

HW-2 SOLUTIONS

Prob. 1

(a) Let us denote Colonel Blotto as "B"  
and Folk Militia as "M".

B has 3 regiments  $\Rightarrow$  B's strategies:  $(3,0), (2,1), (1,2), (0,3)$

III, M has 2 regiments  $\Rightarrow$  M's strategies:  $(2,0), (1,1), (0,2)$ .

Say,  $(b,m)$  represents a strategy profile where

(\*) B deploys  $(b, 3-b)$

(\*) M deploys  $(m, 2-m)$ .

Let  $U_i$  represent the utility obtained by B due to deployments in post- $i$ .

$$\Rightarrow U_1(b,m) = \begin{cases} m+1 & \text{if } b > m \\ 0 & \text{if } b = m \\ -b-1 & \text{if } b < m. \end{cases}$$

and 
$$U_2(b,m) = \begin{cases} (2-m)+1, & \text{if } 3-b > 2-m, \text{ i.e. } \boxed{b+m < 1} \\ = 3-m \\ 0 & , \text{ if } b+m = 1 \\ -(3-b)-1, & \text{if } b+m > 1. \\ = -4+b \end{cases}$$