A Family of 4-points Dyadic High Resolution Subdivision Schemes

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Abstract:

By using temporary placeholders on a dense grid, we generalize the 4-point dyadic cubic Deslauriers-Dubuc scheme. Interpolated values require 2 steps to stabilize as they are first interpolated on a coarse scale through a tetradic filter and then on a finer scale using a dyadic filter. The interpolants are C^1 and can be chosen to reproduce polynomials of degree 4. These generalized interpolatory subdivision schemes have minimal support and no additional memory requirement.

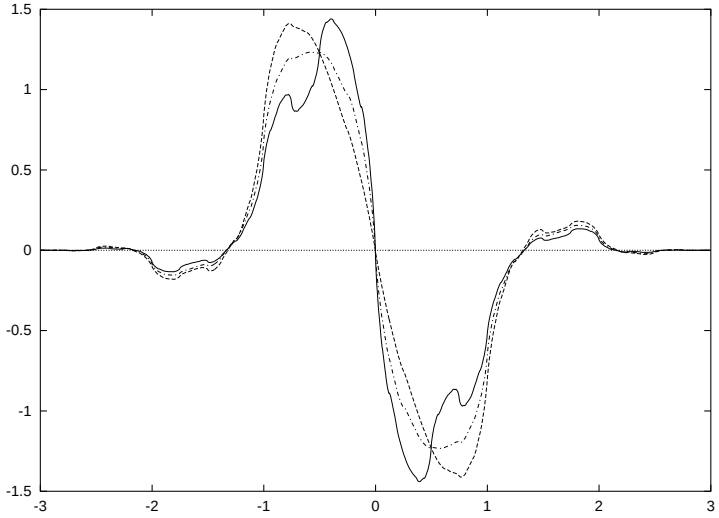

Fig. 1. First derivatives of the fundamental functions of three different 4−points dyadic high resolution subdivision schemes of order 3. One of the schemes (dot-dash curve) is the 4−points Deslauriers-Dubuc scheme.

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