SKETCH RISK SOLN

Draw graph to represent the game.
Each region is a node (your regions only)
Nbors are connected by an edge.

Convert to a new flow graph

1) new node s and t
2) duplicate each original node v to create v'
3) edge from s and v with capacity noArmies − 1
4) edge from v to v' with capacity noArmies
5) edge from v' to all nbor vs with capacity noArmies
6) edge from border v to t with capacity ∞.
7) max-flow!
8) max(flows on border edges) + 1 = answer

Modification 1

1. change #6 so that capacity of edges to t is 1 (and not α)

(2) Use the following algo

1. Let k = # of border regions
2. i = 1
3. do
   (a) value of flow, residual G = max flow algo
   (b) set capacities of edges to t in residual Graph to 1
   (c) i++
   until value of flow != k
4. i is your answer