

(R)AReQS, (C)QESTO, QFUN

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- Original ideas in an algorithm for **propositional circumscription** [Janota et al., 2010]
- Abstraction Refinement QBF Solver — **AReQS** for 2QBF [Janota and Marques-Silva, 2011]
- Recursive Abstraction Refinement QBF Solver — **RAReQS** for QBF [Janota et al., 2012]

(R)AReQS Implementations

- RAReQS: CNF, '11, hasn't changed since
- RAReQS-NN: non-prenex, non-CNF, implemented before QCIR
- ARReQS: 2-QBF, non-cnf

- Maintain SAT formula for each quantification level, gradually strengthen
- Extended to SMT [Bjørner and Janota, 2015]
- See talk on Tuesday for CQESTO [Janota, 2018]

- Based on RAReQS, uses Machine Learning to come up with short strategies
- Winner of last year's non-CNF track
- AAI [Janota, 2018]



Bjørner, N. and Janota, M. (2015).

Playing with quantified satisfaction.

In *LPAR*.



Janota, M. (2018).

Circuit-based search space pruning in QBF.

In *Theory and Applications of Satisfiability Testing - SAT*, pages 187–198.



Janota, M., Grigore, R., and Marques-Silva, J. (2010).

Counterexample guided abstraction refinement algorithm for propositional circumscription.

In *Proceeding of the 12th European Conference on Logics in Artificial Intelligence (JELIA 10)*. Springer-Verlag.



Janota, M., Klieber, W., Marques-Silva, J., and Clarke, E. (2012).

Solving QBF with counterexample guided refinement.

In *Theory and Applications of Satisfiability Testing (SAT)*,
pages 114–128.



Janota, M. and Marques-Silva, J. (2011).

Abstraction-based algorithm for 2QBF.

In *Theory and Applications of Satisfiability Testing (SAT)*,
pages 230–244.