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UNIVERSITÉ

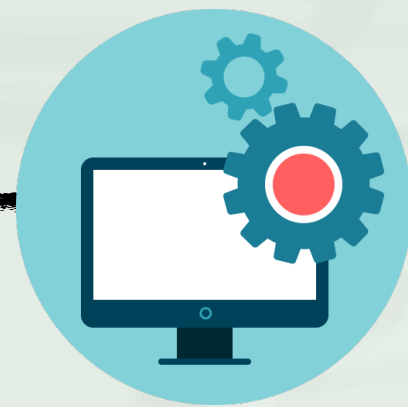
Model Checking Contest results for 2022

Fabrice Kordon — LIP6, Sorbonne Université, France

Francis Hulin-Hubard — LIP6, CNRS/Sorbonne Université, France

MCC in a nutshell

Every year since 2011
2023 is the 13th edition



- Qualification phase
- Execution phase
- Consolidation phase
- Construction of results

Home Calls Models For Developers Publications Committees Rules Previous Editions

Model Checking Contest 2022

12th edition, Bergen, Norway, June 21, 2022

Complete Results for the 2022 Edition of the Model Checking Contest

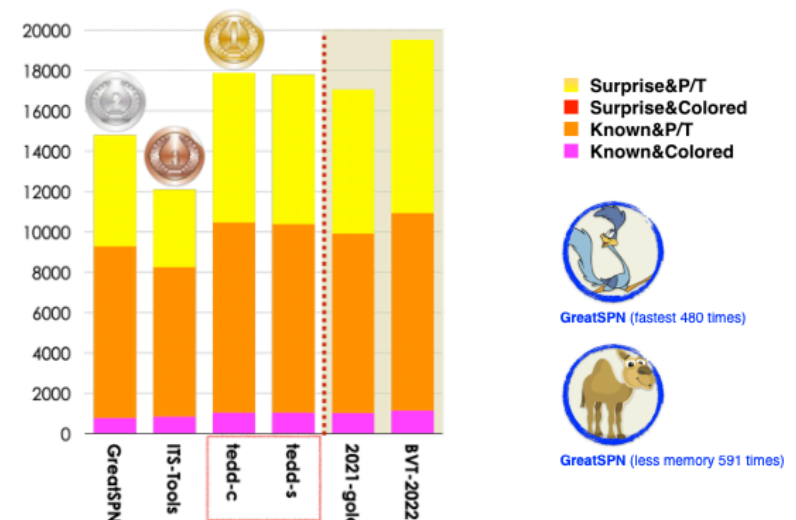
Last Updated Jun 22, 2022

5.1. Winners in the StateSpace Category

4 tools out of 7 participated in this examination. Results based on the scoring shown below is:

- TINA.tedd-c ranked first (17 887 pts after correction) which performs a bit better than TINA.tedd-s with 17 802 pts.
- GreatSPN ranked second (14 803).
- ITS-Tools ranked third (12 103 pts after correction).

Then, the Gold-medal of 2021 collected 17 063 pts. BVT (Best Virtual Tool) collected 19 511 points.



Estimated Test Confidence rate for StateSpace (based on the «significant values» computed by tools - see section 6. for details)

Tool name	Reliability	Correct Values	«significant values»
GreatSPN	99,918%	3648	3651
ITS-Tools	100,000%	2691	2691
TINA.tedd-c	99,762% 100,000%	3774	3783 3774
TINA.tedd-s	99,762% 100,000%	3772	3781 3772

What is performed by tools

Answering 6 classes of problems...

Examination	Family
StateSpace	StateSpace
ReachabilityDeadlock	GlobalProperties
QuasiLiveness	
StableMarking	
Liveness	
OneSafe	
UpperBounds	UpperBounds
ReachabilityCardinality	Reachability
ReachabilityFireability	
CTLCardinality	CTL
CTLFireability	
LTLCardinality	LTL
LTLFireability	

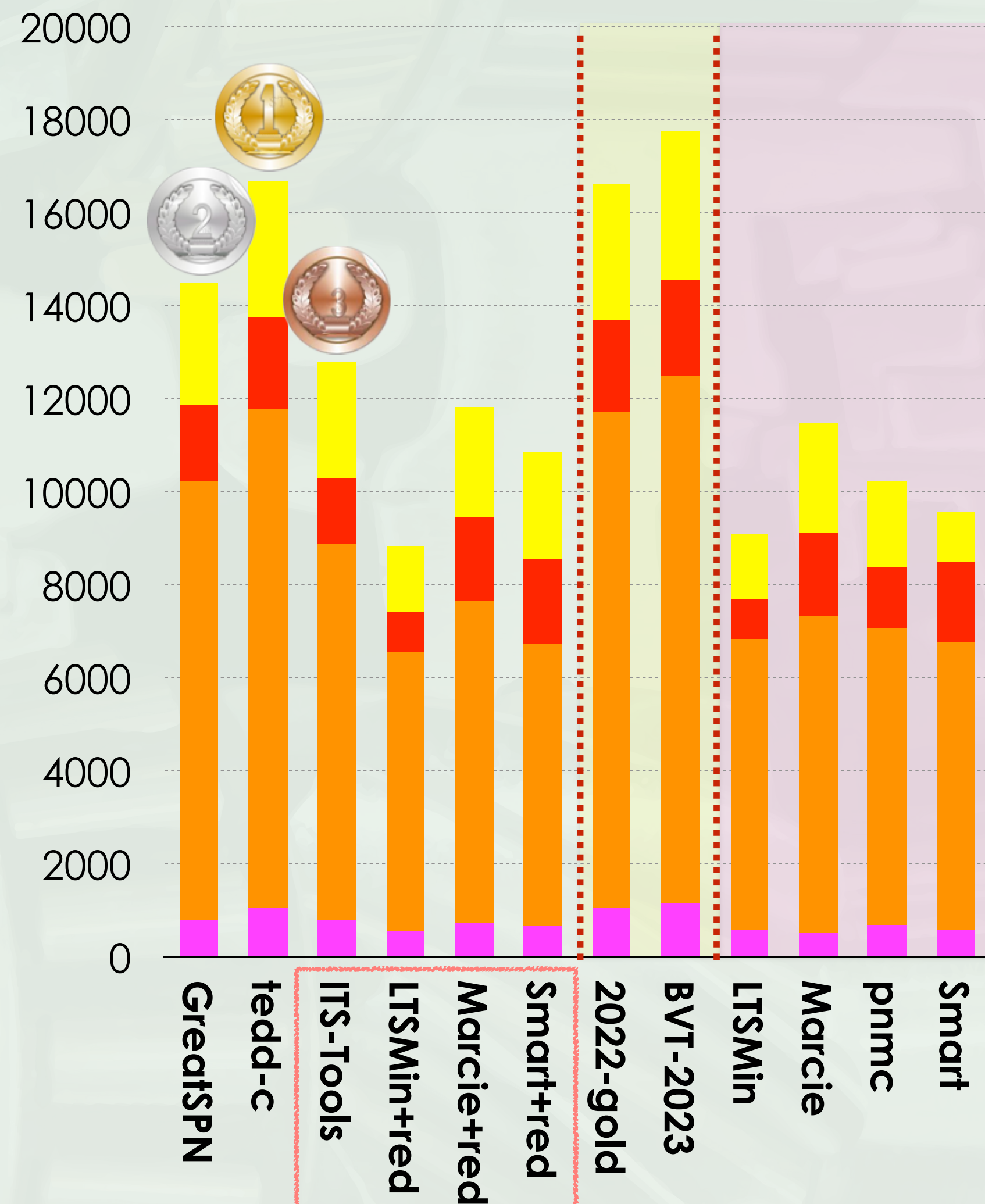
... on 132 models with a total of 1678 instances

21 814 queries (up to 16 values to be returned per query)

StateSpace Examination



Evolution since last year



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



GreatSPN
340 times



tedd-c
61.28%



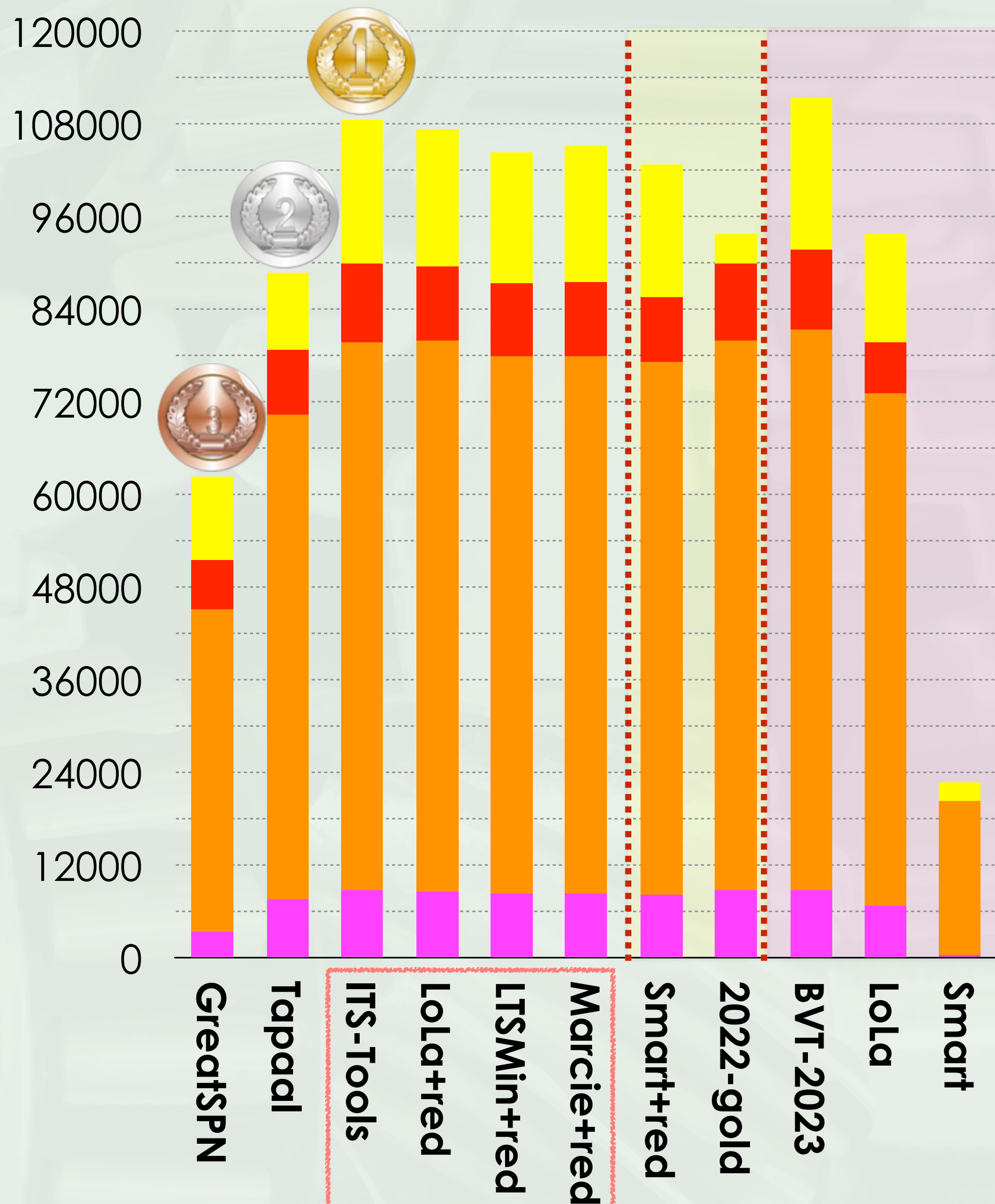
Marcie+red
145 times

StateSpace	confidence	success	computed
GreatSPN	99.847%	3912	3918
ITS-Tools	99.930%	2870	2872
tedd-c	100.000%	4113	4113
LTSMIn+red	100.000%	2048	2048
Marcie+red	100.000%	2841	2841
Smart+red	99.726%	2544	2551
2022-gold	100.000%	4089	4089
BVT-2023	100.000%	4146	4146
LTSMIn	100.000%	2189	2189
Marcie	100.000%	2700	2700
pnmc	100.000%	1908	1908
Smart	99.239%	2477	2496

Global Properties Examinations



Evolution since last year



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



Tapaal
739 times



ITS-Tools
93.86%



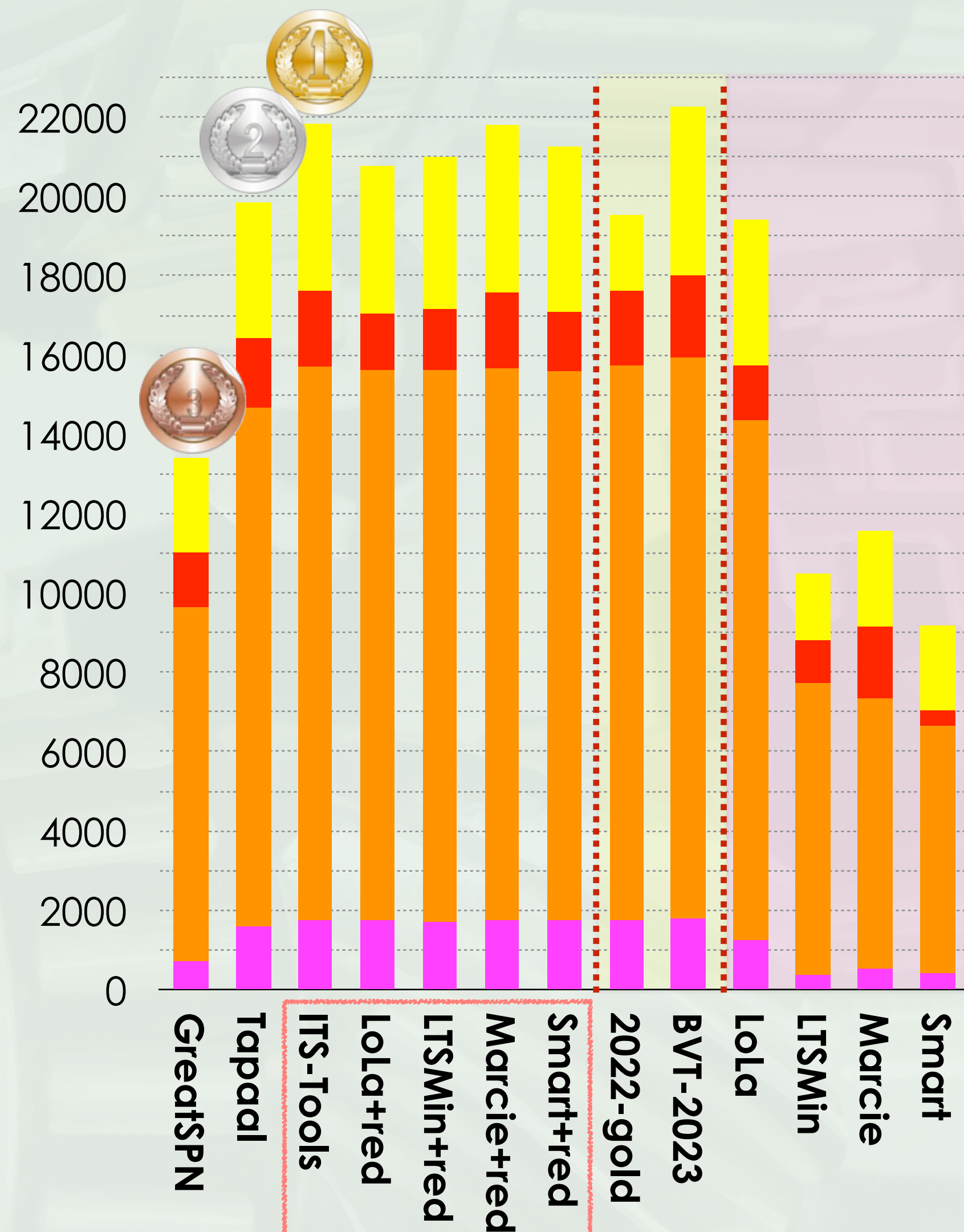
Marcie+red
1299 times

StateSpace	confidence	success	computed
GreatSPN	100.000%	4339	4339
ITS-Tools	100.000%	7875	7875
Tapaal	99.727%	6930	6949
Lola+red	99.987%	7866	7867
LTSMIn+red	100.000%	7725	7725
Marcie+red	100.000%	7729	7729
Smart+red	99.282%	7742	7798
2022-gold	99.949%	7807	7811
BVT-2023	100.000%	7922	7922
Lola	99.680%	7154	7177
Smart	97.514%	2079	2132

UpperBounds Examination



Evolution since last year



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



Tapaal
91 times



ITS-Tools
93.16%



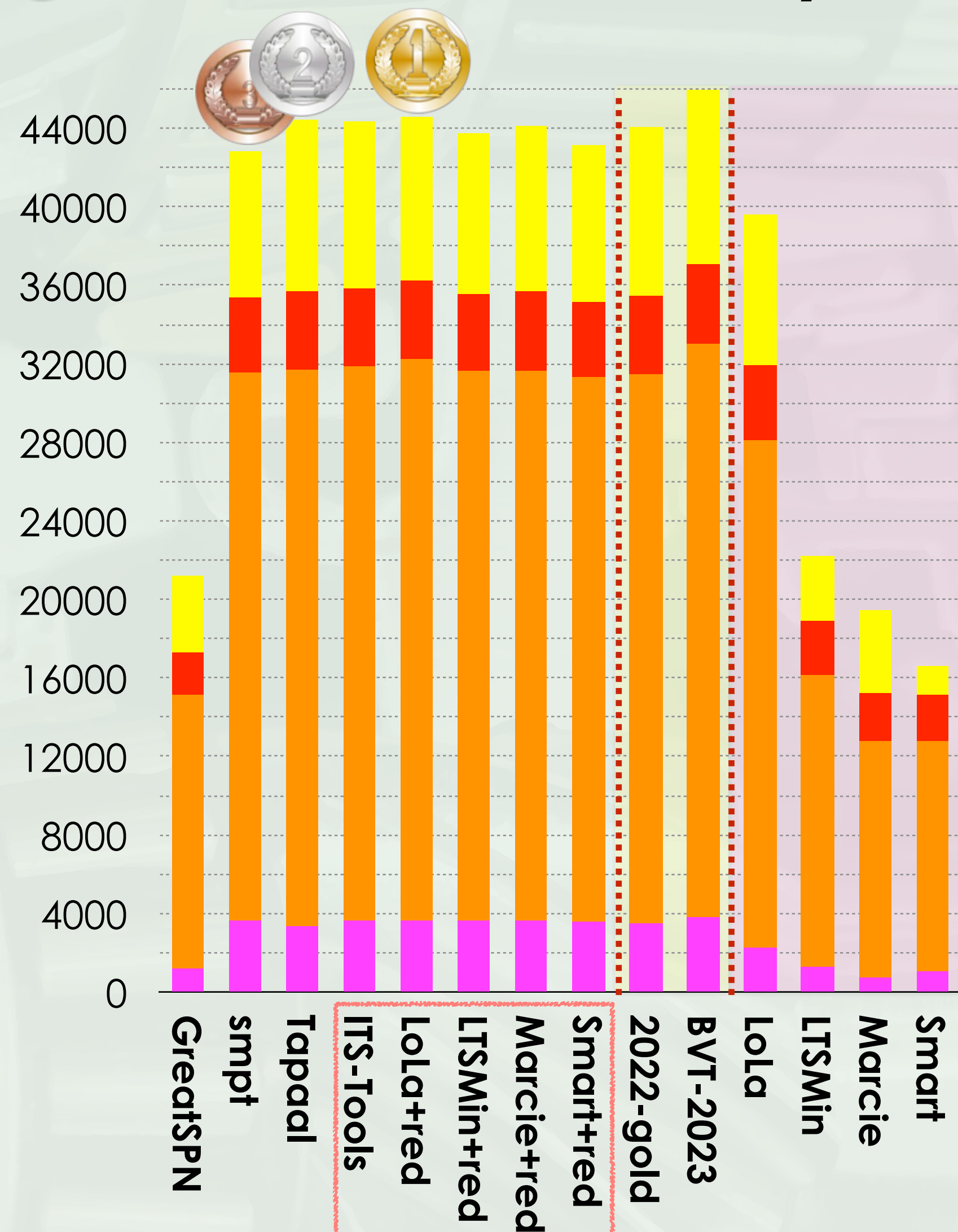
LoLa+red
212 times

StateSpace	confidence	success	computed
GreatSPN	100.000%	14955	14955
Tapaal	100.000%	23163	23163
ITS-Tools	99.992%	25011	25013
LoLa+red	100.000%	24806	24806
LTSMIn+red	100.000%	24830	24830
Marcie+red	100.000%	24955	24955
Smart+red	100.000%	24892	24892
2022-gold	99.988%	24750	24753
BVT-2023	100.000%	25054	25054
LoLa	100.000%	22542	22542
LTSMIn	100.000%	11888	11888
Marcie	100.000%	10900	10900
Smart	99.493%	9803	9853

Reachability Formulas Examinations



Evolution since last year



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



Tapaal
491 times



ITS-Tools
95.12%



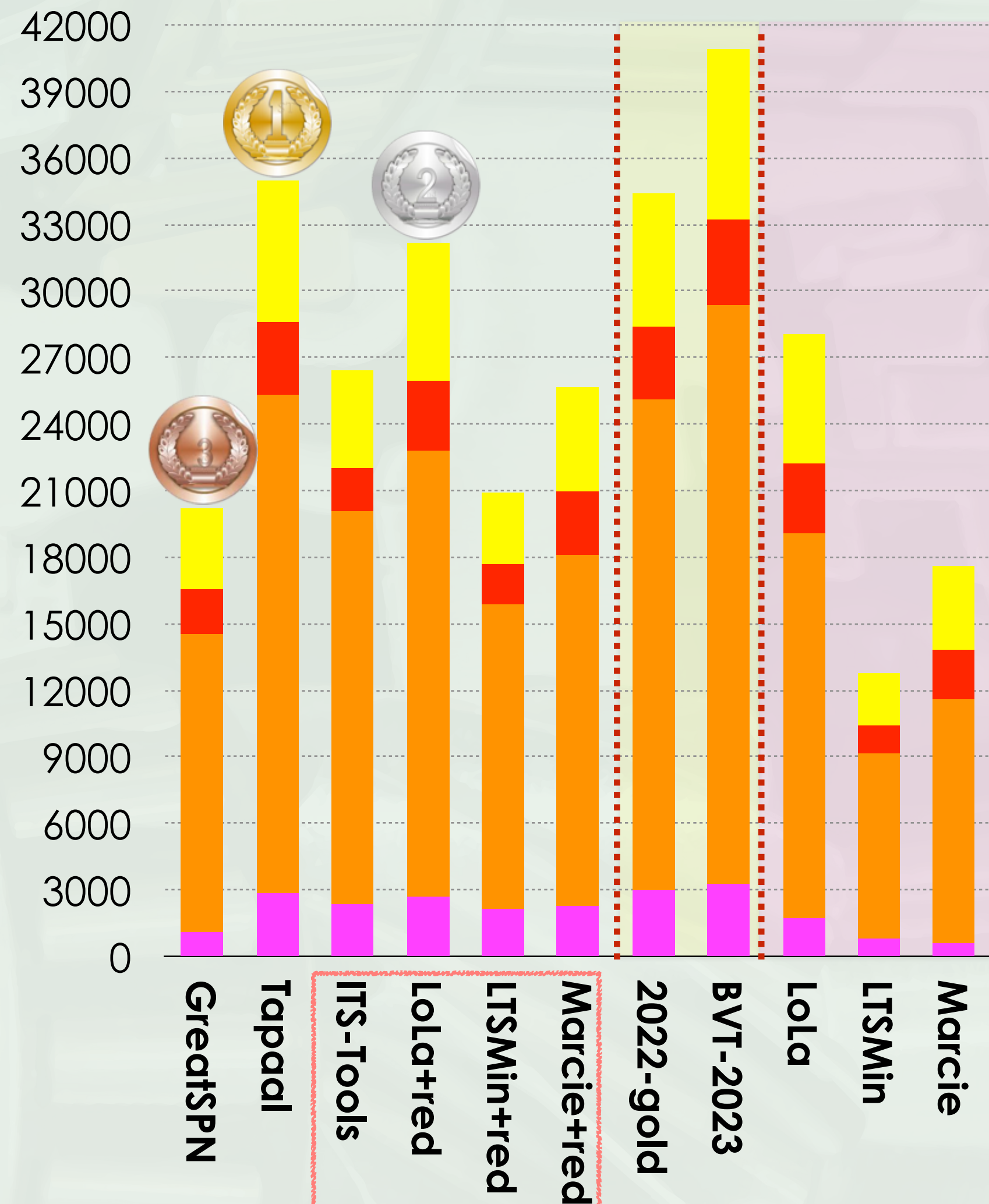
Marcie+red
463 times

StateSpace	confidence	success	computed
GreatSPN	100.000%	22934	22934
ITS-Tools	99.996%	50573	50575
smpt	99.998%	49838	49839
Tapaal	100.000%	50184	50184
Lola+red	100.000%	51078	51078
LTSMin+red	100.000%	50046	50046
Marcie+red	100.000%	50152	50152
Smart+red	99.944%	49764	49792
2022-gold	100.000%	50002	50002
BVT-2023	100.000%	51659	51659
Lola	99.977%	43920	43930
LTSMin	100.000%	24853	24853
Marcie	100.000%	18494	18494
Smart	99.822%	17969	18001

CTL Formulas Examinations



Evolution since last year



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



GreatSPN
392 times



ITS-Tools
64.72%



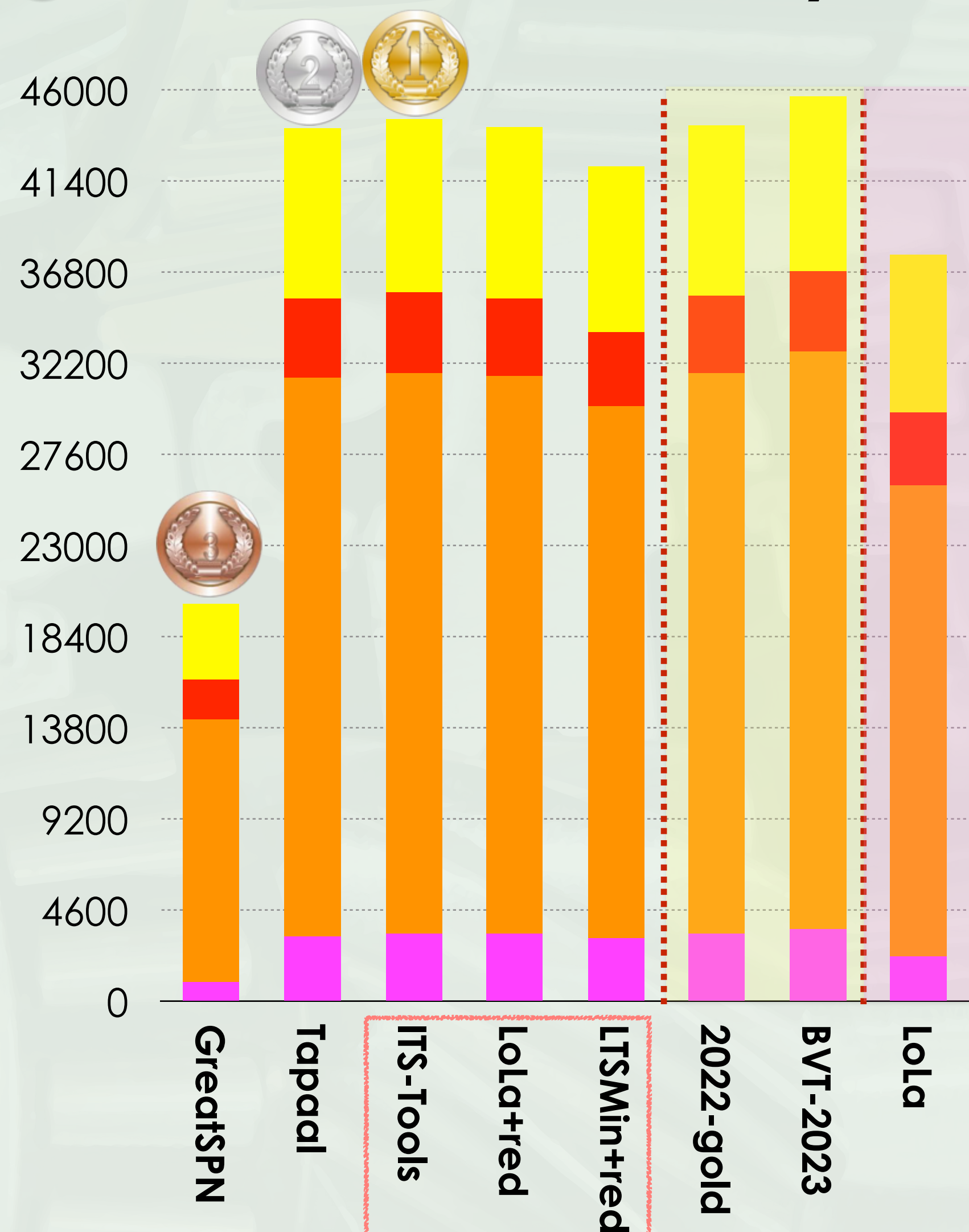
ITS-Tools
234 times

StateSpace	confidence	success	computed
GreatSPN	100.000%	20690	20690
ITS-Tools	99.996%	28307	28308
Tapaal	99.963%	34751	34764
Lola+red	99.985%	32914	32919
LTSMin+red	99.996%	22955	22956
Marcie+red	99.969%	25756	25764
2022-gold	99.962%	34451	34464
BVT-2023	100.000%	36873	36873
LoLa	99.952%	29140	29154
LTSMin	99.918%	13444	13455
Marcie	99.981%	16071	16074

LTL Formulas Examinations



Evolution since last year



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



Tapaal
537 times



ITS-Tools
90.99%



ITS-Tools
554 times

StateSpace	confidence	success	computed
GreatSPN	98.145%	22068	22485
ITS-Tools	99.994%	48856	48859
Tapaal	100.000%	48932	48932
Lola+red	100.000%	48549	48549
LTSMin+red	100.000%	46347	46347
Marcie+red	100.000%	18780	18780
Smart+red	100.000%	18903	18903
2022-gold	100.000%	49028	49028
BVT-2023	100.000%	49162	49162
LoLa	99.961%	41216	41232

The MCC Team

Hubert Garavel
(Inria)



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(Inria)

**Managing
Models**

**Managing
Execution +
analysis**

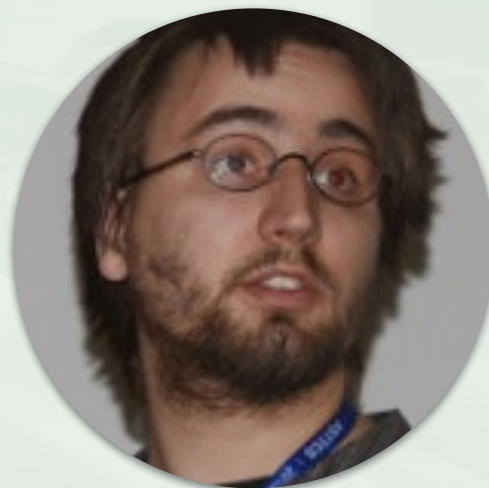
Fabrice Kordon
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(U. Nantes)



Emmanuel Paviot-Adet
(UPC)



**Managing
Formulas**