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**Matthew B. Day\*** ([mattday@caltech.edu](mailto:mattday@caltech.edu)), Department of Mathematics 253-37, Caltech,  
Pasadena, CA 91125. *Topological simplification of maps between surfaces*. Preliminary report.

The stable commutator length (scl) of a 1-cycle  $c$  in a topological space  $X$  is essentially the infimum of the stabilized Euler characteristic of all surfaces mapping to  $X$  that virtually bound  $c$ . I consider the case where  $X$  is a surface, where I show that scl can be computed by taking the same infimum over a restricted class of maps. In particular, we only need maps that are local homeomorphisms away from finitely many branch points and half-twists. A corollary gives new lower bounds for scl on closed surfaces. In some examples these bounds are sharp and lead to new examples of extremal surfaces. (Received February 18, 2010)