



**Definition 10** We define `c_2Ebool_2E_7E` to be  $(\lambda V0t \in 2.(ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2E_7E))$

**Definition 11** We define `c_2Epred_set_2EEMPTY` to be  $\lambda A_27a : \iota.(\lambda V0x \in A_27a.c_2Ebool_2E_7E)$ .

**Definition 12** We define `c_2Ebool_2E_5C_2F` to be  $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2) (\lambda V2t \in 2.(ap (c_2Ebool_2E_7E) V2t) V1t2))))$

**Definition 13** We define `c_2Epred_set_2EINSERT` to be  $\lambda A_27a : \iota.\lambda V0x \in A_27a.\lambda V1s \in (2^{A_27a}).(ap (c_2Ebool_2E_7E) (ap (c_2Ebool_2E_7E) V1s) V0x))$

**Definition 14** We define `c_2Epred_set_2EEDIFF` to be  $\lambda A_27a : \iota.\lambda V0s \in (2^{A_27a}).\lambda V1t \in (2^{A_27a}).(ap (c_2Ebool_2E_7E) (ap (c_2Ebool_2E_7E) V1t) V0s))$

**Definition 15** We define `c_2Epred_set_2EDELETE` to be  $\lambda A_27a : \iota.\lambda V0s \in (2^{A_27a}).\lambda V1x \in A_27a.(ap (ap (c_2Ebool_2E_7E) V1x) V0s))$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \quad (4)$$

Assume the following.

$$(\forall V0t \in 2.(False \Rightarrow (p V0t))) \quad (5)$$

Assume the following.

$$(\forall V0t \in 2.((\neg (p V0t)) \Rightarrow ((p V0t) \Rightarrow False))) \quad (6)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0s \in (2^{A_27a}).(\forall V1t \in (2^{A_27a}).((V0s = V1t) \Leftrightarrow (\forall V2x \in A_27a.((p (ap (ap (c_2Ebool_2EIN A_27a) V2x) V0s)) \Leftrightarrow (p (ap (ap (c_2Ebool_2EIN A_27a) V2x) V1t))))))) \quad (7)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0s \in (2^{A_27a}).(\forall V1t \in (2^{A_27a}).(\forall V2x \in A_27a.((p (ap (ap (c_2Ebool_2EIN A_27a) V2x) (ap (ap (c_2Epred_set_2EINTER A_27a) V0s) V1t))) \Leftrightarrow ((p (ap (ap (c_2Ebool_2EIN A_27a) V2x) V0s)) \wedge (p (ap (ap (c_2Ebool_2EIN A_27a) V2x) V1t))))))) \quad (8)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0s \in (2^{A_27a}).(\forall V1x \in A_27a.(\forall V2y \in A_27a.((p (ap (ap (c_2Ebool_2EIN A_27a) V1x) (ap (ap (c_2Epred_set_2EDELETE A_27a) V0s) V2y))) \Leftrightarrow ((p (ap (ap (c_2Ebool_2EIN A_27a) V1x) V0s)) \wedge (\neg (V1x = V2y))))))) \quad (9)$$

**Theorem 1**

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0s \in (2^{A_27a}).(\forall V1t \in (2^{A_27a}).(\forall V2x \in A_27a.((ap (ap (c_2Epred_set_2EINTER A_27a) (ap (ap (c_2Epred_set_2EDELETE A_27a) V0s) V2x)) V1t) = (ap (ap (c_2Epred_set_2EDELETE A_27a) (ap (ap (c_2Epred_set_2EINTER A_27a) V0s) V1t)) V2x))))))$$