Errata/remarks for
'Computing zeta functions in families of $C_{a,b}$ curves using deformation.'

- In the Monsky-Washnitzer formula for $Z_{\overline{C}}(T)$ in Theorem 1, there is a T missing. One should read:

$$Z_{\overline{C}}(T) = \frac{\det\left(\mathbb{I} - q\mathcal{F}^{*-1}T \mid H^1_{MW}(\overline{A}/\mathbb{Q}_q)\right)}{1 - qT}.$$

- In Section 5.2, '...the result of which gives a *column* of G' should become '...the result of which gives a *row* of G'.

- Our fourth example in Table 1 is not a $C_{a,b}$ curve ($\gcd(3,9) \neq 1$). Accordingly, its formula for the genus is wrong (it is 7 instead of 8). One should remove this line and pretend it was never there.

  Funny enough, the (senseless) output of our implementation matched with the (senseless) output of the implementation by Denef-Vercauteren. But our senseless answer was obtained faster!

- For sake of scientific honesty, we note that the timings in Table 1 are not obtained using the p-adic and t-adic accuracies described in Section 5, which are sufficient for our complexity analysis, but not for practice. Indeed, in practice much smaller accuracies turn out to suffice. There are theoretical reasons for this, see e.g. [1, Sections 6.4-6.6]. This remark applies to many of the existing p-adic point counting implementations (in particular, our comparison with Denef-Vercauteren is fair).

We would like to thank Jan Tuitman for pointing us to these issues.

References

[1] K. S. Kedlaya, Effective p-adic cohomology for cyclic cubic threefolds, notes of a course given at the Summer School on p-adic Cohomology, Mainz, 29/09 - 02/10 (2008)