Errata for the Paper
“Weighted Gcd-Sum Functions”

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The paper [1] contains some errors. Let

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

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 \(\ell\). I thank Max Alekseyev for pointing this out.

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

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

The correct form of (28) is

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

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 \(\alpha \in \mathbb{R}\),

\[ P_{\text{floor}}(n) := \sum_{k=1}^{n} \left\lfloor \alpha + \frac{k}{n} \right\rfloor \gcd(k,n) = \sum_{d|n} \phi(d) \left\lfloor \frac{n \alpha}{d} \right\rfloor + n. \]
Also, in the right hand side of identity (39) the term 1 is missing. The correct form of (39) is

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

References