

thm_2Equotient_2EQUOTIENT_TRANS (TM- Nqc91kTSeJzrfJX8JNMznm7MtCVHKHyh)

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Definition 1 We define `c_2Emin_2E_3D` to be $\lambda A. \lambda x \in A. \lambda y \in A. \text{inj_o } (x = y)$ of type $\iota \Rightarrow \iota$.

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

Definition 3 We define `c_2Ecombin_2EK` to be $\lambda A. \lambda a : \iota. \lambda A. \lambda b : \iota. (\lambda V0x \in A. \lambda V1y \in A. \lambda V2z \in A. \text{c_2Emin_2E_3D } (V0x = V1y) \wedge V2z = a)$

Definition 4 We define `c_2Ecombin_2ES` to be $\lambda A. \lambda a : \iota. \lambda A. \lambda b : \iota. \lambda A. \lambda c : \iota. (\lambda V0f \in ((A \rightarrow c)^{A \rightarrow b})^{A \rightarrow a})$

Definition 5 We define `c_2Ecombin_2EI` to be $\lambda A. \lambda a : \iota. (\text{ap } (\text{ap } (\text{c_2Ecombin_2ES } A. \lambda a. \lambda b. \lambda c. \text{c_2Emin_2E_3D } (a = b) \wedge c = a)) A. \lambda a. \lambda b. \lambda c. \text{c_2Emin_2E_3D } (a = b) \wedge c = a))$

Definition 6 We define `c_2Emin_2E_3D_3D_3E` to be $\lambda P \in 2. \lambda Q \in 2. \text{inj_o } (p \Rightarrow q)$ of type ι .

Definition 7 We define `c_2Ebool_2E_21` to be $\lambda A. \lambda a : \iota. (\lambda V0P \in (2^{A \rightarrow a}). (\text{ap } (\text{ap } (\text{c_2Emin_2E_3D } (2^{A \rightarrow a})) (\lambda V1t1 \in 2. \lambda V2t2 \in 2. \text{c_2Emin_2E_3D } (V1t1 = V2t2)) (\lambda V3t3 \in 2. \lambda V4t4 \in 2. \text{c_2Emin_2E_3D } (V3t3 = V4t4)) (\lambda V5t5 \in 2. \lambda V6t6 \in 2. \text{c_2Emin_2E_3D } (V5t5 = V6t6)) (\lambda V7t7 \in 2. \lambda V8t8 \in 2. \text{c_2Emin_2E_3D } (V7t7 = V8t8)) (\lambda V9t9 \in 2. \lambda V10t10 \in 2. \text{c_2Emin_2E_3D } (V9t9 = V10t10)) (\lambda V11t11 \in 2. \lambda V12t12 \in 2. \text{c_2Emin_2E_3D } (V11t11 = V12t12)) (\lambda V13t13 \in 2. \lambda V14t14 \in 2. \text{c_2Emin_2E_3D } (V13t13 = V14t14)) (\lambda V15t15 \in 2. \lambda V16t16 \in 2. \text{c_2Emin_2E_3D } (V15t15 = V16t16)) (\lambda V17t17 \in 2. \lambda V18t18 \in 2. \text{c_2Emin_2E_3D } (V17t17 = V18t18)) (\lambda V19t19 \in 2. \lambda V20t20 \in 2. \text{c_2Emin_2E_3D } (V19t19 = V20t20)) (\lambda V21t21 \in 2. \lambda V22t22 \in 2. \text{c_2Emin_2E_3D } (V21t21 = V22t22)) (\lambda V23t23 \in 2. \lambda V24t24 \in 2. \text{c_2Emin_2E_3D } (V23t23 = V24t24)) (\lambda V25t25 \in 2. \lambda V26t26 \in 2. \text{c_2Emin_2E_3D } (V25t25 = V26t26)) (\lambda V27t27 \in 2. \lambda V28t28 \in 2. \text{c_2Emin_2E_3D } (V27t27 = V28t28)) (\lambda V29t29 \in 2. \lambda V30t30 \in 2. \text{c_2Emin_2E_3D } (V29t29 = V30t30)) (\lambda V31t31 \in 2. \lambda V32t32 \in 2. \text{c_2Emin_2E_3D } (V31t31 = V32t32)) (\lambda V33t33 \in 2. \lambda V34t34 \in 2. \text{c_2Emin_2E_3D } (V33t33 = V34t34)) (\lambda V35t35 \in 2. \lambda V36t36 \in 2. \text{c_2Emin_2E_3D } (V35t35 = V36t36)) (\lambda V37t37 \in 2. \lambda V38t38 \in 2. \text{c_2Emin_2E_3D } (V37t37 = V38t38)) (\lambda V39t39 \in 2. \lambda V40t40 \in 2. \text{c_2Emin_2E_3D } (V39t39 = V40t40)) (\lambda V41t41 \in 2. \lambda V42t42 \in 2. \text{c_2Emin_2E_3D } (V41t41 = V42t42)) (\lambda V43t43 \in 2. \lambda V44t44 \in 2. \text{c_2Emin_2E_3D } (V43t43 = V44t44)) (\lambda V45t45 \in 2. \lambda V46t46 \in 2. \text{c_2Emin_2E_3D } (V45t45 = V46t46)) (\lambda V47t47 \in 2. \lambda V48t48 \in 2. \text{c_2Emin_2E_3D } (V47t47 = V48t48)) (\lambda V49t49 \in 2. \lambda V50t50 \in 2. \text{c_2Emin_2E_3D } (V49t49 = V50t50)) (\lambda V51t51 \in 2. \lambda V52t52 \in 2. \text{c_2Emin_2E_3D } (V51t51 = V52t52)) (\lambda V53t53 \in 2. \lambda V54t54 \in 2. \text{c_2Emin_2E_3D } (V53t53 = V54t54)) (\lambda V55t55 \in 2. \lambda V56t56 \in 2. \text{c_2Emin_2E_3D } (V55t55 = V56t56)) (\lambda V57t57 \in 2. \lambda V58t58 \in 2. \text{c_2Emin_2E_3D } (V57t57 = V58t58)) (\lambda V59t59 \in 2. \lambda V60t60 \in 2. \text{c_2Emin_2E_3D } (V59t59 = V60t60)) (\lambda V61t61 \in 2. \lambda V62t62 \in 2. \text{c_2Emin_2E_3D } (V61t61 = V62t62)) (\lambda V63t63 \in 2. \lambda V64t64 \in 2. \text{c_2Emin_2E_3D } (V63t63 = V64t64)) (\lambda V65t65 \in 2. \lambda V66t66 \in 2. \text{c_2Emin_2E_3D } (V65t65 = V66t66)) (\lambda V67t67 \in 2. \lambda V68t68 \in 2. \text{c_2Emin_2E_3D } (V67t67 = V68t68)) (\lambda V69t69 \in 2. \lambda V70t70 \in 2. \text{c_2Emin_2E_3D } (V69t69 = V70t70)) (\lambda V71t71 \in 2. \lambda V72t72 \in 2. \text{c_2Emin_2E_3D } (V71t71 = V72t72)) (\lambda V73t73 \in 2. \lambda V74t74 \in 2. \text{c_2Emin_2E_3D } (V73t73 = V74t74)) (\lambda V75t75 \in 2. \lambda V76t76 \in 2. \text{c_2Emin_2E_3D } (V75t75 = V76t76)) (\lambda V77t77 \in 2. \lambda V78t78 \in 2. \text{c_2Emin_2E_3D } (V77t77 = V78t78)) (\lambda V79t79 \in 2. \lambda V80t80 \in 2. \text{c_2Emin_2E_3D } (V79t79 = V80t80)) (\lambda V81t81 \in 2. \lambda V82t82 \in 2. \text{c_2Emin_2E_3D } (V81t81 = V82t82)) (\lambda V83t83 \in 2. \lambda V84t84 \in 2. \text{c_2Emin_2E_3D } (V83t83 = V84t84)) (\lambda V85t85 \in 2. \lambda V86t86 \in 2. \text{c_2Emin_2E_3D } (V85t85 = V86t86)) (\lambda V87t87 \in 2. \lambda V88t88 \in 2. \text{c_2Emin_2E_3D } (V87t87 = V88t88)) (\lambda V89t89 \in 2. \lambda V90t90 \in 2. \text{c_2Emin_2E_3D } (V89t89 = V90t90)) (\lambda V91t91 \in 2. \lambda V92t92 \in 2. \text{c_2Emin_2E_3D } (V91t91 = V92t92)) (\lambda V93t93 \in 2. \lambda V94t94 \in 2. \text{c_2Emin_2E_3D } (V93t93 = V94t94)) (\lambda V95t95 \in 2. \lambda V96t96 \in 2. \text{c_2Emin_2E_3D } (V95t95 = V96t96)) (\lambda V97t97 \in 2. \lambda V98t98 \in 2. \text{c_2Emin_2E_3D } (V97t97 = V98t98)) (\lambda V99t99 \in 2. \lambda V100t100 \in 2. \text{c_2Emin_2E_3D } (V99t99 = V100t100)) (\lambda V101t101 \in 2. \lambda V102t102 \in 2. \text{c_2Emin_2E_3D } (V101t101 = V102t102)) (\lambda V103t103 \in 2. \lambda V104t104 \in 2. \text{c_2Emin_2E_3D } (V103t103 = V104t104)) (\lambda V105t105 \in 2. \lambda V106t106 \in 2. \text{c_2Emin_2E_3D } (V105t105 = V106t106)) (\lambda V107t107 \in 2. \lambda V108t108 \in 2. \text{c_2Emin_2E_3D } (V107t107 = V108t108)) (\lambda V109t109 \in 2. \lambda V110t110 \in 2. \text{c_2Emin_2E_3D } (V109t109 = V110t110)) (\lambda V111t111 \in 2. \lambda V112t112 \in 2. \text{c_2Emin_2E_3D } (V111t111 = V112t112)) (\lambda V113t113 \in 2. \lambda V114t114 \in 2. \text{c_2Emin_2E_3D } (V113t113 = V114t114)) (\lambda V115t115 \in 2. \lambda V116t116 \in 2. \text{c_2Emin_2E_3D } (V115t115 = V116t116)) (\lambda V117t117 \in 2. \lambda V118t118 \in 2. \text{c_2Emin_2E_3D } (V117t117 = V118t118)) (\lambda V119t119 \in 2. \lambda V120t120 \in 2. \text{c_2Emin_2E_3D } (V119t119 = V120t120)) (\lambda V121t121 \in 2. \lambda V122t122 \in 2. \text{c_2Emin_2E_3D } (V121t121 = V122t122)) (\lambda V123t123 \in 2. \lambda V124t124 \in 2. \text{c_2Emin_2E_3D } (V123t123 = V124t124)) (\lambda V125t125 \in 2. \lambda V126t126 \in 2. \text{c_2Emin_2E_3D } (V125t125 = V126t126)) (\lambda V127t127 \in 2. \lambda V128t128 \in 2. \text{c_2Emin_2E_3D } (V127t127 = V128t128)) (\lambda V129t129 \in 2. \lambda V130t130 \in 2. \text{c_2Emin_2E_3D } (V129t129 = V130t130)) (\lambda V131t131 \in 2. \lambda V132t132 \in 2. \text{c_2Emin_2E_3D } (V131t131 = V132t132)) (\lambda V133t133 \in 2. \lambda V134t134 \in 2. \text{c_2Emin_2E_3D } (V133t133 = V134t134)) (\lambda V135t135 \in 2. \lambda V136t136 \in 2. \text{c_2Emin_2E_3D } (V135t135 = V136t136)) (\lambda V137t137 \in 2. \lambda V138t138 \in 2. \text{c_2Emin_2E_3D } (V137t137 = V138t138)) (\lambda V139t139 \in 2. \lambda V140t140 \in 2. \text{c_2Emin_2E_3D } (V139t139 = V140t140)) (\lambda V141t141 \in 2. \lambda V142t142 \in 2. \text{c_2Emin_2E_3D } (V141t141 = V142t142)) (\lambda V143t143 \in 2. \lambda V144t144 \in 2. \text{c_2Emin_2E_3D } (V143t143 = V144t144)) (\lambda V145t145 \in 2. \lambda V146t146 \in 2. \text{c_2Emin_2E_3D } (V145t145 = V146t146)) (\lambda V147t147 \in 2. \lambda V148t148 \in 2. \text{c_2Emin_2E_3D } (V147t147 = V148t148)) (\lambda V149t149 \in 2. \lambda V150t150 \in 2. \text{c_2Emin_2E_3D } (V149t149 = V150t150)) (\lambda V151t151 \in 2. \lambda V152t152 \in 2. \text{c_2Emin_2E_3D } (V151t151 = V152t152)) (\lambda V153t153 \in 2. \lambda V154t154 \in 2. \text{c_2Emin_2E_3D } (V153t153 = V154t154)) (\lambda V155t155 \in 2. \lambda V156t156 \in 2. \text{c_2Emin_2E_3D } (V155t155 = V156t156)) (\lambda V157t157 \in 2. \lambda V158t158 \in 2. \text{c_2Emin_2E_3D } (V157t157 = V158t158)) (\lambda V159t159 \in 2. \lambda V160t160 \in 2. \text{c_2Emin_2E_3D } (V159t159 = V160t160)) (\lambda V161t161 \in 2. \lambda V162t162 \in 2. \text{c_2Emin_2E_3D } (V161t161 = V162t162)) (\lambda V163t163 \in 2. \lambda V164t164 \in 2. \text{c_2Emin_2E_3D } (V163t163 = V164t164)) (\lambda V165t165 \in 2. \lambda V166t166 \in 2. \text{c_2Emin_2E_3D } (V165t165 = V166t166)) (\lambda V167t167 \in 2. \lambda V168t168 \in 2. \text{c_2Emin_2E_3D } (V167t167 = V168t168)) (\lambda V169t169 \in 2. \lambda V170t170 \in 2. \text{c_2Emin_2E_3D } (V169t169 = V170t170)) (\lambda V171t171 \in 2. \lambda V172t172 \in 2. \text{c_2Emin_2E_3D } (V171t171 = V172t172)) (\lambda V173t173 \in 2. \lambda V174t174 \in 2. \text{c_2Emin_2E_3D } (V173t173 = V174t174)) (\lambda V175t175 \in 2. \lambda V176t176 \in 2. \text{c_2Emin_2E_3D } (V175t175 = V176t176)) (\lambda V177t177 \in 2. \lambda V178t178 \in 2. \text{c_2Emin_2E_3D } (V177t177 = V178t178)) (\lambda V179t179 \in 2. \lambda V180t180 \in 2. \text{c_2Emin_2E_3D } (V179t179 = V180t180)) (\lambda V181t181 \in 2. \lambda V182t182 \in 2. \text{c_2Emin_2E_3D } (V181t181 = V182t182)) (\lambda V183t183 \in 2. \lambda V184t184 \in 2. \text{c_2Emin_2E_3D } (V183t183 = V184t184)) (\lambda V185t185 \in 2. \lambda V186t186 \in 2. \text{c_2Emin_2E_3D } (V185t185 = V186t186)) (\lambda V187t187 \in 2. \lambda V188t188 \in 2. \text{c_2Emin_2E_3D } (V187t187 = V188t188)) (\lambda V189t189 \in 2. \lambda V190t190 \in 2. \text{c_2Emin_2E_3D } (V189t189 = V190t190)) (\lambda V191t191 \in 2. \lambda V192t192 \in 2. \text{c_2Emin_2E_3D } (V191t191 = V192t192)) (\lambda V193t193 \in 2. \lambda V194t194 \in 2. \text{c_2Emin_2E_3D } (V193t193 = V194t194)) (\lambda V195t195 \in 2. \lambda V196t196 \in 2. \text{c_2Emin_2E_3D } (V195t195 = V196t196)) (\lambda V197t197 \in 2. \lambda V198t198 \in 2. \text{c_2Emin_2E_3D } (V197t197 = V198t198)) (\lambda V199t199 \in 2. \lambda V200t200 \in 2. \text{c_2Emin_2E_3D } (V199t199 = V200t200)) (\lambda V201t201 \in 2. \lambda V202t202 \in 2. \text{c_2Emin_2E_3D } (V201t201 = V202t202)) (\lambda V203t203 \in 2. \lambda V204t204 \in 2. \text{c_2Emin_2E_3D } (V203t203 = V204t204)) (\lambda V205t205 \in 2. \lambda V206t206 \in 2. \text{c_2Emin_2E_3D } (V205t205 = V206t206)) (\lambda V207t207 \in 2. \lambda V208t208 \in 2. \text{c_2Emin_2E_3D } (V207t207 = V208t208)) (\lambda V209t209 \in 2. \lambda V210t210 \in 2. \text{c_2Emin_2E_3D } (V209t209 = V210t210)) (\lambda V211t211 \in 2. \lambda V212t212 \in 2. \text{c_2Emin_2E_3D } (V211t211 = V212t212)) (\lambda V213t213 \in 2. \lambda V214t214 \in 2. \text{c_2Emin_2E_3D } (V213t213 = V214t214)) (\lambda V215t215 \in 2. \lambda V216t216 \in 2. \text{c_2Emin_2E_3D } (V215t215 = V216t216)) (\lambda V217t217 \in 2. \lambda V218t218 \in 2. \text{c_2Emin_2E_3D } (V217t217 = V218t218)) (\lambda V219t219 \in 2. \lambda V220t220 \in 2. \text{c_2Emin_2E_3D } (V219t219 = V220t220)) (\lambda V221t221 \in 2. \lambda V222t222 \in 2. \text{c_2Emin_2E_3D } (V221t221 = V222t222)) (\lambda V223t223 \in 2. \lambda V224t224 \in 2. \text{c_2Emin_2E_3D } (V223t223 = V224t224)) (\lambda V225t225 \in 2. \lambda V226t226 \in 2. \text{c_2Emin_2E_3D } (V225t225 = V226t226)) (\lambda V227t227 \in 2. \lambda V228t228 \in 2. \text{c_2Emin_2E_3D } (V227t227 = V228t228)) (\lambda V229t229 \in 2. \lambda V230t230 \in 2. \text{c_2Emin_2E_3D } (V229t229 = V230t230)) (\lambda V231t231 \in 2. \lambda V232t232 \in 2. \text{c_2Emin_2E_3D } (V231t231 = V232t232)) (\lambda V233t233 \in 2. \lambda V234t234 \in 2. \text{c_2Emin_2E_3D } (V233t233 = V234t234)) (\lambda V235t235 \in 2. \lambda V236t236 \in 2. \text{c_2Emin_2E_3D } (V235t235 = V236t236)) (\lambda V237t237 \in 2. \lambda V238t238 \in 2. \text{c_2Emin_2E_3D } (V237t237 = V238t238)) (\lambda V239t239 \in 2. \lambda V240t240 \in 2. \text{c_2Emin_2E_3D } (V239t239 = V240t240)) (\lambda V241t241 \in 2. \lambda V242t242 \in 2. \text{c_2Emin_2E_3D } (V241t241 = V242t242)) (\lambda V243t243 \in 2. \lambda V244t244 \in 2. \text{c_2Emin_2E_3D } (V243t243 = V244t244)) (\lambda V245t245 \in 2. \lambda V246t246 \in 2. \text{c_2Emin_2E_3D } (V245t245 = V246t246)) (\lambda V247t247 \in 2. \lambda V248t248 \in 2. \text{c_2Emin_2E_3D } (V247t247 = V248t248)) (\lambda V249t249 \in 2. \lambda V250t250 \in 2. \text{c_2Emin_2E_3D } (V249t249 = V250t250)) (\lambda V251t251 \in 2. \lambda V252t252 \in 2. \text{c_2Emin_2E_3D } (V251t251 = V252t252)) (\lambda V253t253 \in 2. \lambda V254t254 \in 2. \text{c_2Emin_2E_3D } (V253t253 = V254t254)) (\lambda V255t255 \in 2. \lambda V256t256 \in 2. \text{c_2Emin_2E_3D } (V255t255 = V256t256)) (\lambda V257t257 \in 2. \lambda V258t258 \in 2. \text{c_2Emin_2E_3D } (V257t257 = V258t258)) (\lambda V259t259 \in 2. \lambda V260t260 \in 2. \text{c_2Emin_2E_3D } (V259t259 = V260t260)) (\lambda V261t261 \in 2. \lambda V262t262 \in 2. \text{c_2Emin_2E_3D } (V261t261 = V262t262)) (\lambda V263t263 \in 2. \lambda V264t264 \in 2. \text{c_2Emin_2E_3D } (V263t263 = V264t264)) (\lambda V265t265 \in 2. \lambda V266t266 \in 2. \text{c_2Emin_2E_3D } (V265t265 = V266t266)) (\lambda V267t267 \in 2. \lambda V268t268 \in 2. \text{c_2Emin_2E_3D } (V267t267 = V268t268)) (\lambda V269t269 \in 2. \lambda V270t270 \in 2. \text{c_2Emin_2E_3D } (V269t269 = V270t270)) (\lambda V271t271 \in 2. \lambda V272t272 \in 2. \text{c_2Emin_2E_3D } (V271t271 = V272t272)) (\lambda V273t273 \in 2. \lambda V274t274 \in 2. \text{c_2Emin_2E_3D } (V273t273 = V274t274)) (\lambda V275t275 \in 2. \lambda V276t276 \in 2. \text{c_2Emin_2E_3D } (V275t275 = V276t276)) (\lambda V277t277 \in 2. \lambda V278t278 \in 2. \text{c_2Emin_2E_3D } (V277t277 = V278t278)) (\lambda V279t279 \in 2. \lambda V280t280 \in 2. \text{c_2Emin_2E_3D } (V279t279 = V280t280)) (\lambda V281t281 \in 2. \lambda V282t282 \in 2. \text{c_2Emin_2E_3D } (V281t281 = V282t282)) (\lambda V283t283 \in 2. \lambda V284t284 \in 2. \text{c_2Emin_2E_3D } (V283t283 = V284t284)) (\lambda V285t285 \in 2. \lambda V286t286 \in 2. \text{c_2Emin_2E_3D } (V285t285 = V286t286)) (\lambda V287t287 \in 2. \lambda V288t288 \in 2. \text{c_2Emin_2E_3D } (V287t287 = V288t288)) (\lambda V289t289 \in 2. \lambda V290t290 \in 2. \text{c_2Emin_2E_3D } (V289t289 = V290t290)) (\lambda V291t291 \in 2. \lambda V292t292 \in 2. \text{c_2Emin_2E_3D } (V291t291 = V292t292)) (\lambda V293t293 \in 2. \lambda V294t294 \in 2. \text{c_2Emin_2E_3D } (V293t293 = V294t294)) (\lambda V295t295 \in 2. \lambda V296t296 \in 2. \text{c_2Emin_2E_3D } (V295t295 = V296t296)) (\lambda V297t297 \in 2. \lambda V298t298 \in 2. \text{c_2Emin_2E_3D } (V297t297 = V298t298)) (\lambda V299t299 \in 2. \lambda V300t300 \in 2. \text{c_2Emin_2E_3D } (V299t299 = V300t300)) (\lambda V301t301 \in 2. \lambda V302t302 \in 2. \text{c_2Emin_2E_3D } (V301t301 = V302t302)) (\lambda V303t303 \in 2. \lambda V304t304 \in 2. \text{c_2Emin_2E_3D } (V303t303 = V304t304)) (\lambda V305t305 \in 2. \lambda V306t306 \in 2. \text{c_2Emin_2E_3D } (V305t305 = V306t306)) (\lambda V307t307 \in 2. \lambda V308t308 \in 2. \text{c_2Emin_2E_3D } (V307t307 = V308t308)) (\lambda V309t309 \in 2. \lambda V310t310 \in 2. \text{c_2Emin_2E_3D } (V309t309 = V310t310)) (\lambda V311t311 \in 2. \lambda V312t312 \in 2. \text{c_2Emin_2E_3D } (V311t311 = V312t312)) (\lambda V313t313 \in 2. \lambda V314t314 \in 2. \text{c_2Emin_2E_3D } (V313t313 = V314t314)) (\lambda V315t315 \in 2. \lambda V316t316 \in 2. \text{c_2Emin_2E_3D } (V315t315 = V316t316)) (\lambda V317t317 \in 2. \lambda V318t318 \in 2. \text{c_2Emin_2E_3D } (V317t317 = V318t318)) (\lambda V319t319 \in 2. \lambda V320t320 \in 2. \text{c_2Emin_2E_3D } (V319t319 = V320t320)) (\lambda V321t321 \in 2. \lambda V322t322 \in 2. \text{c_2Emin_2E_3D } (V321t321 = V322t322)) (\lambda V323t323 \in 2. \lambda V324t324 \in 2. \text{c_2Emin_2E_3D } (V323t323 = V324t324)) (\lambda V325t325 \in 2. \lambda V326t326 \in 2. \text{c_2Emin_2E_3D } (V325t325 = V326t326)) (\lambda V327t327 \in 2. \lambda V328t328 \in 2. \text{c_2Emin_2E_3D } (V327t327 = V328t328)) (\lambda V329t329 \in 2. \lambda V330t330 \in 2. \text{c_2Emin_2E_3D } (V329t329 = V330t330)) (\lambda V331t331 \in 2. \lambda V332t332 \in 2. \text{c_2Emin_2E_3D } (V331t331 = V332t332)) (\lambda V333t333 \in 2. \lambda V334t334 \in 2. \text{c_2Emin_2E_3D } (V333t333 = V334t334)) (\lambda V335t335 \in 2. \lambda V336t336 \in 2. \text{c_2Emin_2E_3D } (V335t335 = V336t336)) (\lambda V337t337 \in 2. \lambda V338t338 \in 2. \text{c_2Emin_2E_3D } (V337t337 = V338t338)) (\lambda V339t339 \in 2. \lambda V340t340 \in 2. \text{c_2Emin_2E_3D } (V339t339 = V340t340)) (\lambda V341t341 \in 2. \lambda V342t342 \in 2. \text{c_2Emin_2E_3D } (V341t341 = V342t342)) (\lambda V343t343 \in 2. \lambda V344t344 \in 2. \text{c_2Emin_2E_3D } (V343t343 = V344t344)) (\lambda V345t345 \in 2. \lambda V346t346 \in 2. \text{c_2Emin_2E_3D } (V345t345 = V346t346)) (\lambda V347t347 \in 2. \lambda V348t348 \in 2. \text{c_2Emin_2E_3D } (V347t347 = V348t348)) (\lambda V349t349 \in 2. \lambda V350t350 \in 2. \text{c_2Emin_2E_3D } (V349t349 = V350t350)) (\lambda V351t351 \in 2. \lambda V352t352 \in 2. \text{c_2Emin_2E_3D } (V351t351 = V352t352)) (\lambda V353t353 \in 2. \lambda V354t354 \in 2. \text{c_2Emin_2E_3D } (V353t353 = V354t354)) (\lambda V355t355 \in 2. \lambda V356t356 \in 2. \text{c_2Emin_2E_3D } (V355t355 = V356t356)) (\lambda V357t357 \in 2. \lambda V358t358 \in 2. \text{c_2Emin_2E_3D } (V357t357 = V358t358)) (\lambda V359t359 \in 2. \lambda V360t360 \in 2. \text{c_2Emin_2E_3D } (V359t359 = V360t360)) (\lambda V361t361 \in 2. \lambda V362t362 \in 2. \text{c_2Emin_2E_3D } (V361t361 = V362t362)) (\lambda V363t363 \in 2. \lambda V364t364 \in 2. \text{c_2Emin_2E_3D } (V363t363 = V364t364)) (\lambda V365t365 \in 2. \lambda V366t366 \in 2. \text{c_2Emin_2E_3D } (V365t365 = V366t366)) (\lambda V367t367 \in 2. \lambda V368t368 \in 2. \text$

Assume the following.

$$(\forall V0t \in 2.((p \ V0t) \vee (\neg(p \ V0t)))) \quad (4)$$

Assume the following.

$$\forall A.27a.nonempty \ A.27a \Rightarrow (\forall V0t \in 2.((\forall V1x \in A.27a.(p \ V0t)) \Leftrightarrow (p \ V0t))) \quad (5)$$

Assume the following.

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

Assume the following.

$$(\forall V0t \in 2.((\neg(p \ V0t)) \Rightarrow ((p \ V0t) \Rightarrow False))) \quad (7)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2.(((True \wedge (p \ V0t)) \Leftrightarrow (p \ V0t)) \wedge (((p \ V0t) \wedge True) \Leftrightarrow \\ & (p \ V0t)) \wedge (((False \wedge (p \ V0t)) \Leftrightarrow False) \wedge (((p \ V0t) \wedge False) \Leftrightarrow False) \wedge \\ & (((p \ V0t) \wedge (p \ V0t)) \Leftrightarrow (p \ V0t)))))) \end{aligned} \quad (8)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2.(((True \vee (p \ V0t)) \Leftrightarrow True) \wedge (((p \ V0t) \vee True) \Leftrightarrow True) \wedge \\ & (((False \vee (p \ V0t)) \Leftrightarrow (p \ V0t)) \wedge (((p \ V0t) \vee False) \Leftrightarrow (p \ V0t)) \wedge (((p \ V0t) \vee \\ & (p \ V0t)) \Leftrightarrow (p \ V0t)))))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2.(((True \Rightarrow (p \ V0t)) \Leftrightarrow (p \ V0t)) \wedge (((p \ V0t) \Rightarrow True) \Leftrightarrow \\ & True) \wedge (((False \Rightarrow (p \ V0t)) \Leftrightarrow True) \wedge (((p \ V0t) \Rightarrow (p \ V0t)) \Leftrightarrow True) \wedge ((\\ & (p \ V0t) \Rightarrow False) \Leftrightarrow (\neg(p \ V0t)))))) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & ((\forall V0t \in 2.((\neg(\neg(p \ V0t))) \Leftrightarrow (p \ V0t)) \wedge (((\neg True) \Leftrightarrow False) \wedge \\ & ((\neg False) \Leftrightarrow True))) \end{aligned} \quad (11)$$

Assume the following.

$$\forall A.27a.nonempty \ A.27a \Rightarrow (\forall V0x \in A.27a.((V0x = V0x) \Leftrightarrow True)) \quad (12)$$

Assume the following.

$$\begin{aligned} & (\forall V0t \in 2.(((True \Leftrightarrow (p \ V0t)) \Leftrightarrow (p \ V0t)) \wedge (((p \ V0t) \Leftrightarrow True) \Leftrightarrow \\ & (p \ V0t)) \wedge (((False \Leftrightarrow (p \ V0t)) \Leftrightarrow (\neg(p \ V0t))) \wedge (((p \ V0t) \Leftrightarrow False) \Leftrightarrow (\neg(\\ & p \ V0t)))))) \end{aligned} \quad (13)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (\forall V2C \in 2. (((p V0A) \vee (p V1B) \vee (p V2C))) \Leftrightarrow (((p V0A) \vee (p V1B)) \vee (p V2C)))))) \quad (14)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((p V0A) \vee (p V1B)) \Leftrightarrow ((p V1B) \vee (p V0A)))))) \quad (15)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p V0A) \wedge (p V1B))) \Leftrightarrow ((\neg(p V0A) \vee \neg(p V1B)))) \wedge ((\neg((p V0A) \vee (p V1B))) \Leftrightarrow ((\neg(p V0A) \wedge \neg(p V1B))))))))) \quad (16)$$

Assume the following.

$$\forall A_27a. \text{nonempty } A_27a \Rightarrow (\forall V0x \in A_27a. ((ap (c_2Ecombin_2EI A_27a) V0x) = V0x)) \quad (17)$$

Assume the following.

$$\begin{aligned} & \forall A_27a. \text{nonempty } A_27a \Rightarrow \forall A_27b. \text{nonempty } A_27b \Rightarrow (\\ & \quad \forall V0R \in ((2^{A_27a})^{A_27a}). (\forall V1abs \in (A_27b^{A_27a}). \\ & \quad (\forall V2rep \in (A_27a^{A_27b}). ((p (ap (ap (ap (c_2Equotient_2EQUOTIENT \\ & \quad A_27a A_27b) V0R) V1abs) V2rep)) \Rightarrow (\forall V3r \in A_27a. (\forall V4s \in \\ & \quad A_27a. ((p (ap (ap V0R V3r) V4s)) \Leftrightarrow ((p (ap (ap V0R V3r) V3r)) \wedge ((p (ap \\ & \quad (ap V0R V4s) V4s)) \wedge ((ap V1abs V3r) = (ap V1abs V4s))))))))))))) \quad (18) \end{aligned}$$

Assume the following.

$$(\forall V0t \in 2. ((\neg(\neg(p V0t))) \Leftrightarrow (p V0t))) \quad (19)$$

Assume the following.

$$(\forall V0A \in 2. ((p V0A) \Rightarrow ((\neg(p V0A)) \Rightarrow \text{False}))) \quad (20)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((\neg((p V0A) \vee (p V1B))) \Rightarrow \text{False}) \Leftrightarrow ((p V0A) \Rightarrow \text{False}) \Rightarrow ((\neg(p V1B)) \Rightarrow \text{False})))))) \quad (21)$$

Assume the following.

$$(\forall V0A \in 2. (\forall V1B \in 2. (((\neg(\neg((p V0A) \vee (p V1B))) \Rightarrow \text{False}) \Leftrightarrow ((p V0A) \Rightarrow ((\neg(p V1B)) \Rightarrow \text{False})))))) \quad (22)$$

Assume the following.

$$(\forall V0A \in 2. (((\neg(p V0A)) \Rightarrow \text{False}) \Rightarrow (((p V0A) \Rightarrow \text{False}) \Rightarrow \text{False}))) \quad (23)$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \Leftrightarrow (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee ((p \ V1q) \vee (p \ V2r))) \wedge (((p \ V0p) \vee ((\neg(\\
& p \ V2r)) \vee (\neg(p \ V1q)))) \wedge (((p \ V1q) \vee ((\neg(p \ V2r)) \vee (\neg(p \ V0p)))) \wedge ((p \ V2r) \vee \\
& ((\neg(p \ V1q)) \vee (\neg(p \ V0p))))))))))
\end{aligned} \tag{24}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \wedge (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee ((\neg(p \ V1q)) \vee (\neg(p \ V2r)))) \wedge (((p \ V1q) \vee \\
& (\neg(p \ V0p))) \wedge ((p \ V2r) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{25}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \vee (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (\neg(p \ V1q))) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge \\
& ((p \ V1q) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{26}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (\forall V2r \in 2. (((p \ V0p) \Leftrightarrow (\\
& (p \ V1q) \Rightarrow (p \ V2r))) \Leftrightarrow (((p \ V0p) \vee (p \ V1q)) \wedge (((p \ V0p) \vee (\neg(p \ V2r))) \wedge ((\\
& \neg(p \ V1q)) \vee ((p \ V2r) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{27}$$

Assume the following.

$$\begin{aligned}
& (\forall V0p \in 2. (\forall V1q \in 2. (((p \ V0p) \Leftrightarrow (\neg(p \ V1q))) \Leftrightarrow (((p \ V0p) \vee \\
& (p \ V1q)) \wedge ((\neg(p \ V1q)) \vee (\neg(p \ V0p))))))
\end{aligned} \tag{28}$$

Theorem 1

$$\begin{aligned}
& \forall A_27a.nonempty \ A_27a \Rightarrow \forall A_27b.nonempty \ A_27b \Rightarrow (\\
& \forall V0R \in ((2^{A_27a})^{A_27a}). (\forall V1abs \in (A_27b^{A_27a}). \\
& (\forall V2rep \in (A_27a^{A_27b}). ((p \ (ap \ (ap \ (ap \ (c_2Equotient_2EQUOTIENT \\
& A_27a \ A_27b) \ V0R) \ V1abs) \ V2rep)) \Rightarrow (\forall V3x \in A_27a. (\forall V4y \in \\
& A_27a. (\forall V5z \in A_27a. (((p \ (ap \ (ap \ V0R \ V3x) \ V4y)) \wedge (p \ (ap \ (ap \\
& V0R \ V4y) \ V5z))) \Rightarrow (p \ (ap \ (ap \ V0R \ V3x) \ V5z))))))
\end{aligned}$$