On Degree Sequences Under Induced Subgraph Inclusion

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Abstract

Let $D = (d_1, \ldots, d_n)$ and $D' = (d_1, \ldots, d_{n'})$ be the monotone degree sequences of simple finite graphs G, G', respectively. Define the partial order $D \leq D'$ when G, G' exist realizing D, D' and such that G is a vertex induced subgraph of G'. Around 1980 S. K. Rao conjectured that this is a well partial order on graphic degree sequences. This talk discusses known or conjectured properties, for fixed D, that may be forced on D' when $D \not\leq D'$. If true, these properties may be used to prove the Rao conjecture and may serve as rough models for the structure on G' when G is not an induced subgraph of G'.