Information Extraction based Approach for the NTCIR-10 1CLICK-2 Task

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Framework

Query

Three IE Methods

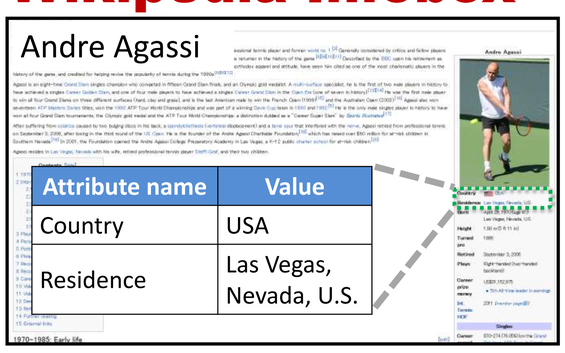
IE for Highly Structured Information

IE from Table

Check in	15:00
Check out	10:00

Check in: 15:00
Check out: 10:00

IE from Wikipedia Infobox



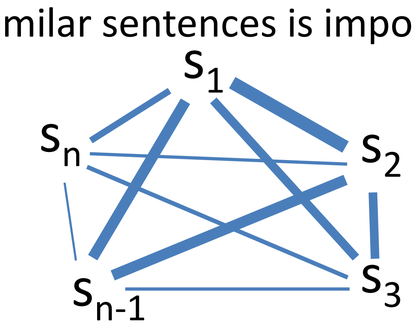
IE based on Regular Expression

Tel: *ddd-ddd-dddd*

Important Sentence Extraction

TextRank-based IE

- The sentence having many similar sentences is important



IE based on Access Information

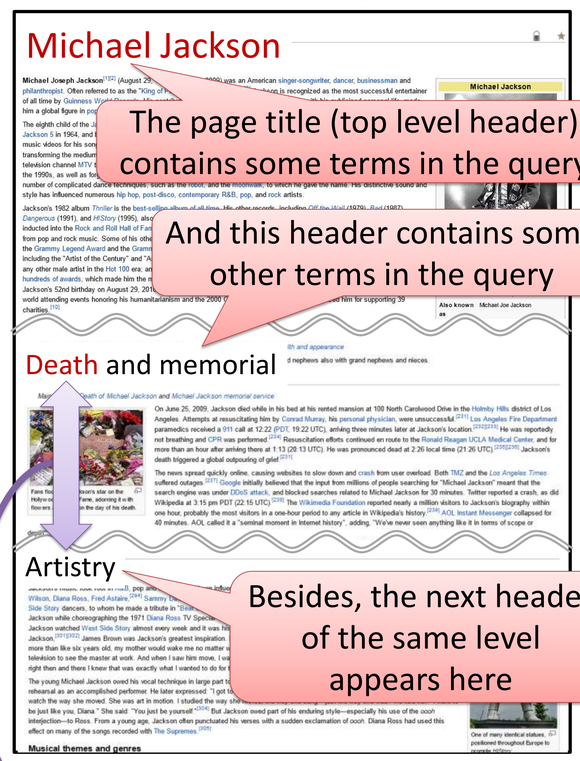
- Access information usually contains typical words

Station / By Car / 10 minutes

JR焼津駅よりお車で約10分
富士山静岡空港より約40分

Airport / 40 minutes

IE based on Hierarchical Headings



Query Classifier

Multi Class SVM

Features for Japanese Queries	# of Features	Only on Open Runs
Query length	2	
In dictionary	10	
Frequency of parts-of-speech	9	
Query Unigram	3	
Sentence pattern	2	
# of documents containing Expanded query	19	*
# of search results	1	*
Terms in search results	36	*
Sites in search results	44	*
Total	**126**	

Features for English Queries	# of Features	Only on Open Runs
In dictionary	11	
Frequency of parts-of-speech	12	
Sentence pattern	2	
Terms in search results	8	*
Sites in search results	9	*
Total	**42**	

Key-Value Pairs

Query Type

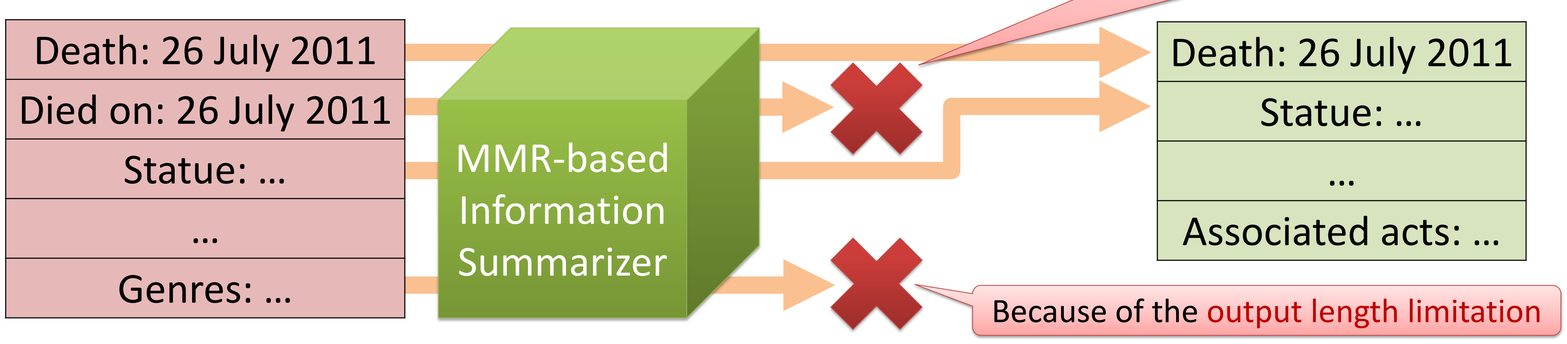
Weighting Function

$$\text{Score}'(u) = c_{t,e}\,\text{Score}(u),$$

where t is the query type and e is the extraction method

$c_{t,e}$	ARTIST	ACTOR	POLITICIAN	ATHLETE	FACILITY	GEO	DEFINITION	QA
IE for Highly Structured Information	2	2	1	2	**5**	**4**	2	1
Important Sentence Extraction	1	1	1	2	1	1	3	**4**
IE based on Hierarchical Headings	**4**	3	2	1	1	1	2	**4**

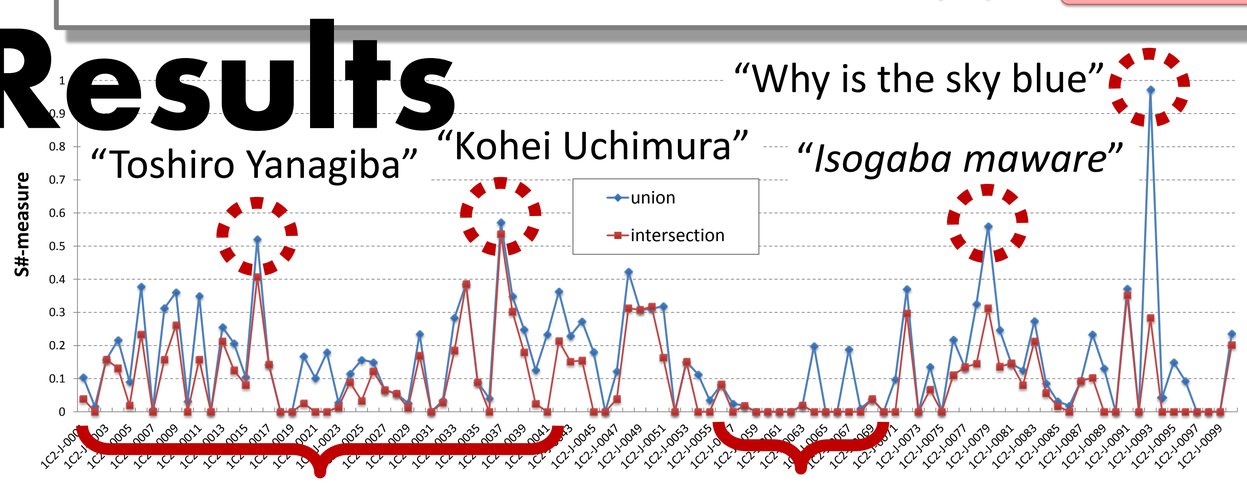
Information Summarizer



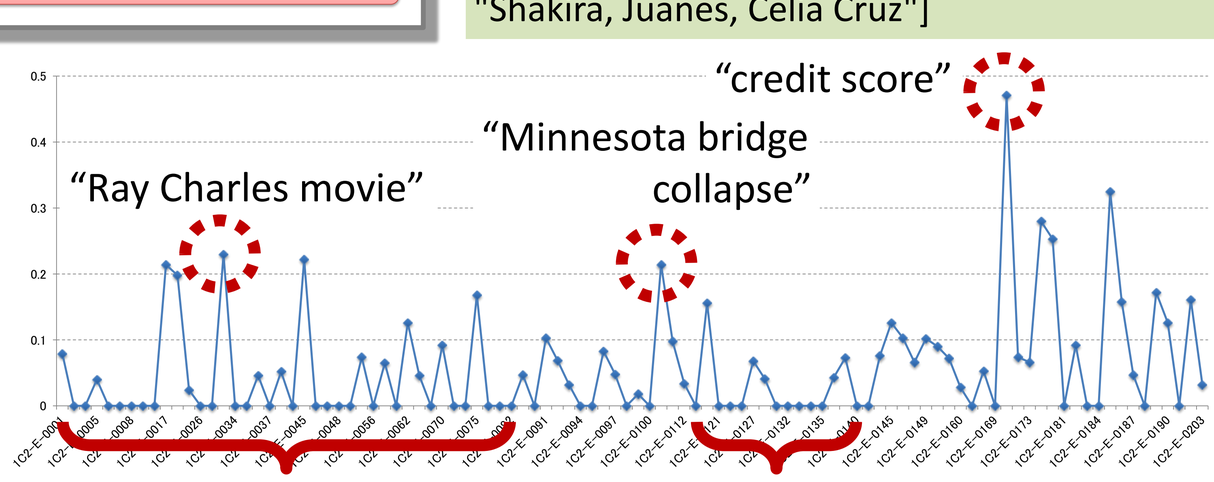
Summarized Text

["death": "26 July 2011"], ["statue": "Joe Arroyo's Statue on Barranquilla"], ["career": "Life and career"], ["music": "Joe Arroyo obituary"], ["Persondata": "Place of death"], ["Instruments": "Vocals, Wood block"], ["Born": "(1955-11-01)1 November 1955Cartagena de Indias, Bolivar, Colombia"], ["Associated acts": "Shakira, Juanes, Celia Cruz"]

Results



Per-query S#-measure of KUIDL-J-D-MAND-1



Per-query S#-measure of KUIDL-E-D-MAND-5

- The greater part of our methods seems effective for CELEBRITY queries.
- Our methods are ineffective for GEO queries which are for retrieving object sets.