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ADDENDUM TO "SOME POLYNOMIALS DEFINED BY GENERATING RELATIONS"

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ABSTRACT. Certain constraints are explicitly specified for the validity of a recent result involving a multivariate generating function, due to the present authors [1, p. 369, Theorem 6]. It is also indicated how this result can be further generalized. {See Theorem 6* below.}

It should be pointed out that Theorem 6 (p. 369) of [1] holds as stated if and only if

$$(\dagger) \qquad \lambda_j = \lambda \quad \text{and} \quad q_j = q, \quad \forall j \in \{1, \ldots, r\},$$

where λ is an arbitrary constant, real or complex, and q is a positive integer.

In general, however, for arbitrary complex parameters $\lambda_1, \ldots, \lambda_r$, and arbitrary positive integers $q_1, \ldots, q_r$, not necessarily all equal as in equation (†) above, Theorem 6 should be replaced by

THEOREM 6*. *Let the parameters α, β and $\lambda_1, \ldots, \lambda_r$, and the coefficients $C(k_1, \ldots, k_r)$, $k_j \geqslant 0$, $\forall j \in \{1, \ldots, r\}$, be arbitrary complex numbers independent of n. Also let the sequence of polynomials*

$$\Lambda_n^{(\alpha,\beta)}[\lambda_1, \ldots, \lambda_r; q_1, \ldots, q_r; z_1, \ldots, z_r]$$

be defined by equation (40) *on p.* 369 *of* [1] *for $n = 0, 1, 2, \ldots$, and for arbitrary positive integers $q_1, \ldots, q_r$, independent of n.*

Then

(41*)
$$\sum_{n=0}^{\infty} \frac{\alpha}{\alpha + (\beta + 1)n} \binom{\alpha + (\beta + 1)n}{n} \Lambda_n^{(\alpha,\beta)}[\lambda_1, \ldots, \lambda_r; q_1, \ldots, q_r; z_1, \ldots, z_r] t^n$$
$$= (1 + w)^{\alpha} H^*[\alpha, \beta; z_1(-w)^{q_1}(1 + w)^{\lambda_1}, \ldots, z_r(-w)^{q_r}(1 + w)^{\lambda_r}],$$

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where w is a function of t defined by equation (8) *on* , 361 *of* [1], *and*

$$(42^*)\quad H^*[\alpha,\beta;u_1,\dots,u_r] = \sum_{k_1,\dots,k_r=0}^{\infty} \frac{\alpha}{\alpha+(\beta+1)Q(\mathbf{k})+\Lambda(\mathbf{k})} C(k_1,\dots,k_r)u_1^{k_1}\cdots u_r^{k_r},$$

with, for convenience,

$$(43)\quad Q(\mathbf{k}) = q_1k_1+\cdots+q_rk_r \quad \text{and} \quad \Lambda(\mathbf{k}) = \lambda_1k_1+\cdots+\lambda_rk_r.$$

REMARK. Evidently, in the general case considered in [1], the above equations (41*) and (42*) would replace our earlier relationships (41) and (42), respectively.

REFERENCE

1. H. M. Srivastava and R. G. Buschman, *Some polynomials aefined by generating relations*, Trans. Amer. Math. Soc. **205** (1975), 360–370. MR **51** #6001.

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