1106-05-747 **Ralph P. Grimaldi*** (grimaldi@rose-hulman.edu), 5500 Wabash Ave, Terre haute, IN 47803.
Motzkin Paths with Exactly One Weak Ascent.

For $n \geq 1$ we let a_n count the number of Motzkin paths from $(0,0)$ to $(n,0)$ with exactly one weak ascent. Such paths are made up of n steps, where each step is a U ($\nearrow$), an H ($\rightarrow$), or a D ($\searrow$), and they never fall below the x-axis. Each such path has exactly one weak ascent and ends in k D steps, where $0 \leq k \leq \lfloor \frac{n}{2} \rfloor$. The initial $n-k$ steps comprise k U's and $n-2k$ H's. We find that $a_n = F_{n+1}$, where F_n denotes the n-th Fibonacci number.

The total numbers of U's, H's, and D's that appear among these a_n paths are determined, along with the numbers of consecutive pairs of the same type of step as well as different types of steps. In addition, the numbers of runs of consecutive identical steps are determined, and the number of isolated steps that appear among these a_n paths. Further results examine the sums of the locations of the different types of steps within the a_n paths. (Received September 05, 2014)