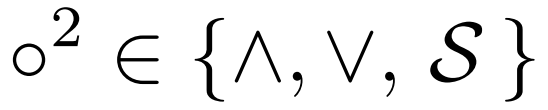
$$\Phi, \Psi \quad ::= \quad \top \quad | \quad \bot \quad | \quad p \quad | \quad \circ^1 \Phi \quad | \quad \Phi \circ^2 \Psi$$



$$(\sigma, i) \models p \, if \, f \, \sigma_i(p) =$$

$$(\sigma, i) \models \neg\Phi if f(\sigma, i) \not\models \Phi$$

$(\sigma, i) \models \Phi \wedge \Psi if f (\sigma, i) \models \Phi and (\sigma, i) \models \Psi$

$(\sigma, i) \models \Phi \vee \Psi if f(\sigma, i) \models \Phi or (\sigma, i) \models \Psi$

$$(\sigma, i) \models \ominus \Phi iff i > 0 and (\sigma, i-1) \models \Phi$$

$$(\sigma, i) \models \diamondminus \Phi \mathit{if} \; f \exists j \in [0, i].(\sigma, j) \models \Psi$$

$$(\sigma, i) \models \boxminus \Phi i f f \forall j \in [0, i].(\sigma, j) \models \Psi.$$

$(\sigma, i) \models \Box_f \Phi i f f \forall j \in [i, n-1].(\sigma, j) \models \Phi$

$(\sigma, i) \models \Phi \, \mathcal{S} \, \Psi if f \exists j \in [0, i].(\sigma, j) \models \Psi and \forall k \in [j+1, i].(\sigma, k) \models \Phi$