b)” should be “part (b)”

Page 371, line 10: “V(x_0)” should be “V(x_0)”

Page 373, line 1 of part (iv) of Proposition 7: “F (x_0, . . . , x_n)” should be “F(x_0, . . . , x_n)” (remove the extra space following F)

Page 373, line 4 of Example 8: “know that W” should be “know that W”

Page 376, line 1 of Exercise 6.d: “U_i^1 ∩ . . . ∩ U_i^s” should be “U_i^1 ∩ · · · ∩ U_i^s” (two errors)

Page 376, line 2 of Exercise 6.d: “< i ≤ n” should be “< i ≤ n”

Page 380, line 2 of Proposition 4: “∈ V” should be “∈ V”

Page 386, Exercise 6.b: “I_1 ∩ · · · ∩ I_l” should be “I_1 ∩ · · · ∩ I_l”

Page 386, line 7 of Exercise 10: “⟨x_0, . . . , x_0⟩” should be “⟨x_0, . . . , x_n⟩”

Page 386, line 2 of Exercise 11.b: “I is prime” should be “I is prime” (wrong font)

Page 388, line −4: “f_j ∈ I,” should be “f_j ∈ I.” (the comma should be a period)

Page 391, line 2 of Exercise 2: “k[x_0, . . . , x_0]” should be “k[x_0, . . . , x_n]”

Page 392, line 2 of Exercise 7: “k[x_0, . . . , x_0]” should be “k[x_0, . . . , x_n]”

Page 392, line 1 of Exercise 11.b: “part a” should be “part (a)”

Page 394, line −17: “of x does” should be “of x does”

Page 394, line −4: “and y is” should be “and y is”

Page 398, line 7: “for all i” should be “for all i”

Page 398, line 2 of Theorem 6: “V(F_1, . . . , F_s) ∈” should be “V(F_1, . . . , F_s) ⊂”

Page 403, line −7: “⟨f_s^h, . . . , f_s^h⟩” should be “⟨f_s^1, . . . , f_s^h⟩”

Page 407, line 3 of Exercise 11: “{F^i : F ∈ I}” should be “{F^i : F ∈ I}”

Page 412, line −8: “V(x − z) ∩ V(x + z)” should be “V(x − z) ∪ V(x + z)”

Page 415, line 18: “image of F” should be “image of σ”

Page 421, line 6 of Exercise 13.c: “v_1” should be “v_i”

Page 441, line 17: “|J| denote” should be “|J| denote” (insert space)
Page 441, line −9: “$W' = V(x_{k_1}, \ldots, x_{k_s})$” should be “$W' = V(x_{k_1}, \ldots, x_{k_s})$”

Page 447, line 8 of the proof of Proposition 2: “$\{i_1, \ldots, i_r\}$” should be “$\{i_1, \ldots, i_r\}$”

Page 448, line 14: “$x^\alpha x_n^j \in I$” should be “$x^\alpha x_n^j \notin I$”

Page 451, line 2: “$T_j^s \cap T_j^s$” should be “$T_i^s \cap T_j^s$”

Page 451, first line of first display: “$C_I$” should be “$C_1$”

Page 451, line −19: “degree less $\leq s$” should be “degree $\leq s$”

Page 454, line −3: “[e_{j_1}, \ldots, e_{j_r}]” should be “[e_{j_1}, \ldots, e_{j_r}]”

Page 454, line −2: “$\sum_{i \notin \{j_1, \ldots, j_r\}}$” should be “$\sum_{i \notin \{j_1, \ldots, j_r\}}$”

Page 457, line −7: “subpace” should be “subspace”

Page 462, line −1: “$HF_I(S)$” should be “$HF_I(s)$”

Page 463, line 8 of proof of Proposition 9: “$LM(f_1)$” should be “$LM(f_1)$”

Page 463, last display: “$HF_I(S)$” should be “$HF_I(s)$”

Page 470, line 14: “had degree” should be “has degree”

Page 470, line 18: “Theorem 8” should be “Theorem 11”

Page 472, lines −2 and −1: “By Theorem 15 of Chapter 4, §3” should be “It is easy to show that”

Page 473, line 15: “subspace is contained” should be “subspace contained”

Page 476, line 7: “projective variety is then defined” should be “projective variety $V$ is defined”

Page 480, line −10: “$H - W \subset (V)$” should be “$H - W \subset \pi(V)$”

Page 481, line −8: “the the” should be “the”

Page 489, line 4 of Example 5: “$(f_1, f_2) = (x + y + z, x^2 - y^2 z^2 + z^3)$” should be “$(f_1, f_2) = (x + y + z, x^2 - y^2 z^2 + z^3)$” (four errors)

Page 489, line 6 of Example 5: “$I(C) = (f_1, f_2)$” should be “$I(C) = (f_1, f_2)$” (three errors)

Page 489, line 12 of Example 5: “rank $(J_p(f_1, f_2))$” should be “rank$(J_p(f_1, f_2))$”

Page 496, line −9: “$f_{p,j}$” should be “$f_{p,j}$”

Page 496, line −2: “$f_{p,min}$” should be “$f_{p,min}$”
Page 523, line 5: “denote $\sqrt{-1}.$” should be “denote $\sqrt{-1}).$”

Page 531, line 6: “dicussion” should be “discussion”

Page 532, line 8: “STURMFELS (1991)” should be “STURMFELS (1993)”

Page 533, line 13: “LCMLT(f_i, LT(f_j))” should be “LCM(LT(f_i), LT(f_j))”

Page 542, index entry for closure, projective: “386” should be “389”

Page 545, index entry for ideal, sum of: “185” should be “183”