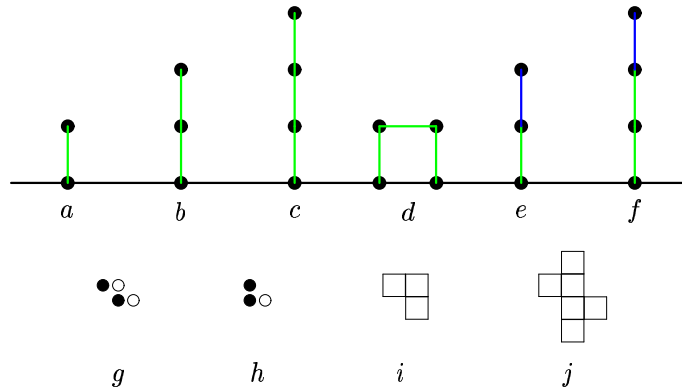
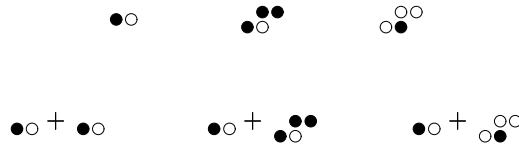


1. Draw a partial order of the following Hackenbush, Clobber and Domineering positions. (Note that some of the positions are equivalent.)



2. Determine whether each of the following six Clobber positions is a win for Left, Right, first or second.



What can we say about sums of games that are first-player wins? Can you find two first-player wins (not necessarily Clobber positions) whose sum is still a first-player win? (Hint: Consider a 2×2 Domineering square in conjunction with one of the Clobber positions above.)

3. Fix a particular (partial) hackenbush position G , with one edge e unspecified. Four different positions can be obtained depending on whether edge e is blue, green, red or missing. (If missing, note that other edges might be disconnected from the ground and therefore removed as well.) Give the partial order on these four games, and prove that the partial order is independent of the position. As always, induction is preferred over arguments like, “and then right continues to...”