

Opgave 5.31(g) $p \wedge (q \vee r) \vdash (p \wedge q) \vee (p \wedge r)$

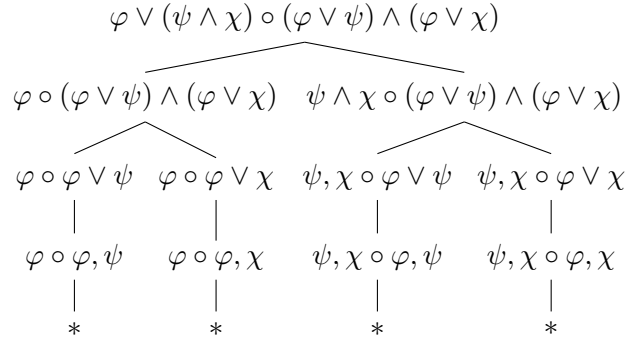
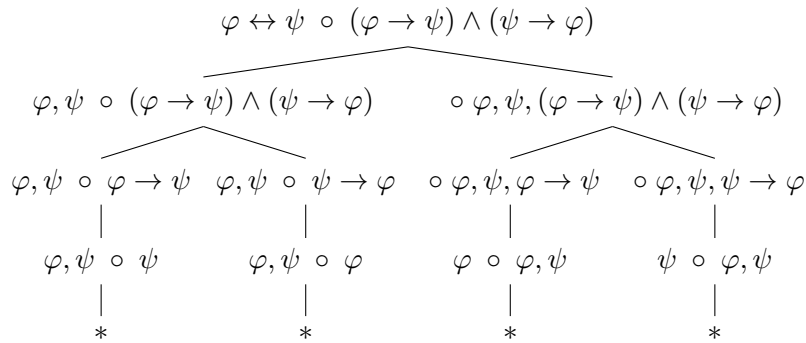
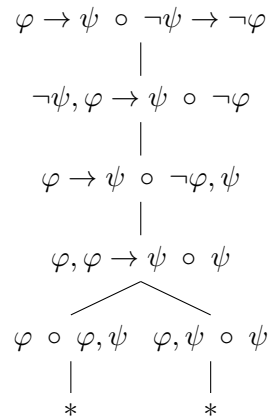
| | | |
|----|--------------------------------|-------------------|
| 1 | $p \wedge (q \vee r)$ | ass |
| 2 | p | $\wedge E, 1$ |
| 3 | $(q \vee r)$ | $\wedge E, 1$ |
| 4 | q | ass |
| 5 | $(p \wedge q)$ | $\wedge I, 2, 4$ |
| 6 | $(p \wedge q) \vee (q \vee r)$ | $\vee I, 5$ |
| 7 | r | ass |
| 8 | $(p \wedge r)$ | $\wedge I, 2, 7$ |
| 9 | $(p \wedge q) \vee (q \vee r)$ | $\vee I, 8$ |
| 10 | $(p \wedge q) \vee (q \vee r)$ | $\vee I, 1, 6, 9$ |

Opgave 5.32(2) $p \wedge (q \wedge r) \vdash r \wedge p$

| | | |
|---|-------------------------|------------------|
| 1 | $p \wedge (q \wedge r)$ | ass |
| 2 | p | $\wedge E, 1$ |
| 3 | $(q \wedge r)$ | $\wedge E, 1$ |
| 4 | r | $\wedge E, 3$ |
| 5 | $(r \wedge p)$ | $\wedge I, 2, 4$ |

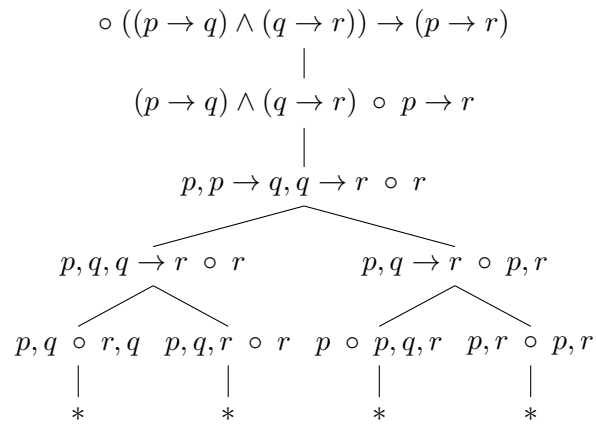
(3) $p \rightarrow (q \wedge r), q \rightarrow s, p \vdash s$

| | | |
|---|------------------------------|-----------------------|
| 1 | $p \rightarrow (q \wedge r)$ | ass |
| 2 | $q \rightarrow s$ | ass |
| 3 | p | ass |
| 4 | $(q \wedge r)$ | $\Rightarrow E, 1, 3$ |
| 5 | q | $\wedge E, 4$ |
| 6 | s | $\Rightarrow E, 2, 5$ |

Opgave 5.33(2) $\varphi \vee (\psi \wedge \chi); (\varphi \vee \psi) \wedge (\varphi \vee \chi)$ **Opgave 5.37**(2) $\varphi \leftrightarrow \psi; (\varphi \rightarrow \psi) \wedge (\psi \rightarrow \varphi)$ (3) $\varphi \rightarrow \psi; \neg\psi \rightarrow \neg\varphi$ 

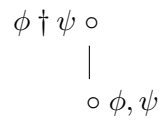
Opgave 5.38

$$(3) ((p \rightarrow q) \wedge (q \rightarrow r)) \rightarrow (p \rightarrow r)$$

**Opgave 5.53**

Geef de semantische tableauregels voor de Quine dolk \dagger .

- \dagger - links



- \dagger - rechts

