

# Yohanes Dimer's Problems

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4.A.  $\sim(p \vee q)$

| $\rightarrow P$ | $Q$ | $P \vee Q$ | $\sim(P \vee Q)$ |
|-----------------|-----|------------|------------------|
| B               | B   | B          | S                |
| B               | S   | B          | S                |
| S               | B   | B          | S                |
| S               | S   | S          | B                |

B.  $p \Rightarrow (\sim p \wedge q)$

| $\rightarrow P$ | $Q$ | $P \wedge Q$ | $\sim(P \wedge Q)$ | $P \Rightarrow (\sim P \wedge Q)$ |
|-----------------|-----|--------------|--------------------|-----------------------------------|
| B               | B   | B            | S                  | S                                 |
| B               | S   | S            | B                  | B                                 |
| S               | B   | S            | B                  | B                                 |
| S               | S   | S            | B                  | B                                 |

C.  $((p \Rightarrow q) \wedge (q \Rightarrow (p \vee r))) \Rightarrow (p \Rightarrow r)$

| $\rightarrow P$ | $Q$ | $R$ | $P \Rightarrow Q$ | $P \vee R$ | $P \Rightarrow R$ | $Q \Rightarrow (P \vee R)$ | $\wedge$ | $\Rightarrow (P \Rightarrow R)$ |
|-----------------|-----|-----|-------------------|------------|-------------------|----------------------------|----------|---------------------------------|
| B               | B   | B   | B                 | B          | B                 | B                          | B        | B                               |
| B               | S   | B   | S                 | B          | B                 | B                          | S        | B                               |
| B               | B   | S   | B                 | B          | S                 | B                          | B        | B                               |
| B               | S   | S   | S                 | B          | S                 | B                          | S        | B                               |
| S               | B   | B   | B                 | B          | B                 | B                          | B        | B                               |
| S               | S   | B   | B                 | S          | B                 | B                          | B        | S                               |
| S               | B   | S   | B                 | B          | B                 | B                          | B        | B                               |
| S               | S   | S   | B                 | S          | B                 | B                          | B        | S                               |

$$1D. \sim(q \wedge \sim r) \Leftrightarrow (\sim p \Rightarrow r)$$

| $\rightarrow$ | P | Q | R | $\sim R$ | $Q \wedge \sim R$ | $\sim(q \wedge \sim r)$ | $\sim p$ | $\sim p \Rightarrow r$ |
|---------------|---|---|---|----------|-------------------|-------------------------|----------|------------------------|
|               | B | B | B | S        | S                 | B                       | S        | B                      |
|               | B | B | S | B        | B                 | S                       | S        | B                      |
|               | B | S | B | S        | S                 | B                       | S        | B                      |
|               | B | S | S | B        | S                 | B                       | S        | B                      |
|               | S | B | B | S        | S                 | B                       | B        | S                      |
|               | S | B | S | B        | B                 | S                       | B        | B                      |
|               | S | S | B | S        | S                 | B                       | B        | S                      |
|               | S | S | S | B        | S                 | B                       | B        | B                      |

$$\sim(q \wedge \sim r) \Leftrightarrow (\sim p \Rightarrow r)$$

B  
B  
B  
B  
S  
B  
S  
B

$$E. (p \Leftrightarrow \sim q) \Rightarrow ((\sim p \vee r) \wedge q)$$

| $\rightarrow$ | P | Q | R | $\sim Q$ | $p \Leftrightarrow \sim q$ | $\sim p$ | $\sim p \vee r$ | $\sim p \vee r \wedge q$ |
|---------------|---|---|---|----------|----------------------------|----------|-----------------|--------------------------|
|               | B | B | B | S        | S                          | S        | B               | B                        |
|               | B | B | S | S        | S                          | S        | S               | S                        |
|               | B | S | B | B        | B                          | S        | B               | S                        |
|               | B | S | S | B        | B                          | S        | S               | S                        |
|               | S | B | B | S        | B                          | B        | B               | B                        |
|               | S | B | S | S        | B                          | B        | B               | B                        |
|               | S | S | B | B        | S                          | B        | B               | S                        |
|               | S | S | S | B        | S                          | B        | B               | B                        |



$$(p \Leftrightarrow \sim q) \Rightarrow ((\sim p \vee r) \wedge q)$$

B

B

S

S

B

B

B

B

B

5. A. Modus Tollens

B. Modus Ponens

C. Modus Silogisme

6. A. Premis 1 =  $P \Rightarrow Q$

Premis 2 =  $Q \Rightarrow R$

Premis 3 = P

Kesimpulan = Tanah menjadi licin (R)

B. Premis 1 =  $P \Rightarrow Q$

Premis 2 =  $Q \Rightarrow R$

Premis 3 =  $\sim R$

Kesimpulan = Paryo tidak rajin bekerja ( $\sim P$ )