

# thm\_2EquantHeuristics\_2EGUESS\_RULES\_EQUIV (TMQYXYe6qZhbn5sjpWJLNeAVnZVG4UGt1MZ)

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**Definition 1** We define `c_2Emin_2E_40` to be  $\lambda A. \lambda P \in 2^A. \text{if } (\exists x \in A. p \text{ (ap } P \ x)) \text{ then (the } (\lambda x. x \in A \wedge p \ x) \text{ of type } \iota \Rightarrow \iota.$

**Definition 2** We define `c_2Emin_2E_3D` to be  $\lambda A. \lambda x \in A. \lambda y \in A. \text{inj\_o } (x = y)$  of type  $\iota \Rightarrow \iota.$

**Definition 3** We define `c_2Ebool_2ET` to be  $(\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^2)) (\lambda V0x \in 2. V0x)) (\lambda V1x \in 2. V1x))$

**Definition 4** We define `c_2Ebool_2E_3F` to be  $\lambda A. \lambda 27a : \iota. (\lambda V0P \in (2^{A-27a}). (\text{ap } V0P \ (\text{ap } (\text{c_2Emin_2E_40 } A \ 27a))))$

**Definition 5** We define `c_2Ebool_2E_21` to be  $\lambda A. \lambda 27a : \iota. (\lambda V0P \in (2^{A-27a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))$

**Definition 6** We define `c_2Ebool_2EF` to be  $(\text{ap } (\text{c_2Ebool_2E_21 } 2) (\lambda V0t \in 2. V0t)).$

**Definition 7** We define `c_2Emin_2E_3D_3D_3E` to be  $\lambda P \in 2. \lambda Q \in 2. \text{inj\_o } (p \Rightarrow q)$  of type  $\iota.$

**Definition 8** We define `c_2Ebool_2E_7E` to be  $(\lambda V0t \in 2. (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D_3D_3E } V0t) (\lambda V1t \in 2. V1t)) (\lambda V2t \in 2. V2t))))$

**Definition 9** We define `c_2EquantHeuristics_2EGUESS_FORALL_GAP` to be  $\lambda A. \lambda 27a : \iota. \lambda A. \lambda 27b : \iota. \lambda V0i \in (A. 27b^{A-27a}). (\text{ap } (\text{c_2Ebool_2E_21 } A. 27b) (\lambda V2v \in A. 27b. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))$

**Definition 10** We define `c_2EquantHeuristics_2EGUESS_EXISTS_GAP` to be  $\lambda A. \lambda 27a : \iota. \lambda A. \lambda 27b : \iota. \lambda V0i \in (A. 27b^{A-27a}). \lambda V1P \in (2^{A-27b}). (\text{ap } (\text{c_2Ebool_2E_21 } A. 27b) (\lambda V2v \in A. 27b. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))$

**Definition 11** We define `c_2EquantHeuristics_2EGUESS_FORALL_POINT` to be  $\lambda A. \lambda 27a : \iota. \lambda A. \lambda 27b : \iota. \lambda V0i \in (A. 27b^{A-27a}). \lambda V1P \in (2^{A-27b}). (\text{ap } (\text{c_2Ebool_2E_21 } A. 27a) (\lambda V2fv \in A. 27a. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))$

**Definition 12** We define `c_2EquantHeuristics_2EGUESS_EXISTS_POINT` to be  $\lambda A. \lambda 27a : \iota. \lambda A. \lambda 27b : \iota. \lambda V0i \in (A. 27b^{A-27a}). \lambda V1P \in (2^{A-27b}). (\text{ap } (\text{c_2Ebool_2E_21 } A. 27a) (\lambda V2fv \in A. 27a. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))$

**Definition 13** We define `c_2EquantHeuristics_2EGUESS_FORALL` to be  $\lambda A. \lambda 27a : \iota. \lambda A. \lambda 27b : \iota. \lambda V0i \in (A. 27b^{A-27a}). (\text{ap } (\text{c_2EquantHeuristics_2EGUESS_EXISTS_POINT } A. 27a) (\lambda V1P \in (2^{A-27b}). (\text{ap } (\text{c_2Ebool_2E_21 } A. 27a) (\lambda V2fv \in A. 27a. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))))$

**Definition 14** We define `c_2EquantHeuristics_2EGUESS_EXISTS` to be  $\lambda A. \lambda 27a : \iota. \lambda A. \lambda 27b : \iota. \lambda V0i \in (A. 27b^{A-27a}). (\text{ap } (\text{c_2EquantHeuristics_2EGUESS_EXISTS_POINT } A. 27a) (\lambda V1P \in (2^{A-27b}). (\text{ap } (\text{c_2Ebool_2E_21 } A. 27a) (\lambda V2fv \in A. 27a. (\text{ap } (\text{c_2Emin_2E_3D } (2^{A-27a})) (\lambda V0t \in 2. V0t)) (\lambda V1t \in 2. V1t))))))$

**Definition 15** We define  $c\_2Ebool\_2E\_5C\_2F$  to be  $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c\_2Ebool\_2E\_21 2) (\lambda V2t \in$

**Definition 16** We define  $c\_2Ebool\_2E\_2F\_5C$  to be  $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c\_2Ebool\_2E\_21 2) (\lambda V2t \in$

Assume the following.

$$True \tag{1}$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \tag{2}$$

Assume the following.

$$(\forall V0t \in 2.(False \Rightarrow (p V0t))) \tag{3}$$

Assume the following.

$$\forall A\_27a.nonempty A\_27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A\_27a.(p V0t)) \Leftrightarrow (p V0t))) \tag{4}$$

Assume the following.

$$(\forall V0t \in 2.(((True \wedge (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \wedge True) \Leftrightarrow (p V0t)) \wedge (((False \wedge (p V0t)) \Leftrightarrow False) \wedge (((p V0t) \wedge False) \Leftrightarrow False) \wedge (((p V0t) \wedge (p V0t)) \Leftrightarrow (p V0t)))))) \tag{5}$$

Assume the following.

$$(\forall V0t \in 2.(((True \Rightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Rightarrow True) \Leftrightarrow True) \wedge (((False \Rightarrow (p V0t)) \Leftrightarrow True) \wedge (((p V0t) \Rightarrow (p V0t)) \Leftrightarrow True) \wedge ((p V0t) \Rightarrow False) \Leftrightarrow (\neg(p V0t)))))) \tag{6}$$

Assume the following.

$$((\forall V0t \in 2.((\neg(\neg(p V0t))) \Leftrightarrow (p V0t)) \wedge (((\neg True) \Leftrightarrow False) \wedge ((\neg False) \Leftrightarrow True)))) \tag{7}$$

Assume the following.

$$\forall A\_27a.nonempty A\_27a \Rightarrow (\forall V0x \in A\_27a.(\forall V1y \in A\_27a.((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \tag{8}$$

Assume the following.

$$(\forall V0t \in 2.(((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow (\neg(p V0t))) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow (\neg(p V0t)))))) \tag{9}$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(\forall V2t3 \in 2.(((p V0t1) \Rightarrow ((p V1t2) \Rightarrow (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \Rightarrow (p V2t3)))))) \tag{10}$$

Assume the following.

$$2.(((p \ V0x) \Leftrightarrow (p \ V1x\_27)) \wedge ((p \ V1x\_27) \Rightarrow ((p \ V2y) \Leftrightarrow (p \ V3y\_27)))) \Rightarrow \quad (11)$$

$$(((p \ V0x) \Rightarrow (p \ V2y)) \Leftrightarrow ((p \ V1x\_27) \Rightarrow (p \ V3y\_27))))$$

Assume the following.

$$\begin{aligned} & \forall A\_27a.nonempty \ A\_27a \Rightarrow \forall A\_27b.nonempty \ A\_27b \Rightarrow ( \\ & \quad \forall V0i \in (A\_27b^{A\_27a}). (\forall V1P \in (2^{A\_27b}). (((p \ (ap \ ( \\ & \quad ap \ (c\_2EquantHeuristics\_2EGUESS\_EXISTS \ A\_27a \ A\_27b) \ V0i) \ V1P)) \Leftrightarrow \\ & \quad (\forall V2v \in A\_27b. ((p \ (ap \ V1P \ V2v)) \Rightarrow (\exists V3fv \in A\_27a. (p \ ( \\ & \quad ap \ V1P \ (ap \ V0i \ V3fv)))))) \wedge ((p \ (ap \ (ap \ (c\_2EquantHeuristics\_2EGUESS\_FORALL \\ & \quad A\_27a \ A\_27b) \ V0i) \ V1P)) \Leftrightarrow (\forall V4v \in A\_27b. ((\neg (p \ (ap \ V1P \ V4v))) \Rightarrow \\ & \quad (\exists V5fv \in A\_27a. (\neg (p \ (ap \ V1P \ (ap \ V0i \ V5fv)))))))))) \wedge ((\forall V6i \in \\ & \quad (A\_27b^{A\_27a}). (\forall V7P \in (2^{A\_27b}). ((p \ (ap \ (ap \ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT \\ & \quad A\_27a \ A\_27b) \ V6i) \ V7P)) \Leftrightarrow (\forall V8fv \in A\_27a. (p \ (ap \ V7P \ (ap \ V6i \ V8fv)))))) \wedge \\ & \quad ((\forall V9i \in (A\_27b^{A\_27a}). (\forall V10P \in (2^{A\_27b}). ((p \ (ap \\ & \quad (ap \ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT \ A\_27a \ A\_27b) \\ & \quad V9i) \ V10P)) \Leftrightarrow (\forall V11fv \in A\_27a. (\neg (p \ (ap \ V10P \ (ap \ V9i \ V11fv)))))) \wedge \\ & \quad ((\forall V12i \in (A\_27b^{A\_27a}). (\forall V13P \in (2^{A\_27b}). ((p \ (ap \\ & \quad (ap \ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP \ A\_27a \ A\_27b) \\ & \quad V12i) \ V13P)) \Leftrightarrow (\forall V14v \in A\_27b. ((p \ (ap \ V13P \ V14v)) \Rightarrow (\exists V15fv \in \\ & \quad A\_27a. (V14v = (ap \ V12i \ V15fv)))))) \wedge (\forall V16i \in (A\_27b^{A\_27a}). \\ & \quad (\forall V17P \in (2^{A\_27b}). ((p \ (ap \ (ap \ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP \\ & \quad A\_27a \ A\_27b) \ V16i) \ V17P)) \Leftrightarrow (\forall V18v \in A\_27b. ((\neg (p \ (ap \ V17P \ V18v))) \Rightarrow \\ & \quad (\exists V19fv \in A\_27a. (V18v = (ap \ V16i \ V19fv))))))))))))) \end{aligned} \quad (12)$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(\neg(p \ V0t))) \Leftrightarrow (p \ V0t))) \quad (13)$$

Assume the following.

$$(\forall V0A \in 2. ((p \ V0A) \Rightarrow ((\neg(p \ V0A)) \Rightarrow False))) \quad (14)$$

Assume the following.

$$\begin{aligned} & (\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p \ V0A) \vee (p \ V1B))) \Rightarrow False) \Leftrightarrow \\ & \quad (((p \ V0A) \Rightarrow False) \Rightarrow ((\neg(p \ V1B)) \Rightarrow False)))) \end{aligned} \quad (15)$$

Assume the following.

$$\begin{aligned} & (\forall V0A \in 2. (\forall V1B \in 2. (((\neg(\neg(p \ V0A)) \vee (p \ V1B))) \Rightarrow False) \Leftrightarrow \\ & \quad ((p \ V0A) \Rightarrow ((\neg(p \ V1B)) \Rightarrow False)))) \end{aligned} \quad (16)$$

Assume the following.

$$(\forall V0A \in 2. (((\neg(p \ V0A)) \Rightarrow False) \Rightarrow (((p \ V0A) \Rightarrow False) \Rightarrow False))) \quad (17)$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow ( \\
& (p \ V1q) \Leftrightarrow (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee ((p \ V1q) \vee (p \ V2r))) \wedge (((p \ V0p) \vee ((\neg( \\
& p \ V2r)) \vee (\neg(p \ V1q)))) \wedge (((p \ V1q) \vee ((\neg(p \ V2r)) \vee (\neg(p \ V0p)))) \wedge ((p \ V2r) \vee \\
& ((\neg(p \ V1q)) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{18}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow ( \\
& (p \ V1q) \wedge (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee ((\neg(p \ V1q)) \vee (\neg(p \ V2r)))) \wedge (((p \ V1q) \vee \\
& (\neg(p \ V0p))) \wedge ((p \ V2r) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{19}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow ( \\
& (p \ V1q) \vee (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (\neg(p \ V1q))) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge \\
& ((p \ V1q) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{20}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow ( \\
& (p \ V1q) \Rightarrow (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (p \ V1q)) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge (( \\
& \neg(p \ V1q)) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{21}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (((p \ V0p) \Leftrightarrow (\neg(p \ V1q))) \Leftrightarrow (((p \ V0p) \vee \\
& (p \ V1q)) \wedge ((\neg(p \ V1q)) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{22}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \Rightarrow (p \ V1q))) \Rightarrow (p \ V0p))) \tag{23}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \Rightarrow (p \ V1q))) \Rightarrow (\neg(p \ V1q)))) \tag{24}$$

**Theorem 1**

$$\begin{aligned}
& \forall A\_27a.nonempty\ A\_27a \Rightarrow \forall A\_27b.nonempty\ A\_27b \Rightarrow ( \\
& \quad \forall V0i \in (A\_27b^{A\_27a}). (\forall V1P \in (2^{A\_27b}). (\forall V2Q \in \\
& \quad (2^{A\_27b}). (\forall V3P1 \in (2^{A\_27b}). (\forall V4P2 \in (2^{A\_27b}). \\
& \quad (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT\ A\_27a \\
& \quad A\_27b)\ V0i)\ (\lambda V5x \in A\_27b.(ap\ V1P\ V5x)))) \wedge (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V6x \in A\_27b.(ap\ V2Q\ V6x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V7x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ (ap \\
& \quad V1P\ V7x))\ (ap\ V2Q\ V7x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V8x \in A\_27b.(ap\ V1P\ V8x)))) \wedge (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V9x \in A\_27b.(ap\ V2Q\ V9x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V10x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V1P\ V10x))\ (ap\ V2Q\ V10x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V11x \in A\_27b.(ap\ V1P\ V11x)))) \wedge (p\ (ap\ (ap\ ( \\
& \quad c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT\ A\_27a\ A\_27b)\ V0i) \\
& \quad (\lambda V12x \in A\_27b.(ap\ V2Q\ V12x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V13x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V1P\ V13x))\ (ap\ V2Q\ V13x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V14x \in A\_27b.(ap\ V1P\ V14x)))) \wedge (p\ (ap\ (ap\ ( \\
& \quad c\_2EquantHeuristics\_2EGUESS\_EXISTS\_POINT\ A\_27a\ A\_27b)\ V0i) \\
& \quad (\lambda V15x \in A\_27b.(ap\ V2Q\ V15x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_POINT \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V16x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V1P\ V16x))\ (ap\ V2Q\ V16x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V17x \in A\_27b.(ap\ V3P1\ V17x)))) \wedge (p\ (ap\ (ap\ ( \\
& \quad c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP\ A\_27a\ A\_27b)\ V0i) \\
& \quad (\lambda V18x \in A\_27b.(ap\ V4P2\ V18x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V19x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V3P1\ V19x))\ (ap\ V4P2\ V19x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V20x \in A\_27b.(ap\ V3P1\ V20x)))) \wedge (p\ (ap\ (ap\ ( \\
& \quad c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP\ A\_27a\ A\_27b)\ V0i) \\
& \quad (\lambda V21x \in A\_27b.(ap\ V4P2\ V21x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V22x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V3P1\ V22x))\ (ap\ V4P2\ V22x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V23x \in A\_27b.(ap\ V3P1\ V23x)))) \wedge (p\ (ap\ (ap\ ( \\
& \quad c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP\ A\_27a\ A\_27b)\ V0i) \\
& \quad (\lambda V24x \in A\_27b.(ap\ V4P2\ V24x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V25x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V3P1\ V25x))\ (ap\ V4P2\ V25x)))))) \wedge (((p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_FORALL\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V26x \in A\_27b.(ap\ V3P1\ V26x)))) \wedge (p\ (ap\ (ap\ ( \\
& \quad c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP\ A\_27a\ A\_27b)\ V0i) \\
& \quad (\lambda V27x \in A\_27b.(ap\ V4P2\ V27x)))))) \Rightarrow (p\ (ap\ (ap\ (c\_2EquantHeuristics\_2EGUESS\_EXISTS\_GAP \\
& \quad A\_27a\ A\_27b)\ V0i)\ (\lambda V28x \in A\_27b.(ap\ (ap\ (c\_2Emin\_2E\_3D\ 2)\ ( \\
& \quad ap\ V3P1\ V28x))\ (ap\ V4P2\ V28x)))))))))
\end{aligned}$$