LAT axioms

LAT001-0.ax Lattice theory (equality) axioms
$x \wedge x = x$ cnf(idempotence_of_meet, axiom)
$x \vee x = x$ cnf(idempotence_of_join, axiom)
$x \wedge (x \vee y) = x$ cnf(absorption$_1$, axiom)
$x \vee (x \wedge y) = x$ cnf(absorption$_2$, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)
$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$(x \wedge y) \wedge z = x \wedge (y \wedge z)$ cnf(associativity_of_meet, axiom)
$(x \vee y) \vee z = x \vee (y \vee z)$ cnf(associativity_of_join, axiom)

LAT001-1.ax Lattice theory modularity (equality) axioms
$x \wedge n_0 = n_0$ cnf(x_meet$_0$, axiom)
$x \vee n_0 = x$ cnf(x_join$_0$, axiom)
$x \wedge n_1 = x$ cnf(x_meet$_1$, axiom)
$x \vee n_1 = n_1$ cnf(x_join$_1$, axiom)
$x \wedge z = x \Rightarrow z \wedge (x \vee y) = x \vee (y \wedge z)$ cnf(modular, axiom)

LAT001-2.ax Lattice theory complement (equality) axioms
$x'{=}y \Rightarrow x \wedge y = n_0$ cnf(complement_meet, axiom)
$x'{=}y \Rightarrow x \vee y = n_1$ cnf(complement_join, axiom)
$(x \wedge y = n_0$ and $x \vee y = n_1) \Rightarrow x'{=}y$ cnf(meet_join_complement, axiom)

LAT001-3.ax Lattice theory unique complement (equality) axioms
unique_complement$(x, y) \Rightarrow x'{=}y$ cnf(unique_complement$_1$, axiom)
(unique_complement(x, y) and $x'{=}z) \Rightarrow z = y$ cnf(unique_complement$_2$, axiom)
$x'{=}y \Rightarrow$ (unique_complement(x, y) or $x'{=}f(x, y))$ cnf(unique_complement$_3$, axiom)
$(x'{=}y$ and $f(x, y) = y) \Rightarrow$ unique_complement(x, y) cnf(unique_complement$_4$, axiom)

LAT001-4.ax Lattice theory unique complementation (equality) axioms
$x \vee x' = 1$ cnf(complement_join, axiom)
$x \wedge x' = 0$ cnf(complement_meet, axiom)
$(x \wedge y = 0$ and $x \vee y = 1) \Rightarrow x' = y$ cnf(meet_join_complement, axiom)

LAT002-0.ax Lattice theory axioms
$n_1 \vee x{=}n_1$ cnf(join_1_and_x, axiom)
$x \vee x{=}x$ cnf(join_x_and_x, axiom)
$n_0 \vee x{=}x$ cnf(join_0_and_x, axiom)
$n_0 \wedge x{=}n_0$ cnf(meet_0_and_x, axiom)
$x \wedge x{=}x$ cnf(meet_x_and_x, axiom)
$n_1 \wedge x{=}x$ cnf(meet_1_and_x, axiom)
$x \wedge y{=}z \Rightarrow y \wedge x{=}z$ cnf(commutativity_of_meet, axiom)
$x \vee y{=}z \Rightarrow y \vee x{=}z$ cnf(commutativity_of_join, axiom)
$x \wedge y{=}z \Rightarrow x \vee z{=}x$ cnf(absorbtion$_1$, axiom)
$x \vee y{=}z \Rightarrow x \wedge z{=}x$ cnf(absorbtion$_2$, axiom)
$(x \wedge y{=}\text{xy}$ and $y \wedge z{=}\text{yz}$ and $x \wedge \text{yz}{=}\text{xyz}) \Rightarrow \text{xy} \wedge z{=}\text{xyz}$ cnf(associativity_of_meet$_1$, axiom)
$(x \wedge y{=}\text{xy}$ and $y \wedge z{=}\text{yz}$ and $\text{xy} \wedge z{=}\text{xyz}) \Rightarrow x \wedge \text{yz}{=}\text{xyz}$ cnf(associativity_of_meet$_2$, axiom)
$(x \vee y{=}\text{xy}$ and $y \vee z{=}\text{yz}$ and $x \vee \text{yz}{=}\text{xyz}) \Rightarrow \text{xy} \vee z{=}\text{xyz}$ cnf(associativity_of_join$_1$, axiom)
$(x \vee y{=}\text{xy}$ and $y \vee z{=}\text{yz}$ and $\text{xy} \vee z{=}\text{xyz}) \Rightarrow x \vee \text{yz}{=}\text{xyz}$ cnf(associativity_of_join$_2$, axiom)
$(x \wedge z{=}x$ and $x \vee y{=}x_1$ and $y \wedge z{=}y_1$ and $z \wedge x_1{=}z_1) \Rightarrow x \vee y_1{=}z_1$ cnf(modularity$_1$, axiom)
$(x \wedge z{=}x$ and $x \vee y{=}x_1$ and $y \wedge z{=}y_1$ and $x \vee y_1{=}z_1) \Rightarrow z \wedge x_1{=}z_1$ cnf(modularity$_2$, axiom)
$x \wedge y{=}$meet_of(x, y) cnf(meet_total_function$_1$, axiom)
$(x \wedge y{=}z_1$ and $x \wedge y{=}z_2) \Rightarrow z_1 = z_2$ cnf(meet_total_function$_2$, axiom)
$x \vee y{=}$join_of(x, y) cnf(join_total_function$_1$, axiom)
$(x \vee y{=}z_1$ and $x \vee y{=}z_2) \Rightarrow z_1 = z_2$ cnf(join_total_function$_2$, axiom)

LAT003-0.ax Ortholattice theory (equality) axioms
$x' \vee x = n_1$ cnf(top, axiom)
$x' \wedge x = n_0$ cnf(bottom, axiom)
$x \vee (x \wedge y) = x$ cnf(absorption$_2$, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)

$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$(x \wedge y) \wedge z = x \wedge (y \wedge z)$ cnf(associativity_of_meet, axiom)
$(x \vee y) \vee z = x \vee (y \vee z)$ cnf(associativity_of_join, axiom)
$(x')' = x$ cnf(complement_involution, axiom)
$x \vee (y \vee y') = y \vee y'$ cnf(join_complement, axiom)
$x \wedge y = (x' \vee y')'$ cnf(meet_complement, axiom)

LAT004-0.ax Quasilattice theory (equality) axioms
$x \wedge x = x$ cnf(idempotence_of_meet, axiom)
$x \vee x = x$ cnf(idempotence_of_join, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)
$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$(x \wedge y) \wedge z = x \wedge (y \wedge z)$ cnf(associativity_of_meet, axiom)
$(x \vee y) \vee z = x \vee (y \vee z)$ cnf(associativity_of_join, axiom)
$(x \wedge (y \vee z)) \vee (x \wedge y) = x \wedge (y \vee z)$ cnf(quasi_lattice$_1$, axiom)
$(x \vee (y \wedge z)) \wedge (x \vee y) = x \vee (y \wedge z)$ cnf(quasi_lattice$_2$, axiom)

LAT005-0.ax Weakly Associative Lattices theory (equality) axioms
$x \wedge x = x$ cnf(idempotence_of_meet, axiom)
$x \vee x = x$ cnf(idempotence_of_join, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)
$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$((x \vee y) \wedge (z \vee y)) \wedge y = y$ cnf(wal$_1$, axiom)
$((x \wedge y) \vee (z \wedge y)) \vee y = y$ cnf(wal$_2$, axiom)

LAT006-0.ax Tarski's fixed point theorem (equality) axioms
c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more, t_a, t_z) = c_Tarski_Opotype_Opotype__ext(v_pset_H, v_order_H, v_mo
v_pset = v_pset_H cnf(cls_Tarski_Opotype_Oext__inject$_0$, axiom)
c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more, t_a, t_z) = c_Tarski_Opotype_Opotype__ext(v_pset_H, v_order_H, v_mo
v_order = v_order_H cnf(cls_Tarski_Opotype_Oext__inject$_1$, axiom)
c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more, t_a, t_z) = c_Tarski_Opotype_Opotype__ext(v_pset_H, v_order_H, v_mo
v_more = v_more_H cnf(cls_Tarski_Opotype_Oext__inject$_2$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Opotype_Opotype__ext(v_y, v_order, v_more, t_a, t_z), t_a, t_z) = v_y cnf(cls_Tarski_Opot
c_Tarski_Opotype_Oorder(c_Tarski_Opotype_Opotype__ext(v_pset, v_y, v_more, t_a, t_z), t_a, t_z) = v_y cnf(cls_Tarski_Opot
c_Tarski_Opotype_Omore(c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_y, t_a, t_a), t_a, t_a) = v_y cnf(cls_Tarski_Opo
c_Tarski_Opotype_Opset__update(v_pset_H, c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more, t_a, t_z), t_a, t_z) =
c_Tarski_Opotype_Opotype__ext(v_pset_H, v_order, v_more, t_a, t_z) cnf(cls_Tarski_Opotype_Oupdate__convs__1$_0$, axiom)
c_Tarski_Opotype_Oorder__update(v_order_H, c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more, t_a, t_z), t_a, t_z) =
c_Tarski_Opotype_Opotype__ext(v_pset, v_order_H, v_more, t_a, t_z) cnf(cls_Tarski_Opotype_Oupdate__convs__2$_0$, axiom)
c_Tarski_Opotype_Omore__update(v_more_H, c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more, t_a, t_z), t_z, t_a) =
c_Tarski_Opotype_Opotype__ext(v_pset, v_order, v_more_H, t_a, t_z) cnf(cls_Tarski_Opotype_Oupdate__convs__3$_0$, axiom)

LAT006-1.ax Tarski's fixed point theorem GLB (equality) axioms
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_x, v_S, t_a) and c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_O
c_in(c_Pair(v_x, c_Tarski_Olub(v_S, v_cl, t_a), t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_
c_in(c_Pair(v_x, v_y, t_a, t_a), c_Tarski_Opotype_Oorder(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit), tc_prod(t_a, t_
c_in(c_Pair(v_y, v_x, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_a, t_a)) cnf(cls_Tarski
c_in(c_Pair(v_y, v_x, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_a, t_a)) $\Rightarrow$ c_in(c_Pair(v_
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarsk
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a) cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT problems

LAT001-1.p If X' = U ∨ V and Y' = U ∧ V, then U' = X ∨ (Y ∧ V)

The theorem states that there is a complement of "a" in a modular lattice with 0 and 1.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-2.ax')
r_1'=$a \vee b$ cnf(complement_of_a_join_b, hypothesis)
r_2'=$a \wedge b$ cnf(complement_of_a_meet_b, hypothesis)
$\neg\, a'$=$r_1 \vee (r_2 \wedge b)$ cnf(prove_complememt, negated_conjecture)

LAT002-1.p If X' = U ∨ V and Y' = U ∧ V, then U' exists
The theorem states that there is a complement of "a" in a modular lattice with 0 and 1.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-2.ax')
r_1'=$a \vee b$ cnf(complement_of_a_join_b, hypothesis)
r_2'=$a \wedge b$ cnf(complement_of_a_meet_b, hypothesis)
$\neg\, a'$=w cnf(prove_complememt_exists, negated_conjecture)

LAT003-1.p A fairly complex equation to establish
If X' = U ∨ V and Y' = U ∧ V and U" = UC and V" = VC then (U ∨ V)' = UC ∧ VC. " means unique complement.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-2.ax')
include('Axioms/LAT001-3.ax')
r_1'=$a \vee b$ cnf(complement_of_a_join_b, hypothesis)
r_2'=$a \wedge b$ cnf(complement_of_a_meet_b, hypothesis)
unique_complement(a, a_2) cnf(unique_complement_of_a, hypothesis)
unique_complement(b, b_2) cnf(unique_complement_of_b, hypothesis)
$\neg\, a \vee b'$=$a_2 \wedge b_2$ cnf(prove_complement, negated_conjecture)

LAT004-1.p A fairly complex equation to establish
If X' = U ∨ V and Y' = U ∧ V and U" = UC and V" = VC then (U ∨ V)" = (UC ∧ VC). " means unique complement.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-2.ax')
include('Axioms/LAT001-3.ax')
r_1'=$a \vee b$ cnf(complement_of_a_join_b, hypothesis)
r_2'=$a \wedge b$ cnf(complement_of_a_meet_b, hypothesis)
unique_complement(a, a_2) cnf(unique_complement_of_a, hypothesis)
unique_complement(b, b_2) cnf(unique_complement_of_b, hypothesis)
¬ unique_complement($a \vee b, a_2 \wedge b_2$) cnf(prove_unique_complement, negated_conjecture)

LAT005-3.p SAM's lemma
Let L be a modular lattice with 0 and 1. Suppose that A and B are elements of L such that (A ∨ B) and (A ∧ B) both have not necessarily unique complements. Then, (A ∨ B)' = ((A ∨ B)' ∨ ((A ∧ B)' ∧ B)) ∧ ((A ∨ B)' ∨ ((A ∧ B)' ∧ A)).
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-2.ax')
r_1'=$a \vee b$ cnf(complement_of_a_join_b, hypothesis)
r_2'=$a \wedge b$ cnf(complement_of_a_meet_b, hypothesis)
$r_1 \neq (r_1 \vee (r_2 \wedge b)) \wedge (r_1 \vee (r_2 \wedge a))$ cnf(prove_lemma, negated_conjecture)

LAT005-4.p SAM's lemma
Let L be a modular lattice with 0 and 1. Suppose that A and B are elements of L such that (A ∨ B) and (A ∧ B) both have not necessarily unique complements. Then, (A ∨ B)' = ((A ∨ B)' ∨ ((A ∧ B)' ∧ B)) ∧ ((A ∨ B)' ∨ ((A ∧ B)' ∧ A)).
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
$r_2 \vee (a \wedge b) = n_1$ cnf(r2_complement_meet_a_b$_1$, negated_conjecture)
$r_2 \wedge (a \wedge b) = n_0$ cnf(r2_complement_meet_a_b$_2$, negated_conjecture)
$r_1 \vee (a \vee b) = n_1$ cnf(r1_complement_join_a_b$_1$, negated_conjecture)

$r_1 \wedge (a \vee b) = n_0$ cnf(r1_complement_join_a_b$_2$, negated_conjecture)
$r_1 \vee (a \wedge r_2) = b_2$ cnf(define_b$_2$, negated_conjecture)
$r_1 \vee (b \wedge r_2) = a_2$ cnf(define_a$_2$, negated_conjecture)
$a_2 \wedge b_2 \neq r_1$ cnf(prove_SAMs_lemma, negated_conjecture)

LAT005-5.p SAM's lemma
Let L be a modular lattice with 0 and 1. Suppose that A and B are elements of L such that (A ∨ B) and (A ∧ B) both have not necessarily unique complements. Then, (A ∨ B)' = ((A ∨ B)' ∨ ((A ∧ B)' ∧ B)) ∧ ((A ∨ B)' ∨ ((A ∧ B)' ∧ A)).
include('Axioms/LAT002-0.ax')
$a \wedge b{=}c$ cnf(meet_a_and_b, negated_conjecture)
$c \vee r_2{=}n_1$ cnf(join_c_and_r$_2$, negated_conjecture)
$c \wedge r_2{=}n_0$ cnf(meet_c_and_r$_2$, negated_conjecture)
$r_2 \wedge b{=}e$ cnf(meet_r2_and_b, negated_conjecture)
$a \vee b{=}c_2$ cnf(join_a_and_b, negated_conjecture)
$c_2 \vee r_1{=}n_1$ cnf(join_c2_and_r$_1$, negated_conjecture)
$c_2 \wedge r_1{=}n_0$ cnf(meet_c2_and_r$_1$, negated_conjecture)
$r_2 \wedge a{=}d$ cnf(meet_r2_and_a, negated_conjecture)
$r_1 \vee e{=}a_2$ cnf(join_r1_and_e, negated_conjecture)
$r_1 \vee d{=}b_2$ cnf(join_r1_and_d, negated_conjecture)
$\neg\, a_2 \wedge b_2{=}r_1$ cnf(meet_a2_and_b$_2$, negated_conjecture)

LAT005-6.p SAM's lemma
Let L be a modular lattice with 0 and 1. Suppose that A and B are elements of L such that (A ∨ B) and (A ∧ B) both have not necessarily unique complements. Then, (A ∨ B)' = ((A ∨ B)' ∨ ((A ∧ B)' ∧ B)) ∧ ((A ∨ B)' ∨ ((A ∧ B)' ∧ A)).
include('Axioms/LAT002-0.ax')
$x \vee n_1{=}n_1$ cnf(join_x_and$_1$, axiom)
$x \vee n_0{=}x$ cnf(join_x_and$_0$, axiom)
$x \wedge n_0{=}n_0$ cnf(meet_x_and$_0$, axiom)
$x \wedge n_1{=}x$ cnf(meet_x_and$_1$, axiom)
$(x \wedge z{=}z \text{ and } y \vee z{=}y_1 \text{ and } x \wedge y{=}x_1 \text{ and } x \wedge y_1{=}z_1) \Rightarrow z \vee x_1{=}z_1$ cnf(modularity$_3$, axiom)
$(x \wedge z{=}z \text{ and } y \vee z{=}y_1 \text{ and } x \wedge y{=}x_1 \text{ and } z \vee x_1{=}z_1) \Rightarrow x \wedge y_1{=}z_1$ cnf(modularity$_4$, axiom)
$a \wedge b{=}c$ cnf(meet_a_and_b, negated_conjecture)
$c \vee r_2{=}n_1$ cnf(join_c_and_r$_2$, negated_conjecture)
$c \wedge r_2{=}n_0$ cnf(meet_c_and_r$_2$, negated_conjecture)
$r_2 \wedge b{=}e$ cnf(meet_r2_and_b, negated_conjecture)
$a \vee b{=}c_2$ cnf(join_a_and_b, negated_conjecture)
$c_2 \vee r_1{=}n_1$ cnf(join_c2_and_r$_1$, negated_conjecture)
$c_2 \wedge r_1{=}n_0$ cnf(meet_c2_and_r$_1$, negated_conjecture)
$r_2 \wedge a{=}d$ cnf(meet_r2_and_a, negated_conjecture)
$r_1 \vee e{=}a_2$ cnf(join_r1_and_e, negated_conjecture)
$r_1 \vee d{=}b_2$ cnf(join_r1_and_d, negated_conjecture)
$\neg\, a_2 \wedge b_2{=}r_1$ cnf(meet_a2_and_b$_2$, negated_conjecture)

LAT006-1.p Sholander's basis for distributive lattices, part 2 (of 6).
This is part of the proof that Sholanders 2-basis for distributive lattices is correct. Here we prove associativity of meet.
$x \wedge (x \vee y) = x$ cnf(absorption, axiom)
$x \wedge (y \vee z) = (z \wedge x) \vee (y \wedge x)$ cnf(distribution, axiom)
$(a \wedge b) \wedge c \neq a \wedge (b \wedge c)$ cnf(prove_associativity_of_meet, negated_conjecture)

LAT007-1.p Sholander's basis for distributive lattices, part 5 (of 6).
This is part of the proof that Sholanders 2-basis for distributive lattices is correct. Here we prove associativity of join.
$x \wedge (x \vee y) = x$ cnf(absorption, axiom)
$x \wedge (y \vee z) = (z \wedge x) \vee (y \wedge x)$ cnf(distribution, axiom)
$(a \vee b) \vee c \neq a \vee (b \vee c)$ cnf(prove_associativity_of_join, negated_conjecture)

LAT008-1.p Sholander's basis for distributive lattices, part 5 (of 6).
This is part of the proof that Sholanders 2-basis for distributive lattices is correct. Here we prove the absorption law x ∨ (x ∧ y) = x.

$x \wedge (x \vee y) = x$ cnf(absorption, axiom)
$x \wedge (y \vee z) = (z \wedge x) \vee (y \wedge x)$ cnf(distribution, axiom)
$a \vee (a \wedge b) \neq a$ cnf(prove_absorbtion_dual, negated_conjecture)

LAT009-1.p A self-dual form of distributivity for lattice theory.
From lattice theory axioms and a self-dual form of distributivity, we prove ordinary distributivity.
include('Axioms/LAT001-0.ax')
$(((x \wedge y) \vee z) \wedge y) \vee (z \wedge x) = (((x \vee y) \wedge z) \vee y) \wedge (z \vee x)$ cnf(distributivity_dual, axiom)
$a \vee (b \wedge c) \neq (a \vee b) \wedge (a \vee c)$ cnf(prove_distributivity, negated_conjecture)

LAT010-1.p McKenzie's basis for the variety generated by N5.
McKenzie's basis for the variety generated by N5.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = (x \wedge (y \vee (x \wedge z))) \vee (x \wedge ((x \wedge y) \vee (z \wedge u)))$ cnf(n5$_1$, hypothesis)
$x \vee (y \wedge (z \vee (x \wedge u))) = (x \vee (y \wedge (x \vee z))) \wedge (x \vee ((x \vee y) \wedge (z \vee u)))$ cnf(n5$_2$, hypothesis)
$(x \vee (y \wedge z)) \wedge (z \vee (x \wedge y)) = (z \wedge (x \vee (y \wedge z))) \vee (x \wedge (y \vee z))$ cnf(nr$_3$, hypothesis)
$a \wedge ((b \vee c) \wedge (b \vee d)) \neq (a \wedge ((b \vee c) \wedge (b \vee d))) \wedge ((a \wedge (b \vee (c \wedge d))) \vee ((a \wedge c) \vee (a \wedge d)))$ cnf(prove_this, negated_conjecture)

LAT011-1.p Uniqueness of meet (dually join) in lattice theory
Let's say we have a lattice with two meet operations, say meet1 and meet2. In other words, join,meet1 is a lattice, and join,meet2 is a lattice. Then, we can prove that the two meet operations are really the same.
include('Axioms/LAT001-0.ax')
$x \wedge_2 x = x$ cnf(idempotence_of_meet$_2$, axiom)
$x \wedge_2 y = y \wedge_2 x$ cnf(commutativity_of_meet$_2$, axiom)
$x \wedge_2 (x \vee y) = x$ cnf(absorption1$_2$, axiom)
$x \vee (x \wedge_2 y) = x$ cnf(absorption2$_2$, axiom)
$(x \wedge_2 y) \wedge_2 z = x \wedge_2 (y \wedge_2 z)$ cnf(associativity_of_meet$_2$, axiom)
$a \wedge b \neq a \wedge_2 b$ cnf(prove_meets_are_same, negated_conjecture)

LAT012-1.p McKenzie's 4-basis for lattice theory, part 1 (of 3)
This is part of a proof that McKenzie's 4-basis axiomatizes lattice theory. We prove half of the standard basis. The other half follows by duality. In this part we prove commutativity of meet.
$x \vee (y \wedge (x \wedge z)) = x$ cnf(mckenzie$_1$, axiom)
$x \wedge (y \vee (x \vee z)) = x$ cnf(mckenzie$_2$, axiom)
$((x \wedge y) \vee (y \wedge z)) \vee y = y$ cnf(mckenzie$_3$, axiom)
$((x \vee y) \wedge (y \vee z)) \wedge y = y$ cnf(mckenzie$_4$, axiom)
$b \wedge a \neq a \wedge b$ cnf(prove_commutativity_of_meet, negated_conjecture)

LAT013-1.p McKenzie's 4-basis for lattice theory, part 2 (of 3)
This is part of a proof that McKenzie's 4-basis axiomatizes lattice theory. We prove half of the standard basis. The other half follows by duality. In this part we prove associativity of meet.
$x \vee (y \wedge (x \wedge z)) = x$ cnf(mckenzie$_1$, axiom)
$x \wedge (y \vee (x \vee z)) = x$ cnf(mckenzie$_2$, axiom)
$((x \wedge y) \vee (y \wedge z)) \vee y = y$ cnf(mckenzie$_3$, axiom)
$((x \vee y) \wedge (y \vee z)) \wedge y = y$ cnf(mckenzie$_4$, axiom)
$(a \wedge b) \wedge c \neq a \wedge (b \wedge c)$ cnf(prove_associativity_of_meet, negated_conjecture)

LAT014-1.p McKenzie's 4-basis for lattice theory, part 3 (of 3)
This is part of a proof that McKenzie's 4-basis axiomatizes lattice theory. We prove half of the standard basis. The other half follows by duality. In this part we prove absorbtion of meet.
$x \vee (y \wedge (x \wedge z)) = x$ cnf(mckenzie$_1$, axiom)
$x \wedge (y \vee (x \vee z)) = x$ cnf(mckenzie$_2$, axiom)
$((x \wedge y) \vee (y \wedge z)) \vee y = y$ cnf(mckenzie$_3$, axiom)
$((x \vee y) \wedge (y \vee z)) \wedge y = y$ cnf(mckenzie$_4$, axiom)
$a \wedge (a \vee b) \neq a$ cnf(prove_absorbtion, negated_conjecture)

LAT015-1.p Single axiom for lattice theory
This starts with a single axiom for lattice theory and derives a standard basis for lattice theory.
$(((x \wedge y) \vee (y \wedge (x \vee y))) \wedge z) \vee (((x \wedge (((x_1 \wedge y) \vee (y \wedge x_2)) \vee y)) \vee (((y \wedge (((x_1 \vee (y \vee x_2)) \wedge (x_3 \vee y)) \wedge y)) \vee (u \wedge (y \vee (((x_1 \vee (y \vee x_2)) \wedge (x_3 \vee y)) \wedge y)))) \wedge (x \vee (((x_1 \wedge y) \vee (y \wedge x_2)) \vee y)))) \wedge (((x \wedge y) \vee (y \wedge (x \vee y))) \vee z)) = y$ cnf(single_axiom, axiom)
$(a \wedge a = a \text{ and } a \wedge b = b \wedge a \text{ and } (a \wedge b) \wedge c = a \wedge (b \wedge c) \text{ and } a \vee a = a \text{ and } a \vee b = b \vee a \text{ and } (a \vee b) \vee c = a \vee (b \vee c) \text{ and } a \wedge (a \vee b) = a) \Rightarrow a \vee (a \wedge b) \neq a$ cnf(prove_normal_axioms, negated_conjecture)

LAT016-1.p E1 fails for Ortholattices.

Show that Ortholattices do not necessarily satisfy equation E1.
include('Axioms/LAT003-0.ax')
$((a \wedge b') \vee a')' \vee ((a \wedge b') \vee ((a' \wedge ((a \vee b') \wedge (a \vee b))) \vee (a' \wedge ((a \vee b') \wedge (a \vee b))')))) \neq n_1$ cnf(prove_e$_1$, negated_conjecture)

LAT017-1.p E2 holds in Ortholattices.
Prove that from ortholattice axioms, one can derive equation E2.
include('Axioms/LAT003-0.ax')
$a \vee ((a' \wedge ((a \vee b') \wedge (a \vee b))) \vee (a' \wedge ((a' \wedge b) \vee (a' \wedge b')))) \neq n_1$ cnf(prove_e$_2$, negated_conjecture)

LAT018-1.p E3 holds in Ortholattices.
Prove that from ortholattice axioms, one can derive equation E3.
include('Axioms/LAT003-0.ax')
$(((a' \wedge b) \vee (a' \wedge b')) \vee (a \wedge (a' \vee b)))' \vee (a' \vee b) \neq n_1$ cnf(prove_e$_3$, negated_conjecture)

LAT019-1.p In quasilattices, a distributive law implies its dual.
include('Axioms/LAT004-0.ax')
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(distributivity_law, hypothesis)
$a \vee (b \wedge c) \neq (a \vee b) \wedge (a \vee c)$ cnf(prove_distributivity_law_dual, negated_conjecture)

LAT020-1.p Self-dual distributivity for quasilattices.
include('Axioms/LAT004-0.ax')
$(((x \wedge y) \vee z) \wedge y) \vee (z \wedge x) = (((x \vee y) \wedge z) \vee y) \wedge (z \vee x)$ cnf(self_dual_distributivity, hypothesis)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT021-1.p Bowden's inequality gives distributivity in lattice theory.
include('Axioms/LAT004-0.ax')
$(x \vee (y \wedge z)) \vee ((x \vee y) \wedge z) = x \vee (y \wedge z)$ cnf(bowden, hypothesis)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT022-1.p Self-dual modularity for quasilattices.
include('Axioms/LAT004-0.ax')
$(x \wedge y) \vee (z \wedge (x \vee y)) = (x \vee y) \wedge (z \vee (x \wedge y))$ cnf(self_dual_modularity, hypothesis)
$a \wedge (b \vee (a \wedge c)) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_modularity, negated_conjecture)

LAT023-1.p Yet another modularity equation for quasilattices.
include('Axioms/LAT004-0.ax')
$((x \vee y) \wedge z) \vee y = ((z \vee y) \wedge x) \vee y$ cnf(modularity_axiom, hypothesis)
$a \wedge (b \vee (a \wedge c)) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_modularity, negated_conjecture)

LAT024-1.p Meet (dually join) is not necessarily unique for quasilattices.
Let's say we have a quasilattice with two meet operations, say meet1 and meet2. In other words, join,meet1 is a lattice, and join,meet2 is a lattice. Then, we can show that the two meet operations not necessarily the same.
include('Axioms/LAT004-0.ax')
$x \wedge_2 x = x$ cnf(idempotence_of_meet$_2$, axiom)
$x \wedge_2 y = y \wedge_2 x$ cnf(commutativity_of_meet$_2$, axiom)
$(x \wedge_2 y) \wedge_2 z = x \wedge_2 (y \wedge_2 z)$ cnf(associativity_of_meet$_2$, axiom)
$(x \wedge_2 (y \vee z)) \vee (x \wedge_2 y) = x \wedge_2 (y \vee z)$ cnf(quasi_lattice1$_2$, axiom)
$(x \vee (y \wedge_2 z)) \wedge_2 (x \vee y) = x \vee (y \wedge_2 z)$ cnf(quasi_lattice2$_2$, axiom)
$a \wedge b \neq a \wedge_2 b$ cnf(prove_meets_equal, negated_conjecture)

LAT025-1.p Non-uniqueness of meet (dually join) in TNL
Let's say we have a ternary near-lattice (TNL) with two meet operations, say meet1 and meet2. In other words, join,meet1 and join,meet2 are TNLs. Are the two meets necessarily the same? No, they aren't. Here is a counterexample.
$x \wedge x = x$ cnf(idempotence_of_meet, axiom)
$x \vee x = x$ cnf(idempotence_of_join, axiom)
$x \wedge (x \vee y) = x$ cnf(absorption$_1$, axiom)
$x \vee (x \wedge y) = x$ cnf(absorption$_2$, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)
$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$x \vee (y \wedge (x \wedge z)) = x$ cnf(tnl$_1$, axiom)
$x \wedge (y \vee (x \vee z)) = x$ cnf(tnl$_2$, axiom)
$x \wedge_2 x = x$ cnf(idempotence_of_meet$_2$, axiom)
$x \wedge_2 (x \vee y) = x$ cnf(absorption1$_2$, axiom)
$x \vee (x \wedge_2 y) = x$ cnf(absorption2$_2$, axiom)

$x \wedge_2 y = y \wedge_2 x$ cnf(commutativity_of_meet$_2$, axiom)
$x \vee (y \wedge_2 (x \wedge_2 z)) = x$ cnf(tnl_1$_2$, axiom)
$x \wedge_2 (y \vee (x \vee z)) = x$ cnf(tnl_2$_2$, axiom)
$a \wedge b \neq a \wedge_2 b$ cnf(prove_meets_equal, negated_conjecture)

LAT026-1.p WAL + absorption gives LT, part 1.
A Weakly associative lattice (WAL) satisfying an absorption law is associative, and therefore a full lattice, part 1.
include('Axioms/LAT005-0.ax')
$x \wedge (y \vee (x \vee z)) = x$ cnf(absorbtion, hypothesis)
$(a \wedge b) \wedge c \neq a \wedge (b \wedge c)$ cnf(prove_associativity_of_meet, negated_conjecture)

LAT027-1.p WAL + absorption gives LT, part 2.
A Weakly associative lattice (WAL) satisfying an absorption law is associative, and therefore a full lattice, part 2.
include('Axioms/LAT005-0.ax')
$x \wedge (y \vee (x \vee z)) = x$ cnf(absorption, hypothesis)
$(a \vee b) \vee c \neq a \vee (b \vee c)$ cnf(prove_associativity_of_join, negated_conjecture)

LAT028-1.p Uniqueness of meet (dually join) in WAL
Let's say we have a weakly-associative lattice (WAL) with 2 meet operations, say meet1 and meet2. In other words, join,meet1 is a WAL, and join,meet2 is a WAL. Then, we can prove that the two meet operations are really the same.
include('Axioms/LAT005-0.ax')
$x \wedge_2 x = x$ cnf(idempotence_of_meet$_2$, axiom)
$x \wedge_2 y = y \wedge_2 x$ cnf(commutativity_of_meet$_2$, axiom)
$((x \vee y) \wedge_2 (z \vee y)) \wedge_2 y = y$ cnf(wal_1$_2$, axiom)
$((x \wedge_2 y) \vee (z \wedge_2 y)) \vee y = y$ cnf(wal_2$_2$, axiom)
$a \wedge b \neq a \wedge_2 b$ cnf(name, negated_conjecture)

LAT029-1.p Absorption basis for WAL
Prove that the 5 absorption equations below are a basis for weakly associative lattices. This can be done by deriving commutativity and idempotence of the two operations.
$(x \wedge y) \vee (x \wedge (x \vee y)) = x$ cnf(wal_absorbtion$_1$, axiom)
$(x \wedge x) \vee (y \wedge (x \vee x)) = x$ cnf(wal_absorbtion$_2$, axiom)
$(x \wedge y) \vee (y \wedge (x \vee y)) = y$ cnf(wal_absorbtion$_3$, axiom)
$((x \vee y) \wedge (z \vee x)) \wedge x = x$ cnf(wal_absorbtion$_4$, axiom)
$((x \wedge y) \vee (z \wedge x)) \vee x = x$ cnf(wal_absorbtion$_5$, axiom)
$(a \wedge a = a \text{ and } b \wedge a = a \wedge b \text{ and } a \vee a = a) \Rightarrow b \vee a \neq a \vee b$ cnf(prove_normal_axioms, negated_conjecture)

LAT030-1.p Single axiom for weakly associative lattices (WAL)
This starts with a single axiom for WAL and derives a standard basis for WAL.
$(((x \wedge y) \vee (y \wedge (x \vee y))) \wedge z) \vee (((x \wedge (((y \wedge x_1) \vee (x_2 \wedge y)) \vee y)) \vee (((y \wedge (((y \vee x_1) \wedge (x_2 \vee y)) \wedge y)) \vee (u \wedge (y \vee (((y \vee x_1) \wedge (x_2 \vee y)) \wedge y)))) \wedge (x \vee (((y \wedge x_1) \vee (x_2 \wedge y)) \vee y)))) \wedge (((x \wedge y) \vee (y \wedge (x \vee y))) \vee z)) = y$ cnf(single_axiom, axiom)
$(a \wedge a = a \text{ and } b \wedge a = a \wedge b \text{ and } a \vee a = a \text{ and } b \vee a = a \vee b \text{ and } ((a \vee b) \wedge (c \vee b)) \wedge b = b) \Rightarrow ((a \wedge b) \vee (c \wedge b)) \vee b \neq b$ cnf(prove_wal_axioms, negated_conjecture)

LAT031-1.p Distributivity of meet implies distributivity of join
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$\mathrm{xx} \vee (\mathrm{yy} \wedge \mathrm{zz}) \neq (\mathrm{xx} \vee \mathrm{yy}) \wedge (\mathrm{xx} \vee \mathrm{zz})$ cnf(dist_join, negated_conjecture)

LAT032-1.p Distributivity of join implies distributivity of meet
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$\mathrm{xx} \wedge (\mathrm{yy} \vee \mathrm{zz}) \neq (\mathrm{xx} \wedge \mathrm{yy}) \vee (\mathrm{xx} \wedge \mathrm{zz})$ cnf(dist_meet, negated_conjecture)

LAT033-1.p Idempotency of join
$x \wedge (x \vee y) = x$ cnf(absorption$_1$, axiom)
$x \vee (x \wedge y) = x$ cnf(absorption$_2$, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)
$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$(x \wedge y) \wedge z = x \wedge (y \wedge z)$ cnf(associativity_of_meet, axiom)
$(x \vee y) \vee z = x \vee (y \vee z)$ cnf(associativity_of_join, axiom)
$\mathrm{xx} \vee \mathrm{xx} \neq \mathrm{xx}$ cnf(idempotence_of_join, negated_conjecture)

LAT034-1.p Idempotency of meet

$x \wedge (x \vee y) = x$ cnf(absorption$_1$, axiom)
$x \vee (x \wedge y) = x$ cnf(absorption$_2$, axiom)
$x \wedge y = y \wedge x$ cnf(commutativity_of_meet, axiom)
$x \vee y = y \vee x$ cnf(commutativity_of_join, axiom)
$(x \wedge y) \wedge z = x \wedge (y \wedge z)$ cnf(associativity_of_meet, axiom)
$(x \vee y) \vee z = x \vee (y \vee z)$ cnf(associativity_of_join, axiom)
$\mathrm{xx} \wedge \mathrm{xx} \neq \mathrm{xx}$ cnf(idempotence_of_meet, negated_conjecture)

LAT035-1.p Composition to form a join hemimorphism
In a lattice with 0,1, the composition of a unary join antihemimorphism and a lattice antimorphism is a join hemimorphism.
include('Axioms/LAT001-0.ax')
$x \wedge n_0 = n_0$ cnf(x_meet$_0$, axiom)
$x \vee n_0 = x$ cnf(x_join$_0$, axiom)
$x \wedge n_1 = x$ cnf(x_meet$_1$, axiom)
$x \vee n_1 = n_1$ cnf(x_join$_1$, axiom)
$x \wedge z = x \Rightarrow z \wedge (x \vee y) = x \vee (y \wedge z)$ cnf(modular, axiom)
$k(u \vee v) = k(u) \wedge k(v)$ cnf(k_on_join, axiom)
$k(u \wedge v) = k(u) \vee k(v)$ cnf(k_on_meet, axiom)
$k(n_0) = n_1$ cnf(k_on_bottom, axiom)
$k(n_1) = n_0$ cnf(k_on_top, axiom)
$f(u \wedge v) = f(u) \vee f(v)$ cnf(f_on_meet, axiom)
$f(n_1) = n_0$ cnf(f_on_top, axiom)
$f(k(\mathrm{aa} \vee \mathrm{bb})) = f(k(\mathrm{aa})) \vee f(k(\mathrm{bb})) \Rightarrow f(k(n_0)) \neq n_0$ cnf(comp_join_hemimorphism, negated_conjecture)

LAT036-1.p Property of a distributive lattive with an antimorphism
In every distributive lattice with 0,1 and an antimorphism k: if k∧2(a) ≤ a ∨ k(a) and k∧3(b) ≤ a ∨ k(a) and k∧2(a) ≤ k(a) ∨ k(b) ∨ k(c) and k∧3(b) ≤ k(a) ∨ k(b) ∨ k(c) then k∧2(a ∨ k(b)) ≤ (a & k(b & c)) ∨ k(a)
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$x \wedge n_0 = n_0$ cnf(x_meet$_0$, axiom)
$x \vee n_0 = x$ cnf(x_join$_0$, axiom)
$x \wedge n_1 = x$ cnf(x_meet$_1$, axiom)
$x \vee n_1 = n_1$ cnf(x_join$_1$, axiom)
$x \wedge z = x \Rightarrow z \wedge (x \vee y) = x \vee (y \wedge z)$ cnf(modular, axiom)
$k(u \vee v) = k(u) \wedge k(v)$ cnf(k_on_join, axiom)
$k(u \wedge v) = k(u) \vee k(v)$ cnf(k_on_meet, axiom)
$k(n_0) = n_1$ cnf(k_on_bottom, axiom)
$k(n_1) = n_0$ cnf(k_on_top, axiom)
$k(k(\mathrm{aa})) \vee (\mathrm{aa} \vee k(\mathrm{aa})) = \mathrm{aa} \vee k(\mathrm{aa})$ cnf(lhs$_1$, hypothesis)
$k(k(k(\mathrm{bb}))) \vee (\mathrm{aa} \vee k(\mathrm{aa})) = \mathrm{aa} \vee k(\mathrm{aa})$ cnf(lhs$_2$, hypothesis)
$k(k(\mathrm{aa})) \vee (k(\mathrm{aa}) \vee (k(\mathrm{bb}) \vee k(\mathrm{cc}))) = k(\mathrm{aa}) \vee (k(\mathrm{bb}) \vee k(\mathrm{cc}))$ cnf(lhs$_3$, hypothesis)
$k(k(k(\mathrm{bb}))) \vee (k(\mathrm{aa}) \vee (k(\mathrm{bb}) \vee k(\mathrm{cc}))) = k(\mathrm{aa}) \vee (k(\mathrm{bb}) \vee k(\mathrm{cc}))$ cnf(lhs$_4$, hypothesis)
$k(k(\mathrm{aa} \vee k(\mathrm{bb}))) \vee ((\mathrm{aa} \wedge k(\mathrm{bb} \wedge \mathrm{cc})) \vee k(\mathrm{aa})) \neq (\mathrm{aa} \wedge k(\mathrm{bb} \wedge \mathrm{cc})) \vee k(\mathrm{aa})$ cnf(rhs, negated_conjecture)

LAT037-1.p Uniqueness of complement
Distributive lattice complements are unique whenever they exist.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$x \wedge n_0 = n_0$ cnf(x_meet$_0$, axiom)
$x \vee n_0 = x$ cnf(x_join$_0$, axiom)
$x \wedge n_1 = x$ cnf(x_meet$_1$, axiom)
$x \vee n_1 = n_1$ cnf(x_join$_1$, axiom)
$x \wedge z = x \Rightarrow z \wedge (x \vee y) = x \vee (y \wedge z)$ cnf(modular, axiom)
$\mathrm{xx} \vee \mathrm{yy} = n_1$ cnf(lhs$_1$, axiom)
$\mathrm{xx} \vee \mathrm{zz} = n_1$ cnf(lhs$_2$, axiom)
$\mathrm{xx} \wedge \mathrm{yy} = n_0$ cnf(lhs$_3$, axiom)
$\mathrm{xx} \wedge \mathrm{zz} = n_0$ cnf(lhs$_4$, axiom)
$\mathrm{yy} \neq \mathrm{zz}$ cnf(rhs, negated_conjecture)

LAT038-1.p Simplification rule in a distributive lattice
In a distributive lattice, the following simplification rule holds: forall a, b, c, d: if f(a ∨ b, d) = f(c ∨ b, d) and f(a, d) & f(b, d) = f(c, d) & f(b, d) then f(a,d) = f(c,d).
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$f(u \vee v, w) = f(u, w) \vee f(v, w)$ cnf(f_on_left_join, axiom)
$f(n_0, w) = n_0$ cnf(f_on_left_bottom, axiom)
$f(w, u \vee v) = f(w, u) \vee f(w, v)$ cnf(f_on_right_join, axiom)
$f(w, n_0) = n_0$ cnf(f_on_right_bottom, axiom)
$f(\text{aa} \vee \text{bb}, \text{dd}) = f(\text{cc} \vee \text{bb}, \text{dd})$ cnf(lhs_1, hypothesis)
$f(\text{aa}, \text{dd}) \wedge f(\text{bb}, \text{dd}) = f(\text{cc}, \text{dd}) \wedge f(\text{bb}, \text{dd})$ cnf(lhs_2, hypothesis)
$f(\text{aa}, \text{dd}) \neq f(\text{cc}, \text{dd})$ cnf(rhs, negated_conjecture)

LAT039-1.p Every distributive lattice is modular
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$\text{xx} \vee \text{yy} = \text{yy}$ cnf(lhs, hypothesis)
$\text{xx} \vee (\text{yy} \wedge \text{zz}) \neq \text{yy} \wedge (\text{xx} \vee \text{zz})$ cnf(rhs, negated_conjecture)

LAT039-2.p Every distributive lattice is modular
Theorem formulation : Modularity is expressed by: x ≤ y → x ∨ (y & z) = (x ∨ y) & (x ∨ z)
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$\text{xx} \vee \text{yy} = \text{yy}$ cnf(lhs, hypothesis)
$\text{xx} \vee (\text{yy} \wedge \text{zz}) \neq (\text{xx} \vee \text{yy}) \wedge (\text{xx} \vee \text{zz})$ cnf(rhs, negated_conjecture)

LAT040-1.p Another simplification rule for distributive lattices
In every distributive lattice the simplification rule holds: forall x, y, z: (x ∨ y = x ∨ z, x & y = x & z → y = z).
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee y) \wedge (x \vee z)$ cnf(dist_join, hypothesis)
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(dist_meet, hypothesis)
$\text{xx} \vee \text{yy} = \text{xx} \vee \text{zz}$ cnf(lhs_1, hypothesis)
$\text{xx} \wedge \text{yy} = \text{xx} \wedge \text{zz}$ cnf(lhs_2, hypothesis)
$\text{yy} \neq \text{zz}$ cnf(rhs, negated_conjecture)

LAT041-1.p A hyperbase for type <2,2> lattice hyperidentities
$\text{big\_p}(\text{term}_1, x, y) = x$ cnf(big_p_term_1, axiom)
$\text{big\_p}(\text{term}_2, x, y) = y$ cnf(big_p_term_2, axiom)
$\text{big\_p}(\text{term}_3, x, y) = \text{times}(x, y)$ cnf(big_p_term_3, axiom)
$\text{big\_p}(\text{term}_4, x, y) = \text{times}(y, x)$ cnf(big_p_term_4, axiom)
$\text{big\_p}(\text{term}_5, x, y) = x + y$ cnf(big_p_term_5, axiom)
$\text{big\_p}(\text{term}_6, x, y) = y + x$ cnf(big_p_term_6, axiom)
$\text{big\_t}(w, x, y) = \text{big\_p}(w, x, y)$ cnf(big_p_and_big_t, axiom)
$\text{term}(\text{term}_1)$ cnf(term_1, axiom)
$\text{term}(\text{term}_2)$ cnf(term_2, axiom)
$\text{term}(\text{term}_3)$ cnf(term_3, axiom)
$\text{term}(\text{term}_4)$ cnf(term_4, axiom)
$\text{term}(\text{term}_5)$ cnf(term_5, axiom)
$\text{term}(\text{term}_6)$ cnf(term_6, axiom)
$\text{term}(w) \Rightarrow \text{big\_p}(w, \text{big\_p}(w, x, y), z) = \text{big\_p}(w, x, \text{big\_p}(w, y, z))$ cnf(q_2, hypothesis)
$\text{term}(w) \Rightarrow \text{big\_p}(w, \text{big\_p}(w, x, y), \text{big\_p}(w, z, v)) = \text{big\_p}(w, \text{big\_p}(w, x, z), \text{big\_p}(w, y, v))$ cnf(q_5, hypothesis)
$(\text{term}(w_1) \text{ and } \text{term}(w_2)) \Rightarrow \text{big\_t}(w_1, \text{big\_p}(w_2, \text{big\_t}(w_1, x, y), z), \text{big\_p}(w_2, y, z)) = \text{big\_p}(w_2, \text{big\_t}(w_1, x, y), z)$ cnf(q_3, h
$\text{times}(a, b+\text{times}(d, \text{times}(c, e))) \neq \text{times}(a, b+\text{times}(b+c, \text{times}(d, \text{times}(c, e))))$ cnf(prove_q_4, negated_conjecture)

LAT042-1.p Lattice modularity from Boolean algebra
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(distributivity, axiom)
$x' \vee x = n_1$ cnf(invertability_1, axiom)
$x' \wedge x = n_0$ cnf(invertability_2, axiom)

$(x')' = x$ cnf(invertability$_3$, axiom)
$a \vee (b \wedge (a \vee c)) \neq (a \vee b) \wedge (a \vee c)$ cnf(prove_modular_law, negated_conjecture)

LAT043-1.p Lattice compatability from Boolean algebra
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = (x \wedge y) \vee (x \wedge z)$ cnf(distributivity, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$(c \vee d)' \neq c' \wedge d'$ cnf(prove_compatability_law, negated_conjecture)

LAT044-1.p Lattice weak orthomodular law from orthomodular lattice
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$x \vee (x' \wedge (x \vee y)) = x \vee y$ cnf(orthomodular_law, axiom)
$(a' \wedge (a \vee b)) \vee (b' \vee (a \wedge b)) \neq n_1$ cnf(prove_weak_orthomodular_law, negated_conjecture)

LAT045-1.p Lattice orthomodular law from modular lattice
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$x \vee (y \wedge (x \vee z)) = (x \vee y) \wedge (x \vee z)$ cnf(modular_law, axiom)
$a \vee (a' \wedge (a \vee b)) \neq a \vee b$ cnf(prove_orthomodular_law, negated_conjecture)

LAT046-1.p Modular ortholattice is not Boolean algebra
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$x \vee (y \wedge (x \vee z)) = (x \vee y) \wedge (x \vee z)$ cnf(modular_law, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT047-1.p Lattice is not modular lattice
include('Axioms/LAT001-0.ax')
$a \vee (b \wedge (a \vee c)) \neq (a \vee b) \wedge (a \vee c)$ cnf(prove_modularity, negated_conjecture)

LAT048-1.p Weakly orthomodular lattice is not orthomodular lattice
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$(x' \wedge (x \vee y)) \vee (y' \vee (x \wedge y)) = n_1$ cnf(weak_orthomodular_law, hypothesis)
$a \vee (a' \wedge (a \vee b)) \neq a \vee b$ cnf(prove_orthomodular_law, negated_conjecture)

LAT049-1.p Ortholattice is not weakly orthomodular lattice
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$(a' \wedge (a \vee b)) \vee (b' \vee (a \wedge b)) \neq n_1$ cnf(prove_weak_orthomodular_law, negated_conjecture)

LAT050-1.p Orthomodular lattice is not modular lattice
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$x \vee (x' \wedge (x \vee y)) = x \vee y$ cnf(orthomodular_law, axiom)
$a \vee (b \wedge (a \vee c)) \neq (a \vee b) \wedge (a \vee c)$ cnf(prove_modular_law, negated_conjecture)

LAT051-1.p Lattice is not ortholattice
include('Axioms/LAT001-0.ax')
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$(a \vee b)' \neq a' \wedge b'$ cnf(prove_compatibility_law, negated_conjecture)

LAT052-1.p Modular lattice is not modular ortholattice
include('Axioms/LAT001-0.ax')
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$x \vee (y \wedge (x \vee z)) = (x \vee y) \wedge (x \vee z)$ cnf(modular_law, axiom)
$(a \vee b)' \neq a' \wedge b'$ cnf(prove_compatibility_law, negated_conjecture)

LAT053-1.p Countermodel for Megill equation for weakly orthomodular lattices
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$(x' \wedge (x \vee y)) \vee (y' \vee (x \wedge y)) = n_1$ cnf(megill, axiom)
$a \wedge (b \vee (a \wedge (a' \vee (a \wedge b)))) \neq a \wedge (a' \vee (a \wedge b))$ cnf(prove_this, negated_conjecture)

LAT054-1.p Countermodel for Megill equation for ortholattices
include('Axioms/LAT001-0.ax')
$(x \vee y)' = x' \wedge y'$ cnf(compatibility$_1$, axiom)
$(x \wedge y)' = x' \vee y'$ cnf(compatibility$_2$, axiom)
$x' \vee x = n_1$ cnf(invertability$_1$, axiom)
$x' \wedge x = n_0$ cnf(invertability$_2$, axiom)
$(x')' = x$ cnf(invertability$_3$, axiom)
$a \vee (b' \wedge (a' \vee (b' \wedge (a \vee (b' \wedge a'))))) \neq a \vee (b' \wedge (a' \vee (b' \wedge (a \vee (b' \wedge (a' \vee (b' \wedge a)))))))$ cnf(prove_this, negated_conjecture)

LAT055-1.p Lattice theory axioms
include('Axioms/LAT002-0.ax')

LAT055-2.p Lattice theory (equality) axioms
include('Axioms/LAT001-0.ax')

LAT056-1.p Lattice theory modularity (equality) axioms
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')

LAT057-1.p Lattice theory complement (equality) axioms
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-2.ax')

LAT058-1.p Lattice theory unique complement (equality) axioms
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-3.ax')

LAT059-1.p Ortholattice theory (equality) axioms
include('Axioms/LAT003-0.ax')

LAT060-1.p Quasilattice theory (equality) axioms
include('Axioms/LAT004-0.ax')

LAT061-1.p Weakly Associative Lattices theory (equality) axioms
include('Axioms/LAT005-0.ax')

LAT062-1.p E51 does not necessarily hold in ortholattices
include('Axioms/LAT001-0.ax')
$a' \vee a = n_1$ cnf(top, axiom)
$a' \wedge a = n_0$ cnf(bottom, axiom)
$a \wedge b = (a' \vee b')'$ cnf(compatibility, axiom)
$(a \vee b') \wedge (((a \wedge b) \vee (a' \wedge b)) \vee (a' \wedge b')) \neq (a \wedge b) \vee (a' \wedge b')$ cnf(prove_e$_{51}$, negated_conjecture)

LAT063-1.p E62 does not necessarily hold in ortholattices
include('Axioms/LAT001-0.ax')
$a' \vee a = n_1$ cnf(top, axiom)
$a' \wedge a = n_0$ cnf(bottom, axiom)
$a \wedge b = (a' \vee b')'$ cnf(compatibility, axiom)
$a \wedge (b \vee (a \wedge (a' \vee (a \wedge b)))) \neq a \wedge (a' \vee (a \wedge b))$ cnf(prove_e$_{62}$, negated_conjecture)

LAT064-1.p Weak property 94-6 to make a uniquely complemented lattice Boolean
include('Axioms/LAT001-0.ax')
$a \vee a' = n_1$ cnf(top, axiom)
$a \wedge a' = n_0$ cnf(bottom, axiom)
$(a \vee b = n_1 \text{ and } a \wedge b = n_0) \Rightarrow a' = b$ cnf(complements_are_unique, axiom)
$a \wedge (b \vee (c \wedge (a \vee (b \wedge c)))) = a \wedge (b \vee (a \wedge c))$ cnf(c94$_6$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT065-1.p Weak property 94-37 to make uniquely complemented lattice Boolean
include('Axioms/LAT001-0.ax')
$a \vee a' = n_1$ cnf(top, axiom)
$a \wedge a' = n_0$ cnf(bottom, axiom)
$(a \vee b = n_1 \text{ and } a \wedge b = n_0) \Rightarrow a' = b$ cnf(complements_are_unique, axiom)
$a \wedge ((b \wedge (c \vee (a \wedge b))) \vee (c \wedge (a \vee b))) = (a \wedge b) \vee (a \wedge c)$ cnf(c94$_{37}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT066-1.p Weak property G61 to make a uniquely complemented lattice Boolean
include('Axioms/LAT001-0.ax')
$a \vee a' = n_1$ cnf(top, axiom)
$a \wedge a' = n_0$ cnf(bottom, axiom)
$(a \vee b = n_1 \text{ and } a \wedge b = n_0) \Rightarrow a' = b$ cnf(complements_are_unique, axiom)
$a \wedge (b \vee (c \vee (d \wedge (a \vee (b \wedge c))))) = a \wedge (b \vee (c \vee (a \wedge d)))$ cnf(g_{61}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT067-1.p Weak property 94-3 to make a uniquely complemented lattice Boolean
include('Axioms/LAT001-0.ax')
$a \vee a' = n_1$ cnf(top, axiom)
$a \wedge a' = n_0$ cnf(bottom, axiom)
$(a \vee b = n_1 \text{ and } a \wedge b = n_0) \Rightarrow a' = b$ cnf(complements_are_unique, axiom)
$a \wedge (b \vee ((a \vee b) \wedge (c \vee (b \wedge (a \vee c))))) = a \wedge (b \vee c)$ cnf(c94$_3$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT068-1.p Weak property F53 to make a uniquely complemented lattice Boolean
include('Axioms/LAT001-0.ax')
$a \vee a' = n_1$ cnf(top, axiom)
$a \wedge a' = n_0$ cnf(bottom, axiom)
$(a \vee b = n_1 \text{ and } a \wedge b = n_0) \Rightarrow a' = b$ cnf(complements_are_unique, axiom)
$a \wedge (b \vee (c \wedge (d \vee (a \wedge (b \vee c))))) = a \wedge (b \vee (c \wedge (a \vee d)))$ cnf(f_{53}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT069-1.p Weak property G113 to make a uniquely complemented lattice Boolean
include('Axioms/LAT001-0.ax')
$a \vee a' = n_1$ cnf(top, axiom)
$a \wedge a' = n_0$ cnf(bottom, axiom)
$(a \vee b = n_1 \text{ and } a \wedge b = n_0) \Rightarrow a' = b$ cnf(complements_are_unique, axiom)

$a \wedge (b \vee (c \wedge ((a \wedge c) \vee (d \wedge (b \vee c))))) = a \wedge (b \vee ((a \wedge c) \vee (c \wedge d)))$ cnf(g_{113}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT070-1.p Given single axiom OL-23A, prove associativity
Given a single axiom OL-23A for ortholattices (OL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of associativity.
$f(f(f(f(b,a),f(a,c)),d),f(a,f(f(a,f(f(b,b),b)),c))) = a$ cnf(ol_23A, axiom)
$f(a,f(f(b,c),f(b,c))) \neq f(c,f(f(b,a),f(b,a)))$ cnf(associativity, negated_conjecture)

LAT071-1.p Given single axiom OML-21C, prove associativity
Given a single axiom candidate OML-21C for orthomodular lattices (OML) in terms of the Sheffer Stroke, prove a Sheffer stroke form of associativity.
$f(f(b,a),f(f(f(f(b,a),a),f(c,a)),f(f(a,a),d))) = a$ cnf(oml_21C, axiom)
$f(a,f(f(b,c),f(b,c))) \neq f(c,f(f(b,a),f(b,a)))$ cnf(associativity, negated_conjecture)

LAT072-1.p Given single axiom OML-23A, prove associativity
Given a single axiom candidate OML-23A for orthomodular lattices (OML) in terms of the Sheffer Stroke, prove a Sheffer stroke form of associativity.
$f(f(f(f(b,a),f(a,c)),d),f(a,f(f(c,f(f(a,a),c)),c))) = a$ cnf(oml_23A, axiom)
$f(a,f(f(b,c),f(b,c))) \neq f(c,f(f(b,a),f(b,a)))$ cnf(associativity, negated_conjecture)

LAT073-1.p Given single axiom MOL-23C, prove modularity
Given a single axiom candidate MOL-23C for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of modularity.
$f(f(f(b,f(a,b)),b),f(a,f(c,f(f(a,b),f(f(c,c),d))))) = a$ cnf(mol_23C, axiom)
$f(a,f(b,f(a,f(c,c)))) \neq f(a,f(c,f(a,f(b,b))))$ cnf(modularity, negated_conjecture)

LAT074-1.p Given single axiom MOL-25A, prove associativity
Given a single axiom candidate MOL-25A for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of associativity.
$f(f(b,a),f(f(f(a,a),c),f(f(f(f(f(a,b),c),c),a),f(a,d)))) = a$ cnf(mol_25A, axiom)
$f(a,f(f(b,c),f(b,c))) \neq f(c,f(f(b,a),f(b,a)))$ cnf(associativity, negated_conjecture)

LAT075-1.p Given single axiom MOL-25A, prove modularity
Given a single axiom candidate MOL-25A for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of modularity.
$f(f(b,a),f(f(f(a,a),c),f(f(f(f(f(a,b),c),c),a),f(a,d)))) = a$ cnf(mol_25A, axiom)
$f(a,f(b,f(a,f(c,c)))) \neq f(a,f(c,f(a,f(b,b))))$ cnf(modularity, negated_conjecture)

LAT076-1.p Given single axiom MOL-27B1, prove associativity
Given a single axiom candidate MOL-27B1 for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of associativity.
$f(f(f(f(b,a),f(c,a)),d),f(a,f(f(f(f(f(f(b,b),a),c),c),a),b))) = a$ cnf(mol_27B_1, axiom)
$f(a,f(f(b,c),f(b,c))) \neq f(c,f(f(b,a),f(b,a)))$ cnf(associativity, negated_conjecture)

LAT077-1.p Given single axiom MOL-27B1, prove modularity
Given a single axiom candidate MOL-27B1 for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of modularity.
$f(f(f(f(b,a),f(c,a)),d),f(a,f(f(f(f(f(f(b,b),a),c),c),a),b))) = a$ cnf(mol_27B_1, axiom)
$f(a,f(b,f(a,f(c,c)))) \neq f(a,f(c,f(a,f(b,b))))$ cnf(modularity, negated_conjecture)

LAT078-1.p Given single axiom MOL-27B2, prove associativity
Given a single axiom candidate MOL-27B2 for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of associativity.
$f(f(f(f(b,a),f(a,c)),d),f(a,f(f(f(b,f(b,f(f(c,c),a))),a),c))) = a$ cnf(mol_27B_2, axiom)
$f(a,f(f(b,c),f(b,c))) \neq f(c,f(f(b,a),f(b,a)))$ cnf(associativity, negated_conjecture)

LAT079-1.p Given single axiom MOL-27B2, prove modularity
Given a single axiom candidate MOL-27B2 for modular ortholattices (MOL) in terms of the Sheffer Stroke, prove a Sheffer stroke form of modularity.
$f(f(f(f(b,a),f(a,c)),d),f(a,f(f(f(b,f(b,f(f(c,c),a))),a),c))) = a$ cnf(mol_27B_2, axiom)
$f(a,f(b,f(a,f(c,c)))) \neq f(a,f(c,f(a,f(b,b))))$ cnf(modularity, negated_conjecture)

LAT080-1.p Axiom for lattice theory, part 1
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)

$a \wedge a \neq a$ cnf(prove_normal_axioms$_{1}$, negated_conjecture)

LAT081-1.p Axiom for lattice theory, part 2
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \wedge b \neq b \wedge a$ cnf(prove_normal_axioms$_{2}$, negated_conjecture)

LAT082-1.p Axiom for lattice theory, part 3
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$(a \wedge b) \wedge c \neq a \wedge (b \wedge c)$ cnf(prove_normal_axioms$_{3}$, negated_conjecture)

LAT083-1.p Axiom for lattice theory, part 4
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \vee a \neq a$ cnf(prove_normal_axioms$_{4}$, negated_conjecture)

LAT084-1.p Axiom for lattice theory, part 5
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \vee b \neq b \vee a$ cnf(prove_normal_axioms$_{5}$, negated_conjecture)

LAT085-1.p Axiom for lattice theory, part 6
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$(a \vee b) \vee c \neq a \vee (b \vee c)$ cnf(prove_normal_axioms$_{6}$, negated_conjecture)

LAT086-1.p Axiom for lattice theory, part 7
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \wedge (a \vee b) \neq a$ cnf(prove_normal_axioms$_{7}$, negated_conjecture)

LAT087-1.p Axiom for lattice theory, part 8
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((d \wedge b) \vee (b \wedge e)) \vee b)) \vee (((b \wedge (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)) \vee (g \wedge (b \vee (((d \vee (b \vee e)) \wedge (f \vee b)) \wedge b)))) \wedge (a \vee (((d \wedge b) \vee (b \wedge e)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \vee (a \wedge b) \neq a$ cnf(prove_normal_axioms$_{8}$, negated_conjecture)

LAT088-1.p Absorption basis for WAL, part 1
$(a \wedge b) \vee (a \wedge (a \vee b)) = a$ cnf(wal_absorbtion$_{1}$, axiom)
$(a \wedge a) \vee (b \wedge (a \vee a)) = a$ cnf(wal_absorbtion$_{2}$, axiom)
$(a \wedge b) \vee (b \wedge (a \vee b)) = b$ cnf(wal_absorbtion$_{3}$, axiom)
$((a \vee b) \wedge (c \vee a)) \wedge a = a$ cnf(wal_absorbtion$_{4}$, axiom)
$((a \wedge b) \vee (c \wedge a)) \vee a = a$ cnf(wal_absorbtion$_{5}$, axiom)
$a \wedge a \neq a$ cnf(prove_normal_axioms$_{1}$, negated_conjecture)

LAT089-1.p Absorption basis for WAL, part 2
$(a \wedge b) \vee (a \wedge (a \vee b)) = a$ cnf(wal_absorbtion$_{1}$, axiom)
$(a \wedge a) \vee (b \wedge (a \vee a)) = a$ cnf(wal_absorbtion$_{2}$, axiom)
$(a \wedge b) \vee (b \wedge (a \vee b)) = b$ cnf(wal_absorbtion$_{3}$, axiom)
$((a \vee b) \wedge (c \vee a)) \wedge a = a$ cnf(wal_absorbtion$_{4}$, axiom)
$((a \wedge b) \vee (c \wedge a)) \vee a = a$ cnf(wal_absorbtion$_{5}$, axiom)
$b \wedge a \neq a \wedge b$ cnf(prove_normal_axioms$_{2}$, negated_conjecture)

LAT090-1.p Absorption basis for WAL, part 3
$(a \wedge b) \vee (a \wedge (a \vee b)) = a$ cnf(wal_absorbtion$_{1}$, axiom)
$(a \wedge a) \vee (b \wedge (a \vee a)) = a$ cnf(wal_absorbtion$_{2}$, axiom)
$(a \wedge b) \vee (b \wedge (a \vee b)) = b$ cnf(wal_absorbtion$_{3}$, axiom)
$((a \vee b) \wedge (c \vee a)) \wedge a = a$ cnf(wal_absorbtion$_{4}$, axiom)
$((a \wedge b) \vee (c \wedge a)) \vee a = a$ cnf(wal_absorbtion$_{5}$, axiom)
$a \vee a \neq a$ cnf(prove_normal_axioms$_{3}$, negated_conjecture)

LAT091-1.p Absorption basis for WAL, part 4
$(a \wedge b) \vee (a \wedge (a \vee b)) = a$ cnf(wal_absorbtion$_{1}$, axiom)
$(a \wedge a) \vee (b \wedge (a \vee a)) = a$ cnf(wal_absorbtion$_{2}$, axiom)
$(a \wedge b) \vee (b \wedge (a \vee b)) = b$ cnf(wal_absorbtion$_{3}$, axiom)
$((a \vee b) \wedge (c \vee a)) \wedge a = a$ cnf(wal_absorbtion$_{4}$, axiom)

$((a \wedge b) \vee (c \wedge a)) \vee a = a$ cnf(wal_absorbtion$_5$, axiom)
$b \vee a \neq a \vee b$ cnf(prove_normal_axioms$_4$, negated_conjecture)

LAT092-1.p Axiom for weakly associative lattices (WAL), part 1
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((b \wedge d) \vee (e \wedge b)) \vee b)) \vee (((b \wedge (((b \vee d) \wedge (e \vee b)) \wedge b)) \vee (f \wedge (b \vee (((b \vee d) \wedge (e \vee b)) \wedge b)))) \wedge (a \vee (((b \wedge d) \vee (e \wedge b)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \wedge a \neq a$ cnf(prove_wal_axioms$_1$, negated_conjecture)

LAT093-1.p Axiom for weakly associative lattices (WAL), part 2
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((b \wedge d) \vee (e \wedge b)) \vee b)) \vee (((b \wedge (((b \vee d) \wedge (e \vee b)) \wedge b)) \vee (f \wedge (b \vee (((b \vee d) \wedge (e \vee b)) \wedge b)))) \wedge (a \vee (((b \wedge d) \vee (e \wedge b)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$b \wedge a \neq a \wedge b$ cnf(prove_wal_axioms$_2$, negated_conjecture)

LAT094-1.p Axiom for weakly associative lattices (WAL), part 3
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((b \wedge d) \vee (e \wedge b)) \vee b)) \vee (((b \wedge (((b \vee d) \wedge (e \vee b)) \wedge b)) \vee (f \wedge (b \vee (((b \vee d) \wedge (e \vee b)) \wedge b)))) \wedge (a \vee (((b \wedge d) \vee (e \wedge b)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$a \vee a \neq a$ cnf(prove_wal_axioms$_3$, negated_conjecture)

LAT095-1.p Axiom for weakly associative lattices (WAL), part 4
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((b \wedge d) \vee (e \wedge b)) \vee b)) \vee (((b \wedge (((b \vee d) \wedge (e \vee b)) \wedge b)) \vee (f \wedge (b \vee (((b \vee d) \wedge (e \vee b)) \wedge b)))) \wedge (a \vee (((b \wedge d) \vee (e \wedge b)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$b \vee a \neq a \vee b$ cnf(prove_wal_axioms$_4$, negated_conjecture)

LAT096-1.p Axiom for weakly associative lattices (WAL), part 5
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((b \wedge d) \vee (e \wedge b)) \vee b)) \vee (((b \wedge (((b \vee d) \wedge (e \vee b)) \wedge b)) \vee (f \wedge (b \vee (((b \vee d) \wedge (e \vee b)) \wedge b)))) \wedge (a \vee (((b \wedge d) \vee (e \wedge b)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$((a \vee b) \wedge (c \vee b)) \wedge b \neq b$ cnf(prove_wal_axioms$_5$, negated_conjecture)

LAT097-1.p Single axiom for weakly associative lattices (WAL), part 6
$(((a \wedge b) \vee (b \wedge (a \vee b))) \wedge c) \vee (((a \wedge (((b \wedge d) \vee (e \wedge b)) \vee b)) \vee (((b \wedge (((b \vee d) \wedge (e \vee b)) \wedge b)) \vee (f \wedge (b \vee (((b \vee d) \wedge (e \vee b)) \wedge b)))) \wedge (a \vee (((b \wedge d) \vee (e \wedge b)) \vee b)))) \wedge (((a \wedge b) \vee (b \wedge (a \vee b))) \vee c)) = b$ cnf(single_axiom, axiom)
$((a \wedge b) \vee (c \wedge b)) \vee b \neq b$ cnf(prove_wal_axioms$_6$, negated_conjecture)

LAT098-1.p Huntington equation H3 is independent of H2
Show that Huntington equation H2 does not imply Huntington equation H3 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge ((x \wedge (y \vee z)) \vee (y \wedge z))))$ cnf(equation_H$_2$, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (b \vee (a \wedge (c \vee (a \wedge b))))))$ cnf(prove_H$_3$, negated_conjecture)

LAT099-1.p Huntington equation H2 is independent of H3
Show that Huntington equation H3 does not imply Huntington equation H2 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (y \vee (x \wedge (z \vee (x \wedge y))))))$ cnf(equation_H$_3$, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge ((a \wedge (b \vee c)) \vee (b \wedge c))))$ cnf(prove_H$_2$, negated_conjecture)

LAT100-1.p Huntington equation H4 is independent of H6
Show that Huntington equation H6 does not imply Huntington equation H4 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_6$, axiom)
$a \wedge (b \vee (a \wedge (c \vee d))) \neq a \wedge (b \vee ((a \vee (b \wedge d)) \wedge (c \vee d)))$ cnf(prove_H$_4$, negated_conjecture)

LAT101-1.p Huntington equation H10 is independent of H6
Show that Huntington equation H6 does not imply Huntington equation H10 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_6$, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (a \vee (b \wedge c))))$ cnf(prove_H$_{10}$, negated_conjecture)

LAT102-1.p Huntington equation H4 is independent of H7
Show that Huntington equation H7 does not imply Huntington equation H4 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (x \wedge ((x \wedge y) \vee (z \wedge (x \vee y)))))$ cnf(equation_H$_7$, axiom)
$a \wedge (b \vee (a \wedge (c \vee d))) \neq a \wedge (b \vee ((a \vee (b \wedge d)) \wedge (c \vee d)))$ cnf(prove_H$_4$, negated_conjecture)

LAT103-1.p Huntington equation H6 is independent of H10
Show that Huntington equation H10 does not imply Huntington equation H6 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (y \wedge z))))$ cnf(equation_H$_{10}$, axiom)

$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT104-1.p Huntington equation H3 is independent of H21
Show that Huntington equation H21 does not imply Huntington equation H3 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{21}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (b \vee (a \wedge (c \vee (a \wedge b))))))$ cnf(prove_H_3, negated_conjecture)

LAT105-1.p Huntington equation H10 is independent of H21
Show that Huntington equation H21 does not imply Huntington equation H10 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{21}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (a \vee (b \wedge c))))$ cnf(prove_H_{10}, negated_conjecture)

LAT106-1.p Huntington equation H3 is independent of H22
Show that Huntington equation H22 does not imply Huntington equation H3 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (z \vee (x \wedge y))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{22}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (b \vee (a \wedge (c \vee (a \wedge b))))))$ cnf(prove_H_3, negated_conjecture)

LAT107-1.p Huntington equation H17 is independent of H22
Show that Huntington equation H22 does not imply Huntington equation H17 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (z \vee (x \wedge y))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{22}, axiom)
$a \wedge ((a \wedge b) \vee (a \wedge c)) \neq a \wedge ((b \wedge (a \vee (b \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_{17}, negated_conjecture)

LAT108-1.p Huntington equation H42 is independent of H31
Show that Huntington equation H31 does not imply Huntington equation H42 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge (z \wedge u))) = x \wedge (y \vee (z \wedge (u \wedge (y \vee (x \wedge z)))))$ cnf(equation_H_{31}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT109-1.p Huntington equation H40 is independent of H37
Show that Huntington equation H37 does not imply Huntington equation H40 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \vee (x \wedge u))) = x \wedge (y \vee (z \vee (u \wedge (x \vee (y \wedge z)))))$ cnf(equation_H_{37}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (c \wedge (a \vee b)))))$ cnf(prove_H_{40}, negated_conjecture)

LAT110-1.p Huntington equation H42 is independent of H37
Show that Huntington equation H37 does not imply Huntington equation H42 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \vee (x \wedge u))) = x \wedge (y \vee (z \vee (u \wedge (x \vee (y \wedge z)))))$ cnf(equation_H_{37}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT111-1.p Huntington equation H40 is independent of H45
Show that Huntington equation H45 does not imply Huntington equation H40 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \wedge (z \vee (x \wedge u))) = x \wedge (y \wedge (z \vee (u \wedge (x \vee (y \wedge z)))))$ cnf(equation_H_{45}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (c \wedge (a \vee b)))))$ cnf(prove_H_{40}, negated_conjecture)

LAT112-1.p Huntington equation H42 is independent of H47
Show that Huntington equation H47 does not imply Huntington equation H42 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \wedge (z \vee (y \wedge u))) = x \wedge (y \wedge (z \vee (u \wedge (y \vee (x \wedge z)))))$ cnf(equation_H_{47}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT113-1.p Huntington equation H40 is independent of H50
Show that Huntington equation H50 does not imply Huntington equation H40 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge (y \vee u)))))$ cnf(equation_H_{50}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (c \wedge (a \vee b)))))$ cnf(prove_H_{40}, negated_conjecture)

LAT114-1.p Huntington equation H56 is independent of H55
Show that Huntington equation H55 does not imply Huntington equation H56 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (z \vee y))))$ cnf(equation_H_{55}, axiom)

$(a \wedge b) \vee (a \wedge (b \vee c)) \neq a \wedge (b \vee ((a \vee b) \wedge (c \vee (a \wedge b))))$ cnf(prove_H$_{56}$, negated_conjecture)

LAT115-1.p Huntington equation H59 is independent of H55
Show that Huntington equation H55 does not imply Huntington equation H59 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (z \vee y))))$ cnf(equation_H$_{55}$, axiom)
$a \wedge ((b \vee c) \wedge (b \vee d)) \neq a \wedge (b \vee ((b \vee d) \wedge (c \vee (a \wedge b))))$ cnf(prove_H$_{59}$, negated_conjecture)

LAT116-1.p Huntington equation H60 is independent of H55
Show that Huntington equation H55 does not imply Huntington equation H60 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (z \vee y))))$ cnf(equation_H$_{55}$, axiom)
$a \wedge ((b \vee c) \wedge (b \vee d)) \neq a \wedge (b \vee ((b \vee c) \wedge (d \vee (a \wedge b))))$ cnf(prove_H$_{60}$, negated_conjecture)

LAT117-1.p Huntington equation H69 is independent of H65
Show that Huntington equation H65 does not imply Huntington equation H69 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge u)) = x \wedge (y \vee (x \wedge ((x \wedge y) \vee (z \wedge u))))$ cnf(equation_H$_{65}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge (c \vee (a \wedge b))) \vee (a \wedge (b \vee (a \wedge c)))$ cnf(prove_H$_{69}$, negated_conjecture)

LAT118-1.p Huntington equation H69 is independent of H79
Show that Huntington equation H79 does not imply Huntington equation H69 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge u))$ cnf(equation_H$_{79}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge (c \vee (a \wedge b))) \vee (a \wedge (b \vee (a \wedge c)))$ cnf(prove_H$_{69}$, negated_conjecture)

LAT119-1.p Huntington equation H3 is independent of H82
Show that Huntington equation H82 does not imply Huntington equation H3 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge ((y \wedge (x \vee z)) \vee (z \wedge (x \vee y))) = (x \wedge y) \vee (x \wedge z)$ cnf(equation_H$_{82}$, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (b \vee (a \wedge (c \vee (a \wedge b))))))$ cnf(prove_H$_3$, negated_conjecture)

LAT120-1.p Huntington equation H58 is independent of H10_dual
Show that Huntington equation H10_dual does not imply Huntington equation H58 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (y \vee z))))$ cnf(equation_H10_dual, axiom)
$a \wedge (b \vee c) \neq a \wedge (b \vee ((a \vee b) \wedge (c \vee (a \wedge b))))$ cnf(prove_H$_{58}$, negated_conjecture)

LAT121-1.p Huntington equation H55 is independent of H18_dual
Show that Huntington equation H18_dual does not imply Huntington equation H55 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((x \vee y) \wedge ((x \vee z) \wedge (y \vee (x \wedge z))))$ cnf(equation_H18_dual, axiom)
$a \vee (b \wedge (a \vee c)) \neq a \vee (b \wedge (c \vee (a \wedge (c \vee b))))$ cnf(prove_H$_{55}$, negated_conjecture)

LAT122-1.p Huntington equation H55 is independent of H21_dual
Show that Huntington equation H21_dual does not imply Huntington equation H55 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((y \vee (x \wedge (y \vee z))) \wedge (z \vee (x \wedge y)))$ cnf(equation_H21_dual, axiom)
$a \vee (b \wedge (a \vee c)) \neq a \vee (b \wedge (c \vee (a \wedge (c \vee b))))$ cnf(prove_H$_{55}$, negated_conjecture)

LAT123-1.p Huntington equation H55 is independent of H22_dual
Show that Huntington equation H22_dual does not imply Huntington equation H55 in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((y \vee (z \wedge (x \vee y))) \wedge (z \vee (x \wedge y)))$ cnf(equation_H22_dual, axiom)
$a \vee (b \wedge (a \vee c)) \neq a \vee (b \wedge (c \vee (a \wedge (c \vee b))))$ cnf(prove_H$_{55}$, negated_conjecture)

LAT124-1.p Huntington equation H69 is independent of H32_dual
Show that Huntington equation H32_dual does not imply Huntington equation H69 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (x \vee (z \vee u))) = x \vee (y \wedge (z \vee ((x \vee u) \wedge (y \vee u))))$ cnf(equation_H32_dual, axiom)
$a \wedge (b \vee c) \neq (a \wedge (c \vee (a \wedge b))) \vee (a \wedge (b \vee (a \wedge c)))$ cnf(prove_H$_{69}$, negated_conjecture)

LAT125-1.p Huntington equation H69 is independent of H34_dual
Show that Huntington equation H34_dual does not imply Huntington equation H69 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee u)) = x \vee (y \wedge (z \vee (y \wedge (u \vee (y \wedge z)))))$ cnf(equation_H34_dual, axiom)

$a \wedge (b \vee c) \neq (a \wedge (c \vee (a \wedge b))) \vee (a \wedge (b \vee (a \wedge c)))$ cnf(prove_H_{69}, negated_conjecture)

LAT126-1.p Huntington equation H69 is independent of H39_dual
Show that Huntington equation H39_dual does not imply Huntington equation H69 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (x \wedge u))) = x \vee (y \wedge (z \vee (u \wedge (x \vee z))))$ cnf(equation_H39_dual, axiom)
$a \wedge (b \vee c) \neq (a \wedge (c \vee (a \wedge b))) \vee (a \wedge (b \vee (a \wedge c)))$ cnf(prove_H_{69}, negated_conjecture)

LAT127-1.p Huntington equation H6 is independent of H55_dual
Show that Huntington equation H55_dual does not imply Huntington equation H6 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (z \wedge y))))$ cnf(equation_H55_dual, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT128-1.p Huntington equation H3 is independent of H58_dual
Show that Huntington equation H58_dual does not imply Huntington equation H3 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = x \vee (y \wedge ((x \wedge y) \vee (z \wedge (x \vee y))))$ cnf(equation_H58_dual, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (b \vee (a \wedge (c \vee (a \wedge b))))))$ cnf(prove_H_3, negated_conjecture)

LAT129-1.p Huntington equation H10 is independent of H58_dual
Show that Huntington equation H58_dual does not imply Huntington equation H10 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = x \vee (y \wedge ((x \wedge y) \vee (z \wedge (x \vee y))))$ cnf(equation_H58_dual, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (a \vee (b \wedge c))))$ cnf(prove_H_{10}, negated_conjecture)

LAT130-1.p Huntington equation H39 is independent of H68_dual
Show that Huntington equation H68_dual does not imply Huntington equation H39 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = x \vee (y \wedge (x \vee (z \wedge (x \vee y))))$ cnf(equation_H68_dual, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (a \wedge c))))$ cnf(prove_H_{39}, negated_conjecture)

LAT131-1.p Huntington equation H42 is independent of H68_dual
Show that Huntington equation H68_dual does not imply Huntington equation H42 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = x \vee (y \wedge (x \vee (z \wedge (x \vee y))))$ cnf(equation_H68_dual, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT132-1.p Huntington equation H42 is independent of H69_dual
Show that Huntington equation H69_dual does not imply Huntington equation H42 in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge z) = (x \vee (z \wedge (x \vee y))) \wedge (x \vee (y \wedge (x \vee z)))$ cnf(equation_H69_dual, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT133-1.p Huntington equation H6_dual is independent of H55
Show that Huntington equation H55 does not imply Huntington equation H6_dual in lattice theory.
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (z \vee y))))$ cnf(equation_H_{55}, axiom)
$a \vee (b \wedge (a \vee c)) \neq a \vee ((a \vee (b \wedge (a \vee c))) \wedge (c \vee (a \wedge b)))$ cnf(prove_H6_dual, negated_conjecture)

LAT134-1.p Huntington equation H22_dual is independent of H61
Show that Huntington equation H61 does not imply Huntington equation H22_dual in lattice theory.
include('Axioms/LAT001-0.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((x \vee y) \wedge ((x \wedge y) \vee z))$ cnf(equation_H_{61}, axiom)
$(a \vee b) \wedge (a \vee c) \neq a \vee ((b \vee (c \wedge (a \vee b))) \wedge (c \vee (a \wedge b)))$ cnf(prove_H22_dual, negated_conjecture)

LAT135-1.p Huntington equation H39_dual is independent of H68
Show that Huntington equation H68 does not imply Huntington equation H39_dual in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = x \wedge (y \vee (x \wedge (z \vee (x \wedge y))))$ cnf(equation_H_{68}, axiom)
$a \vee (b \wedge (c \vee (a \wedge d))) \neq a \vee (b \wedge (c \vee (d \wedge (a \vee c))))$ cnf(prove_H39_dual, negated_conjecture)

LAT136-1.p Huntington equation H39_dual is independent of H69
Show that Huntington equation H69 does not imply Huntington equation H39_dual in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = (x \wedge (z \vee (x \wedge y))) \vee (x \wedge (y \vee (x \wedge z)))$ cnf(equation_H_{69}, axiom)

$a \vee (b \wedge (c \vee (a \wedge d))) \neq a \vee (b \wedge (c \vee (d \wedge (a \vee c))))$ cnf(prove_H39_dual, negated_conjecture)

LAT137-1.p Huntington equation H40_dual is independent of H69
Show that Huntington equation H69 does not imply Huntington equation H40_dual in lattice theory.
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = (x \wedge (z \vee (x \wedge y))) \vee (x \wedge (y \vee (x \wedge z)))$ cnf(equation_H_{69}, axiom)
$a \vee (b \wedge (c \vee (a \wedge d))) \neq a \vee (b \wedge (c \vee (d \wedge (c \vee (a \wedge b)))))$ cnf(prove_H40_dual, negated_conjecture)

LAT138-1.p Huntington equation H7 implies H6
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (x \wedge ((x \wedge y) \vee (z \wedge (x \vee y)))))$ cnf(equation_H_7, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT139-1.p Huntington equation H11 implies H10
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (y \wedge (z \vee (x \wedge y))))))$ cnf(equation_H_{11}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge (a \vee (b \wedge c))))$ cnf(prove_H_{10}, negated_conjecture)

LAT140-1.p Huntington equation H21 implies H2
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{21}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge ((a \wedge (b \vee c)) \vee (b \wedge c))))$ cnf(prove_H_2, negated_conjecture)

LAT141-1.p Huntington equation H21 implies H6
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{21}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT142-1.p Huntington equation H22 implies H6
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (z \vee (x \wedge y))) \vee (z \wedge (x \vee y)))$ cnf(equation_H_{22}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT143-1.p Huntington equation H24 implies H15
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (y \wedge z) = (x \wedge y) \vee (y \wedge ((x \wedge y) \vee (z \wedge (x \vee y))))$ cnf(equation_H_{24}, axiom)
$a \wedge ((a \wedge b) \vee (a \wedge c)) \neq a \wedge ((a \wedge b) \vee ((a \wedge c) \vee (c \wedge (a \vee b))))$ cnf(prove_H_{15}, negated_conjecture)

LAT144-1.p Huntington equation H32 implies H2
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge (z \wedge u))) = x \wedge (y \vee (z \wedge ((x \wedge u) \vee (y \wedge u))))$ cnf(equation_H_{32}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge ((a \wedge (b \vee c)) \vee (b \wedge c))))$ cnf(prove_H_2, negated_conjecture)

LAT145-1.p Huntington equation H32 implies H6
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (x \wedge (z \wedge u))) = x \wedge (y \vee (z \wedge ((x \wedge u) \vee (y \wedge u))))$ cnf(equation_H_{32}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT146-1.p Huntington equation H34 implies H28
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge u)) = x \wedge (y \vee (z \wedge (y \vee (u \wedge (y \vee z)))))$ cnf(equation_H_{34}, axiom)
$a \wedge (b \vee (a \wedge (c \wedge d))) \neq a \wedge (b \vee (c \wedge (d \wedge (a \vee (b \wedge d)))))$ cnf(prove_H_{28}, negated_conjecture)

LAT147-1.p Huntington equation H34 implies H45
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge u)) = x \wedge (y \vee (z \wedge (y \vee (u \wedge (y \vee z)))))$ cnf(equation_H_{34}, axiom)
$a \wedge (b \wedge (c \vee (a \wedge d))) \neq a \wedge (b \wedge (c \vee (d \wedge (a \vee (b \wedge c)))))$ cnf(prove_H_{45}, negated_conjecture)

LAT148-1.p Huntington equation H34 implies H7
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge u)) = x \wedge (y \vee (z \wedge (y \vee (u \wedge (y \vee z)))))$ cnf(equation_H_{34}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (a \wedge ((a \wedge b) \vee (c \wedge (a \vee b)))))$ cnf(prove_H_7, negated_conjecture)

LAT149-1.p Huntington equation H37 implies H43
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \vee (x \wedge u))) = x \wedge (y \vee (z \vee (u \wedge (x \vee (y \wedge z)))))$ cnf(equation_H_{37}, axiom)
$a \wedge (b \vee (c \wedge (b \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (a \wedge (b \vee d)))))$ cnf(prove_H_{43}, negated_conjecture)

LAT150-1.p Huntington equation H39 implies H40
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge z))))$ cnf(equation_H_{39}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (c \wedge (a \vee b)))))$ cnf(prove_H_{40}, negated_conjecture)

LAT151-1.p Huntington equation H39 implies H42
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge z))))$ cnf(equation_H_{39}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT152-1.p Huntington equation H40 implies H6
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (z \wedge (x \vee y)))))$ cnf(equation_H_{40}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT153-1.p Huntington equation H40 implies H7
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (z \wedge (x \vee y)))))$ cnf(equation_H_{40}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (a \wedge ((a \wedge b) \vee (c \wedge (a \vee b)))))$ cnf(prove_H_7, negated_conjecture)

LAT154-1.p Huntington equation H42 implies H6
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (y \vee (u \vee (x \wedge z)))))$ cnf(equation_H_{42}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT155-1.p Huntington equation H49 implies H2
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((x \wedge z) \vee (z \wedge (y \vee u))))$ cnf(equation_H_{49}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge ((a \wedge (b \vee c)) \vee (b \wedge c))))$ cnf(prove_H_2, negated_conjecture)

LAT156-1.p Huntington equation H49 implies H6
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((x \wedge z) \vee (z \wedge (y \vee u))))$ cnf(equation_H_{49}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_6, negated_conjecture)

LAT157-1.p Huntington equation H50 implies H2
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge (y \vee u)))))$ cnf(equation_H_{50}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (c \wedge ((a \wedge (b \vee c)) \vee (b \wedge c))))$ cnf(prove_H_2, negated_conjecture)

LAT158-1.p Huntington equation H50 implies H49
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge (y \vee u)))))$ cnf(equation_H_{50}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee ((a \wedge c) \vee (c \wedge (b \vee d))))$ cnf(prove_H_{49}, negated_conjecture)

LAT159-1.p Huntington equation H50 implies H7
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge (y \vee u)))))$ cnf(equation_H_{50}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge (b \vee (a \wedge ((a \wedge b) \vee (c \wedge (a \vee b)))))$ cnf(prove_H_7, negated_conjecture)

LAT160-1.p Huntington equation H52 implies H51
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((z \wedge u) \vee (z \wedge (x \vee y))))$ cnf(equation_H_{52}, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee ((a \wedge c) \vee (c \wedge d)))$ cnf(prove_H_{51}, negated_conjecture)

LAT161-1.p Huntington equation H58 implies H59
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = x \wedge (y \vee ((x \vee y) \wedge (z \vee (x \wedge y))))$ cnf(equation_H_{58}, axiom)
$a \wedge ((b \vee c) \wedge (b \vee d)) \neq a \wedge (b \vee ((b \vee d) \wedge (c \vee (a \wedge b))))$ cnf(prove_H_{59}, negated_conjecture)

LAT162-1.p Huntington equation H68 implies H73
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee z) = x \wedge (y \vee (x \wedge (z \vee (x \wedge y))))$ cnf(equation_H_{68}, axiom)
$a \wedge (b \wedge (c \vee d)) \neq a \wedge (b \wedge (c \vee (a \wedge (d \vee (b \wedge c)))))$ cnf(prove_H_{73}, negated_conjecture)

LAT163-1.p Huntington equation H76 implies H32
include('Axioms/LAT001-0.ax')

$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge y))))$ cnf(equation_H_{76}, axiom)
$a \wedge (b \vee (a \wedge (c \wedge d))) \neq a \wedge (b \vee (c \wedge ((a \wedge d) \vee (b \wedge d))))$ cnf(prove_H_{32}, negated_conjecture)

LAT164-1.p Huntington equation H76 implies H6
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge y))))$ cnf(equation_H_{76}, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_{6}, negated_conjecture)

LAT165-1.p Huntington equation H76 implies H77
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge y))))$ cnf(equation_H_{76}, axiom)
$a \wedge (b \vee (c \wedge (b \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (a \wedge (b \wedge c)))))$ cnf(prove_H_{77}, negated_conjecture)

LAT166-1.p Huntington equation H77 implies H78
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge (y \wedge z)))))$ cnf(equation_H_{77}, axiom)
$a \wedge (b \vee (c \wedge (b \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (b \wedge (a \vee d)))))$ cnf(prove_H_{78}, negated_conjecture)

LAT167-1.p Huntington equation H78 implies H77
include('Axioms/LAT001-0.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (y \wedge (x \vee u)))))$ cnf(equation_H_{78}, axiom)
$a \wedge (b \vee (c \wedge (b \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (a \wedge (b \wedge c)))))$ cnf(prove_H_{77}, negated_conjecture)

LAT168-1.p Huntington equation H18_dual implies H58
include('Axioms/LAT001-0.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((x \vee y) \wedge ((x \vee z) \wedge (y \vee (x \wedge z))))$ cnf(equation_H18_dual, axiom)
$a \wedge (b \vee c) \neq a \wedge (b \vee ((a \vee b) \wedge (c \vee (a \wedge b))))$ cnf(prove_H_{58}, negated_conjecture)

LAT169-1.p Huntington equation H21_dual implies H58
include('Axioms/LAT001-0.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((y \vee (x \wedge (y \vee z))) \wedge (z \vee (x \wedge y)))$ cnf(equation_H21_dual, axiom)
$a \wedge (b \vee c) \neq a \wedge (b \vee ((a \vee b) \wedge (c \vee (a \wedge b))))$ cnf(prove_H_{58}, negated_conjecture)

LAT170-1.p Huntington equation H49_dual implies H58
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (x \wedge u))) = x \vee (y \wedge ((x \vee z) \wedge (z \vee (y \wedge u))))$ cnf(equation_H49_dual, axiom)
$a \wedge (b \vee c) \neq a \wedge (b \vee ((a \vee b) \wedge (c \vee (a \wedge b))))$ cnf(prove_H_{58}, negated_conjecture)

LAT171-1.p Huntington equation H61_dual implies H6
include('Axioms/LAT001-0.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((x \wedge y) \vee ((x \vee y) \wedge z))$ cnf(equation_H61_dual, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_{6}, negated_conjecture)

LAT172-1.p Huntington equation H76_dual implies H32
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (y \wedge u))) = x \vee (y \wedge (z \vee (u \wedge (x \vee y))))$ cnf(equation_H76_dual, axiom)
$a \wedge (b \vee (a \wedge (c \wedge d))) \neq a \wedge (b \vee (c \wedge ((a \wedge d) \vee (b \wedge d))))$ cnf(prove_H_{32}, negated_conjecture)

LAT173-1.p Huntington equation H76_dual implies H40
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (y \wedge u))) = x \vee (y \wedge (z \vee (u \wedge (x \vee y))))$ cnf(equation_H76_dual, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (d \vee (c \wedge (a \vee b)))))$ cnf(prove_H_{40}, negated_conjecture)

LAT174-1.p Huntington equation H76_dual implies H6
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (y \wedge u))) = x \vee (y \wedge (z \vee (u \wedge (x \vee y))))$ cnf(equation_H76_dual, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H_{6}, negated_conjecture)

LAT175-1.p Huntington equation H79_dual implies H32
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (x \wedge u))) = x \vee ((x \vee (y \wedge (x \vee z))) \wedge (z \vee u))$ cnf(equation_H79_dual, axiom)
$a \wedge (b \vee (a \wedge (c \wedge d))) \neq a \wedge (b \vee (c \wedge ((a \wedge d) \vee (b \wedge d))))$ cnf(prove_H_{32}, negated_conjecture)

LAT176-1.p Huntington equation H79_dual implies H42
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (x \wedge u))) = x \vee ((x \vee (y \wedge (x \vee z))) \wedge (z \vee u))$ cnf(equation_H79_dual, axiom)
$a \wedge (b \vee (c \wedge (a \vee d))) \neq a \wedge (b \vee (c \wedge (b \vee (d \vee (a \wedge c)))))$ cnf(prove_H_{42}, negated_conjecture)

LAT177-1.p Huntington equation H79_dual implies H6
include('Axioms/LAT001-0.ax')
$x \vee (y \wedge (z \vee (x \wedge u))) = x \vee ((x \vee (y \wedge (x \vee z))) \wedge (z \vee u))$ cnf(equation_H79_dual, axiom)
$a \wedge (b \vee (a \wedge c)) \neq a \wedge ((a \wedge (b \vee (a \wedge c))) \vee (c \wedge (a \vee b)))$ cnf(prove_H$_6$, negated_conjecture)

LAT178-1.p Equation H1 is Huntington by distributivity
Show that H1 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge u))))$ cnf(equation_H$_1$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT179-1.p Equation H2 is Huntington by distributivity
Show that H2 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge ((x \wedge (y \vee z)) \vee (y \wedge z))))$ cnf(equation_H$_2$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT180-1.p Equation H3 is Huntington by distributivity
Show that H3 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (y \vee (x \wedge (z \vee (x \wedge y))))))$ cnf(equation_H$_3$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT181-1.p Equation H4 is Huntington by distributivity
Show that H4 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge (z \vee u))) = x \wedge (y \vee ((x \vee (y \wedge u)) \wedge (z \vee u)))$ cnf(equation_H$_4$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT182-1.p Equation H6 is Huntington by distributivity
Show that H6 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_6$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT183-1.p Equation H7 is Huntington by distributivity
Show that H7 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (x \wedge ((x \wedge y) \vee (z \wedge (x \vee y)))))$ cnf(equation_H$_7$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT184-1.p Equation H8 is Huntington by distributivity
Show that H8 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = (x \wedge y) \vee (x \wedge (y \vee (z \wedge (x \vee (y \wedge z)))))$ cnf(equation_H$_8$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT185-1.p Equation H10 is Huntington by distributivity
Show that H10 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (y \wedge z))))$ cnf(equation_H$_{10}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT186-1.p Equation H11 is Huntington by distributivity
Show that H11 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')

$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (y \wedge (z \vee (x \wedge y))))))$ cnf(equation_H$_{11}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT187-1.p Equation H15 is Huntington by distributivity
Show that H15 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (x \wedge z)) = x \wedge ((x \wedge y) \vee ((x \wedge z) \vee (z \wedge (x \vee y))))$ cnf(equation_H$_{15}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT188-1.p Equation H16 is Huntington by distributivity
Show that H16 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (x \wedge z)) = x \wedge ((x \wedge y) \vee (z \wedge (y \vee (z \wedge (x \vee y)))))$ cnf(equation_H$_{16}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT189-1.p Equation H17 is Huntington by distributivity
Show that H17 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (x \wedge z)) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_{17}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT190-1.p Equation H18 is Huntington by distributivity
Show that H18 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((x \wedge y) \vee ((x \wedge z) \vee (y \wedge (x \vee z))))$ cnf(equation_H$_{18}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT191-1.p Equation H21 is Huntington by distributivity
Show that H21 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_{21}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT192-1.p Equation H22 is Huntington by distributivity
Show that H22 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (z \vee (x \wedge y))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_{22}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT193-1.p Equation H24 is Huntington by distributivity
Show that H24 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (y \wedge z) = (x \wedge y) \vee (y \wedge ((x \wedge y) \vee (z \wedge (x \vee y))))$ cnf(equation_H$_{24}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT194-1.p Equation H32 is Huntington by distributivity
Show that H32 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge (z \wedge u))) = x \wedge (y \vee (z \wedge ((x \wedge u) \vee (y \wedge u))))$ cnf(equation_H$_{32}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT195-1.p Equation H34 is Huntington by distributivity
Show that H34 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge u)) = x \wedge (y \vee (z \wedge (y \vee (u \wedge (y \vee z)))))$ cnf(equation_H$_{34}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT196-1.p Equation H39 is Huntington by distributivity
Show that H39 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge z))))$ cnf(equation_H$_{39}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT197-1.p Equation H40 is Huntington by distributivity
Show that H40 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (z \wedge (x \vee y)))))$ cnf(equation_H$_{40}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT198-1.p Equation H42 is Huntington by distributivity
Show that H42 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (y \vee (u \vee (x \wedge z)))))$ cnf(equation_H$_{42}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT199-1.p Equation H49 is Huntington by distributivity
Show that H49 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((x \wedge z) \vee (z \wedge (y \vee u))))$ cnf(equation_H$_{49}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT200-1.p Equation H50 is Huntington by distributivity
Show that H50 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge (y \vee u)))))$ cnf(equation_H$_{50}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT201-1.p Equation H51 is Huntington by distributivity
Show that H51 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((x \wedge z) \vee (z \wedge u)))$ cnf(equation_H$_{51}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT202-1.p Equation H55 is Huntington by distributivity
Show that H55 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (z \vee y))))$ cnf(equation_H$_{55}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT203-1.p Equation H57 is Huntington by distributivity
Show that H57 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge (y \vee z))) = x \wedge (y \vee ((x \vee y) \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{57}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT204-1.p Equation H58 is Huntington by distributivity
Show that H58 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = x \wedge (y \vee ((x \vee y) \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{58}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT205-1.p Equation H59 is Huntington by distributivity
Show that H59 is Huntington by deriving distributivity in uniquely complemented lattices.

include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \vee z) \wedge (y \vee u)) = x \wedge (y \vee ((y \vee u) \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{59}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT206-1.p Equation H60 is Huntington by distributivity
Show that H60 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \vee z) \wedge (y \vee u)) = x \wedge (y \vee ((y \vee z) \wedge (u \vee (x \wedge y))))$ cnf(equation_H$_{60}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT207-1.p Equation H61 is Huntington by distributivity
Show that H61 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((x \vee y) \wedge ((x \wedge y) \vee z))$ cnf(equation_H$_{61}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT208-1.p Equation H63 is Huntington by distributivity
Show that H63 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \vee z) \wedge (y \vee u)) = x \wedge (y \vee ((y \vee z) \wedge (u \vee (y \wedge z))))$ cnf(equation_H$_{63}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT209-1.p Equation H64 is Huntington by distributivity
Show that H64 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = x \wedge (y \vee (x \wedge (z \vee (x \wedge (y \vee (x \wedge z))))))$ cnf(equation_H$_{64}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT210-1.p Equation H68 is Huntington by distributivity
Show that H68 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = x \wedge (y \vee (x \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{68}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT211-1.p Equation H69 is Huntington by distributivity
Show that H69 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = (x \wedge (z \vee (x \wedge y))) \vee (x \wedge (y \vee (x \wedge z)))$ cnf(equation_H$_{69}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT212-1.p Equation H70 is Huntington by distributivity
Show that H70 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (y \wedge (x \vee z)))))$ cnf(equation_H$_{70}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT213-1.p Equation H76 is Huntington by distributivity
Show that H76 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge y))))$ cnf(equation_H$_{76}$, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT214-1.p Equation H79 is Huntington by distributivity
Show that H79 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')

$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge u))$ cnf(equation_H_{79}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT215-1.p Equation H80 is Huntington by distributivity
Show that H80 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (z \wedge (x \vee (y \wedge (x \vee z))))) = (x \wedge y) \vee (x \wedge z)$ cnf(equation_H_{80}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT216-1.p Equation H81 is Huntington by distributivity
Show that H81 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (z \wedge (x \vee (y \wedge (x \vee z))))) = x \wedge ((x \wedge y) \vee (x \wedge z))$ cnf(equation_H_{81}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT217-1.p Equation H82 is Huntington by distributivity
Show that H82 is Huntington by deriving distributivity in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \wedge (x \vee z)) \vee (z \wedge (x \vee y))) = (x \wedge y) \vee (x \wedge z)$ cnf(equation_H_{82}, axiom)
$a \wedge (b \vee c) \neq (a \wedge b) \vee (a \wedge c)$ cnf(prove_distributivity, negated_conjecture)

LAT218-1.p Equation H1 is Huntington by implication
Show that H1 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge u))))$ cnf(equation_H_1, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT219-1.p Equation H2 is Huntington by implication
Show that H2 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge ((x \wedge (y \vee z)) \vee (y \wedge z))))$ cnf(equation_H_2, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT220-1.p Equation H3 is Huntington by implication
Show that H3 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (y \vee (x \wedge (z \vee (x \wedge y))))))$ cnf(equation_H_3, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT221-1.p Equation H4 is Huntington by implication
Show that H4 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge (z \vee u))) = x \wedge (y \vee ((x \vee (y \wedge u)) \wedge (z \vee u)))$ cnf(equation_H_4, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT222-1.p Equation H6 is Huntington by implication
Show that H6 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')

include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_6$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT223-1.p Equation H7 is Huntington by implication
Show that H7 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (x \wedge ((x \wedge y) \vee (z \wedge (x \vee y)))))$ cnf(equation_H$_7$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT224-1.p Equation H8 is Huntington by implication
Show that H8 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = (x \wedge y) \vee (x \wedge (y \vee (z \wedge (x \vee (y \wedge z)))))$ cnf(equation_H$_8$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT225-1.p Equation H10 is Huntington by implication
Show that H10 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (y \wedge z))))$ cnf(equation_H$_{10}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT226-1.p Equation H11 is Huntington by implication
Show that H11 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge z)) = x \wedge (y \vee (z \wedge (x \vee (y \wedge (z \vee (x \wedge y))))))$ cnf(equation_H$_{11}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT227-1.p Equation H15 is Huntington by implication
Show that H15 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (x \wedge z)) = x \wedge ((x \wedge y) \vee ((x \wedge z) \vee (z \wedge (x \vee y))))$ cnf(equation_H$_{15}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT228-1.p Equation H16 is Huntington by implication
Show that H16 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (x \wedge z)) = x \wedge ((x \wedge y) \vee (z \wedge (y \vee (z \wedge (x \vee y)))))$ cnf(equation_H$_{16}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT229-1.p Equation H17 is Huntington by implication
Show that H17 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')

include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (x \wedge z)) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_{17}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT230-1.p Equation H18 is Huntington by implication
Show that H18 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((x \wedge y) \vee ((x \wedge z) \vee (y \wedge (x \vee z))))$ cnf(equation_H$_{18}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT231-1.p Equation H21 is Huntington by implication
Show that H21 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (x \vee (y \wedge z))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_{21}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT232-1.p Equation H22 is Huntington by implication
Show that H22 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (x \wedge z) = x \wedge ((y \wedge (z \vee (x \wedge y))) \vee (z \wedge (x \vee y)))$ cnf(equation_H$_{22}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT233-1.p Equation H24 is Huntington by implication
Show that H24 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \wedge y) \vee (y \wedge z) = (x \wedge y) \vee (y \wedge ((x \wedge y) \vee (z \wedge (x \vee y))))$ cnf(equation_H$_{24}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT234-1.p Equation H32 is Huntington by implication
Show that H32 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge (z \wedge u))) = x \wedge (y \vee (z \wedge ((x \wedge u) \vee (y \wedge u))))$ cnf(equation_H$_{32}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT235-1.p Equation H34 is Huntington by implication
Show that H34 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge u)) = x \wedge (y \vee (z \wedge (y \vee (u \wedge (y \vee z)))))$ cnf(equation_H$_{34}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT236-1.p Equation H39 is Huntington by implication
Show that H39 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')

include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge z))))$ cnf(equation_H_{39}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT237-1.p Equation H40 is Huntington by implication
Show that H40 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (u \vee (z \wedge (x \vee y)))))$ cnf(equation_H_{40}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT238-1.p Equation H42 is Huntington by implication
Show that H42 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (y \vee (u \vee (x \wedge z)))))$ cnf(equation_H_{42}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT239-1.p Equation H49 is Huntington by implication
Show that H49 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((x \wedge z) \vee (z \wedge (y \vee u))))$ cnf(equation_H_{49}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT240-1.p Equation H50 is Huntington by implication
Show that H50 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee (z \wedge (x \vee (z \wedge (y \vee u)))))$ cnf(equation_H_{50}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT241-1.p Equation H51 is Huntington by implication
Show that H51 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge (y \vee ((x \wedge z) \vee (z \wedge u)))$ cnf(equation_H_{51}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT242-1.p Equation H55 is Huntington by implication
Show that H55 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \vee (y \wedge (x \vee z)) = x \vee (y \wedge (z \vee (x \wedge (z \vee y))))$ cnf(equation_H_{55}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT243-1.p Equation H57 is Huntington by implication
Show that H57 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')

include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (x \wedge (y \vee z))) = x \wedge (y \vee ((x \vee y) \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{57}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT244-1.p Equation H58 is Huntington by implication
Show that H58 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = x \wedge (y \vee ((x \vee y) \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{58}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT245-1.p Equation H59 is Huntington by implication
Show that H59 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \vee z) \wedge (y \vee u)) = x \wedge (y \vee ((y \vee u) \wedge (z \vee (x \wedge y))))$ cnf(equation_H$_{59}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT246-1.p Equation H60 is Huntington by implication
Show that H60 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \vee z) \wedge (y \vee u)) = x \wedge (y \vee ((y \vee z) \wedge (u \vee (x \wedge y))))$ cnf(equation_H$_{60}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT247-1.p Equation H61 is Huntington by implication
Show that H61 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$(x \vee y) \wedge (x \vee z) = x \vee ((x \vee y) \wedge ((x \wedge y) \vee z))$ cnf(equation_H$_{61}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT248-1.p Equation H63 is Huntington by implication
Show that H63 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((y \vee z) \wedge (y \vee u)) = x \wedge (y \vee ((y \vee z) \wedge (u \vee (y \wedge z))))$ cnf(equation_H$_{63}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT249-1.p Equation H64 is Huntington by implication
Show that H64 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = x \wedge (y \vee (x \wedge (z \vee (x \wedge (y \vee (x \wedge z))))))$ cnf(equation_H$_{64}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT250-1.p Equation H68 is Huntington by implication
Show that H68 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')

include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = x \wedge (y \vee (x \wedge (z \vee (x \wedge y))))$ cnf(equation_H_{68}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT251-1.p Equation H69 is Huntington by implication
Show that H69 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee z) = (x \wedge (z \vee (x \wedge y))) \vee (x \wedge (y \vee (x \wedge z)))$ cnf(equation_H_{69}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT252-1.p Equation H70 is Huntington by implication
Show that H70 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (y \wedge (x \vee z)))))$ cnf(equation_H_{70}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT253-1.p Equation H76 is Huntington by implication
Show that H76 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (y \vee u))) = x \wedge (y \vee (z \wedge (u \vee (x \wedge y))))$ cnf(equation_H_{76}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT254-1.p Equation H79 is Huntington by implication
Show that H79 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge (y \vee (z \wedge (x \vee u))) = x \wedge ((x \wedge (y \vee (x \wedge z))) \vee (z \wedge u))$ cnf(equation_H_{79}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT255-1.p Equation H80 is Huntington by implication
Show that H80 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (z \wedge (x \vee (y \wedge (x \vee z))))) = (x \wedge y) \vee (x \wedge z)$ cnf(equation_H_{80}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT256-1.p Equation H81 is Huntington by implication
Show that H81 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')
$x \wedge ((x \wedge y) \vee (z \wedge (x \vee (y \wedge (x \vee z))))) = x \wedge ((x \wedge y) \vee (x \wedge z))$ cnf(equation_H_{81}, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT257-1.p Equation H82 is Huntington by implication
Show that H82 is Huntington by deriving the Huntington implication X ∧ Y = Y → X' ∨ Y' = Y' in uniquely complemented lattices.
include('Axioms/LAT001-0.ax')

include('Axioms/LAT001-4.ax')
$x \wedge ((y \wedge (x \vee z)) \vee (z \wedge (x \vee y))) = (x \wedge y) \vee (x \wedge z)$ cnf(equation_H$_{82}$, axiom)
$b \wedge a = a$ cnf(prove_distributivity_hypothesis, hypothesis)
$b' \vee a' \neq a'$ cnf(prove_distributivity, negated_conjecture)

LAT258+1.p A duality result on distributivity in lattices
$x \vee y{=}t$ and $x \vee z{=}u$ fof(join_assumption, axiom)
$t \wedge u{=}v$ fof(meet_assumption, axiom)
$y \wedge z{=}w$ and $x \vee w{=}p$ fof(meet_join_assumption, axiom)
$v < p \Rightarrow$ goal fof(goal_ax, axiom)
$\forall a$: $a < a$ fof(less_than_reflexive, axiom)
$\forall a, b, c$: $((a < b$ and $b < c) \Rightarrow a < c)$ fof(less_than_transitive, axiom)
$\forall a, b, c$: $(a \wedge b{=}c \Rightarrow (c < a$ and $c < b))$ fof(lower_bound_meet, axiom)
$\forall a, b, c, d$: $((a \wedge b{=}c$ and $d < a$ and $d < b) \Rightarrow d < c)$ fof(greatest_lower_bound_meet, axiom)
$\forall a, b, c$: $(a \vee b{=}c \Rightarrow (a < c$ and $b < c))$ fof(upper_bound_join, axiom)
$\forall a, b, c, d$: $((a \vee b{=}c$ and $a < d$ and $b < d) \Rightarrow c < d)$ fof(least_upper_bound_join, axiom)
$\forall a, b$: $(a < b \Rightarrow (a \wedge b{=}a$ and $a \vee b{=}b))$ fof(less_than_meet_join, axiom)
$\forall a, b, c$: $(a \wedge b{=}c \Rightarrow b \wedge a{=}c)$ fof(commutitivity_meet, axiom)
$\forall a, b, c$: $(a \vee b{=}c \Rightarrow b \vee a{=}c)$ fof(commutitivity_join, axiom)
$\forall a, b, c, d, e, f$: $((a \wedge b{=}d$ and $d \wedge c{=}e$ and $b \wedge c{=}f) \Rightarrow a \wedge f{=}e)$ fof(associativity_meet, axiom)
$\forall a, b, c, d, e, f$: $((a \vee b{=}d$ and $d \vee c{=}e$ and $b \vee c{=}f) \Rightarrow a \vee f{=}e)$ fof(associativity_join, axiom)
$\forall a, b, c, d, e, f, g, h$: $((b \vee c{=}h$ and $a \wedge h{=}d$ and $a \wedge b{=}e$ and $a \wedge c{=}f$ and $e \vee f{=}g) \Rightarrow d < g)$ fof(lo_le_distr, axiom)
$\forall a, b$: $\exists c$: $a \wedge b{=}c$ fof(do_lattice, axiom)
goal fof(goal_to_be_proved, conjecture)

LAT259-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
(c_Relation_Oantisym(v_r, t_a) and c_in(c_Pair(v_V, v_U, t_a, t_a), v_r, tc_prod(t_a, t_a)) and c_in(c_Pair(v_U, v_V, t_a, t_a), v_r,
v_U = v_V cnf(cls_Relation_Oantisym__def$_0$, axiom)
c_Relation_Oantisym(v_r, t_a) or c_in(c_Pair(c_Main_Oantisym__def$_1$(v_r, t_a), c_Main_Oantisym__def$_2$(v_r, t_a), t_a, t_a), v_r,
c_Relation_Oantisym(v_r, t_a) or c_in(c_Pair(c_Main_Oantisym__def$_2$(v_r, t_a), c_Main_Oantisym__def$_1$(v_r, t_a), t_a, t_a), v_r,
c_Main_Oantisym__def$_1$(v_r, t_a) = c_Main_Oantisym__def$_2$(v_r, t_a) $\Rightarrow$ c_Relation_Oantisym(v_r, t_a) cnf(cls_Relation_C
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_Orefl
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_Oanti
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_Otran
(c_Relation_Oantisym(c_Tarski_Opotype_Oorder(v_P, t_a, tc_Product__Type_Ounit), t_a) and c_Relation_Orefl(c_Tarski_Opoty
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)
c_in(c_Pair(v_a, v_b, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(c_Pair(v_b, v_a, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_1$, negated_conjecture)
v_a $\neq$ v_b cnf(cls_conjecture$_2$, negated_conjecture)

LAT259-2.p Problem about Tarski's fixed point theorem
c_in(c_Pair(v_a, v_b, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(c_Pair(v_b, v_a, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_1$, negated_conjecture)
v_a $\neq$ v_b cnf(cls_conjecture$_2$, negated_conjecture)
(c_Relation_Oantisym(v_r, t_a) and c_in(c_Pair(v_V, v_U, t_a, t_a), v_r, tc_prod(t_a, t_a)) and c_in(c_Pair(v_U, v_V, t_a, t_a), v_r,
v_U = v_V cnf(cls_Relation_Oantisym__def$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) $\Rightarrow$ c_Relation_Oanti
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT260-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)

(c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) and c_in(v_cl, c_
c_in(c_Tarski_Olub(v_S, v_cl, t_a), c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a) cnf(cls_Tarski_OCL_Olu
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarsk
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a) cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conj
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit

LAT260-2.p Problem about Tarski's fixed point theorem
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))

LAT261-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) and c_in(v_cl, c_
c_in(c_Tarski_Olub(v_S, v_cl, t_a), c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a) cnf(cls_Tarski_OCL_Olu
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarsk
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a) cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conj
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_O

LAT261-2.p Problem about Tarski's fixed point theorem
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_O
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun

LAT262-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) and c_in(v_cl, c_
c_in(c_Tarski_Olub(v_S, v_cl, t_a), c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a) cnf(cls_Tarski_OCL_Olu
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarsk
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a) cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conj
¬ c_lessequals(v_S, c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_co

LAT262-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conj
¬ c_lessequals(v_S, c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_co
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod

LAT263-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit)   cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) and c_in(v_cl, c_
c_in(c_Tarski_Olub(v_S, v_cl, t_a), c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a)   cnf(cls_Tarski_OCL_Olu
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_O
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))   cnf(cls_Tarsk
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a)   cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod
c_lessequals(v_S, v_A, tc_set(t_a))   cnf(cls_conjecture$_0$, negated_conjecture)
¬ c_in(c_Tarski_Oglb(v_S, v_cl, t_a), v_A, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)

LAT263-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, v_A, tc_set(t_a))   cnf(cls_conjecture$_0$, negated_conjecture)
¬ c_in(c_Tarski_Oglb(v_S, v_cl, t_a), v_A, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit)   cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) and c_in(v_cl, c_
c_in(c_Tarski_Olub(v_S, v_cl, t_a), c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a)   cnf(cls_Tarski_OCL_Olu
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a)   cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod

LAT264-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-1.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a))   cnf(cls_conjecture$_0$, negated_conj
c_in(v_x, v_S, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit

LAT264-2.p Problem about Tarski's fixed point theorem
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))

LAT265-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-1.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a))   cnf(cls_conjecture$_0$, negated_conj
c_in(v_x, v_S, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_O

LAT265-2.p Problem about Tarski's fixed point theorem
¬ c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_O
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun

LAT266-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-1.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a))   cnf(cls_conjecture$_0$, negated_conj
c_in(v_x, v_S, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_lessequals(v_S, c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit), tc_set(t_a))   cnf(cls_co

LAT266-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conj
¬ c_lessequals(v_S, c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_co
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod

LAT267-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-1.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_lessequals(v_S, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conj
c_in(v_x, v_S, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(v_x, v_S, t_a) cnf(cls_conjecture$_2$, negated_conjecture)

LAT267-2.p Problem about Tarski's fixed point theorem
c_in(v_x, v_S, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(v_x, v_S, t_a) cnf(cls_conjecture$_2$, negated_conjecture)

LAT268-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-1.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_lessequals(v_S, v_A, tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_x, v_S, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(c_Pair(c_Tarski_Oglb(v_S, v_cl, t_a), v_x, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_2$, negated_conjecture)

LAT268-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, v_A, tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_x, v_S, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(c_Pair(c_Tarski_Oglb(v_S, v_cl, t_a), v_x, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_2$, negated_conjecture)
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_x, v_S, t_a) and c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_O
c_in(c_Pair(v_x, c_Tarski_Olub(v_S, v_cl, t_a), t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_
c_in(c_Pair(v_x, v_y, t_a, t_a), c_Tarski_Opotype_Oorder(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit), tc_prod(t_a, t_
c_in(c_Pair(v_y, v_x, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_a, t_a)) cnf(cls_Tarsk
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Oun
c_in(c_Tarski_Odual(v_cl, t_a), c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit))
c_Tarski_Oglb(v_S, v_cl, t_a) = c_Tarski_Olub(v_S, c_Tarski_Odual(v_cl, t_a), t_a) cnf(cls_Tarski_Oglb__dual__lub$_0$, axiom)
c_Tarski_Opotype_Opset(c_Tarski_Odual(v_cl, t_a), t_a, tc_Product__Type_Ounit) = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Prod
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT269-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_in(c_Tarski_OTop(v_cl, t_a), v_A, t_a) cnf(cls_Tarski_OTop_Acl_A_58_AA_A_61_61_ATrue$_0$, axiom)
(c_in(v_b, v_A, t_a) and c_in(v_a, v_A, t_a)) ⇒ (c_in(c_Tarski_Opotype_Opotype__ext(c_Tarski_Ointerval(v_r, v_a, v_b, t_a), c_T
c_emptyset) cnf(cls_Tarski_O_91_124_Aa2_A_58_AA_59_Ab2_A_58_AA_59_Ainterval_Ar_Aa2_Ab2_A_126_61_A_123_125_A_1
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_C
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_C
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_C
c_in(v_cl, c_Tarski_OCompleteLattice, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarsk
v_intY$_1$ = c_Tarski_Ointerval(v_r, c_Tarski_Olub(v_Y, v_cl, t_a), c_Tarski_OTop(v_cl, t_a), t_a) cnf(cls_Tarski_OintY1_A_61_
c_in(c_Tarski_Olub(v_Y, v_cl, t_a), v_A, t_a) cnf(cls_Tarski_Olub_AY_Acl_A_58_AA_A_61_61_ATrue$_0$, axiom)
c_in(v_x, v_A, t_a) ⇒ c_Tarski_Ointerval(v_r, v_x, c_Tarski_OTop(v_cl, t_a), t_a) ≠ c_emptyset cnf(cls_Tarski_Ox1_A_58_AA
¬ c_in(c_Tarski_Opotype_Opotype__ext(v_intY$_1$, c_Tarski_Oinduced(v_intY$_1$, v_r, t_a), c_Product__Type_OUnity, t_a, tc_Produc

LAT269-2.p Problem about Tarski's fixed point theorem
¬ c_in(c_Tarski_Opotype_Opotype__ext(v_intY$_1$, c_Tarski_Oinduced(v_intY$_1$, v_r, t_a), c_Product__Type_OUnity, t_a, tc_Produc
c_in(c_Tarski_OTop(v_cl, t_a), v_A, t_a) cnf(cls_Tarski_OTop_Acl_A_58_AA_A_61_61_ATrue$_0$, axiom)

(c_in(v_b, v_A, t_a) and c_in(v_a, v_A, t_a)) ⇒ (c_in(c_Tarski_Opotype_Opotype__ext(c_Tarski_Ointerval(v_r, v_a, v_b, t_a), c_T
c_emptyset)   cnf(cls_Tarski_O_91_124_Aa2_A_58_AA_59_Ab2_A_58_AA_59_Ainterval_Ar_Aa2_Ab2_A_126_61_A_123_125_A_1
v_intY$_1$ = c_Tarski_Ointerval(v_r, c_Tarski_Olub(v_Y, v_cl, t_a), c_Tarski_OTop(v_cl, t_a), t_a)   cnf(cls_Tarski_OintY1_A_61_
c_in(c_Tarski_Olub(v_Y, v_cl, t_a), v_A, t_a)   cnf(cls_Tarski_Olub_AY_Acl_A_58_AA_A_61_61_ATrue$_0$, axiom)
c_in(v_x, v_A, t_a) ⇒ c_Tarski_Ointerval(v_r, v_x, c_Tarski_OTop(v_cl, t_a), t_a) ≠ c_emptyset   cnf(cls_Tarski_Ox1_A_58_AA

LAT270-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-2.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_in(v_a, v_A, t_a)   cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_b, v_A, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))   cnf(cls_conjecture$_2$, negated_conjecture)
v_S ≠ c_emptyset   cnf(cls_conjecture$_3$, negated_conjecture)
c_Tarski_OisLub(v_S, v_cl, v_L, t_a)   cnf(cls_conjecture$_4$, negated_conjecture)
c_Tarski_Ointerval(v_r, v_a, v_b, t_a) ≠ c_emptyset   cnf(cls_conjecture$_5$, negated_conjecture)
¬ c_lessequals(v_S, v_A, tc_set(t_a))   cnf(cls_conjecture$_6$, negated_conjecture)

LAT270-2.p Problem about Tarski's fixed point theorem
c_in(v_a, v_A, t_a)   cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_b, v_A, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))   cnf(cls_conjecture$_2$, negated_conjecture)
¬ c_lessequals(v_S, v_A, tc_set(t_a))   cnf(cls_conjecture$_6$, negated_conjecture)
(c_in(v_b, v_A, t_a) and c_in(v_a, v_A, t_a) and c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))) ⇒
c_lessequals(v_S, v_A, tc_set(t_a))   cnf(cls_Tarski_O_91_124_Aa1_A_58_AA_59_Ab1_A_58_AA_59_AS1_A_60_61_Ainterval_Ar_

LAT271-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-2.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_in(v_a, v_A, t_a)   cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_b, v_A, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))   cnf(cls_conjecture$_2$, negated_conjecture)
v_S ≠ c_emptyset   cnf(cls_conjecture$_3$, negated_conjecture)
c_Tarski_OisLub(v_S, v_cl, v_L, t_a)   cnf(cls_conjecture$_4$, negated_conjecture)
c_Tarski_Ointerval(v_r, v_a, v_b, t_a) ≠ c_emptyset   cnf(cls_conjecture$_5$, negated_conjecture)
c_in(v_x, v_S, t_a)   cnf(cls_conjecture$_6$, negated_conjecture)
¬ c_in(c_Pair(v_a, v_x, t_a, t_a), v_r, tc_prod(t_a, t_a))   cnf(cls_conjecture$_7$, negated_conjecture)

LAT271-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))   cnf(cls_conjecture$_2$, negated_conjecture)
c_in(v_x, v_S, t_a)   cnf(cls_conjecture$_6$, negated_conjecture)
¬ c_in(c_Pair(v_a, v_x, t_a, t_a), v_r, tc_prod(t_a, t_a))   cnf(cls_conjecture$_7$, negated_conjecture)
(c_in(v_x, v_S, t_a) and c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))) ⇒ c_in(c_Pair(v_a, v_x, t_a, t_a), v_r

LAT272-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-2.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_in(v_a, v_A, t_a)   cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_b, v_A, t_a)   cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))   cnf(cls_conjecture$_2$, negated_conjecture)
v_S ≠ c_emptyset   cnf(cls_conjecture$_3$, negated_conjecture)
c_Tarski_OisLub(v_S, v_cl, v_L, t_a)   cnf(cls_conjecture$_4$, negated_conjecture)
c_Tarski_Ointerval(v_r, v_a, v_b, t_a) ≠ c_emptyset   cnf(cls_conjecture$_5$, negated_conjecture)
c_in(v_x, v_S, t_a)   cnf(cls_conjecture$_6$, negated_conjecture)
¬ c_in(c_Pair(v_x, v_L, t_a, t_a), v_r, tc_prod(t_a, t_a))   cnf(cls_conjecture$_7$, negated_conjecture)

LAT272-2.p Problem about Tarski's fixed point theorem
c_Tarski_OisLub(v_S, v_cl, v_L, t_a)   cnf(cls_conjecture$_4$, negated_conjecture)

c_in(v_x, v_S, t_a) cnf(cls_conjecture$_6$, negated_conjecture)
¬ c_in(c_Pair(v_x, v_L, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_7$, negated_conjecture)
(c_Tarski_OisLub(v_S, v_cl, v_L, t_a) and c_in(v_y, v_S, t_a)) ⇒ c_in(c_Pair(v_y, v_L, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_

LAT273-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-2.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_in(v_a, v_A, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_b, v_A, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a)) cnf(cls_conjecture$_2$, negated_conjecture)
v_S ≠ c_emptyset cnf(cls_conjecture$_3$, negated_conjecture)
c_Tarski_OisLub(v_S, v_cl, v_L, t_a) cnf(cls_conjecture$_4$, negated_conjecture)
c_Tarski_Ointerval(v_r, v_a, v_b, t_a) ≠ c_emptyset cnf(cls_conjecture$_5$, negated_conjecture)
¬ c_in(c_Pair(v_L, v_b, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_6$, negated_conjecture)

LAT273-2.p Problem about Tarski's fixed point theorem
(c_in(v_x, v_S, t_a) and c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a))) ⇒ c_in(c_Pair(v_x, v_b, t_a, t_a), v_r
(c_Tarski_OisLub(v_S, v_cl, v_L, t_a) and c_in(v_z, v_A, t_a)) ⇒ (c_in(c_Pair(v_L, v_z, t_a, t_a), v_r, tc_prod(t_a, t_a)) or c_in(v_s
(c_Tarski_OisLub(v_S, v_cl, v_L, t_a) and c_in(v_z, v_A, t_a) and c_in(c_Pair(v_sko__4mi(v_S, v_r, v_z), v_z, t_a, t_a), v_r, tc_prod(
c_in(c_Pair(v_L, v_z, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_Tarski_O_91_124_AisLub_AS1_Acl_AL1_59_Az1_A_58_AA_59_AA
c_in(v_b, v_A, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a)) cnf(cls_conjecture$_2$, negated_conjecture)
c_Tarski_OisLub(v_S, v_cl, v_L, t_a) cnf(cls_conjecture$_4$, negated_conjecture)
¬ c_in(c_Pair(v_L, v_b, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_6$, negated_conjecture)

LAT274-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-2.ax')
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
c_in(v_a, v_A, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_b, v_A, t_a) cnf(cls_conjecture$_1$, negated_conjecture)
c_lessequals(v_S, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), tc_set(t_a)) cnf(cls_conjecture$_2$, negated_conjecture)
v_S ≠ c_emptyset cnf(cls_conjecture$_3$, negated_conjecture)
c_Tarski_OisLub(v_S, v_cl, v_L, t_a) cnf(cls_conjecture$_4$, negated_conjecture)
c_Tarski_Ointerval(v_r, v_a, v_b, t_a) ≠ c_emptyset cnf(cls_conjecture$_5$, negated_conjecture)
¬ c_in(v_L, c_Tarski_Ointerval(v_r, v_a, v_b, t_a), t_a) cnf(cls_conjecture$_6$, negated_conjecture)

LAT275-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, v_A, tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
¬ c_in(c_Tarski_Olub(v_S, v_cl, t_a), c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a) cnf(cls_conjecture$_2$, n
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_lessequals(v_S, v_A, tc_set(t_a)) ⇒ c_in(c_Tarski_Olub(v_S, v_cl, t_a), v_A, t_a) cnf(cls_Tarski_OS_A_60_61_AA_A_61_61_6

LAT276-2.p Problem about Tarski's fixed point theorem
c_lessequals(v_S, v_A, tc_set(t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
(c_in(v_V, v_S, t_a) and c_in(c_Pair(v_xa, c_Tarski_Olub(v_S, v_cl, t_a), t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product_
c_in(c_Pair(v_V, v_xa, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_a, t_a)) cnf(cls_conj
c_in(v_xa, c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit), t_a) or c_in(v_xa, v_S, t_a) cnf(cls_conjecture$_3$, nega
c_in(c_Pair(c_Tarski_Olub(v_S, v_cl, t_a), v_xa, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t
c_in(v_xa, v_S, t_a) cnf(cls_conjecture$_4$, negated_conjecture)
c_in(c_Pair(c_Tarski_Olub(v_S, v_cl, t_a), v_xa, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t
¬ c_in(c_Pair(v_xa, c_Tarski_Olub(v_S, v_cl, t_a), t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod
c_in(v_U, v_S, t_a) ⇒ (c_in(c_Pair(v_U, v_xa, t_a, t_a), c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit), tc_prod(t_
(c_in(v_c, v_A, t_a) and c_lessequals(v_A, v_B, tc_set(t_a))) ⇒ c_in(v_c, v_B, t_a) cnf(cls_Set_OsubsetD$_0$, axiom)
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
(c_in(v_L, v_A, t_a) and c_lessequals(v_S, v_A, tc_set(t_a))) ⇒ (c_in(c_Pair(c_Tarski_Olub(v_S, v_cl, t_a), v_L, t_a, t_a), v_r, tc_p
(c_in(v_L, v_A, t_a) and c_in(c_Pair(v_sko__4mP(v_L, v_S, v_r), v_L, t_a, t_a), v_r, tc_prod(t_a, t_a)) and c_lessequals(v_S, v_A, tc
c_in(c_Pair(c_Tarski_Olub(v_S, v_cl, t_a), v_L, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_Tarski_O_91_124_AS1_A_60_61_AA_59
(c_in(v_x, v_S, t_a) and c_lessequals(v_S, v_A, tc_set(t_a))) ⇒ c_in(c_Pair(v_x, c_Tarski_Olub(v_S, v_cl, t_a), t_a, t_a), v_r, tc_pro

v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT277-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
(c_Relation_Orefl(v_A, v_r, t_a) and c_in(v_a, v_A, t_a)) ⇒ c_in(c_Pair(v_a, v_a, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_Rela
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Oant
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otra
(c_Relation_Oantisym(c_Tarski_Opotype_Oorder(v_P, t_a, tc_Product__Type_Ounit), t_a) and c_Relation_Orefl(c_Tarski_Opoty
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)
c_in(v_x, v_A, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
¬ c_in(c_Pair(v_x, v_x, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_1$, negated_conjecture)

LAT277-2.p Problem about Tarski's fixed point theorem
c_in(v_x, v_A, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
¬ c_in(c_Pair(v_x, v_x, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_1$, negated_conjecture)
(c_Relation_Orefl(v_A, v_r, t_a) and c_in(v_a, v_A, t_a)) ⇒ c_in(c_Pair(v_a, v_a, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_Rela
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT278-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Oant
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otra
(c_Relation_Oantisym(c_Tarski_Opotype_Oorder(v_P, t_a, tc_Product__Type_Ounit), t_a) and c_Relation_Orefl(c_Tarski_Opoty
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)
¬ c_Relation_Orefl(v_A, v_r, t_a) cnf(cls_conjecture$_0$, negated_conjecture)

LAT278-2.p Problem about Tarski's fixed point theorem
¬ c_Relation_Orefl(v_A, v_r, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT279-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Oant
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otra
(c_Relation_Oantisym(c_Tarski_Opotype_Oorder(v_P, t_a, tc_Product__Type_Ounit), t_a) and c_Relation_Orefl(c_Tarski_Opoty
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)
¬ c_Relation_Oantisym(v_r, t_a) cnf(cls_conjecture$_0$, negated_conjecture)

LAT279-2.p Problem about Tarski's fixed point theorem

¬ c_Relation_Oantisym(v_r, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Oanti
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT280-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Oanti
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otran
(c_Relation_Oantisym(c_Tarski_Opotype_Oorder(v_P, t_a, tc_Product__Type_Ounit), t_a) and c_Relation_Orefl(c_Tarski_Opoty
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)
¬ c_Relation_Otrans(v_r, t_a) cnf(cls_conjecture$_0$, negated_conjecture)

LAT280-2.p Problem about Tarski's fixed point theorem
¬ c_Relation_Otrans(v_r, t_a) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otran
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT281-1.p Problem about Tarski's fixed point theorem
include('Axioms/LAT006-0.ax')
include('Axioms/MSC001-1.ax')
include('Axioms/MSC001-0.ax')
(c_Relation_Otrans(v_r, t_a) and c_in(c_Pair(v_V, v_W, t_a, t_a), v_r, tc_prod(t_a, t_a)) and c_in(c_Pair(v_U, v_V, t_a, t_a), v_r, tc
c_in(c_Pair(v_U, v_W, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_Relation_Otrans__def$_0$, axiom)
c_Relation_Otrans(v_r, t_a) or c_in(c_Pair(c_Main_Otrans__def$_1$(v_r, t_a), c_Main_Otrans__def$_2$(v_r, t_a), t_a, t_a), v_r, tc_prod(
c_Relation_Otrans(v_r, t_a) or c_in(c_Pair(c_Main_Otrans__def$_2$(v_r, t_a), c_Main_Otrans__def$_3$(v_r, t_a), t_a, t_a), v_r, tc_prod(
c_in(c_Pair(c_Main_Otrans__def$_1$(v_r, t_a), c_Main_Otrans__def$_3$(v_r, t_a), t_a, t_a), v_r, tc_prod(t_a, t_a)) ⇒ c_Relation_Otran
v_A = c_Tarski_Opotype_Opset(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_OA_A_61_61_Apset_Acl$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Orefl
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Oanti
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otran
(c_Relation_Oantisym(c_Tarski_Opotype_Oorder(v_P, t_a, tc_Product__Type_Ounit), t_a) and c_Relation_Orefl(c_Tarski_Opoty
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)
c_in(c_Pair(v_a, v_b, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(c_Pair(v_b, v_c, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(c_Pair(v_a, v_c, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_2$, negated_conjecture)

LAT281-2.p Problem about Tarski's fixed point theorem
c_in(c_Pair(v_a, v_b, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_0$, negated_conjecture)
c_in(c_Pair(v_b, v_c, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_1$, negated_conjecture)
¬ c_in(c_Pair(v_a, v_c, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_conjecture$_2$, negated_conjecture)
(c_Relation_Otrans(v_r, t_a) and c_in(c_Pair(v_V, v_W, t_a, t_a), v_r, tc_prod(t_a, t_a)) and c_in(c_Pair(v_U, v_V, t_a, t_a), v_r, tc
c_in(c_Pair(v_U, v_W, t_a, t_a), v_r, tc_prod(t_a, t_a)) cnf(cls_Relation_Otrans__def$_0$, axiom)
c_in(v_P, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) ⇒ c_Relation_Otran
c_in(v_cl, c_Tarski_OPartialOrder, tc_Tarski_Opotype_Opotype__ext__type(t_a, tc_Product__Type_Ounit)) cnf(cls_Tarski_O
v_r = c_Tarski_Opotype_Oorder(v_cl, t_a, tc_Product__Type_Ounit) cnf(cls_Tarski_Or_A_61_61_Aorder_Acl$_0$, axiom)

LAT381+1.p Tarski-Knaster fixed point theorem 01, 00 expansion
$\forall w_0$: (aSet$_0$(w_0) ⇒ $true) fof(mSetSort, axiom)
$\forall w_0$: (aElement$_0$(w_0) ⇒ $true) fof(mElmSort, axiom)
$\forall w_0$: (aSet$_0$(w_0) ⇒ $\forall w_1$: (aElementOf$_0$(w_1, w_0) ⇒ aElement$_0$(w_1))) fof(mEOfElem, axiom)
$\forall w_0$: (aSet$_0$(w_0) ⇒ (isEmpty$_0$(w_0) ⟺ ¬ $\exists w_1$: aElementOf$_0$(w_1, w_0))) fof(mDefEmpty, definition)
$\forall w_0$: (aSet$_0$(w_0) ⇒ $\forall w_1$: (aSubsetOf$_0$(w_1, w_0) ⟺ (aSet$_0$(w_1) and $\forall w_2$: (aElementOf$_0$(w_2, w_1) ⇒ aElementOf$_0$(w_2, w_0))))

$\forall w_0, w_1$: ((aElement$_0(w_0)$ and aElement$_0(w_1)$) $\Rightarrow$ (sdtlseqdt$_0(w_0, w_1)$ $\Rightarrow$ \$true)) fof(mLessRel, axiom)
$\forall w_0$: (aElement$_0(w_0)$ $\Rightarrow$ sdtlseqdt$_0(w_0, w_0)$) fof(mARefl, axiom)
$\forall w_0, w_1$: ((aElement$_0(w_0)$ and aElement$_0(w_1)$) $\Rightarrow$ ((sdtlseqdt$_0(w_0, w_1)$ and sdtlseqdt$_0(w_1, w_0)$) $\Rightarrow$ $w_0 = w_1$)) fof(mASy
$\forall w_0, w_1, w_2$: ((aElement$_0(w_0)$ and aElement$_0(w_1)$ and aElement$_0(w_2)$) $\Rightarrow$ ((sdtlseqdt$_0(w_0, w_1)$ and sdtlseqdt$_0(w_1, w_2)$) $\Rightarrow$ sdtlseqdt$_0(w_0, w_2)$)) fof(mTrans, axiom)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aLowerBoundOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and $\forall w$ sdtlseqdt$_0(w_2, w_3)$))))) fof(mDefLB, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aUpperBoundOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and $\forall w$ sdtlseqdt$_0(w_3, w_2)$))))) fof(mDefUB, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aInfimumOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and aLower sdtlseqdt$_0(w_3, w_2)$))))) fof(mDefInf, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aSupremumOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and aUp sdtlseqdt$_0(w_2, w_3)$))))) fof(mDefSup, definition)
aSet$_0$(xT) fof(m$_{725}$, hypothesis)
aSubsetOf$_0$(xS, xT) fof(m__725$_{01}$, hypothesis)
aSupremumOfIn$_0$(xu, xS, xT) and aSupremumOfIn$_0$(xv, xS, xT) fof(m$_{744}$, hypothesis)
xu = xv fof(m__, conjecture)

LAT382+1.p Tarski-Knaster fixed point theorem 02, 00 expansion
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ \$true) fof(mSetSort, axiom)
$\forall w_0$: (aElement$_0(w_0)$ $\Rightarrow$ \$true) fof(mElmSort, axiom)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aElementOf$_0(w_1, w_0)$ $\Rightarrow$ aElement$_0(w_1)$)) fof(mEOfElem, axiom)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ (isEmpty$_0(w_0)$ $\iff$ $\neg\exists w_1$: aElementOf$_0(w_1, w_0)$)) fof(mDefEmpty, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\iff$ (aSet$_0(w_1)$ and $\forall w_2$: (aElementOf$_0(w_2, w_1)$ $\Rightarrow$ aElementOf$_0(w_2, w_0)$))))
$\forall w_0, w_1$: ((aElement$_0(w_0)$ and aElement$_0(w_1)$) $\Rightarrow$ (sdtlseqdt$_0(w_0, w_1)$ $\Rightarrow$ \$true)) fof(mLessRel, axiom)
$\forall w_0$: (aElement$_0(w_0)$ $\Rightarrow$ sdtlseqdt$_0(w_0, w_0)$) fof(mARefl, axiom)
$\forall w_0, w_1$: ((aElement$_0(w_0)$ and aElement$_0(w_1)$) $\Rightarrow$ ((sdtlseqdt$_0(w_0, w_1)$ and sdtlseqdt$_0(w_1, w_0)$) $\Rightarrow$ $w_0 = w_1$)) fof(mASy
$\forall w_0, w_1, w_2$: ((aElement$_0(w_0)$ and aElement$_0(w_1)$ and aElement$_0(w_2)$) $\Rightarrow$ ((sdtlseqdt$_0(w_0, w_1)$ and sdtlseqdt$_0(w_1, w_2)$) $\Rightarrow$ sdtlseqdt$_0(w_0, w_2)$)) fof(mTrans, axiom)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aLowerBoundOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and $\forall w$ sdtlseqdt$_0(w_2, w_3)$))))) fof(mDefLB, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aUpperBoundOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and $\forall w$ sdtlseqdt$_0(w_3, w_2)$))))) fof(mDefUB, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aInfimumOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and aLower sdtlseqdt$_0(w_3, w_2)$))))) fof(mDefInf, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2$: (aSupremumOfIn$_0(w_2, w_1, w_0)$ $\iff$ (aElementOf$_0(w_2, w_0)$ and aUp sdtlseqdt$_0(w_2, w_3)$))))) fof(mDefSup, definition)
$\forall w_0$: (aSet$_0(w_0)$ $\Rightarrow$ $\forall w_1$: (aSubsetOf$_0(w_1, w_0)$ $\Rightarrow$ $\forall w_2, w_3$: ((aSupremumOfIn$_0(w_2, w_1, w_0)$ and aSupremumOfIn$_0(w_3, w_1, w_0$ $w_2 = w_3$))) fof(mSupUn, axiom)
aSet$_0$(xT) fof(m$_{773}$, hypothesis)
aSubsetOf$_0$(xS, xT) fof(m__773$_{01}$, hypothesis)
aInfimumOfIn$_0$(xu, xS, xT) and aInfimumOfIn$_0$(xv, xS, xT) fof(m$_{792}$, hypothesis)
xu = xv fof(m__, conjecture)

LAT389-1.p Short axiom for lattice theory, part 1
$((a+b)\cdot(b+a\cdot b)+c)\cdot((a+((d+b)\cdot(b+e))\cdot b)\cdot((b+((d\cdot(b\cdot e)+f\cdot b)+b))\cdot(v_6+b\cdot((b\cdot v_7+f\cdot b)+b))+a\cdot(((d+b)\cdot(b+e))\cdot b))+((a+b)\cdot(b+a\cdot b))\cdot c)=b$ cnf(sos, axiom)
$a\cdot(b+(a+c))\neq a$ cnf(goals, negated_conjecture)

LAT390-1.p Short axiom for lattice theory, part 2
$((a+b)\cdot(b+a\cdot b)+c)\cdot((a+((d+b)\cdot(b+e))\cdot b)\cdot((b+((d\cdot(b\cdot e)+f\cdot b)+b))\cdot(v_6+b\cdot((b\cdot v_7+f\cdot b)+b))+a\cdot(((d+b)\cdot(b+e))\cdot b))+((a+b)\cdot(b+a\cdot b))\cdot c)=b$ cnf(sos, axiom)
$a+b\cdot(a\cdot c)\neq a$ cnf(goals, negated_conjecture)

LAT391-1.p Short axiom for lattice theory, part 3
$((a+b)\cdot(b+a\cdot b)+c)\cdot((a+((d+b)\cdot(b+e))\cdot b)\cdot((b+((d\cdot(b\cdot e)+f\cdot b)+b))\cdot(v_6+b\cdot((b\cdot v_7+f\cdot b)+b))+a\cdot(((d+b)\cdot(b+e))\cdot b))+((a+b)\cdot(b+a\cdot b))\cdot c)=b$ cnf(sos, axiom)
$((a+b)\cdot(b+c))\cdot b\neq b$ cnf(goals, negated_conjecture)

LAT392-1.p Short axiom for lattice theory, part 4
$((a+b)\cdot(b+a\cdot b)+c)\cdot((a+((d+b)\cdot(b+e))\cdot b)\cdot((b+((d\cdot(b\cdot e)+f\cdot b)+b))\cdot(v_6+b\cdot((b\cdot v_7+f\cdot b)+b))+a\cdot(((d+b)\cdot(b+e))\cdot b))+((a+b)\cdot(b+a\cdot b))\cdot c)=b$ cnf(sos, axiom)

$(a \cdot b + b \cdot c) + b \neq b \qquad \text{cnf(goals, negated\_conjecture)}$

LAT393-1.p Ortholattices in terms of Sheffer stroke + ops: associativity
$f(f(f(f(a,b),f(b,c)),d),f(b,f(f(b,f(f(a,a),a)),c))) = b \qquad \text{cnf(sos, axiom)}$
$\text{or}(a,b) = f(f(a,a),f(b,b)) \qquad \text{cnf}(\text{sos}_{001}, \text{axiom})$
$\text{and}(a,b) = f(f(a,b),f(a,b)) \qquad \text{cnf}(\text{sos}_{002}, \text{axiom})$
$\text{neg}(a) = f(a,a) \qquad \text{cnf}(\text{sos}_{003}, \text{axiom})$
$f(x_0,f(f(x_1,x_2),f(x_1,x_2))) \neq f(x_1,f(f(x_0,x_2),f(x_0,x_2))) \qquad \text{cnf(goals, negated\_conjecture)}$

LAT393-2.p Ortholattices in terms of Sheffer stroke: associativity
$f(f(f(f(a,b),f(b,c)),d),f(b,f(f(b,f(f(a,a),a)),c))) = b \qquad \text{cnf(sos, axiom)}$
$f(x_0,f(f(x_1,x_2),f(x_1,x_2))) \neq f(x_1,f(f(x_0,x_2),f(x_0,x_2))) \qquad \text{cnf(goals, negated\_conjecture)}$

LAT394-1.p Ortholattices in terms of Sheffer stroke + usual operations: unit
$f(f(f(f(a,b),f(b,c)),d),f(b,f(f(b,f(f(a,a),a)),c))) = b \qquad \text{cnf(sos, axiom)}$
$\text{or}(a,b) = f(f(a,a),f(b,b)) \qquad \text{cnf}(\text{sos}_{001}, \text{axiom})$
$\text{and}(a,b) = f(f(a,b),f(a,b)) \qquad \text{cnf}(\text{sos}_{002}, \text{axiom})$
$\text{neg}(a) = f(a,a) \qquad \text{cnf}(\text{sos}_{003}, \text{axiom})$
$f(x_0,f(x_0,x_0)) \neq f(x_1,f(x_1,x_1)) \qquad \text{cnf(goals, negated\_conjecture)}$

LAT394-2.p Ortholattices in terms of Sheffer stroke: unit
$f(f(f(f(a,b),f(b,c)),d),f(b,f(f(b,f(f(a,a),a)),c))) = b \qquad \text{cnf(sos, axiom)}$
$f(x_0,f(x_0,x_0)) \neq f(x_1,f(x_1,x_1)) \qquad \text{cnf(goals, negated\_conjecture)}$

LAT395-1.p Lattice theory (equality) axioms
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-1.ax')
include('Axioms/LAT001-2.ax')
include('Axioms/LAT001-3.ax')

LAT396-1.p Lattice theory (equality) axioms
include('Axioms/LAT001-0.ax')
include('Axioms/LAT001-4.ax')