Koskela, P. and Wildrick K. (2008) “Errata to: Exceptional Sets for Quasiconformal Mappings in General Metric Spaces,”
International Mathematics Research Notices, Vol. 2008, Article ID rnn055, 2 pages.
doi:10.1093/imrn/rnn055

Errata to: Exceptional Sets for Quasiconformal Mappings in General Metric Spaces

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Theorem 1.5 in [1], while valid, is trivial. Indeed, the proof included therein establishes a much stronger result, which we now provide.

Theorem 1. For each integer $m \geq 1$ and real number $\epsilon > 0$, there is a homeomorphism $f : X \to Y$ of metric measure spaces and a set $E \subseteq X$ such that

(i) X is compact, quasiconvex, and Ahlfors 2-regular;
(ii) Y is compact and locally Ahlfors 2-regular off $f(E)$;
(iii) $(\log_3 2)/m \leq \dim_H(E) \leq (2\log_3 2)/m$, and $0 < \mathcal{H}^{\dim_H(E)}(E) < \infty$;
(iv) $H_f(x) = 1$ for all $x \in X \setminus E$;
(v) $f \notin W^{1,q}_{loc}(X; Y)$ for some $q < 2 - \dim_H(E) + \epsilon$.

□

Proof. We begin by determining the correct parameter n to use in the construction, and setting the value of q in condition (v).

Let the integer $m \geq 1$ and real number $\epsilon > 0$ be given. We note that m is not required to be larger than ϵ^{-1}. For any positive integer n, we define $q(n)$ and $\partial(n)$ as in equation (5.1) of [1]. We now fix an integer $n > m$ that is a multiple of m, and so large that $n^{-1/2} < \min\{\epsilon, (\log_3 2)/m\}$, and that inequalities (5.3) and (5.4) in [1] are satisfied.

Let X, Y, E, and f be as defined in Section 4 of [1] with parameters n and m as above. Propositions 4.1, 4.10, 4.11, and 4.12, now show that X, Y, f, and E satisfy conditions (i)–(iv) of Theorem 1. As $n^{-1/2} < \epsilon$, we see that $q < 2 - \dim_H(E) + \epsilon$. The remainder of the proof is precisely as in [1]. ■

References

[1] Koskela, P., and K. Wildrick. "Exceptional sets for quasiconformal mappings in general metric spaces." *International Mathematics Research Notices* (2008): doi:10.1093/imrn/rnn020.