ERRATUM TO "MONOMIAL IDEALS, BINOMIAL IDEALS, POLYNOMIAL IDEALS"

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ABSTRACT. Patrick Popescu Pampu has called my attention to several errors in the text [6]. I am grateful to him. Page and line numbers refer to the version on this site, those between parenthesis to the published version.

- p. 6, line 6 (p. 216, line 9) (Corrected in the on-site version): ...together with their faces.
- p. 14, line 8 (p. 223, line -18) (Corrected in the on-site version):...parallel to coordinate planes (intersections of coordinate hyperplanes).
- p. 14, line -7 (p. 224, line 7)(Corrected in the on-site version) : ...dual fan (except for the origin) of a Newton...
- p.17 (p. 227) (Corrected in the on-site version, where the exercise is replaced by a remark.) : the exercise is wrong; one does not obtain, by varying $\check{a} \in \mathbf{R}^d_{>0}$ all collections of compact faces of the polyhedra of $f_1, \dots, f_k$. Here is Popescu-Pampu's example, with $d = 3, k = 2$:

  $$f_1 = x^2 + y^2 + z^3,\ f_2 = x^2 + \eta y^3 + \zeta z^4 \quad \text{with } \eta, \zeta \in k^*.$$

  One verifies that $(f_1 = f_2 = 0)$ is a non degenerate complete intersection in $\mathbf{A}^3(k)$ and the polyhedron of each has only one compact face which is a triangle. These triangles, say γ_1, γ_2, are not parallel so that there is no $\check{a} \in \mathbf{R}^d_{>0}$ which takes its minimum on both triangles. If we choose x_0, y_0, z_0 such that $x_0^2 = 1, y_0^2 = 3, z_0^3 = -4$, and choose $\eta = \frac{2}{3} y_0^{-1}, \zeta = \frac{3}{4} z_0^{-1}$ then $f_{1,\gamma_1} = f_{2,\gamma_2} = 0$ has (x_0, y_0, z_0) as a singular point in the torus. So for the statement of the exercise to be true in this case one has to add to the non-degeneracy of f_1, f_2 an extra condition which ensures the transversality of $f_{1,\gamma_1} = 0$ and $f_{2,\gamma_2} = 0$ in the torus for pairs γ_1, γ_2 of compact faces which are not minimizers for some common $\check{a}$. This can be understood in terms of the positions of the strict transforms of f_1, f_2 after a desingularizing toric map. See §5 in the text.
- Popescu Pampu suggested that in addition to [5] I should have added to the bibliography [1], [2], [3], [4].

REFERENCES

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6. B. Teissier, Monomial ideals, binomial ideals, polynomial ideals, in *Trends in Commutative Algebra*, MSRI Publications no. 51, 2004, 211-246.

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