

MULTI-SPLIT TREE-BASED METHOD IN SURVIVAL ANALYSIS

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It is one of important subjects to explore prognosis factors in survival analysis. The useful tool for exploring some interactions of these prognosis factors is the tree-based methods. Usually, ordinary tree-based methods have provided the prognosis factor to response (survival time) into two branches. We proposed a multi-split tree-based method to present the complicated interactions using a graphical display. Moreover, we evaluated the performance of the multi-split tree-based method by certain literature examples with survival data and simulation. As a result, the multi-split tree result had smaller number of terminal nodes rather than the ordinary binary-split tree. Moreover, when true trees structure had many branches, the performance of the multi-split tree-based method was superior to binary-split tree-based method, where the performance measure was the difference of true and estimated hazard rates. Furthermore, we can use the multi-split tree-based method in order to diagnose the result of the ordinary binary-split tree-based method.