Abstract

In this paper the theorem of Radó-Kneser-Choquet is extended in two different ways to
multiply connected domains. One is a direct continuation of Kneser's idea and has nothing
to do with convexity; while the other asserts that a finitely connected domain can
be mapped harmonically with prescribed outer boundary correspondence onto a given
convex domain with suitable punctures. It is also shown that a domain containing infinity
admits a unique harmonic mapping, with standard normalization at infinity, onto
a punctured plane. For domains of connectivity n the dilatation of the canonical mapping
covers the unit disk exactly $2n$ times. Furthermore, no other normalized harmonic
mapping has the same dilatation.