

701 – term with color alternations in clause which are not present in interpolant

$$\frac{\frac{P(x, f(x)) \vee B \quad P(a, y) \vee \neg B}{P(x, f(x)) \vee P(a, y) \mid B}}{P(a, f(a)) \mid B\sigma}$$

(can produce e.g. n color alternations with predicates P of arity $n + 1$)

702 – Φ -term in Ψ -literal which isn't in the interpolant straight away

$$\frac{\frac{\frac{P(x) \vee Q(x) \vee B \quad \neg B \vee Q(y) \vee R(y)}{P(x) \vee Q(x) \vee Q(y) \vee R(y) \mid B}}{P(x) \vee Q(x) \vee R(x) \mid B} \quad \neg R(a)}{P(a) \vee Q(a) \mid B}$$

$R(a)$ is a colored literal and hence not in the interpolant
 $Q(a)$ on the other hand will end up there

703 – in LI, term does not actually occur as it is lifted due to containing single var

LI:

$$\frac{\frac{\frac{Q(g(x, y_1)) \vee P(x) \quad \neg Q(z)}{P(x) \mid Q(g(x, y_1))} \quad \frac{P(x) \mid \forall z_{g(x, y_1)} Q(z_{g(x, y_1)}) \quad \neg P(f(u, y_2)) \vee P(u)}{P(u) \mid \forall z_{g(x, y)} Q(z_{g(x, y_1)}) \dots P(f(u, y_2))}}{P(u) \mid \exists z_{f(u, y_2)} \left(\forall z_{g(x, y)} Q(z_{g(x, y_1)}) \dots P(z_{f(u, y_2)}) \right) \quad \neg P(a)}{\frac{\square \mid \exists z_{f(u, y_2)} \left(\forall z_{g(x, y)} Q(z_{g(x, y_1)}) \dots P(z_{f(u, y_2)}) \right) \dots P(a)}{\square \mid \forall z_a \left(\exists z_{f(u, y_2)} \left(\forall z_{g(x, y)} Q(z_{g(x, y_1)}) \dots P(z_{f(u, y_2)}) \right) \dots P(z_a) \right)}}$$

corresponding PI:

$$\frac{\frac{\frac{Q(g(x, y_1)) \vee P(x) \quad \neg Q(z)}{P(x) \mid Q(g(x, y_1))} \quad \frac{\neg P(f(u, y_2)) \vee P(u)}{P(u) \mid Q(g(f(u, y_2), y_1)) \dots P(f(u, y_2)) \quad \neg P(a)}}{\frac{\square \mid Q(g(f(a, y_2), y_1)) \dots P(f(a, y_2)) \dots P(a)}{\square \mid \forall z_a \exists z_{f(a, y_2)} \forall z_{g(f(a, y_2), y_1)} \left(Q(z_{g(f(a, y_2), y_1)}) \dots P(z_{f(a, y_2)}) \dots P(z_a) \right)}}$$