



FAKULTÄT
FÜR INFORMATIK

Faculty of Informatics



Empirical Software Metrics for Benchmarking of Verification Tools

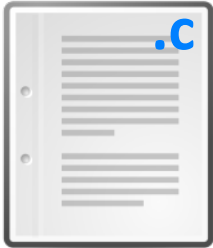
Yulia Demyanova, **Thomas Pani**,
Helmut Veith, Florian Zuleger

TU Wien

FMCAD'17 Student Forum · October 3, 2017

Fully-automated Software Verification

Input



Property φ

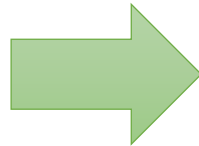
Output

Fully-automated Software Verification

Input

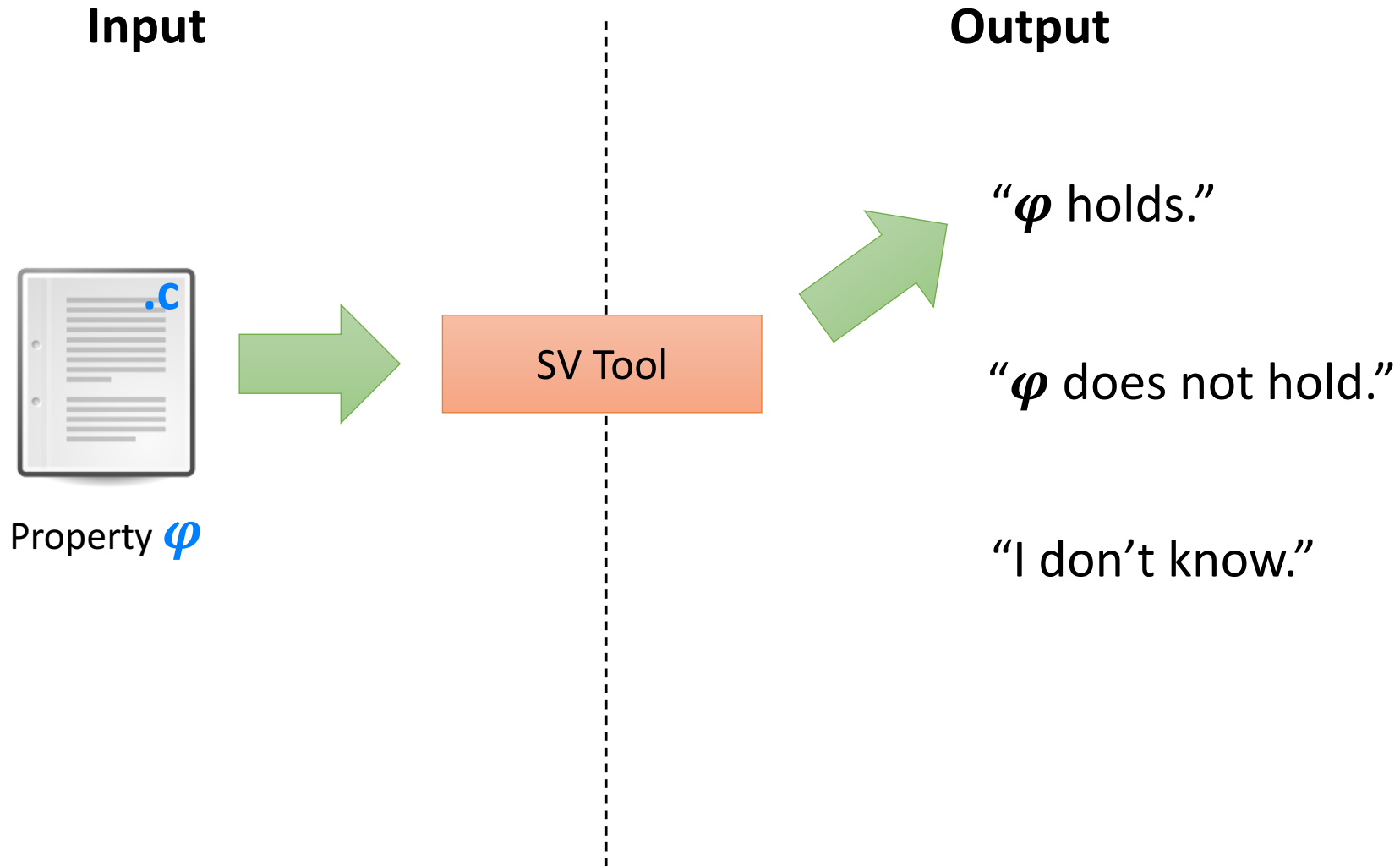


Property φ

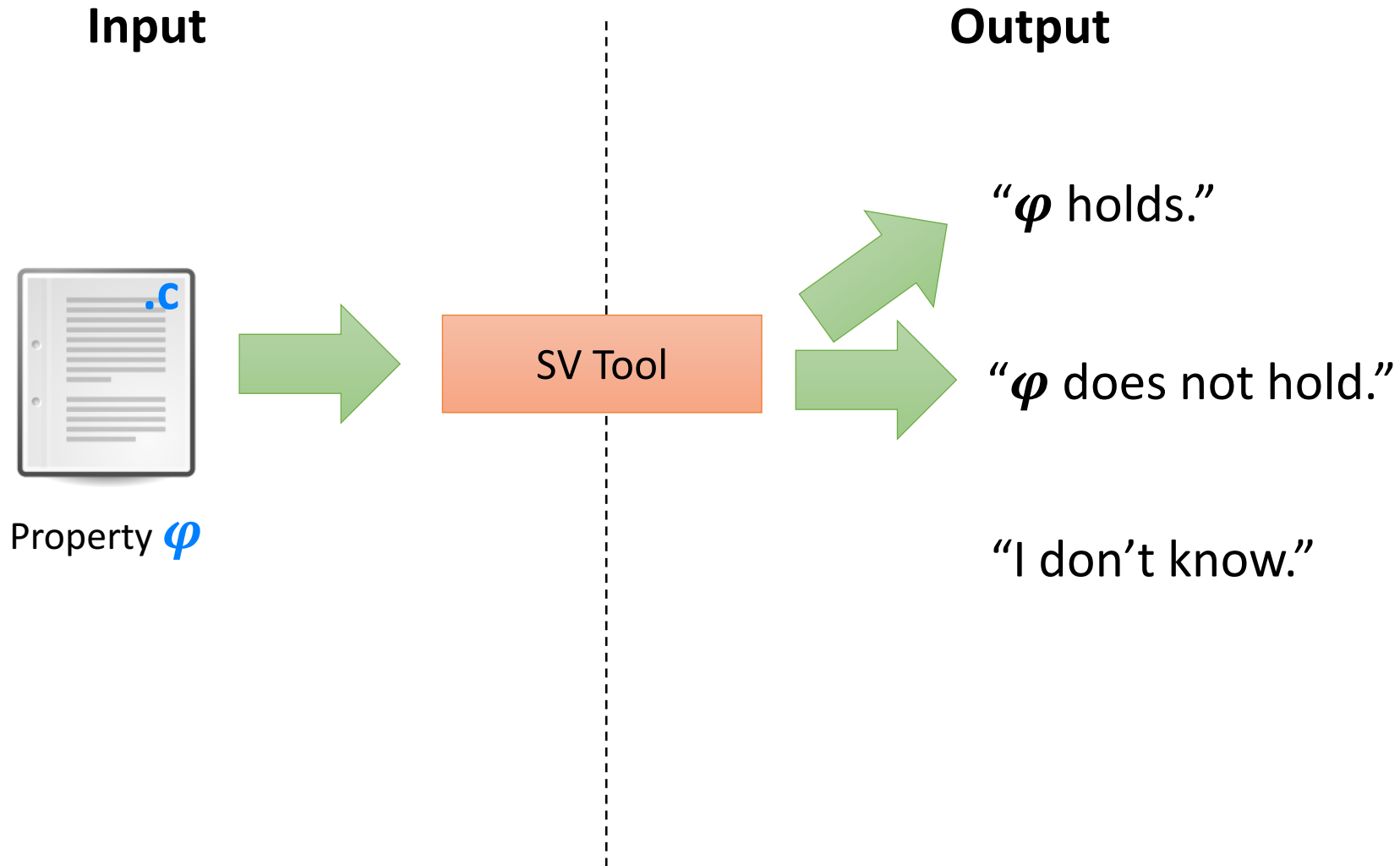


Output

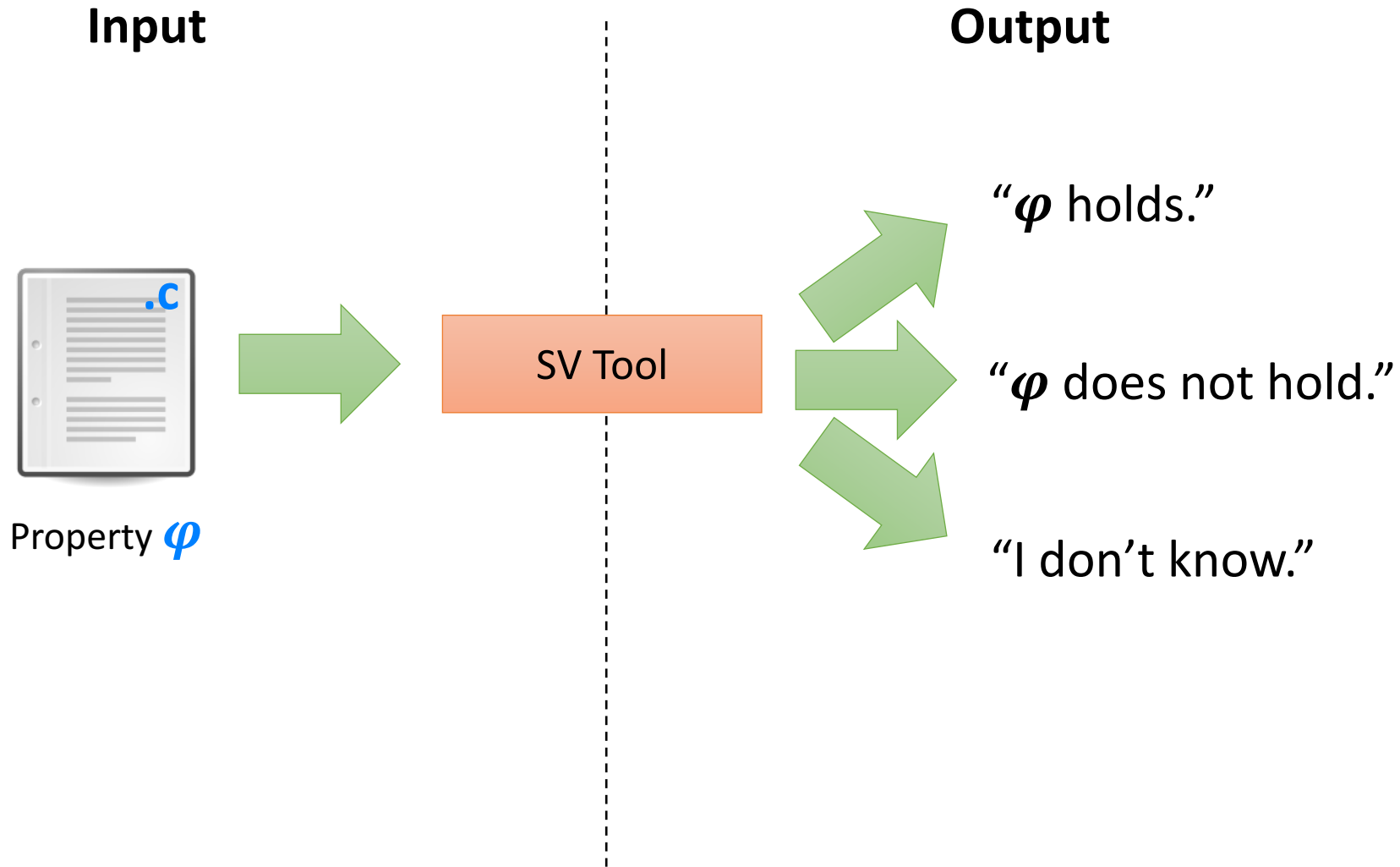
Fully-automated Software Verification



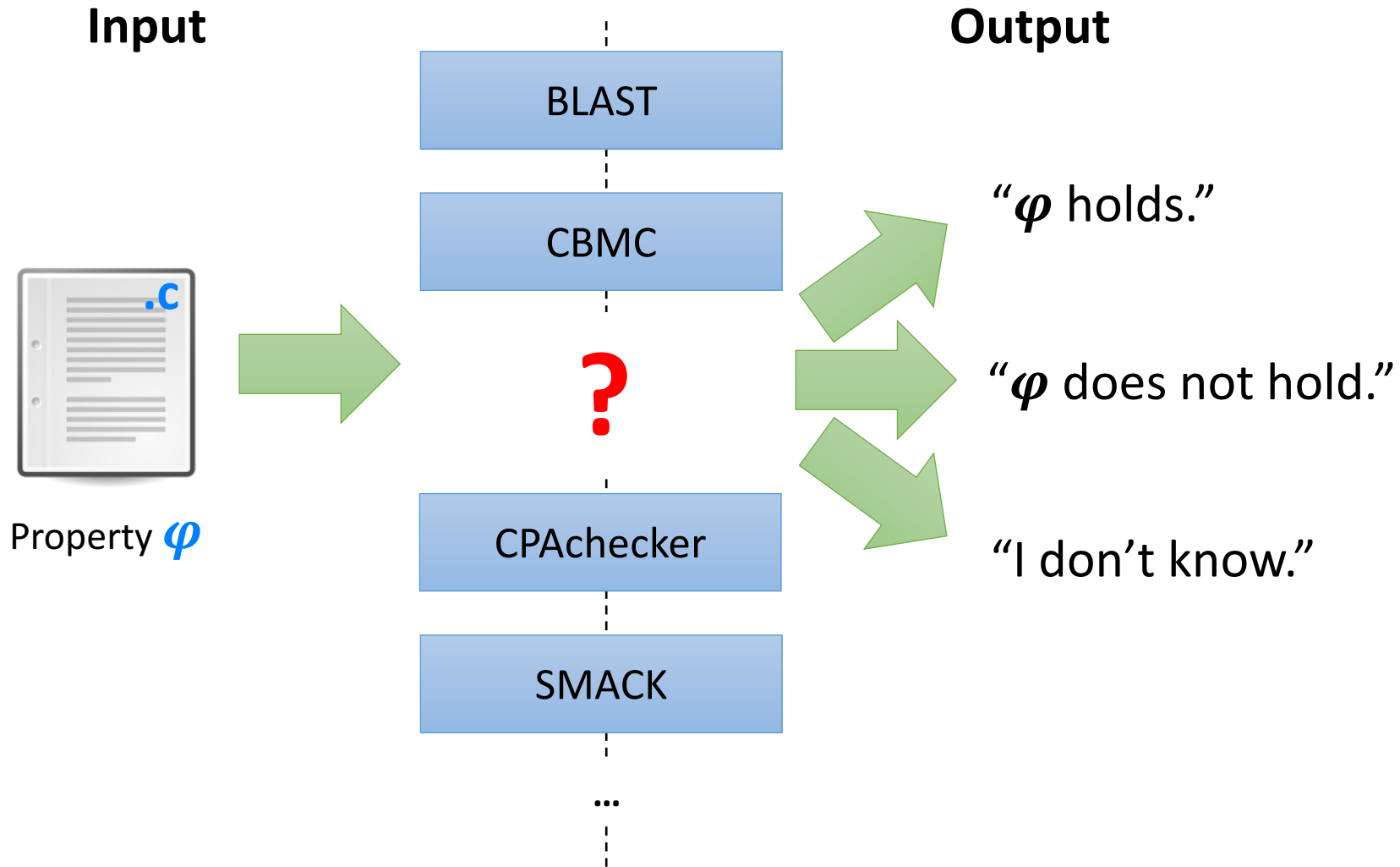
Fully-automated Software Verification



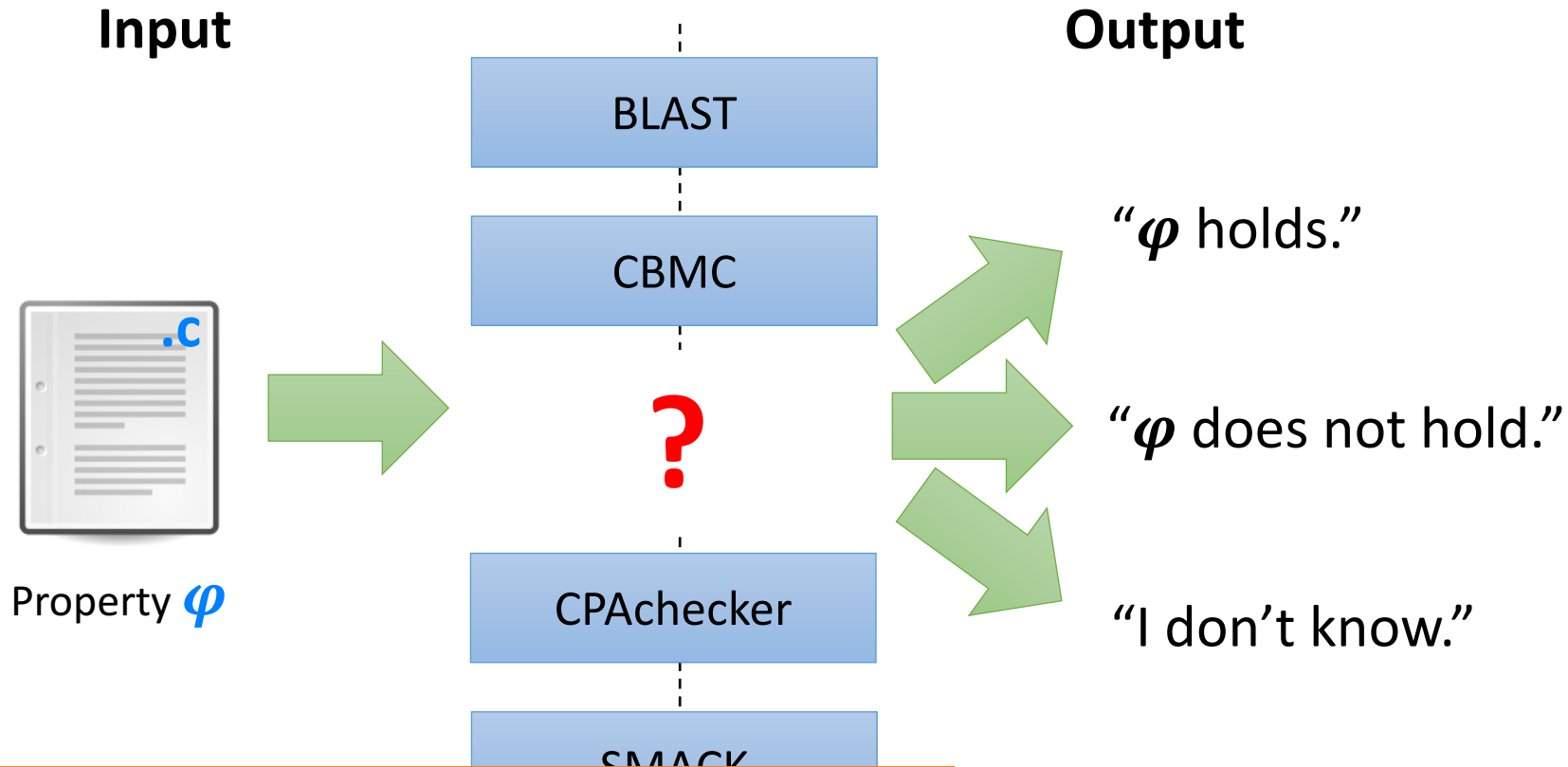
Fully-automated Software Verification



Picking a verification tool



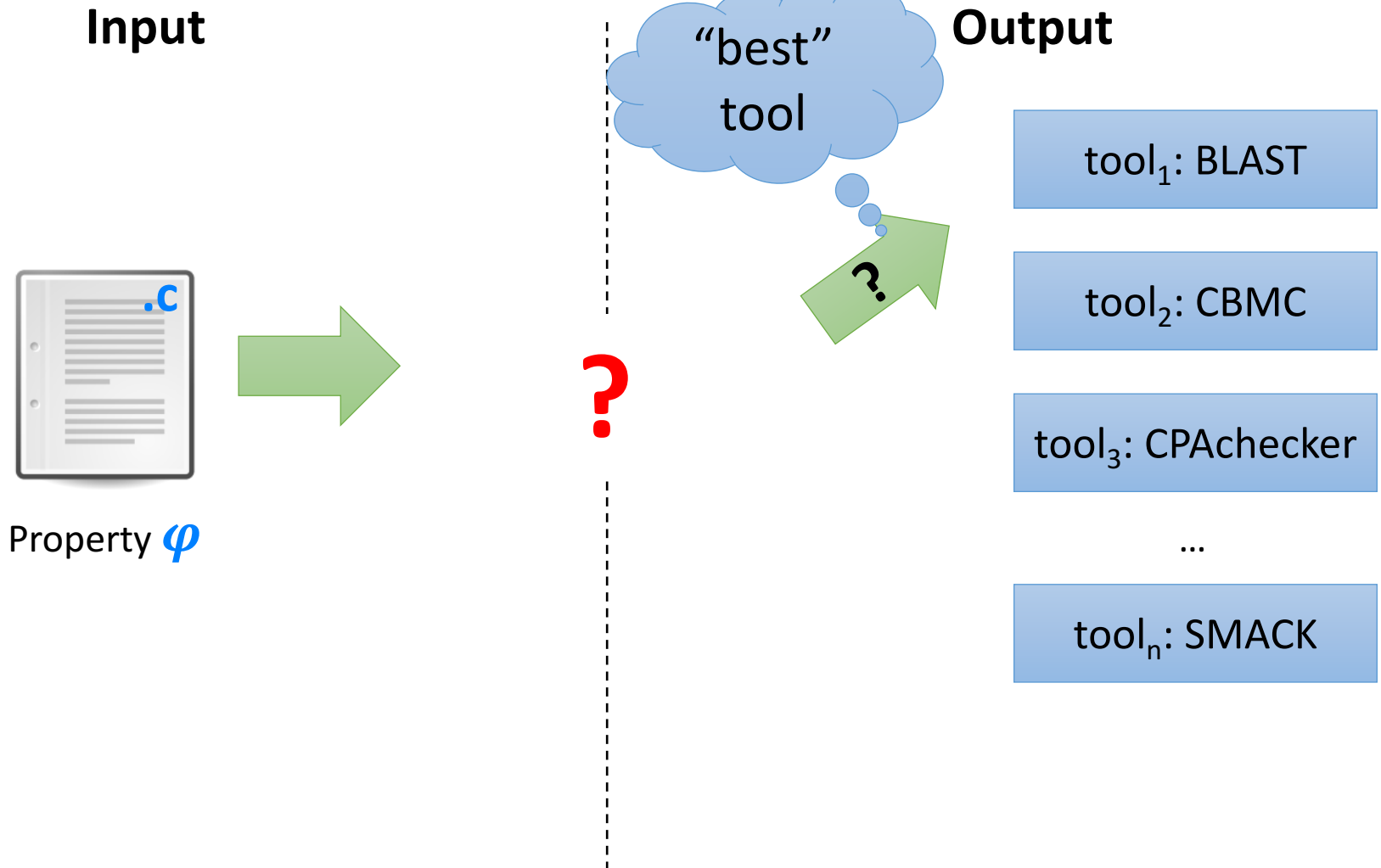
Picking a verification tool



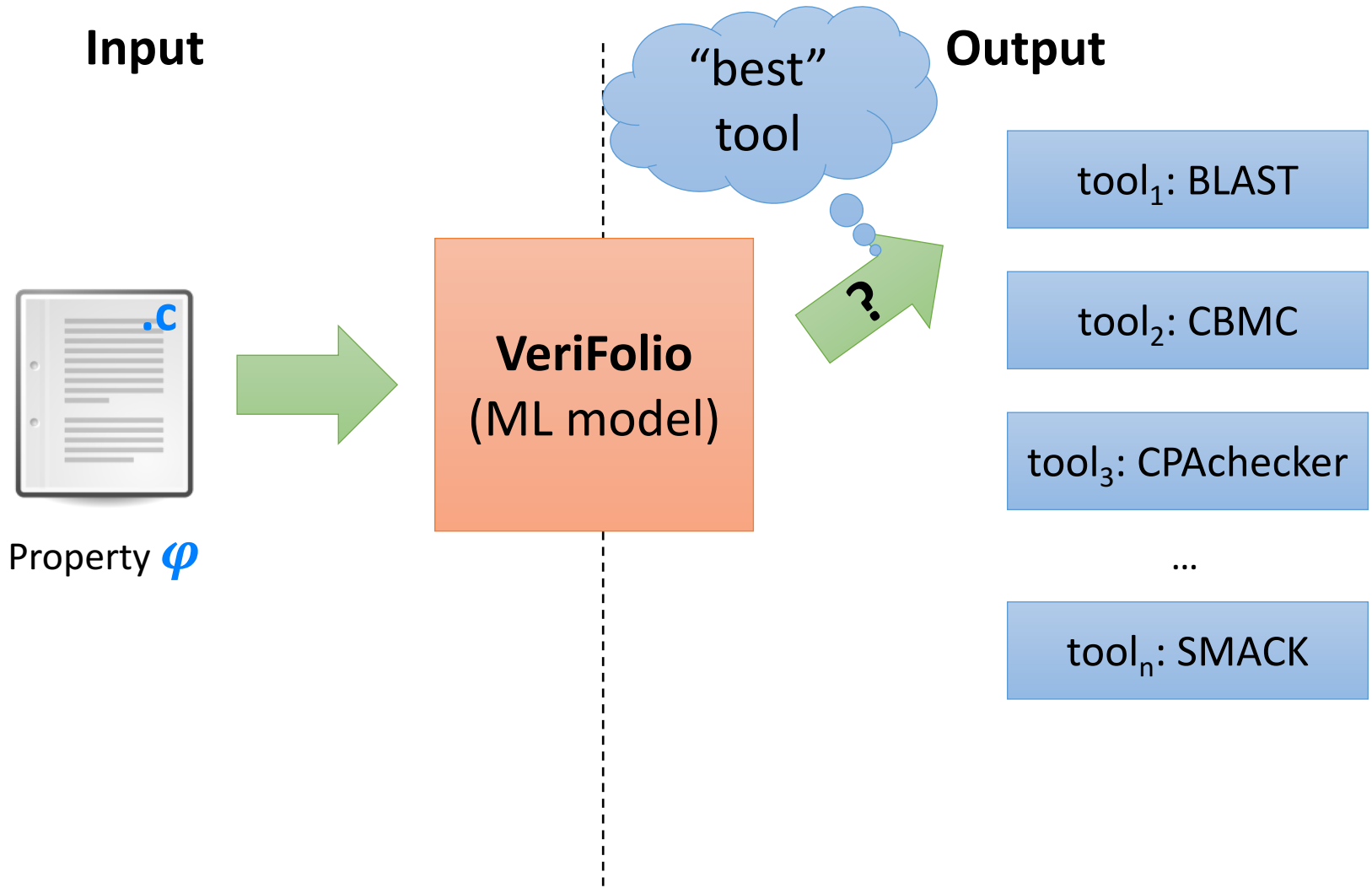
largely complementary:

- specific application areas (*device drivers, ...*)
- restricted program models (*integer programs, ...*)
- unsound, incomplete, buggy...

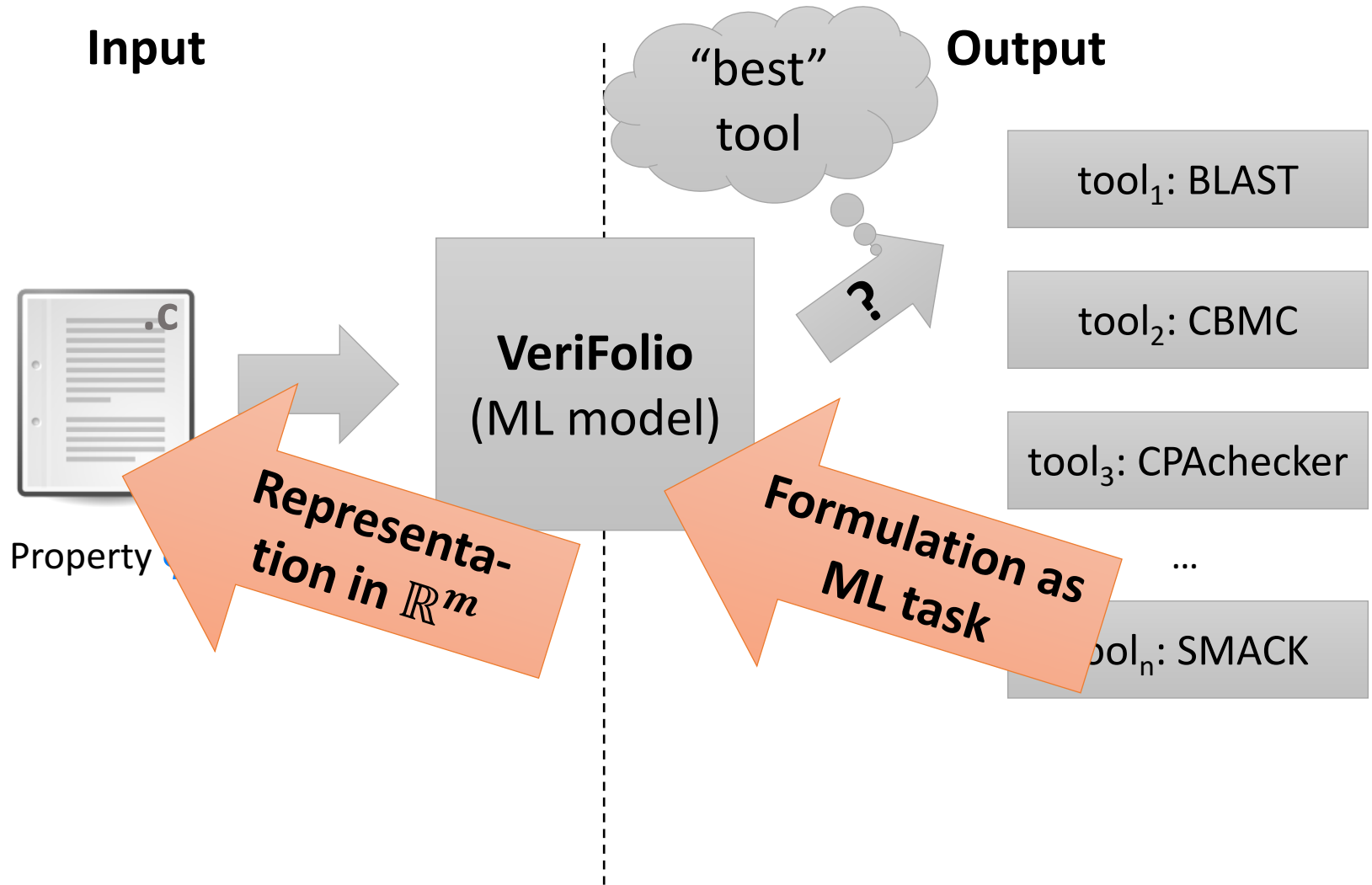
Automatically Picking a verification tool



Automatically Picking a verification tool



Contributions

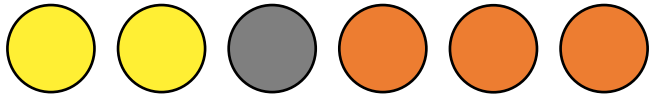
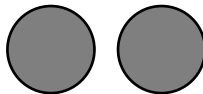
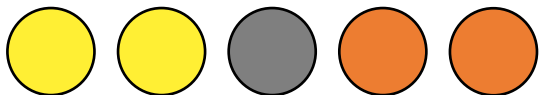


Experiments – SV-COMP'16

Score (Overall)

Medals

Experiments – SV-COMP'16

	Score (Overall)	Medals
<i>VeriFolio</i>	3269	
UltimateAutomizer	1965	
CPA-Seq	1907	

sim. for SV-COMP'14 & '15

Thanks!



[DPVZ13] *On the concept of variable roles and its use in software analysis.*
FMCAD, 2013

[PVZ15] *Loop patterns in C programs.*
ECEASST 72, 2015

[DPVZ15] *Empirical Software Metrics for Benchmarking of Verification Tools.*
CAV, 2015

[DPVZ17] *Empirical Software Metrics for Benchmarking of Verification Tools.*
FMSD 50(2-3), 2017

[DRZ17] *Systematic predicate abstraction using variable roles.*
NFM, 2017



Implementation <http://forsyte.at/software/verifolio/>