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**Johnny Henderson\*** ([johnny\\_henderson@baylor.edu](mailto:johnny_henderson@baylor.edu)), Department of Mathematics, Baylor University, Waco, TX 76798-7328. *Existence of local solutions for a fractional difference equation with Dirichlet boundary conditions.*

For  $1 < \nu \leq 2$  a real number and  $T \geq 2$  a natural number, conditions are given for the existence of solutions of the  $\nu$ th order Atıcı-Elloe fractional difference equation,  $\Delta^\nu y(t) + f(t + \nu - 1, y(t + \nu - 1)) = 0$ ,  $t \in \{1, 2, \dots, T + 1\}$ , and satisfying the Dirichlet boundary conditions  $y(\nu - 2) = y(\nu + T + 1) = 0$ . (Received July 18, 2018)