Accelerating SAT-Based HTN Plan Verification by Exploiting Data Structures from HTN Planning Songtuan Lin<sup>1</sup> & Gregor Behnke<sup>2</sup> & Pascal Bercher<sup>1</sup> <sup>1</sup>School of Computing, The Australian National University <sup>2</sup>Institute for Logic, Language, and Computation, University of Amsterdam {songtuan.lin, pascal.bercher}@anu.edu.au, g.behnke@uva.nl







- Plan verification has a wide range of applications in practice.
- 🗞 E.g., planning domain validation and mixed-initiative planning.
- ∞ It is NP-complete for hierarchical planning in general.
- We have developed a novel HTN plan verification approach based on SAT.
- Solving HTN planning problems.

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	Instances	SAT (Ours)		Planning		
		Loose	Tight	SAT	Progression	
	269	269	269	269	269	
	219	219	219	219	141	
	171	171	171	171	163	
ng	162	162	162	162	162	
))	130	130	130	130	130	
<b>C</b> )	103	103	103	103	103	
DI	68	63	63	58	58	
.og	57	57	57	57	57	
C	31	31	31	31	31	
•	1	1	1	1	1	
	1211	1206	1206	1201	1115	

	Instances	SAT (Ours)		Planning		
	moraneee	Loose	Tight	SAT	Progression	
	66	66	66	23	66	
	64	54	64	18	33	
log	59	59	59	14	59	
U	53	41	53	6	47	
0)	24	24	24	1	24	
ng	21	21	21	0	21	
DI	18	18	18	0	16	
0)	18	18	18	2	18	
	12	12	12	0	12	
l	4	4	4	0	4	
	339	317	339	64	300	