Analysis: Ticket Trouble

Ticket Trouble: Analysis

There are two minor hurdles to deal with in this problem:

- Two tickets with the same numbers (e.g., both `1 2`) can never both be in the same row, so they cannot both contribute to the maximum value that is the answer. Therefore, it is safe to eliminate or ignore one ticket from each such pair. You can sort the tickets so that duplicates end up next to each other, or use a data structure such as a set to eliminate them.
- A ticket might have the same number twice (e.g., `1 1`). This can throw off an attempted solution that just counts how many times each number appears anywhere in any ticket.

A possible solution for the Small is to note that each of the **F** tickets might either be correct as is, or it might have its numbers reversed. You can try all $2^{\mathbf{F}}$ possible scenarios and find the largest number of friends that ever end up together in the same row. The only tricky part is that duplicate tickets can cause illegal scenarios that put two friends in the same seat, so you must either check for these scenarios, or remove the duplicates in advance as mentioned earlier.

An even simpler solution that works for the Large is to determine the number of tickets that could possibly be in each row. For each ticket (ignoring one ticket from each duplicate pair), check the two numbers. If they are the same, add 1 to the count for that row number. If they are different, add 1 to the count for each of those row numbers. The maximum among these numbers is the answer. Note that in this solution, we do not need to explicitly consider any particular arrangement of the friends, and the solution would also work if the problem had asked about columns instead of rows.