Beitr Algebra Geom (2015) 56:775–776
DOI 10.1007/s13366-015-0259-1

CORRIGENDUM

Corrigendum to: Positivity theorems for solid-angle polynomials

Matthias Beck[1] · **Sinai Robins**[2] · **Steven V. Sam**[3]

Received: 27 June 2015 / Accepted: 28 June 2015 / Published online: 24 July 2015

The proofs of [BRS, Theorems 3, 4] given in [BRS, §6] contain an error, and indeed, the statements are not correct in the level of generality given there. We thank Katharina Jochemko and Raman Sanyal for pointing out the mistake to us. To be precise, the mistake lies in the assertion that equation (9) implies that

$$\sigma_{\mathrm{cone}(\mathcal{P})}(\mathbf{z}) = \sum_{j=1}^{m} \sigma_{\mathbf{v}+\mathcal{K}_j}(\mathbf{z}).$$

Unraveling this, the series of implications one gets is

$$\begin{aligned}\sum_{j=1}^{m} \sigma_{\mathbf{v}+\mathcal{K}_j}(\mathbf{z}) &= \sum_{j=1}^{m} \sum_{\mathbf{m}\in(\mathbf{v}+\mathcal{K}_j)\cap\mathbf{Z}^{d+1}} \nu(\mathbf{v}+\mathcal{K}_j,\mathbf{m})\mathbf{z}^{\mathbf{m}} \\ &= \sum_{\mathbf{m}\in(\mathbf{v}+\mathrm{cone}(\mathcal{P}))\cap\mathbf{Z}^{d+1}} \nu(\mathbf{v}+\mathrm{cone}(\mathcal{P}),\mathbf{m})\mathbf{z}^{\mathbf{m}}.\end{aligned}$$

We had implicitly replaced $\nu(\mathbf{v}+\mathrm{cone}(\mathcal{P}),\mathbf{m})$ with $\nu(\mathbf{v}+\mathrm{cone}(\mathcal{P}),\mathbf{v}+\mathbf{m})$ and used translation-invariance to replace the second quantity with $\nu(\mathrm{cone}(\mathcal{P}),\mathbf{m})$. However, $\nu(\mathbf{v}+\mathrm{cone}(\mathcal{P}),\mathbf{m})$ and $\nu(\mathbf{v}+\mathrm{cone}(\mathcal{P}),\mathbf{v}+\mathbf{m})$ are in general distinct without further properties on ν.

✉ Steven V. Sam
svs@math.berkeley.edu

1 Department of Mathematics, San Francisco State University, San Francisco, CA 94132, USA

2 Division of Mathematical Sciences, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore 637371, Singapore

3 Department of Mathematics, University of California, Berkeley, CA 94720, USA

We refer to [JS] for a corrected version of those theorems as well as counterexamples.

Finally, the valuation $v'(K, \mathbf{x}) = \#(K \cap \{\mathbf{x}\} \cap \mathbf{Z}^d)$ is *not* translation-invariant, as was stated in the introduction of [BRS].

References

BRS. Beck, M., Robins, S., Sam, S.V.: Positivity theorems for solid-angle polynomials. Beitr. Algebra Geom. **51**(2), 493–507 (2010). arXiv:0906.4031v2

JS. Jochemko, K., Sanyal, R.: Combinatorial positivity of translation-invariant valuations (2015). arXiv:1505.07440v1