Starting with a configuration of coins, slide one coin at a time such that the coin ends up in a position where it is tangent to two other coins.

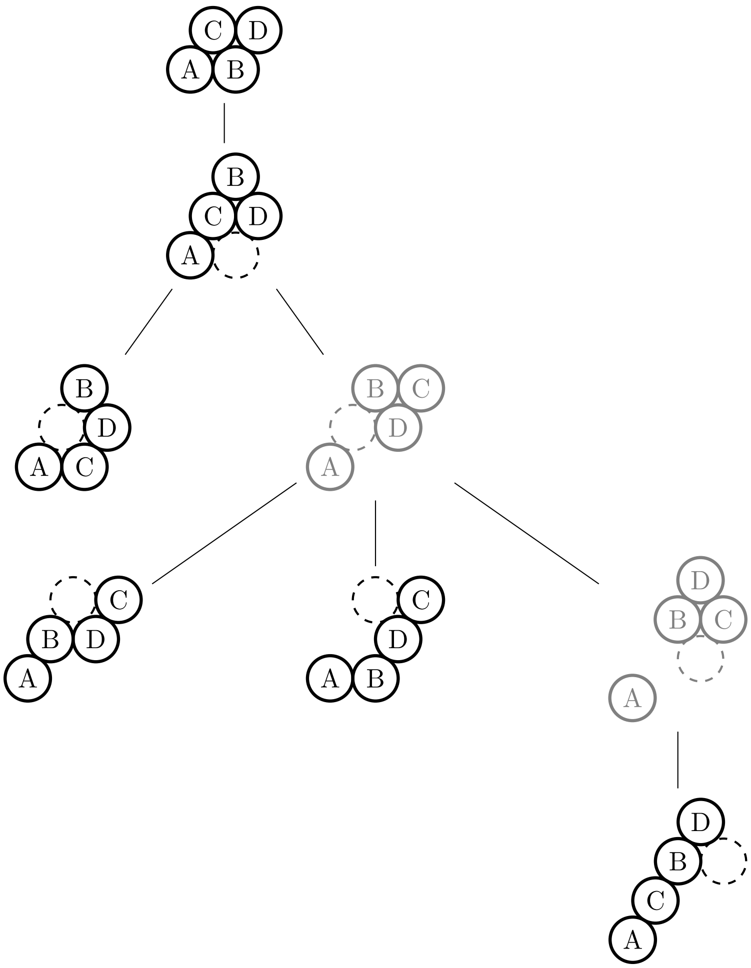

Figure 1: All connected configurations of 4 coins. Six out of the seven possible polyhexes are present.

Question. In general, given n coins starting in a “spiral” configuration, how many polyhexes can be reached by the above procedure?

Related.

1. What if this is done with hyperspheres in $\mathbb{R}^d$?
2. Is there a sensible way to categorize non-connected configurations?
3. Which polyhexes require the greatest amount of moves?

References.

`https://en.wikipedia.org/wiki/Polyhex_(mathematics)`

`https://www.youtube.com/watch?v=_pP_C7HEy3g`

Martin Gardner, SciAm, Feb 1966