ERRATA OF "LOCAL MONOMIALIZATION AND FACTORIZATION OF MORPHISMS"

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We list here errata from our paper "Local monomialization and factorization of morphisms" [5].

page 23, line 25 (first line of statement of Theorem 2.7): "local domain" should be "regular local ring".

page 39, line 28: "$f_{ij} \geq 0$ for all i, j" should be "$f_{ij} \geq 0$ for $0 \leq i, j \leq s$".

page 45, line 15: "$\overline{T}''(1)$ has regular parameters" should be "$\overline{T}(1)$ has regular parameters".

page 49, line 26: "$s \leq m \leq l$" should be "$s \leq m \leq n$".

page 58, lines 19-22: Replace "Set $\sigma(i)$ to be the largest possible ...... $\sigma(i) \geq s$" with "Set

$$\sigma(i) = \dim k(\overline{T}(i))[[\overline{z}_1(i), \ldots, \overline{z}_m(i)]]/p_m(i)$$

where $p_m(i)$ is defined in (53). We have $\sigma(i+1) \leq \sigma(i)$ for $0 \leq i \leq t-1$ in (45)" The inequality $\sigma(i+1) \leq \sigma(i)$ is proven in Lemma 6.3 of [6].

page 62, line 8: "By (42)" should be "By (43) and (43)".

page 67, line 2: "$u(\tilde{\tilde{y}}_1(t), \ldots, \tilde{\tilde{y}}_l(t))$" should be "$\Sigma(\tilde{\tilde{y}}_1(t), \ldots, \tilde{\tilde{y}}_l(t))$".

page 73, line 1: "$g_{ij} \geq 0$ for all i, j" should be "$g_{ij} \geq 0$ for $0 \leq i, j \leq s$".

page 73, line 2: "$U''(\alpha)[N_1, \ldots, N_s, N_r]$" should be "$U''(\alpha)[N_1, \ldots, N_s, N_r, \frac{1}{N_r}]$".

page 73, line 6: After "in an algebraic closure of $k(U(\alpha+1))$" insert "if $g_{s+1,s+1} > 0$.

$$M_r - c_{\alpha+1} = \prod_{i=1}^{-g_{s+1,s+1}} (N_r^{-1} - \omega^i d_{\alpha+1}^{-1})\beta_r$$

where ω is a primitive $-g_{s+1,s+1}$-th root of unity if $g_{s+1,s+1} < 0$."

page 73, line 7: "$U''(\alpha)[N_1, \ldots, N_s, N_r]$" should be "$U''(\alpha)[N_1, \ldots, N_s, N_r, \frac{1}{N_r}]$".

page 93, line 3: "$\Omega \in m(U''(0))^N$" should be "$\Omega \in m(U(0))^N$".

page 93, after line 7, insert:

"(5): Suppose that $g=\overline{y}_1^{d_1}\cdots\overline{y}_s^{d_s}\Sigma(\overline{y}_1,\ldots,\overline{y}_l)+\Omega$ where $\nu(\overline{y}_1^{d_1}\cdots\overline{y}_s^{d_s})>A$ and $\Omega\in m(U(0))^N$ with $N\nu(m(U(0))>\nu(\overline{y}_1^{d_1}\cdots\overline{y}_s^{d_s})$. Then there exists a CRUTS along ν as in the conclusions of Theorem 4.9 such that

$$g=\overline{y}_1(t')^{d_1(t')}\cdots\overline{y}_s(t')^{d_s(t')}\overline{\Sigma}(\overline{y}_1(t'),\ldots,\overline{y}_l(t'))$$

where $\nu(\overline{y}_1(t')^{d_1(t')}\cdots\overline{y}_s(t')^{d_s(t')})>A$"

page 95, lines 26-31: "Let G be ...... $g\in k(c_0)[[\overline{x}_1(1),\ldots,\overline{x}_l(1)]][x_{l+1}]$" should be "Since

$$\overline{y}_i^d=\overline{x}_1^{f_{i1}}\cdots\overline{x}_s^{f_{is}}\phi_1^{-f_{i1}}\cdots\phi_s^{-f_{is}}$$

for $1\le i\le s$, by Lemma 4.2, we can perform a MTS of type (M1) to get $g'\in k(U''(0))[[\overline{x}_1(1),\ldots,\overline{x}_l(1)]][x_{l+1}]$.

Let G be the Galois group of a Galois closure of $k(U''(0))$ over $k(c_0)$. Since x_{l+1} is analytically independent of $\overline{y}_1^d,\ldots,\overline{y}_s^d,\overline{y}_{s+1},\ldots,\overline{y}_l$ (by Theorem 2.12) we can define

$$g=\prod_{\tau\in G}\tau(g')$$

where G acts on the coefficients of g'. We have $g\in k(c_0)[[\overline{x}_1(1),\ldots,\overline{x}_l(1)]][x_{l+1}]$"

page 115, line 5 of the statement of Theorem 5.3: "if m_V is the maximal ideal of V and $p^*=m_V\cap S$" should be "if q is a prime ideal of V and $p^*=q\cap S$".

page 115, line 6 of the statement of Theorem 5.3: "segments" should be "isolated subgroups".

page 121, line 17: "$t>\max\{a_{ij},g_{ij}(1)\}$" should be "$t>\max\{a_{ij},g_{ij}(r)\}$".

page 122, lines 4-5: "if m_V is the maximal ideal of V and $p^*=m_V\cap S$" should be "if q is a prime ideal of V and $p^*=q\cap S$".

page 122, line 14: "as in the proof of Theorem 1.10 (Chapter 7)" should be "as in the proof of Theorem 5.1".

page 122, lines 19-20: "if m_V is the maximal ideal of V and $p^*=m_V\cap S$" should be "if q is a prime ideal of V and $p^*=q\cap S$".

page 122, line 6 of the statement of Theorem 5.5: "segments" should be "isolated subgroups".

page 6, line 31: After "Theorem 1.6" insert:

"There is however uncertainty about the result of [9] (c.f. [1], [2]). There is a local version of this result for morphisms of toric varieties which has been proven. We may use this result instead of [9] to obtain proofs of Theorems 1.9 and 1.10 below. Christensen [3] has proven local strong factorization of morphisms of toric 3-folds along a toric valuation. Using the language of toric geometry, Karu [8] has extended Christiansen's result to prove this local result in all dimensions. A proof in the spirit of Christensen's original proof, using only elementary properties of determinants, is given in [7]."

page 136, line 10: After "Theorem 7.1", insert: "A proof of Theorem 1.9 using Theorem 1.1 (Local Monomialization) and Local Strong Factorization of morphisms of toric varieties along a toric valuation ([3], [8], [7]) which is thus independent of [9] is given in Theorem 3.3 [7]. A proof of Theorem 7.1 which is independent of [9] is now immediate from this proof of Theorem 1.9"

Errata of "Local monomialization of transcendental extensions"

page 1525, line 9 "$\nu(f_{I_0}) > \nu(f_I)$" should be "$\nu(f_I) > \nu(f_{I_0})$".

page 1525, line 10 "$\nu(g_{J_0}) > \nu(g_J)$" should be "$\nu(g_J) > \nu(g_{J_0})$".

References

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[9] Morelli, R., The birational geometry of toric varieties, J. Algebraic Geometry 5 (1996) 751-782.

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