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Prof. RNDr. Ivana Horová, CSc.  
Chairman of the Habilitation Committee

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611 37 Brno

Our File: gutacht'13.tex

Vienna, February 24, 2013

Concerning: Habilitation Committee "Karel HRON": Referee Report

Dear Prof. Horová!

The Habilitation Thesis entitled "**Classical and robust statistical methods for a comprehensive statistical treatment of compositional data**" submitted by Dr Karel Hron is concerned about the relative new field of multivariate statistics exposed to compositional data. Robust statistical methods are also considered.

The thesis consists of a good introduction for methodological aspects of compositional data, their geometrical aspects and corresponding distributional characteristics with a few robustness issues.

The second part offers a discussion of his contributions to a comprehensive classical and robust statistical treatment of compositional data, which again is 4-fold:

1. Classical and robust statistical methods for compositional data.
2. Preprocessing of compositional data sets.
3. Theoretical issues of compositional data. And
4. Applications of compositional data analysis.

Here, the considered publications of the candidate enter, thematically ordered, which are the basis of this habilitation thesis. All the cited papers are included in the thesis.

The first introductory part contains 7 papers, the part considering preprocessing compositional data 2 papers, the theoretical issues part 2 and the application part 5 papers. All papers are published in international journals and are nicely

summarized within the different parts.

### **Concluding Remarks**

It might be surprising that practically all published articles are written in cooperation with other researchers. However, it seems to be acceptable that the candidate had participated with an adequately large contribution resp. it shows his ability to cooperate which for sure is of advantage for his further research work.

The study of the Habilitation thesis together with the attached published papers gives the conviction that the candidate masters well his research area, and is capable to develop new theories and applications in the scientific world. The thesis meets well the habilitation thesis requirements in Mathematics-Applied mathematics at Masaryk University.

With best wishes and regards

  
(Rudolf Dutter)