

Causal Inference under Directed Acyclic Graphs

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Abstract

Directed acyclic graph (DAG) is commonly used to describe the causal relationships among variables. This study mainly focuses on an application area of DAG for causal inference in genetics. In genetic association studies, an observed effect of a genetic marker on a target phenotype can be caused by a direct genetic link and/or an indirect non-genetic link through an intermediate phenotype which is influenced by the same marker. I will discuss some existing methods and our proposed method to estimate and test the direct effect of the genetic marker on a continuous target phenotype which is either completely observed or subject to censoring.