

thm_2Emeasure_2EINF__MEASURE__INCREASING (TMV5y24hgu9BGkRCnkT5E4nU3PFobxSNU6z)

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Definition 1 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 2 We define $c_2Ecombin_2ES$ to be $\lambda A.\lambda a : \iota.\lambda A.\lambda b : \iota.\lambda A.\lambda c : \iota.(\lambda V0f \in ((A_27c^{A_27b})^{A_27a}))$

Definition 3 We define $c_2Ecombin_2EC$ to be $\lambda A.\lambda a : \iota.\lambda A.\lambda b : \iota.\lambda A.\lambda c : \iota.(\lambda V0f \in ((A_27c^{A_27b})^{A_27a}))$

Definition 4 We define $c_2Ecombin_2EK$ to be $\lambda A.\lambda a : \iota.\lambda A.\lambda b : \iota.(\lambda V0x \in A_27a.(\lambda V1y \in A_27b.V0x))$

Definition 5 We define $c_2Ecombin_2EI$ to be $\lambda A.\lambda a : \iota.(ap(ap(c_2Ecombin_2ES A_27a (A_27a^{A_27a}))) A_27a)$

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

$$nonempty\ ty_2Erealax_2Ereal \tag{1}$$

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

$$\forall A0.nonempty\ A0 \Rightarrow \forall A1.nonempty\ A1 \Rightarrow nonempty\ (ty_2Epair_2Eprod\ A0\ A1) \tag{2}$$

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

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Emeasure_2Emeasure\ A_27a \in (ty_2Erealax_2Ereal^{(2^{A_27a})})(ty_2Epair_2Eprod\ (2^{A_27a})\ (ty_2Epair_2Eprod\ (2^{(2^{A_27a})}))\ (ty_2Erealax_2Ereal^{(2^{A_27a})})) \tag{3}$$

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

$$nonempty\ ty_2Ehreal_2Ehreal \tag{4}$$

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

$$c_2Erealax_2Ereal_REP_CLASS \in ((2^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)})\ ty_2Erealax_2Ereal) \tag{5}$$

Definition 6 We define $c_2Emin_2E_40$ to be $\lambda A.\lambda P \in 2^A$. **if** $(\exists x \in A.p (ap P x))$ **then** (the $(\lambda x.x \in A \wedge p x)$ of type $\iota \Rightarrow \iota$).

Definition 7 We define $c_2Ebool_2E_21$ to be $(ap (ap (c_2Emin_2E_3D (2^2)) (\lambda V0x \in 2.V0x)) (\lambda V1x \in 2.V1x))$

Definition 8 We define $c_2Ebool_2E_21$ to be $\lambda A_27a : \iota.(\lambda V0P \in (2^{A-27a}).(ap (ap (c_2Emin_2E_3D (2^{A-27a})))$

Definition 9 We define $c_2Erealx_2Ereal_REP$ to be $\lambda V0a \in ty_2Erealx_2Ereal.(ap (c_2Emin_2E_40 (ty_2Erealx_2Ereal_lt : \iota$

Let $c_2Erealx_2Ereal_lt : \iota$ be given. Assume the following.

$$c_2Erealx_2Ereal_lt \in ((2^{(ty_2Epair_2Eprod ty_2Ehreal_2Ehreal ty_2Ehreal_2Ehreal)})(ty_2Epair_2Eprod ty_2Ehreal_2Ehreal)) \quad (6)$$

Definition 10 We define $c_2Erealx_2Ereal_lt$ to be $\lambda V0T1 \in ty_2Erealx_2Ereal.\lambda V1T2 \in ty_2Erealx_2Ereal$

Definition 11 We define $c_2Ebool_2E_21$ to be $(ap (c_2Ebool_2E_21 2) (\lambda V0t \in 2.V0t))$.

Definition 12 We define $c_2Emin_2E_3D_3D_3E$ to be $\lambda P \in 2.\lambda Q \in 2.inj_o (p P \Rightarrow p Q)$ of type ι .

Definition 13 We define $c_2Ebool_2E_7E$ to be $(\lambda V0t \in 2.(ap (ap c_2Emin_2E_3D_3D_3E V0t) c_2Ebool_2E_21))$

Definition 14 We define $c_2Ereal_2Ereal_lte$ to be $\lambda V0x \in ty_2Erealx_2Ereal.\lambda V1y \in ty_2Erealx_2Ereal$

Definition 15 We define $c_2Ebool_2E_IN$ to be $\lambda A_27a : \iota.(\lambda V0x \in A_27a.(\lambda V1f \in (2^{A-27a}).(ap V1f V0x)))$

Definition 16 We define $c_2Epred_set_2ESUBSET$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A-27a}).\lambda V1t \in (2^{A-27a}).(ap ($

Let $c_2Emeasure_2Emeasurable_sets : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty A_27a \Rightarrow c_2Emeasure_2Emeasurable_sets A_27a \in ((2^{(2^{A-27a})})(ty_2Epair_2Eprod (2^{A-27a}) (ty_2Epair_2Eprod (2^{(2^{A-27a})}) (ty_2Erealx_2Ereal^{(2^{A-27a})})))) \quad (7)$$

Definition 17 We define $c_2Ebool_2E_2F_5C$ to be $(\lambda V0t1 \in 2.(\lambda V1t2 \in 2.(ap (c_2Ebool_2E_21 2) (\lambda V2t \in 2.V2t)))$

Definition 18 We define $c_2Emeasure_2Eincreasing$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Epair_2Eprod (2^{A-27a}))$

Let $ty_2Eenum_2Eenum : \iota$ be given. Assume the following.

$$nonempty ty_2Eenum_2Eenum \quad (8)$$

Definition 19 We define $c_2Ecombin_2Eo$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0f \in (A_27b^{A-27c}).\lambda V1g \in (A_27c^{A-27a})$

Let $c_2Eenum_2EZERO_REP : \iota$ be given. Assume the following.

$$c_2Eenum_2EZERO_REP \in omega \quad (9)$$

Let $c_2Eenum_2EABS_num : \iota$ be given. Assume the following.

$$c_2Eenum_2EABS_num \in (ty_2Eenum_2Eenum^{omega}) \quad (10)$$

Definition 20 We define c_2Enum_2E0 to be $(ap\ c_2Enum_2EABS_num\ c_2Enum_2EZERO_REP)$.

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

$$\begin{aligned} \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2EABS_prod \\ A_27a\ A_27b \in ((ty_2Epair_2Eprod\ A_27a\ A_27b)^{(2^{A_27b})^{A_27a}}) \end{aligned} \quad (11)$$

Definition 21 We define $c_2Epair_2E_2C$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0x \in A_27a.\lambda V1y \in A_27b.(ap\ (c_2E$

Let $c_2Ereal_2Esum : \iota$ be given. Assume the following.

$$c_2Ereal_2Esum \in ((ty_2Erealax_2Ereal^{(ty_2Erealax_2Ereal^{ty_2Eenum_2Eenum})})^{(ty_2Epair_2Eprod\ ty_2Eenum_2Eenum)}) \quad (12)$$

Let $c_2Enum_2EREP_num : \iota$ be given. Assume the following.

$$c_2Enum_2EREP_num \in (\omega^{ty_2Eenum_2Eenum}) \quad (13)$$

Let $c_2Enum_2ESUC_REP : \iota$ be given. Assume the following.

$$c_2Enum_2ESUC_REP \in (\omega^{\omega}) \quad (14)$$

Definition 22 We define c_2Enum_2ESUC to be $\lambda V0m \in ty_2Eenum_2Eenum.(ap\ c_2Enum_2EABS_num$

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 $c_2Eprim_rec_2E_3C$ to be $\lambda V0m \in ty_2Eenum_2Eenum.\lambda V1n \in ty_2Eenum_2Eenum$

Definition 25 We define $c_2Earithmetic_2E_3E$ to be $\lambda V0m \in ty_2Eenum_2Eenum.\lambda V1n \in ty_2Eenum_2Eenum$

Definition 26 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 27 We define $c_2Earithmetic_2E_3E_3D$ to be $\lambda V0m \in ty_2Eenum_2Eenum.\lambda V1n \in ty_2Eenum_2Eenum$

Let $c_2Erealax_2Etrealm_neg : \iota$ be given. Assume the following.

$$\begin{aligned} c_2Erealax_2Etrealm_neg \in ((ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal \\ ty_2Ehreal_2Ehreal)^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)}) \end{aligned} \quad (15)$$

Let $c_2Erealax_2Etrealm_eq : \iota$ be given. Assume the following.

$$c_2Erealax_2Etrealm_eq \in ((2^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)})^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal)}) \quad (16)$$

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

$$c_2Erealax_2Ereal_ABS_CLASS \in (ty_2Erealax_2Ereal^{(2^{(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)})}) \quad (17)$$

Definition 28 We define $c_2Erealax_2Ereal_ABS$ to be $\lambda V0r \in (ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)$

Definition 29 We define $c_2Erealax_2Ereal_neg$ to be $\lambda V0T1 \in ty_2Erealax_2Ereal.(ap\ c_2Erealax_2Ereal$

Let $c_2Erealax_2Etreall_add : \iota$ be given. Assume the following.

$$c_2Erealax_2Etreall_add \in (((ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal)(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal)))(ty_2Epair_2Eprod\ ty_2Ehreal_2Ehreal\ ty_2Ehreal_2Ehreal) \quad (18)$$

Definition 30 We define $c_2Erealax_2Ereal_add$ to be $\lambda V0T1 \in ty_2Erealax_2Ereal.\lambda V1T2 \in ty_2Erealax_2Ereal$

Definition 31 We define $c_2Ereal_2Ereal_sub$ to be $\lambda V0x \in ty_2Erealax_2Ereal.\lambda V1y \in ty_2Erealax_2Ereal$

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

$$c_2Ereal_2Ereal_of_num \in (ty_2Erealax_2Ereal^{ty_2Eenum_2Eenum}) \quad (19)$$

Definition 32 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 33 We define c_2Ereal_2Eabs to be $\lambda V0x \in ty_2Erealax_2Ereal.(ap\ (ap\ (ap\ (c_2Ebool_2ECOND$

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

$$\forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2ESND\ A_27a\ A_27b \in (A_27b)^{(ty_2Epair_2Eprod\ A_27a\ A_27b)} \quad (20)$$

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

$$\forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow c_2Epair_2EFST\ A_27a\ A_27b \in (A_27a)^{(ty_2Epair_2Eprod\ A_27a\ A_27b)} \quad (21)$$

Definition 34 We define $c_2Epair_2EUNCURRY$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda A_27c : \iota.\lambda V0f \in ((A_27c)^{A_27a \times A_27b})$

Let $ty_2Emetric_2Emetric : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty_2Emetric_2Emetric\ A0) \quad (22)$$

Let $c_2Emetric_2Emetric : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Emetric_2Emetric\ A_27a \in ((ty_2Emetric_2Emetric\ A_27a)^{(ty_2Erealax_2Ereal^{(ty_2Epair_2Eprod\ A_27a\ A_27a)})}) \quad (23)$$

Definition 35 We define $c_2Emetric_2Emr1$ to be $(ap\ (c_2Emetric_2Emetric\ ty_2Erealax_2Ereal)\ (ap\ (c_2Emetric_2Emetric$

Let $c_2Emetric_2Edist : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Emetric_2Edist\ A_27a \in ((ty_2Erealax_2Ereal^{(ty_2Epair_2Eprod\ A_27a\ A_27a)}) \quad (24)$$

Let $ty_2Etopology_2Etopology : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A0.nonempty\ A0 \Rightarrow nonempty\ (ty_2Etopology_2Etopology\ A0) \quad (25)$$

Let $c_2Etopology_2Etopology : \iota \Rightarrow \iota$ be given. Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow c_2Etopology_2Etopology\ A_27a \in ((ty_2Etopology_2Etopology\ A_27a)^{(2^{(2^{A_27a})})}) \quad (26)$$

Definition 36 We define $c_2Emetric_2Emtop$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Emetric_2Emetric A_27a).(ap$
 Let $c_2Enets_2Etends : \iota \Rightarrow \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow c_2Enets_2Etends \\ & A_27a A_27b \in (((2^{(ty_2Epair_2Eprod (ty_2Etopology_2Etopology A_27a) ((2^{A_27b})^{A_27b}))})_{A_27a})_{(A_27a)^{A_27b}}) \end{aligned} \quad (27)$$

Definition 37 We define $c_2Eseq_2E_2D_2D_3E$ to be $\lambda V0x \in (ty_2Erealax_2Ereal^{ty_2Enum_2Enum}).\lambda V1x$

Definition 38 We define c_2Eseq_2Esums to be $\lambda V0f \in (ty_2Erealax_2Ereal^{ty_2Enum_2Enum}).\lambda V1s \in ty_2$

Definition 39 We define $c_2Epred_set_2EUNIV$ to be $\lambda A_27a : \iota.(\lambda V0x \in A_27a.c_2Ebool_2ET)$.

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

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow \forall A_27b.nonempty A_27b \Rightarrow c_2Epred_set_2EGSPEC \\ & A_27a A_27b \in ((2^{A_27a})_{((ty_2Epair_2Eprod A_27a 2)^{A_27b})}) \end{aligned} \quad (28)$$

Definition 40 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 41 We define $c_2Epred_set_2EBIGUNION$ to be $\lambda A_27a : \iota.\lambda V0P \in (2^{(2^{A_27a})}).(ap (c_2Epred_set$

Definition 42 We define $c_2Epred_set_2EEMPTY$ to be $\lambda A_27a : \iota.(\lambda V0x \in A_27a.c_2Ebool_2EF)$.

Definition 43 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 44 We define $c_2Epred_set_2EDISJOINT$ to be $\lambda A_27a : \iota.\lambda V0s \in (2^{A_27a}).\lambda V1t \in (2^{A_27a}).(ap$

Definition 45 We define $c_2Epred_set_2EFUNSET$ to be $\lambda A_27a : \iota.\lambda A_27b : \iota.\lambda V0P \in (2^{A_27a}).\lambda V1Q \in (2$

Definition 46 We define c_2Ereal_2Esup to be $\lambda V0P \in (2^{ty_2Erealax_2Ereal}).(ap (c_2Emin_2E.40 ty_2Ereal$

Definition 47 We define c_2Ereal_2Einf to be $\lambda V0p \in (2^{ty_2Erealax_2Ereal}).(ap c_2Erealax_2Ereal_neg (ap c$

Definition 48 We define $c_2Emeasure_2Einf_measure$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Epair_2Eprod (2^{A_27a}$

Let $c_2Emeasure_2Esubsets : \iota \Rightarrow \iota$ be given. Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow c_2Emeasure_2Esubsets A_27a \in (\\ & (2^{(2^{A_27a})})_{(ty_2Epair_2Eprod (2^{A_27a}) (2^{(2^{A_27a})}))}) \end{aligned} \quad (29)$$

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

$$\begin{aligned} & \forall A_27a.nonempty A_27a \Rightarrow c_2Emeasure_2Espace A_27a \in ((2^{A_27a})_{(ty_2Epair_2Eprod (2^{A_27a}) (2^{(2^{A_27a})}))}) \\ & \end{aligned} \quad (30)$$

Definition 49 We define $c_2Emeasure_2Epositive$ to be $\lambda A_27a : \iota.\lambda V0m \in (ty_2Epair_2Eprod (2^{A_27a}) (ty$

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

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow c_2Emeasure_2Em_space\ A_27a \in \\ & ((2^{A_27a})(ty_2Epair_2Eprod\ (2^{A_27a})\ (ty_2Epair_2Eprod\ (2^{2^{A_27a}})\ (ty_2Erealx_2Ereal(2^{A_27a})))))) \end{aligned} \quad (31)$$

Definition 50 We define $c_2Epred_set_2EUNION$ to be $\lambda A_27a : \iota. \lambda V0s \in (2^{A_27a}). \lambda V1t \in (2^{A_27a}). (ap\ (c_2E$

Definition 51 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 52 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 53 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 54 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.

$$True \quad (32)$$

Assume the following.

$$(\forall V0t1 \in 2. (\forall V1t2 \in 2. (((p\ V0t1) \Rightarrow (p\ V1t2)) \Rightarrow (((p\ V1t2) \Rightarrow (p\ V0t1)) \Rightarrow ((p\ V0t1) \Leftrightarrow (p\ V1t2)))))) \quad (33)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0t \in 2. ((\forall V1x \in A_27a. (p\ V0t) \Leftrightarrow (p\ V0t))) \quad (34)$$

Assume the following.

$$(\forall V0t \in 2. (((p\ V0t) \Rightarrow False) \Rightarrow (\neg(p\ V0t)))) \quad (35)$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(p\ V0t)) \Rightarrow ((p\ V0t) \Rightarrow False))) \quad (36)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2. (((True \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \wedge True) \Leftrightarrow \\ & (p\ V0t)) \wedge (((False \wedge (p\ V0t)) \Leftrightarrow False) \wedge (((p\ V0t) \wedge False) \Leftrightarrow False) \wedge \\ & (((p\ V0t) \wedge (p\ V0t)) \Leftrightarrow (p\ V0t)))))) \end{aligned} \quad (37)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2. (((True \Rightarrow (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \Rightarrow True) \Leftrightarrow \\ & True) \wedge (((False \Rightarrow (p\ V0t)) \Leftrightarrow True) \wedge (((p\ V0t) \Rightarrow (p\ V0t)) \Leftrightarrow True) \wedge ((\\ & (p\ V0t) \Rightarrow False) \Leftrightarrow (\neg(p\ V0t)))))) \end{aligned} \quad (38)$$

Assume the following.

$$\begin{aligned} & ((\forall V0t \in 2. ((\neg(\neg(p\ V0t))) \Leftrightarrow (p\ V0t)) \wedge (((\neg True) \Leftrightarrow False) \wedge \\ & ((\neg False) \Leftrightarrow True))) \end{aligned} \quad (39)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. ((V0x = V0x) \Leftrightarrow True)) \quad (40)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0x \in A_27a. (\forall V1y \in A_27a. ((V0x = V1y) \Leftrightarrow (V1y = V0x)))) \quad (41)$$

Assume the following.

$$(\forall V0t \in 2. (((True \Leftrightarrow (p\ V0t)) \Leftrightarrow (p\ V0t)) \wedge (((p\ V0t) \Leftrightarrow True) \Leftrightarrow (p\ V0t)) \wedge (((False \Leftrightarrow (p\ V0t)) \Leftrightarrow \neg(p\ V0t)) \wedge (((p\ V0t) \Leftrightarrow False) \Leftrightarrow \neg(p\ V0t)))))) \quad (42)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0P \in (2^{A_27a}). (\neg(\forall V1x \in A_27a. (p\ (ap\ V0P\ V1x)))) \Leftrightarrow (\exists V2x \in A_27a. (\neg(p\ (ap\ V0P\ V2x))))) \quad (43)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0P \in (2^{A_27a}). (\neg(\exists V1x \in A_27a. (p\ (ap\ V0P\ V1x)))) \Leftrightarrow (\forall V2x \in A_27a. (\neg(p\ (ap\ V0P\ V2x))))) \quad (44)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0P \in (2^{A_27a}). (\forall V1Q \in 2. (((\exists V2x \in A_27a. (p\ (ap\ V0P\ V2x))) \vee (p\ V1Q)) \Leftrightarrow (\exists V3x \in A_27a. ((p\ (ap\ V0P\ V3x)) \vee (p\ V1Q))))) \quad (45)$$

Assume the following.

$$\forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0P \in 2. (\forall V1Q \in (2^{A_27a}). (((p\ V0P) \vee (\exists V2x \in A_27a. (p\ (ap\ V1Q\ V2x)))) \Leftrightarrow (\exists V3x \in A_27a. ((p\ V0P) \vee (p\ (ap\ V1Q\ V3x))))) \quad (46)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (\forall V2C \in 2. (((p\ V0A) \vee ((p\ V1B) \vee (p\ V2C))) \Leftrightarrow (((p\ V0A) \vee (p\ V1B)) \vee (p\ V2C)))))) \quad (47)$$

Assume the following.

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

Assume the following.

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

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.

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

Assume the following.

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

Assume the following.

$$\forall A_{.27a}.nonempty A_{.27a} \Rightarrow \forall A_{.27b}.nonempty A_{.27b} \Rightarrow (\forall V0P \in ((2^{A_{.27b}})^{A_{.27a}}).((\forall V1x \in A_{.27a}.(\exists V2y \in A_{.27b}.(p (ap (ap V0P V1x) V2y)))) \Leftrightarrow (\exists V3f \in (A_{.27b}^{A_{.27a}}).(\forall V4x \in A_{.27a}.(p (ap (ap V0P V4x) (ap V3f V4x)))))))) \quad (53)$$

Assume the following.

$$\forall A_{.27a}.nonempty A_{.27a} \Rightarrow (\forall V0x \in A_{.27a}.((ap (c_{.2Ecombin_2EI} A_{.27a}) V0x) = V0x)) \quad (54)$$

Assume the following.

$$\forall A_{.27a}.nonempty A_{.27a} \Rightarrow \forall A_{.27b}.nonempty A_{.27b} \Rightarrow (\forall V0f \in (A_{.27b}^{A_{.27a}}).(((ap (ap (c_{.2Ecombin_2Eo} A_{.27a} A_{.27b} A_{.27b}) (c_{.2Ecombin_2EI} A_{.27b}) V0f) = V0f) \wedge ((ap (ap (c_{.2Ecombin_2Eo} A_{.27a} A_{.27b} A_{.27a}) V0f) (c_{.2Ecombin_2EI} A_{.27a}) = V0f)))) \quad (55)$$

Assume the following.

$$\forall A_{.27a}.nonempty A_{.27a} \Rightarrow (\forall V0x \in (2^{A_{.27a}}).(\forall V1y \in (2^{(2^{A_{.27a}})}).((ap (c_{.2Emeasure_2Espace} A_{.27a}) (ap (ap (c_{.2Epair_2E_2C} (2^{A_{.27a}}) (2^{(2^{A_{.27a}})})) V0x) V1y)) = V0x))) \quad (56)$$

Assume the following.

$$\forall A_{.27a}.nonempty A_{.27a} \Rightarrow (\forall V0x \in (2^{A_{.27a}}).(\forall V1y \in (2^{(2^{A_{.27a}})}).((ap (c_{.2Emeasure_2Esubsets} A_{.27a}) (ap (ap (c_{.2Epair_2E_2C} (2^{A_{.27a}}) (2^{(2^{A_{.27a}})})) V0x) V1y)) = V1y))) \quad (57)$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0sp \in (2^{A-27a}). (\forall V1sts \in \\
& \quad (2^{(2^{A-27a})}). (\forall V2mu \in (ty_2Erealax_2Ereal^{(2^{A-27a})}). \\
& \quad ((ap\ (c_2Emeasure_2Em_space\ A.27a)\ (ap\ (ap\ (c_2Epair_2E_2C\ (\\
& \quad 2^{A-27a})\ (ty_2Epair_2Eprod\ (2^{(2^{A-27a})})\ (ty_2Erealax_2Ereal^{(2^{A-27a})}))) \\
& \quad V0sp)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A-27a})})\ (ty_2Erealax_2Ereal^{(2^{A-27a})}) \\
& \quad \quad V1sts)\ V2mu)))) = V0sp)))
\end{aligned} \tag{58}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0sp \in (2^{A-27a}). (\forall V1sts \in \\
& \quad (2^{(2^{A-27a})}). (\forall V2mu \in (ty_2Erealax_2Ereal^{(2^{A-27a})}). \\
& \quad ((ap\ (c_2Emeasure_2Emeasurable_sets\ A.27a)\ (ap\ (ap\ (c_2Epair_2E_2C \\
& \quad (2^{A-27a})\ (ty_2Epair_2Eprod\ (2^{(2^{A-27a})})\ (ty_2Erealax_2Ereal^{(2^{A-27a})}))) \\
& \quad V0sp)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A-27a})})\ (ty_2Erealax_2Ereal^{(2^{A-27a})}) \\
& \quad \quad V1sts)\ V2mu)))) = V1sts)))
\end{aligned} \tag{59}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0sp \in (2^{A-27a}). (\forall V1sts \in \\
& \quad (2^{(2^{A-27a})}). (\forall V2mu \in (ty_2Erealax_2Ereal^{(2^{A-27a})}). \\
& \quad ((ap\ (c_2Emeasure_2Emeasure\ A.27a)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{A-27a}) \\
& \quad (ty_2Epair_2Eprod\ (2^{(2^{A-27a})})\ (ty_2Erealax_2Ereal^{(2^{A-27a})}))) \\
& \quad V0sp)\ (ap\ (ap\ (c_2Epair_2E_2C\ (2^{(2^{A-27a})})\ (ty_2Erealax_2Ereal^{(2^{A-27a})}) \\
& \quad \quad V1sts)\ V2mu)))) = V2mu)))
\end{aligned} \tag{60}$$

Assume the following.

$$\begin{aligned}
& \forall A.27a.nonempty\ A.27a \Rightarrow (\forall V0a \in (ty_2Epair_2Eprod \\
& \quad (2^{A-27a})\ (2^{(2^{A-27a})})). ((p\ (ap\ (c_2Emeasure_2Ealgebra\ A.27a) \\
& \quad V0a)) \Rightarrow (p\ (ap\ (ap\ (c_2Ebool_2EIN\ (2^{A-27a})\ (ap\ (c_2Emeasure_2Espace \\
& \quad \quad A.27a)\ V0a))\ (ap\ (c_2Emeasure_2Esubsets\ A.27a)\ V0a))))))
\end{aligned} \tag{61}$$

Assume the following.

$$\begin{aligned}
& \forall A_27a.\text{nonempty } A_27a \Rightarrow (\forall V0m \in (\text{ty_2Epair_2Eprod} \\
& (2^{A_27a}) (\text{ty_2Epair_2Eprod } (2^{(2^{A_27a})}) (\text{ty_2Erealax_2Ereal}^{(2^{A_27a})}))). \\
& (\forall V1g \in (2^{A_27a}).(\forall V2s \in (2^{A_27a}).(((p (\text{ap } (c_2Emeasure_2Ealgebra \\
A_27a) (\text{ap } (\text{ap } (c_2Epair_2E_2C } (2^{A_27a}) (2^{(2^{A_27a})})) (\text{ap } (c_2Emeasure_2Em_space \\
A_27a) V0m)) (\text{ap } (c_2Emeasure_2E measurable_sets } A_27a) V0m)))))) \wedge \\
& ((p (\text{ap } (c_2Emeasure_2Epositive } A_27a) V0m)) \wedge ((p (\text{ap } (\text{ap } (c_2Ebool_2EIN \\
(2^{A_27a}) V2s) (\text{ap } (c_2Emeasure_2E measurable_sets } A_27a) V0m)))) \wedge \\
& (p (\text{ap } (\text{ap } (c_2Epred_set_2ESUBSET } A_27a) V1g) V2s)))))) \Rightarrow (p (\text{ap } \\
& (\text{ap } (c_2Ebool_2EIN } \text{ty_2Erealax_2Ereal}) (\text{ap } (\text{ap } (c_2Emeasure_2Emeasure \\
A_27a) V0m) V2s)) (\text{ap } (c_2Epred_set_2EGSPEC } \text{ty_2Erealax_2Ereal} \\
\text{ty_2Erealax_2Ereal } 2) V3r) (\text{ap } (c_2Ebool_2E_3F } ((2^{A_27a})^{\text{ty_2Enum_2Enum}})) \\
& (\lambda V4f \in ((2^{A_27a})^{\text{ty_2Enum_2Enum}}).(\text{ap } (\text{ap } c_2Ebool_2E_2F_5C \\
& (\text{ap } (\text{ap } (c_2Ebool_2EIN } ((2^{A_27a})^{\text{ty_2Enum_2Enum}})) V4f) (\text{ap } (\text{ap } \\
(c_2Epred_set_2EFUNSET } \text{ty_2Enum_2Enum } (2^{A_27a})) (c_2Epred_set_2EUNIV \\
& \text{ty_2Enum_2Enum})) (\text{ap } (c_2Emeasure_2E measurable_sets } A_27a) \\
V0m)))) (\text{ap } (\text{ap } c_2Ebool_2E_2F_5C } (\text{ap } (c_2Ebool_2E_21 } \text{ty_2Enum_2Enum}) \\
& (\lambda V5m \in \text{ty_2Enum_2Enum}.(\text{ap } (c_2Ebool_2E_21 } \text{ty_2Enum_2Enum}) \\
& (\lambda V6n \in \text{ty_2Enum_2Enum}.(\text{ap } (\text{ap } c_2Emin_2E_3D_3D_3E } (\text{ap } c_2Ebool_2E_7E \\
& (\text{ap } (\text{ap } (c_2Emin_2E_3D } \text{ty_2Enum_2Enum}) V5m) V6n)))) (\text{ap } (\text{ap } (c_2Epred_set_2EDISJOINT \\
A_27a) (\text{ap } V4f } V5m)) (\text{ap } V4f } V6n)))))) (\text{ap } (\text{ap } c_2Ebool_2E_2F_5C \\
& (\text{ap } (\text{ap } (c_2Epred_set_2ESUBSET } A_27a) V1g) (\text{ap } (c_2Epred_set_2EBIGUNION \\
A_27a) (\text{ap } (\text{ap } (c_2Epred_set_2EIMAGE } \text{ty_2Enum_2Enum } (2^{A_27a}) \\
V4f) (c_2Epred_set_2EUNIV } \text{ty_2Enum_2Enum})))) (\text{ap } (\text{ap } c_2Eseq_2Esums \\
& (\text{ap } (\text{ap } (c_2Ecombin_2Eo } \text{ty_2Enum_2Enum } \text{ty_2Erealax_2Ereal } (2^{A_27a})) \\
& (\text{ap } (c_2Emeasure_2Emeasure } A_27a) V0m)) V4f)) V3r))))))))) \\
& (62)
\end{aligned}$$

Assume the following.

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0m \in (ty_2Epair_2Eprod \\
& (2^{A_27a}) (ty_2Epair_2Eprod (2^{(2^{A_27a})}) (ty_2Erealax_2Ereal^{(2^{A_27a})}))). \\
& (\forall V1g \in (2^{A_27a}).(\forall V2x \in ty_2Erealax_2Ereal.((\\
& (p (ap (c_2Emeasure_2Ealgebra\ A_27a) (ap (ap (c_2Epair_2E_2C (\\
& 2^{A_27a}) (2^{(2^{A_27a})}) (ap (c_2Emeasure_2Em_space\ A_27a) V0m)) \\
& (ap (c_2Emeasure_2Emeasurable_sets\ A_27a) V0m)))) \wedge ((p (ap (\\
& c_2Emeasure_2Epositive\ A_27a) V0m)) \wedge (p (ap (ap (c_2Ebool_2EIN \\
& ty_2Erealax_2Ereal) V2x) (ap (c_2Epred_set_2EGSPEC\ ty_2Erealax_2Ereal \\
& ty_2Erealax_2Ereal) (\lambda V3r \in ty_2Erealax_2Ereal.(ap (c_2Epair_2E_2C \\
& ty_2Erealax_2Ereal\ 2) V3r) (ap (c_2Ebool_2E_3F ((2^{A_27a})^{ty_2Enum_2Enum}))) \\
& (\lambda V4f \in ((2^{A_27a})^{ty_2Enum_2Enum}).(ap (ap\ c_2Ebool_2E_2F_5C \\
& (ap (ap (c_2Ebool_2EIN ((2^{A_27a})^{ty_2Enum_2Enum})) V4f) (ap (ap \\
& (c_2Epred_set_2EFUNSET\ ty_2Enum_2Enum (2^{A_27a})) (c_2Epred_set_2EUNIV \\
& ty_2Enum_2Enum)) (ap (c_2Emeasure_2Emeasurable_sets\ A_27a) \\
& V0m)))) (ap (ap\ c_2Ebool_2E_2F_5C (ap (c_2Ebool_2E_21\ ty_2Enum_2Enum) \\
& (\lambda V5m \in ty_2Enum_2Enum.(ap (c_2Ebool_2E_21\ ty_2Enum_2Enum) \\
& (\lambda V6n \in ty_2Enum_2Enum.(ap (ap\ c_2Emin_2E_3D_3D_3E (ap (c_2Ebool_2E_7E \\
& (ap (ap (c_2Emin_2E_3D\ ty_2Enum_2Enum) V5m) V6n)))) (ap (ap (c_2Epred_set_2EDISJOINT \\
& A_27a) (ap V4f V5m)) (ap V4f V6n)))))) (ap (ap (c_2Ebool_2E_2F_5C \\
& (ap (ap (c_2Epred_set_2ESUBSET\ A_27a) V1g) (ap (c_2Epred_set_2EBIGUNION \\
& A_27a) (ap (ap (c_2Epred_set_2EIMAGE\ ty_2Enum_2Enum (2^{A_27a})) \\
& V4f) (c_2Epred_set_2EUNIV\ ty_2Enum_2Enum)))) (ap (ap\ c_2Eseq_2Esums \\
& (ap (ap (c_2Ecombin_2Eo\ ty_2Enum_2Enum\ ty_2Erealax_2Ereal (2^{A_27a})) \\
& (ap (c_2Emeasure_2Emeasure\ A_27a) V0m)) V4f)) V3r))))))))) \Rightarrow \\
& (p (ap (ap\ c_2Ereal_2Ereal_lte (ap\ c_2Ereal_2Ereal_of_num \\
& c_2Enum_2E0) V2x))))))
\end{aligned} \tag{63}$$

Assume the following.

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\
& \forall V0x \in A_27a.(\forall V1y \in A_27b.(\forall V2a \in A_27a.(\forall V3b \in \\
& A_27b.(((ap (ap (c_2Epair_2E_2C\ A_27a\ A_27b) V0x) V1y) = (ap (ap \\
& (c_2Epair_2E_2C\ A_27a\ A_27b) V2a) V3b)) \Leftrightarrow ((V0x = V2a) \wedge (V1y = V3b))))))
\end{aligned} \tag{64}$$

Assume the following.

$$\begin{aligned}
& \forall A_27a.nonempty\ A_27a \Rightarrow \forall A_27b.nonempty\ A_27b \Rightarrow (\\
& \forall V0f \in ((ty_2Epair_2Eprod\ A_27a\ 2)^{A_27b}).(\forall V1v \in \\
& A_27a.((p (ap (ap (c_2Ebool_2EIN\ A_27a) V1v) (ap (c_2Epred_set_2EGSPEC \\
& A_27a\ A_27b) V0f))) \Leftrightarrow (\exists V2x \in A_27b.((ap (ap (c_2Epair_2E_2C \\
& A_27a\ 2) V1v) c_2Ebool_2ET) = (ap V0f V2x))))))
\end{aligned} \tag{65}$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0s \in (2^{A_27a}). (\forall V1t \in \\ & (2^{A_27a}). (\forall V2u \in (2^{A_27a}). (((p\ (ap\ (ap\ (c_2Epred_set_2ESUBSET \\ & A_27a)\ V0s)\ V1t)) \wedge (p\ (ap\ (ap\ (c_2Epred_set_2ESUBSET\ A_27a)\ V1t) \\ & V2u)))) \Rightarrow (p\ (ap\ (ap\ (c_2Epred_set_2ESUBSET\ A_27a)\ V0s)\ V2u)))))) \end{aligned} \quad (66)$$

Assume the following.

$$\begin{aligned} & \forall A_27a.nonempty\ A_27a \Rightarrow (\forall V0set \in (2^{A_27a}). (\forall V1e \in \\ & (2^{A_27a}). ((p\ (ap\ (ap\ (c_2Ebool_2EIN\ (2^{A_27a})\ V1e)\ (ap\ (c_2Epred_set_2EPOW \\ & A_27a)\ V0set))) \Leftrightarrow (p\ (ap\ (ap\ (c_2Epred_set_2ESUBSET\ A_27a)\ V1e) \\ & V0set)))))) \end{aligned} \quad (67)$$

Assume the following.

$$(\forall V0x \in ty_2Ereal.x_2Ereal. (p\ (ap\ (ap\ c_2Ereal_2Ereal_lte\ V0x)\ V0x))) \quad (68)$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(\neg(p\ V0t))) \Leftrightarrow (p\ V0t))) \quad (69)$$

Assume the following.

$$(\forall V0A \in 2. ((p\ V0A) \Rightarrow ((\neg(p\ V0A)) \Rightarrow False))) \quad (70)$$

Assume the following.

$$\begin{aligned} & (\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p\ V0A) \vee (p\ V1B))) \Rightarrow False) \Leftrightarrow \\ & (((p\ V0A) \Rightarrow False) \Rightarrow ((\neg(p\ V1B)) \Rightarrow False)))))) \end{aligned} \quad (71)$$

Assume the following.

$$\begin{aligned} & (\forall V0A \in 2. (\forall V1B \in 2. (((\neg((\neg(p\ V0A)) \vee (p\ V1B))) \Rightarrow False) \Leftrightarrow \\ & ((p\ V0A) \Rightarrow ((\neg(p\ V1B)) \Rightarrow False)))))) \end{aligned} \quad (72)$$

Assume the following.

$$(\forall V0A \in 2. (((\neg(p\ V0A)) \Rightarrow False) \Rightarrow (((p\ V0A) \Rightarrow False) \Rightarrow False))) \quad (73)$$

Assume the following.

$$\begin{aligned} & (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p\ V0p) \Leftrightarrow (\\ & (p\ V1q) \Leftrightarrow (p\ V2r))) \Leftrightarrow (((p\ V0p) \vee ((p\ V1q) \vee (p\ V2r))) \wedge (((p\ V0p) \vee ((\neg \\ & p\ V2r)) \vee (\neg(p\ V1q)))) \wedge (((p\ V1q) \vee ((\neg(p\ V2r)) \vee (\neg(p\ V0p)))) \wedge ((p\ V2r) \vee \\ & ((\neg(p\ V1q)) \vee (\neg(p\ V0p)))))))))) \end{aligned} \quad (74)$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \wedge (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (\neg(p \ V1q)) \vee (\neg(p \ V2r)))) \wedge (((p \ V1q) \vee \\
& (\neg(p \ V0p))) \wedge ((p \ V2r) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{75}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \vee (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (\neg(p \ V1q))) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge \\
& ((p \ V1q) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{76}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \Rightarrow (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (p \ V1q)) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge (\\
& \neg(p \ V1q)) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{77}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (((p \ V0p) \Leftrightarrow (\neg(p \ V1q))) \Leftrightarrow (((p \ V0p) \vee \\
& (p \ V1q)) \wedge ((\neg(p \ V1q)) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{78}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \Rightarrow (p \ V1q))) \Rightarrow (p \ V0p))) \tag{79}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \Rightarrow (p \ V1q))) \Rightarrow (\neg(p \ V1q)))) \tag{80}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \vee (p \ V1q))) \Rightarrow (\neg(p \ V0p)))) \tag{81}$$

Assume the following.

$$(\forall V0p \in 2. (\forall V1q \in 2. ((\neg((p \ V0p) \vee (p \ V1q))) \Rightarrow (\neg(p \ V1q)))) \tag{82}$$

Assume the following.

$$(\forall V0p \in 2. ((\neg(\neg(p \ V0p))) \Rightarrow (p \ V0p))) \tag{83}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in (2^{ty_2Erealax_2Ereal}). (\forall V1r \in ty_2Erealax_2Ereal. \\
& (((\exists V2x \in ty_2Erealax_2Ereal. (p \ (ap \ (ap \ (c_2Ebool_2EIN \\
& ty_2Erealax_2Ereal) \ V2x) \ V0p))) \wedge (\forall V3x \in ty_2Erealax_2Ereal. \\
& ((p \ (ap \ (ap \ (c_2Ebool_2EIN \ ty_2Erealax_2Ereal) \ V3x) \ V0p))) \Rightarrow (p \ (\\
& ap \ (ap \ c_2Ereal_2Ereal_lte \ V1r) \ V3x)))))) \Rightarrow (p \ (ap \ (ap \ c_2Ereal_2Ereal_lte \\
& \ V1r) \ (ap \ c_2Ereal_2Einf \ V0p))))))
\end{aligned} \tag{84}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in (2^{ty_2Erealax_2Ereal}).(\forall V1r \in ty_2Erealax_2Ereal. \\
& ((\exists V2z \in ty_2Erealax_2Ereal.(\forall V3x \in ty_2Erealax_2Ereal. \\
& ((p (ap (ap (c_2Ebool_2EIN ty_2Erealax_2Ereal) V3x) V0p)) \Rightarrow (p (\\
& ap (ap c_2Ereal_2Ereal_lte V2z) V3x)))))) \wedge (\exists V4x \in ty_2Erealax_2Ereal. \\
& ((p (ap (ap (c_2Ebool_2EIN ty_2Erealax_2Ereal) V4x) V0p)) \wedge (p (\\
& ap (ap c_2Ereal_2Ereal_lte V4x) V1r)))))) \Rightarrow (p (ap (ap c_2Ereal_2Ereal_lte \\
& (ap c_2Ereal_2Einf V0p) V1r))))))
\end{aligned} \tag{85}$$

Theorem 1

$$\begin{aligned}
& \forall A_27a.nonempty A_27a \Rightarrow (\forall V0m \in (ty_2Epair_2Eprod \\
& (2^{A_27a}) (ty_2Epair_2Eprod (2^{(2^{A_27a})}) (ty_2Erealax_2Ereal^{(2^{A_27a})}))). \\
& (((p (ap (c_2Emeasure_2Ealgebra A_27a) (ap (ap (c_2Epair_2E_2C \\
& (2^{A_27a}) (2^{(2^{A_27a})}))) (ap (c_2Emeasure_2Em_space A_27a) \\
& V0m)) (ap (c_2Emeasure_2Emeasurable_sets A_27a) V0m)))) \wedge (p \\
& (ap (c_2Emeasure_2Epositive A_27a) V0m))) \Rightarrow (p (ap (c_2Emeasure_2Eincreasing \\
& A_27a) (ap (ap (c_2Epair_2E_2C (2^{A_27a}) (ty_2Epair_2Eprod (2^{(2^{A_27a})} \\
& (ty_2Erealax_2Ereal^{(2^{A_27a})}))) (ap (c_2Emeasure_2Em_space \\
& A_27a) V0m)) (ap (ap (c_2Epair_2E_2C (2^{(2^{A_27a})}) (ty_2Erealax_2Ereal^{(2^{A_27a})}))) \\
& (ap (c_2Epred_set_2EPOW A_27a) (ap (c_2Emeasure_2Em_space \\
& A_27a) V0m)))) (ap (c_2Emeasure_2Einf_measure A_27a) V0m))))))
\end{aligned}$$