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Neha Gupta* (ngupta10@illinois.edu). *The primitivity index function for a free group, and untangling closed curves on surfaces.*

A theorem of Scott shows that any closed geodesic on a surface lifts to an embedded loop in a finite cover. Our motivation is to find a worst-case lower bound for the degree of this cover, in terms of the length of the original loop. We establish, via probabilistic methods, lower bounds for certain analogous functions, like the Primitivity Index Function and the Simplicity Index Function, in a free group. These lower bounds, when applied in a suitable way to the surface case, give us some lower bounds for our motivating question. This is joint work with Ilya Kapovich. (Received January 28, 2015)