1077-VJ-2096          **Garry S. Bowlin\*** (`bowlings@oneonta.edu`), Garry Bowlin, 20 Gardner St, Apt 20, Oneonta, NY 13820. *Thompson's Group and the Four Color Theorem.*

The Four Color Theorem was first proved by Appel and Haken in 1977 with the aid of a computer. Later a simplified proof was given by Robertson, Sanders, Seymour, and Thomas. While the proof was simplified, it still relies on a computer in a significant way. In 1990, Kauffman proved that the Four Color Theorem is equivalent to the ability to find an assignment of the vectors $\hat{\imath}$, $\hat{\jmath}$, and $\hat{k}$ to the variables of two associations of the product $v_1 \times v_2 \times \cdots \times v_n$, such that the evaluations of both associations are equal and non-zero. Since elements of Thompson's group $F$ represent forms of the associative law, one can prove that the Four Color Theorem is equivalent to every element of $F$ having an assignment of the vectors $\hat{\imath}$, $\hat{\jmath}$, and $\hat{k}$ for which that associative law holds. In this talk, I will prove that every positive element of $F$ has such an assignment. (Received September 21, 2011)