



# THE UNIVERSITY OF CHICAGO

Department of Statistics

## STATISTICS COLLOQUIUM

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Ranking, Aggregation, and You

MONDAY, October 6, 2014, at 4:00 PM  
Eckhart 133, 5734 S. University Avenue  
*Refreshments following the seminar in Eckhart 110*

### ABSTRACT

Supervised ranking -- or ordering a set of candidates to match the preferences of a population -- is a key component of web search, bioinformatics, and recommendation. While some ranking procedures come with guarantees of statistical consistency in this setting, these same procedures require complete preference information, which is expensive to collect and difficult to trust. More practical approaches to ranking have aimed at modeling partial preferences, e.g., pairwise comparisons or URL clicks, directly. However, our analysis shows that many popular procedures for partial preference ranking are inconsistent, yielding the wrong ranking rules as more data are collected. To address this deficiency, we develop a new family of ranking procedures, based on U-statistics that benefit from the aggregation of partial preference information. Our proposed procedures are computationally tractable, provably consistent, and empirically accurate, as evidenced by a large-scale web-ranking experiment.