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**Tarik Aougab\*** ([tarik.aougab@yale.edu](mailto:tarik.aougab@yale.edu)), Yale mathematics department, 10 Hillhouse Avenue, New Haven, CT 06511. *Using the geometry of the mapping class group to solve combinatorial problems.*

Masur and Minsky's celebrated distance formula relates the word metric on the mapping class group to distances in curve complexes of various subsurfaces. We show how to use this formula to improve upon the best known upper bounds for the size of a  $k$ -system, a collection of simple closed curves on a surface pairwise intersecting at most  $k$  times. (Received January 22, 2015)