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Explanation Tables

I will present a solution to the following data summarization problem: given a dataset with multiple categorical features and a binary outcome, construct a summary that offers an interpretable explanation of the factors affecting the outcome in terms of the feature value combinations. We refer to such a summary as an explanation table, which is a disjunction of overlapping patterns over the features, where each pattern specifies a conjunction of attribute=value conditions. We give an efficient and effective greedy algorithm to construct explanation tables that uses sampling to prune the space of candidate patterns. This is joint work with Parag Agrawal, Kareem El Gebaly, Guoyao Feng, Flip Korn, Divesh Srivastava and Michael Vollmer.