## QUESTION

Complete Eskin's argument and fix what I wrote on page 7 of my lecture notes:

Let  $f \in C_{C}(\mathcal{L}_{2})$ , and let  $L \in \mathcal{L}_{2} \setminus \mathcal{L}'_{2}$ . Let t be so that  $a_{t}^{-1}L \in \mathcal{L}_{2}(\varepsilon)$ , and let

$$Q = Q(L) = a_t W_- W_0 W_+ a_t^{-1} L = \left(a_t W_- a_t^{-1}\right) W_0 \left(a_t W_+ a_t^{-1}\right) L.$$

Let T > 0 large. Show that if t is as above and sufficiently large, and if  $W_-, W_0$  and  $W_+$  are sufficiently small, it is possible to find for any  $\widetilde{L} \in Q$  tw intervals intervals  $I\left(\widetilde{L}\right), I\left(L\right) \subset \mathbb{R}$  so that

$$\left|I\left(\widetilde{L}\right)\right|, \left|I\left(L\right)\right| \ge T$$

and

$$\left|\frac{1}{\left|I\left(\widetilde{L}\right)\right|}\int_{I\left(\widetilde{L}\right)}f\left(u_{t}\widetilde{L}\right)dt-\frac{1}{\left|I\left(L\right)\right|}\int_{I\left(L\right)}f\left(u_{t}L\right)dt\right|<\frac{\varepsilon}{3}.$$