$r_{\text{max,scalar}} \in \mathcal{O}\left(q_{\text{s}}^2\right)$

$$
\begin{aligned}
& r_{\text{max,scalar}} && = r_{\text{max,vector}} \\
\Leftrightarrow \quad & q_{\text{s,min,from bound}}^2 && = q^{t^2/2+\mathcal{O}(t)} \\
\Leftrightarrow \quad & q_{\text{s,min,from bound}} && = q^{t^2/4+\mathcal{O}(t)} \\
\Rightarrow \quad & g_{\text{lower bound}} && = q_{\text{s,min,from bound}} - q_v = q^{t^2/4+\mathcal{O}(t)}
\end{aligned}
$$

$(\epsilon = 1, \ell = 1) - \mathcal{N}_{h=3,r,s=4}$

$$q^{t^2/4+\mathcal{O}(t)}$$

$(\epsilon = 1, \ell = 1) - N_{h,r,s}$

$$q^{\frac{\alpha-h+1}{(\alpha-1)(\alpha-h+2)(h-2)}t^2+\mathcal{O}(t)}$$

.