

1073-05-26

Lincoln Lu and **Laszlo A. Szekely*** (szekely@math.sc.edu). *Using the Lovász Local Lemma in graphical enumeration.* Preliminary report.

The lopsided version of the Lovász Local Lemma is based on negative dependency graphs instead of the usual dependency graphs. Two generic examples of negative dependency graphs that are not dependency graphs live in the space of maximal matchings of K_{2n} or $K_{n,m}$ endowed with the counting measure. For a partial matching M , the *canonical event* A_M is the set of all maximal matchings that extend M . We proved that for a family of canonical events, a negative dependency graph is defined by pairs of events $A_M, A_{M'}$, where $M \cup M'$ is not a (partial) matching.

Combining this result with the configuration model to create random graphs with a prescribed degree sequence, and adding to the Lovász Local Lemma *upper bounds* (just for the models considered above!) leads to proofs to a number of old and new results in asymptotic graph enumeration. (Received July 06, 2011)