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A FEW MORE TREES THE SYMMETRIC CHROMATIC FUNCTION CAN DISTINGUISH

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Abstract of Report Talk: The symmetric chromatic function was introduced by R. Stanley in 1995 as a generalization of the chromatic polynomial. Stanley's function turns out to be a far stronger graph isomorphism invariant than the chromatic polynomial, and he conjectured it to be a complete tree invariant. This has been verified computationally for trees with up to 28 vertices. In addition, a paper by Martin, Morin and Wagner proves the conjecture for a special class of trees called *spiders*. I generalize this class of spiders to *n-spiders*, where normal spiders correspond to $n = 1$, and prove the conjecture for $n = 2$. To do this I generalize the method of Martin, Morin and Wagner, introducing machinery which can be used to further generalize this result, analyze the symmetric chromatic function, or simply analyze trees. In particular, generalizing the result for arbitrary n -spiders would prove Stanley's conjecture.

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