Journal of Integer Sequences, Vol. 14 (2011),
Article 11.7.7

Errata for the Paper "Weighted Gcd-Sum Functions"

László Tóth
Department of Mathematics
University of Pécs
Ifjúság u. 6
7624 Pécs
Hungary
ltoth@gamma.ttk.pte.hu

The paper [1] contains some errors. Let

$$P_{\text{binom}}(n) := \sum_{k=1}^{n} \binom{n}{k} \gcd(k,n) \qquad (n \in \mathbb{N}).$$

In identity (26) of [1, Prop. 9], in its proof (second to last line of page 6) and in identity (28) of [1] the exponent of -1 is $\ell n/d$ instead of ℓ. I thank Max Alekseyev for pointing this out.

The correct form of (26) is the following. For every $n \in \mathbb{N}$,

$$P_{\text{binom}}(n) = 2^n \sum_{d \mid n} \frac{\phi(d)}{d} \sum_{\ell=1}^{d} (-1)^{\ell n/d} \cos^n(\ell\pi/d) - n.$$

The correct form of (28) is

$$R_{\text{binom}}(n) := \sum_{\substack{k=1 \\ \gcd(k,n)=1}}^{n} \binom{n}{k} = 2^n \sum_{d \mid n} \frac{\mu(d)}{d} \sum_{\ell=1}^{d} (-1)^{\ell n/d} \cos^n(\ell\pi/d) \qquad (n > 1).$$

Furthermore, in the right hand side of identity (35) of [1, Prop. 13] the term n is missing. The correct form of (35) is the following. For every $n \in \mathbb{N}$ and $\alpha \in \mathbb{R}$,

$$P_{\text{floor}}(n) := \sum_{k=1}^{n} \left\lfloor \alpha + \frac{k}{n} \right\rfloor \gcd(k,n) = \sum_{d \mid n} \phi(d) \left\lfloor \frac{n\alpha}{d} \right\rfloor + n.$$

Also, in the right hand side of identity (39) the term 1 is missing. The correct form of (39) is

$$\sum_{k=1}^{n} \left\lfloor \alpha + \frac{k}{n} \right\rfloor = \lfloor n\alpha \rfloor + 1 \qquad (n \in \mathbb{N}).$$

References

[1] L. Tóth, Weighted gcd-sum functions, *J. Integer Seq.* **14** (2011), Article 11.7.7.