

## Lab 4

### Synchronization Problem

This is a synchronization problem called a Rendezvous. As is often done in computer security and systems, we will anthropomorphize our problem by using example of people doing things, and then you'll have to write programs representing their interaction.

Alice makes two statements:

A1: "My first statement appears before Bob's second statement."

A2: "This is Alice's second statement."

Bob makes two statements:

B1: "My first statement appears before Alices's second statement."

B2: "This is Bob's second statement."

It is up to you to ensure that Alice and Bob are telling the truth. We will represent them in Xinu with two processes, A and B. Speaking equates to doing output (printf). Thus, you must determine how to use semaphores to ensure that any of the following legal sequences of statements occurs (**your program must be able to produce any of the four**, but the sequence must **not be in any sense hardcoded**):

A1 - B1 - A2 - B2

A1 - B1 - B2 - A2

B1 - A1 - A2 - B2

B1 - A1 - B2 - A2

The following is an example of legal output from your program:

"My first statement appears before Bob's second statement."

"My first statement appears before Alices's second statement."

"This is Bob's second statement."

"This is Alice's second statement."

The following is an example of illegal output:

“My first statement appears before Bob’s second statement.”

“This is Alice’s second statement.”

“My first statement appears before Alices’s second statement.”

“This is Bob’s second statement.”

Create a process for Alice, and a process for Bob, and coordinate them using semaphores to achieve rendezvous. It’s called a rendezvous because Alice and Bob “meet” in between their first and second statements.