



Figure 6: An AMM with  $|M| = 5$

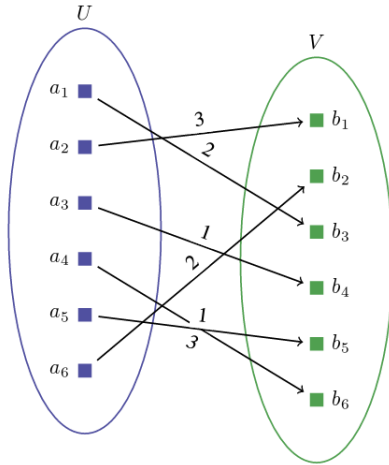


Figure 7: An AMM with  $|M| = 6$

### Is an AMM always more "rank maximal" than a FM?

An AMM matching need not be more rank-maximal than the fair matching. Consider the instance with  $A = \{a_1, a_2, a_3, a_4, a_5, a_6, a_7\}$ ,  $P = \{b_1, b_2, b_3, b_4, b_5, b_6, b_7\}$  and the preferences given by

- $a_1 : (b_1, 1)$
- $a_2 : (b_2, 1)$
- $a_3 : (b_3, 1), (b_4, 2),$
- $a_4 : (b_1, 1), (b_5, 2), (b_4, 3)$
- $a_5 : (b_1, 1), (b_6, 2), (b_2, 3), (b_5, 4)$
- $a_6 : (b_1, 1), (b_2, 2), (b_7, 3), (b_6, 4), (b_3, 5)$
- $a_7 : (b_7, 1)$

An AMM matching for the above graph is as show in Figure ?? and it's signature is given by  $(3, 3, 0, 0, 1)$ . One can easily see that the FM shown in Figure ?? is more rank-maximal with a signature  $(4, 0, 1, 2, 0)$ .

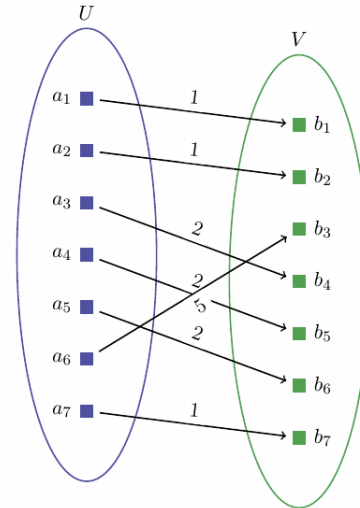


Figure 8: An AMM with matching with signature  $(3, 3, 0, 0, 1)$

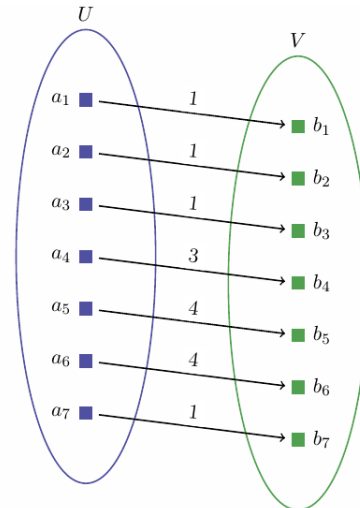


Figure 9: A Fair matching with signature  $(4, 0, 1, 2, 0)$

## Conclusion

In this work, we introduce the notion of an AUPCR maximizing matching. We describe two variants with one maximizing the AUPCR, and the other maximizing the cardinality subject to maximizing the AUPCR. We empirically evaluate our algorithm on standard synthetically generated datasets and highlight that AUPCR maximizing matching achieves this much needed middle-ground with respect to the different notions of optimality. The overall performance of the AUPCR matching is superior in comparison to other matchings when all metrics are cumulatively used for comparison. Extending the AUPCR matching and finding algorithms with reduced time complexity is left as future work.

Enim eos eaque totam voluptas, similique eligendi deleniti quaerat inventore, eos maxime omnis maiores aliquid eligendi cumque, omnis corrupti quo laborum harum, repre-

henderit deserunt accusantium expedita inventore maxime ipsam ut. Ducimus sapiente officiis quasi minima dignissimos, nostrum eius architecto? Autem ad beatae quo iusto recusandae rem earum nisi reiciendis, sapiente ab nobis odit id quis, consecetur accusantium a praesentium quisquam consequuntur ab veritatis. Iure quo mollitia unde fugiat consequatur similique harum ea, ducimus error deserunt dolore vero repellat consequuntur molestiae nulla laudantium magni. Labore placeat dicta, nemo harum sunt quaerat cum voluptas sapiente laboriosam culpa pariat molestiae sequi, explicabo corporis earum unde. Ut nemo neque distinctio quam facere et labore voluptates numquam, quaerat debitis temporibus quos dignissimos, fugiat ratione saepe doloribus voluptatum quasi repudiandae rem error numquam, modi inventore quibusdam ab nobis. Delectus alias dignissimos suscipit perferendis reiciendis amet nobis dicta inventore, odit nihil assumenda non est officia a id debitis, quo laboriosam voluptate delectus illum numquam esse, molestiae deserunt