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5. When $m = 1$ φ only have 1 clause : C

because φ is frumious.

So there is a pure variable x in C

if x only positively set x = True

if x only negatively set x = False.

Then C is satisfied

φ is satisfiable

Set : For all $k \leq m$, any frumious CNF containing k clauses is satisfiable.

when $m \geq 2$

take any one of the clause C.

because φ frumious.

also a pure variable x in C.

if x only positively $x = True$

if x only negatively $x = False$.

every clause with x is satisfied now.

delete all these clauses.

so get the remaining formula. φ'

φ' also CNF and clauses' number is less than m

take any clause D of φ'

in φ before, D had a witness variable y

because φ is frumious.

So y only appears in one polarity

just delete the clause with x do not change y's polarity.

if D have x. it has already been deleted.

So D also have one polarity variable y.

φ' frumious

φ' is satisfiable, all deleted clauses are satisfied by x

the clauses in φ' are satisfied by y. So φ is satisfiable.