The allowed region of integer solutions for the exponents v_0 and $\bar{v}_0$ in the ansatz for the $(m_1, m_2, m_3) = (m, m, 0)$ amplitudes can be visualized as follows:

$$[scale = 1][- >](-2, 0) - -(6, 0)node[right]$$

v$_0$; [-¿] (0, -2) – (0, 6) node[above] $\bar{v}_0$;
[dashed, red, thick] (-1, -1) – (3, 5); [dashed, purple, thick] (3, -1) – (-1, 5);
in -1,...,3 (,-2pt) – (,2pt); at (,-.2) ;
in -1,...,5 (-2pt,) – (2pt,); at (-.2,) ;
[black] (0,3) circle (1.5pt) node[left] $(\bar{v}_0, v_0) = (3, 0)$; [black] (0,4) circle (1.5pt) node[left] $(\bar{v}_0, v_0) = (4, 0)$; [black] (0,5) circle (1.5pt) node[left] $(\bar{v}_0, v_0) = (5, 0)$;
in 1,2 in 0,1,2 [black] (,) circle (1.5pt); in 3,4,5 [black] (,) circle (1.5pt);
[red] at (-1.2, 5.2) $S_3 - s_1 + \bar{s}_1 + s_2 - \bar{s}_2$; [red] at (4.2, -1.2) $S_3 + s_1 - \bar{s}_1 - s_2 + \bar{s}_2$; [blue] at (.7, 5.8) $\min(2\bar{s}_1, 2s_2)$; [blue] at (5.8, 3.5) $\min(2s_1, 2\bar{s}_2)$;
[gray!30] (0,0) rectangle (3,3); (1)

This region represents the set of all integer pairs $(v_0, \bar{v}_0)$ that satisfy the constraints given by the inequalities.