ERRATUM TO: “AN ADDITION THEOREM AND MAXIMAL ZERO-SUM FREE SETS IN $\mathbb{Z}/p\mathbb{Z}$ ”

BY

ÉRIC BALANDRAUD

*Institut Mathématiques de Jussieu, Équipe Combinatoire et Optimisation, Case 189
 Université Pierre et Marie Curie 4 place Jussieu, 75152 Paris Cedex 05, France
 e-mail: balandraud@math.jussieu.fr*

URL: <http://www.math.jussieu.fr/~balandraud/PageEric.html>

In this note, we give a correct version of Lemma 4 from [1]. In the development of the polynomial, it has been incorrectly stated that some coefficients of higher degree monomials vanish. Fortunately, the rest of the article does not need any other correction since the lemma is used only to estimate the coefficient of a monomial $\prod_{i=0}^{d-1} X_i^{b_i}$, with all $b_i < p$. I would like to thank Fang Sun, who first noticed this imprecision.

LEMMA 4: *Let $\mathbb{F}$ be a field and let t and d be integers satisfying $t < p$ in the case that $\mathbb{F}$ has a non-zero characteristic p . Then the following equality holds in $\mathbb{F}[X]$. We have:*

$$\begin{aligned} & (X_0 + \cdots + X_{d-1})^t \left(\prod_{0 \leq i < j \leq d-1} (X_j^2 - X_i^2) \right) \\ &= \left(\sum_{\substack{(b_0, \dots, b_{d-1}) \\ \sum_{i=0}^{d-1} b_i = t + d(d-1) \\ \max\{b_i\} < p}} \frac{t! \prod_{i=0}^{d-1} (2i)!}{\prod_{i=0}^{d-1} b_i!} \binom{b_0, b_1, \dots, b_{d-1}}{0, 2, \dots, 2(d-1)} \prod_{i=0}^{d-1} X_i^{b_i} \right) + S_p, \end{aligned}$$

where S_p is the sum of all monomials that are each divisible by X_i^p for some $i \in [1, d]$.

The proof is essentially the same. The only difference is that the sum S_p is considered separately. A complete proof of the lemma may be found on the author's homepage.

References

- [1] E. Balandraud, *An addition theorem and maximal zero-sum free sets in $\mathbb{Z}/p\mathbb{Z}$* , Israel Journal of Mathematics **188** (2012), 405–429.