Problem 1:

T = Tywin is truthful

C = Catelyn is truthful

G = Gregor is truthful

Q = Only one is telling the truth

Notes:

* T true iff C false – either, Gregor said “Only one of us is telling the truth” or he didn’t.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| T | C | G | Q | Conclusion |
| 1 | 1 | 1 | 0 | Contradiction T=C |
| 1 | 1 | 0 | 0 | Contradiction T=C |
| 1 | 0 | 1 | 0 | Truthful person told lie |
| 1 | 0 | 0 | 1 | Liar told truth |
| 0 | 1 | 1 | 0 | Possible solution\* |
| 0 | 1 | 0 | 1 | Possible solution\*\* |
| 0 | 0 | 1 | 1 | Contradiction T=C |
| 0 | 0 | 0 | 0 | Contradiction T=C |

\*In this case Gregor must have told different truth ex)”2 of us are truth tellers”

\*\*In this case Gregor tells a lie. Ex) “All of us are truth-tellers”

Conclusion: We don’t know if Gregor is a truth-teller or a liar. We know Catelyn is a truth-teller. We know Tywin is a liar.

Problem 2:

Assumption: Gurmp != Pvlork

|  |  |  |
| --- | --- | --- |
| Gurmp | Plvork | [Gurmp==Yes]==Pvorlk? |
| Yes | No | [Yes]==No? No |
| No | Yes | [No]==Yes? No |

Conclusion: Baby Yoda is evil dark side liar!!