Cluster Validity

August 28, 2013

1　　　1

$$WCD = \frac{\sum_k^K \frac{\sum_i^{I_k} min(d(x_{ki}, x_{kj}))}{I_k}}{K} \tag{1}$$

$$BCD = \frac{\sum_k^K min(d(x_{ki}, x_{lj}))}{K} \tag{2}$$

$$Index1 = \frac{WCD}{BCD} = \frac{\sum_k^K \frac{\sum_i^{I_k} min(d(x_{ki}, x_{kj}))}{I_k}}{\sum_k^K min(d(x_{ki}, x_{lj}))} \tag{3}$$

$: K$　　　　ID: k　　　l　　　　ID: x_{ki}　　　x_{kj}

k　　　　　　: I_k

2　　　2

$$WCD = \frac{\sum_k^K \frac{1}{I_k} \sum_i^{I_k} min(d(x_{ki}, x_{kj}))}{K} \tag{4}$$

$$WCS = \frac{1}{K} \frac{\sum_k^K \frac{1}{I_k} \sum_i^{I_k} min(d(x_{ki}, x_{kj}))}{K} \tag{5}$$

$$BCD = \frac{\sum_k^K min(d(x_{ki}, x_{kj}))}{K} \tag{6}$$

$$BCS = \frac{1}{K} \frac{\sum_k^K min(d(x_{ki}, x_{kj}))}{K} \tag{7}$$

$$Index2 = WCS.BCS = \frac{1}{K} \frac{\sum_k^K \frac{1}{I_k} \sum_i^{I_k} min(d(x_{ki}, x_{kj}))}{K} + \frac{\sum_k^K min(d(x_{ki}, x_{kj}))}{K} \tag{8}$$

$: K$　　　　　ID: k　　　l　　　　ID: x_{ki}　　　x_{kj}

k　　　　　　: I_k