1023-34-1298 **Bonita A. Lawrence** and **Ralph W. Oberste-Vorth*** (oberstevorth@marshall.edu), Department of Mathematics, Marshall University, One John Marshall Drive, Huntington, WV 25755. *Convergence of Solutions of Dynamic Equations on Time Scales.*

We generalize a convergence (and uniqueness) theorem to the setting of dynamic equations on time scales.

Let $\{\mathbb{T}_n\}$ be a sequence of time scales that converges to a time scale $\mathbb{T}$. Let $\{f_n\}$ be a sequence of continuous functions that converges locally uniformly to a continuous function f. Let $\{x_n : \mathbb{T}_n \to \mathbb{R}\}$ be a sequence of functions such that, for every n, x_n is a solution of initial value problem

$$x^\Delta = f_n(t,x), \quad x(t_{0,n}) = x_{0,n}$$

where the sequence of initial data $\{(t_{0,n}, x_{0,n})\}$ converges to (t_0, x_0). Then there exists a solution x of

$$x^\Delta = f(t,x), \quad x(t_0) = x_0$$

and a subsequence $\{x_{n_j}\}$ that converges locally uniformly to x. Uniqueness of the solutions, x_n, is sufficient for the convergence of the whole sequence $\{x_n\}$; a Lipshitz condition is sufficient for the uniqueness of the solutions.

Convergence is with respect to the Vietoris topologies; on compact subsets the Vietoris topology is generated by the Hausdorff metric. The proof of this theorem of convergence of functions with varying domains depends on a generalized Arzela-Ascoli theorem of the same type. (Received September 25, 2006)