9.2.18.2

~~$(\forall x)(P$~~ Utilizând o strategie sau rafinare a rezoluției demonstrați deducția.

$(\forall x)(P(x) \to R(x)), (\forall y)(R(y) \to Q(y)), P(a),$

$P(a) \overset{?}{\vdash} (\exists z)\, Q(z)$

$U_1 = (\forall x)(P(x) \to R(x)) \equiv$

$\equiv U_1 = (\forall x)(\neg P(x) \lor R(x)) = U_1^P$

$U_1^S = (\forall x)(\neg P(x) \lor R(x))$

$U_1^{Sg} = \neg P(x) \lor R(x) = U_1^C = C_1$

$U_2 = (\forall y)(R(y) \to Q(y)) \equiv$

$\equiv U_2 = (\forall y)(\neg R(y) \lor Q(y)) = U_2^P$

$U_2^S = (\forall y)(\neg R(y) \lor Q(y))$

$U_2^{Sg} = \neg R(y) \lor Q(y) = U_2^C = C_2$

$U_3^C = P(a) = C_3$

$U_4^C = P(a) = C_4$

$V = (\exists z)\, Q(z) \to \neg V = \neg((\exists z)\, Q(z)) \Rightarrow$

$\Rightarrow \neg V \equiv (\forall z)\, \neg Q(z)$

$(\neg V)^{Sg} = \neg Q(z) = (\neg V)^C = C_5$

$S = \{ (1)\ \neg P(x) \lor (2)\ R(x),\ (3)\ \neg R(y) \lor (4)\ Q(y),\ (5)\ P(a),\ (6)\ P(b),\ (7)\ \neg Q(z) \}$

$Rez_{\theta}^{pr}(C_1, C_3) = (2)\ R(a) = C_6$

$\theta = [x \leftarrow a]$

$Rez_{\lambda}^{pr}(C_2, C_6) = (4)\ Q(a) = C_7$

$\lambda = [y \leftarrow a]$

$Rez_{\phi}^{pr}(C_5, C_7) = \square \xrightarrow{TCC}$ S este inconsistentă

$\phi = [z \leftarrow a]$

$\rightarrow (\forall x)(P(x) \rightarrow R(x)), (\forall y)(R(y) \rightarrow Q(y)), P(a), P(b) \vdash (\exists z)\, Q(z)$