

1. Multi source aggregated TCP Algorithm

Let us consider a binary classification problem, and suppose we have a training dataset Z and external test data set X , or we randomly partition the given dataset into training (80%) and external test set (20%). The algorithm for aggregated TCP from multiple sources is as follows (see Figure 1).

1. The training data set is randomly split into K parts (disjointly) with varying sizes. For example, Let $Z = \{z_1, \dots, z_n\}$ be the data set, then we divide the dataset into S_1, \dots, S_K such that $Z = \bigcup_{i=1}^K S_i$, $k_i = |S_i|$ and $n = k_1 + \dots + k_K$.
2. We compute p-values using (X, S_i) for each S_i , say p_i for each class, then we finally aggregate the k , p-values (weighted average).
3. We repeat the step 1 and step 2 with different values of K and k_i 's say for q times.
4. Then we analyze the q results obtained (this part is not clear yet).

Algorithm 1: Multi source aggregated TCP

Input: (training dataset: Z , test dataset: X , label set: Y , a nonconformity measure: \mathcal{A})

Output: Aggregated p-values

Initialization;

Unequal size partition: Partition training.data randomly and unequally into K parts, S_1, \dots, S_K ;

Steps;

for each S_i , $i \in \{1, \dots, K\}$ **do**

for each observation $x_j \in X$ **do**

 Compute p-values by using **TCP** algorithm:

$PValues_i = \text{TCP}(S_i, x_i, Y, \mathcal{A})$;

end

end

Aggregate $PValues_i$ from various sources into a set **p-values**

return p-values

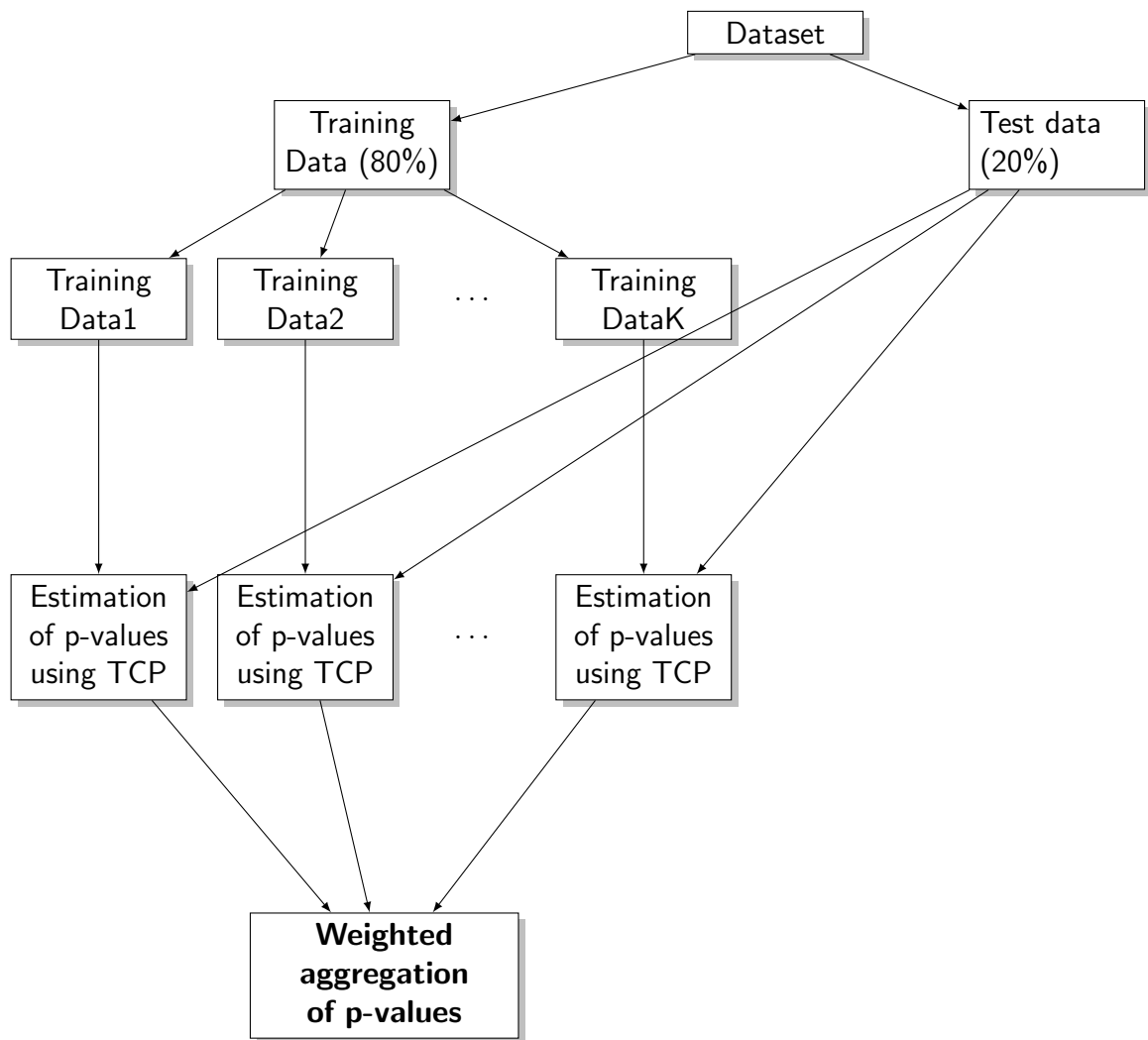


Figure 1: Multi source aggregated TCP Algorithm