FuzzChick

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FuzzChick is an experiment to improve QuickChick using ideas from fuzzing, such as AFL.

We'll come back to this...

QuickChick: A Brief Review

QuickChick is a properties based testing framework for Coq.

- You build (or derive) generators for data types.
- Using those generators you can feed data into test cases.
- These test cases can be any arbitrary predicate.

QuickChick: Pros and Cons

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What's not so great about QuickChick?

- Getting *good* generators can be hard!

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In general you want good coverage. How can you achieve that with minimal work?

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Why is this good?

FuzzChick Intuition

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Maybe we can utilize AFL's smarts to achieve better test coverage.

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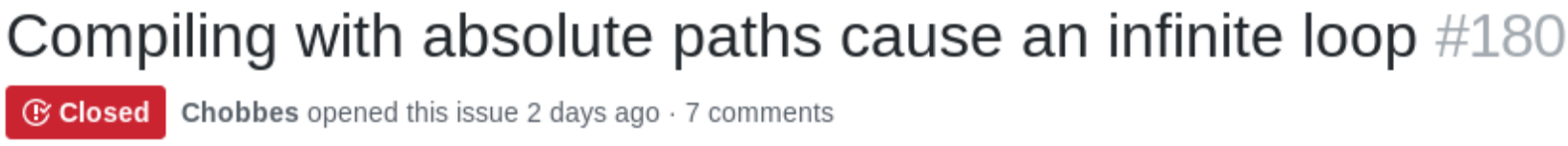

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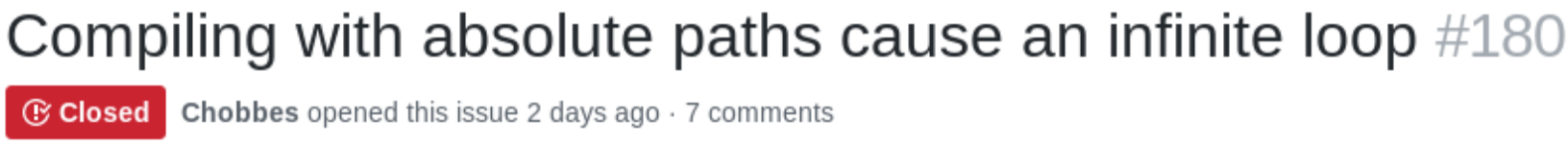

Maintainer fixed this issue promptly, which was *awesome*!

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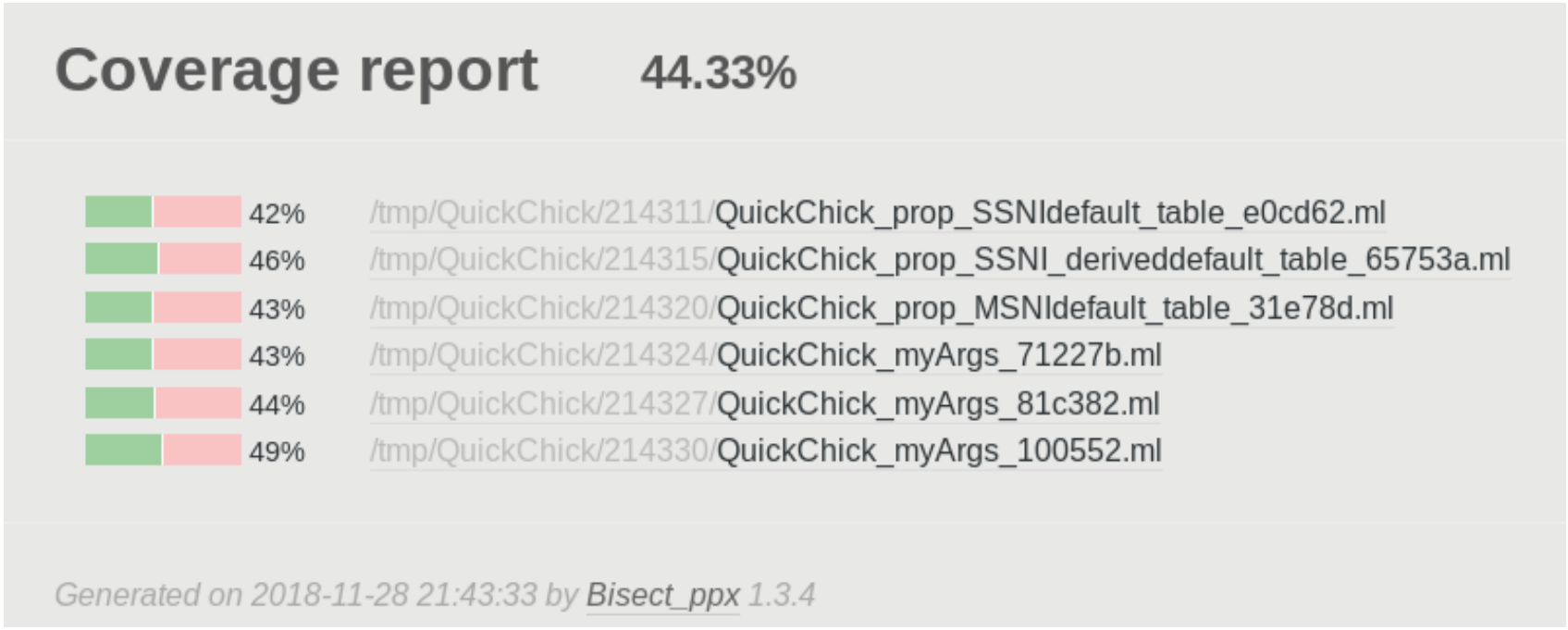
It works! We can measure stuff!

QuickChick Coverage: ifc-basic

Coverage with QuickChick in the ifc-basic example:



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- Plain AFL!
  - Similar story to Honggfuzz.

Conclusion! Questions?

Whew! Questions?

References

LEONIDAS LAMPROPOULOS,
ZOE PARASKEVOPOULOU, and BENJAMIN C PIERCE.
"Generating Good Generators for Inductive Relations". In: ().

These are all good resources! You should look at them!