

1. [From Tanenbaum's text: modified] A student majoring in anthropology and minoring in computer science has embarked on a research project to see if African baboons can be taught about deadlocks. He locates a deep canyon and fastens a rope across it, so the baboons can cross hand-over-hand. Several baboons can cross at the same time, provided that they are all going in the same direction. Eastward moving and westward moving baboons cannot get onto the rope at the same time, because it is impossible for one baboon to climb over another one while suspended over the canyon. If a baboon wants to cross the canyon, it must check to see that no other baboon is currently crossing in the opposite direction. Write a solution to this problem using semaphores. Do not worry about a series of eastward moving baboons holding up the westward moving baboons indefinitely. Hint: It is similar to one of the two models we discussed during the lecture.