1068-30-51 **Andrew Lorent*** (lorentaw@uc.edu), Mathematics Department, University of Cincinnati, Cincinnati, OH. *Functions whose symmetric part of gradient agree and a generalization of Reshetnyak's compactness Theorem.*

Abstract. Rigidity of functions whose gradient lies in a subject of the conformal matrices is a classic subject, the one of the earliest theorems being Liouville's Theorem that conformal mappings in R^3 are either affine or Mobius. There has been extensive work on developing a quantitative generalization of this result, one of the best known theorems has been Reshetnyak's compactness theorem that say if u_n is a weakly converging sequence in $W^{1,1}$ and $\int dist(Du, SO(n))dx- > 0$ then u_n convergence strongly in $W^{1,1}$ to an affine map whose gradient is a rotation. We reformulation this theorem as a special case of the question: What happens when to two sequences of functions that have increasingly similar symmetric part of gradient? We will provide a sharp answer to this question and consequently present a broad generalization of Reshetnak's theorem. (Received January 07, 2011)