

Propositional Logic (Examples)

3.1

- If train is late, and no taxi at station, then John late for meeting.
John not late. Train did arrive late. Then taxis must be at station.
- If raining, and Jane has no umbrella, then she will get wet.
Jane not wet. It is raining. Then Jane must have umbrella.
- Above arguments are quite similar in LOGIC. In developing logic we can ignore meaning of sentences.

p	Train is late	}	Its raining
q	Taxis at station		Jane has umbrella
r	Late for meeting		Jane is wet

$$((p \wedge \neg q) \rightarrow r) \wedge (\neg r) \wedge (p) \rightarrow q.$$

- p, q, r are propositions that are either TRUE or FALSE.
- Propositions represent "declarative sentences"
 - Sum of 3 & 8 equals 11.
 - Every even number is sum of two primes.
 - All Martians like pizza.
- Non declarative sentences: Happy New Year!
- Certain declarations are considered "atomic" (atomic prop.)