

1077-91-2946

Lek-Heng Lim* (lekheng@galton.uchicago.edu), University of Chicago, Department of Statistics, Chicago, IL 60637. *Hodge Theory and the Netflix Problem*.

Suppose a large number of voters have each rated or compared a small subset of a large number of alternatives, how could we rank the alternatives based on these data? The rank aggregation problem is fraught with famous difficulties — Arrow’s impossibility, Saari’s chaos, NP-hardness of Kemeny optima. To complicate matters further, let’s say the ratings do not come all at once but trickles in on a daily basis and we would like to regularly update our rankings. Let’s say we also want a measure of reliability or quality of our rankings. We shall discuss a method based on Hodge decomposition that meets all these requirements. (Received September 23, 2011)