**Bayesian discriminant method**

In the distance discriminant method above, it does not take into account the frequency of each sample in the whole, and does not take into account the loss caused by the wrong discrimination. The Bayesian discriminant method modified on the basis of distance discrimination, and the formula is as follows 35:



Among which represents a posteriori probability，represents a priori probability，represents the frequency at which the sample appears，Σrepresents the total covariance matrix. The discriminant rule is that the posterior probability is the biggest and the average wrong discrimination loss is the smallest, and the rule is as follows: If meeting 36:



Then discriminating to ， and is the total， is the probability density function of ， is priori probability of ，that is a probability to which it belongs when sample occurs。 is the number of . The solution formula for discriminant analysis is as follows37-38：





In this case, represents the condition probability of wrongly discriminating the sample of to the whole ， is the loss caused by this discrimination. is a division of sample to be discriminated. the average wrong discrimination loss. The solution of a Bayesian discriminant analysis is to make the smallest set of solutions.

Using the MATLAB program, this paper still randomly samples as a learning sample，as a test set to carry out Bayesian discriminant solution.

**Grey Correlation Degree**

In the real world, the influence of a system is often more than one factor, and the relationship between the factors is complex, so only through the appearance of things easy to cover up its essence, making it difficult to get accurate information, so that the impact of the primary and secondary factors are difficult to distinguish. The grey system analysis method is essentially an analytic method that replaces the concept of linkage with discrete data.

The grey system theory holds that, although the appearance of objective system seems to be complicated, the data is irrelevant, but it always has the function of the whole, so it must also contain some inherent and can excavate law, and the key is how to choose the proper way to excavate the law and use it.

The gray correlation degree is calculated as follows: The collected evaluation data are dimensionless treated, the difference sequence is obtained, the maximum difference between the poles and the minimum difference, the correlation coefficient and the calculation correlation degree are obtained.