



# ChroKnowledge

Unveiling Chronological Knowledge of Language Models in Multiple Domains

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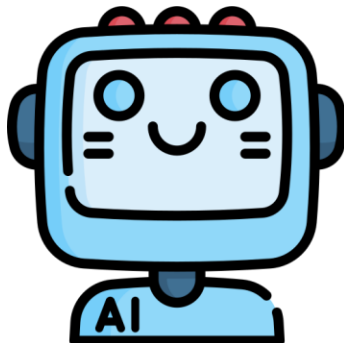
Yein Park, Chanwoong Yoon, Jungwoo Park, Donghyeon Lee,  
Minbyul Jeong, Jaewoo Kang



**ICLR 2025**



Q. In XXXX, Lionel Messi was a member of sports team  
A.



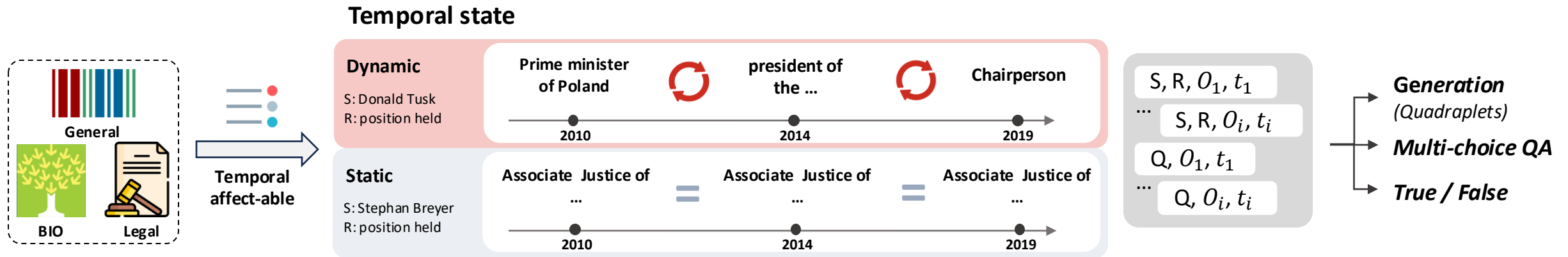
**X**  
A. **Barcelona**



**O**  
A. **Barcelona**



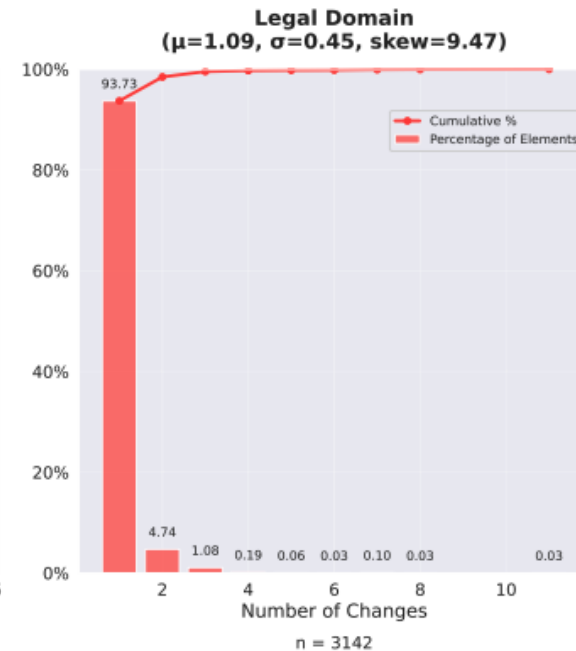
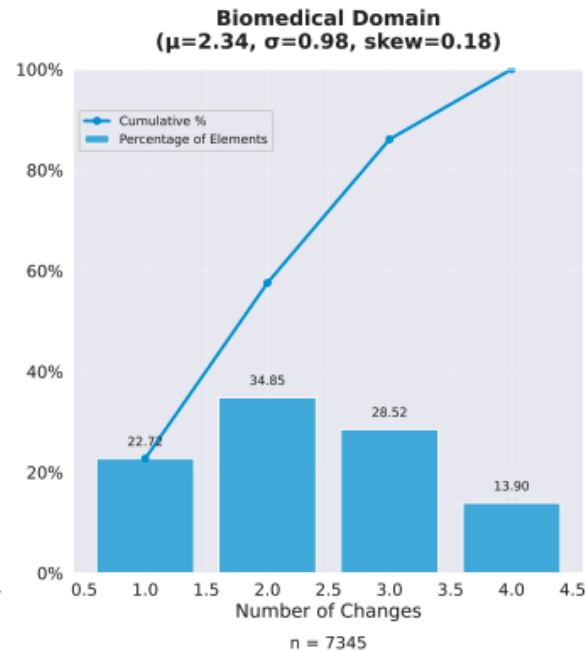
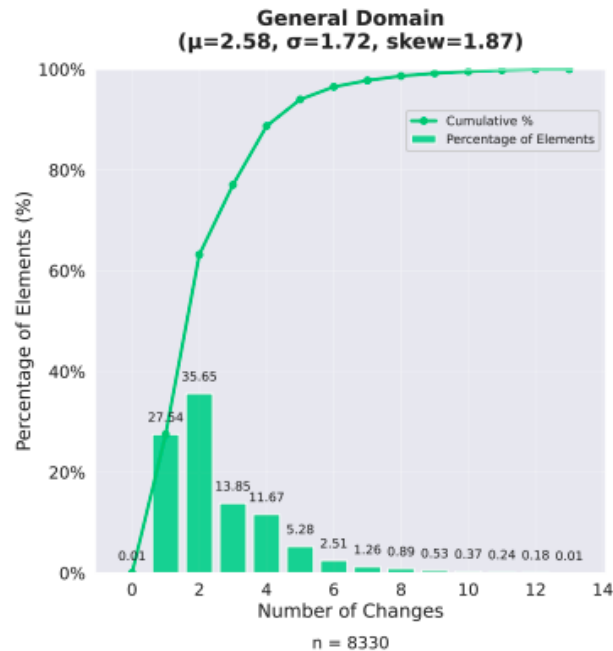
## Time-variant



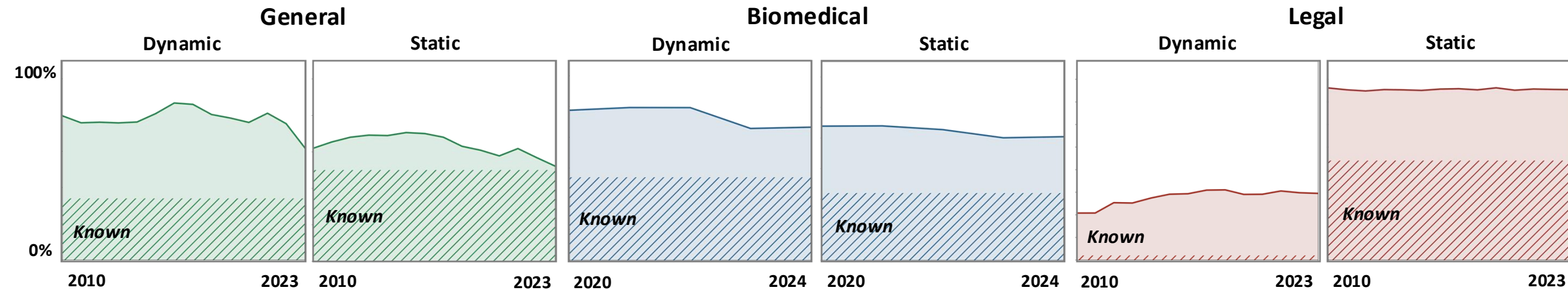
## Time-Invariant

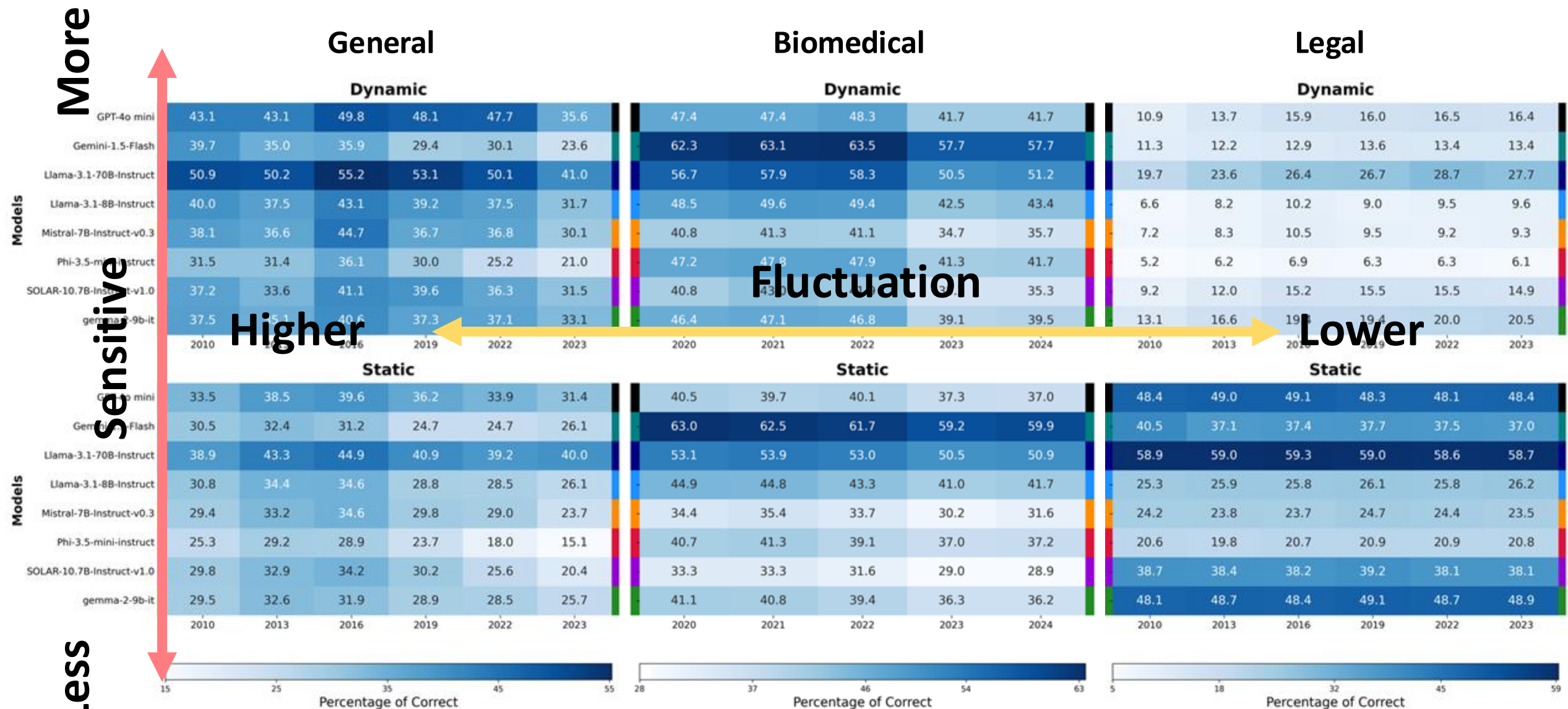


Time Dependency	Domain (Time Frame)	# of Relations	Structured	Format	Temporal State	# of Examples	Source
Time Variant	general (2010 - 2023)	8	✓	$(s, r, o, t)$	dynamic (2.6) static	8,330 8,302	Wikidata
	biomedical (2020 - 2024)	14	✓	$(s, r, o, t)$	dynamic (2.3) static	7,345 7,345	UMLS
	legal (2010 - 2023)	6*	✗	QA	dynamic (1.1) static	3,142 3,142	CFR
Time Invariant	commonsense	8	✓	$(s, r, o)$	invariant	24,788	CSKG
	math	12	✓	$(s, r, o)$	invariant	2,585	Math-KG



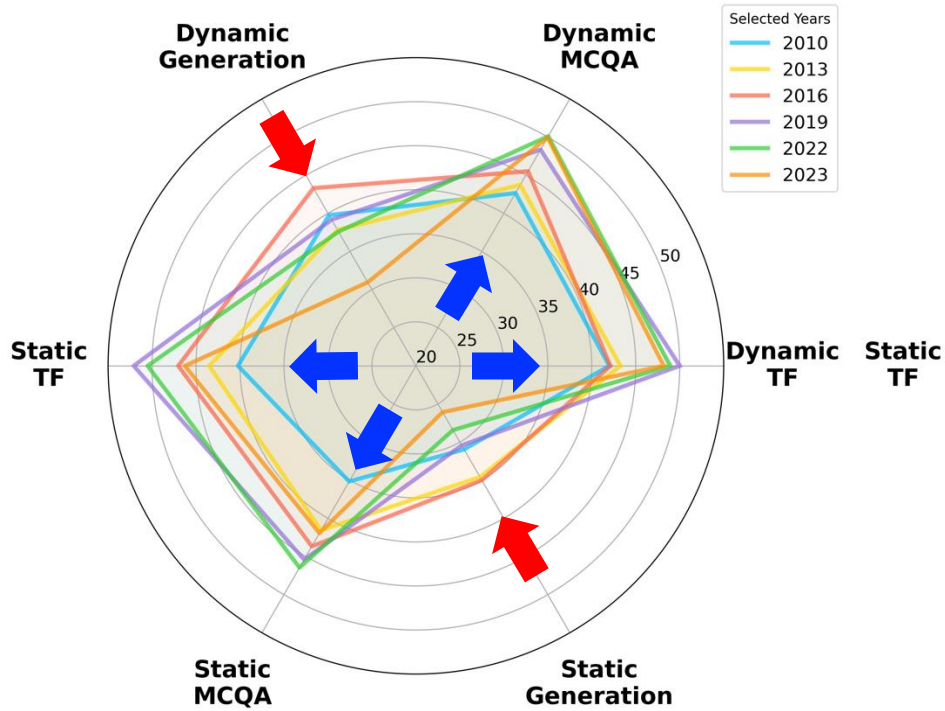
Category	Description
○ Correct	All objects generated with greedy decoding are entirely included within the answer set.
△ Partial Correct	At least one generated object from greedy decoding or temperature sampling is in the answer set.
✗ Incorrect	None of the generated objects, either from greedy decoding or temperature sampling, are included in the answer set.



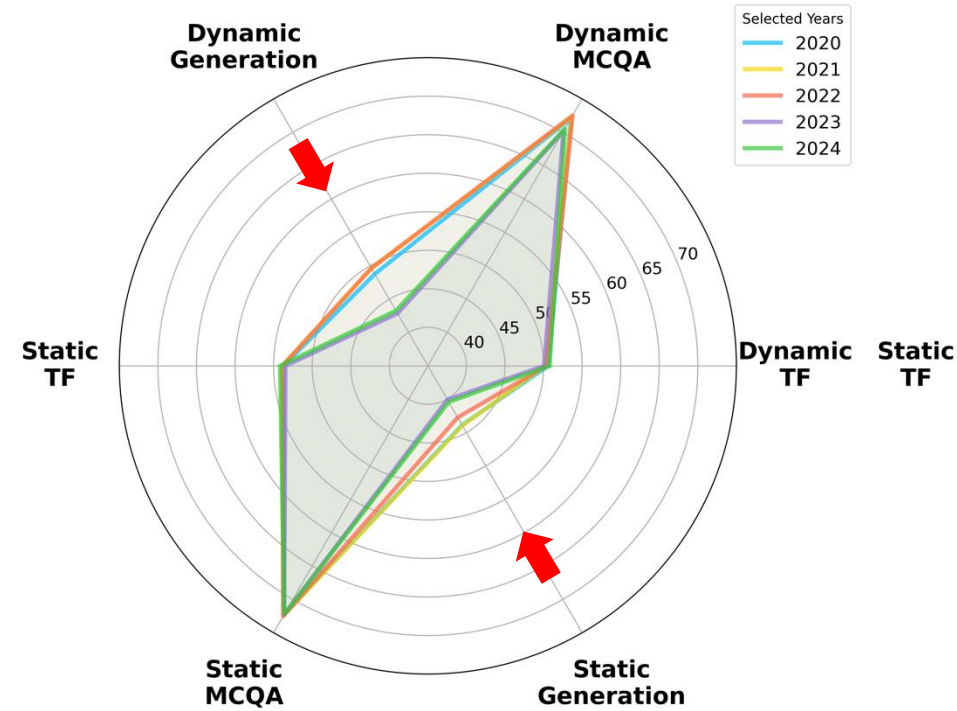




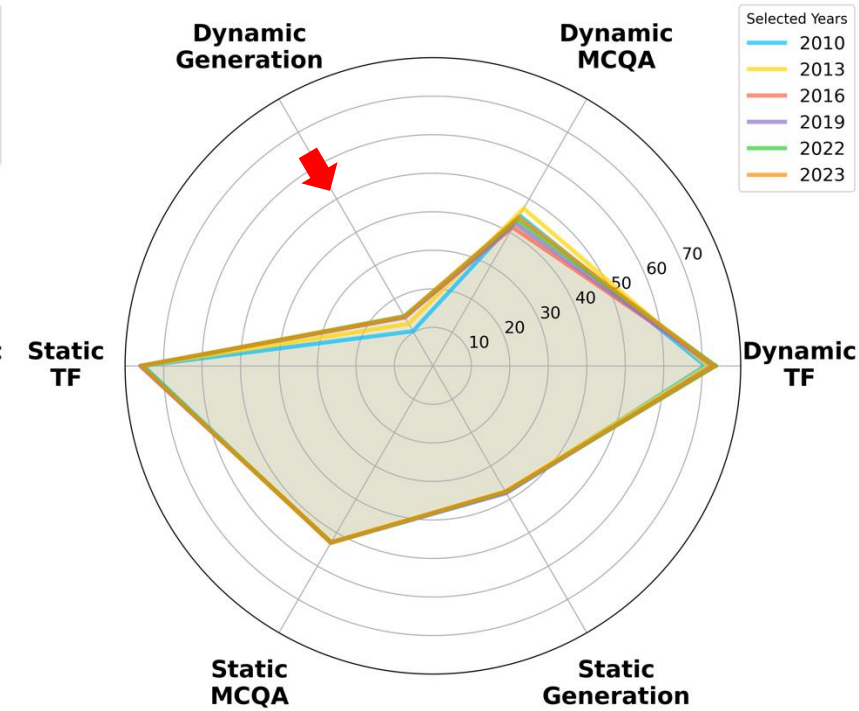
## General



## Biomedical



## Legal

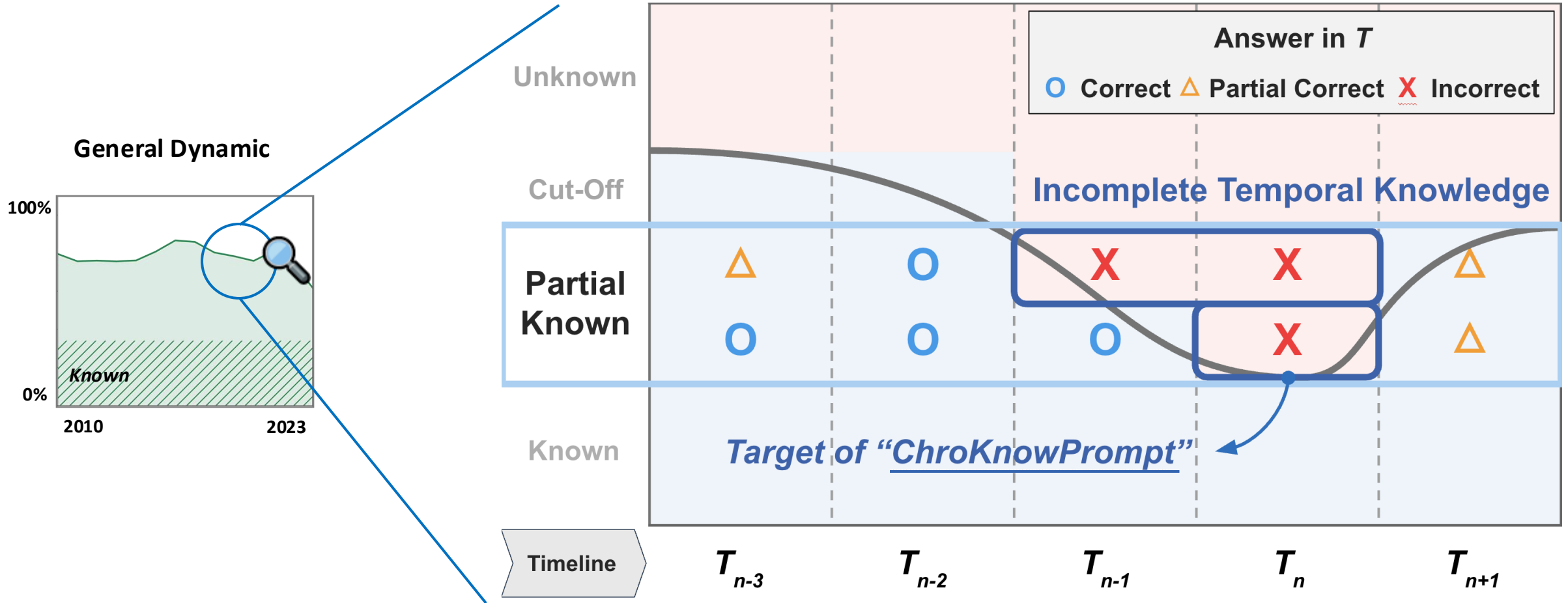


**Effect of Template**

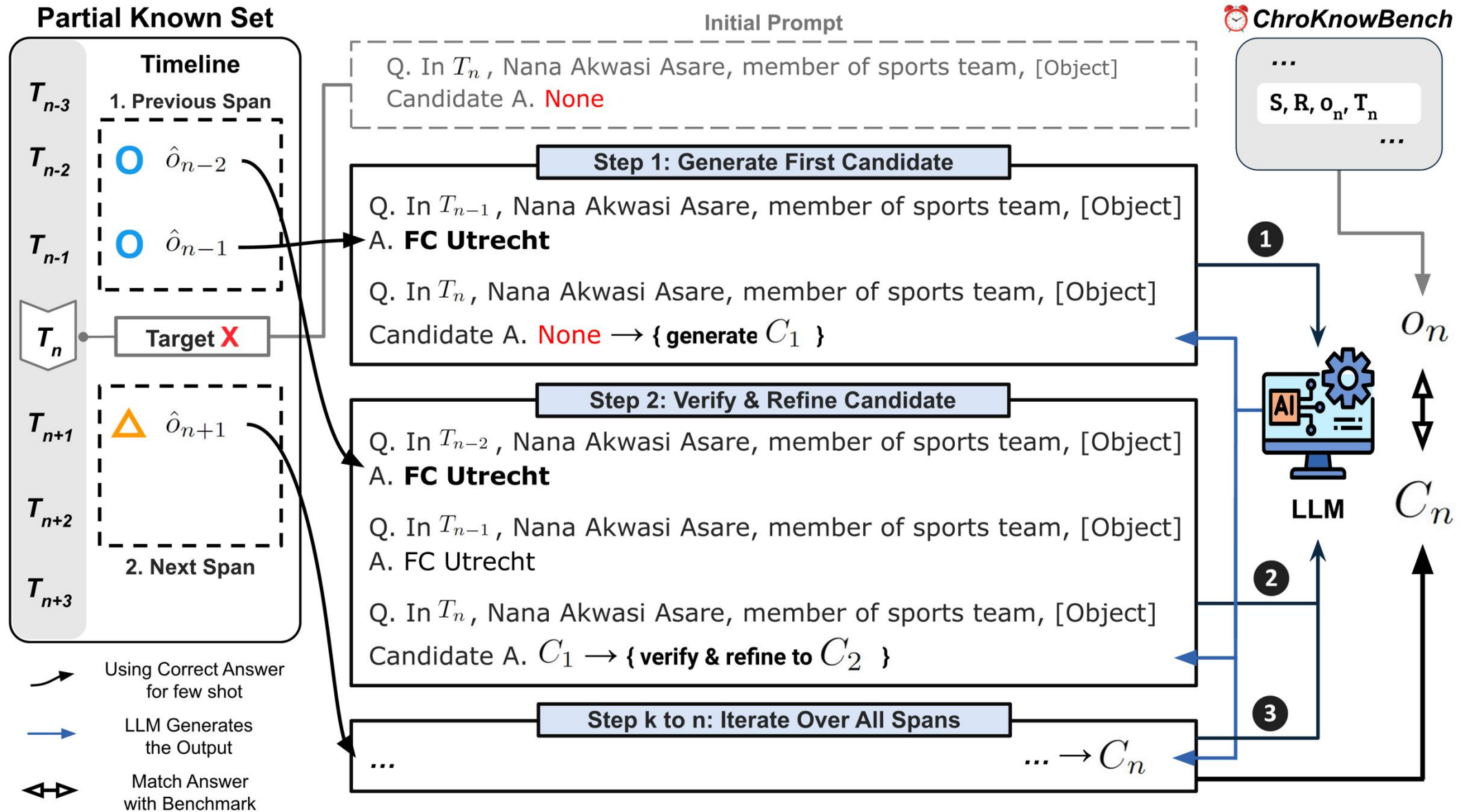
**Higher**

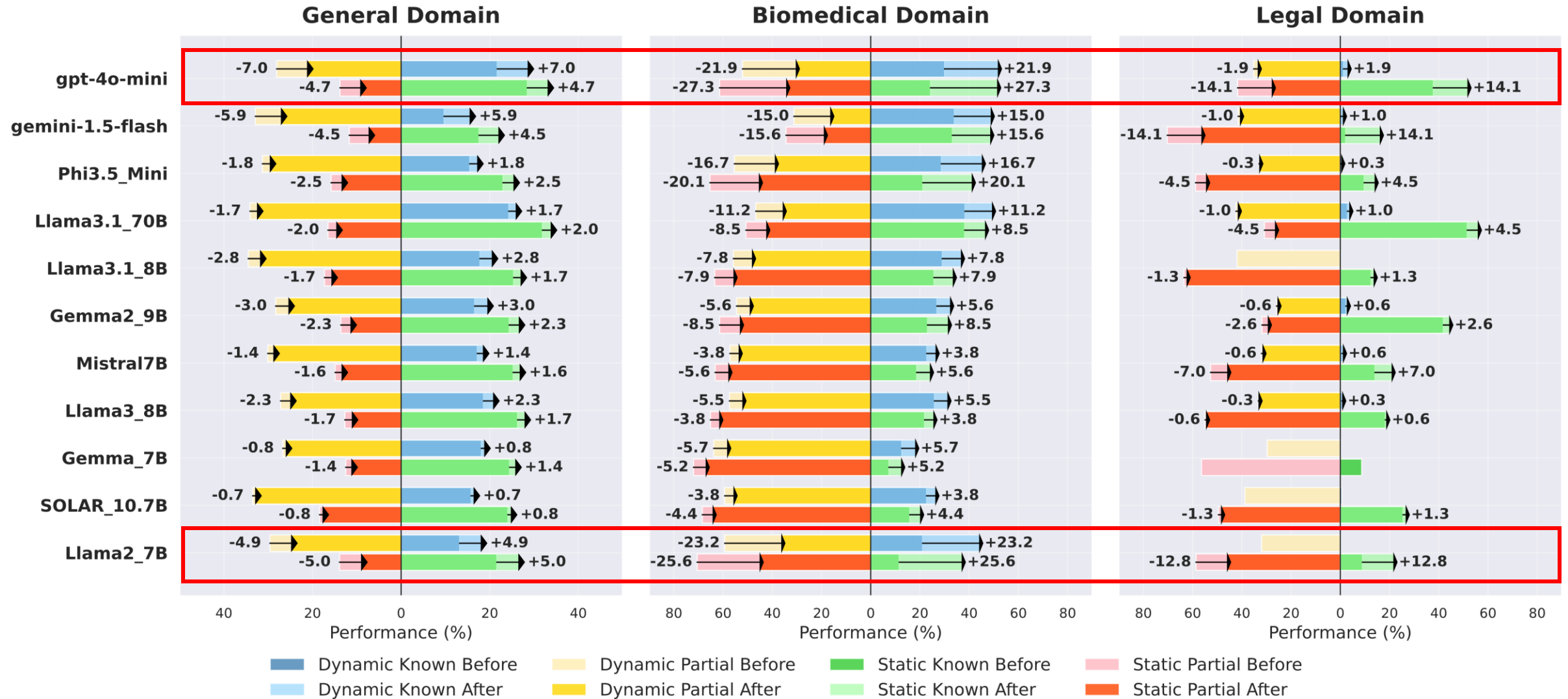


**Lower**







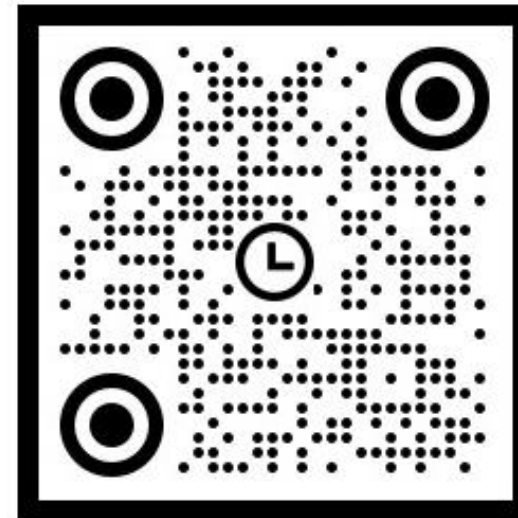


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**THANK YOU**