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Quasisymmetric and bi-Lipschitz extensions on Euclidean spaces.

Let $E \subset \mathbb{R}^n$ and $f : E \rightarrow \mathbb{R}^n$ be a quasisymmetric (resp. bi-Lipschitz) map. When is it possible to extend f to a quasisymmetric (resp. bi-Lipschitz) self homeomorphism of \mathbb{R}^n ? For $n = 1$ we give a complete answer while for $n = 2$ we generalize previous extension results of Beurling, Ahlfors and Tukia to uniform domains with relatively connected boundary. For $n \geq 3$ we show that any quasisymmetric (resp. bi-Lipschitz) map $f : E \rightarrow \mathbb{R}^n$ of a totally disconnected set $E \subset \mathbb{R}^n$ with bounded geometry can be extended to a quasisymmetric (resp. bi-Lipschitz) self homeomorphism of \mathbb{R}^{n+1} . (Received June 27, 2016)