Three components are connected to form a system as shown in the diagram above. Because the components in the 2-3 subsystem are connected in parallel, that subsystem will function if at least one of the two individual components will function. For the entire system to function component 1 must function and so must the 2-3 subsystem.

The experiment consists of determining a condition of each component [S for (success) for a functioning component and F (failure) for a nonfunctioning component. In responding to the questions below to indicate a component functions write S followed by the number of the component. For example component 1 functions S1. Likewise to indicate that a component is nonfunctioning write F followed by the number of the component. For example if component 2 fails to function write F2.

1. List the outcomes in event A that exactly two components function.
   \[A = \{\{S1,S2,F3\},\{S1,F2,S3\},\{F1,S2,S3\}\}\]

2. List the outcomes in event C that the system functions.
   \[C = \{\{S1,S2,F3\},\{S1,F2,S3\},\{S1,S2,S3\}\}\]

3. List the outcomes in the following events.
   A. \(C' = \{\{F1,F2,F3\},\{F1,F2,S3\},\{F1,S2,F3\},\{F1,S2,S3\}\}\)
   B. \(A \cup C = \{\{S1,S2,F3\},\{S1,F2,S3\},\{F1,S2,S3\},\{S1,S2,S3\}\}\)
   C. \(A \cap C = \{\{S1,S2,F3\},\{S1,F2,S3\}\}\)