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**Alexander Yu. Olshanskii.** *Relative Subgroup Growth and Subgroup Distortion.* Preliminary  
report.

We study the connections between two asymptotic invariants of group embeddings, namely the relative growth of cyclic subgroups in finitely generated groups, and the corresponding distortion function of the embedding. In particular, when the distortion is non-recursive, the relative growth is at least almost quadratic. On the other hand, there exists a cyclic subgroup of a two generated group such that the distortion function associated to the embedding is not bounded above by any recursive function, and yet the relative growth is  $o(r^2)$ . (Received September 24, 2012)