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On the Kauffman-Harary Conjecture for Turk's Head Braids

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Abstract of Report Talk: The second of a two part series, this talk will build on ideas introduced in "Colorability Of Alternating Knots" and will therefore assume knowledge of basic concepts in Knot Theory. Our initial results proved that the Kauffman-Harary conjecture holds vacuously for all knots of the form $THK(3, n > 2\epsilon)$ and $THK(4, n > 2, \epsilon)$. We have extended our results for all Turk's Head Knots with both m and n greater than 2. That is to say, all Turk's Head Knots of the form $THK(m, n, \epsilon)$, $m, n > 2$ have a non-prime determinant. Further, we have outlined a proof of the case of $THK(m, n, \epsilon)$, $m > 1, n = 2$ and therefore have resolved Kauffman-Harary over all Turk's Head Knots. Our investigations focus on a matrix useful for studying iterative braids as well as spanning trees of certain graphs. Specifically, we utilized a relationship between the coefficients of the characteristic polynomial of this matrix and the Dellanoy numbers. [ND11184306]

[Joint work with Pablo Solis.]

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