In 2007, Busse, Orbanz and Buhmann devised an efficient method for performing cluster analysis of particular kinds of ranking data. Their work focuses on data comprised of a mixture of complete rankings and “top-t” partial rankings, where t is allowed to vary. Here, we extend their method to partial rankings of arbitrary type and go on to describe a similar approach for cluster analysis of data on the flag variety for $GL_n(\mathbb{F}_q)$. (Received September 21, 2010)