Hans Högberg (b. 1953) is a statistician and works as a biostatistician at the Centre for Research and Development Uppsala University/County Council of Gävleborg.

Questionnaires and rating scales are commonly used in clinical research to measure qualitative variables. Assessments on scales produce ordered categorical data, also called ordinal data. The restricted mathematical properties of ordinal data have statistical consequences when analyzing paired ordinal data. Evaluation of validity, reliability and change in assessments on rating scales produce paired ordinal data.

This thesis deals with two measures of individual disagreement in paired assessments on scales; the measure of disorder and the measure of relative rank variance. The main aim was to further evaluate the statistical properties of these measures to be able to suggest methods of inference. Approximate normal distribution in large samples was shown theoretically and by simulation experiments. Statistical inference based on normal theory was shown to be an adequate approximation in moderate sample sizes and important sizes of the measures of disorder and disagreement. Furthermore, statistical analysis of differences in relative rank variance between two sets of paired data was discussed. Statistical test based on normal theory and also an application of classical tests to ranks was proposed. The importance of considering the properties of paired ordinal data was shown by an overview and a comparison of current statistical methods. The applicability of the measures of disorder and relative rank variance in research has thus been enhanced.