Definition of model: An SC-model, $\mathscr{M}$, is an ordered triple $\langle \mathscr{W}, \preceq, \mathscr{I} \rangle$, where:

- $\mathscr{W}$ is a nonempty set ("worlds")
- $\mathscr{I}$ is a two-place function that assigns either 0 or 1 to each sentence letter relative to each $w \in \mathscr{W}$ ("interpretation function")
- $\preceq$ is a three-place relation over $\mathscr{W}$ ("nearness relation")
- The valuation function $V_{\mathscr{M}}$ for $\mathscr{M}$ (see below) and $\preceq$ satisfy the following conditions:
    - for any $w \in \mathscr{W}$: $\preceq_w$ is strongly connected in $\mathscr{W}$
    - for any $w \in \mathscr{W}$: $\preceq_w$ is transitive
    - for any $w \in \mathscr{W}$: $\preceq_w$ is anti-symmetric
    - for any $x, y \in \mathscr{W}$: $x \preceq_x y$ ("base")
    - for any SC-wff, ϕ, provided $V_{\mathscr{M}}(\phi, v) = 1$ for at least one $v \in \mathscr{W}$, then for every $z \in \mathscr{W}$, there's some $w \in \mathscr{W}$ such that $V_{\mathscr{M}}(\phi, w) = 1$, and such that for any $x \in \mathscr{W}$, if $V_{\mathscr{M}}(\phi, x) = 1$ then $w \preceq_z x$ ("limit")

(For any o, $\preceq_o$ is the binary relation resulting from fixing o as $\preceq$'s third argument. A binary relation R is strongly connected in set A iff for each $u, v \in A$, either Ruv or Rvu, and anti-symmetric iff $u = v$ whenever both Ruv and Rvu.)

Definition of valuation: Where $\mathscr{M}$ ($= \langle \mathscr{W}, \preceq, \mathscr{I} \rangle$) is any SC-model, the SC-valuation for $\mathscr{M}$, $V_{\mathscr{M}}$ is defined as the two-place function that assigns either 0 or 1 to each SC-wff relative to each member of $\mathscr{W}$, subject to the following constraints, where α is any sentence letter, ϕ and ψ are any wffs, and w is any member of $\mathscr{W}$:

$$V_{\mathscr{M}}(\alpha, w) = \mathscr{I}(\alpha, w)$$
$$V_{\mathscr{M}}(\sim\phi, w) = 1 \text{ iff } V_{\mathscr{M}}(\phi, w) = 0$$
$$V_{\mathscr{M}}(\phi \rightarrow \psi, w) = 1 \text{ iff either } V_{\mathscr{M}}(\phi, w) = 0 \text{ or } V_{\mathscr{M}}(\psi, w) = 1$$
$$V_{\mathscr{M}}(\Box\phi, w) = 1 \text{ iff for any } v \in \mathscr{W}, V_{\mathscr{M}}(\phi, v) = 1$$
$$V_{\mathscr{M}}(\phi \,\Box\!\!\rightarrow \psi, w) = 1 \text{ iff for any } x \in \mathscr{W}, \text{IF } [V_{\mathscr{M}}(\phi, x) = 1 \text{ and for any } y \in \mathscr{W} \text{ such that } V_{\mathscr{M}}(\phi, y) = 1, x \preceq_w y] \text{ THEN: } V_{\mathscr{M}}(\psi, x) = 1$$

Lewis's semantics: Like Stalnaker's semantics except:

- antisymmetry and limit are not assumed
- the base condition is now: for any x, y, if $y \preceq_x x$, then $x = y$
- the truth condition for the $\Box\!\!\rightarrow$ is now: $LV_{\mathscr{M}}(\phi \,\Box\!\!\rightarrow \psi, w) = 1$ iff EITHER ϕ is true in no worlds, OR: there is some world, x, such that $LV_{\mathscr{M}}(\phi, x) = 1$ and for all y, if $y \preceq_w x$, then $LV_{\mathscr{M}}(\phi \rightarrow \psi, y) = 1$