

HUPYY TEMPORAL - SMT-LIB VERIFICATION REPORT

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Query ID: query_1762287596

Status: SAT

Execution Time: 75 ms

1. PROBLEM STATEMENT

Did E-6112 meet the '2FA within 10 minutes before badge scan' requirement for the 21:05 entry to Room B2?

The additional necessary data is in /Users/alexanderfedin/Projects/hapyy/cofounder/hupyy-temporal/data/free-form/adhoc/policy-pack/ dir

2. GENERATED SMT-LIB CODE

Logic: QF_LIA

```
(set-logic QF_LIA)
(set-option :produce-models true)
(set-option :produce-unsat-cores true)

(declare-const exists_E6112 Bool)
(declare-const clearance_E6112 Int)
(declare-const badge_scan_E6112_B2_2105 Bool)
(declare-const twofa_E6112_2055_to_2105 Bool)
(declare-const room_B2_in_building5 Bool)
(declare-const room_B2_is_classified Bool)
(declare-const oncall_E6112_for_date Bool)
(declare-const meets_2fa_requirement Bool)

(assert (and (>= clearance_E6112 0) (<= clearance_E6112 2)))

(assert (=> (not exists_E6112)
              (and (not badge_scan_E6112_B2_2105)
                   (not twofa_E6112_2055_to_2105)
                   (= clearance_E6112 0)))))

(assert (=> badge_scan_E6112_B2_2105 exists_E6112))

(assert (=> twofa_E6112_2055_to_2105 exists_E6112))

(assert (= meets_2fa_requirement
           (=> badge_scan_E6112_B2_2105 twofa_E6112_2055_to_2105)))

(assert meets_2fa_requirement)

(check-sat)
(get-model)
```

3. VERIFICATION RESULTS

Status: SAT

Wall Time: 75 ms

Model (Satisfying Assignment):

```
sat
(
(define-fun exists_E6112 () Bool true)
(define-fun clearance_E6112 () Int 0)
```

```
(define-fun badge_scan_E6112_B2_2105 () Bool false)
(define-fun twofa_E6112_2055_to_2105 () Bool true)
(define-fun room_B2_in_building5 () Bool false)
(define-fun room_B2_is_classified () Bool false)
(define-fun oncall_E6112_for_date () Bool false)
(define-fun meets_2fa_requirement () Bool true)
)
```

4. HUMAN-READABLE EXPLANATION

Based on the SMT solver results and the policy requirements, here's the explanation:

5. TECHNICAL DETAILS (APPENDIX)

cvc5 Standard Output:

```
sat
(
(define-fun exists_E6112 () Bool true)
(define-fun clearance_E6112 () Int 0)
(define-fun badge_scan_E6112_B2_2105 () Bool false)
(define-fun twofa_E6112_2055_to_2105 () Bool true)
(define-fun room_B2_in_building5 () Bool false)
(define-fun room_B2_is_classified () Bool false)
(define-fun oncall_E6112_for_date () Bool false)
(define-fun meets_2fa_requirement () Bool true)
)
```

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