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-? :d
% debug is on
-? even(X).
  (1)  (\_0^_0 = 0); (\_1^(EX _1 = s(X), not(even(X))))(X) ?
  (2)  (\_0^_0 = 0)(X); (\_1^(EX _1 = s(X), not(even(X))))(X) ?
  (3)  (\_0^_0 = 0)(X) ?
  (4)  X = 0 ?
  (5)  true ?

Yes
X = 0
;
  (3)  (\_1^(EX _1 = s(X), not(even(X))))(X) ?
  (4)  (EV1 X = s(V1), not(even(V1))) ?
  (5)  X = s(V2), not(even(V2)) ?
  (6)  not(even(V2)) ?
  (7)  not( (\_0^_0 = 0); (\_1^(EX _1 = s(X), not(even(X))))(V2) ) ?
  (8)  not( (\_0^_0 = 0)(V2); (\_1^(EX _1 = s(X), not(even(X))))(V2) ) ?
  (9)  not( (\_0^_0 = 0)(V2) ),
        not( (\_1^(EX _1 = s(X), not(even(X))))(V2) ) ?
  (10) not(V2 = 0), not( (\_1^(EX _1 = s(X), not(even(X))))(V2) ) ?
  (11) not( (EV5 V2 = s(V5), not(even(V5))) ), not(V2 = 0) ?
  (12) not( (EV5 V2 = s(V5)) ); (EV5 V2 = s(V5), not(not(even(V5)))),
        not(V2 = 0) ?
  (13) not( (EV5 V2 = s(V5)) ), not(V2 = 0) ?

Yes
X = s(V2)
V2 /= s(*V5)
V2 /= 0
;
  (13) (EV5 V2 = s(V5), not(not(even(V5)))), not(V2 = 0) ?
  (14) V2 = s(V6), not(not(even(V6))), not(V2 = 0) ?
  (15) not(not(even(V6))), not(s(V6) = 0) ?
  (16) not(not((\_0^_0 = 0);
                (\_1^(EX _1 = s(X), not(even(X))))(V6))),
        not(s(V6) = 0) ?
  (17) not(not((\_0^_0 = 0)(V6);
                (\_1^(EX _1 = s(X), not(even(X))))(V6))),
        not(s(V6) = 0) ?
  (18) not(not((\_0^_0 = 0)(V6)),
        not((\_1^(EX _1 = s(X), not(even(X))))(V6))),
        not(s(V6) = 0) ?
  (19) not(not(V6 = 0), not((\_1^(EX _1 = s(X), not(even(X))))(V6))),
        not(s(V6) = 0) ?

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- (20)  $V6 = 0; \text{not}(\text{not}((\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V6))), \text{not}(s(V6) = 0) ?$
- (21)  $V6 = 0, \text{not}(s(V6) = 0) ?$
- (22)  $\text{not}(s(0) = 0) ?$
- (23)  $\text{true} ?$

Yes

$X = s(s(0))$

;

- (21)  $\text{not}(\text{not}((\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V6))), \text{not}(s(V6) = 0) ?$
- (22)  $\text{not}(\text{not}((EV9 \ V6 = s(V9), \text{not}(\text{even}(V9))))) , \text{not}(s(V6) = 0) ?$
- (23)  $\text{not}(\text{not}((EV9 \ V6 = s(V9)); (EV9 \ V6 = s(V9), \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(V6) = 0) ?$
- (24)  $\text{not}(\text{not}((EV9 \ V6 = s(V9))), \text{not}((EV9 \ V6 = s(V9), \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(V6) = 0) ?$
- (25)  $(EV9 \ V6 = s(V9)); \text{false}, \text{not}((EV9 \ V6 = s(V9), \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(V6) = 0) ?$
- (26)  $(EV9 \ V6 = s(V9)), \text{not}((EV9 \ V6 = s(V9), \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(V6) = 0) ?$
- (27)  $V6 = s(V10), \text{not}((EV9 \ V6 = s(V9), \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(V6) = 0) ?$
- (28)  $\text{not}((EV9 \ s(V10) = s(V9), \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(s(V10)) = 0) ?$
- (29)  $\text{not}((EV9 \ V10 = V9, \text{not}(\text{not}(\text{even}(V9))))) , \text{not}(s(s(V10)) = 0) ?$
- (30)  $\text{not}((EV9 \ \text{not}(\text{not}(\text{even}(V10))))) , \text{not}(s(s(V10)) = 0) ?$
- (31)  $\text{not}((EV9 \ \text{not}(\text{not}((\backslash\_0^{\_0} = 0); (\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V10))))) , \text{not}(s(s(V10)) = 0) ?$
- (32)  $\text{not}((EV9 \ \text{not}(\text{not}((\backslash\_0^{\_0} = 0)(V10); (\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V10))))) , \text{not}(s(s(V10)) = 0) ?$
- (33)  $\text{not}((EV9 \ \text{not}(\text{not}((\backslash\_0^{\_0} = 0)(V10)), \text{not}((\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V10))))) , \text{not}(s(s(V10)) = 0) ?$
- (34)  $\text{not}((EV9 \ \text{not}(\text{not}(V10 = 0), \text{not}((\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V10))))) , \text{not}(s(s(V10)) = 0) ?$
- (35)  $\text{not}((EV9 \ V10 = 0; \text{not}(\text{not}((\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V10))))) , \text{not}(s(s(V10)) = 0) ?$
- (36)  $\text{not}((EV9 \ V10 = 0)), \text{not}((EV9 \ \text{not}(\text{not}((\backslash\_1^{EX\_1 = s(X), \text{not}(\text{even}(X)))(V10))))) , \text{not}(s(s(V10)) = 0) ?$

- (37) not((EV9 not(not((EV13 V10 = s(V13), not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (38) not((EV9 not(not((EV13 V10 = s(V13)));  
(EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (39) not((EV9 not(not((EV13 V10 = s(V13))),  
not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (40) not((EV9 (EV13 V10 = s(V13)); false,  
not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (41) not((EV9 (EV13 V10 = s(V13)),  
not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 false, not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (42) not((EV9 V14 V10 = s(V14),  
not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 false, not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (43) not((EV14 V10 = s(V14)));  
(EV14 V10 = s(V14),  
not((EV9 not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 false, not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (44) not((EV14 V10 = s(V14))),  
not((EV9 false, not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (45) not((EV14 V10 = s(V14))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (46) not((EV9 V10 = 0)), not((EV14 V10 = s(V14))) ?

Yes

X = s(s(s(V10)))

V10 /= 0

V10 /= s(\*V14)

;

- (44) (EV14 V10 = s(V14),  
not((EV9 not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 false, not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (45) V10 = s(V15),  
not((EV9 not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 false, not((EV13 V10 = s(V13), not(not(even(V13))))))),  
not((EV9 V10 = 0)), not(s(s(V10)) = 0) ?
- (46) not((EV9 not((EV13 s(V15) = s(V13), not(not(even(V13))))))),  
not((EV9 false, not((EV13 s(V15) = s(V13), not(not(even(V13))))))),  
not((EV9 s(V15) = 0)), not(s(s(s(V15))) = 0) ?
- (47) not((EV9 not((EV13 V15 = V13, not(not(even(V13))))))),  
not((EV9 false, not((EV13 s(V15) = s(V13), not(not(even(V13))))))),  
not((EV9 s(V15) = 0)), not(s(s(s(V15))) = 0) ?
- (48) not((EV9 not((EV13 not(not(even(V15))))))),  
not((EV9 false, not((EV13 s(V15) = s(V13), not(not(even(V13))))))),  
not((EV9 s(V15) = 0)), not(s(s(s(V15))) = 0) ?

- (49)  $\text{not}((\text{EV9 } \text{not}((\text{EV13 } \text{not}(\text{not}(\backslash\_0^{\_0} = 0);$   
 $\quad \quad \quad (\backslash\_1^{\_1}(\text{EX\_1} = s(X), \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (50)  $\text{not}((\text{EV9 } \text{not}((\text{EV13 } \text{not}(\text{not}(\backslash\_0^{\_0} = 0)(V15);$   
 $\quad \quad \quad (\backslash\_1^{\_1}(\text{EX\_1} = s(X), \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (51)  $\text{not}((\text{EV9 } \text{not}((\text{EV13 } \text{not}(\text{not}(\backslash\_0^{\_0} = 0)(V15)),$   
 $\quad \quad \quad \text{not}(\backslash\_1^{\_1}(\text{EX\_1} = s(X), \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (52)  $\text{not}((\text{EV9 } \text{not}((\text{EV13 } \text{not}(\text{not}(V15 = 0),$   
 $\quad \quad \quad \text{not}(\backslash\_1^{\_1}(\text{EX\_1} = s(X), \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (53)  $\text{not}((\text{EV9 } \text{not}((\text{EV13 } V15 = 0;$   
 $\quad \quad \quad \text{not}(\text{not}(\backslash\_1^{\_1}(\text{EX\_1} = s(X), \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (54)  $\text{not}((\text{EV9 } \text{not}((\text{EV13 } V15 = 0)),$   
 $\quad \quad \quad \text{not}((\text{EV13 } \text{not}(\text{not}(\backslash\_1^{\_1}(\text{EX\_1} = s(X), \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (55)  $(\text{EV13 } V15 = 0);$   
 $\text{not}((\text{EV9 } \text{not}((\text{EV13 } \text{not}(\text{not}(\backslash\_1^{\_1}(\text{EX\_1} = s(X),$   
 $\quad \quad \quad \text{not}(\text{even}(X))))(V15))))))$ ,  
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (56)  $(\text{EV13 } V15 = 0),$   
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (57)  $V15 = 0,$   
 $\text{not}((\text{EV9 } \text{false}, \text{not}((\text{EV13 } s(V15) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(V15) = 0)), \text{not}(s(s(s(V15))) = 0) ?$
- (58)  $\text{not}((\text{EV9 } \text{false},$   
 $\quad \quad \quad \text{not}((\text{EV13 } s(0) = s(V13), \text{not}(\text{not}(\text{even}(V13))))))$ ,  
 $\text{not}((\text{EV9 } s(0) = 0)), \text{not}(s(s(s(0))) = 0) ?$
- (59)  $\text{not}((\text{EV9 } s(0) = 0)), \text{not}(s(s(s(0))) = 0) ?$
- (60)  $\text{not}(s(s(s(0))) = 0) ?$
- (61)  $\text{true} ?$

Yes

 $X = s(s(s(s(0))))$