The goal of this thesis is to explore the area of group recommender systems with an emphasis on fairness. In the core part of our thesis, we have created a novel aggregation method called Exactly Proportional Fuzzy D'Hondt's Aggregation that works on top of single-user recommender systems. We have evaluated it on five datasets, in three different recommendation scenarios, and with two different types of artificially created groups. The proposed algorithm performed favorably with respect to several fairness metrics while maintaining a reasonable utility of the recommendation. Furthermore, we have created a set of tools to simplify the evaluation pipeline of group recommender systems. The main parts of the pipeline are a dataset downloader, matrix factorizer, and synthetic group creation scripts. We believe these tools may contribute towards more reproducible research in the group recommender systems domain.