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Erratum

Hyperbolicity, Sinks and Measure in One Dimensional Dynamics

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In our paper "Hyperbolicity, sinks and measure in one dimensional dynamics" (Commun. Math. Phys. **100**, 495–524 (1985)), the proof of the crucial Lemma I.3 is not complete. This proof is divided in two cases depending on whether $\Lambda = N$ or $\Lambda \neq N$. The case $\Lambda = N$ is correct. The proof of the case $\Lambda \neq N$ begins by taking an open interval $U \subset \Lambda^c$ having an endpoint x contained in Λ, and almost immediately we apply to x a Lemma (Lemma II.2) that requires x to be non-periodic. But a point x chosen as we did can be periodic, and, even more important, it is easy to produce examples of sets Λ satisfying the hypothesis of I.3 such that every $x \in \Lambda$ that is an endpoint of an open interval contained in Λ^c, is periodic. Therefore the proof must be extended in order to cover these cases. This can be done as follows, by a suitable combination of tools already developed in the paper.

We have to prove Lemma I.3 when $\Lambda \neq N$. We shall do it through the following steps.

We have to prove Lemma I.3 when $\Lambda \neq N$. First observe that it follows trivially from the definition that $(J, \{\varphi_n\})$ is a coherent sequence associated to Λ if and only if it is a coherent sequence associated to $\bigcap_{n \geqq 0} f^n(\Lambda)$. Follows from this remark that an interval J is adapted to Λ if and only if it is adapted to $\bigcap_{n \geqq 0} f^n(J)$ because the definition of interval adapted to a set Λ only involves the family of coherent sequences associated to Λ, that as we said, coincides with the family of coherent sequences associated to $\bigcap_{n \geqq 0} f^n(\Lambda)$.

Therefore it suffices to prove Lemma I.3 in the surjective case, i.e. when $f(\Lambda) = \Lambda$, because, once proved in this case, if we want to prove it in the general case of a compact set $\Lambda \neq N$ satisfying only $f(\Lambda) \subset \Lambda$, we apply the surjective case to $\bigcap_{n \geqq 0} f^n(\Lambda)$ (that obviously satisfies $f(\bigcap_{n \geqq 0} f^n(\Lambda)) = \bigcap_{n \geqq 0} f^n(\Lambda)$). This yields an interval J adapted to $\bigcap_{n \geqq 0} f^n(\Lambda)$) (and then, as explained above, adapted to Λ) satisfying the properties in Lemma I.3 for $\bigcap_{n \geqq 0} f^n(\Lambda)$. Since these properties only involve the family of coherent