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QUADRATIC/LINEAR RATIONAL SPLINE HISTOPOLATION PROBLEM

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Interpolation and histopolation problems are equivalent in the sense that, for a given problem of one type of them, there is the problem of the other type with the solutions related by certain procedures. This idea works well in the case of polynomial splines, while for rational splines the problems should be treated independently. It is known (see [1]) that for any strictly monotone data and consistent boundary values, there is a unique histopolating linear/linear rational spline of class C^1. Interpolating quadratic/linear splines are also well determined for any consistent data (see [2]). It occurs that this is not the case for quadratic/linear rational splines of class C^2 with given strictly convex histopolation data.

We will present a detailed position of the histopolation problem with quadratic/linear rational splines and give a suitable representation of these splines. An algorithm of the construction of these splines and preliminary results are also given.

REFERENCES

[1] M.Fischer, P.Oja. Monotonicity preserving rational spline histopolation. *J. Comput. Appl. Math.*, **175** 195–208, 2005.

[2] E. Ideon, P. Oja. Quadratic/linear rational spline interpolation. *Math. Model. Anal.*, **18** 250–259, 2013.