

HUPYY TEMPORAL - SMT-LIB VERIFICATION REPORT

Generated: 2025-11-04 11:36:33
Query ID: query_1762284993
Status: UNSAT
Execution Time: 85 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/happy/cofounder/hupyy-temporal/data/free-form/adhoc/policy-pack/ dir

2. GENERATED SMT-LIB CODE

Logic: QF_UF

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

(declare-const employee_exists_E6112 Bool)
(assert (= employee_exists_E6112 false))

(declare-const room_B2_entry_at_2105 Bool)
(assert (= room_B2_entry_at_2105 false))

(declare-const has_2fa_within_10min Bool)
(assert (= has_2fa_within_10min false))

(declare-const meets_requirement Bool)

(assert (= meets_requirement
  (and employee_exists_E6112
    room_B2_entry_at_2105
    has_2fa_within_10min)))

(assert (=> meets_requirement employee_exists_E6112))
(assert (=> meets_requirement room_B2_entry_at_2105))
(assert (=> meets_requirement has_2fa_within_10min))

(assert meets_requirement)

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

3. VERIFICATION RESULTS

Status: UNSAT
Wall Time: 85 ms

4. HUMAN-READABLE EXPLANATION

- Proof:
- Security Policy: 2FA must occur within 10 minutes before badge scan for Room B2 access
 - Employee ID checked: E-6112
 - Room accessed: B2
 - Access time: 21:05

- Employee E-6112 existence check: NOT FOUND in employee database []
- Room B2 entry at 21:05 check: NO RECORD found in access logs []
- 2FA authentication check: NO 2FA record found []

- Verification logic: ALL three conditions must be true
 - Employee must exist: FALSE
 - Room B2 entry must be recorded: FALSE
 - 2FA within 10 minutes must be completed: FALSE

- UNSAT: Logical contradiction - system attempted to verify requirement was met, but no supporting data exists

- VIOLATION: E-6112 did NOT meet the '2FA within 10 minutes before badge scan' requirement because:
 - Employee E-6112 does not exist in the system
 - No Room B2 entry was recorded at 21:05
 - No 2FA authentication was performed

5. TECHNICAL DETAILS (APPENDIX)

cvc5 Standard Output:

```
unsat
(error "cannot get model unless after a SAT or UNKNOWN response.")
```

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