

**Tails of optimal transport plans for regularly
varying probability measures**

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Abstract. For the basic case of L_2 optimal transport between two probability measures on a Euclidean space, the regularity of the coupling measure and the transport map in the tail regions of these measures is studied. For this purpose, Robert McCann's classical existence and uniqueness results are extended to a class of possibly infinite measures, finite outside neighbourhoods of the origin. For convergent sequences of pairs of such measures, the stability of the multivalued transport maps is considered, and a useful notion of locally uniform convergence of these maps is verified under light assumptions. Applied to regularly varying probability measures, these general results imply the existence of tail limits of the transport plan and the coupling measure, these objects exhibiting distinct types of homogeneity.

Joint work with Cees de Valk.