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The Matrix of Chromatic Joins and the Temperley-Lieb Algebra

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Abstract   We show that the matrix of chromatic joins, that is associated with the revised Birkhoff-Lewis equations, can be expressed completely in terms of functions defined on a generalization of the Temperley-Lieb algebra. We give a self-contained account of the aspects of the Temperley-Lieb algebra that are essential to this context since these are not easily obtainable in this form. Of interest in the theory of these equations are recursions for the inverse of the matrix of chromatic joins. We show that the approach given here is a natural one which provides clear insight into the investigation of the properties of the inverse, and we give an instance of a recursion. It is hoped that these techniques will be of further value in the study of the revised Birkhoff-Lewis equations.