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TUGAS 2

"I am either clever or lucky". "I am not lucky". "If I am lucky, then I will win the lottery". **Lead to the conclusion if I am lucky, then I am clever.**

- Let p = I am clever,
- Let q = I am lucky,
- Let r = I will win the lottery
- I am either clever or lucky: $p \vee q$
- I am not lucky: $\neg q$
- If I am lucky, then I will win the lottery: $q \rightarrow r$
- **If I am lucky, then I am clever: $q \rightarrow p$**

Analysis:

1. $\neg q$ (Second hypothesis)
2. $p \vee q$ (First hypothesis)
3. p (Disjunctive syllogism from step 2)
4. $q \rightarrow r$ (Third hypothesis)
5. Cannot take result from step 4 (There is no connection)
6. $q \rightarrow p$ (Conclusion Hypothesis)
7. $\neg q \vee p$ (Equivalen from step 6)
8. Since we conclude that p is always true, we actually do not need q premis, since the result will always be the same

Summary : The conclusion if I am lucky, then I am clever is logically true, since the implication p is always true from the third step, that means even though the premis is q or $\neg q$ it will always be valid regardless of premis. So we can take two conclusion

- If I am lucky, then I am clever
- If I am not lucky, then I am clever

So the conclusion is in one of the result, **that means that the conclusion If I am lucky, then I am clever is valid.**

If we take another close look from the equivalen $\neg q \vee p$, since p is true, and we get $\neg q$ from the first step, that means $\neg q \vee p$ is valid and thus $q \rightarrow p$ is also valid