

Model Checking Contest results for 2017

Fabrice Kordon — LIP6, Univ. P. & M. Curie, France
Hubert Garavel — Inria/LIG, France
Lom Messan Hillah — LIP6 & Univ. Paris Ouest Nanterre, France
Francis Hulin-Hubard — LSV, CNRS/ENS de Cachan, France
Emmanuel Paviot-Adet — LIP6 & Univ. Paris Descartes, France
Loïc Jézequel, IRCCyN, Univ. Nantes, France
César Rodríguez — LIPN, Univ. Paris 13, France

MC2
2017

Objective 1 : promoting model checking tools

- Compare and debug
- Enhance reproducibility of results
- Encourage tools
 - ▶ To enhance reliability
 - ▶ To increase their features
- Encourage interoperability among tools

Objective 2 : creating a common collection of benchmarks

- See you at the PN repository presentation

Hubert Garavel
(Inria)



Lom Hillah
(UPN)



**Managing
Models**

**Managing
Execution +
analysis**

Fabrice Kordon
(UPMC)



Francis Hulin-Hubard
(CNRS)



Loïc Jezequel
(U. Nantes)



Emmanuel Paviot-Adet
(UP5)



**Managing
Formulas**

César Rodríguez
(UP13)



מנחם
2017

New Models etc.

«known» models

- Those from past years
 - ▶ Test the tool as used by its developers

«Stripped» models

- «known» (original archive) and set as «surprise» ones
 - ▶ Test the tool as used by «non experts» of the tool

«Surprise» models

- New models proposed by the community this year
 - ▶ Test the tool as used by «non experts» of the tool
 - ▶ new situations for the tool

Model \Rightarrow one Petri net, possibly with scaling parameter

Instance \Rightarrow one Petri-net with scaling parameters instantiated

«known» models

- Those from past years
 - ▶ Test the tool as used by its developers

«Stripped» models

- «known» (original archive) and

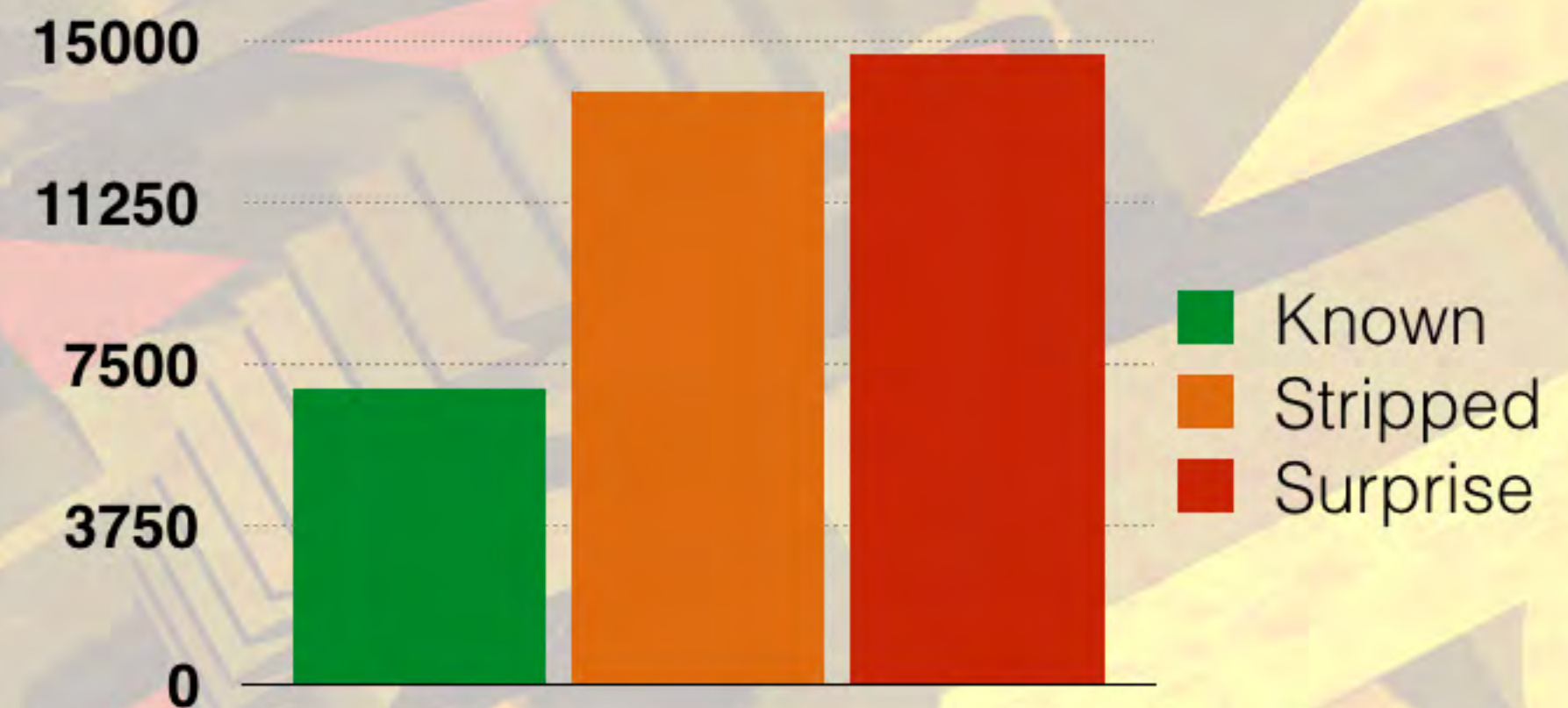
Coefficients in 2017

- 433 «known» instances (x 1)
- 433 «stripped» instances (x 2)
- 153 «surprise» instances (x 6)

«Surprise» models

- New models proposed by the community this year
 - ▶ Test the tool as used by «non experts» of the tool
 - ▶ new situations for the tool

Max possible score per category (one examination)



- Model \Rightarrow one Petri net, possibly with scaling parameter
- Instance \Rightarrow one Petri-net with scaling parameters instantiated

MCC 2017 10 New Models for 2017

6

R. Abid & G. Salaün

 CloudReconfiguration

▶ + NUPN

H. Evrard


 DLCroud, FlexibleBarrier

▶ + NUPN


C. Girault

 ClientsAndServers


T. Hujsa

 JoinFreeModules


F. Kordon

 BART (colored), Referendum (colored), RobotManipulation

T. Shmeleva


 HexagonalGrid

D. Zaitsev

 NeighborGrid

MCC 2017 10 New Models for 2017

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 **R. Abid & G. Salaün**

 CloudReconfig

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 (d), Referendum
RobotManipulation

With scaling parameters

153 instances in 2017

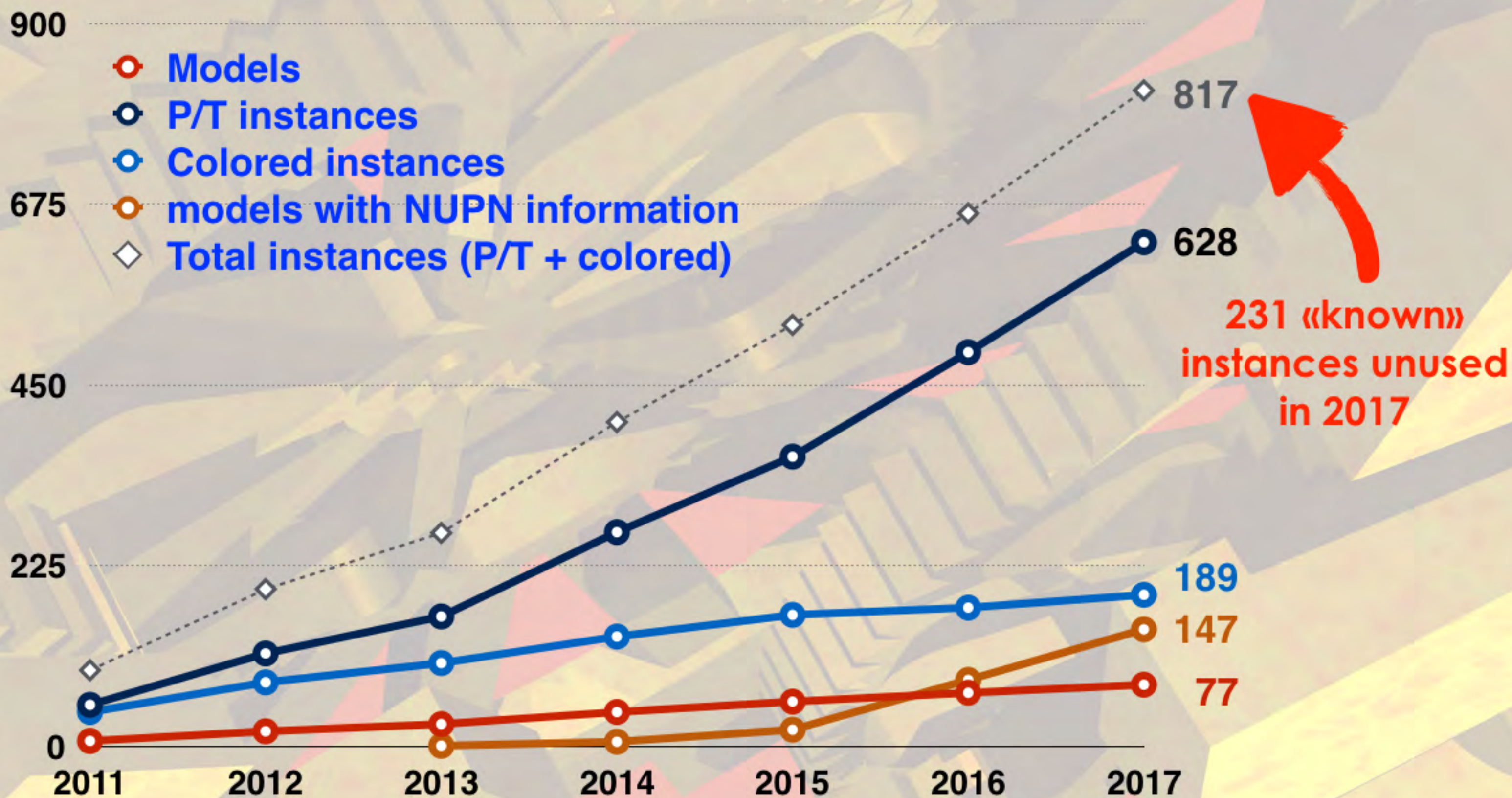
 **D. Zaitsev**

 NeighborGrid

Thanks!!!

We really need different models

Extending the collection of benchmarks every year



The collection improves every year


Data on the MCC	2011	2012	2013	2014	2015	2016	2017
% of colored instances	45,26 %	40,82 %	39,10 %	33,91 %	31,24 %	26,05 %	23,13 %
Number of selected instances	95	196	266	404	525	664	586

231 «known»
instances unused
in 2017

**INCC
2017**

Participating Tools

GreatSPN-meddly, Univ. Torino (Italy)

 [Back](#)

ITS-Tools, Univ. P. & M. Curie (France)


LoLA, Univ. Rostock (Germany)

LTSMIn, Univ. Twente (The Netherlands)

MARCIE, Univ. Cottbus (Germany)


smart, Univ. Iowa (USA)

Spot, Epita (France)

 [new](#)

Tapaal, Univ. Aalborg (Denmark)

TINA (2 variants), LAAS/CNRS (France)

 [new](#)

GreatSPN-meddly, Univ. Torino (Italy)

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ITS-Tools, Univ. P. & M. Curie (France)

LoLA, Univ. Rostock (Germany)

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MARCIE, Univ. ...

smart, Univ. ...

Spot, Epita ...

new


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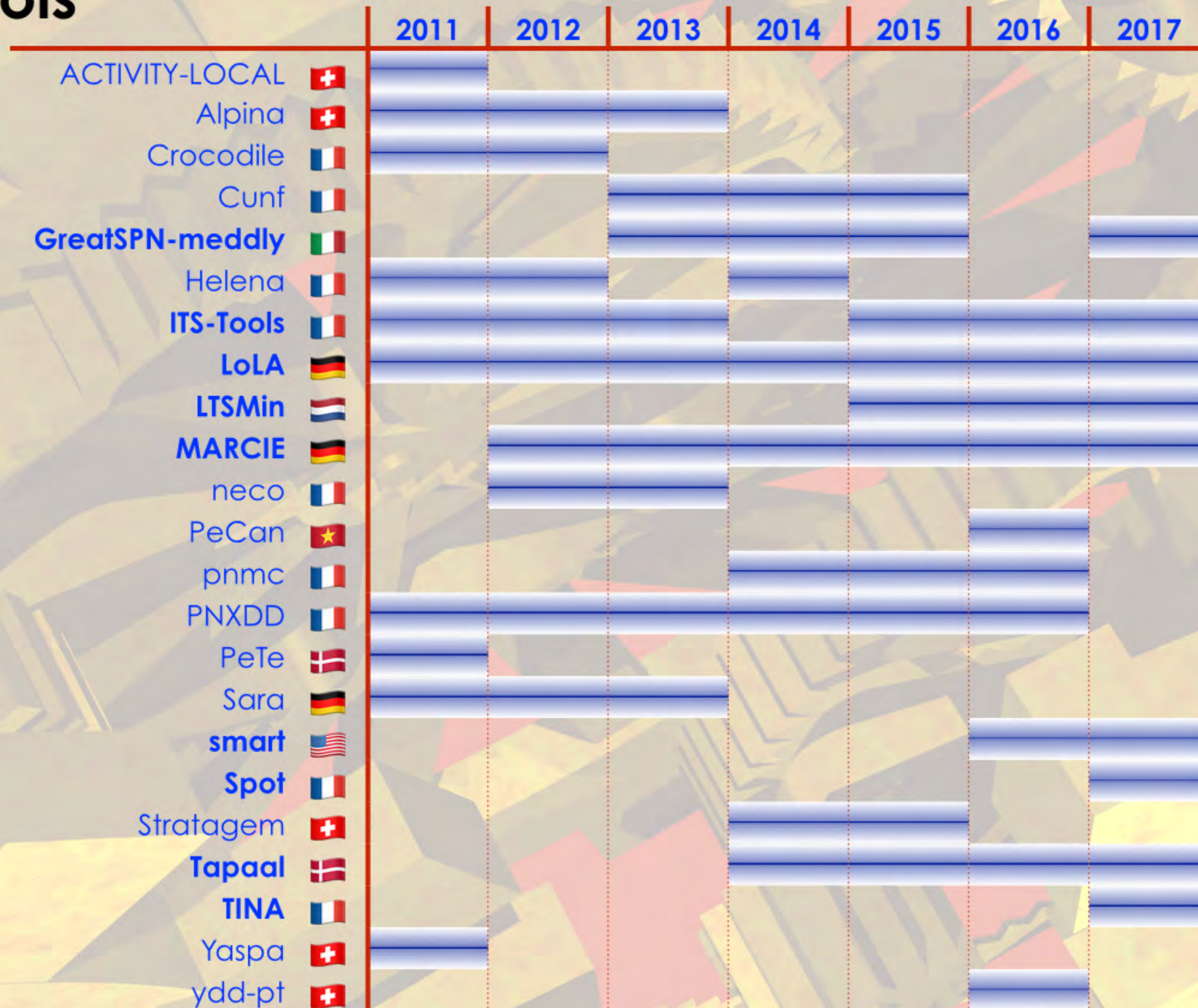
TINA (2 variants), LAAS/CNRS (France)

new

All VMs will be published
Reproducibility can be achieved

Tools	PN type	parallelism	Techniques
GreatSPN-Meddly	P/T & Col	/	DECISION_DIAGRAMS TOPOLOGICAL UNFOLDING_TO_PT USE_NUPN
MARCIE	P/T & Col	/	DECISION_DIAGRAMS UNFOLDING_TO_PT
smart	P/T	/	DECISION_DIAGRAMS
Spot	P/T & Col	/	EXPLICIT STATE_COMPRESSION
Tina.sift	P/T & Col	/	EXPLICIT COMPRESSED_STATES STRUCTURAL_REDUCTION
Tina.tedd	P/T & Col	/	DECISION_DIAGRAMS STATE_COMPRESSION STRUCTURAL_REDUCTION
ITS-Tools	P/T & Col	Colat	BMC DECISION_DIAGRAMS EXPLICIT_INITIAL_STATE K_INDUCTION LTSMIN PARTIAL_ORDER SAT_SMT TAUTOLOGY TOPOLOGICAL USE_NUPN
LoLA	P/T & Col	Colat	EXPLICIT SAT_SMT SEQUENTIAL_PROCESSING STATE_COMPRESSION STUBBORN_SETS SYMMETRIES TOPOLOGICAL USE_NUPN
Tapaal	P/T & Col	Colat	EXPLICIT STATE_COMPRESSION STRUCTURAL_REDUCTION STUBBORN_SETS LINEAR_PROGRAMMING
LTSMIn	P/T	Par	DECISION_DIAGRAMS EXPLICIT USE_NUPN

 **23 tools**



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2017

Examinations

StateSpace

UpperBound

Reachability

ReachabilityDeadlock

ReachabilityCardinality

ReachabilityFireability

→ atomic propositions refer to tokens

→ atomic propositions refer to firing

CTL

CTLCardinality

CTLFireability

→ atomic propositions refer to tokens

→ atomic propositions refer to firing

LTL

LTLCardinality

LTLFireability

→ atomic propositions refer to tokens

→ atomic propositions refer to firing

Tools improve every year

Tool participation per examination	2011	2012	2013	2014	2015	2016	2017
Participating tools	10	9(+1)	9(+2)	9	10(+3)	10(+2)	9(+1)
Tool supporting Colored nets	4	4	4	2	4	2	8
Tools supporting NUPN				1	3	3	4
StatesSpace	7	7	7	7	11	10	8
UpperBound						7	6
Struct. formulas	3	2					
Reachability	5	5	8	5	10	8	6
CTL		0	7	2	2	5	6
LTL		0	6	1	0	4	4

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Tool supporting Colored nets	4	4	4	2	4	2	8
Tools supporting NUPN				1	3	3	4
States	7	7	7	7	11	10	8
Upper							6
Struct.							
Reac							6
CT		0	7	2	2	5	6
						4	4



Tools are improving
 Treating more cases

Tools are improving
 Better support of Colored nets

**MCC
2017**

Schedule & Tool confidence

MCC 2017 Submissions & timing in 2017

17

~April 15, delivery of disk images

- Qualification phase
- Completed by early May
 - ▶ ~30 000 test runs

Better timing

operations start ~1 week before



May 10, starting to operate tools

- 91 710 runs distributed on 5 different machines over Europe
- VM with 4 cores / 16GB
 - ▶ ITS-Tools, LoLa, LTSMin, Tapaal
- WM with 1 core / 16 GB
 - ▶ GreatSPN-meddly, MARCIE, smart, Spot, TINA.sift, TINA.tedd
- Time confinement, 1h

Mid June, consolidation + analysis of outcomes

- 29 GByte of logs and CSV files
 - ▶ Post analysis = ~18KLOC Ada + ~800 LOC bash

Analysis process

- Pass 1, computing results for the majority in a «line»
 - ▶ All tools for an examination for a model instance
- Pass 2, evaluating tool confidence
 - ▶ Only considering values with a large majority
- Pass 3, reconstructing the results using tool confidence
 - ▶ Help to decide when only 2 different answers
 - ▶ A result must be of confidence 0.95 or more (0.93 in 2016)
 - ▶ Some results are tagged «insecure»
- Pass 4 computing scores
 - ▶ «insecure» results not considered when counting points

Mid June, consolidation

- 29 GByte of logs and CSV files
- ▶ Post analysis = ~18KLOC Ada + ~80

Analysis process

- Pass 1, computing results for the majority in a «line»
 - ▶ All tools for an examination for a
- Pass 2, evaluating tool confidence
 - ▶ Only considering values with a low
- Pass 3, reconstructing the results
 - ▶ Help to decide when only 2 different answers
 - ▶ A result must be of confidence 0.
 - ▶ Some results are tagged «insecure»
- Pass 4 computing scores
 - ▶ «insecure» results not considered

Scoring

StateSpace, 10 / 2 / 2 / 2
Deadlock, 16
Other formulas, 1 per formula

Bonuses

+2 for the fastest tool
+2 for the smallest memory footprint

Penalty for mistakes

Twice the score for a good value
No bonus if at least one error

Consistency checks

- Colored versus equivalent P/T nets
- «known» models versus «stripped» models

Computing the «confidence rate»

- Section III.2 in <http://mcc.lip6.fr/rules.php>
- Computing \mathbf{V} , the set of values with a **majority of 3 or more tools**
- For each tool t , selecting \mathbf{V}_t , the values computed $\in \mathbf{V}$
- For each tool t , selecting $\mathbf{V}_{\#t}$, the correct values computed $\in \mathbf{V}_t$
- Confidence rate = $\frac{|\mathbf{V}_{\#t}|}{|\mathbf{V}_t|}$

Tools	Confidence	success	selected	Examinations
GreatSPN	99.13 %	21926	22118	7 (StateSpace, UpperBounds, ReachabilityDeadlock, ReachabilityCardinality, ReachabilityFireability, CTLCardinality, CTLFireability)
ITS-Tools	96.91 %	42133	43478	9 (StateSpace, UpperBounds, ReachabilityDeadlock, ReachabilityCardinality, ReachabilityFireability, CTLCardinality, CTLFireability, LTLCardinality,
LoLA	99.92 %	44567	44603	7 (UpperBounds, ReachabilityCardinality, ReachabilityFireability, CTLCardinality, CTLFireability, LTLCardinality, LTLFireability)
LTSMIn	100 %	37487	37487	9 (StateSpace, UpperBounds, ReachabilityDeadlock, ReachabilityCardinality, ReachabilityFireability, CTLCardinality, CTLFireability, LTLCardinality,
MARCIE	100 %	27041	27041	7 (StateSpace, UpperBounds, ReachabilityDeadlock, ReachabilityCardinality, ReachabilityFireability, CTLCardinality, CTLFireability)
smart	79.59 %	862	1083	1 (StateSpace)
Spot	100 %	5764	5764	1 (LTLCardinality)
Tapaal	100 %	27498	27498	7 (StateSpace, UpperBounds, ReachabilityDeadlock, ReachabilityCardinality, ReachabilityFireability, CTLCardinality, CTLFireability)
TINA.sift	97.84 %	724	740	1 (StateSpace)
TINA.tedd	100 %	1641	1641	1 (StateSpace)

concurrent

concurrent

Evolution of the confidence since it was introduced

	2011	2012	2013	2014	2015	2016	2017
smallest confidence					62,30 %	37,40 %	79,59 %
average confidence					89,65 %	94,20 %	97,34 %
highest confidence					100 %	99,99 %	100 %



Tools are improving

Global increase of the confidence rate

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2017

Results

	bluewhale 03	bluewhale 07	Caserta	Ebro	Quadhexa -2	Small (cluster)	Total
Logical cores	40 @ 2.8GHz	32 @ 3.2GHz	96 @ 2.20GHz	64 @ 2.7GHz	24 @ 2.66GHz	12x24 @ 2.4GHz	-
Memory (GB)	512	1024	1024	1024	128	12x64	-
Cores (1 per VM) for sequential tools	31 31 VM in //	31 31 VM in //	63 63 VM in //	63 63 VM in //		12x3, 12x3 VM in //	-
Cores (4 per VM) for parallel tools	36, 9 VM in //	28, 7 VM in //	92, 23 VM in //	60, 15 VM in //	used to generate formulas	12x12, 12x3 VM in //	-
Number of runs	15 210	10 080	24 660	21 600		20 160	91 710
Total CPU required	221d, 11h, 34m, 37s	143d, 12h, 49m, 57s	289d, 20h, 43m, 6s	422d, 10h, 24m, 6s	~7d (not in total)	370d, 15h, 27m, 29s	1547d, 22h, 59m, 11s
3	about 4 years, 2 months and 27 days						-
Time spent to complete benchmarks	about 15 days						-
VM boot time of VMs + management (overhead)	About 15d, 22h (Included in total CPU)						-

More CPU than in 2015 and 2016

91 170 runs instead of 169 078/128 682 but more completed runs and support of colored nets



Observation

in 2017, selected instances...

... but more CPU (to be observed later)

Thank you very much

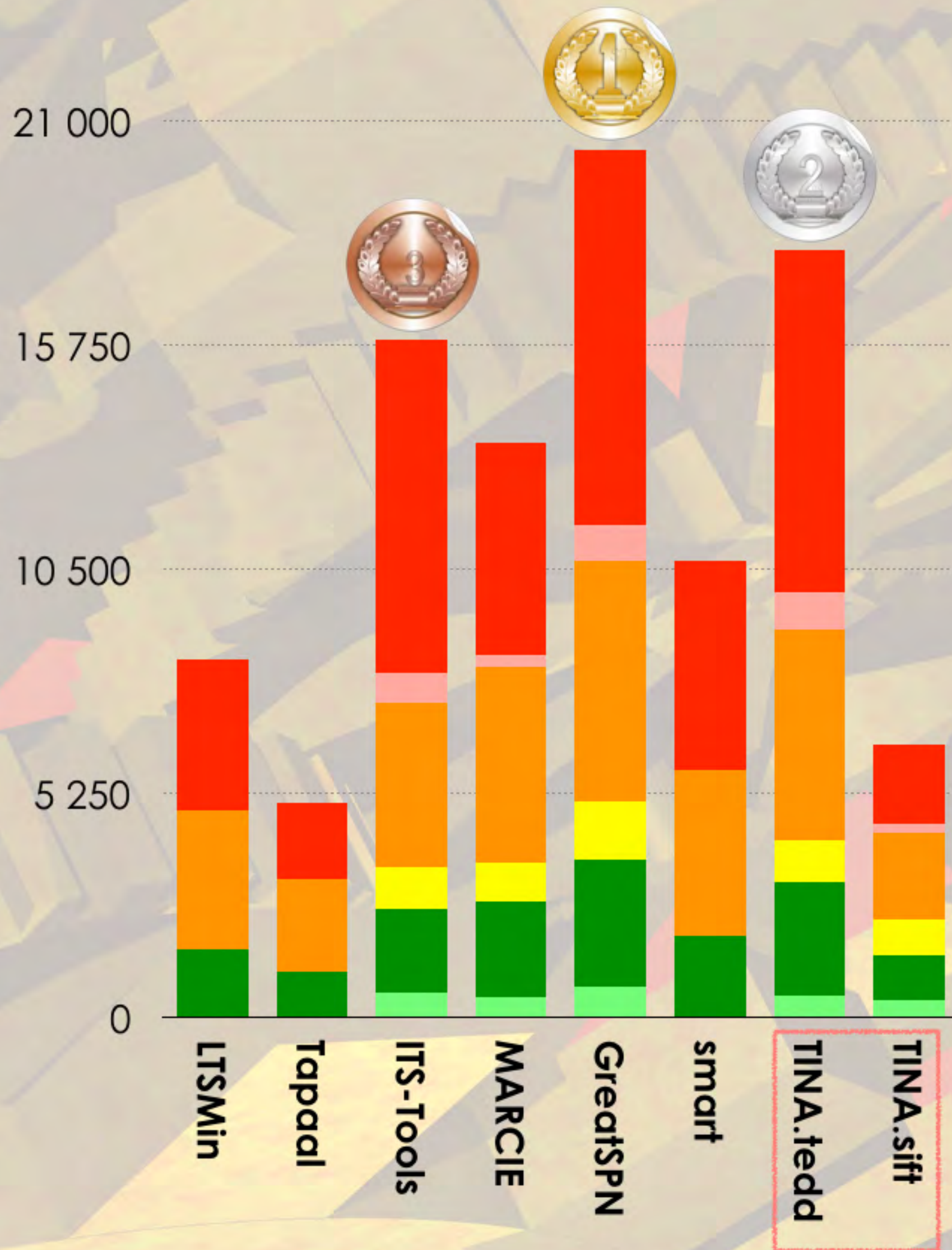
- Université de Genève
- University of Twente
- Rostock University
- Université Paris Nanterre
- Université P. & M. Curie

	Small (ster)	Total
Logical	24 @ GHz	-
Memory	x64	-
Cores (1 per VM for sequential tasks)	12x3, 2x3 VM in //	-
Cores (4 per VM for parallel tasks)	12x12, 2x3 VM in //	-
Number of runs	20 160	91 710
Total CPU required	370d, 15h, 27m, 29s	1547d, 22h, 59m, 11s
Time spent to complete benchmarks		-
VM boot time of VMs + management (overhead)		-



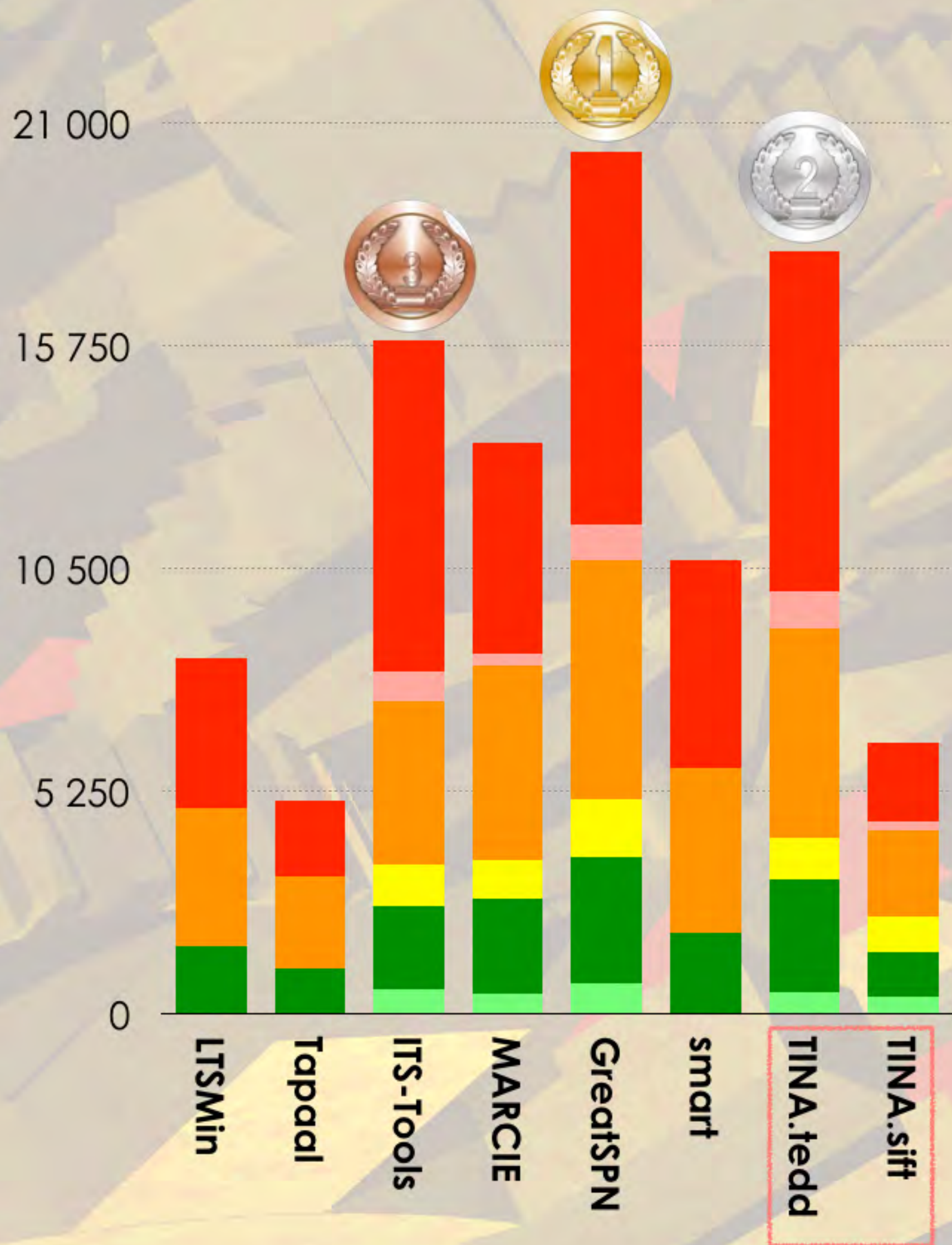
Evolution since last year

- ITS-Tools already in the podium
- «newcomers» are dangerous
 - ▶ They take the lead

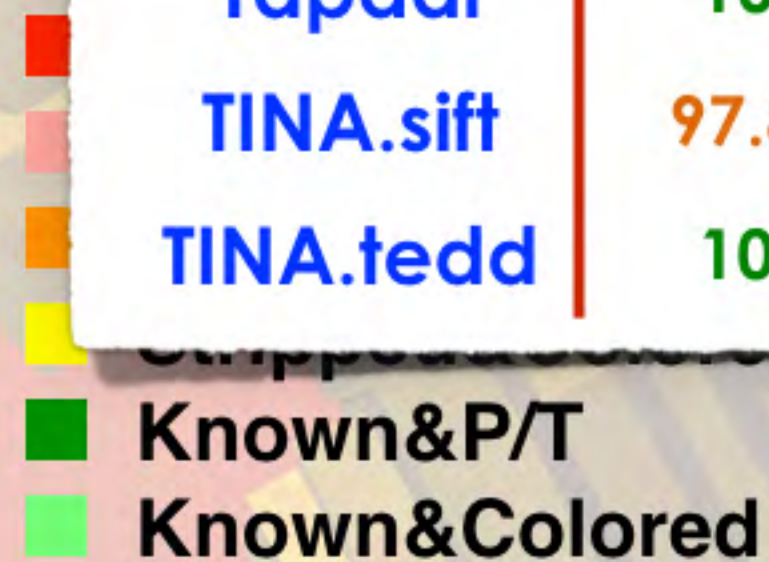


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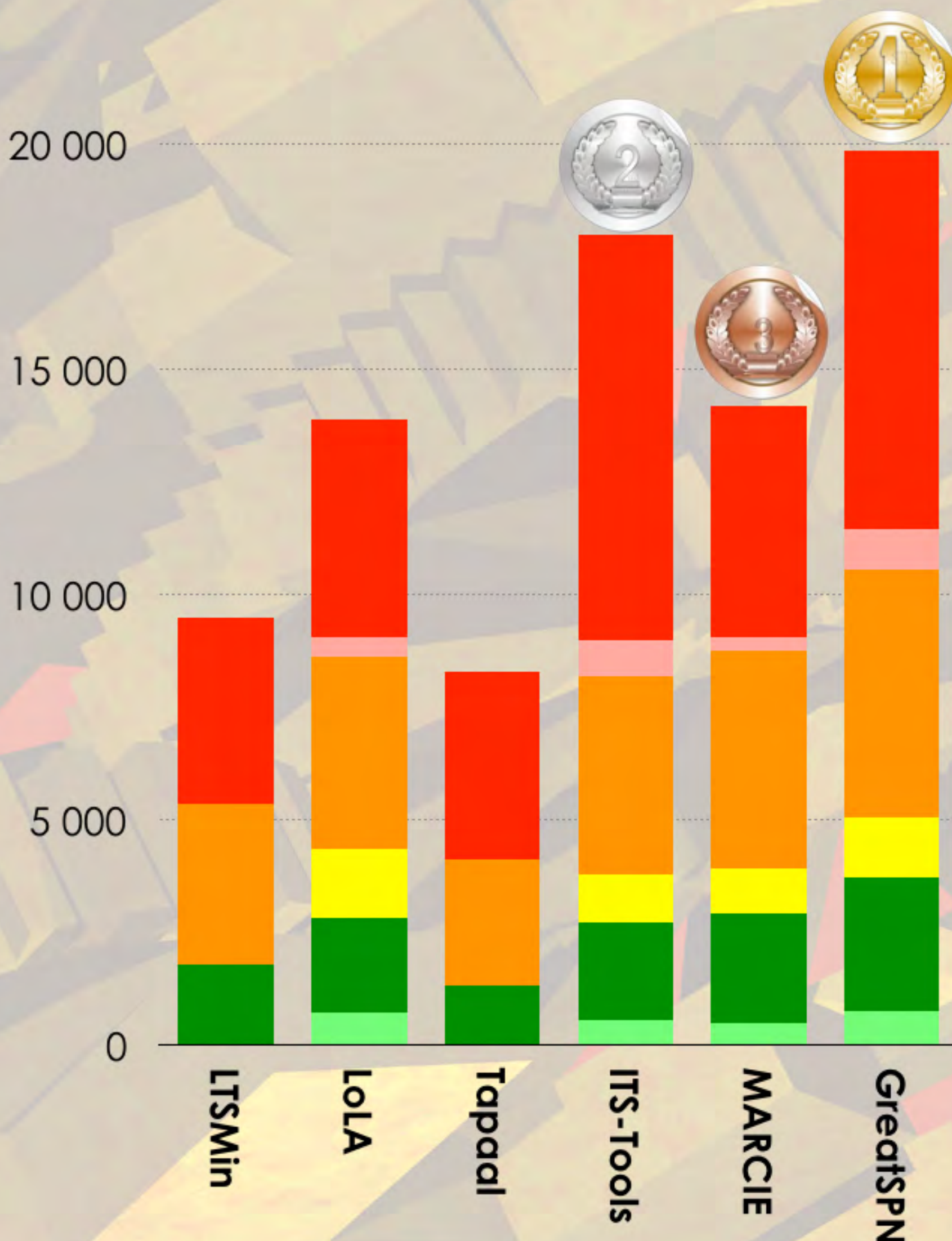
StateSpace	confidence	success	selected
GreatSPN	100 %	1611	1611
ITS-Tools	100 %	1143	1143
LTSMIn	100 %	792	792
MARCIE	100 %	1499	1499
smart	79.59 %	862	862
Tapaal	100 %	477	477
TINA.sift	97.84 %	724	740
TINA.tedd	100 %	1641	1641





Evolution since last year

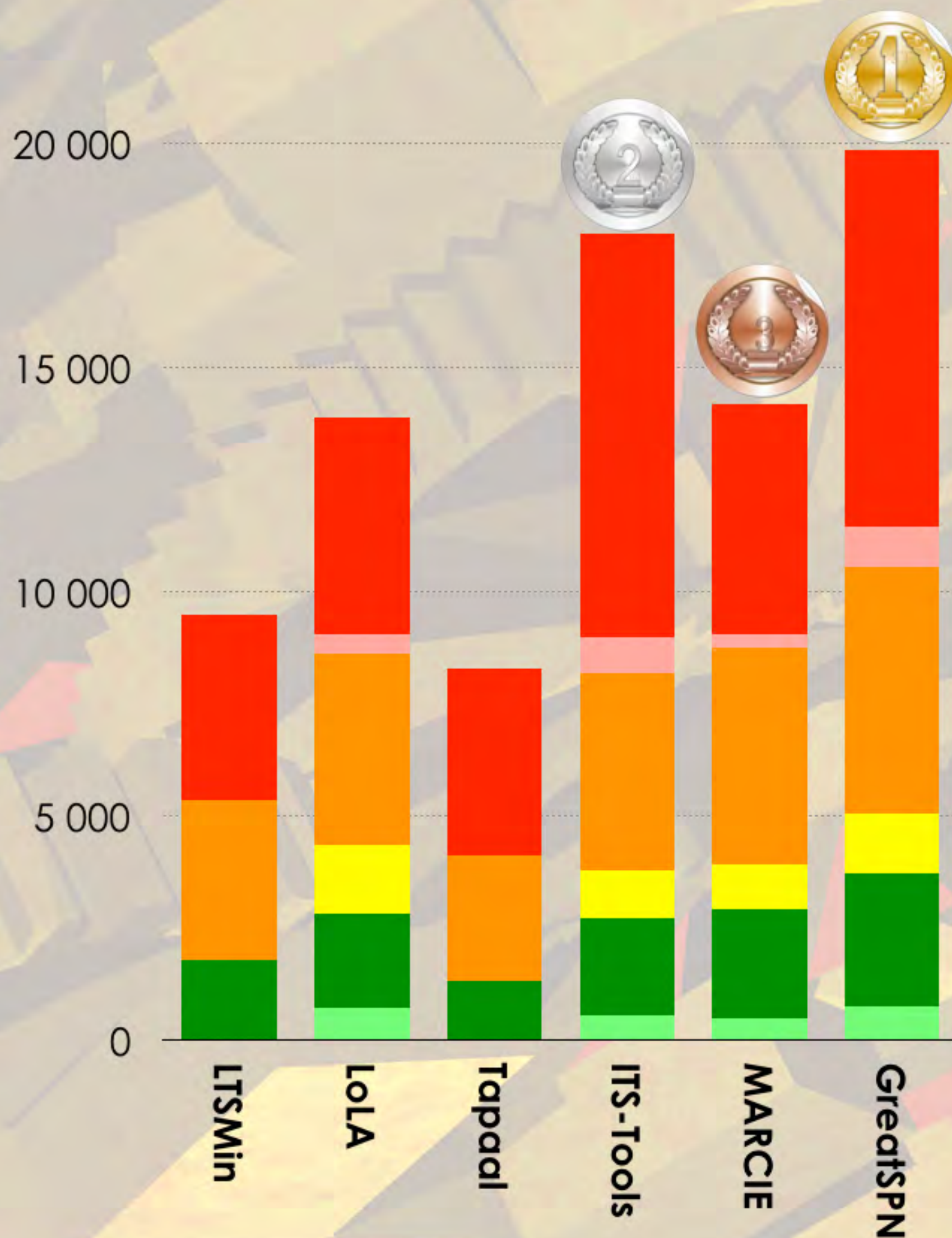
- ITS-Tools and Marcie already here
- greatSPN takes the lead





Evolution since last year

- ITS-Tools and Marcie already here
- greatSPN takes the lead



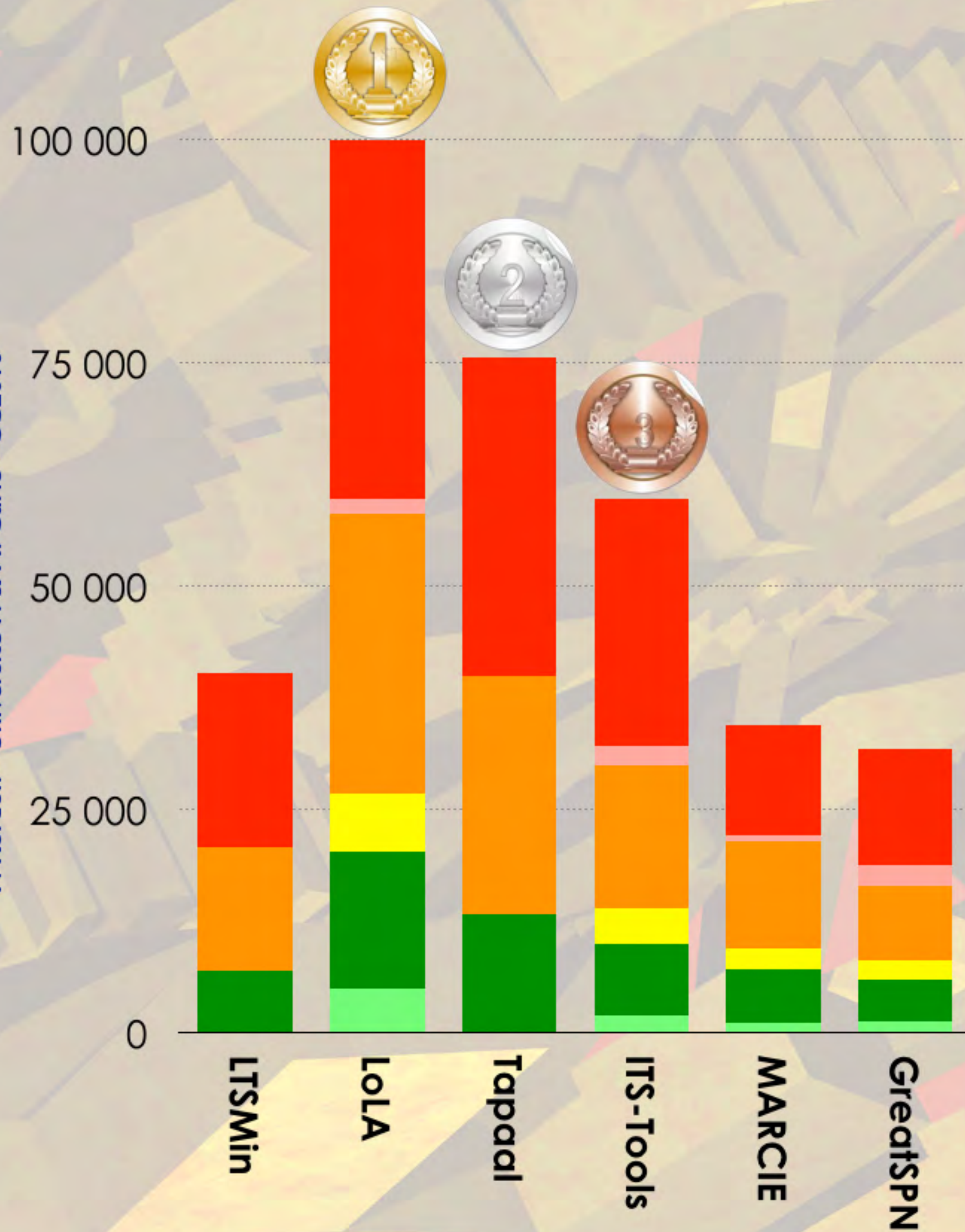
UpperBnd	confidence	success	selected
GreatSPN	98.89 %	5709	5773
ITS-Tools	100 %	5645	5645
LoLA	100 %	4014	4014
LTSMIn	100 %	3958	3958
MARCIE	100 %	5726	5726
Tapaal	100 %	3088	3088

- Surprise&P/T
- Surprise&Colored
- Stripped&P/T
- Stripped&Colored
- Known&P/T
- Known&Colored



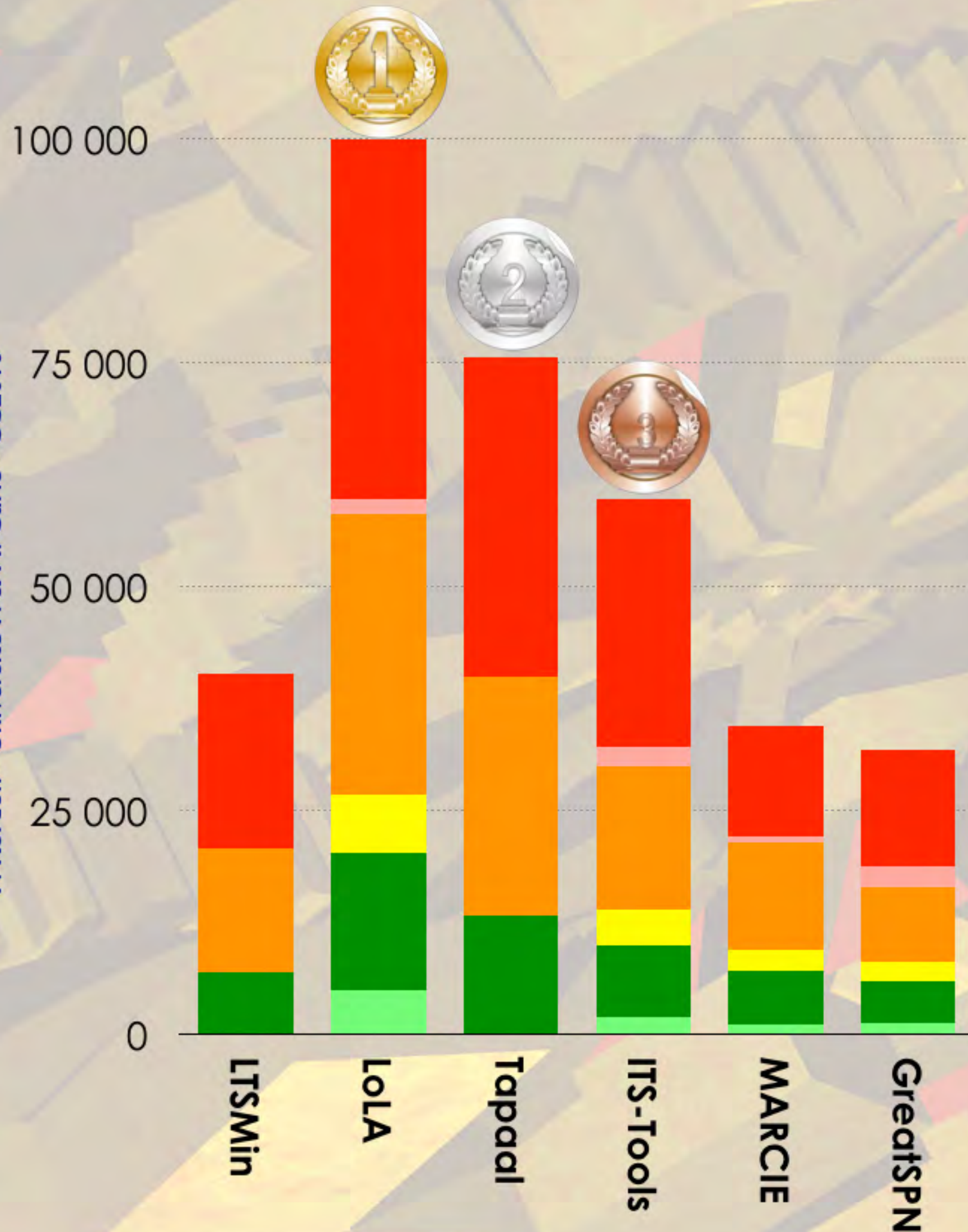
Evolution since last year

- The top-3 remain the same
- Same order



Evolution since last year

- The top-3 remain the same
- ▶ Same order



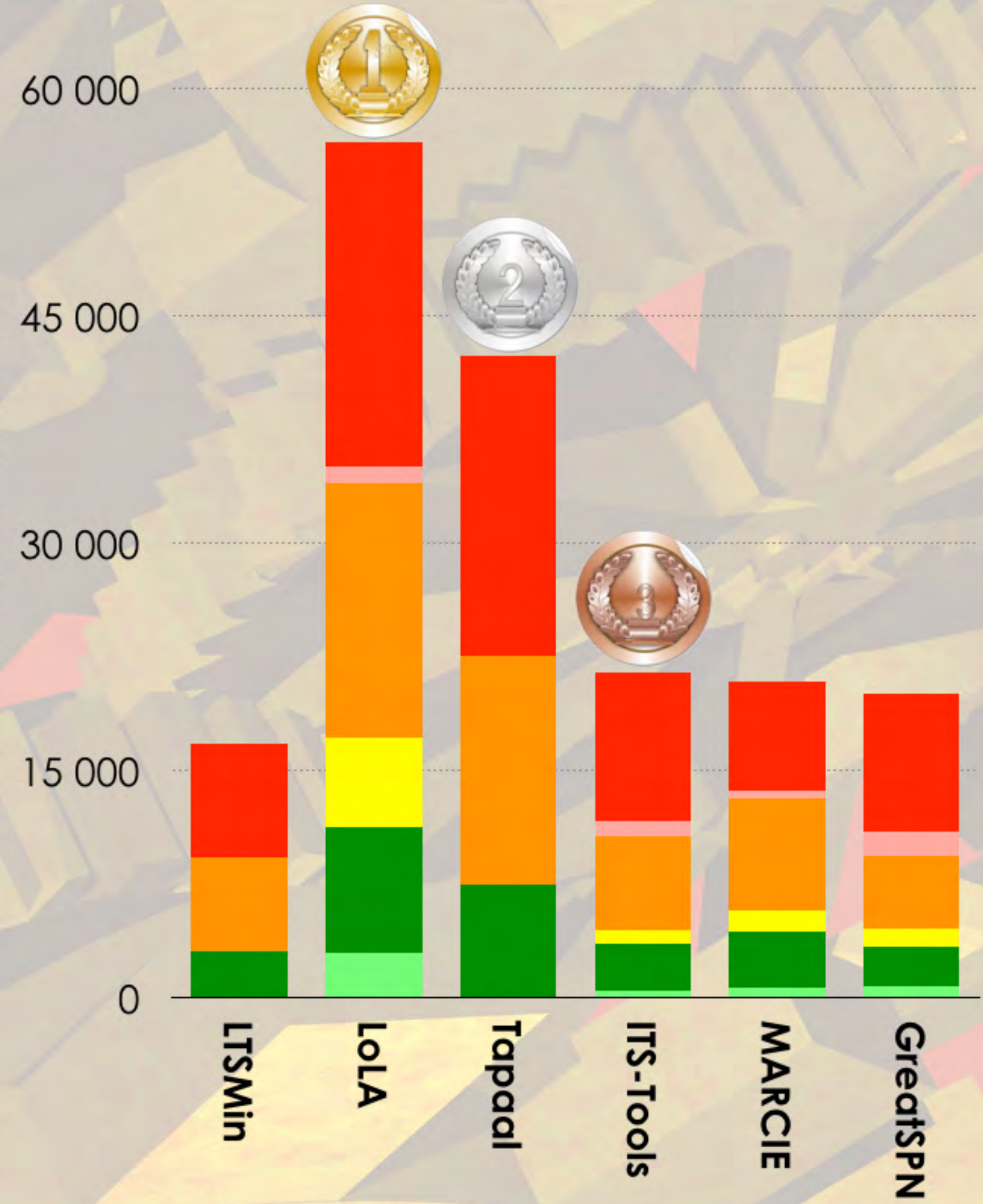
Reach.	confidence	success	selected
GreatSPN	99.18 %	7742	7806
ITS-Tools	94.68 %	15933	16828
LoLA	100 %	17908	17908
LTSMin	100 %	11964	11964
MARCIE	100 %	10701	10701
Tapaal	100 %	16205	16205

- Surprise&P/T
- Surprise&Colored
- Stripped&P/T
- Stripped&Colored
- Known&P/T
- Known&Colored



Evolution since last year

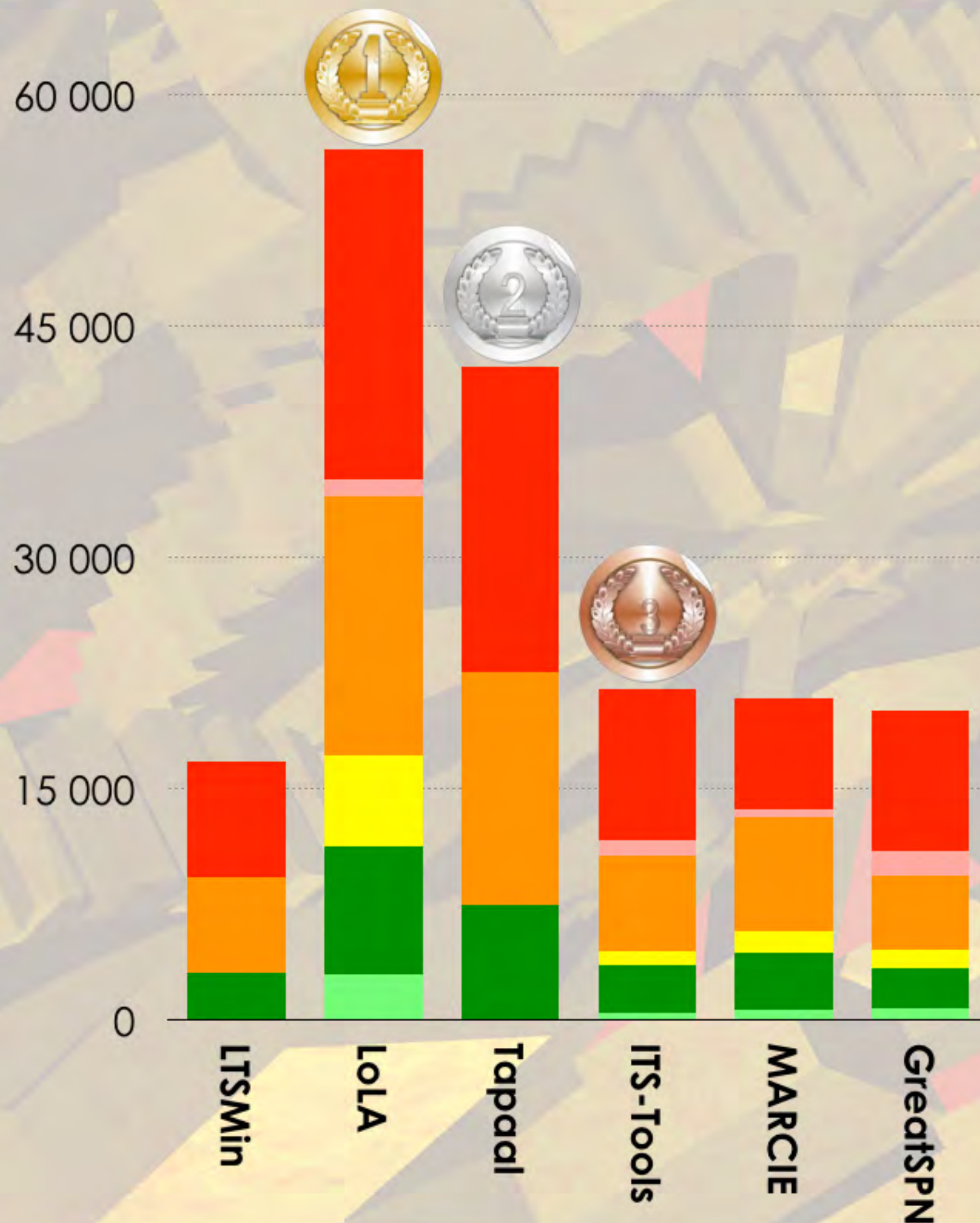
- LoLA and Tapaal already there
- ITS-Tools passes over MARCIE
- **Différence is thin but real**



Evolution since last year

- LoLA and Tapaal already there
- ITS-Tools passes over MARCIE

► Difference is thin but real



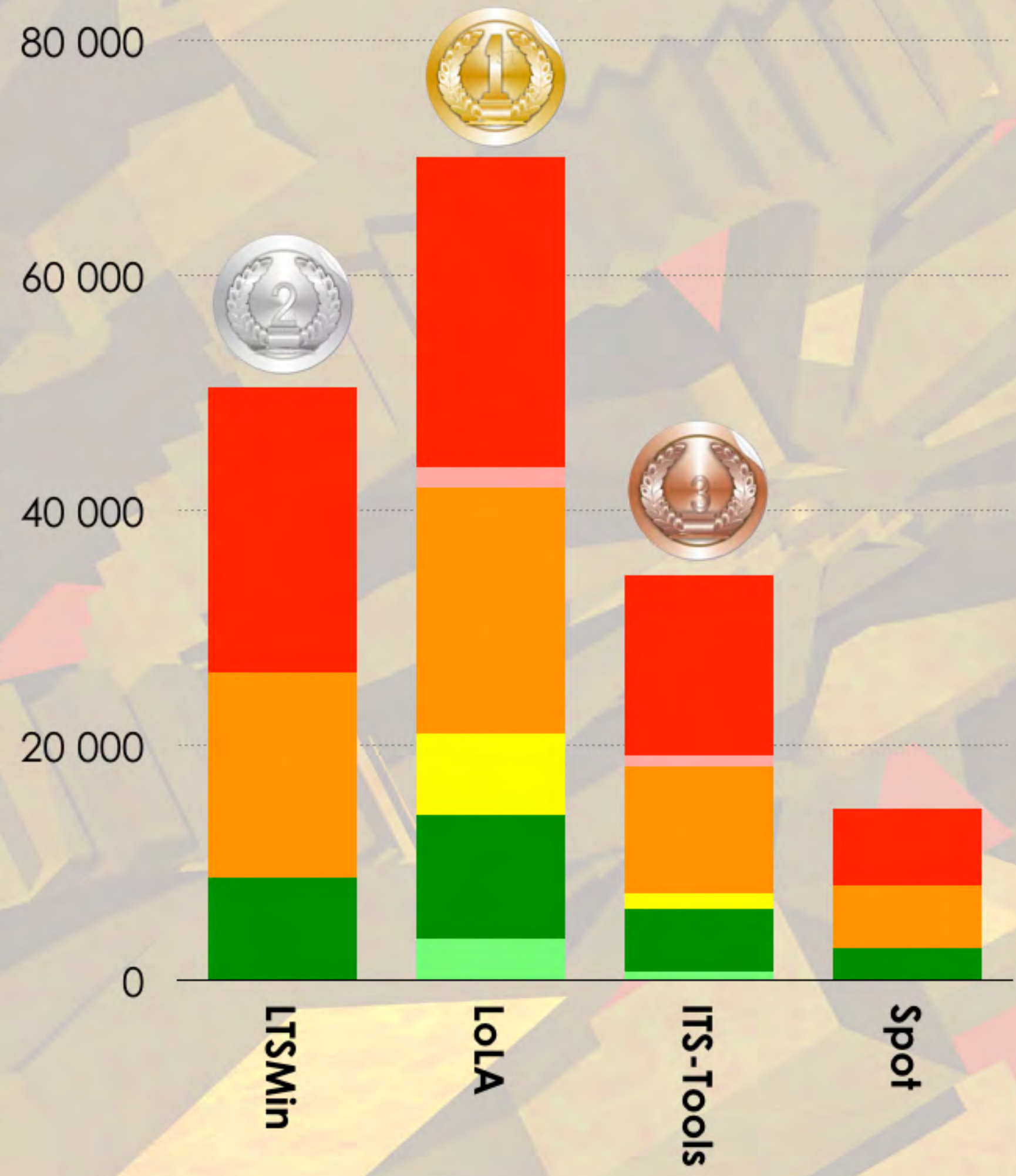
CTL	confidence	success	selected
GreatSPN	99.07 %	6864	6928
ITS-Tools	100 %	7603	7603
LoLA	99.62 %	8598	8630
LTSMIn	100 %	7055	7055
MARCIE	100 %	9115	9115
Tapaal	100 %	7462	7462

- Surprise&P/T
- Surprise&Colored
- Stripped&P/T
- Stripped&Colored
- Known&P/T
- Known&Colored



Evolution since last year

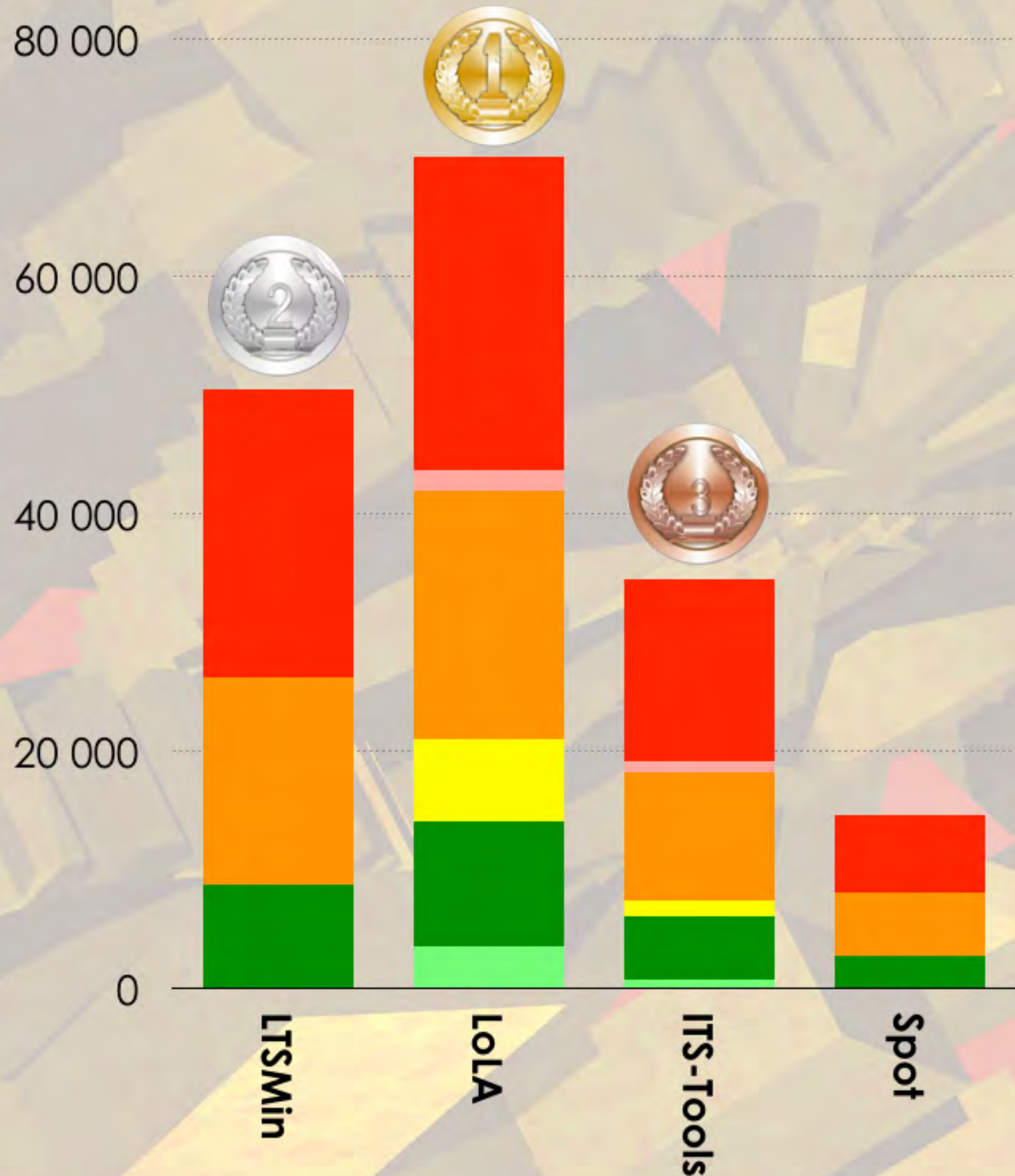
- The same on the podium...
 - ▶ But in a different order
- A «newcomer»
 - ▶ Spot only handling CTL+Cardinalities
 - ▶ Trial...



- Surprise&P/T
- Surprise&Colored
- Stripped&P/T
- Stripped&Colored
- Known&P/T
- Known&Colored

Evolution since last year

- The same on the podium...
 - But in a different order
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 - Trial...



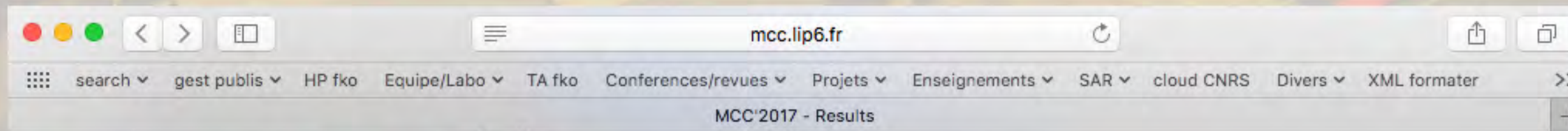
LTL	confidence	success	selected
ITS-Tools	96.33 %	11809	12259
LoLA	99.97 %	13647	13651
LTSMin	100 %	13718	13718
Spot	100 %	5764	5764

- Surprise&P/T
- Surprise&Colored
- Stripped&P/T
- Stripped&Colored
- Known&P/T
- Known&Colored

**INCC
2017**

Conclusive remarks

47 892 generated web pages



4. The Results of the MCC'2017

This First table below presents detailed results about the MCC'2017.

Details about the Examinations in the MCC'2017 (part I): Details about Results and Scoring + Model Performance Charts			
	Details about Results and Scoring	Model Performance Charts	Tool Resource consumption
StateSpace	↔	↔	↔
UpperBounds	↔	↔	↔
ReachabilityCardinality	↔	↔	↔
ReachabilityDeadlock	↔	↔	↔
ReachabilityFireability	↔	↔	↔
CTLCardinality	↔	↔	↔
CTLFireability	↔	↔	↔
LTLCardinality	↔	↔	↔
LTLFireability	↔	↔	↔

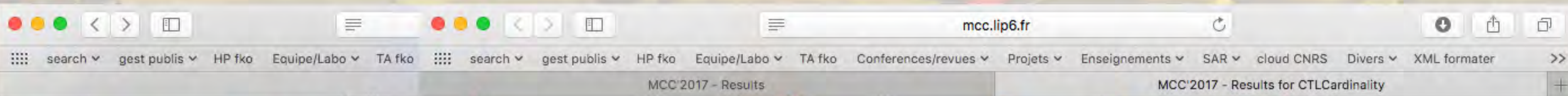
This Second table below presents some performance analysis related to tools during the MCC'2017.

Details about the examinations in the MCC'2017 (part II) Tool Performance Charts				
	All models	«Surprise» models only	«Stripped» models only	«Known» models only
GreatSPN	↔	↔	↔	↔
ITS-Tools	↔	↔	↔	↔
LoLA	↔	↔	↔	↔
LTSMIn	↔	↔	↔	↔
MARCIE	↔	↔	↔	↔
smart	↔	↔	↔	↔
Spot	↔	↔	↔	↔
Tapaal	↔	↔	↔	↔
TINA.sift	↔	↔	↔	↔
TINA.tedd	↔	↔	↔	↔

You can [download the full archive](#) (3.6 GB compressed and 29 GB uncompressed) of the 91 710 runs processed to compute the results of the MCC'2017. This archive contains execution traces, execution logs and sampling, as well as a large CSV files that summarizes all the executions and gnuplot scripts and data to generate the charts produced in the web site (please have a look on the READ_ME.txt file). You may get separately the two mostly interesting CSV files:

- [GlobalSummary.csv](#) that summarizes all results from all runs in the contest (15 MB when expanded)

47 892 generated web pages



4. The Results of the MCC'2017

This First table below presents detailed results about the

Details about the Examinations in the Details about Results and Scoring + Mod	
	Details about Results and Scoring
StateSpace	→
UpperBounds	→
ReachabilityCardinality	→
ReachabilityDeadlock	→
ReachabilityFireability	→
CTLCardinality	→
CTLFireability	→
LTLCardinality	→
LTLFireability	→

This Second table below presents some performance and

Details about the examinations in the MC Tool Performance Charts			
	All models	«Surprise» models only	«Strip» models
GreatSPN	→	→	→
ITS-Tools	→	→	→
LoLA	→	→	→
LTSMIn	→	→	→
MARCIE	→	→	→
smart	→	→	→
Spot	→	→	→
Tapaal	→	→	→
TINA.sift	→	→	→
TINA.tedd	→	→	→

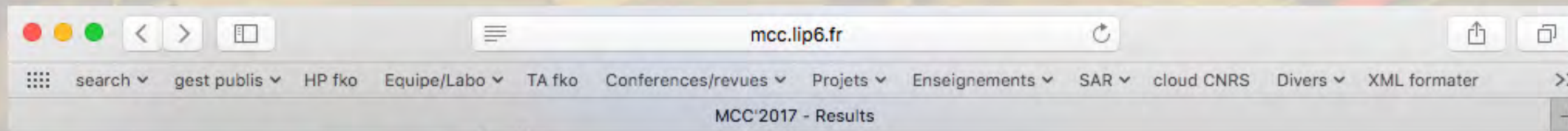
You can [download the full archive](#) (3.6 GB compressed). This archive contains execution traces, execution logs and data to generate the charts produced in the web site (please

• [GlobalSummary.csv](#) that summarizes all results

BART – P/T						
	LTSMIn	LoLA	Tapaal	ITS-Tools	MARCIE	GreatSPN
Total	0	678	900	0	60	0
Bonuses	0	36	156	0	0	0
Scores	0	642	744	0	60	0
002	→	→	→	→	→	→
005	→	→	→	→	→	→
010	→	→	→	→	→	→
020	→	→	→	→	→	→
030	→	→	→	→	→	→
040	→	→	→	→	→	→
050	→	→	→	→	→	→
060	→	→	→	→	→	→

ClientsAndServers – P/T						
	LTSMIn	LoLA	Tapaal	ITS-Tools	MARCIE	GreatSPN
Total	444	2070	1638	366	408	288
Bonuses	0	360	108	12	0	0
Scores	444	1710	1530	354	408	288
N0001P0	→	→	→	→	→	→
N0002P0	→	→	→	→	→	→
N0002P1	→	→	→	→	→	→
N0005P0	→	→	→	→	→	→
N0005P1	→	→	→	→	→	→

47 892 generated web pages



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	Details about Results and Scoring	Model Performance Charts	Tool Resource consumption
StateSpace	↔	↔	↔
UpperBounds	↔	↔	↔
ReachabilityCardinality	↔	↔	↔
ReachabilityDeadlock	↔	↔	↔
ReachabilityFireability	↔	↔	↔
CTLCardinality	↔	↔	↔
CTLFireability	↔	↔	↔
LTLCardinality	↔	↔	↔
LTLFireability	↔	↔	↔

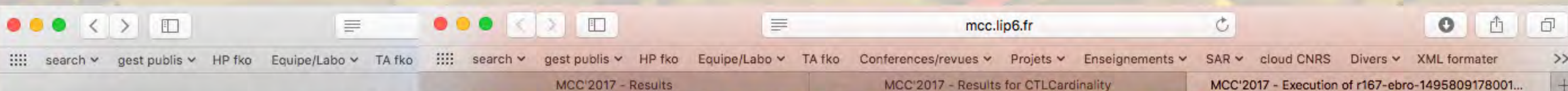
This Second table below presents some performance analysis related to tools during the MCC'2017.

Details about the examinations in the MCC'2017 (part II) Tool Performance Charts				
	All models	«Surprise» models only	«Stripped» models only	«Known» models only
GreatSPN	↔	↔	↔	↔
ITS-Tools	↔	↔	↔	↔
LoLA	↔	↔	↔	↔
LTSMIn	↔	↔	↔	↔
MARCIE	↔	↔	↔	↔
smart	↔	↔	↔	↔
Spot	↔	↔	↔	↔
Tapaal	↔	↔	↔	↔
TINA.sift	↔	↔	↔	↔
TINA.tedd	↔	↔	↔	↔

You can [download the full archive](#) (3.6 GB compressed and 29 GB uncompressed) of the 91 710 runs processed to compute the results of the MCC'2017. This archive contains execution traces, execution logs and sampling, as well as a large CSV files that summarizes all the executions and gnuplot scripts and data to generate the charts produced in the web site (please have a look on the READ_ME.txt file). You may get separately the two mostly interesting CSV files:

- [GlobalSummary.csv](#) that summarizes all results from all runs in the contest (15 MB when expanded)

47 892 generated web pages



4. The Results of the MCC'2017

This First table below presents detailed results about the

Details about the Examinations in the Details about Results and Scoring + Mod	
	Details about Results and Scoring
StateSpace	↔
UpperBounds	↔
ReachabilityCardinality	↔
ReachabilityDeadlock	↔
ReachabilityFireability	↔
CTLCardinality	↔
CTLFireability	↔
LTLCardinality	↔
LTLFireability	↔

This Second table below presents some performance and

Details about the examinations in the MC Tool Performance Charts			
	All models	«Surprise» models only	«Strip» models
GreatSPN	↔	↔	↔
ITS-Tools	↔	↔	↔
LoLA	↔	↔	↔
LTSMIn	↔	↔	↔
MARCIE	↔	↔	↔
smart	↔	↔	↔
Spot	↔	↔	↔
Tapaal	↔	↔	↔
TINA.sift	↔	↔	↔
TINA.tedd	↔	↔	↔

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Model Checking Contest @ Petri Nets 2017

7th edition, Zaragoza, Spain, June 27, 2017

Execution of r167-ebro-149580917800156

Last Updated
June 5, 2017

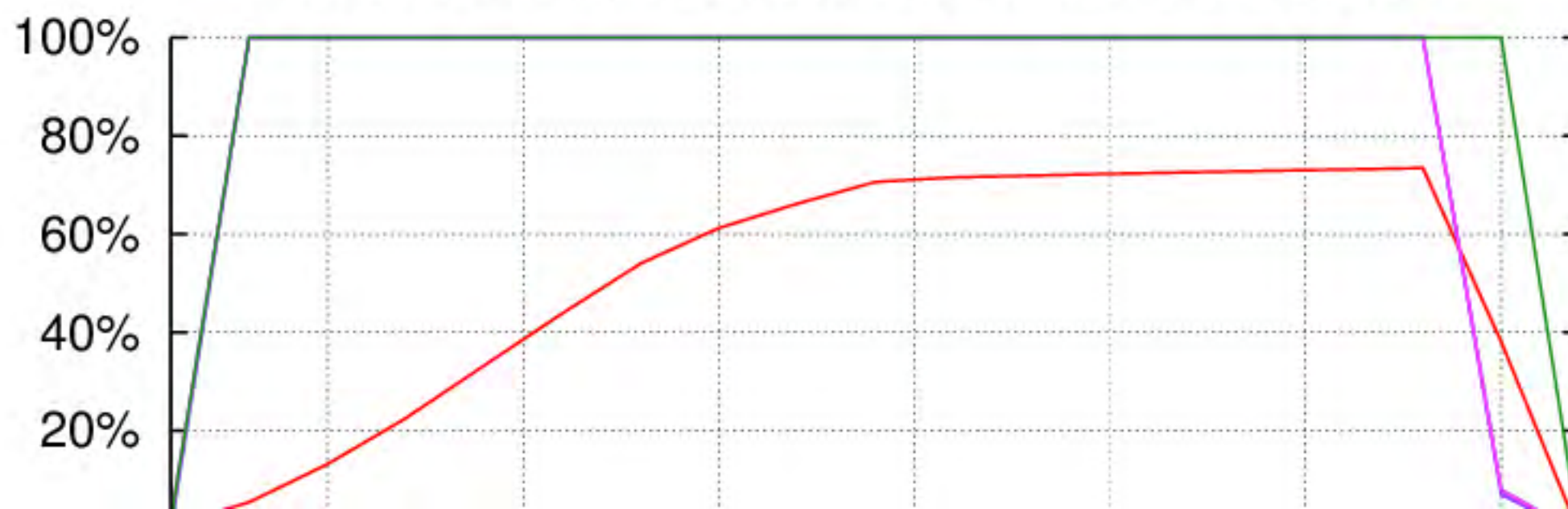
About the Execution of LTSMIn for ClientsAndServers-PT-N0002P0

Execution Summary					
Max Memory Used (MB)	Time wait (ms)	CPU Usage (ms)	I/O Wait (ms)	Computed Result	Execution Status
11830.650	35524.00	133363.00	10.10	TTFTTTTFFFTFFFTF	normal

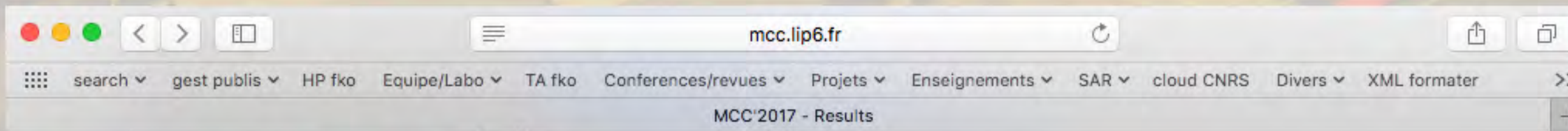
Execution Chart

We display below the execution chart for this examination (boot time has been removed).

Resources Consumption for LTSMIn
CTLCardinality on ClientsAndServers-PT-N0002P0



47 892 generated web pages



4. The Results of the MCC'2017

This First table below presents detailed results about the MCC'2017.

Details about the Examinations in the MCC'2017 (part I): Details about Results and Scoring + Model Performance Charts			
	Details about Results and Scoring	Model Performance Charts	Tool Resource consumption
StateSpace	↔	↔	↔
UpperBounds	↔	↔	↔
ReachabilityCardinality	↔	↔	↔
ReachabilityDeadlock	↔	↔	↔
ReachabilityFireability	↔	↔	↔
CTLCardinality	↔	↔	↔
CTLFireability	↔	↔	↔
LTLCardinality	↔	↔	↔
LTLFireability	↔	↔	↔

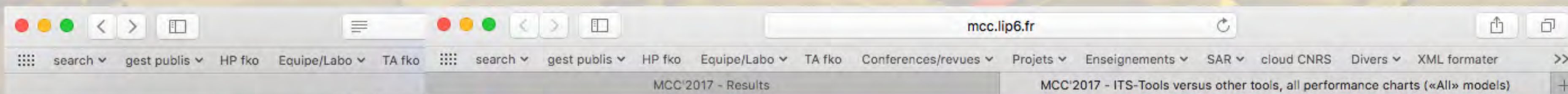
This Second table below presents some performance analysis related to tools during the MCC'2017.

Details about the examinations in the MCC'2017 (part II) Tool Performance Charts				
	All models	«Surprise» models only	«Stripped» models only	«Known» models only
GreatSPN	↔	↔	↔	↔
ITS-Tools	↔	↔	↔	↔
LoLA	↔	↔	↔	↔
LTSMIn	↔	↔	↔	↔
MARCIE	↔	↔	↔	↔
smart	↔	↔	↔	↔
Spot	↔	↔	↔	↔
Tapaal	↔	↔	↔	↔
TINA.sift	↔	↔	↔	↔
TINA.tedd	↔	↔	↔	↔

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 47 892 generated web pages



4. The Results of the MCC'2017

This First table below presents detailed results about the

Details about the Examinations in the Details about Results and Scoring + Mod	
	Details about Results and Scoring
StateSpace	↔
UpperBounds	↔
ReachabilityCardinality	↔
ReachabilityDeadlock	↔
ReachabilityFireability	↔
CTLCardinality	↔
CTLFireability	↔
LTLCardinality	↔
LTLFireability	↔

This Second table below presents some performance an

Details about the examinations in the MC Tool Performance Charts			
	All models	«Surprise» models only	«Strip» models
GreatSPN	↔	↔	↔
ITS-Tools	↔	↔	↔
LoLA	↔	↔	↔
LTSMIn	↔	↔	↔
MARCIE	↔	↔	↔
smart	↔	↔	↔
Spot	↔	↔	↔
Tapaal	↔	↔	↔
TINA.sift	↔	↔	↔
TINA.tedd	↔	↔	↔

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- [GlobalSummary.csv](#) that summarizes all results

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Model Checking Contest @ Petri Nets 2017

7th edition, Zaragoza, Spain, June 27, 2017

ITS-Tools versus other tools, all performance charts («All» models)

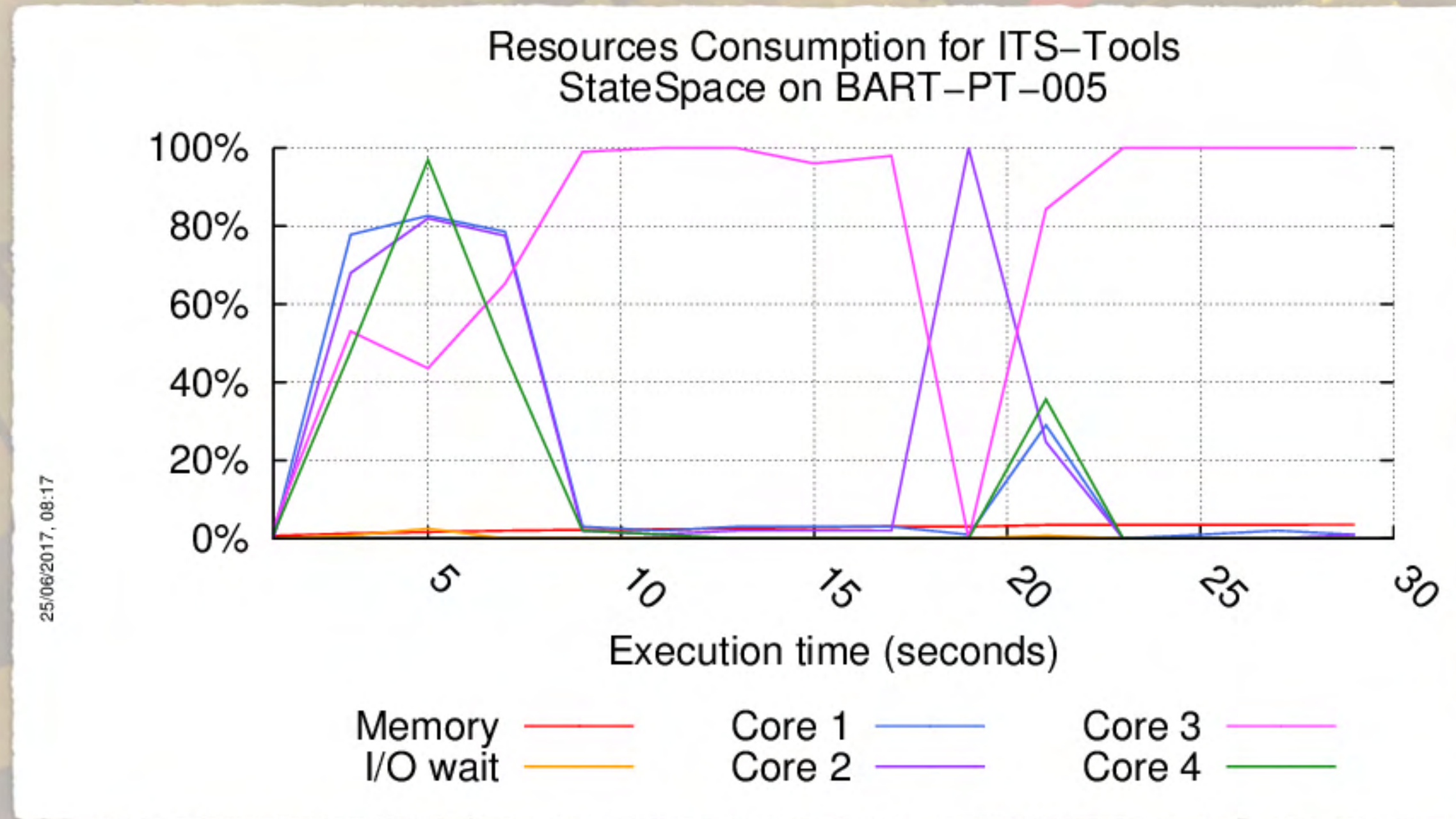
Last Updated June 5, 2017

Introduction

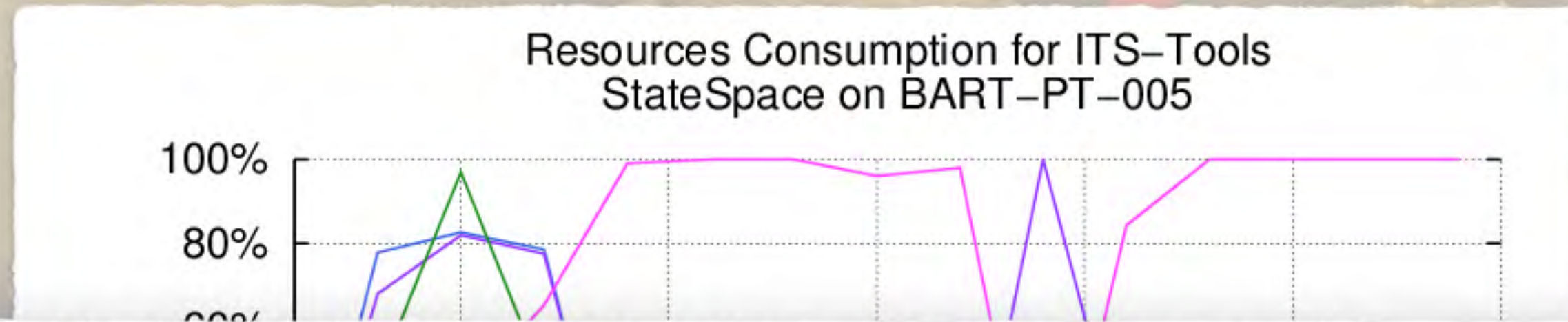
This page allows you to have a look on how *ITS-Tools* performs face to other tools in the following examinations:

- CTLCardinality,
- CTLFireability,
- LTLCardinality,
- LTLFireability,
- ReachabilityCardinality,
- ReachabilityDeadlock,
- ReachabilityFireability,
- StateSpace,
- UpperBounds,

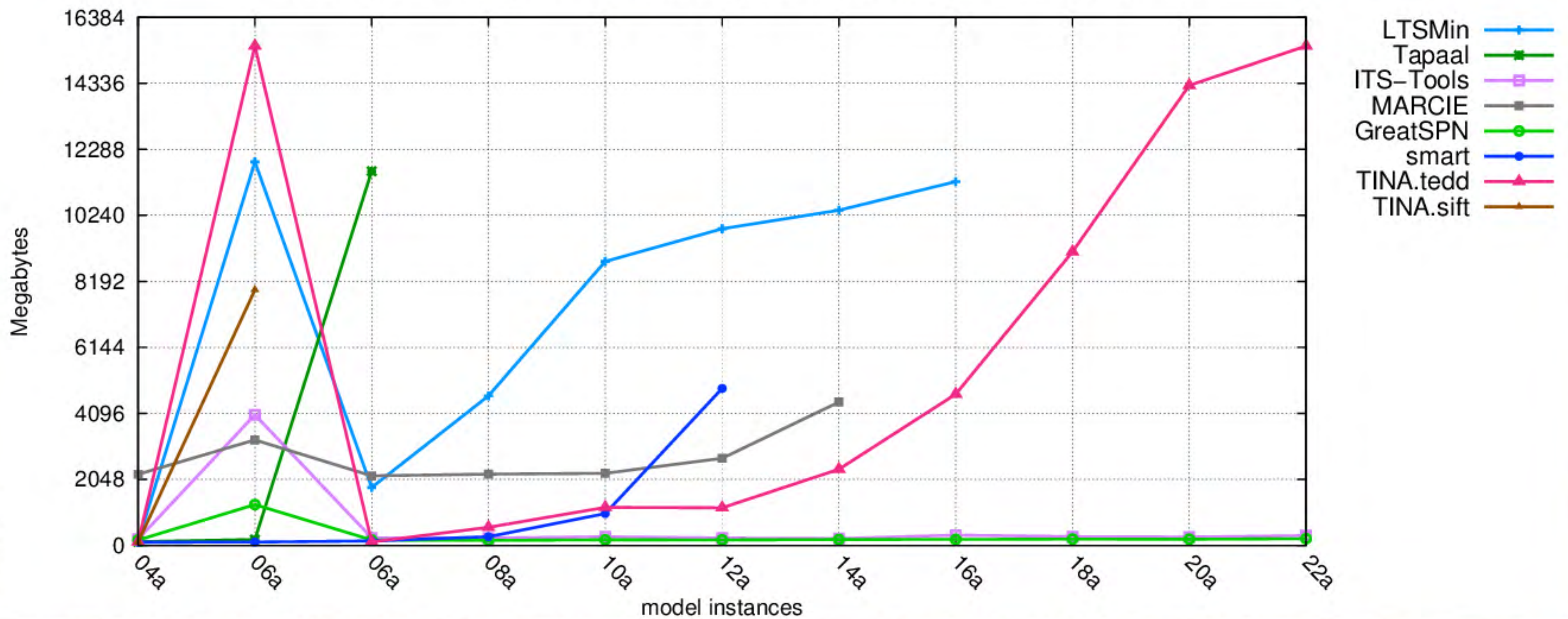
53 118 generated charts



53 118 generated charts



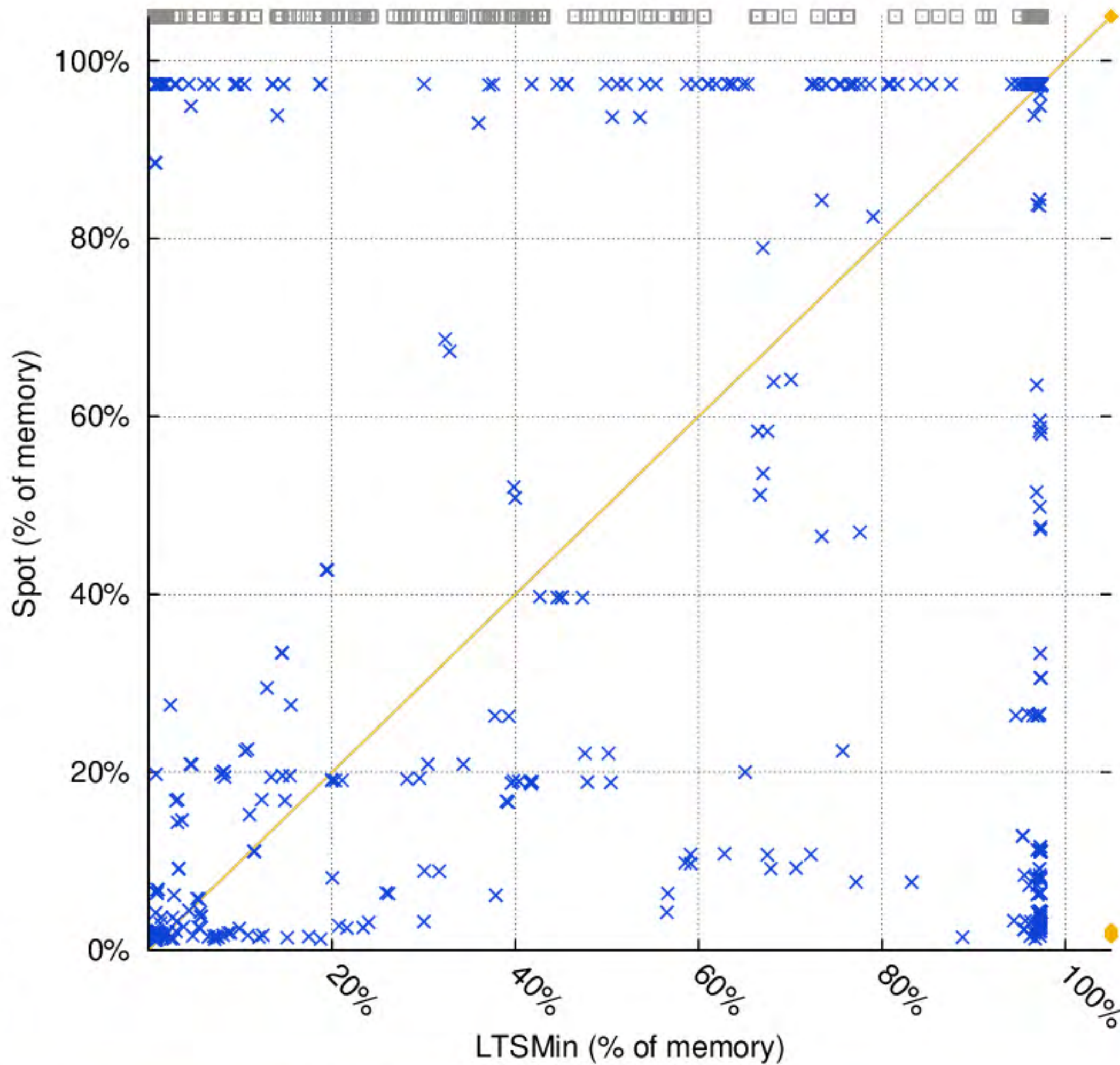
FlexibleBarrier, P/T for StateSpace, Memory consumption



25/06/2017, 08:18

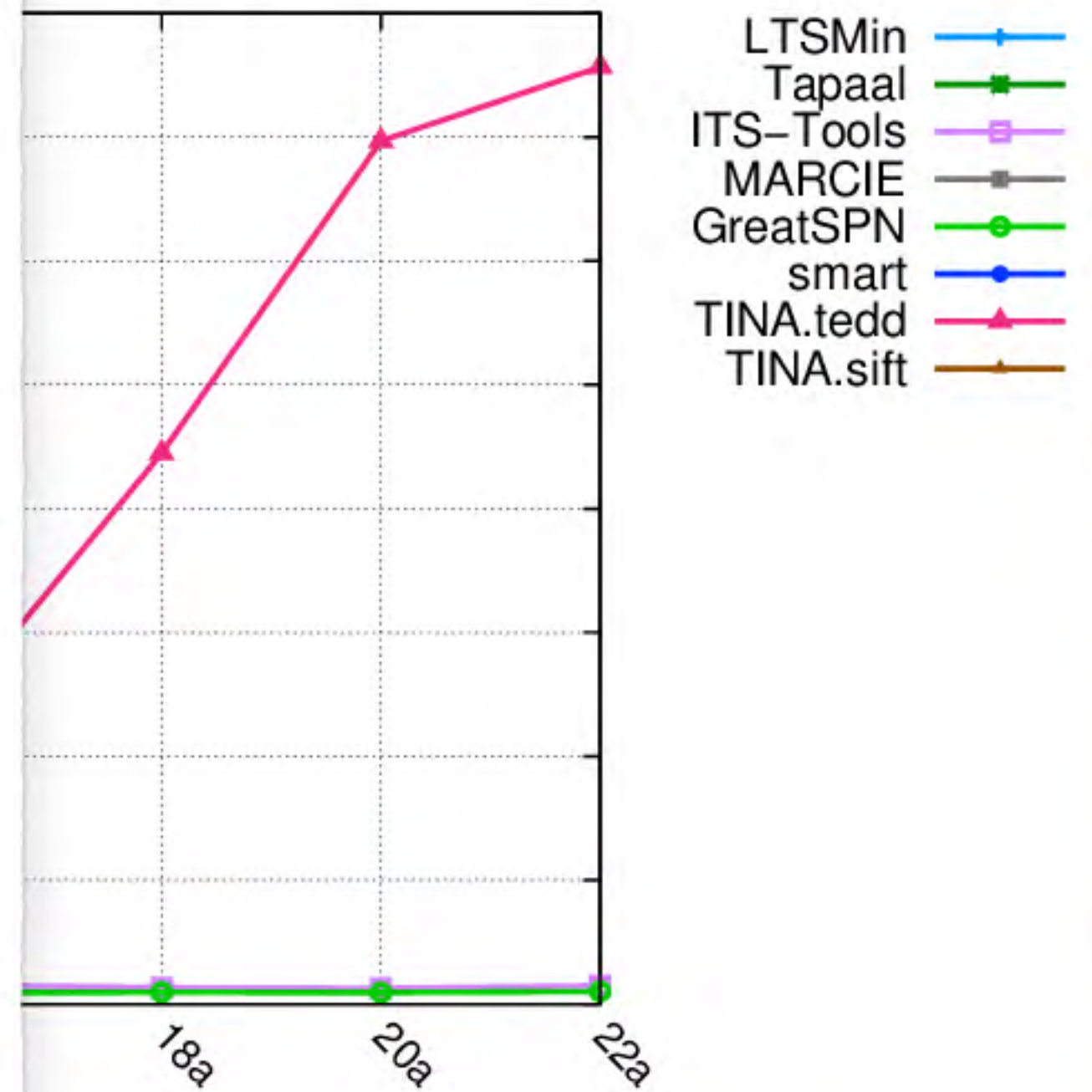
53 118 generated charts

Max memory, Spot versus LTSMIn for LTLCardinality (All models)



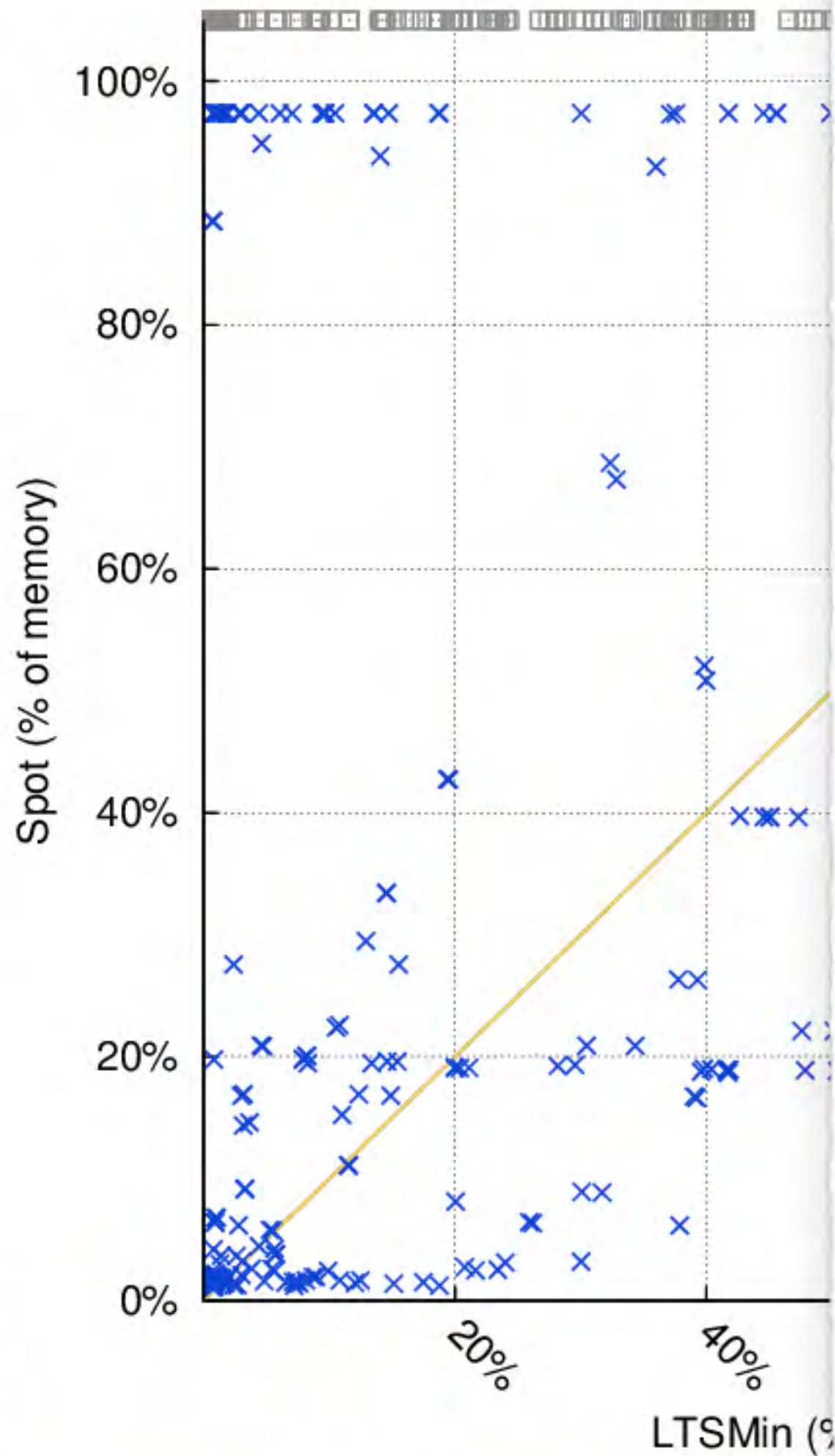
ITS-Tools 05

consumption

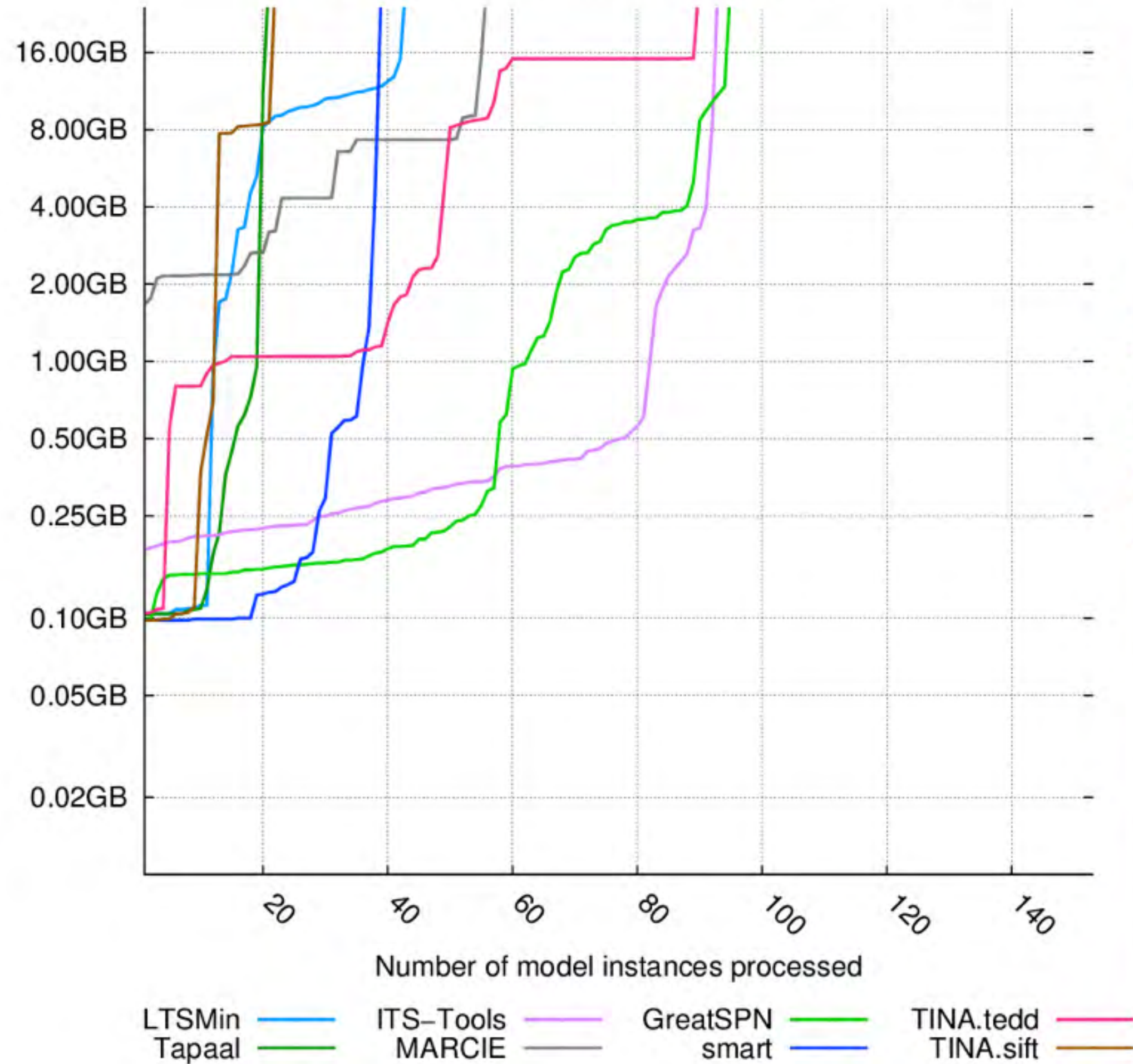


53 118 generated charts

Max memory, S
for LTLCardin

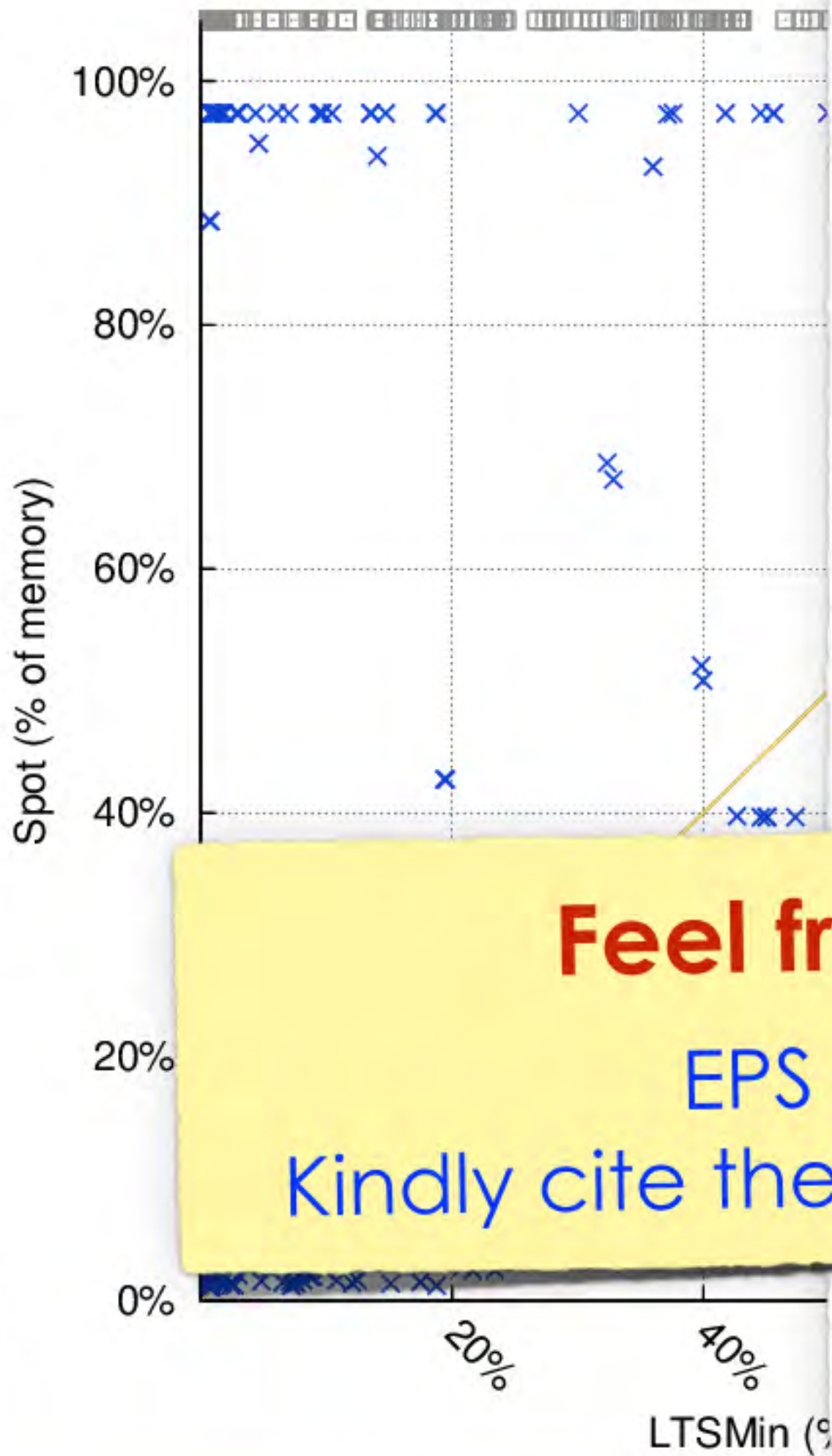


Memory Usage to Process Surprise Models (StateSpace)

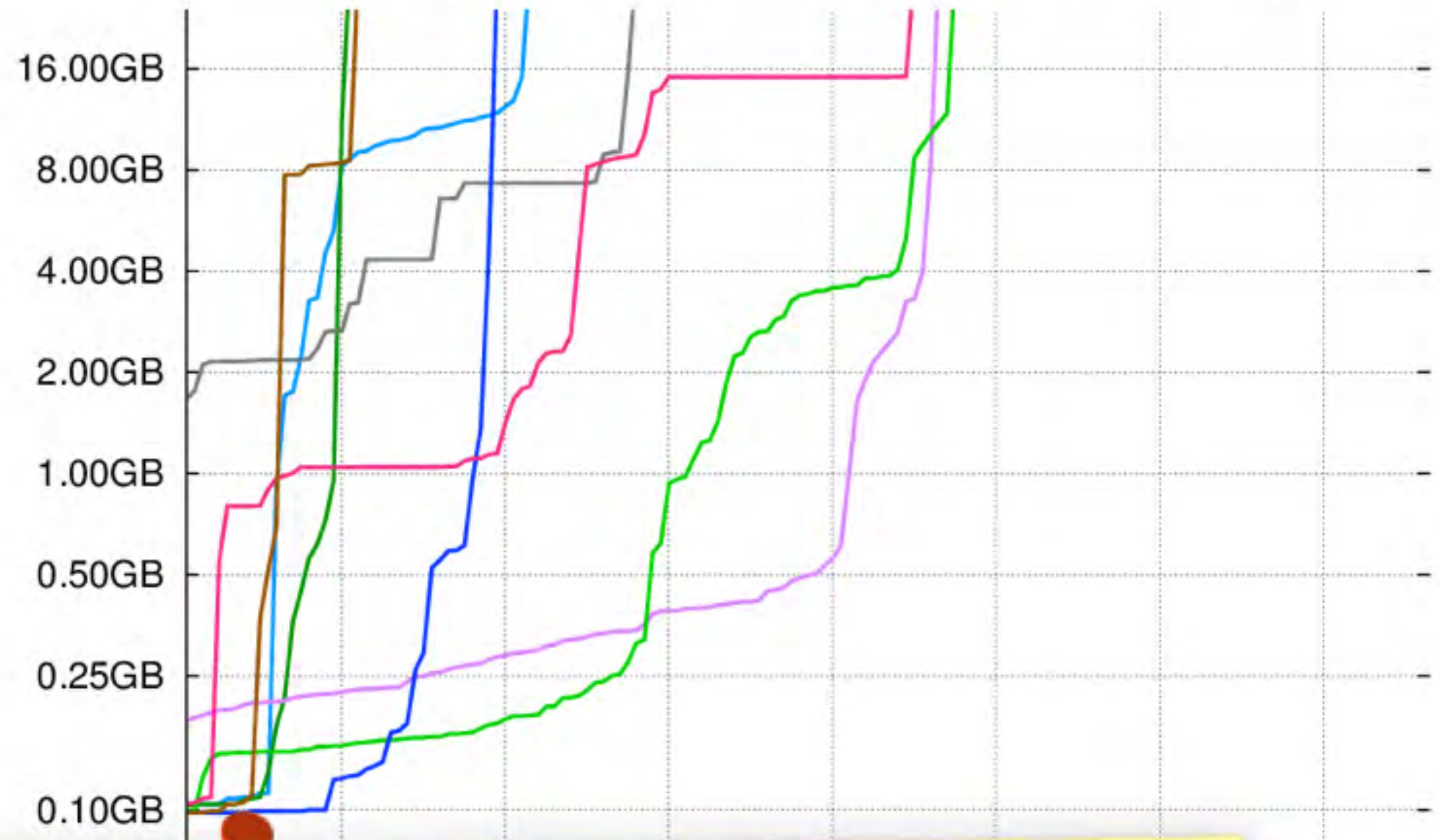


53 118 generated charts

Max memory, S
for LTLCardin



Memory Usage to Process Surprise Models (StateSpace)



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 Kindly cite the MCC (see bibtex at mcc.lip6.fr)

LTSMIn — Tapaal — ITS-Tools — MARCIE — GreatSPN — smart — TINA.tedd — TINA.sift

Counting transitions for StateSpace

- Semantics of transition count (consistency P/T versus Colored)
 - # transitions / # unique transitions

Handling some rare bugs in the benchmarks

- So far, problems detected for SimpleLoabBal
 - Consistency checks + scoring deactivated this year

Better generator for LTL

- To be completed

Discussion on bonuses

- Discuss about time / memory consumption
 - Interesting: major changes in the SAT competition on this point



WE NEED YOU TO PROVIDE MODELS FOR THE NEXT EDITIONS OF THE MODEL CHECKING CONTEST



Submission anytime

When you want,
we collect what we have on time

**And now...
let's have time for discussion**

**אגודת
2017**