ASSOCIATION BUNDLE IDENTIFICATION FOR CATEGORICAL DATA *

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ABSTRACT. We introduce the notion of association bundle identification over 2D categorical data set where each column represents a variable and each row an observation. Distinct from the association rule mining, the introduced association bundle has elements that have pairwise instead of simultaneous significant co-occurrence, and are not in “antecedent” and “consequent” query format. Comparing with categorical data clustering, the homogeneity of elements in an association bundle expresses the statistical linkage between variable values instead of the similarity between observations, and may span only subset of variables. We map association bundles into a set of complete subgraphs in order to identify these bundles by our proposed complete subgraph detection algorithm which is different from the traditional graph-partitioning algorithms. We show that the algorithm is efficient with a polynomial time cost to the number of variable values when the number of overlap layers among association bundles is relatively small.

Keywords: Association bundles, categorical data mining, complete subgraphs

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