BE 3D growth rate

$$\left(G^{n+1} e^{ikp\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ikr\Delta x} - G^{n} \cdot e^{ikp\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ikr\Delta x}\right) / \Delta t$$

$$= \frac{\alpha}{\Delta x^2} G^{n+1} \Big(e^{ik(p-1)\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ikr\Delta x} + e^{ik(p+1)\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ikr\Delta x} +$$

$$e^{ikp\Delta x} \cdot e^{ik(q-1)\Delta x} \cdot e^{ikr\Delta x} + e^{ikp\Delta x} \cdot e^{ik(q+1)\Delta x} \cdot e^{ikr\Delta x} +$$

$$e^{ikp\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ik(r-1)\Delta x} + e^{ikp\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ik(r+1)\Delta x} +$$

$$-6 \cdot e^{ikp\Delta x} \cdot e^{ikq\Delta x} \cdot e^{ikr\Delta x} \Big)$$

$$G^{n+1} - G^{n} = \frac{\alpha \Delta t}{\Delta x^2} G^{n+1} \left(3e^{-ik\Delta x} + 3e^{ik\Delta x} - 6 \right)$$

$$G^{n+1}\left(1 - 3C\left(e^{-ik\Delta x} + e^{ik\Delta x} - 2\right)\right) = G^{n}$$

$$\frac{G^{n+1}}{G^{n}} = \frac{1}{1 - 3 \cdot 2C(\cos(k\Delta x) - 1)}$$

cos goes from 1 to -1, so rate goes from 1 to $\boxed{\frac{1}{1+12C}}$.