Below are stated the mathematical formulas, that have to be used for the calculation of the measure of relevance by a simple variable only. In a two sample-problem let \( x_{1i}, x_{2i}, x_{3i},\ldots, x_{ni} \) \((i = 1, 2)\) denote the sample values of a stochastic variable \(X\) in the single samples. After attributing ranks to the sample values of the whole sample let \( u_{1i}, u_{2i}, u_{3i},\ldots, u_{ni} \) \((i = 1, 2)\) indicate the corresponding transformed values of the ranks into the interval \([0,1]\). Thereby we use the formula

\[ u_{ij} = \frac{r_{ij} - r_{\min}}{r_{\max} - r_{\min}} \]

for \(i = 1, 2, \ldots, n\). Based on the transformed data \( u_{ij} \) \((i = 1, 2; j = 1, 2, \ldots, n)\) the measure of relevance (MoR) should be calculated by the following formula:

\[
\text{MoR} = \frac{1}{\sqrt{(n_1 + n_2)/2}} \cdot \frac{|p_1 - p_2|}{\sqrt{p \cdot (1 - p) \cdot \left( \frac{1}{n_1} + \frac{1}{n_2} \right)}} \cdot \frac{(\bar{u}_1 - \bar{u}_2)}{\sqrt{s_1^2 + s_2^2 - 2 \cdot s_{12}}}
\]

In the above formula, \( p_i, i = 1, 2 \) denote relative frequencies, \( \bar{u}_i \) denote the means of transformed sample values \( u_{ij}, i = 1, 2, j = 1, \ldots, n \), and \( s_1, s_2, s_{12} \) denote the standard deviations and covariance of the \( u_{ij} \). \( p \) is defined as the ratio \( \frac{n_1 \cdot p_1 + n_2 \cdot p_2}{n_1 + n_2} \) and equals to 0.5 for dependent samples.

For the determination of the parameters \( p_i, i = 1, 2 \) in formula (12) one has to differentiate between dependent and independent samples. Using the identity indicator \( I(u) \) which takes 1 if \( z \) is true and 0 otherwise, \( p_i, (i = 1, 2) \) is determined as follows:

\[
p_{i,i=(1,2)} = \begin{cases} 
\sum_{i=1}^{n_i} \frac{1}{n_i} I(u_{ij} \geq \frac{n_i}{n_1+n_2}), & \text{for independent samples} \\
\sum_{i=1}^{n/2} \frac{1}{n_1} I(u_{1j} - u_{2j}) \text{ inq } 0, & \text{for dependent samples data} \\
\end{cases}
\]

(\text{where inq refers to ‘>’ for } i = 1 \text{ and ‘<’ for } i = 2)