

## Math 344 - Day 3

### 1. Discussing proof technique.

- $$\text{FRR} = \text{FRR}$$
- $\Rightarrow \text{IFRR} = \text{FRR}$  (Rule 2)
- $\Rightarrow \text{R}^3\text{FRR} = \text{FRR}$  (Rule 3)
- $\Rightarrow (\text{RRR})\text{FRR} = \text{FRR}$
- $\Rightarrow \text{RR}(\text{RFR})\text{R} = \text{FRR}$  (Rule 1)
- $\Rightarrow \text{R}(\text{RFR}) = \text{FRR}$  (Rule 6 & Rule 1)
- $\Rightarrow \text{RF} = \text{FRR}$  (Rule 6)

*Conjecture: Each symmetry appears exactly once in each row of the table.*

2. Can we prove this conjecture using our rules? If not, can we come up with another rule to add to the list that will allow us to prove the conjecture?

Hint: This conjecture can be broken down into two parts, work on one at a time.

- Each symmetry appears at most once in each row.
- Each symmetry appears at least once in each row.