Structure of matrix perturbation coefficients for anharmonic oscillators

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CORRIGENDUM

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It is not true that equation (42) holds for the case $s=0$ $(m=n)$ when $\gamma>0$. This result does not emerge from the structural analysis.

The correct recurrence relation for this case arises from equation (6), with the odd powers $k=2h+1$ replaced by the even powers $k=2h$. With $m=n$ in (6) we then have the reduced recurrence relation:

$$Q_\gamma^{2h}=(4\mu h)^{-1}\left(2(2h-1)\sum_{i+j=\gamma}E_iQ_j^{2(h-1)}+\alpha(h-1)(2h-1)(2h-3)Q_\gamma^{2(h-2)}\right.$$
$$\left.-2\sum_{t=2}^{\nu}A_t(2h+t-1)Q_{\gamma-1}^{2(h+t-1)}\right)\qquad \nu\geqslant 2\qquad h>0\qquad \gamma\geqslant 0$$

which, after an appropriate choice of constants, agrees with the Swenson and Danforth result.

What allows these elements to be defined at $s=0$ is that the Δ function in (6) with $m=n$ and $k=2h$ cannot vanish so long as $h>0$.

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