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Boundary Data Smoothness for Solutions of Nonlocal Boundary Value Problems for Second Order Difference Equations.

Under certain conditions, derivatives and differences, with respect to boundary data and parameters, are studied for solutions of the discrete nonlocal boundary value problem, $w(m+2) = f(m, w(m), w(m+1)), w(m_1) = w_1$ and $w(m_2) - \sum_{i=1}^{r} \alpha_i w(\eta_i) = w_2$, where $m_1 < m_1 + 1 < \eta_1 < \eta_1 + 1 < \eta_2 < \eta_2 + 1 < \cdots < \eta_r < \eta_r + 1 < m_2$ in $\mathbb{Z}$ and $\alpha_1, \alpha_2, \ldots, \alpha_r \in \mathbb{R}$. (Received June 10, 2009)