6 criteria of the dataset, for instance. On the other hand and from an optimistic point of view, each user u evaluates just few items in recommender system framework, while the remaining ratings are missed values. This leads to a high sparsity of users/items ratings, which can reach 99% of unrated items such as Netflix movies dataset [7].

6. Conclusion

Using preference relation ratings instead of absolute ratings is a promising technique, recently introduced. In this work, we proposed adding to it, a fuzzy modeling of user multi-criteria preferences by using linguistic terms. This fuzzy modeling enhance the precision of current recommender system, since it faithfully translates the user's qualitative preferences. To achieve that, we represented the preferences and their relationships through a graph. These latter were quantified by values, which measure how much a preference is better compared to others. As, we are dealing with multi-criteria preferences, a criteria graph for each rated item was first built, to generate afterward the items graph whose ratings are the fuzzy weighted arithmetic average of all involved criteria ratings. The aggregated graph for a target user is then composed of criteria graphs of k first similar users. The prediction of unrated items, are finally derived from the aggregated criteria graph, while maintaining coherence between preferences relationships and the consistency of the user's initial ratings. Preliminary results show the advantage of using fuzzy preference relations instead of absolute ratings, to enhance the accuracy of current recommender systems and as future work, we intend to carry on a more profound experimental study with a larger dataset to prove the validity of our approach in improving the predictions' quality and the recommender system accuracy.

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