

1 Correct LSP formulae

Calculation of p and q from vorbis floor 0 lsp coefficients, from section 6.2.3, step 3 in the specification.

If $m = \text{[floor0_order]}$ is odd:

$$p = \frac{(1 - \cos^2 \omega)^{(m-3)/2}}{2} \prod_{j=0}^{(m-3)/2} (\cos c_{2j+1} - \cos \omega)^2 \quad (1)$$

$$q = \frac{1}{2} \prod_{j=0}^{(m-1)/2} (\cos c_{2j} - \cos \omega)^2 \quad (2)$$

or, when m is even:

$$p = \frac{1 - \cos \omega}{2} \prod_{j=0}^{(m-2)/2} (\cos c_{2j+1} - \cos \omega)^2 \quad (3)$$

$$q = \frac{1 + \cos \omega}{2} \prod_{j=0}^{(m-2)/2} (\cos c_{2j} - \cos \omega)^2 \quad (4)$$

where c is the `[coefficients]` vector from packet decode.