A Comparison Study of Sib-Trait Linkage Analysis Methods

William F. Bryant\(^1\), Jessica Faucett\(^2\), Stephanie Hicks\(^3\), and Bethany Jablonski\(^4\)

\(^1\)Texas Southern University, \(^2\)Wayland Baptist University, \(^3\)Louisiana State University, \(^4\)East Tennessee State University

**Abstract**

Many procedures have been created to test linkage between a quantitative trait and a marker locus in sibling pairs. Past research has proven some methods to be stronger than other methods based on certain parameters. This paper analyzes four procedures and tests their type I error and power. The four methods we analyzed are the original Haseman-Elston methods using the squared differences (1972), Wright’s squared sums method (1997), the revisited Haseman-Elston method using the cross product (2000) and the Unified Haseman-Elston method using weighted slope estimates.