Ortac/QCheck-STM 0.1, Gospel 0.2

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October 20, 2023
Outline

Ortac/QCheck-STM 0.1

Gospel 0.2

Future work
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Gospel 0.2

Future work
QCheck-STM is a model-based testing framework that builds upon QCheck. According to a library description, it generates random programs using the functionalities of this library and runs them, records the results at each step of the run, and compares these results with the behaviour of a given pure (functional) model.
The library description contains mostly:

- a cmd type encoding the tested functions with their types
- how to instantiate the type we are testing (called sut)
- a state type (the model)
- a next_state function
- predicates for pre- and post-conditions
Towards a Gospel to QCheck–STM translation

The general context is to aim for a unified push-button experience for testing frameworks in the property based testing family (Crowbar, QCheck, QCheck–STM…). Specify once (with Gospel) and have property based testing — with or without fuzzing — and model-based testing for free!
Naomi Spargo build a Proof of Concept
The general idea is to build on Gospel’s models to implement the state type and on postconditions for the next_state function.
ortac the release

- reorganisation of ortac with a plugin architecture
  - less dependencies
  - fine-grain release
  - ortac-core package exposes an (use-)independant ocaml-of-gospel translation
- complete rewrite of Naomi’s PoC
Demo
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Future work
A new gospel.ppx

- Build documentation attributes based on the contents of the gospel ones
- For instance: https://ocaml-gospel.github.io/gospel/gospel/Gospelstdlib/index.html
- One can also generate and install locally manpages for Gospelstdlib.
Other news in Gospel 0.2

- Pattern matching exhaustiveness and redundancy analysis (thanks to Paul Patault)
- Bugfixes and performance improvements of the pps
- A new dumpast subcommand
- Partial application allowed in Gospel terms
- Tuple destruction in anonymous functions
- Better location tracking and error messages
- Updated documentation (with typechecking of Gospel extracts)
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Future work
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• battle test and improve the qcheck-stm plugin
• dune support for Gospel