Errata

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The Center and Cyclicity Problems,
A Computational Algebra Approach

Every page reference in the index should be decreased by 2.

p. 10 Line 3 of Remark 1.2.6, Definition 1.1.8 f, reduces should be Definition 1.1.8, f reduces

p. 22 Line 3 of Theorem 1.3.5, $\tilde{g}_i$ should be $\tilde{g}_j$

p. 52 Exercise 1.9, first line, should read $f \neq 0$ and g

p. 54 Table 1.10, input should read Polynomials $f, g \in k[x]$, $f \neq 0$

p. 54 Exercise 1.29 $\langle \mathrm{LT}(G) \setminus \{g\} \rangle$ should be $\langle \mathrm{LT}(G \setminus \{g\}) \rangle$

p. 60 Theorem 2.1.5(2) $\mathbf{x}_0$ should be $\mathbf{0}$ (two occurrences)

p. 61 Last display, the expression of the form $\frac{\alpha y^4}{\beta}$ should be printed as $\frac{\alpha}{\beta} y^4$

p. 67 Display (2.23), $\mathbf{h}^{(2)}$ should be $\mathbf{h}^{(3)}$

p. 69 Line following (2.30), $i = j, \ldots, N$ should be $i = 1, \ldots, N$

p. 97 First display, the second line is inconsistent with the system on the bottom of the previous page, and with the line that follows it.

p. 106 Remark 3.2.8, in both lines of the display $H(y_1, y_2)$ should be $H(y_1 y_2)$

p. 111 Display (3.55), the term v_{s_1,s_2} should be inside the large brackets with another pair of brackets surrounding the terms in the summation, thus:

$$g_{k_1,k_2} = i \left[(k_1 - k_2) v_{k_1,k_2} - \sum_{\substack{s_1+s_2=0 \\ s_1,s_2 \geq -1}}^{k_1+k_2-1} [(s_1+1) a_{k_1-s_1,k_2-s_2} - (s_2+1) b_{k_1-s_1,k_2-s_2}] v_{s_1,s_2} \right]$$

p. 114 Display (3.60), on the right hand side $(x_1 y_1)^k$ should be $(x_1 y_1)^{k+1}$

p. 210 Exercise 4.5, last sentence, $[\nu][\mu] = [\nu\mu]$ should be $[\nu][\mu] = [\nu + \mu]$

p. 245 Last line before the Exercises, [102, 150] should be [102, 151]

p. 250 Line 16, α and β should each be λ

p. 251 Fifth line after Definition 6.1.1 (referring to case (i)), at most m should be at most $m+1$

p. 252 First line following display (6.4), $j_u \in \mathbb{N}$ should be $j_u \in \mathbb{N}_0$

p. 252 Line 9 of the proof of Proposition 6.1.2, $Z(z,\theta_0) = f_u(\theta_0)z^{j_u} + z^{j_u+1}g(z,\theta_0)$ should be $Z(z,\theta_0) = f_u(\theta_0)z^{j_u}(1+\psi_u(z,\theta_0)) + z^{j_u+1}g(z,\theta_0)$

p. 253 Corollary 6.1.3, less than or equal to m should be less than or equal to $m+1$

p. 255 Line 7 of Lemma 6.1.6, $\psi_{j_q}(0,\mathbf{0}) = 0$ should be $\psi_{j_q}(0,\boldsymbol{\theta}^*) = 0$

p. 255 First line after display(6.7), $\langle \mathbf{f}_1, \mathbf{f}_2, \dots \rangle$ should be $\langle \mathbf{f}_0, \mathbf{f}_1, \mathbf{f}_2, \dots \rangle$

p. 256 Display (6.10), replace $\sum_{j=0}^{j_m} \left(\sum_{q=1}^{m} h_{j,q}(\boldsymbol{\theta}) f_{j_q}(\boldsymbol{\theta}) \right) z^j$ with $\sum_{j=0}^{j_m} f_j(\boldsymbol{\theta}) z^j$
(The original is correct, but is misleading.)

p. 256 Last display, same change as just above: replace the left hand side with $\sum_{j=0}^{j_m} f_j(\boldsymbol{\theta}) z^j$
(The original is correct, but is misleading.)

p. 256 Seventh line from the bottom, $\widetilde{\psi}(0,0) = 0$ should be $\widetilde{\psi}(0,\boldsymbol{\theta}^*) = 0$

p. 263 Corollary 6.2.5: in the last four line of the corollary for every choice of (r,s) change $\mathbf{g}_{rs}$ to $\mathbf{g}^{\mathbb{R}}_{rs}$

p. 265 Line 2 of Lemma 6.2.8, Lypaunov should be Lyapunov

p. 264 The first line in Theorem 6.2.7 should begin A simple fine focus ...

p. 267 Line 3 of Theorem 6.2.9, m polynomials should be m elements

p. 267 Eighth line from the bottom, $\langle \boldsymbol{\eta}_3, \boldsymbol{\eta}_5, \boldsymbol{\eta}_5, \dots \rangle$ should be $\langle \boldsymbol{\eta}_3, \boldsymbol{\eta}_5, \boldsymbol{\eta}_7, \dots \rangle$

p. 267 Sixth and seventh lines from the bottom, By hypothesis (b) should be By hypothesis (c), which implies that $g_{kk} \in \langle g_{k_1,k_1}, \dots, g_{k_{q-1},k_{q-1}} \rangle$,

p. 267 Fifth and sixth lines from the bottom, $k_1 < k < k_q$, $\mathbf{g}^{\mathbb{R}}_{kk} \in \langle \mathbf{g}_{11}, \dots, \mathbf{g}_{k_{q-1},k_{q-1}} \rangle$ should be $k_{q-1} < k < k_q$, $\mathbf{g}^{\mathbb{R}}_{kk} \in \langle \mathbf{g}^{\mathbb{R}}_{k_1,k_1}, \dots, \mathbf{g}^{\mathbb{R}}_{k_{q-1},k_{q-1}} \rangle$

p. 268 First line of the proof of Corollary 6.2.10, $g_{kk}(a,\bar{a}) = g^{\mathbb{R}}_{kk}(A(a,\bar{b}), \bar{B}(a,\bar{b}))$ should be $g_{kk}(a,\bar{a}) = g^{\mathbb{R}}_{kk}(A(a,\bar{a}), B(a,\bar{a}))$

p. 268 Ninth line from the bottom, $g_{kk} = f_1 g_{k_1,k_1} + \cdots + f_m g_{k_m,k_m}$ should be $g_{kk} = f_{k,1} g_{k_1,k_1} + \cdots + f_{k,m} g_{k_m,k_m}$

p. 269 Proof of Proposition 6.3.1, alter the first sentence by inserting the phrase By Lemma 6.3.2 (whose proof does not use this proposition) a fine focus is simple, hence consider

p. 273 Last display, the fraction in g_{33} should be $\frac{5}{4}$

p. 273 Eleventh line from the bottom, choose $a_{10} = -2\bar{a}_{01}$ should be (c) choose $a_{10} = -2\bar{a}_{01}$

p. 303 Exercise 6.20, appear should be appears

p. 324 $\widetilde{H}$ is $-(i/2)H$ (the minus sign is missing)