

Information Brochure of the Design and Testing System YEROTH_QVGE (YR_QVGE)

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Table 1: EQUIVALENCES

scientific literature	engineering acronym
PRE	BEFORE
POST	AFTER
A TRACE	AN EVENT LOG
A FINAL STATE	AN ERROR STATE

Figure 1: A SAMPLE state diagram mealy machine file.

```

1. yr_sd_mealy_automaton_spec yr_missing_department_NO_DELETE
2. {
3.   START_STATE(d) : NOT_IN_BEFORE(YR_ASSET, department.department_name)
4.   -> [in_sql_event_log('DELETE.departement.YR_ASSET', STATE(d))] / 'SELECT.department' ->
5.     ERROR_STATE(e) : IN_AFTER(YR_ASSET, stocks.department_name).
6. }

```

Figure 2: A SCREENSHOT OF YEROTH_QVGE.

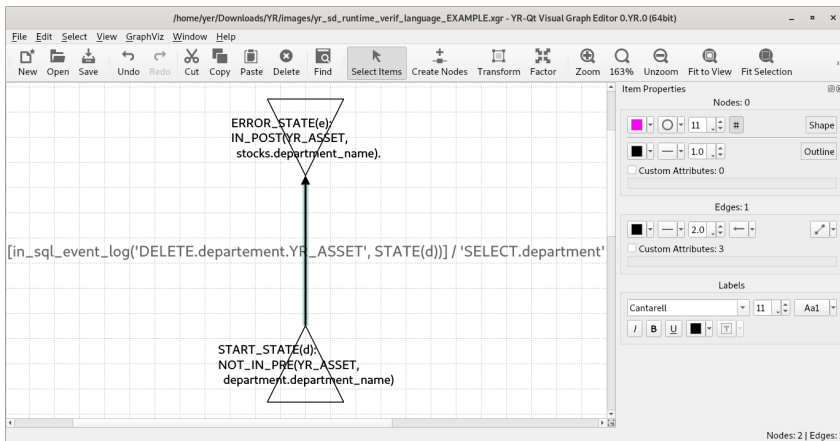


Figure 3: A SCREENSHOT OF YR-DB-RUNTIME-VERIF SQL EVENT LOG.

timestamp	statement	source	target	changed qty
09:15:04:047	'SELECT.departements_products'	SUT	YR-DB-RUNTIME-VERIF	1
09:15:05:022	'DELETE.departements_products.YR_ASSET'	SUT	YR-DB-RUNTIME-VERIF	1
09:15:05:040	'DELETE.marchandises.YR_ASSET'	SUT	YR-DB-RUNTIME-VERIF	1
09:15:05:051	'SELECT.departements_products'	SUT	YR-DB-RUNTIME-VERIF	1
09:15:05:646	'SELECT.departements_products'	SUT	YR-DB-RUNTIME-VERIF	1
09:15:05:659	'SELECT.departements_products'	SUT	YR-DB-RUNTIME-VERIF	1

pre-condition on source state	post-condition on target state
not_in_before(YR_ASSET, departements_products.nom_departement_product) in_after(YR_ASSET, stocks.nom_departement_product)	

evaluated guarded condition expression	value
in_sql_event_log('DELETE.departements_products.YR_ASSET', STATE(d))	True

runtime module name	previous state	accepting state	is error state	is recovered
time_verify_language_EXAMPLE_realcase	d	e	True	

YR-DB-RUNTIME-VERIF: this console registered to system d-bus as service: 'yr-db-runtime-verify'.

1 Developer Biography



Figure 4: Portrait of XAVIER.

XAVIER NOUMBISSI NOUNDOU, DIPL.-INF., PH.D., P. ENG. is a CHRISTIAN BY FAITH, Cameroonian, born on September 16 1983 in DOUALA (LITTORAL region, CAMEROON). Xavier has a "Diplom-Informatiker (Dipl.-Inf.)" qualification from the **University of Bremen, Bremen, GERMANY** (May 25, 2007). XAVIER NOUMBISSI NOUNDOU IS A **PHILOSOPHIAE DOCTOR (PH.D.)** from **THE UNIVERSITY OF WATERLOO (ON, CANADA); DECEMBER 20, 2011 !** Xavier has following academic research and professional engineering contributions:

1. 'Context-Sensitive Staged Static Taint Analysis For C using LLVM'

1. source code in C++:
<https://github.com/sazzad114/saint>
2. full text: <https://zenodo.org/record/8051293>

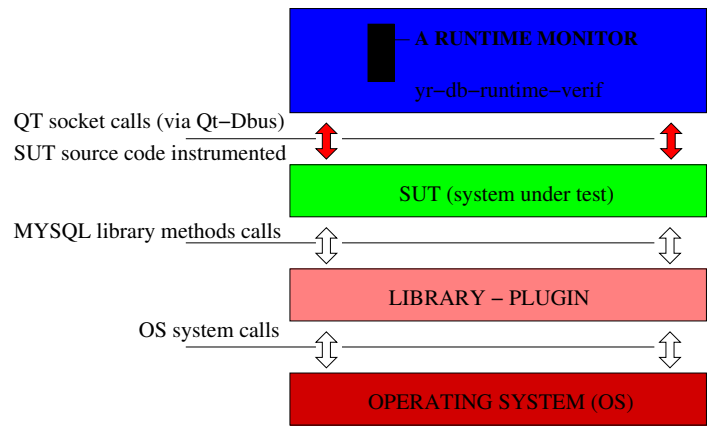
2. 'YEROTH-ERP-3.0':

1. source code in C++:
 - a. YEROTH-ERP-3.0:
https://drive.google.com/file/d/1-JJke20aa_fuIj3twWsBkj3-KRxgZL4q/view?usp=share_link
 - b. YEROTH-ERP-3.0 SYSTEM DAEMON:
https://drive.google.com/file/d/1ikn5_1KvWPkFD0VxA8eGvk-kuI08L-_T/view?usp=share_link

2. full text (ongoing publication):
<https://zenodo.org/record/8052724>

2 Introduction

Figure 5: SOFTWARE ARCHITECTURE OF YR-DB-RUNTIME-VERIF.



YEROTH_QVGE is a CASE (Computer-Aided Software Engineering) design tool to generate "domain-specific language (DSL) YR_SB_RUNTIME_VERIF_LANG ¹" files, to be inputted into the "compiler YR_SB_RUNTIME_VERIF_LANG_COMP ", so to generate C++ files for the "runtime verifier tester YR-DB-RUNTIME-VERIF ²" that allows for manual verification of SQL correctness properties of Graphical User Interface (GUI) software.

YR-DB-RUNTIME-VERIF inputs SQL correctness properties expressed using the formalism "state diagram mealy machine (YR_SD_RUNTIME_VERIF)". The Free Open Source Code Software (FOSS) tool-chain of development testing is located as follows for free, EXCEPT for "YEROTH_QVGE " that is a Closed Source Code Software (CSCS):

- COMPILER YR_SB_RUNTIME_VERIF_LANG_COMP (i.e.: YR_SB_RUNTIME_VERIF_LANG):
https://github.com/yerothd/yr_sd_runtime_verif_lang
- RUNTIME VERIFIER TESTER YR-DB-RUNTIME-VERIF:
<https://github.com/yerothd/yr-db-runtime-verif>
- state diagram mealy machine UNIT TESTS CODE (i.e.: YR_SD_RUNTIME_VERIF):
https://github.com/yerothd/yr_sd_runtime_verif_UNIT_TESTS
- state diagram mealy machine (i.e.: YR_SD_RUNTIME_VERIF):
https://github.com/yerothd/yr_sd_runtime_verif

3 Advantages of YEROTH_QVGE

A sample state diagram mealy machine is shown in Figure 1.

WITH manual drawing of SQL CORRECTNESS PROPERTY MODEL, you are freed from manually writing "state diagram mealy machine text files" that could be tedious and lengthy. Also, editing state diagram mealy machine files manually could be more error-prone than letting a compiler (YR_SB_RUNTIME_VERIF_LANG_COMP) do it for you.

4 Conclusion

YEROTH_QVGE costs only 3,000 EUROS. WE ONLY SUPPORT **DEBIAN-LINUX** (<https://www.debian.org>).

¹https://github.com/yerothd/yr_sd_runtime_verif_lang

²<https://github.com/yerothd/yr-db-runtime-verif>