

thm_2Elebesgue_2Efinite__prod__measure__space__POW3 (TMXbFT97vfFsKaDAxkREzhg3r3n4hkcxDrq)

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

Definition 2 We define $c_2Emin_2E_3D$ to be $\lambda A. \lambda x \in A. \lambda y \in A. inj_o \ (x = y)$ of type $\iota \Rightarrow \iota$.

Definition 3 We define $c_2Ecombin_2ES$ to be $\lambda A. 27a : \iota. \lambda A. 27b : \iota. \lambda A. 27c : \iota. (\lambda V0 f \in ((A. 27c^{A. 27b})^{A. 27a}))$

Definition 4 We define $c_2Ecombin_2EC$ to be $\lambda A. 27a : \iota. \lambda A. 27b : \iota. \lambda A. 27c : \iota. (\lambda V0 f \in ((A. 27c^{A. 27b})^{A. 27a}))$

Definition 5 We define $c_2Ecombin_2EK$ to be $\lambda A. 27a : \iota. \lambda A. 27b : \iota. (\lambda V0 x \in A. 27a. (\lambda V1 y \in A. 27b. V0 x))$

Definition 6 We define $c_2Ecombin_2EI$ to be $\lambda A. 27a : \iota. (ap \ (ap \ (c_2Ecombin_2ES \ A. 27a \ (A. 27a^{A. 27a}) \ A. 27b)))$

Definition 7 We define c_2Ebool_2ET to be $(ap \ (ap \ (c_2Emin_2E_3D \ (2^2)) \ (\lambda V0 x \in 2. V0 x)) \ (\lambda V1 x \in 2. V1 x))$

Definition 8 We define $c_2Ebool_2E_21$ to be $\lambda A. 27a : \iota. (\lambda V0 P \in (2^{A. 27a}). (ap \ (ap \ (c_2Emin_2E_3D \ (2^{A. 27a}))))$

Definition 9 We define $c_2Ecombin_2Eo$ to be $\lambda A. 27a : \iota. \lambda A. 27b : \iota. \lambda A. 27c : \iota. \lambda V0 f \in (A. 27b^{A. 27c}). \lambda V1 g$

Definition 10 We define $c_2Emin_2E_3D_3D_3E$ to be $\lambda P \in 2. \lambda Q \in 2. inj_o \ (p \Rightarrow q)$ of type ι .

Definition 11 We define $c_2Ebool_2E_2F_5C$ to be $(\lambda V0 t1 \in 2. (\lambda V1 t2 \in 2. (ap \ (c_2Ebool_2E_21 \ 2) \ (\lambda V2 t \in 2. V2 t))))$

Let $ty_2Epair_2Eprod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0. nonempty \ A0 \Rightarrow \forall A1. nonempty \ A1 \Rightarrow nonempty \ (ty_2Epair_2Eprod \ A0 \ A1) \tag{1}$$

Let $c_2Epair_2EABS_prod : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A. 27a. nonempty \ A. 27a \Rightarrow \forall A. 27b. nonempty \ A. 27b \Rightarrow c_2Epair_2EABS_prod \ A. 27a \ A. 27b \in ((ty_2Epair_2Eprod \ A. 27a \ A. 27b)^{(2^{A. 27b})^{A. 27a}}) \tag{2}$$

Definition 12 We define $c_2Epair_2E_2C$ to be $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda V0x \in A_27a. \lambda V1y \in A_27b. (ap (c_2$

Definition 13 We define c_2Ebool_2EIN to be $\lambda A_27a : \iota. (\lambda V0x \in A_27a. (\lambda V1f \in (2^{A_27a}). (ap V1f V0x)))$

Let $c_2Epred_set_2EGSPEC : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a. nonempty A_27a \Rightarrow \forall A_27b. nonempty A_27b \Rightarrow c_2Epred_set_2EGSPEC A_27a A_27b \in ((2^{A_27a})^{(ty_2Epair_2Eprod A_27a 2)^{A_27b}})$$
 (3)

Definition 14 We define $c_2Epred_set_2EPREIMAGE$ to be $\lambda A_27a : \iota. \lambda A_27b : \iota. \lambda V0f \in (A_27b^{A_27a}). \lambda V$

Let $ty_2Erealax_2Ereal : \iota$ be given. Assume the following.

$$nonempty ty_2Erealax_2Ereal$$
 (4)

Let $c_2Emeasure_2Emeasure : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a. nonempty A_27a \Rightarrow c_2Emeasure_2Emeasure A_27a \in ((ty_2Erealax_2Ereal^{(2^{A_27a})})^{(ty_2Epair_2Eprod (2^{A_27a}) (ty_2Epair_2Eprod (2^{(2^{A_27a})}) (ty_2Erealax_2Ereal^{(2^{A_27a})}))})$$
 (5)

Let $ty_2Eextreal_2Eextreal : \iota$ be given. Assume the following.

$$nonempty ty_2Eextreal_2Eextreal$$
 (6)

Let $c_2Eextreal_2ENormal : \iota$ be given. Assume the following.

$$c_2Eextreal_2ENormal \in (ty_2Eextreal_2Eextreal^{ty_2Erealax_2Ereal})$$
 (7)

Let $c_2Enum_2EZERO_REP : \iota$ be given. Assume the following.

$$c_2Enum_2EZERO_REP \in \omega$$
 (8)

Let $ty_2Enum_2Enum : \iota$ be given. Assume the following.

$$nonempty ty_2Enum_2Enum$$
 (9)

Let $c_2Enum_2EABS_num : \iota$ be given. Assume the following.

$$c_2Enum_2EABS_num \in (ty_2Enum_2Enum^{\omega})$$
 (10)

Definition 15 We define c_2Enum_2E0 to be $(ap c_2Enum_2EABS_num c_2Enum_2EZERO_REP)$.

Let $c_2Ereal_2Ereal_of_num : \iota$ be given. Assume the following.

$$c_2Ereal_2Ereal_of_num \in (ty_2Erealax_2Ereal^{ty_2Enum_2Enum})$$
 (11)

Definition 16 We define $c_2Eextreal_2Eextreal_of_num$ to be $\lambda V0n \in ty_2Enum_2Enum. (ap c_2Eextreal$

Let $c_2Eextreal_2Eextreal_ainv : \iota$ be given. Assume the following.

$$c_2Eextreal_2Eextreal_ainv \in (ty_2Eextreal_2Eextreal^{ty_2Eextreal_2Eextreal}) \quad (12)$$

Let $c_2Eextreal_2Eextreal_le : \iota$ be given. Assume the following.

$$c_2Eextreal_2Eextreal_le \in ((2^{ty_2Eextreal_2Eextreal})^{ty_2Eextreal_2Eextreal}) \quad (13)$$

Definition 17 We define c_2Ebool_2EF to be $(ap (c_2Ebool_2E.21) 2) (\lambda V0t \in 2.V0t)$.

Definition 18 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 19 We define $c_2Eextreal_2Eextreal_lt$ to be $\lambda V0x \in ty_2Eextreal_2Eextreal.\lambda V1y \in ty_2Eextreal$

Definition 20 We define c_2Ebool_2ECOND to be $\lambda A_27a : \iota.(\lambda V0t \in 2.(\lambda V1t1 \in A_27a.(\lambda V2t2 \in A_27a.))$

Definition 21 We define $c_2Emeasure_2Efn_minus$ to be $\lambda A_27a : \iota.\lambda V0f \in (ty_2Eextreal_2Eextreal^{A_27a})$

Let $c_2Emeasure_2Em_space : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow c_2Emeasure_2Em_space A_27a \in ((2^{A_27a})^{(ty_2Epair_2Eprod (2^{A_27a}) (ty_2Epair_2Eprod (2^{(2^{A_27a})}) (ty_2Erealax_2Ereal^{(2^{A_27a})})))) \quad (14)$$

Definition 22 We define $c_2Epred_set_2EIMAGE$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0f \in (A_27b^{A_27a}).\lambda V1s \in$

Definition 23 We define $c_2Ebool_2E.3F$ to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A_27a}).(ap V0P (ap (c_2Emin_2E.40$

Definition 24 We define $c_2Epred_set_2EBIGUNION$ to be $\lambda A_27a : \iota.\lambda V0P \in (2^{(2^{A_27a})}).(ap (c_2Epred_set$

Definition 25 We define $c_2Epred_set_2EEMPTY$ to be $\lambda A_27a : \iota.(\lambda V0x \in A_27a.c_2Ebool_2EF)$.

Definition 26 We define $c_2Epred_set_2EINTER$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A_27a}).\lambda V1t \in (2^{A_27a}).(ap (c$

Definition 27 We define $c_2Epred_set_2EDISJOINT$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A_27a}).\lambda V1t \in (2^{A_27a}).(ap$

Let $ty_2Ehreal_2Ehreal : \iota$ be given. Assume the following.

$$nonempty ty_2Ehreal_2Ehreal \quad (15)$$

Let $c_2Erealax_2Ereal_REP_CLASS : \iota$ be given. Assume the following.

$$c_2Erealax_2Ereal_REP_CLASS \in ((2^{(ty_2Epair_2Eprod ty_2Ehreal_2Ehreal ty_2Ehreal_2Ehreal)})^{ty_2Erealax}) \quad (16)$$

Definition 28 We define $c_2Erealax_2Ereal_REP$ to be $\lambda V0a \in ty_2Erealax_2Ereal.(ap (c_2Emin_2E.40 (t$

Let $c_2Erealax_2Etreal_lt : \iota$ be given. Assume the following.

$$c_2Erealax_2Etreal_lt \in ((2^{(ty_2Epair_2Eprod ty_2Ehreal_2Ehreal ty_2Ehreal_2Ehreal)})^{(ty_2Epair_2Eprod ty_2Ehreal)}) \quad (17)$$

Definition 29 We define $c_Erealax_Ereal_lt$ to be $\lambda V0T1 \in ty_Erealax_Ereal.\lambda V1T2 \in ty_Erealax_Ereal$.

Definition 30 We define $c_Ereal_Ereal_lte$ to be $\lambda V0x \in ty_Erealax_Ereal.\lambda V1y \in ty_Erealax_Ereal$.

Definition 31 We define $c_Ebool_E_5C_2F$ to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_Ebool_E_21) 2) (\lambda V2t \in 2)))$.

Definition 32 We define $c_Epred_set_EINSERT$ to be $\lambda A_27a : \iota.\lambda V0x \in A_27a.\lambda V1s \in (2^{A-27a}).(ap (c_Ebool_E_21) 2)$.

Definition 33 We define $c_Epred_set_EFINITE$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A-27a}).(ap (c_Ebool_E_21) 2)$.

Let $c_Emeasure_Emeasurable_sets : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow c_Emeasure_Emeasurable_sets \\ & A_27a \in ((2^{(2^{A-27a})})(ty_Epair_Eprod (2^{A-27a}) (ty_Epair_Eprod (2^{(2^{A-27a})}) (ty_Erealax_Ereal^{(2^{A-27a})})))) \end{aligned} \quad (18)$$

Definition 34 We define $c_Earithmetic_EZERO$ to be c_Enum_E0 .

Let $c_Enum_EERP_num : \iota$ be given. Assume the following.

$$c_Enum_EERP_num \in (\omega^{ty_Enum_Enum}) \quad (19)$$

Let $c_Enum_ESUC_REP : \iota$ be given. Assume the following.

$$c_Enum_ESUC_REP \in (\omega^{\omega}) \quad (20)$$

Definition 35 We define c_Enum_ESUC to be $\lambda V0m \in ty_Enum_Enum.(ap (c_Enum_EABS_num) m)$.

Let $c_Earithmetic_E_2B : \iota$ be given. Assume the following.

$$c_Earithmetic_E_2B \in ((ty_Enum_Enum^{ty_Enum_Enum})^{ty_Enum_Enum}) \quad (21)$$

Definition 36 We define $c_Earithmetic_EBIT1$ to be $\lambda V0n \in ty_Enum_Enum.(ap (ap (c_Earithmetic_E_2B) n) 1)$.

Definition 37 We define $c_Earithmetic_ENUMERAL$ to be $\lambda V0x \in ty_Enum_Enum.V0x$.

Definition 38 We define $c_Emeasure_Eindicator_fn$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A-27a}).(\lambda V1x \in A_27a.(ap (c_Ebool_E_21) 2)))$.

Let $c_Eextreal_Eextreal_mul : \iota$ be given. Assume the following.

$$c_Eextreal_Eextreal_mul \in ((ty_Eextreal_Eextreal^{ty_Eextreal_Eextreal})^{ty_Eextreal_Eextreal}) \quad (22)$$

Let $c_Eextreal_Eextreal_add : \iota$ be given. Assume the following.

$$c_Eextreal_Eextreal_add \in ((ty_Eextreal_Eextreal^{ty_Eextreal_Eextreal})^{ty_Eextreal_Eextreal}) \quad (23)$$

Let $c_Epred_set_EITSET : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow c_Epred_set_EITSET \\ & A_27a A_27b \in (((A_27b^{A_27b})^{(2^{A-27a})})^{((A_27b^{A_27b})^{A-27a})}) \end{aligned} \quad (24)$$

Definition 39 We define $c_2Eextreal_2EEXTREAL_SUM_IMAGE$ to be $\lambda A_27a : \iota.\lambda V0f \in (ty_2Eextreal_2EEXTREAL_SUM_IMAGE)$

Definition 40 We define $c_2Emeasure_2Epos_simple_fn$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Epair_2Eprod (2^{A_27a}))$

Let $c_2Epair_2ESND : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2ESND \\ A_27a\ A_27b \in (A_27b^{(ty_2Epair_2Eprod\ A_27a\ A_27b)}) \end{aligned} \quad (25)$$

Let $c_2Epair_2EFST : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2EFST \\ A_27a\ A_27b \in (A_27a^{(ty_2Epair_2Eprod\ A_27a\ A_27b)}) \end{aligned} \quad (26)$$

Definition 41 We define $c_2Epair_2EUNCURRY$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0f \in ((A_27c)^{A_27a})$

Definition 42 We define $c_2Elebesgue_2Epsfs$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Epair_2Eprod (2^{A_27a})) (ty_2Eprod (2^{A_27a}))$

Let $c_2Erealax_2Etrealmul : \iota$ be given. Assume the following.

$$\begin{aligned} c_2Erealax_2Etrealmul \in (((ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal \\ ty_2Ehreal_2Ehreal)^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)})^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal)}} \end{aligned} \quad (27)$$

Let $c_2Erealax_2Etrealeq : \iota$ be given. Assume the following.

$$c_2Erealax_2Etrealeq \in ((2^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)})^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal)}} \quad (28)$$

Let $c_2Erealax_2Ereal_ABS_CLASS : \iota$ be given. Assume the following.

$$c_2Erealax_2Ereal_ABS_CLASS \in (ty_2Erealax_2Ereal)^{(2^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)}} \quad (29)$$

Definition 43 We define $c_2Erealax_2Ereal_ABS$ to be $\lambda V0r \in (ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)$

Definition 44 We define $c_2Erealax_2Ereal_mul$ to be $\lambda V0T1 \in ty_2Erealax_2Ereal.\lambda V1T2 \in ty_2Erealax_2Ereal$

Let $c_2Erealax_2Ereal_add : \iota$ be given. Assume the following.

$$\begin{aligned} c_2Erealax_2Ereal_add \in (((ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal \\ ty_2Ehreal_2Ehreal)^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)})^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal)}} \end{aligned} \quad (30)$$

Definition 45 We define $c_2Erealax_2Ereal_add$ to be $\lambda V0T1 \in ty_2Erealax_2Ereal.\lambda V1T2 \in ty_2Erealax_2Ereal$

Definition 46 We define $c_2Ereal_sigma_2EREAL_SUM_IMAGE$ to be $\lambda A_27a : \iota.\lambda V0f \in (ty_2Erealax_2Ereal)$

Definition 47 We define $c_2Elebesgue_2Epos_simple_fn_integral$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Epair_2Eprod (2^{A_27a}))$

Let $c_2Emeasure_2Espace : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Emeasure_2Espace\ A_27a \in ((2^{A_27a})^{(ty_2Epair_2Eprod\ (2^{A_27a})\ (2^{(2^{A_27a})})})) \quad (35)$$

Definition 63 We define $c_2Epred_set_2EDIFF$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A_27a}).\lambda V1t \in (2^{A_27a}).(ap\ (c_2E$

Definition 64 We define $c_2Emeasure_2Esubset_class$ to be $\lambda A_27a : \iota.\lambda V0sp \in (2^{A_27a}).\lambda V1sts \in (2^{(2^{A_27a})})$

Definition 65 We define $c_2Emeasure_2Ealgebra$ to be $\lambda A_27a : \iota.\lambda V0a \in (ty_2Epair_2Eprod\ (2^{A_27a})\ (2^{(2^{A_27a})}))$

Definition 66 We define $c_2Emeasure_2Esigma_algebra$ to be $\lambda A_27a : \iota.\lambda V0a \in (ty_2Epair_2Eprod\ (2^{A_27a})\ (2^{(2^{A_27a})}))$

Definition 67 We define $c_2Epred_set_2EBIGINTER$ to be $\lambda A_27a : \iota.\lambda V0P \in (2^{(2^{A_27a})}).(ap\ (c_2Epred_s$

Definition 68 We define $c_2Emeasure_2Esigma$ to be $\lambda A_27a : \iota.\lambda V0sp \in (2^{A_27a}).\lambda V1st \in (2^{(2^{A_27a})}).(ap\ ($

Definition 69 We define $c_2Elebesgue_2Eprod_measure_space$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0m0 \in (ty_2E$

Definition 70 We define $c_2Elebesgue_2Eprod_measure3$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0m0 \in ($

Definition 71 We define $c_2Elebesgue_2Eprod_sets3$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0a \in (2^{(2^{A_27a})})$

Definition 72 We define $c_2Elebesgue_2Eprod_measure_space3$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0$

Definition 73 We define $c_2Epred_set_2EPOW$ to be $\lambda A_27a : \iota.\lambda V0set \in (2^{A_27a}).(ap\ (c_2Epred_set_2E$

Assume the following.

$$True \quad (36)$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(((p\ V0t1) \Rightarrow (p\ V1t2)) \Rightarrow (((p\ V1t2) \Rightarrow (p\ V0t1)) \Rightarrow ((p\ V0t1) \Leftrightarrow (p\ V1t2)))))) \quad (37)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A_27a.(p\ V0t) \Leftrightarrow (p\ V0t))) \quad (38)$$

Assume the following.

$$(\forall V0t \in 2.(((True \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \wedge True) \Leftrightarrow (p\ V0t)) \wedge (((False \wedge (p\ V0t)) \Leftrightarrow False) \wedge (((p\ V0t) \wedge False) \Leftrightarrow False) \wedge (((p\ V0t) \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)))))) \quad (39)$$

Assume the following.

$$(\forall V0t \in 2.(((True \Rightarrow (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \Rightarrow True) \Leftrightarrow True) \wedge (((False \Rightarrow (p\ V0t)) \Leftrightarrow True) \wedge (((p\ V0t) \Rightarrow (p\ V0t)) \Leftrightarrow True) \wedge ((p\ V0t) \Rightarrow False) \Leftrightarrow (\neg (p\ V0t)))))) \quad (40)$$

Assume the following.

$$((\forall V0t \in 2.((\neg(\neg(p V0t))) \Leftrightarrow (p V0t))) \wedge (((\neg True) \Leftrightarrow False) \wedge ((\neg False) \Leftrightarrow True))) \quad (41)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.(V0x = V0x)) \quad (42)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.((V0x = V0x) \Leftrightarrow True)) \quad (43)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0x \in A_27a.(\forall V1y \in A_27a.((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (44)$$

Assume the following.

$$(\forall V0t \in 2.(((True \Leftrightarrow (p V0t)) \Leftrightarrow (p V0t)) \wedge (((p V0t) \Leftrightarrow True) \Leftrightarrow (p V0t)) \wedge (((False \Leftrightarrow (p V0t)) \Leftrightarrow (\neg(p V0t))) \wedge (((p V0t) \Leftrightarrow False) \Leftrightarrow (\neg(p V0t))))) \quad (45)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0Q \in 2.(\forall V1P \in (2^{A_27a}).((\forall V2x \in A_27a.((p (ap V1P V2x)) \vee (p V0Q))) \Leftrightarrow ((\forall V3x \in A_27a.(p (ap V1P V3x))) \vee (p V0Q))))) \quad (46)$$

Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow (\forall V0P \in 2.(\forall V1Q \in (2^{A_27a}).((\forall V2x \in A_27a.((p V0P) \vee (p (ap V1Q V2x)))) \Leftrightarrow ((p V0P) \vee (\forall V3x \in A_27a.(p (ap V1Q V3x))))) \quad (47)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(\forall V2C \in 2.(((p V0A) \vee ((p V1B) \wedge (p V2C))) \Leftrightarrow (((p V0A) \vee (p V1B)) \wedge ((p V0A) \vee (p V2C))))) \quad (48)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(\forall V2C \in 2.(((p V1B) \wedge (p V2C)) \vee (p V0A)) \Leftrightarrow (((p V1B) \vee (p V0A)) \wedge ((p V2C) \vee (p V0A))))) \quad (49)$$

Assume the following.

$$(\forall V0t1 \in 2.(\forall V1t2 \in 2.(\forall V2t3 \in 2.(((p V0t1) \Rightarrow ((p V1t2) \Rightarrow (p V2t3))) \Leftrightarrow (((p V0t1) \wedge (p V1t2)) \Rightarrow (p V2t3)))) \quad (50)$$

Assume the following.

$$2.(((\forall V0x \in 2.(\forall V1x_{.27} \in 2.(\forall V2y \in 2.(\forall V3y_{.27} \in 2.(((p \ V0x) \Leftrightarrow (p \ V1x_{.27})) \wedge ((p \ V1x_{.27}) \Rightarrow ((p \ V2y) \Leftrightarrow (p \ V3y_{.27})))))) \Rightarrow ((p \ V0x) \Rightarrow (p \ V2y)) \Leftrightarrow ((p \ V1x_{.27}) \Rightarrow (p \ V3y_{.27})))))) \Rightarrow (51)$$

Assume the following.

$$\forall A_{.27a}.nonempty \ A_{.27a} \Rightarrow (\forall V0P \in (2^{A_{.27a}}).(\forall V1a \in A_{.27a}.((\exists V2x \in A_{.27a}.((V2x = V1a) \wedge (p \ (ap \ V0P \ V2x)))) \Leftrightarrow (p \ (ap \ V0P \ V1a)))))) \Rightarrow (52)$$

Assume the following.

$$\forall A_{.27a}.nonempty \ A_{.27a} \Rightarrow (\forall V0x \in A_{.27a}.((ap \ (c_{.2}Ecombin_{.2}EI \ A_{.27a}) \ V0x) = V0x)) \Rightarrow (53)$$

Assume the following.

$$\forall A_{.27a}.nonempty \ A_{.27a} \Rightarrow \forall A_{.27b}.nonempty \ A_{.27b} \Rightarrow (\forall V0f \in (A_{.27b}^{A_{.27a}}).(((ap \ (ap \ (c_{.2}Ecombin_{.2}Eo \ A_{.27a} \ A_{.27b} \ A_{.27b}) \ (c_{.2}Ecombin_{.2}EI \ A_{.27b})) \ V0f) = V0f) \wedge ((ap \ (ap \ (c_{.2}Ecombin_{.2}Eo \ A_{.27a} \ A_{.27b} \ A_{.27a}) \ V0f) \ (c_{.2}Ecombin_{.2}EI \ A_{.27a}) = V0f))) \Rightarrow (54)$$

Assume the following.

$$\forall A_{.27a}.nonempty \ A_{.27a} \Rightarrow (\forall V0x \in (2^{A_{.27a}}).(\forall V1y \in (2^{(2^{A_{.27a}})}).((ap \ (c_{.2}Emeasure_{.2}Esubsets \ A_{.27a}) \ (ap \ (ap \ (c_{.2}Epair_{.2}E_{.2}C \ (2^{A_{.27a}}) \ (2^{(2^{A_{.27a}})})) \ V0x) \ V1y)) = V1y))) \Rightarrow (55)$$

Assume the following.

$$\forall A_{.27a}.nonempty \ A_{.27a} \Rightarrow (\forall V0sp \in (2^{A_{.27a}}).(\forall V1sts \in (2^{(2^{A_{.27a}})}).(\forall V2mu \in (ty_{.2}Erealax_{.2}Ereal^{(2^{A_{.27a}})}).((ap \ (c_{.2}Emeasure_{.2}Em_{.2}space \ A_{.27a}) \ (ap \ (ap \ (c_{.2}Epair_{.2}E_{.2}C \ (2^{A_{.27a}}) \ (ty_{.2}Epair_{.2}Eprod \ (2^{(2^{A_{.27a}})} \ (ty_{.2}Erealax_{.2}Ereal^{(2^{A_{.27a}})})))) \ V0sp) \ (ap \ (ap \ (c_{.2}Epair_{.2}E_{.2}C \ (2^{(2^{A_{.27a}})} \ (ty_{.2}Erealax_{.2}Ereal^{(2^{A_{.27a}})})) \ V1sts) \ V2mu)))) = V0sp)))) \Rightarrow (56)$$

Assume the following.

$$\forall A_{.27a}.nonempty \ A_{.27a} \Rightarrow (\forall V0sp \in (2^{A_{.27a}}).(\forall V1sts \in (2^{(2^{A_{.27a}})}).(\forall V2mu \in (ty_{.2}Erealax_{.2}Ereal^{(2^{A_{.27a}})}).((ap \ (c_{.2}Emeasure_{.2}Emeasurable_{.2}sets \ A_{.27a}) \ (ap \ (ap \ (c_{.2}Epair_{.2}E_{.2}C \ (2^{A_{.27a}}) \ (ty_{.2}Epair_{.2}Eprod \ (2^{(2^{A_{.27a}})} \ (ty_{.2}Erealax_{.2}Ereal^{(2^{A_{.27a}})})))) \ V0sp) \ (ap \ (ap \ (c_{.2}Epair_{.2}E_{.2}C \ (2^{(2^{A_{.27a}})} \ (ty_{.2}Erealax_{.2}Ereal^{(2^{A_{.27a}})})) \ V1sts) \ V2mu)))) = V1sts)))) \Rightarrow (57)$$

Assume the following.

$$\begin{aligned} \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0sp \in (2^{A-27a}). (p\ (ap \\ (c.2Emeasure_2Esigma_algebra\ A.27a)\ (ap\ (ap\ (c.2Epair_2E_2C \\ (2^{A-27a})\ (2^{(2^{A-27a})}))\ V0sp)\ (ap\ (c.2Epred_set_2EPOW\ A.27a) \\ V0sp)))))) \end{aligned} \quad (58)$$

Assume the following.

$$\begin{aligned} \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0p \in (ty_2Epair_2Eprod \\ (2^{A-27a})\ (2^{(2^{A-27a})})). ((p\ (ap\ (c.2Emeasure_2Esigma_algebra \\ A.27a)\ V0p)) \Leftrightarrow ((p\ (ap\ (ap\ (c.2Emeasure_2Esubset_class\ A.27a) \\ (ap\ (c.2Emeasure_2Espace\ A.27a)\ V0p))\ (ap\ (c.2Emeasure_2Esubsets \\ A.27a)\ V0p))) \wedge ((p\ (ap\ (ap\ (c.2Ebool_2EIN\ (2^{A-27a})\ (c.2Epred_set_2EEMPTY \\ A.27a))\ (ap\ (c.2Emeasure_2Esubsets\ A.27a)\ V0p))) \wedge ((\forall V1s \in \\ (2^{A-27a}). ((p\ (ap\ (ap\ (c.2Ebool_2EIN\ (2^{A-27a})\ V1s)\ (ap\ (c.2Emeasure_2Esubsets \\ A.27a)\ V0p))) \Rightarrow (p\ (ap\ (ap\ (c.2Ebool_2EIN\ (2^{A-27a})\ (ap\ (ap\ (c.2Epred_set_2EDIFF \\ A.27a)\ (ap\ (c.2Emeasure_2Espace\ A.27a)\ V0p))\ V1s)\ (ap\ (c.2Emeasure_2Esubsets \\ A.27a)\ V0p)))))) \wedge (\forall V2c \in (2^{(2^{A-27a})}). ((p\ (ap\ (c.2Epred_set_2Ecountable \\ (2^{A-27a})\ V2c)) \wedge (p\ (ap\ (ap\ (c.2Epred_set_2ESUBSET\ (2^{A-27a}) \\ V2c)\ (ap\ (c.2Emeasure_2Esubsets\ A.27a)\ V0p)))) \Rightarrow (p\ (ap\ (ap\ (c.2Ebool_2EIN \\ (2^{A-27a})\ (ap\ (c.2Epred_set_2EBIGUNION\ A.27a)\ V2c))\ (ap\ (c.2Emeasure_2Esubsets \\ A.27a)\ V0p)))))))))) \end{aligned} \quad (59)$$

Assume the following.

$$\begin{aligned} \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\ \forall V0x \in A.27a. (\forall V1y \in A.27b. (\forall V2a \in A.27a. (\forall V3b \in \\ A.27b. (((ap\ (ap\ (c.2Epair_2E_2C\ A.27a\ A.27b)\ V0x)\ V1y) = (ap\ (ap \\ (c.2Epair_2E_2C\ A.27a\ A.27b)\ V2a)\ V3b)) \Leftrightarrow ((V0x = V2a) \wedge (V1y = V3b)))))) \end{aligned} \quad (60)$$

Assume the following.

$$\begin{aligned} \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\ \forall V0x \in (ty_2Epair_2Eprod\ A.27a\ A.27b). (\exists V1q \in A.27a. \\ (\exists V2r \in A.27b. (V0x = (ap\ (ap\ (c.2Epair_2E_2C\ A.27a\ A.27b) \\ V1q)\ V2r)))))) \end{aligned} \quad (61)$$

Assume the following.

$$\begin{aligned} \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\ \forall V0x \in (ty_2Epair_2Eprod\ A.27a\ A.27b). ((ap\ (ap\ (c.2Epair_2E_2C \\ A.27a\ A.27b)\ (ap\ (c.2Epair_2EFST\ A.27a\ A.27b)\ V0x))\ (ap\ (c.2Epair_2ESND \\ A.27a\ A.27b)\ V0x)) = V0x)) \end{aligned} \quad (62)$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow \forall A.27c. \\
& \quad nonempty\ A.27c \Rightarrow (\forall V0f \in ((A.27c^{A.27b})^{A.27a}). (\forall V1x \in \\
& \quad A.27a. (\forall V2y \in A.27b. ((ap\ (ap\ (c.2Epair_2EUNCURRY\ A.27a \\
& \quad A.27b\ A.27c)\ V0f)\ (ap\ (ap\ (c.2Epair_2E_2C\ A.27a\ A.27b)\ V1x)\ V2y))) = \\
& \quad (ap\ (ap\ V0f\ V1x)\ V2y))))))
\end{aligned} \tag{63}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0s \in (2^{A.27a}). (\forall V1t \in \\
& \quad (2^{A.27a}). ((V0s = V1t) \Leftrightarrow (\forall V2x \in A.27a. ((p\ (ap\ (ap\ (c.2Ebool_2EIN \\
& \quad A.27a)\ V2x)\ V0s)) \Leftrightarrow (p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V2x)\ V1t))))))
\end{aligned} \tag{64}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \quad \forall V0f \in ((ty_2Epair_2Eprod\ A.27a\ 2)^{A.27b}). (\forall V1v \in \\
& \quad A.27a. ((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V1v)\ (ap\ (c.2Epred_set_2EGSPEC \\
& \quad A.27a\ A.27b)\ V0f))) \Leftrightarrow (\exists V2x \in A.27b. ((ap\ (ap\ (c.2Epair_2E_2C \\
& \quad A.27a\ 2)\ V1v)\ c.2Ebool_2ET) = (ap\ V0f\ V2x))))))
\end{aligned} \tag{65}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0x \in A.27a. (\forall V1y \in \\
& \quad A.27a. ((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V0x)\ (ap\ (ap\ (c.2Epred_set_2EINSERT \\
& \quad A.27a)\ V1y)\ (c.2Epred_set_2EEMPTY\ A.27a)))) \Leftrightarrow (V0x = V1y))))
\end{aligned} \tag{66}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \quad \forall V0y \in A.27b. (\forall V1s \in (2^{A.27a}). (\forall V2f \in (A.27b^{A.27a}). \\
& \quad ((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27b)\ V0y)\ (ap\ (ap\ (c.2Epred_set_2EIMAGE \\
& \quad A.27a\ A.27b)\ V2f)\ V1s))) \Leftrightarrow (\exists V3x \in A.27a. ((V0y = (ap\ V2f\ V3x)) \wedge \\
& \quad (p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V3x)\ V1s))))))
\end{aligned} \tag{67}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0s \in (2^{A.27a}). ((p\ (ap \\
& \quad (c.2Epred_set_2EFINITE\ A.27a)\ V0s)) \Rightarrow (\forall V1t \in (2^{A.27a}). \\
& \quad ((p\ (ap\ (ap\ (c.2Epred_set_2ESUBSET\ A.27a)\ V1t)\ V0s)) \Rightarrow (p\ (ap\ (c.2Epred_set_2EFINITE \\
& \quad A.27a)\ V1t))))))
\end{aligned} \tag{68}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \quad \forall V0s \in (2^{A.27a}). ((p\ (ap\ (c.2Epred_set_2EFINITE\ A.27a) \\
& \quad V0s)) \Rightarrow (\forall V1f \in (A.27b^{A.27a}). (p\ (ap\ (c.2Epred_set_2EFINITE \\
& \quad A.27b)\ (ap\ (ap\ (c.2Epred_set_2EIMAGE\ A.27a\ A.27b)\ V1f)\ V0s))))))
\end{aligned} \tag{69}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \quad \forall V0f \in ((2^{A.27b})^{A.27a}).(\forall V1s \in (2^{A.27a}).(\forall V2y \in \\
& A.27b.((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27b)\ V2y)\ (ap\ (c.2Epred_set_2EBIGUNION \\
& A.27b)\ (ap\ (ap\ (c.2Epred_set_2EIMAGE\ A.27a\ (2^{A.27b}))\ V0f)\ V1s)))) \Leftrightarrow \\
& \quad (\exists V3x \in A.27a.((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V3x)\ V1s)) \wedge \\
& \quad (p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27b)\ V2y)\ (ap\ V0f\ V3x))))))))) \\
& \hspace{15em} (70)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0x \in A.27a.(\forall V1B \in \\
& (2^{(2^{A.27a})}).((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V0x)\ (ap\ (c.2Epred_set_2EBIGINTER \\
& A.27a)\ V1B)))) \Leftrightarrow (\forall V2P \in (2^{A.27a}).((p\ (ap\ (ap\ (c.2Ebool_2EIN \\
& (2^{A.27a})\ V2P)\ V1B)) \Rightarrow (p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ V0x)\ V2P)))))) \\
& \hspace{15em} (71)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \quad \forall V0P \in (2^{A.27a}).(\forall V1Q \in (2^{A.27b}).(\forall V2x \in \\
& (ty_2Epair_2Eprod\ A.27a\ A.27b).((p\ (ap\ (ap\ (c.2Ebool_2EIN\ (ty_2Epair_2Eprod \\
& A.27a\ A.27b))\ V2x)\ (ap\ (ap\ (c.2Epred_set_2ECROSS\ A.27a\ A.27b) \\
& V0P)\ V1Q)))) \Leftrightarrow ((p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27a)\ (ap\ (c.2Epair_2EFS \\
& A.27a\ A.27b)\ V2x))\ V0P)) \wedge (p\ (ap\ (ap\ (c.2Ebool_2EIN\ A.27b)\ (ap\ (c.2Epair_2ESND \\
& A.27a\ A.27b)\ V2x))\ V1Q)))))) \\
& \hspace{15em} (72)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow \forall A.27b.nonempty\ A.27b \Rightarrow (\\
& \quad \forall V0P \in (2^{A.27a}).(\forall V1Q \in (2^{A.27b}).((p\ (ap\ (c.2Epred_set_2EFINITE \\
& A.27a)\ V0P)) \wedge (p\ (ap\ (c.2Epred_set_2EFINITE\ A.27b)\ V1Q)))) \Rightarrow (p \\
& \quad (ap\ (c.2Epred_set_2EFINITE\ (ty_2Epair_2Eprod\ A.27a\ A.27b)) \\
& \quad (ap\ (ap\ (c.2Epred_set_2ECROSS\ A.27a\ A.27b)\ V0P)\ V1Q)))) \\
& \hspace{15em} (73)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0set \in (2^{A.27a}).(\forall V1e \in \\
& (2^{A.27a}).((p\ (ap\ (ap\ (c.2Ebool_2EIN\ (2^{A.27a})\ V1e)\ (ap\ (c.2Epred_set_2EPOW \\
& A.27a)\ V0set)))) \Leftrightarrow (p\ (ap\ (ap\ (c.2Epred_set_2ESUBSET\ A.27a)\ V1e) \\
& \quad V0set)))) \\
& \hspace{15em} (74)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0s \in (2^{A.27a}).((p\ (ap \\
& (c.2Epred_set_2EFINITE\ A.27a)\ V0s)) \Rightarrow (p\ (ap\ (c.2Epred_set_2Ecountable \\
& A.27a)\ V0s)))) \\
& \hspace{15em} (75)
\end{aligned}$$

Assume the following.

$$(\forall V0t \in 2.((\neg(\neg(p V0t))) \Leftrightarrow (p V0t))) \quad (76)$$

Assume the following.

$$(\forall V0A \in 2.((p V0A) \Rightarrow ((\neg(p V0A)) \Rightarrow \text{False}))) \quad (77)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(((\neg((\neg(p V0A) \vee (p V1B))) \Rightarrow \text{False}) \Leftrightarrow ((p V0A) \Rightarrow \text{False}) \Rightarrow ((\neg(p V1B)) \Rightarrow \text{False})))))) \quad (78)$$

Assume the following.

$$(\forall V0A \in 2.(\forall V1B \in 2.(((\neg(\neg(p V0A) \vee (p V1B))) \Rightarrow \text{False}) \Leftrightarrow ((p V0A) \Rightarrow ((\neg(p V1B)) \Rightarrow \text{False})))))) \quad (79)$$

Assume the following.

$$(\forall V0A \in 2.(((\neg(p V0A)) \Rightarrow \text{False}) \Rightarrow (((p V0A) \Rightarrow \text{False}) \Rightarrow \text{False}))) \quad (80)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \Leftrightarrow (p V2r))) \Leftrightarrow (((p V0p) \vee ((p V1q) \vee (p V2r))) \wedge (((p V0p) \vee ((\neg(p V2r)) \vee (\neg(p V1q)))) \wedge (((p V1q) \vee ((\neg(p V2r)) \vee (\neg(p V0p)))) \wedge ((p V2r) \vee ((\neg(p V1q)) \vee (\neg(p V0p)))))))))) \quad (81)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \wedge (p V2r))) \Leftrightarrow (((p V0p) \vee ((\neg(p V1q)) \vee (\neg(p V2r)))) \wedge (((p V1q) \vee (\neg(p V0p))) \wedge ((p V2r) \vee (\neg(p V0p)))))))) \quad (82)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \vee (p V2r))) \Leftrightarrow (((p V0p) \vee (\neg(p V1q))) \wedge (((p V0p) \vee (\neg(p V2r))) \wedge ((p V1q) \vee ((p V2r) \vee (\neg(p V0p)))))))))) \quad (83)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(\forall V2r \in 2.(((p V0p) \Leftrightarrow (p V1q) \Rightarrow (p V2r))) \Leftrightarrow (((p V0p) \vee (p V1q)) \wedge (((p V0p) \vee (\neg(p V2r))) \wedge ((\neg(p V1q)) \vee ((p V2r) \vee (\neg(p V0p)))))))))) \quad (84)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.(((p V0p) \Leftrightarrow (\neg(p V1q))) \Leftrightarrow (((p V0p) \vee (p V1q)) \wedge ((\neg(p V1q)) \vee (\neg(p V0p)))))) \quad (85)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.((\neg((p V0p) \Rightarrow (p V1q))) \Rightarrow (p V0p)))) \quad (86)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.((\neg((p V0p) \Rightarrow (p V1q))) \Rightarrow (\neg(p V1q))))) \quad (87)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.((\neg((p V0p) \vee (p V1q))) \Rightarrow (\neg(p V0p))))) \quad (88)$$

Assume the following.

$$(\forall V0p \in 2.(\forall V1q \in 2.((\neg((p V0p) \vee (p V1q))) \Rightarrow (\neg(p V1q))))) \quad (89)$$

Assume the following.

$$(\forall V0p \in 2.((\neg(\neg(p V0p))) \Rightarrow (p V0p))) \quad (90)$$

Theorem 1

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow \forall A_27c. \\
& \quad nonempty\ A_27c \Rightarrow (\forall V0s1 \in (2^{A_27a}). (\forall V1s2 \in (2^{A_27b}). \\
& \quad (\forall V2s3 \in (2^{A_27c}). (\forall V3u \in (ty_2Erealax_2Ereal^{(2^{A_27a})}). \\
& \quad (\forall V4v \in (ty_2Erealax_2Ereal^{(2^{A_27b})}). (\forall V5w \in (\\
& \quad ty_2Erealax_2Ereal^{(2^{A_27c})}). ((p\ (ap\ (c_2Epred_set_2EFINITE \\
& \quad A_27a\ V0s1)) \wedge ((p\ (ap\ (c_2Epred_set_2EFINITE\ A_27b\ V1s2)) \wedge \\
(p\ (ap\ (c_2Epred_set_2EFINITE\ A_27c\ V2s3)))) \Rightarrow ((ap\ (ap\ (ap\ (c_2Elebesgue_2Eprod_measure_space3 \\
& \quad A_27a\ A_27b\ A_27c)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{A_27a})\ (ty_2Epair_2Eprod \\
& \quad (2^{(2^{A_27a})})\ (ty_2Erealax_2Ereal^{(2^{A_27a})}))))\ V0s1)\ (ap\ (ap \\
& \quad (c_2Epair_2E_2C\ (2^{(2^{A_27a})})\ (ty_2Erealax_2Ereal^{(2^{A_27a})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ A_27a\ V0s1))\ V3u)))\ (ap\ (ap\ (c_2Epair_2E_2C \\
& \quad (2^{A_27b})\ (ty_2Epair_2Eprod\ (2^{(2^{A_27b})})\ (ty_2Erealax_2Ereal^{(2^{A_27b})})))) \\
& \quad V1s2)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A_27b})})\ (ty_2Erealax_2Ereal^{(2^{A_27b})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ A_27b\ V1s2))\ V4v)))\ (ap\ (ap\ (c_2Epair_2E_2C \\
& \quad (2^{A_27c})\ (ty_2Epair_2Eprod\ (2^{(2^{A_27c})})\ (ty_2Erealax_2Ereal^{(2^{A_27c})}))) \\
& \quad V2s3)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A_27c})})\ (ty_2Erealax_2Ereal^{(2^{A_27c})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ A_27c\ V2s3))\ V5w))) = (ap\ (ap\ (c_2Epair_2E_2C \\
& \quad (2^{(ty_2Epair_2Eprod\ A_27a\ (ty_2Epair_2Eprod\ A_27b\ A_27c)})) \\
& \quad (ty_2Epair_2Eprod\ (2^{(2^{(ty_2Epair_2Eprod\ A_27a\ (ty_2Epair_2Eprod\ A_27b\ A_27c))})}) \\
& \quad (ty_2Erealax_2Ereal^{(2^{(ty_2Epair_2Eprod\ A_27a\ (ty_2Epair_2Eprod\ A_27b\ A_27c))})}))) \\
& \quad (ap\ (ap\ (c_2Epred_set_2ECROSS\ A_27a\ (ty_2Epair_2Eprod\ A_27b \\
& \quad A_27c))\ V0s1)\ (ap\ (ap\ (c_2Epred_set_2ECROSS\ A_27b\ A_27c)\ V1s2) \\
& \quad V2s3)))\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{(ty_2Epair_2Eprod\ A_27a\ (ty_2Epair_2Eprod\ A_27b\ A_27c))})}) \\
& \quad (ty_2Erealax_2Ereal^{(2^{(ty_2Epair_2Eprod\ A_27a\ (ty_2Epair_2Eprod\ A_27b\ A_27c))})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ (ty_2Epair_2Eprod\ A_27a\ (ty_2Epair_2Eprod \\
& \quad A_27b\ A_27c)))\ (ap\ (ap\ (c_2Epred_set_2ECROSS\ A_27a\ (ty_2Epair_2Eprod \\
& \quad A_27b\ A_27c))\ V0s1)\ (ap\ (ap\ (c_2Epred_set_2ECROSS\ A_27b\ A_27c) \\
& \quad V1s2)\ V2s3))))\ (ap\ (ap\ (ap\ (c_2Elebesgue_2Eprod_measure3\ A_27a \\
& \quad A_27b\ A_27c)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{A_27a})\ (ty_2Epair_2Eprod \\
& \quad (2^{(2^{A_27a})})\ (ty_2Erealax_2Ereal^{(2^{A_27a})}))))\ V0s1)\ (ap\ (ap \\
& \quad (c_2Epair_2E_2C\ (2^{(2^{A_27a})})\ (ty_2Erealax_2Ereal^{(2^{A_27a})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ A_27a\ V0s1))\ V3u)))\ (ap\ (ap\ (c_2Epair_2E_2C \\
& \quad (2^{A_27b})\ (ty_2Epair_2Eprod\ (2^{(2^{A_27b})})\ (ty_2Erealax_2Ereal^{(2^{A_27b})})))) \\
& \quad V1s2)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A_27b})})\ (ty_2Erealax_2Ereal^{(2^{A_27b})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ A_27b\ V1s2))\ V4v)))\ (ap\ (ap\ (c_2Epair_2E_2C \\
& \quad (2^{A_27c})\ (ty_2Epair_2Eprod\ (2^{(2^{A_27c})})\ (ty_2Erealax_2Ereal^{(2^{A_27c})}))) \\
& \quad V2s3)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A_27c})})\ (ty_2Erealax_2Ereal^{(2^{A_27c})}))) \\
& \quad (ap\ (c_2Epred_set_2EPOW\ A_27c\ V2s3))\ V5w)))))))))
\end{aligned}$$