
one determine whether a given (?) matrix is unimodal or not? A definition of unimodality that I have seen is that a (0,1) matrix (which I will assume for this question is based on the marginal distributions of its columns) should have a distribution that is monotonically non-decreasing as a function of its columns. This is possible since there are only two marginal distributions with only two choices as to how it might have gone from 0 to 1 (and because the entire distribution is supported on the nonnegative numbers). This is where I run into trouble; for example, consider the following matrix: $\begin{bmatrix} a & b & 0 & b & a & a & 1 \\ c & 0 & 0 & 0 & c & c & 1 \\ 0 & 0 & a & b & 0 & 0 & 0 \\ 0 & 0 & c & 0 & 0 & 0 & 0 \\ c & a & 0 & b & c & c & 0 \\ a & c & 0 & 0 & c & a & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$