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A cut-off point for diagonal discriminant analysis in high dimension

We consider the discriminant analysis of two groups when the number of observations is@larger than the total sample size. Diagonal discriminant rule (DDR) is known as a popular rule for the high-dimensional discrimination. The DDR treated is based on Fisher's linear discriminant rule (W-rule) and the likelihood ratio rule (Z-rule). We propose a cut-off point such that the limiting error rate takes the minimum value under the highdimensional framework A1:  $N_1, N_2, p \to \infty, N_1/p \to c_1 \in (0, \infty), N_2/p \to c_2 \in (0, \infty), N_1/N_2 \to c \in (0, \infty)$ . By Monte Carlo simulation, we confirmed that our proposal cut-off point takes lower error rate compared to the zero cut-off point.