■ 연구논문 요약문

논문제목	Variable selection methods for multi-class classification using a signomial function
게재정보	Journal of the Operational Research Society, 68 (9), 2017.09.
개요	- In the classification context, variable selection is the process of selecting, from the entire set of input variables, those that can positively affect classifier performance and efficiency. Thereby, variable selection improves the prediction performance of classifiers and the comprehensibility of the results while also reducing the computational load - In this paper, we focus on the issue of variable selection in multi-class classification problems. We seek to find, considering all classes simultaneously, a common relevant subset of n input variables that is useful for predicting the class of a new example.
연구결과	- We develop several variable selection methods using signomial function to select relevant variables for multiclass classification by taking all classes into consideration. - We introduce a L1-norm regularization function to measure the number of selected variables and two adaptive parameters to apply different importance weights for different variables according to their relative importance. - The proposed methods select variables suitable for predicting the output and automatically determine the number of variables to be selected. Then, with the selected variables, they naturally obtain the resulting classifiers without an additional classification process. - The classifiers obtained by the proposed methods yield competitive or better classification accuracy levels than those by the existing methods.
활용분야 및 기대효과	- The proposed variable selection methods can be applied to many data analysis task to reduce data dimensionality and choose a small number of relevant independent variables.