

# Combining individual user models for group adaptation

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Research on adaptation has, as implied by the term “personalisation”, mainly focussed on adapting systems to *individual* users. There are situations, however, when adaptation needs to occur to *groups* of users rather than to individuals. Adaptive interactive television is one such example, as watching television tends to be a social activity. In this presentation (based on Masthoff, 2003), we will discuss different strategies for combining individual user models to adapt to groups, some of which are inspired by Social Choice Theory. In a first experiment, we explore how *humans* select a sequence of items for a group to watch, based on data about the individuals’ preferences. The results show that humans use some of the strategies such as the Average Strategy (a.k.a. Additive Utilitarian), the Average Without Misery Strategy and the Least Misery Strategy, and care about fairness and avoiding individual misery. In a second experiment, we investigate how satisfied people believe they would be with sequences chosen by different strategies, and how their satisfaction corresponds with that predicted by a number of satisfaction functions. The results show that subjects use normalization, deduct misery, and use the ratings in a non-linear way. One of the satisfaction functions produced reasonable, though not completely correct predictions. According to our subjects, the sequences produced by five strategies give satisfaction to all individuals in the group, and Multiplicative Utilitarianism is the preferred strategy. In a final experiment, we explore the influence viewing an item can have on the ratings of other items. This is important for deciding the order in which to present items. The results show an effect of both mood and topical relatedness.

**Keywords** Group modeling, interactive television, social choice, adaptation, recommender

## **References**

Masthoff, J. (Forthcoming). Group modeling: Selecting a sequence of television items to suit a group of viewers. To appear in Journal of User Modeling and User Adapted Interaction, special issue on Personalised Television.