Corrigendum to: The Density of Rational Functions in Markov Systems: A Counterexample to a Conjecture of D.J. Newman

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1 Corrigendum

The main result of [1] is correct as is the construction. However Lemma 4 does not hold in the supremum norm. If the norms in both Lemma 3 and Lemma 4 are taken as the L_1 norm on the appropriate intervals then both Lemmas hold (cf. references [3,7] of [2]). The proof of Theorem 2 now is modified as follows: with f as in the proof, for $-1 \leq x \leq 1$,

$$\left|\frac{\sum a_j \varphi_j}{\sum b_j \varphi_j} - f\right| < \varepsilon < 1$$

together with the normalization

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$$\left\| \sum b_j \varphi_j \right\|_{[-1,1]} = 1$$

imply

$$\left\| \sum a_j \varphi_j - \left(\sum b_j \varphi_j\right) f \right\|_{[-1,1]} < \varepsilon$$

and the rest of the proof proceeds essentially as before.

A somewhat simplified version of the results will appear in [1] but only for a particular choice of exponents.

References

[1] Borwein, P.B. and Erdelyi, T., *Polynomials and Polynomial Inequalities*, (Springer-Verlag, to appear).

[2] Borwein, P.B. and Shekhtman, B., *The density of rational functions in Markov systems: A counterexample to a conjecture of D.J. Newman* , Constructive Approx., **9**(1998), 105-11 .