ERRATA AND UPDATES FOR *AN INVITATION TO THE ROGERS–RAMANUJAN IDENTITIES*

1. Errata

Many thanks to Michael D. Hirschhorn (University of New South Wales), Jeremy Lovejoy (Université Paris Diderot - Paris 7), and Michael J. Schlosser (Universität Wien) for detecting and pointing out the errors corrected below.

- p. 44, Eq. (1.89),

  $$\left(\binom{n}{j}\right)_q^3$$

  should be

  $$\left(\binom{n}{j}\right)_{q^3}.$$

- p. 45, Eq. (1.94), on the right side, z should be t.
- p. 55, line -10: Delete "Notice that we may rewrite $G(z)$ as a bilateral sum,

  $$G(z) = \sum_{m=-\infty}^{\infty} \frac{(-1)^m q^{m(5m-1)/2}(z;q)_m}{(1-z)(q;q)_m},$$

  and". Change the next word "we" to "We" and leave the sequel intact.
- p. 58, Eq. (2.19), right hand side numerator should be $f(-q^2, -q^7)$.
- p. 58, Eq. (2.20), right hand side numerator should be $f(-q, -q^8)$.
- p. 64, third displayed equation, the ordered pair on the right side should be reversed.
- p. 65, Eq. (2.48), right hand side numerator should be $f(-q^2, -q^3)$.
- p. 78, Eq. (2.75),

  $$\left(\binom{n}{j}\right)_q^3$$

  should be

  $$\left(\binom{n}{j}\right)_{q^3}.$$

- p. 81, The sentence immediately preceding "*Proof of Theorem 2.42*" is misplaced, and should be deleted.
- p. 90, end of initial paragraph: "Rhodes" should be "Rhoades".
- p. 108, Eq. (3.9), Left side numerator: exponent on q should be $n_1^2+n_2^2+n_1$.
- p. 109, Eqs. (3.12) and (3.13), numerator of multisum term: exponent on q should be $n_1^2 + n_2^2 + \cdots + n_{k-1}^2 + n_1 + n_2 + \cdots + n_{k-i}$.

- p. 111, Eq. (3.18) should read:

$$\sum_{n_k \geqq n_{k-1} \geqq \cdots \geqq n_1 \geqq 0} \frac{q^{n_1^2+n_2^2+\cdots+n_k^2}}{(q;q)_{n_k-n_{k-1}}(q;q)_{n_{k-1}-n_{k-2}}\cdots(q;q)_{n_2-n_1}(q;q)_{2n_1}} = \prod_{\substack{j>0 \\ j\not\equiv 0,\pm(k+1) \pmod{6k+4} \\ j\not\equiv \pm(4k+2) \pmod{12k+8}}} \frac{1}{1-q^j},$$

  cf. [And84, p. 269, Eq. (1.8)].
- p. 112, line 15, numerator of multisum term, exponent on q should be $n_1^2+n_2^2+\cdots+n_{k-1}^2+n_1+n_2+\cdots+n_{k-i}$.
- p. 169, line −6 should read: $f(a,b) = (-a;ab)_\infty(-b;ab)_\infty(ab;ab)_\infty$.
- p. 176, Eq. (A. 63): (**S. 48**−) should be (**S. 48**).
- p. 229, "Bringmann, Katherin" should be "Bringmann, Kathrin".

2. Updates

- On June 4, 2018, Michael Schlosser posted a preprint on the arxiv, (`https://arxiv.org/abs/1806.01153`) "Bilateral identities of the Rogers–Ramanujan type," which includes many beautiful bilateral RR-type identities, e.g.,

$$\sum_{k=-\infty}^{\infty} \frac{q^{k(5k-3)}}{(q;q^5)_k} = (q^4;q^5)_\infty f(-q^{10},-q^{15})H(q),$$
$$\sum_{k=-\infty}^{\infty} \frac{q^{(k-1)(5k-1)}}{(q^2;q^5)_k} = (q^3;q^5)_\infty f(-q^{5},-q^{20})G(q),$$
$$\sum_{k=-\infty}^{\infty} \frac{q^{k(5k-4)}}{(q^3;q^5)_k} = (q^2;q^5)_\infty f(-q^{5},-q^{20})G(q),$$
$$\sum_{k=-\infty}^{\infty} \frac{q^{k(5k+3)}}{(q^4;q^5)_k} = (q;q^5)_\infty f(-q^{10},-q^{15})H(q),$$

  where $f(a,b)$ is defined on p. 37, Eq. (1.59); $G(q) = f(-q^2,-q^3)/(q;q)_\infty$ and $H(q) = f(-q,-q^4)/(q;q)_\infty$ are the Rogers–Ramanujan products.
- §4.5, p. 135 ff. At *Combinatory Analysis 2018: A Conference in Honor of George Andrews' 80th Birthday*, held June 21–24, 2018, Chen Wang, a research fellow at the University of Vienna, announced a proof of the Borwein conjecture!
- §6.2, p. 159. At the time I wrote the book, I was unaware of the following paper: Michael D. Hirschhorn, A continued fraction of Ramanujan, *J. Austral. Math. Soc. Ser. A* **29** (1980) 80–86. In it, Hirschhorn gives a finite version of a very general continued fraction from Ramanujan's lost notebook, that includes the Gordon continued fraction and many others as special cases.
- §6.3, p. 159 ff. In an email to me dated July 5, 2018, Mike Hirschhorn shared that in about 1980, not long after the award of his Ph.D., he unexpectedly received a letter from Rodney Baxter asking how to prove six (or

perhaps eight) Rogers–Ramanujan type identities. Mike recalls proving two of them, perhaps (A. 157) and (A. 158) from this book, in a return letter to Baxter, and suggesting he contact George Andrews about the rest. In an article by Baxter on the occasion of his 75th birthday in Cairns in 2015, he states that “I had helpful responses from Michael Hirschorn (sic), David Bressoud, Richard Askey and George Andrews.”

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