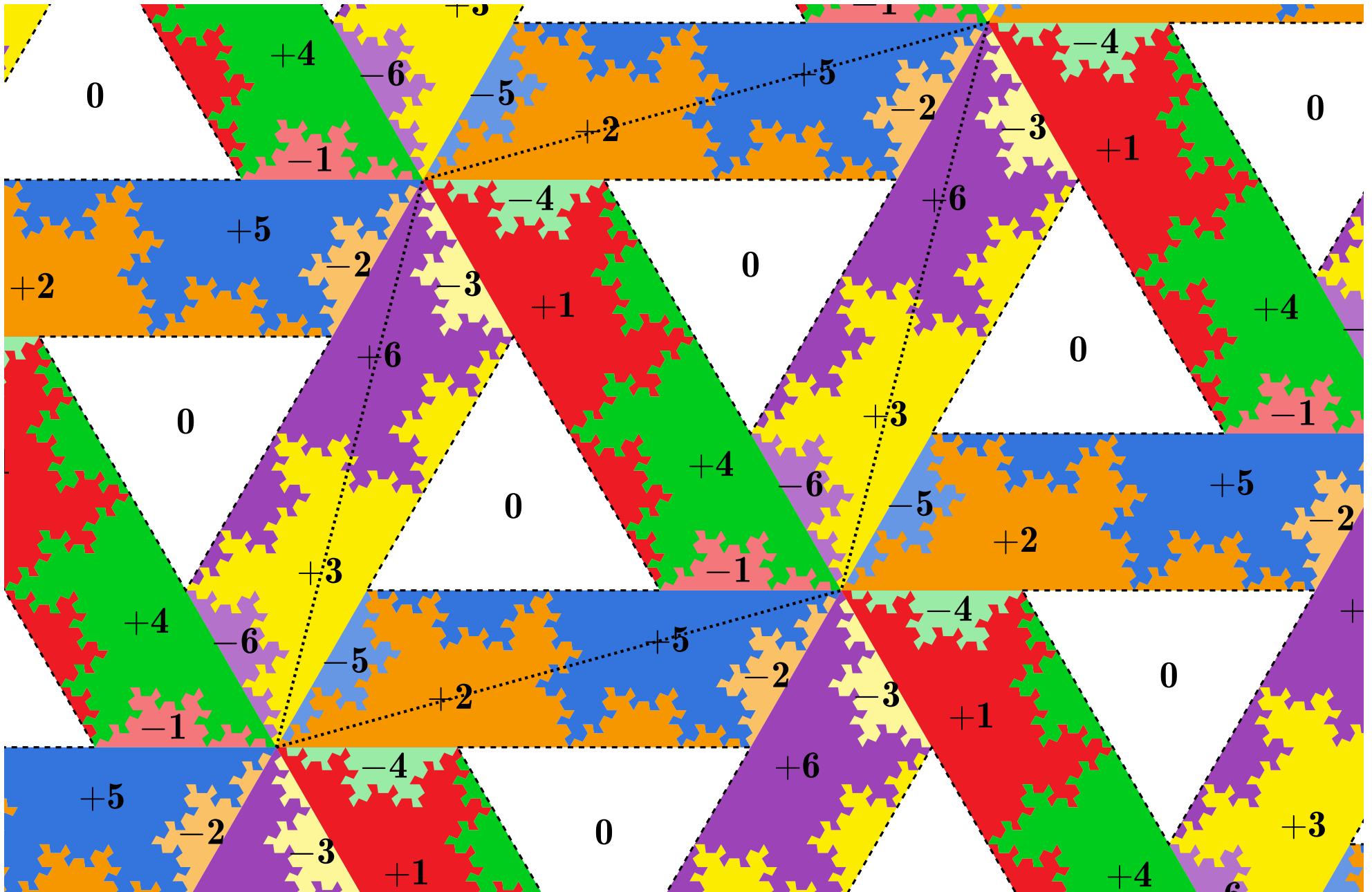


A CONSTRUCTION OF THE HAT TILINGS BY A MARKOV PARTITION

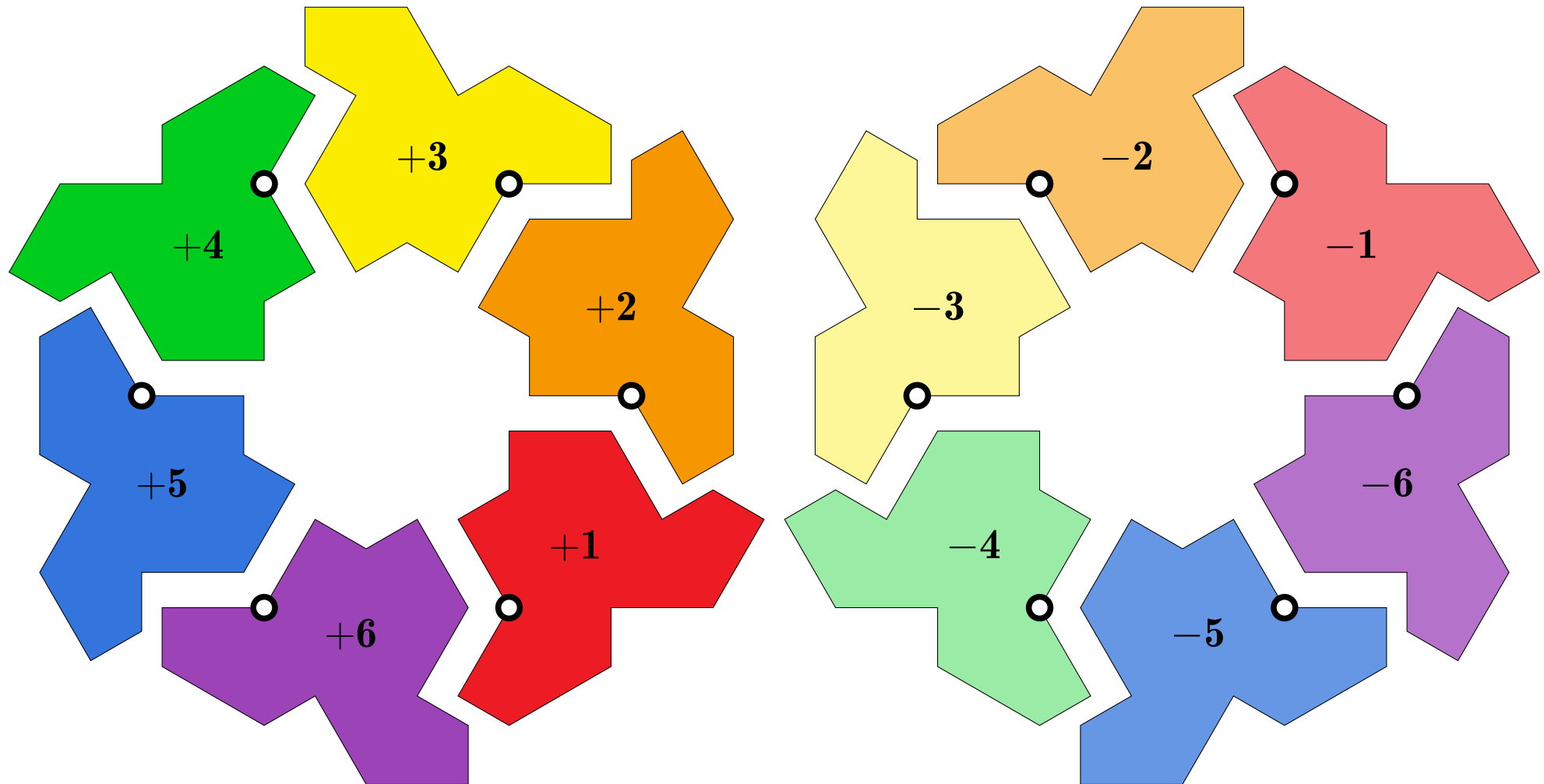
by ©Peter Selinger (<https://www.mathstat.dal.ca/~selinger/>) and ©Sébastien Labbé (<http://www.slabbe.org/>)

1 unit = $2\sqrt{3}$ cm

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Selinger's choice for the anchors:



Key observation: in a tiling, these anchors live on the lattice $\mathbb{Z}[\omega]$ with $\omega = \exp(\pi i/3)$.

The anchors of two distinct tiles do not coincide.

Thus every tiling of the plane by copies of the hat can be described as a map

$$\mathbb{Z}[\omega] \rightarrow \{-6, -5, \dots, 5, 6\}$$

where 0 means that *no tile is anchored at that vertex*.