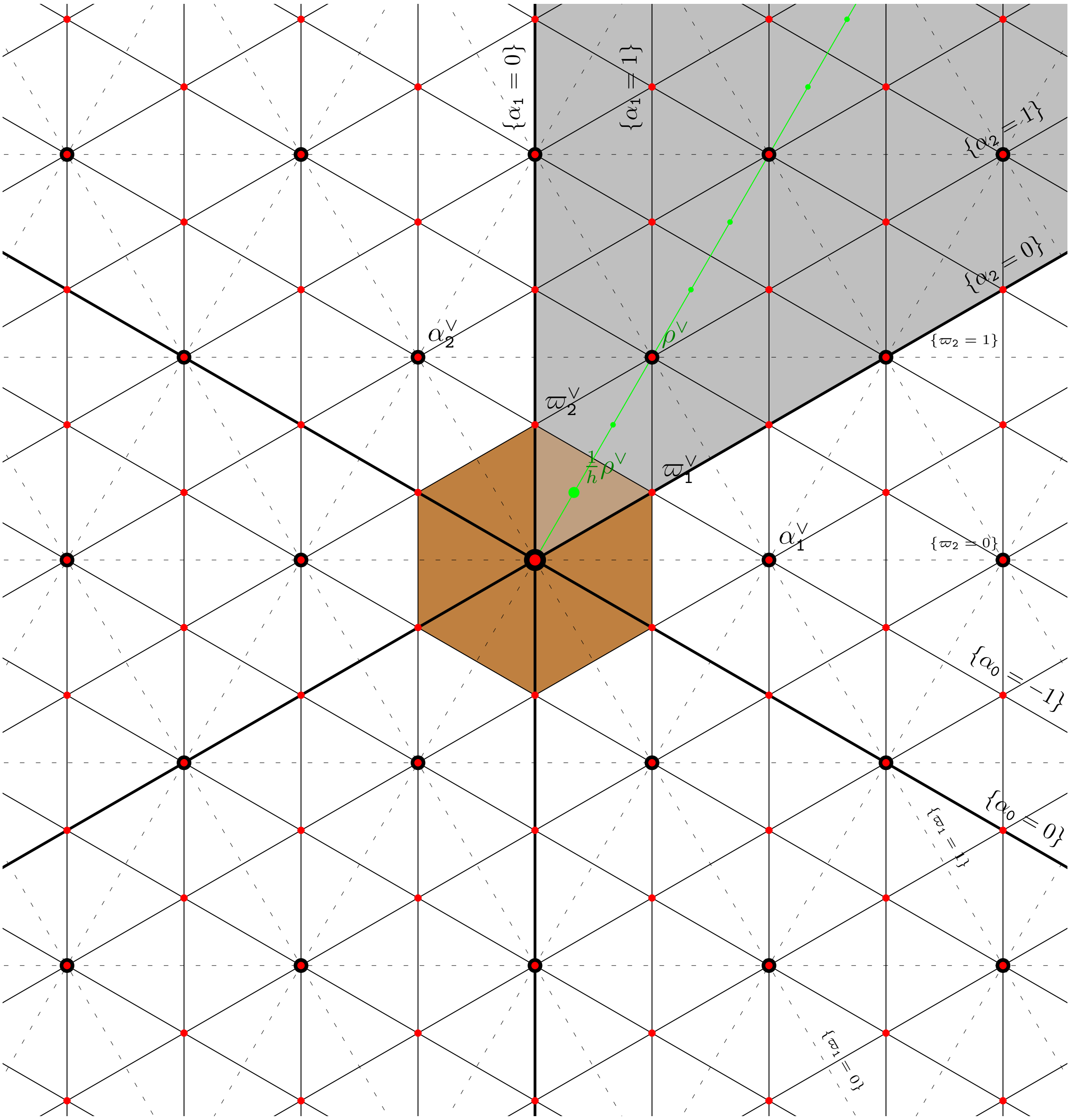
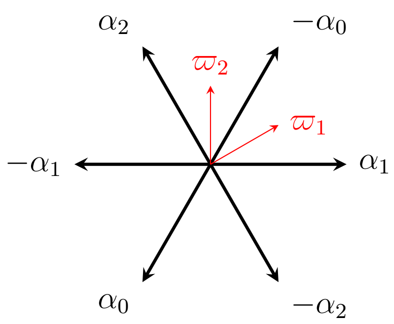
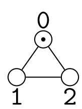
(A_2) The following diagram is set in the coroot/coweight plane (or the imaginary part of the Lie algebra of a maximal torus):

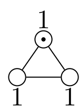


In red, the coweight lattice, in black the coroot lattice. In brown a fundamental domain for the coroot lattice. In gray the Weyl ("coWeyl?") chamber. At their intersection, the fundamental alcove.



Simple roots: $\alpha_1 = (1, 0)$ and $\alpha_2 = (-\frac{1}{2}, \frac{\sqrt{3}}{2})$. Highest root $-\alpha_0 = \alpha_1 + \alpha_2 = (\frac{1}{2}, \frac{\sqrt{3}}{2})$, with coefficients $m_1 = 1$ and $m_2 = 1$. Associated coroots: $\alpha_1^\vee = (2, 0)$, $\alpha_2^\vee = (-1, \sqrt{3})$.
Coxeter number $h = 1 + m_1 + m_2 = 3$.
Fundamental weights: $\varpi_1 = (\frac{1}{2}, \frac{\sqrt{3}}{6})$, $\varpi_2 = (0, \frac{\sqrt{3}}{3})$. Fundamental coweights: $\varpi_1^\vee = (1, \frac{\sqrt{3}}{3})$, $\varpi_2^\vee = (0, \frac{2\sqrt{3}}{3})$.
Vertices of the fundamental alcove: $v_0 = (0, 0)$, $v_1 = \varpi_1^\vee = (\frac{1}{2}, \frac{\sqrt{3}}{6})$ and $v_2 = \varpi_2^\vee = (0, \frac{2\sqrt{3}}{3})$.
Coweyl vector $\rho^\vee = \varpi_1^\vee + \varpi_2^\vee = (1, \sqrt{3})$.

Dynkin labeling 

and m_i coefficients 

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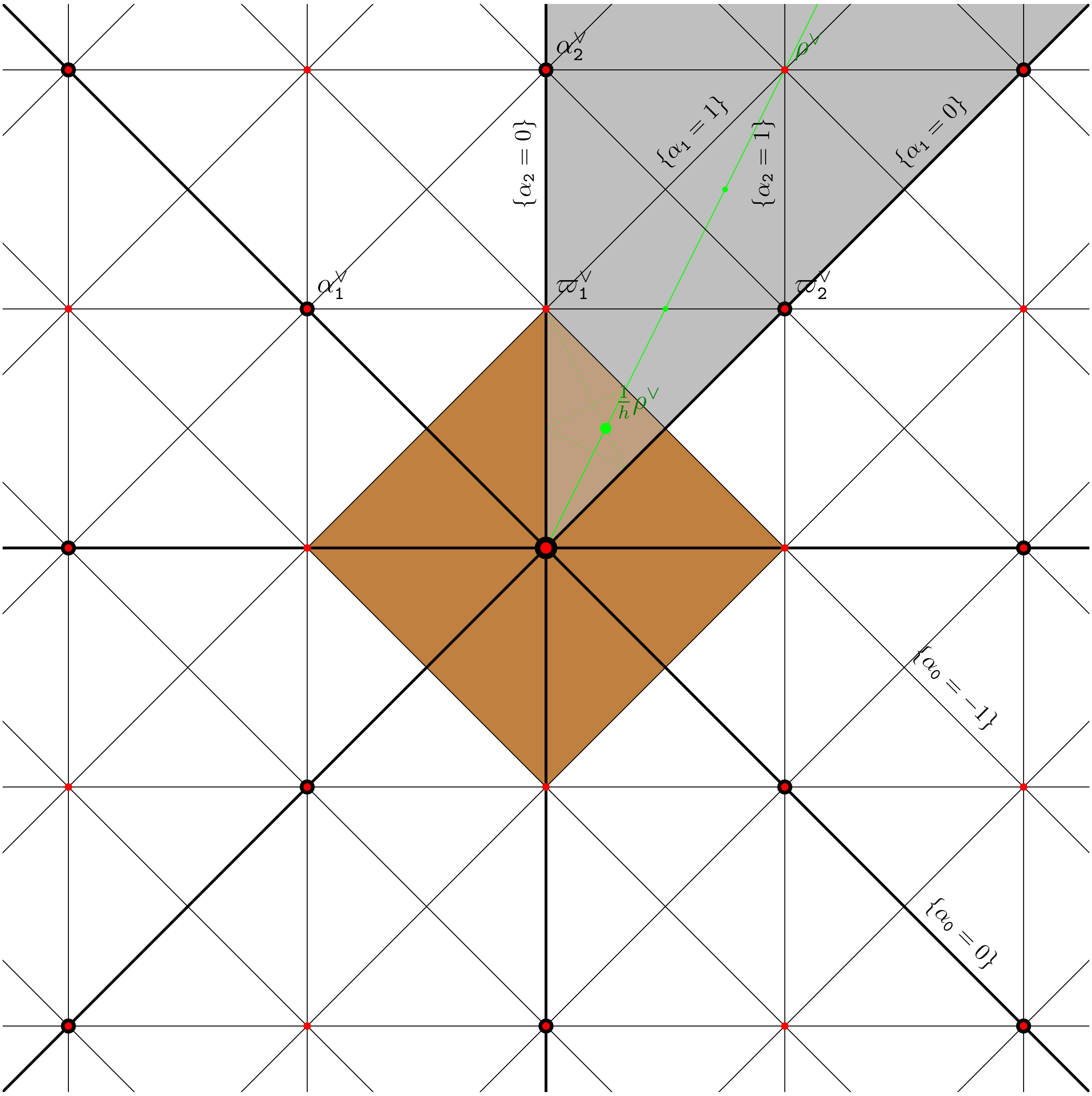
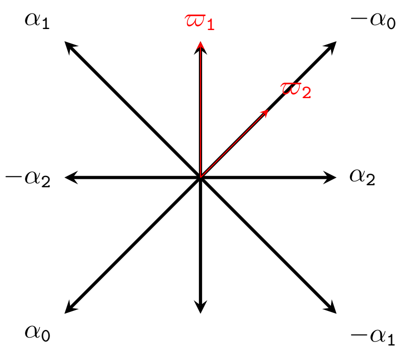
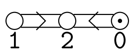
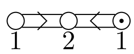
(B_2) The following diagram is set in the coroot/coweight plane (or the imaginary part of the Lie algebra of a maximal torus):



In red, the coweight lattice, in black the coroot lattice. In brown a fundamental domain for the coroot lattice. In gray the Weyl ("coWeyl?") chamber. At their intersection, the fundamental alcove.



Simple roots: $\alpha_1 = (-1, 1)$ (long) and $\alpha_2 = (1, 0)$ (short). The full set of positive roots are: $\alpha_1 = (-1, 1)$, $\alpha_2 = (1, 0)$, $\alpha_1 + \alpha_2 = (0, 1)$, $\alpha_1 + 2\alpha_2 = (1, 1)$ (highest root $-\alpha_0$, with coefficients $m_1 = 1$ and $m_2 = 2$). Associated coroots: $\alpha_1^\vee = (-1, 1)$, $\alpha_2^\vee = (2, 0)$.
Coxeter number $h = 1 + m_1 + m_2 = 4$.
Fundamental weights: $\varpi_1 = (0, 1)$, $\varpi_2 = (\frac{1}{2}, \frac{1}{2})$. Fundamental coweights: $\varpi_1^\vee = (0, 1)$, $\varpi_2^\vee = (1, 1)$.
Vertices of the fundamental alcove: $v_0 = (0, 0)$, $v_1 = \varpi_1^\vee = (0, 1)$ and $v_2 = \frac{1}{2}\varpi_2^\vee = (\frac{1}{2}, \frac{1}{2})$.
Coweyl vector $\rho^\vee = \varpi_1^\vee + \varpi_2^\vee = (1, 2)$.
Dynkin labeling 

and m_i coefficients 

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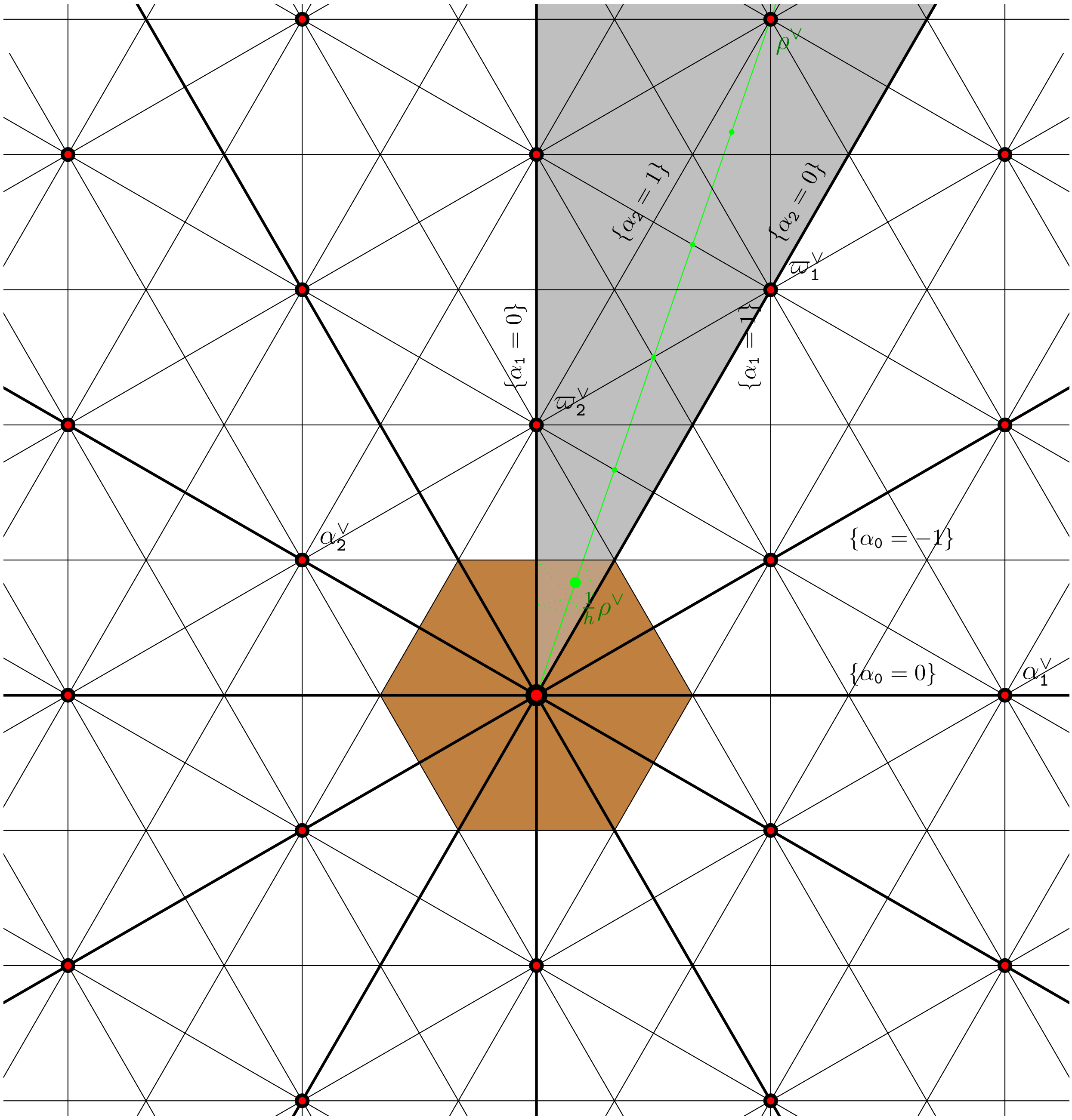
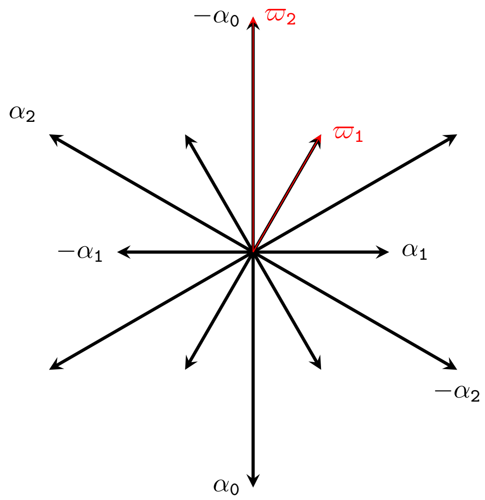
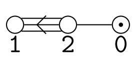
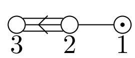
(G_2) The following diagram is set in the coroot/coweight plane (or the imaginary part of the Lie algebra of a maximal torus):



In red, the coweight lattice, which coincides with the coroot lattice in black. In brown a fundamental domain for the coroot lattice. In gray the Weyl ("coWeyl?") chamber. At their intersection, the fundamental alcove.



Simple roots: $\alpha_1 = (1, 0)$ (short) and $\alpha_2 = (-\frac{3}{2}, \frac{\sqrt{3}}{2})$ (long). Highest root $-\alpha_0 = 3\alpha_1 + 2\alpha_2 = (0, \sqrt{3})$, with coefficients $m_1 = 3$ and $m_2 = 2$. Associated coroots: $\alpha_1^\vee = (2, 0)$, $\alpha_2^\vee = (-1, \frac{\sqrt{3}}{3})$.
Coxeter number $h = 1 + m_1 + m_2 = 6$.
Fundamental weights: $\varpi_1 = (\frac{1}{2}, \frac{\sqrt{3}}{2})$, $\varpi_2 = (0, \sqrt{3})$. Fundamental coweights: $\varpi_1^\vee = (1, \sqrt{3})$, $\varpi_2^\vee = (0, \frac{2\sqrt{3}}{3})$.
Vertices of the fundamental alcove: $v_0 = (0, 0)$, $v_1 = \frac{1}{3}\varpi_1^\vee = (\frac{1}{3}, \frac{\sqrt{3}}{3})$ and $v_2 = \frac{1}{2}\varpi_2^\vee = (0, \frac{\sqrt{3}}{3})$.
Coweyl vector $\rho^\vee = \varpi_1^\vee + \varpi_2^\vee = (1, \frac{5\sqrt{3}}{3})$.
Dynkin labeling 

and m_i coefficients 

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