

$$P_{s_0}(n) := (\forall a_i, b_i, c \in \{T, F\}) \\ CLANS_0(a_n, \dots, a_0, b_n, \dots, b_0, c) = CRAS(a_n, \dots, a_0, b_n, \dots, b_0, c)$$

THM: $(\forall n > 0) P_{s_0}(n)$

Proof: We prove $(\forall n > 0) P_{s_0}(n)$ by showing that $CLANS_0$ simplifies to exactly the definition of $CRAS$ for all integers $n > 0$ and propositional variables a_i, b_i , and c .

- (1) $CLANS_0(a_n \dots a_0 b_n \dots b_0 c)$ Hypoth.
- (2) $CLAS_0(a_n b_n CLANS_0(a_{n-1} \dots a_0 b_{n-1} \dots b_0 c))$ By Def. 3.2
- (3) $CLAS_0(a_n b_n CRACO(a_{n-1} \dots a_0 b_{n-1} \dots b_0 c))$ Lemma 3.4.
- (4) $S(a_n b_n CRACO(a_{n-1} \dots a_0 b_{n-1} \dots b_0 c))$ Lemma 3.1
- (5) $CRAS(a_n \dots a_0 b_n \dots b_0 c)$ By Def. 2.2