**Building and Querying Semantic Layers for Web Archives**

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Comparative evaluation of effectiveness – List of information needs

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| --- | --- | --- | --- |
| **No.** | **Information Need** | **Free-text query** (the date is manually specified in each search system) | **SPARQL QUERY** |
| 1 | Find articles between  1998-06-01 and 1998-08-30 discussing about actors winners of an academy award for Best Actor | Best actor academy award winner | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Best\_Actor\_Academy\_Award\_winners ;  dbo:birthPlace dbr:New\_York }  ?article dc:date ?date FILTER (?date>="1998-06-01"^^xsd:date &&  ?date<="1998-08-30"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 2 | Find articles between  1989-07-01 and 1989-08-31 discussing about Los Angeles Lakers (NBA team) players | Los Angeles Lakers player | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Los\_Angeles\_Lakers\_players }  ?article dc:date ?date FILTER (?date>="1989-07-01"^^xsd:date &&  ?date<="1989-08-31"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 3 | Find articles of August 1992 discussing about African-American film producers | African-American film producer | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?nylawyer dc:subject dbc:African-American\_film\_producers }  ?article dc:date ?date FILTER (?date>="1992-08-01"^^xsd:date &&  ?date<=“1992-08-31"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?nylawyer .  ?article dc:title ?title } |
| 4 | Find articles  Between  1990-01-05 and 1990-01-08 about drugs which act as stimulants | Stimulant drugs | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Stimulants }  ?article dc:date ?date FILTER (?date>="1990-01-05"^^xsd:date &&  ?date<="1990-01-08"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 5 | Find articles between  1992-07-01 and 1992-09-20 discussing about Ferrari Formula One Drivers | Ferrari formula one drivers | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Ferrari\_Formula\_One\_drivers }  ?article dc:date ?date FILTER (?date>="1992-07-01"^^xsd:date &&  ?date<="1992-09-20"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 6 | Find articles between  1989-07-05 and 1989-08-15 discussing about Assassinated Indian politicians | Assassinated Indian politicians | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Assassinated\_Indian\_politicians }  ?article dc:date ?date FILTER (?date>="1989-07-05"^^xsd:date &&  ?date<="1989-08-15"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 7 | Find articles between  1990-06-01 and 1990-06-19 discussing about American Crime Thriller films | American crime thriller films | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:American\_crime\_thriller\_films }  ?article dc:date ?date FILTER (?date>="1990-06-01"^^xsd:date &&  ?date<="1990-06-19"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 8 | Find articles between  1989-07-01 and 1989-08-31  discussing about Boing 747 aircraft accidents | boeing 747 aircraft accidents | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Accidents\_and\_incidents\_involving\_the\_Boeing\_747 }  ?article dc:date ?date FILTER (?date>="1989-07-01"^^xsd:date &&  ?date<="1989-08-31"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 9 | Find articles between  1994-07-01 and 1994-09-18 discussing about Australian Cricketers who played One Day Internationals | Australian cricketers one day internationals | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Australia\_One\_Day\_International\_cricketers }  ?article dc:date ?date FILTER (?date>="1994-07-01"^^xsd:date &&  ?date<="1994-09-18"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 10 | Find articles of 4 July 1995 discussing about companies listed on the New York Stock Exchange (NYSE) | Companies listed on NYSE | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Companies\_listed\_on\_the\_New\_York\_Stock\_Exchange}  ?article dc:date ?date FILTER (?date>="1995-07-04"^^xsd:date &&  ?date<="1995-07-04"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 11 | Find articles between  1994-07-01 and 1994-08-15 discussing about Video-game consoles | Video game consoles | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Home\_video\_game\_consoles}  ?article dc:date ?date FILTER (?date>="1994-07-01"^^xsd:date &&  ?date<="1994-08-15"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 12 | Find articles between  1992-07-01 and 1992-09-15 discussing about famous Indian personalities who received Padma Shri Award | Indian Padma Shri recipients | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Recipients\_of\_the\_Padma\_Shri}  ?article dc:date ?date FILTER (?date>="1992-07-01"^^xsd:date &&  ?date<="1992-09-15"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 13 | Find articles between  1993-07-01 and 1993-09-30 discussing about Bacterial Sexually Transmitted Diseases | Bacterial stds | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Infections\_with\_a\_predominantly\_sexual\_mode\_of\_transmission}  ?article dc:date ?date FILTER (?date>="1993-07-01"^^xsd:date &&  ?date<="1993-09-30"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 14 | Find articles between  1989-07-01 and 1989-07-31 discussing about Operations of the Central Intelligence Agency(CIA) | CIA operations | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Central\_Intelligence\_Agency\_operations}  ?article dc:date ?date FILTER (?date>="1989-07-01"^^xsd:date &&  ?date<="1989-07-31"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 15 | Find articles of 1 August 1998 mentioning Grammy Award Winners | grammy award winner | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Grammy\_Award\_winners}  ?article dc:date ?date FILTER (?date>="1998-08-01"^^xsd:date &&  ?date<="1998-08-01"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 16 | Find articles of the year 1989 discussing about Indian meat dishes | Indian meat dishes | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Indian\_meat\_dishes}  ?article dc:date ?date FILTER (?date>="1989-01-01"^^xsd:date &&  ?date<="1989-12-31"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 17 | Find articles between  1994-07-01 and 1994-09-30 mentioning Mammalian Animals found in India | Indian mammals | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Mammals\_of\_India}  ?article dc:date ?date FILTER (?date>="1994-07-01"^^xsd:date &&  ?date<="1994-09-30"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 18 | Find articles between  1989-07-01 and 1989-07-10 mentioning US Fast Food Chains | US fast food chains | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Fast-food\_chains\_of\_the\_United\_States}  ?article dc:date ?date FILTER (?date>="1989-07-01"^^xsd:date &&  ?date<="1989-07-10"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 19 | Find articles between  1997-07-01 and 1997-08-02 mentioning NASA civilian astronauts | nasa civilian astronauts | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:NASA\_civilian\_astronauts}  ?article dc:date ?date FILTER (?date>="1997-07-01"^^xsd:date &&  ?date<="1997-08-02"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |
| 20 | Find articles between  1989-07-01 and 1989-08-15 discussing about Geological Hazards | geological hazard | PREFIX dc: <http://purl.org/dc/terms/>  PREFIX oae: <http://www.ics.forth.gr/isl/oae/core#>  PREFIX dbc: <http://dbpedia.org/resource/Category:>  PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>  PREFIX dbo: <http://dbpedia.org/ontology/>  PREFIX dbr: <http://dbpedia.org/resource/>  SELECT DISTINCT ?article ?title WHERE {  SERVICE <http://dbpedia.org/sparql> {  ?entityUri dc:subject dbc:Geological\_hazards}  ?article dc:date ?date FILTER (?date>="1989-07-01"^^xsd:date &&  ?date<="1989-08-15"^^xsd:date) .  ?article oae:mentions ?entity .  ?entity oae:hasMatchedURI ?entityUri .  ?article dc:title ?title } |