

The Effect of Part Assignment on Grouping Measures in Manufacturing Systems

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Abstract— Different grouping measures have been developed in the literature to evaluate the efficiency of block diagonal forms in cell formation. The commonly known grouping efficiency measures will be discussed. The most used measure in the literature is grouping efficacy. In cell formation the system designer has three choices of part assignment to cells in accordance with his needs (minimum sum of voids and /or exceptions). In this paper, the effect of part assignment on some well known grouping measures will be studied and analyzed. Moreover, the effect of part assignment will be analyzed with the existence of alternative optimal solutions. The three choices of part assignment will give the designer the ability to reduce the effects of some of the physical, technological, or organizational constraints and hence reduces costs.

Keywords— Cell Formation, Part Assignment, Optimal Solution, Grouping Measures