1040-20-159 **A. Yu. Olshanskii*** (alexander.olshanskiy@vanderbilt.edu), 1326 Stevenson Center, Vanderbilt University, Nashville, TN 37240, and **M. V. Sapir**. *A quadratic-non-recursive oscillation of Dehn functions of groups.*

We construct a finitely presented group G with non-recursive but 'almost quadratic' Dehn function f_G. Thus, on the one hand, the algorithmic word problem is undecidable for G, and so G has a non-simply connected asymptotic cone; and on the other hand, f_G is bounded from above on the union of some arbitrary long intervals by a quadratic function, and therefore G has a simply connected asymptotic cone. (Recall that if a Dehn function f_G is majorized on an unbounded set by a subquadratic function, then f_G is at most linear.) (Received January 31, 2008)