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**Warren P Adams** and **Frank M Muldoon\*** (fmuldoc@clemons.edu). *Modeling Special Ordered Set Restrictions and Other Disjunctions using Base-2 Expansions*. Preliminary report.

In an effort to reduce the number of discrete variables present within specially-structured mixed-integer programs, various authors have posed strategies for equivalently replacing binary variables with continuous. Such replacements require the defining of logarithmic numbers of new binary variables, together with linear constraints that equate the new binary variables to the old. Example instances include functions having discrete domains, products of such functions, and SOS-1 and SOS-2 type restrictions. This paper gives a novel interpretation of such base-2 expansions in terms of the convex hull of extreme points to the unit hypercube. This interpretation promotes representations that require fewer numbers of auxiliary constraints, while preserving the strengths of the linear programming relaxations. Computational experiments on piecewise linear functions demonstrate the merits of this approach. (Received September 20, 2011)