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John T. Jacobson* (jjacob26@students.kennesaw.edu). *Combinatorial Proofs of Fibonacci Identities by Means of the Path Graph*. Preliminary report.

In 1982, Prodinger and Tichy define the Fibonacci number of a graph G , $i(G)$, to be the number of independent sets (including the empty set) of the graph. They do so because the Fibonacci number of the path graph, P_n , is the Fibonacci number F_{n+2} . Nelson's *Proof without Words* series provides numerous visual arguments for several mathematical identities, some of which feature the Fibonacci sequence. In *Proofs that Really Count*, Benjamin and Quinn provide purely combinatorial proofs of several mathematical identities, some of which feature the Fibonacci sequence. This talk marries these visual and combinatorial features to prove Fibonacci identities by means of the path graph. (Received September 13, 2011)