

Logic Exercises for Week 2:

Establish whether the following are true using the resolution rule of inference:

- $a \rightarrow d$ follows from the KB given by $\{a \rightarrow b, b \rightarrow c, c \rightarrow d\}$
- $q \vee s$ follows from the KB given by $\{p \rightarrow q, r \rightarrow s, p \vee r\}$
- $\neg p \vee \neg r$ follows from the KB given by $\{p \rightarrow q, r \rightarrow s, \neg q \vee \neg s\}$
- Consider the following collection of rules. Use their formulation in propositional logic to establish that the rule:

IF the battery is good AND the spark plugs are good AND there is gas AND there are good tyres THEN the car will move.

follows from:

- IF the battery is good THEN there is electricity
- IF there is electricity and the spark plugs are good THEN the spark plugs will fire
- IF the spark plugs fire and there is gas THEN the engine will run
- IF the engine runs and there are good tyres THEN the car will move