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**William W Menasco\*** (menasco@buffalo.edu), Department of Mathematics, University at Buffalo—SUNY, Buffalo, NY 14260. *Enhanced efficient geodesics in the complex of curves*. Preliminary report.

Let  $S_g$  denote a closed, connected, orientable surface of genus  $g \geq 2$  and  $\mathcal{C}(S_g)$  be the complex of curves. In recent work 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  $\mathcal{C}(S_g)$ , called *efficient geodesics*, was introduced. Efficient geodesics are different from the tight geodesics introduced by Masur and Minsky. Moreover, efficient geodesics yield an algorithm for determining the distance between two vertices of the complex of curves.

The existence of efficient geodesics is based upon the ability to always alter non-efficient edge-paths in  $\mathcal{C}(S)$  using two path surgeries—the *box* and *hexagon* surgeries. We will discuss generalizations of these two surgeries and how they can be used to further limit the behavior of geodesic edge-paths in the complex of curves. This is a preliminary report. (Received July 21, 2017)