ERRATA: *COMPUTING ZETA FUNCTIONS OF NONDEGENERATE HYPERSURFACES WITH FEW MONOMIALS*

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This note gives some errata for the article *Computing zeta functions of nondegenerated hypersurfaces with few monomials* [1].

(1) Page 4, paragraph 3, line -2, "Our method can be analyzed on dense input ... running in time $\widetilde{O}(p^{2n}v^{2n+4}\log^{2n+2})$": Should be $\log^{2n+2} q$.

(2) The definition (1.9)
$$f_i = x_i \frac{\partial x_0 f}{\partial x_i}$$
is used throughout. We let $w = x_0$. On page 9, and in several other places in the text, we write wf_i and this is incorrect; it should be f_i, as in this definition we have already multiplied by $w = x_0$.

(3) Before Lemma 4.8, we bound the inverse roots as having absolute value $\leq q^{n/2}$. In fact, the these theorems give a bound $\leq q^{(n+1)/2}$ for the characteristic polynomial $\det(1-(A_0)_a T)$ (we have $n+1$ variables) and removing the factor q^{-1} gives $\leq q^{(n-1)/2}$. This only helps the bound and does not change the asymptotic for the running time.

References

[1] Steven Sperber and John Voight, *Computing zeta functions of nondegenerate hypersurfaces with few monomials*, LMS J. Comp. Math. **16** (2013), 9–44.

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