
Algorithm 1: Implementation of bandit algorithms with missing data

Input: trial size n ; probability of success p_k ; probability of missingness p_k^m .

Initialization: The initial prior $x_{k,0} = (s_{k,0}, f_{k,0})$. **while** $t < n$ **do**

Decision for allocation based on the current state

$x_{k,t} = (s_{k,0} + S_{k,t}, f_{k,0} + F_{k,t});$

if *observed* ($p_k^m < u, u \sim U_{[0,1]}$) **then**

$M_{k,t} += 0.$

if *failure* ($p_k < u, u \sim U_{[0,1]}$) **then**

$F_{k,t} += 1;$

$S_{k,t} += 0;$

else

$S_{k,t} += 1;$

$F_{k,t} += 0;$

end

else

$M_{k,t} += 1; F_{k,t} += 0; S_{k,t} += 0;$

end

Update $x_{k,t}$ with $(S_{k,t}, F_{k,t})$ for the next allocation

end

Output: $(S_{k,n}, F_{k,n}, M_{k,n})$
