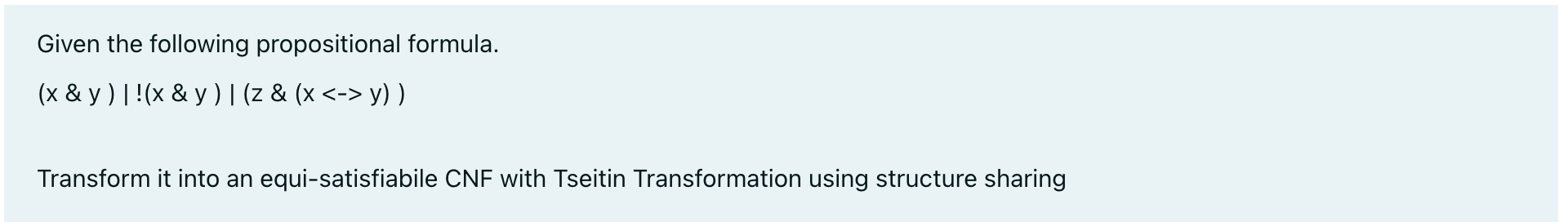


9 Model before unsatisfiable

(!c | d | b | !a) & (!b | d | !e | !a) & (b | c | e | !d) & (!b | a | !c | !d) & (!a | b | e | c) & (b | !d | c | a) & (e | !b | !c | !d) & (e | !c | d | !b) & (b | e | !c | !d) & (!d | a | !c | !b) & (!c | !b | d | e) & (!c | !e | !d | b) & (d | !a | e | b) & (e | !c | b | !a) & (!c | b | e | a) & (!c | d | !b | !e) & (c | !a | !d | !e) & (a | b | c | d | e) & (c | d | b | a | !e) & (c | d | b | !a | !e) & (c | d | !b | a | e) & (c | d | !b | a | !e) & (c | d | !b | !a | e) & (c | !d | !b | a | e) & (c | !d | !b | a | !e) & (c | !d | !b | !a | e) & (!c | d | b | a | !e) & (!c | !d | !b | !a | !e)



\*\*Original Formula:\*\* (x & y) | !(x & y) | (z & (x <-> y)) \*\*Tseitin Variable Definitions:\*\* t1 <-> (x /\ y) t2 <-> ~(x /\ y) t3 <-> (x <-> y) t4 <-> (z /\ t3) t5 <-> t1 \/ t2 \/ t4 \*\*Equi-satisfiable CNF Formula:\*\* (t5) /\ (~t1 \/ x) /\ (~t1 \/ y) /\ (~x \/ ~y \/ t1) /\ (~t2 \/ ~t1) /\ (t1 \/ t2) /\ (~t3 \/ ~x \/ y) /\ (~t3 \/ ~y \/ x) /\ (x \/ ~y \/ t3) /\ (y \/ ~x \/ t3) /\ (~t4 \/ z) /\ (~t4 \/ t3) /\ (~z \/ ~t3 \/ t4) /\ (~t5 \/ t1 \/ t2 \/ t4) /\ (~t1\/t5) /\ (~t2\/t5) /\ (~t4\/t5)

The Tseitin transformation introduces new variables (t1-t5) to represent subformulas. This allows us to convert the original formula into a Conjunctive Normal Form (CNF) where each clause is a disjunction of literals. The CNF formula is equi-satisfiable with the original formula, meaning that a satisfying assignment for the original formula can be extended to a satisfying assignment for the CNF, and vice-versa. The variable 't5' represents the truth value of the entire original expression. The formula is written using /\ for AND, \/ for OR, and ~ for NOT.