# Four sets of ${}_3F_2(1)$s, Hahn polynomials and recurrence relations for the 3-*j* coefficients



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# CORRIGENDUM

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The formulae (39) and (40) should read as follows:

$$F(j_p, j_q, j_r) = (j_p - j_q + j_r + 1)(j_p - m_p + 1)(-j_p + j_q + j_r) - 2(j_p + 1)(j_q - m_q)(j_p - j_q + m_r) \quad (39)$$

and

$$E(j_p, j_q, j_r) = -(j_p + j_q - j_r)(j_p + m_p)(j_p + j_q + j_r + 1) + 2j_p(j_q - m_q)(j_p + j_q - m_r + 1). \quad (40)$$

These corrections do not affect the condition (41) or any other result presented in the paper. Also, in (22) the first term in the square root should be $(2j_2 - n)!$ instead of $(j_2 - n)!$.

We are grateful to J Raynal for the following observation. The recurrence relations between neighbours derived by him (1979 *J. Math. Phys.* **20** 2398) can be used to obtain (37) and (38). If $r_0$, $r_1$, $r_2$, $r_3$, $r_4$ and $r_5$ are the Whipple parameters for $\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$, then the corresponding parameters for $\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2+1 & m_3-1 \end{pmatrix}$ are $r_0 + \frac{1}{3}$, $r_1 - \frac{2}{3}$, $r_2 + \frac{1}{3}$, $r_3 + \frac{1}{3}$, $r_4 - \frac{2}{3}$ and $r_5 + \frac{1}{3}$ and those of $\begin{pmatrix} j_1+1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$ are $r_0$, $r_1 + 1$, $r_2$, $r_3$, $r_4 - 1$ and $r_5$. Since a contiguous 3-$j$ symbol is obtained for four shifts of $\frac{1}{3}$ and two of $-\frac{2}{3}$ on the Whipple parameters, or four shifts of $-\frac{1}{3}$ and two shifts of $\frac{2}{3}$, one can choose in many ways a 3-$j$ coefficient which has different neighbours. For example $\begin{pmatrix} j_1+1/2 & j_2-1/2 & j_3 \\ m_1-1/2 & m_2+1/2 & m_3 \end{pmatrix}$ can have in its recurrence relations either the neighbours: $\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$, $\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2+1 & m_3-1 \end{pmatrix}$ or the neighbours: $\begin{pmatrix} j_1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$, $\begin{pmatrix} j_1+1 & j_2 & j_3 \\ m_1 & m_2 & m_3 \end{pmatrix}$. From such a pair of recurrence relations, by eliminating the given 3-$j$ coefficient, relations (37) and (38) can be derived.

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