Let $S_g$ denote a closed, connected, orientable surface of genus $g \geq 2$ and $C(S_g)$ be the complex of curves. In recent work of the presenter with Joan Birman and Dan Margalit (Efficient geodesics and an effective algorithm for distance, Mathematische Annalen December 2016) a new preferred finite set of geodesics between any two vertices of $C(S_g)$—efficient geodesics—was introduced. Efficient geodesics are different from the tight geodesics previously introduced by Masur and Minsky. Moreover, efficient geodesics yield an algorithm for determining the distance between two vertices of the complex of curves. While there already exist such algorithms, for example by Leasure, Shackleton, and Webb, this approach was, simple, and more effective for all distances accessible by computer.

In this preliminary report we discuss extending these earlier results to the complex of curves and the complex of arcs and curves for compact, connected, orientable surfaces with boundary. (Received July 19, 2017)