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Tarik Aougab*, Mathematics Department, Haverford College, Haverford, PA 19041, and **Jonah Gaster**. *Curves on the torus intersecting at most k times.*

We consider the following well known question: given a closed orientable surface of genus g and a natural number k , what is the largest size $N(k, g)$ of a collection of pairwise non-homotopic simple closed curves on S which pairwise intersect at most k times? Surprisingly, this question remains open even on the torus. A lemma due to Agol states that $N(k, 1) \leq 1 + k_p$, where k_p denotes the smallest prime greater than k . The prime number theorem then implies that $N(k, 1)$ is asymptotic to k . The Riemann Hypothesis would imply a bound on the error of $O(\sqrt{k} \log(k))$. Using combinatorial and elementary geometric techniques, we obtain this same bound. This is joint work with Jonah Gaster. (Received August 11, 2020)