

Definition 27 We define $c_2Emeasure_2Esigma_algebra$ to be $\lambda A_27a : \iota.\lambda V0a \in (ty_2Epair_2Eprod (2^{A-27a}))$

Definition 28 We define $c_2Epred_set_2EBIGINTER$ to be $\lambda A_27a : \iota.\lambda V0P \in (2^{(2^{A-27a})}).(ap (c_2Epred_set_2EBIGINTER))$

Definition 29 We define $c_2Emeasure_2Esigma$ to be $\lambda A_27a : \iota.\lambda V0sp \in (2^{A-27a}).\lambda V1st \in (2^{(2^{A-27a})}).(ap (c_2Emeasure_2Esigma))$

Definition 30 We define $c_2Epred_set_2EPREIMAGE$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0f \in (A_27b^{A-27a}).\lambda V1g \in (2^{(2^{A-27a})}).(ap (c_2Epred_set_2EPREIMAGE))$

Definition 31 We define $c_2Epred_set_2EINTER$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A-27a}).\lambda V1t \in (2^{A-27a}).(ap (c_2Epred_set_2EINTER))$

Definition 32 We define $c_2Epred_set_2EFUNSET$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0P \in (2^{A-27a}).\lambda V1Q \in (2^{(2^{A-27a})}).(ap (c_2Epred_set_2EFUNSET))$

Definition 33 We define $c_2Emeasure_2Emeasurable$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0a \in (ty_2Epair_2Eprod (2^{A-27a}))$

Definition 34 We define $c_2Epred_set_2EIMAGE$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0f \in (A_27b^{A-27a}).\lambda V1s \in (2^{(2^{A-27a})}).(ap (c_2Epred_set_2EIMAGE))$

Assume the following.

$$True \tag{7}$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p V0t1) \Rightarrow (p V1t2)) \Rightarrow (((p V1t2) \Rightarrow (p V0t1)) \Rightarrow ((p V0t1) \Leftrightarrow (p V1t2)))))) \tag{8}$$

Assume the following.

$$(\forall V0t \in 2.(False \Rightarrow (p V0t))) \tag{9}$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A_27a.(p V0t)) \Leftrightarrow (p V0t))) \tag{10}$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(\forall V2t3 \in 2.(((p V0t1) \wedge ((p V1t2) \wedge (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \wedge (p V2t3)))))) \tag{11}$$

Assume the following.

$$(\forall V0t \in 2.(((p V0t) \Rightarrow False) \Rightarrow (\neg (p V0t)))) \tag{12}$$

Assume the following.

$$(\forall V0t \in 2.((\neg (p V0t)) \Rightarrow ((p V0t) \Rightarrow False))) \tag{13}$$

Assume the following.

$$(\forall V0t \in 2.(((True \wedge (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \wedge True) \Leftrightarrow (p V0t)) \wedge (((False \wedge (p V0t)) \Leftrightarrow False) \wedge (((p V0t) \wedge False) \Leftrightarrow False) \wedge (((p V0t) \wedge (p V0t)) \Leftrightarrow (p V0t)))))) \tag{14}$$

Assume the following.

$$(\forall V0t \in 2.(((True \Rightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Rightarrow True) \Leftrightarrow True) \wedge (((False \Rightarrow (p V0t)) \Leftrightarrow True) \wedge (((p V0t) \Rightarrow (p V0t)) \Leftrightarrow True) \wedge ((p V0t) \Rightarrow False) \Leftrightarrow (\neg (p V0t)))))) \quad (15)$$

Assume the following.

$$((\forall V0t \in 2.((\neg(\neg(p V0t))) \Leftrightarrow (p V0t)) \wedge (((\neg True) \Leftrightarrow False) \wedge ((\neg False) \Leftrightarrow True))) \quad (16)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.(V0x = V0x)) \quad (17)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.((V0x = V0x) \Leftrightarrow True)) \quad (18)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.(\forall V1y \in A_27a.((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (19)$$

Assume the following.

$$(\forall V0t \in 2.(((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow (\neg(p V0t))) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow (\neg(p V0t)))))) \quad (20)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0P \in (2^{A_27a}).((\neg(\forall V1x \in A_27a.(p(ap V0P V1x)))) \Leftrightarrow (\exists V2x \in A_27a.(\neg(p(ap V0P V2x)))))) \quad (21)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0P \in 2.(\forall V1Q \in (2^{A_27a}).(((p V0P) \wedge (\forall V2x \in A_27a.(p(ap V1Q V2x)))) \Leftrightarrow (\forall V3x \in A_27a.((p V0P) \wedge (p(ap V1Q V3x)))))) \quad (22)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0P \in 2.(\forall V1Q \in (2^{A_27a}).(((p V0P) \vee (\exists V2x \in A_27a.(p(ap V1Q V2x)))) \Leftrightarrow (\exists V3x \in A_27a.((p V0P) \vee (p(ap V1Q V3x)))))) \quad (23)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0P \in (2^{A_27a}).(\forall V1Q \in 2.((\exists V2x \in A_27a.(p(ap V0P V2x)) \wedge (p V1Q)) \Leftrightarrow ((\exists V3x \in A_27a.(p(ap V0P V3x)) \wedge (p V1Q)))))) \quad (24)$$

Assume the following.

$$\forall A.27a.nonempty A.27a \Rightarrow (\forall V0P \in 2. (\forall V1Q \in (2^{A-27a}. ((\forall V2x \in A.27a. ((p V0P) \vee (p (ap V1Q V2x)))) \Leftrightarrow ((p V0P) \vee (\forall V3x \in A.27a. (p (ap V1Q V3x)))))))) \quad (25)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (\forall V2C \in 2. (((p V0A) \vee (p V1B) \vee (p V2C)) \Leftrightarrow (((p V0A) \vee (p V1B)) \vee (p V2C))))) \quad (26)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((p V0A) \vee (p V1B)) \Leftrightarrow ((p V1B) \vee (p V0A)))) \quad (27)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p V0A) \wedge (p V1B))) \Leftrightarrow ((\neg(p V0A) \vee \neg(p V1B)))) \wedge ((\neg((p V0A) \vee (p V1B))) \Leftrightarrow ((\neg(p V0A) \wedge \neg(p V1B))))) \quad (28)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (\forall V2C \in 2. (((p V0A) \vee (p V1B) \wedge (p V2C)) \Leftrightarrow (((p V0A) \vee (p V1B)) \wedge ((p V0A) \vee (p V2C))))) \quad (29)$$

Assume the following.

$$(\forall V0t1 \in 2. (\forall V1t2 \in 2. (\forall V2t3 \in 2. (((p V0t1) \Rightarrow ((p V1t2) \Rightarrow (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \Rightarrow (p V2t3)))) \quad (30)$$

Assume the following.

$$(\forall V0x \in 2. (\forall V1x.27 \in 2. (\forall V2y \in 2. (\forall V3y.27 \in 2. (((p V0x) \Leftrightarrow (p V1x.27)) \wedge ((p V1x.27) \Rightarrow ((p V2y) \Leftrightarrow (p V3y.27)))) \Rightarrow (((p V0x) \Rightarrow (p V2y)) \Leftrightarrow ((p V1x.27) \Rightarrow (p V3y.27))))) \quad (31)$$

Assume the following.

$$\forall A.27a.nonempty A.27a \Rightarrow (\forall V0P \in (2^{A-27a}). (\forall V1a \in A.27a. ((\exists V2x \in A.27a. ((V2x = V1a) \wedge (p (ap V0P V2x)))) \Leftrightarrow (p (ap V0P V1a)))) \quad (32)$$

Assume the following.

$$\forall A.27a.nonempty A.27a \Rightarrow \forall A.27b.nonempty A.27b \Rightarrow (\forall V0P \in ((2^{A-27b})^{A-27a}). ((\forall V1x \in A.27a. (\exists V2y \in A.27b. (p (ap (ap V0P V1x) V2y)))) \Leftrightarrow (\exists V3f \in (A.27b^{A-27a}). (\forall V4x \in A.27a. (p (ap (ap V0P V4x) (ap V3f V4x)))))) \quad (33)$$

Assume the following.

$$(\forall V0v \in 2.((p (ap c.2Ebool_2EBOUNDED V0v)) \Leftrightarrow True)) \quad (34)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.((ap (c.2Ecombin_2EI A_27a) V0x) = V0x)) \quad (35)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow (\forall V0a \in (ty_2Epair_2Eprod \\ & (2^{A_27a}) (2^{(2^{A_27a})})).(\forall V1s \in (2^{A_27a}).(((p (ap (c.2Emeasure_2Ealgebra \\ & A_27a) V0a)) \wedge (p (ap (ap (c.2Ebool_2EIN (2^{A_27a}) V1s) (ap (c.2Emeasure_2Esubsets \\ & A_27a) V0a)))) \Rightarrow (p (ap (ap (c.2Ebool_2EIN (2^{A_27a}) (ap (ap (c.2Epred_set_2EDIFF \\ & A_27a) (ap (c.2Emeasure_2Espace A_27a) V0a)) V1s) (ap (c.2Emeasure_2Esubsets \\ & A_27a) V0a))))))) \end{aligned} \quad (36)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow (\forall V0sp \in (2^{A_27a}).(\forall V1sts \in \\ & (2^{(2^{A_27a})}).((p (ap (ap (c.2Emeasure_2Esubset_class A_27a) \\ & V0sp) V1sts)) \Rightarrow (p (ap (c.2Emeasure_2Esigma_algebra A_27a) (ap \\ & (ap (c.2Emeasure_2Esigma A_27a) V0sp) V1sts)))))) \end{aligned} \quad (37)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow (\forall V0p \in (ty_2Epair_2Eprod \\ & (2^{A_27a}) (2^{(2^{A_27a})})).((p (ap (c.2Emeasure_2Esigma_algebra \\ & A_27a) V0p)) \Leftrightarrow ((p (ap (ap (c.2Emeasure_2Esubset_class A_27a) \\ & (ap (c.2Emeasure_2Espace A_27a) V0p)) (ap (c.2Emeasure_2Esubsets \\ & A_27a) V0p))) \wedge ((p (ap (ap (c.2Ebool_2EIN (2^{A_27a}) (c.2Epred_set_2EEMPTY \\ & A_27a) (ap (c.2Emeasure_2Esubsets A_27a) V0p)))) \wedge ((\forall V1s \in \\ & (2^{A_27a}).((p (ap (ap (c.2Ebool_2EIN (2^{A_27a}) V1s) (ap (c.2Emeasure_2Esubsets \\ & A_27a) V0p))) \Rightarrow (p (ap (ap (c.2Ebool_2EIN (2^{A_27a}) (ap (ap (c.2Epred_set_2EDIFF \\ & A_27a) (ap (c.2Emeasure_2Espace A_27a) V0p)) V1s) (ap (c.2Emeasure_2Esubsets \\ & A_27a) V0p)))))) \wedge (\forall V2c \in (2^{(2^{A_27a})}).(((p (ap (c.2Epred_set_2Ecountable \\ & (2^{A_27a}) V2c)) \wedge (p (ap (ap (c.2Epred_set_2ESUBSET (2^{A_27a}) \\ & V2c) (ap (c.2Emeasure_2Esubsets A_27a) V0p)))) \Rightarrow (p (ap (ap (c.2Ebool_2EIN \\ & (2^{A_27a}) (ap (c.2Epred_set_2EBIGUNION A_27a) V2c) (ap (c.2Emeasure_2Esubsets \\ & A_27a) V0p)))))))))) \end{aligned} \quad (38)$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0sp \in (2^{A-27a}). (\forall V1p \in \\
& (2^{(2^{A-27a})}). (\forall V2a \in (2^{(2^{A-27a})}). (((p\ (ap\ (ap\ (c.2Emeasure.2Esubset_class \\
A.27a)\ V0sp)\ V1p)) \wedge ((p\ (ap\ (ap\ (c.2Ebool.2EIN\ (2^{A-27a})\ (c.2Epred_set.2EEMPTY \\
A.27a)\ V1p)) \wedge ((p\ (ap\ (ap\ (c.2Epred_set.2ESUBSET\ (2^{A-27a}) \\
V2a)\ V1p)) \wedge ((\forall V3s \in (2^{A-27a}). ((p\ (ap\ (ap\ (c.2Ebool.2EIN \\
(2^{A-27a})\ V3s)\ (ap\ (ap\ (c.2Epred_set.2EINTER\ (2^{A-27a})\ V1p) \\
(ap\ (c.2Emeasure.2Esubsets\ A.27a)\ (ap\ (ap\ (c.2Emeasure.2Esigma \\
A.27a)\ V0sp)\ V2a)))))) \Rightarrow (p\ (ap\ (ap\ (c.2Ebool.2EIN\ (2^{A-27a})\ (ap \\
(ap\ (c.2Epred_set.2EDIFF\ A.27a)\ V0sp)\ V3s))\ V1p)))) \wedge (\forall V4c \in \\
(2^{(2^{A-27a})}). (((p\ (ap\ (c.2Epred_set.2Ecountable\ (2^{A-27a}) \\
V4c)) \wedge (p\ (ap\ (ap\ (c.2Epred_set.2ESUBSET\ (2^{A-27a})\ V4c)\ (ap\ (\\
ap\ (c.2Epred_set.2EINTER\ (2^{A-27a})\ V1p)\ (ap\ (c.2Emeasure.2Esubsets \\
A.27a)\ (ap\ (ap\ (c.2Emeasure.2Esigma\ A.27a)\ V0sp)\ V2a)))))) \Rightarrow (p \\
(ap\ (ap\ (c.2Ebool.2EIN\ (2^{A-27a})\ (ap\ (c.2Epred_set.2EBIGUNION \\
A.27a)\ V4c))\ V1p)))))) \Rightarrow (p\ (ap\ (ap\ (c.2Epred_set.2ESUBSET\ (\\
2^{A-27a})\ (ap\ (c.2Emeasure.2Esubsets\ A.27a)\ (ap\ (ap\ (c.2Emeasure.2Esigma \\
A.27a)\ V0sp)\ V2a))\ V1p))))))
\end{aligned} \tag{39}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0sp \in (2^{A-27a}). (\forall V1a \in \\
& (2^{(2^{A-27a})}). ((ap\ (c.2Emeasure.2Espace\ A.27a)\ (ap\ (ap\ (c.2Emeasure.2Esigma \\
A.27a)\ V0sp)\ V1a)) = V0sp))
\end{aligned} \tag{40}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \forall V0a \in (ty.2Epair.2Eprod\ (2^{A-27a})\ (2^{(2^{A-27a})})). (\forall V1b \in \\
& (ty.2Epair.2Eprod\ (2^{A-27b})\ (2^{(2^{A-27b})})). (\forall V2f \in (A.27b^{A-27a}). \\
& ((p\ (ap\ (ap\ (c.2Ebool.2EIN\ (A.27b^{A-27a})\ V2f)\ (ap\ (ap\ (c.2Emeasure.2Emeasurable \\
A.27a\ A.27b)\ V0a)\ V1b))) \Leftrightarrow ((p\ (ap\ (c.2Emeasure.2Esigma_algebra \\
A.27a)\ V0a)) \wedge ((p\ (ap\ (c.2Emeasure.2Esigma_algebra\ A.27b)\ V1b)) \wedge \\
& ((p\ (ap\ (ap\ (c.2Ebool.2EIN\ (A.27b^{A-27a})\ V2f)\ (ap\ (ap\ (c.2Epred_set.2EFUNSET \\
A.27a\ A.27b)\ (ap\ (c.2Emeasure.2Espace\ A.27a)\ V0a))\ (ap\ (c.2Emeasure.2Espace \\
A.27b)\ V1b)))) \wedge (\forall V3s \in (2^{A-27b}). ((p\ (ap\ (ap\ (c.2Ebool.2EIN \\
(2^{A-27b})\ V3s)\ (ap\ (c.2Emeasure.2Esubsets\ A.27b)\ V1b))) \Rightarrow (p\ (\\
ap\ (ap\ (c.2Ebool.2EIN\ (2^{A-27a})\ (ap\ (ap\ (c.2Epred_set.2EINTER \\
A.27a)\ (ap\ (ap\ (c.2Epred_set.2EPREIMAGE\ A.27a\ A.27b)\ V2f)\ V3s)) \\
(ap\ (c.2Emeasure.2Espace\ A.27a)\ V0a))\ (ap\ (c.2Emeasure.2Esubsets \\
A.27a)\ V0a)))))))))
\end{aligned} \tag{41}$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ \forall V0x \in A_27a. (\forall V1y \in A_27b. (\forall V2a \in A_27a. (\forall V3b \in \\ A_27b. (((ap\ (ap\ (c_2Epair_2E_2C\ A_27a\ A_27b)\ V0x)\ V1y) = (ap\ (ap \\ (c_2Epair_2E_2C\ A_27a\ A_27b)\ V2a)\ V3b))) \Leftrightarrow ((V0x = V2a) \wedge (V1y = V3b))))))))) \end{aligned} \quad (42)$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0s \in (2^{A_27a}). (\forall V1t \in \\ (2^{A_27a}). ((V0s = V1t) \Leftrightarrow (\forall V2x \in A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN \\ A_27a)\ V2x)\ V0s)) \Leftrightarrow (p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V2x)\ V1t))))))) \end{aligned} \quad (43)$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ \forall V0f \in ((ty_2Epair_2Eprod\ A_27a\ 2)^{A_27b}). (\forall V1v \in \\ A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V1v)\ (ap\ (c_2Epred_set_2EGSPEC \\ A_27a\ A_27b)\ V0f))) \Leftrightarrow (\exists V2x \in A_27b. ((ap\ (ap\ (c_2Epair_2E_2C \\ A_27a\ 2)\ V1v)\ c_2Ebool_2ET) = (ap\ V0f\ V2x)))))) \end{aligned} \quad (44)$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. (\neg (p\ (ap\ (ap \\ (c_2Ebool_2EIN\ A_27a)\ V0x)\ (c_2Epred_set_2EEMPTY\ A_27a)))))) \end{aligned} \quad (45)$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0s \in (2^{A_27a}). (\forall V1t \in \\ (2^{A_27a}). (\forall V2x \in A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a) \\ V2x)\ (ap\ (ap\ (c_2Epred_set_2EINTER\ A_27a)\ V0s)\ V1t))) \Leftrightarrow ((p\ (ap \\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V2x)\ V0s)) \wedge (p\ (ap\ (ap\ (c_2Ebool_2EIN \\ A_27a)\ V2x)\ V1t)))))) \end{aligned} \quad (46)$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0s \in (2^{A_27a}). (\forall V1t \in \\ (2^{A_27a}). (\forall V2u \in (2^{A_27a}). ((p\ (ap\ (ap\ (c_2Epred_set_2ESUBSET \\ A_27a)\ V0s)\ (ap\ (ap\ (c_2Epred_set_2EINTER\ A_27a)\ V1t)\ V2u))) \Leftrightarrow \\ ((p\ (ap\ (ap\ (c_2Epred_set_2ESUBSET\ A_27a)\ V0s)\ V1t)) \wedge (p\ (ap\ (ap \\ (c_2Epred_set_2ESUBSET\ A_27a)\ V0s)\ V2u)))))) \end{aligned} \quad (47)$$

Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow ((\forall V0s \in (2^{A_27a}). ((ap\ (\\ ap\ (c_2Epred_set_2EINTER\ A_27a)\ (c_2Epred_set_2EEMPTY\ A_27a)) \\ V0s) = (c_2Epred_set_2EEMPTY\ A_27a))) \wedge (\forall V1s \in (2^{A_27a}). \\ ((ap\ (ap\ (c_2Epred_set_2EINTER\ A_27a)\ V1s)\ (c_2Epred_set_2EEMPTY \\ A_27a)) = (c_2Epred_set_2EEMPTY\ A_27a)))) \end{aligned} \quad (48)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0s \in (2^{A-27a}). (\forall V1t \in \\ & (2^{A-27a}). (\forall V2x \in A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a) \\ & V2x)\ (ap\ (ap\ (c_2Epred_set_2EDIFF\ A_27a)\ V0s)\ V1t)))) \Leftrightarrow ((p\ (ap\ (\\ & (c_2Ebool_2EIN\ A_27a)\ V2x)\ V0s)) \wedge (\neg (p\ (ap\ (ap\ (c_2Ebool_2EIN \\ & A_27a)\ V2x)\ V1t)))))))) \end{aligned} \quad (49)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \forall V0y \in A_27b. (\forall V1s \in (2^{A-27a}). (\forall V2f \in (A_27b^{A-27a}). \\ & ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27b)\ V0y)\ (ap\ (ap\ (c_2Epred_set_2EIMAGE \\ & A_27a\ A_27b)\ V2f)\ V1s)))) \Leftrightarrow (\exists V3x \in A_27a. ((V0y = (ap\ V2f\ V3x)) \wedge \\ & (p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V3x)\ V1s)))))) \end{aligned} \quad (50)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \forall V0f \in (A_27b^{A-27a}). (\forall V1P \in (2^{A-27a}). (\forall V2Q \in \\ & (2^{A-27b}). ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ (A_27b^{A-27a}))\ V0f)\ (ap\ (ap \\ & (c_2Epred_set_2EFUNSET\ A_27a\ A_27b)\ V1P)\ V2Q)))) \Leftrightarrow (\forall V3x \in \\ & A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V3x)\ V1P)) \Rightarrow (p\ (ap\ (ap\ (c_2Ebool_2EIN \\ & A_27b)\ (ap\ V0f\ V3x))\ V2Q)))))) \end{aligned} \quad (51)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. (\forall V1sos \in \\ & (2^{(2^{A-27a})}). ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V0x)\ (ap\ (c_2Epred_set_2EBIGUNION \\ & A_27a)\ V1sos)))) \Leftrightarrow (\exists V2s \in (2^{A-27a}). ((p\ (ap\ (ap\ (c_2Ebool_2EIN \\ & A_27a)\ V0x)\ V2s)) \wedge (p\ (ap\ (ap\ (c_2Ebool_2EIN\ (2^{A-27a}))\ V2s)\ V1sos)))))) \end{aligned} \quad (52)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \forall V0f \in (A_27b^{A-27a}). (\forall V1s \in (2^{A-27a}). ((p\ (ap\ (c_2Epred_set_2Ecountable \\ & A_27a)\ V1s)) \Rightarrow (p\ (ap\ (c_2Epred_set_2Ecountable\ A_27b)\ (ap\ (ap \\ & (c_2Epred_set_2EIMAGE\ A_27a\ A_27b)\ V0f)\ V1s)))))) \end{aligned} \quad (53)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \forall V0f \in (A_27b^{A-27a}). (\forall V1s \in (2^{A-27b}). (\forall V2x \in \\ & A_27a. ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27a)\ V2x)\ (ap\ (ap\ (c_2Epred_set_2EPREIMAGE \\ & A_27a\ A_27b)\ V0f)\ V1s)))) \Leftrightarrow (p\ (ap\ (ap\ (c_2Ebool_2EIN\ A_27b)\ (ap\ V0f \\ & V2x))\ V1s)))))) \end{aligned} \quad (54)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \quad \forall V0f \in (A_27b^{A_27a}).((ap\ (ap\ (c_2Epred_set_2EPREIMAGE \\ & \quad A_27a\ A_27b)\ V0f)\ (c_2Epred_set_2EEMPTY\ A_27b)) = (c_2Epred_set_2EEMPTY \\ & \quad A_27a))) \end{aligned} \quad (55)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \quad \forall V0f \in (A_27b^{A_27a}).(\forall V1s \in (2^{(2^{A_27b})}).((ap\ (\\ & \quad ap\ (c_2Epred_set_2EPREIMAGE\ A_27a\ A_27b)\ V0f)\ (ap\ (c_2Epred_set_2EBIGUNION \\ & \quad A_27b)\ V1s)) = (ap\ (c_2Epred_set_2EBIGUNION\ A_27a)\ (ap\ (ap\ (c_2Epred_set_2EIMAGE \\ & \quad (2^{A_27b})\ (2^{A_27a}))\ (ap\ (c_2Epred_set_2EPREIMAGE\ A_27a\ A_27b) \\ & \quad V0f))\ V1s)))))) \end{aligned} \quad (56)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\ & \quad \forall V0f \in (A_27b^{A_27a}).(\forall V1s \in (2^{A_27b}).(\forall V2t \in \\ & \quad (2^{A_27b}).((ap\ (ap\ (c_2Epred_set_2EPREIMAGE\ A_27a\ A_27b)\ V0f) \\ & \quad (ap\ (ap\ (c_2Epred_set_2EDIFF\ A_27b)\ V1s)\ V2t)) = (ap\ (ap\ (c_2Epred_set_2EDIFF \\ & \quad A_27a)\ (ap\ (ap\ (c_2Epred_set_2EPREIMAGE\ A_27a\ A_27b)\ V0f)\ V1s)) \\ & \quad (ap\ (ap\ (c_2Epred_set_2EPREIMAGE\ A_27a\ A_27b)\ V0f)\ V2t)))))) \end{aligned} \quad (57)$$

Assume the following.

$$(\forall V0t \in 2.((\neg(\neg(p\ V0t))) \Leftrightarrow (p\ V0t))) \quad (58)$$

Assume the following.

$$(\forall V0A \in 2.((p\ V0A) \Rightarrow ((\neg(p\ V0A)) \Rightarrow False))) \quad (59)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(((\neg((p\ V0A) \vee (p\ V1B))) \Rightarrow False) \Leftrightarrow ((p\ V0A) \Rightarrow False) \Rightarrow ((\neg(p\ V1B)) \Rightarrow False)))) \quad (60)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(((\neg((\neg(p\ V0A)) \vee (p\ V1B))) \Rightarrow False) \Leftrightarrow ((p\ V0A) \Rightarrow ((\neg(p\ V1B)) \Rightarrow False)))) \quad (61)$$

Assume the following.

$$(\forall V0A \in 2.(((\neg(p\ V0A)) \Rightarrow False) \Rightarrow (((p\ V0A) \Rightarrow False) \Rightarrow False))) \quad (62)$$

Assume the following.

$$\begin{aligned} & (\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p\ V0p) \Leftrightarrow (\\ & \quad (p\ V1q) \Leftrightarrow (p\ V2r))) \Leftrightarrow (((p\ V0p) \vee ((p\ V1q) \vee (p\ V2r))) \wedge (((p\ V0p) \vee ((\neg \\ & \quad p\ V2r)) \vee (\neg(p\ V1q)))) \wedge (((p\ V1q) \vee ((\neg(p\ V2r)) \vee (\neg(p\ V0p)))) \wedge ((p\ V2r) \vee \\ & \quad ((\neg(p\ V1q)) \vee (\neg(p\ V0p)))))))))) \end{aligned} \quad (63)$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \wedge (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (\neg(p \ V1q)) \vee (\neg(p \ V2r)))) \wedge (((p \ V1q) \vee \\
& (\neg(p \ V0p))) \wedge ((p \ V2r) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{64}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \vee (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (\neg(p \ V1q))) \wedge ((p \ V0p) \vee (\neg(p \ V2r)))) \wedge \\
& ((p \ V1q) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{65}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \Rightarrow (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (p \ V1q)) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge (\\
& \neg(p \ V1q)) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{66}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (((p \ V0p) \Leftrightarrow (\neg(p \ V1q))) \Leftrightarrow (((p \ V0p) \vee \\
& (p \ V1q)) \wedge ((\neg(p \ V1q)) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{67}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \Rightarrow (p \ V1q))) \Rightarrow (p \ V0p))) \tag{68}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \Rightarrow (p \ V1q))) \Rightarrow (\neg(p \ V1q)))) \tag{69}$$

Theorem 1

$$\begin{aligned}
& \forall A_27a.nonempty \ A_27a \Rightarrow \forall A_27b.nonempty \ A_27b \Rightarrow (\\
& \forall V0f \in (A_27b^{A_27a}). (\forall V1a \in (ty_2Epair_2Eprod \ (2^{A_27a} \\
& (2^{2^{A_27a}}))). (\forall V2b \in (2^{(2^{A_27b})}). (\forall V3sp \in (\\
& 2^{A_27b}). (((p \ (ap \ (c_2Emeasure_2Esigma_algebra \ A_27a) \ V1a)) \wedge \\
& ((p \ (ap \ (ap \ (c_2Emeasure_2Esubset_class \ A_27b) \ V3sp) \ V2b)) \wedge (\\
& (p \ (ap \ (ap \ (c_2Ebool_2EIN \ (A_27b^{A_27a})) \ V0f) \ (ap \ (ap \ (c_2Epred_set_2EFUNSET \\
& A_27a \ A_27b) \ (ap \ (c_2Emeasure_2Espace \ A_27a) \ V1a)) \ V3sp))) \wedge (\forall V4s \in \\
& (2^{A_27b}). ((p \ (ap \ (ap \ (c_2Ebool_2EIN \ (2^{A_27b}) \ V4s) \ V2b)) \Rightarrow (p \\
& (ap \ (ap \ (c_2Ebool_2EIN \ (2^{A_27a})) \ (ap \ (ap \ (c_2Epred_set_2EINTER \\
& A_27a) \ (ap \ (ap \ (c_2Epred_set_2EPREIMAGE \ A_27a \ A_27b) \ V0f) \ V4s)) \\
& (ap \ (c_2Emeasure_2Espace \ A_27a) \ V1a))) \ (ap \ (c_2Emeasure_2Esubsets \\
& A_27a \ V1a)))))) \Rightarrow (p \ (ap \ (ap \ (c_2Ebool_2EIN \ (A_27b^{A_27a})) \ V0f) \\
& (ap \ (ap \ (c_2Emeasure_2Emeasurable \ A_27a \ A_27b) \ V1a) \ (ap \ (ap \ (c_2Emeasure_2Esigma \\
& A_27b) \ V3sp) \ V2b))))))
\end{aligned}$$