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Foupouagnigni, M. (CM-YND-TTC); **Koepf, W.** (D-UKSL);
Tcheutia, D. D. (CM-YND-TTC); **Njionou Sadjang, P.** (CM-YND-TTC)
Representations of q -orthogonal polynomials. (English summary)

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The authors give an algorithmic approach to the orthogonal polynomials P_n of the q -Hahn tableau, which are solutions of the q -difference equation

$$\sigma(x)D_q D_{1/q}P_n(x) + \tau(x)D_q P_n(x) + \lambda_n P_n(x) = 0.$$

They give explicit expressions of various coefficients in terms of the coefficients of $\sigma(x)$ and $\tau(x)$. These coefficients include coefficients in the structure equations, the connection coefficients and the linearization coefficients. The coefficients in the structure equations are obtained by comparing the first few terms of the polynomials on both sides of the identities, while the connection coefficients and the linearization coefficients are deduced by constructing and solving linear recurrence relations of the coefficients.

Reviewed by *Qing-Hu Hou*

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Note: This list reflects references listed in the original paper as accurately as possible with no attempt to correct errors.