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from sympy.logic.boolalg import Or, And, Not
from sympy.abc import A, B, C, D, E, F
from sympy import simplify_logic

def is_entailment(kb, query):

    # Negate the query
    negated_query = Not(query)

    # Add negated query to the knowledge base
    kb_with_negated_query = And(*kb, negated_query)

    # Simplify the combined KB to CNF
    simplified_kb = simplify_logic(kb_with_negated_query, form="cnf")

    # If the simplified KB evaluates to False, the query is entailed
    return simplified_kb == False

# Define a larger Knowledge Base
kb = [
    Or(A, B),      #  $A \vee B$ 
    Or(Not(A), C), #  $\neg A \vee C$ 
    Or(Not(B), D), #  $\neg B \vee D$ 
    Or(Not(D), E), #  $\neg D \vee E$ 
    Or(Not(E), F), #  $\neg E \vee F$ 
    F              #  $F$ 
]

# Query to check
query = Or(C, F) #  $C \vee F$ 

# Check entailment
result = is_entailment(kb, query)
print(f"Is the query '{query}' entailed by the knowledge base? {'Yes' if result else 'No'}")

```

➦ Is the query ' $C \vee F$ ' entailed by the knowledge base? Yes