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Kevin Ahrendt* (kahrendt@huskers.unl.edu). *Unique Solutions to Nonlinear Boundary Value Problems with a Fractional Self-Adjoint Difference Equation*. Preliminary report.

We will present a quick overview of some results regarding difference equations using the nabla fractional calculus on a discrete domain. In particular, we will give an introduction to the nabla fractional calculus along with an overview of results regarding a self-adjoint difference equation containing a Caputo fractional difference. Finally, we will use the Contraction Mapping Theorem to prove there exists unique solutions to certain nonlinear self-adjoint boundary value problems. (Received September 11, 2016)