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-- _____ PROOF _____
-- Length of proof is 19.Level of proof is 12 .
-- 1 [ ]  $\neg x \subseteq y \vee x \cup y = y$ 
-- 2 [ ]  $x \subseteq y \vee x \cup y \neq y$ 
-- 3 [ ]  $\neg c3 \text{oc} 2 \subseteq \bar{c}1 \vee \neg c3 \sim \text{oc} 1 \subseteq \bar{c}2$ 
-- 4 [ ]  $x \cup y = y \cup x$ 
-- 8 [ ]  $\overline{x \cup y} \cup \overline{x \cup y} = x$ 
-- 14,13 [ ]  $x \sim \sim = x$ 
-- 17 [ ]  $(x \text{oy}) \sim = y \sim \text{ox} \sim$ 
-- 19 [ ]  $x \sim \text{oy} \cup x \text{oz} \cup \bar{z} = \bar{z}$ 
-- 24,23 [ ]  $\iota \text{ox} = x$ 
-- 25 [ ]  $c3 \text{oc} 2 \subseteq \bar{c}1 \vee c3 \sim \text{oc} 1 \subseteq \bar{c}2$ 
-- 27 [ para_into,4.1.1,1.2.1,flip.1 ]  $x \cup y = x \vee \neg y \subseteq x$ 
-- 33 [ para_into,17.1.1.1,23.1.1,flip.1 ]  $x \sim \text{ol} \sim = x \sim$ 
-- 39,38 [ para_into,8.1.1.1.1,4.1.1 ]  $\overline{x \cup y} \cup \overline{y \cup x} = y$ 
-- 41 [ para_into,8.1.1.2.1,27.1.1 ]  $\overline{x \cup y} \cup \bar{x} = x \vee \neg y \subseteq \bar{x}$ 
-- 53 [ para_into,33.1.1.1,13.1.1,demod,14 ]  $x \text{ol} \sim = x$ 
-- 55 [ para_into,53.1.1,23.1.1 ]  $\iota \sim = \iota$ 

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-- 57 [ para_into,19.1.1.1.1,55.1.1,demod,24,24 ]  $\overline{\overline{x}} \cup y \cup \overline{y} = \overline{y}$ 
-- 77 [ hyper,25,27 ]  $c3 \sim oc1 \subseteq \overline{c2} \vee \overline{c1} \cup c3 oc2 = \overline{c1}$ 
-- 151 [ hyper,57,2 ]  $\overline{\overline{x}} \cup y \subseteq \overline{y}$ 
-- 163,162 [ para_into,57.1.1.1.1,4.1.1 ]  $\overline{\overline{x}} \cup \overline{y} \cup \overline{x} = \overline{x}$ 
-- 190 [ para_into,151.1.1.1,57.1.1 ]  $\overline{\overline{x}} \subseteq \overline{x}$ 
-- 202,201 [ hyper,41,190,demod,163 ]  $\overline{\overline{\overline{x}}} = \overline{x}$ 
-- 219,218 [ para_from,201.1.1,38.1.1.2.1.1,demod,202,39,flip.1 ]  $\overline{\overline{x}} = x$ 
-- 683 [ hyper,77,1 ]  $\overline{c1} \cup c3 oc2 = \overline{c1} \vee c3 \sim oc1 \cup \overline{c2} = \overline{c2}$ 
-- 8936 [ para_from,683.1.1,19.1.1.1.2.1,demod,219,factor_simp ]  $c3 \sim oc1 \cup \overline{c2} = \overline{c2}$ 
-- 8939 [ hyper,8936,2 ]  $c3 \sim oc1 \subseteq \overline{c2}$ 
-- 8941 [ para_into,8936.1.1,4.1.1 ]  $\overline{c2} \cup c3 \sim oc1 = \overline{c2}$ 
-- 8976 [ para_from,8941.1.1,19.1.1.1.2.1,demod,14,219 ]  $c3 oc2 \cup \overline{c1} = \overline{c1}$ 
-- 8981 [ hyper,8976,2 ]  $c3 oc2 \subseteq \overline{c1}$ 
-- 9023 [ hyper,8981,3,8939 ]  $\overline{F}$ 
-- ----- end of proof -----
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-- Search stopped by max_proofs option .
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-- = = = = = end of search = = = = =
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-- ----- statistics -----
-- clauses given 1110
-- clauses generated 175419
-- clauses kept 8343
-- clauses forward subsumed 59338
-- clauses back subsumed 767
-- Kbytes malloced 4119
--
-- ----- times ( seconds ) -----
-- user CPU time 14.87 ( 0 hr,0 min,14 sec )
-- system CPU time 0.0 ( 0 hr,0 min,0 sec )
-- wall - clock time 15 ( 0 hr,0 min,15 sec )
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