

Table 10: Concept Matrix

Ref.	Year	Publication type	NLP/LLM Tool	Transformation approach	Supported BPMN elements					Generation methods and output				Evaluation		Datasets				
					Task	Events	Gateways	Roles	Data	Automation degree	Generation method	Output file types	Visualisation library	Evaluation method	Evaluation metrics	Origin	Synthetic or Real	Number of processes	Domain	Availability
[18]	2017	Conference	Penn TreeBank, Stanford CoreNLP, Stanford Parser	Graph-based		not specified				hybrid	UPROM[7]	not specified	UPROM[7]	case study	-	self-created	real	8	education	private
[19]	2018	Conference	spaCy, WordNet	List-based	Task	Start, End	XOR	-	-	automated	library (bpmn-python)	XML	-	case study	-	BPM Academic Initiative	-	1	service	public ²⁴
[3]	2019	Conference	Stanford Parser, Stanford Relations, WordNet	Partial order-based	-	-	-	-	-	manual	-	-	-	test dataset	Precision, Recall, F1-Score	self-created	synth/real	103	-	public ²⁵
[33]	2020	Conference	FreeLing, Stanford Tregex, WordNet	List-based	-	-	-	-	-	manual	-	-	-	test dataset	Precision, Recall, F1-Score	self-created	synth/real	18	-	public ²⁶
[1]	2020	Conference	Google Speech Cloud	Partial order-based	-	-	-	-	-	manual	-	-	-	expert evaluation	-	-	-	-	-	-
[21]	2020	Conference	-	Direct translation	Task (+type)	Events (+type)	XOR, Event-based	+, Pools, Lanes	-	automated	process rule-based	mining, not specified	not specified	-	-	-	-	-	-	-
[4]	2021	Conference	GloVe, spaCy, UD-Pipe, Word2Vec	List-based	-	-	-	-	-	manual	-	-	-	test dataset	F1-Score	self-created	synth/real	-	-	private
[10]	2022	Conference	GPT-3	List-based	-	-	-	-	-	manual	-	-	-	test dataset	Precision, Recall, F1-Score	PET[9]	synth/real	7	-	public ²⁷
[36]	2022	Journal	Stanza	List-based	Task	Events	XOR, OR, +	Pools, Lanes	Object, Store	hybrid	rule-based	not specified	not specified	case study	-	self-created	synth	10	finance	public[36]
[22]	2022	Journal	-	Direct translation	Task (+type)	Events (+type)	XOR, Event-based	+, Pools, Lanes	-	automated	process rule-based	mining, image, XML	dagre-d3	-	-	-	-	-	-	-
[37]	2023	Journal	Chen and Manning, Stanford CoreNLP, Stanford Lemmatizer, Stanford POS tagging, WordNet	Graph-based	Task	Start, End	XOR	Pools, Lanes	-	automated	rule-based	-	not specified	-	not specified	self-created	synth/real	52	-	part. public ²⁸
[27]	2024	Conference	Google GPT-4 Gemini	Partial order-based	Task	Start, End	XOR	-	-	automated	library (pm4py)	image, XML	pm4py	-	-	self-created	synth	2	-	public[27]
[28]	2024	Conference	GPT-4	Partial order-based	Task	Start, End	XOR, +	-	-	automated	library (pm4py)	image, XML	pm4py	-	-	self-created	synth	1	e-commerce	public[29]
[14]	2024	Conference	GPT-4	List-based	Task	Start, End	XOR, OR, +	-	-	automated	rule-based	XML	not specified	case study	-	self-created	-	1	government	public[14]
[11]	2024	Conference	GPT-3	List-based	-	-	-	-	-	manual	-	-	-	test dataset	Precision, Recall, F1-Score	PET[9]	synth/real	-	-	public ²⁸
[32]	2024	Conference	GPT-3.5	Graph-based	Task	Start, End	XOR, OR, +	-	-	automated	rule-based	not specified	bpmn.io	-	-	self-created	synth/real	200	-	private
[41]	2025	Conference	Google Gemini, GPT-3.5, GPT-4	Direct translation	Task	Start, End	XOR, +	Pools, Lanes	-	automated	LLM	image, XML	bpmn-js	-	-	-	-	-	-	private

²⁴ <https://bpmai.org/BPMACademicInitiative/CreateProcessModels>²⁵ <https://github.com/hanvanderaa/declarextraction>²⁶ https://github.com/setzer22/alignment_model_text/tree/master/datasets/NewData_set²⁷ <http://huggingface.co/datasets/patriziobellan/PET>²⁸ <http://github.com/FabianFriedrich/Text2Process>