
1: S3 Query: SELECT ?president ?party ?page WHERE { ?president
<http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/President> .
?president <http://dbpedia.org/ontology/nationality>
<http://dbpedia.org/resource/United_States> . ?president <http://dbpedia.org/ontology/party>
?party . ?x <http://data.nytimes.com/elements/topicPage> ?page . ?x
<http://www.w3.org/2002/07/owl#sameAs> ?president . }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?president <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://dbpedia.org/ontology/President> -----
endpoint: http://localhost:8891/sparql (matched results: 2105, total results: 42849609,
selectivity: 4.9125302403576194E-5)
Triple pattern selectivity: 4.9125302403576194E-5
BGP-Restricted Triple pattern selectivity: 9.501187648456057E-4
Join-Restricted Triple Pattern Selectivity on join variable ?president: 4.7505938242280285E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 4.7505938242280285E-4

-----Triple pattern: ?president <http://dbpedia.org/ontology/nationality>
<http://dbpedia.org/resource/United_States> -----
endpoint: http://localhost:8891/sparql (matched results: 8217, total results: 42849609,
selectivity: 1.9176371014260597E-4)
Triple pattern selectivity: 1.9176371014260597E-4
BGP-Restricted Triple pattern selectivity: 2.4339783375927954E-4
Join-Restricted Triple Pattern Selectivity on join variable ?president: 1.2169891687963977E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2169891687963977E-4

-----Triple pattern: ?president <http://dbpedia.org/ontology/party> ?party-----
endpoint: http://localhost:8891/sparql (matched results: 30571, total results: 42849609,
selectivity: 7.134487504891819E-4)
Triple pattern selectivity: 7.134487504891819E-4
BGP-Restricted Triple pattern selectivity: 6.542147787118511E-5
Join-Restricted Triple Pattern Selectivity on join variable ?president: 3.2710738935592555E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 3.2710738935592555E-5

-----Triple pattern: ?x <http://data.nytimes.com/elements/topicPage> ?page-----
endpoint: http://localhost:8897/sparql (matched results: 7432, total results: 335198,
selectivity: 0.022171969999821)
Triple pattern selectivity: 0.022171969999821
BGP-Restricted Triple pattern selectivity: 2.6910656620021526E-4
Join-Restricted Triple Pattern Selectivity on join variable ?x: 1.3455328310010763E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3455328310010763E-4

-----Triple pattern: ?x <http://www.w3.org/2002/07/owl#sameAs> ?president-----
 endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609, selectivity: 0.0014342021183903918)
 endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023, selectivity: 0.018415041497186778)
 endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085, selectivity: 0.0010923103951238204)
 endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647, selectivity: 0.0016167340067660843)
 endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830, selectivity: 0.027515744891504636)
 endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996, selectivity: 0.010273591589844887)
 endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198, selectivity: 0.094490420587235)
 endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595, selectivity: 0.015734350113422464)
 Triple pattern selectivity: 0.021321549399934258
 BGP-Restricted Triple pattern selectivity: 6.332099629255567E-6
 Join-Restricted Triple Pattern Selectivity on join variable ?x: 3.1660498146277835E-6
 Join-Restricted Triple Pattern Selectivity on join variable ?president: 3.1660498146277835E-6
 Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

Mean triple patterns selectivity: 0.008889571432558124
 Mean triple patterns selectivities standard deviation: 0.011743407905602512
 Mean BGP-restricted Triple Pattern Sel: 3.0687534846110824E-4
 BGP-Restricted Selectivities standard deviation: 5.086325467741401E-4
 Mean Join-restricted Triple Pattern Sel: 1.5343767423055412E-4
 Join-Restricted Selectivities standard deviation: 2.5431627338707007E-4
 Triple Patterns: 5

 2: S9 Query: SELECT ?predicate ?object WHERE { {
 <http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugs/DB00201> ?predicate ?object . }
 UNION { <http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugs/DB00201>
 <http://www.w3.org/2002/07/owl#sameAs> ?caff . ?caff ?predicate ?object . } }
 Basic Graph Patterns (BGPs): 2

-----Triple pattern: <http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugs/DB00201>
 ?predicate ?object-----
 endpoint: http://localhost:8892/sparql (matched results: 319, total results: 517023, selectivity: 6.169938281275688E-4)
 Triple pattern selectivity: 6.169938281275688E-4

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the triple pattern

-----Triple pattern: <http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugs/DB00201>
<http://www.w3.org/2002/07/owl#sameAs> ?caff-----
endpoint: http://localhost:8892/sparql (matched results: 9, total results: 517023, selectivity:
1.7407349382909466E-5)

Triple pattern selectivity: 1.7407349382909466E-5

BGP-Restricted Triple pattern selectivity: 0.1111111111111111

Join-Restricted Triple Pattern Selectivity on join variable ?caff: 0.1111111111111111

Join-Restricted Triple pattern selectivity (average on all its variables): 0.1111111111111111

-----Triple pattern: ?caff ?predicate ?object -----
for all endpoints Selectivity: 1.0

Triple pattern selectivity: 1.0

BGP-Restricted Triple pattern selectivity: 1.3944776231841292E-8

Join-Restricted Triple Pattern Selectivity on join variable ?caff: 9.960554451315207E-10

Join-Restricted Triple pattern selectivity (average on all its variables): 9.960554451315207E-10

Mean triple patterns selectivity: 0.3335448003925035

Mean triple patterns selectivities standard deviation: 0.5771672112039001

Mean BGP-restricted Triple Pattern Sel: 0.3703703750186291

BGP-Restricted Selectivities standard deviation: 0.7114582449739696

Mean Join-restricted Triple Pattern Sel: 0.03703703736905552

Join-Restricted Selectivities standard deviation: 0.07856741989706609

Triple Patterns: 3

3: L5 Query: PREFIX tcga: <http://tcga.der1.ie/schema/> PREFIX rdf:
<http://www.w3.org/1999/02/22-rdf-syntax-ns#> PREFIX affymetrix:
<http://bio2rdf.org/affymetrix_vocabulary:> SELECT ?methylationCNTNAP2 WHERE { ?s
affymetrix:x-symbol <http://bio2rdf.org/symbol:CNTNAP2>. ?s affymetrix:x-geneid ?geneld.
?geneld rdf:type tcga:expression_gene_lookup. ?geneld tcga:chromosome
?lookupChromosome. ?geneld tcga:start ?start. ?geneld tcga:stop ?stop. ?uri
tcga:bcr_patient_barcode ?patient . ?patient tcga:result ?recordNo . ?recordNo
tcga:chromosome ?chromosome. ?recordNo tcga:position ?position. ?recordNo
tcga:beta_value ?methylationCNTNAP2. FILTER (?position >= ?start && ?position <= ?stop
&& str(?chromosome) = str(?lookupChromosome)) }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?s <http://bio2rdf.org/affymetrix_vocabulary:x-symbol>
<http://bio2rdf.org/symbol:CNTNAP2> -----

endpoint: <http://localhost:8899/sparql> (matched results: 25, total results: 44207146, selectivity: 5.655194298224997E-7)
Triple pattern selectivity: 5.655194298224997E-7
BGP-Restricted Triple pattern selectivity: 0.84
Join-Restricted Triple Pattern Selectivity on join variable ?s: 0.04
Join-Restricted Triple pattern selectivity (average on all its variables): 0.04

-----Triple pattern: ?s <http://bio2rdf.org/affymetrix_vocabulary:x-geneid> ?geneid-----
endpoint: <http://localhost:8899/sparql> (matched results: 844034, total results: 44207146, selectivity: 0.01909270505723215)
Triple pattern selectivity: 0.01909270505723215
BGP-Restricted Triple pattern selectivity: 2.488051429207828E-5
Join-Restricted Triple Pattern Selectivity on join variable ?s: 1.1847863948608706E-6
Join-Restricted Triple Pattern Selectivity on join variable ?geneid: 1.1847863948608706E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 1.1847863948608706E-6

-----Triple pattern: ?geneid <<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>> <http://tcga.deriv.ie/schema/expression_gene_lookup> -----
endpoint: <http://localhost:8889/sparql> (matched results: 20531, total results: 35329868, selectivity: 5.811230316512929E-4)
Triple pattern selectivity: 5.811230316512929E-4
BGP-Restricted Triple pattern selectivity: 4.8706833568749694E-5
Join-Restricted Triple Pattern Selectivity on join variable ?geneid: 4.8706833568749694E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.8706833568749694E-5

-----Triple pattern: ?geneid <<http://tcga.deriv.ie/schema/chromosome>> ?lookupChromosome-----
endpoint: <http://localhost:8887/sparql> (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)
endpoint: <http://localhost:8888/sparql> (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)
endpoint: <http://localhost:8889/sparql> (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)
Triple pattern selectivity: 0.7208663339515878
BGP-Restricted Triple pattern selectivity: 6.840855928441035E-9
Join-Restricted Triple Pattern Selectivity on join variable ?geneid: 6.840855928441035E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.840855928441035E-9

-----Triple pattern: ?geneid <<http://tcga.deriv.ie/schema/start>> ?start-----
endpoint: <http://localhost:8888/sparql> (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)
endpoint: <http://localhost:8889/sparql> (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.5813031391918965
BGP-Restricted Triple pattern selectivity: 1.5829163311741458E-8
Join-Restricted Triple Pattern Selectivity on join variable ?genelid: 1.5829163311741458E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 1.5829163311741458E-8

-----Triple pattern: ?genelid <http://tcga.deriv.ie/schema/stop> ?stop-----
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)
endpoint: http://localhost:8889/sparql (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.5813031391918965
BGP-Restricted Triple pattern selectivity: 1.5829163311741458E-8
Join-Restricted Triple Pattern Selectivity on join variable ?genelid: 1.5829163311741458E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 1.5829163311741458E-8

-----Triple pattern: ?uri <http://tcga.deriv.ie/schema/bcr_patient_barcode> ?patient-----
endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609, selectivity: 3.638264514576183E-6)
endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904, selectivity: 5.188934322439404E-6)
endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868, selectivity: 9.269777062286222E-5)

Triple pattern selectivity: 3.3841656486625935E-5
BGP-Restricted Triple pattern selectivity: 0.35419847328244275
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/result> ?recordNo-----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)
endpoint: http://localhost:8889/sparql (matched results: 5724694, total results: 35329868, selectivity: 0.16203553322078645)

Triple pattern selectivity: 0.7206726262743709
BGP-Restricted Triple pattern selectivity: 0.5679118844048769
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.841816858971552E-9
Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 6.841816858971552E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.841816858971552E-9

-----Triple pattern: ?recordNo <http://tcga.deriv.ie/schema/chromosome> ?chromosome-----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)

endpoint: <http://localhost:8888/sparql> (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)

endpoint: <http://localhost:8889/sparql> (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.7208663339515878

BGP-Restricted Triple pattern selectivity: 0.5678321214004562

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 6.840855928441035E-9

Join-Restricted Triple pattern selectivity (average on all its variables): 6.840855928441035E-9

-----Triple pattern: ?recordNo <<http://tcga.deriv.ie/schema/position>> ?position-----

endpoint: <http://localhost:8887/sparql> (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)

Triple pattern selectivity: 0.9999927234709709

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.204732115465622E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 1.204732115465622E-8

-----Triple pattern: ?recordNo <http://tcga.deriv.ie/schema/beta_value> ?methylationCNTNAP2-----

endpoint: <http://localhost:8887/sparql> (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)

Triple pattern selectivity: 0.9999927234709709

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.204732115465622E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 1.204732115465622E-8

Mean triple patterns selectivity: 0.4858822958880074

Mean triple patterns selectivities standard deviation: 0.4047135234426736

Mean BGP-restricted Triple Pattern Sel: 0.39363782772134714

BGP-Restricted Selectivities standard deviation: 0.5272235980564457

Mean Join-restricted Triple Pattern Sel: 0.0036686646734465133

Join-Restricted Selectivities standard deviation: 0.012649488211090288

Triple Patterns: 11

4: C4 Query: prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> prefix geonames: <<http://www.geonames.org/ontology#>> prefix owl: <<http://www.w3.org/2002/07/owl#>> Prefix dbpedia: <<http://dbpedia.org/ontology/>> SELECT DISTINCT ?countryName ?countryCode ?locationMap ?population ?longitude ?latitude ?nationalAnthem ?foundingDate ?largestCity ?ethnicGroup ?motto { ?NYTplace geonames:name ?countryName; geonames:countryCode ?countryCode; geonames:population ?population; geo:long ?longitude; geo:lat ?latitude; owl:sameAs ?geonameplace. OPTIONAL { ?geonameplace dbpedia:capital ?capital; dbpedia:anthem ?nationalAnthem; dbpedia:foundingDate ?foundingDate; dbpedia:largestCity

?largestCity; dbpedia:ethnicGroup ?ethnicGroup; dbpedia:motto ?motto. } } LIMIT 50
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?NYTplace <http://www.geonames.org/ontology#name> ?countryName-----
endpoint: http://localhost:8893/sparql (matched results: 7479714, total results: 107950085, selectivity: 0.06928863464998661)
endpoint: http://localhost:8897/sparql (matched results: 1780, total results: 335198, selectivity: 0.005310294214165956)
Triple pattern selectivity: 0.03729946443207628
BGP-Restricted Triple pattern selectivity: 0.009358602259069768
Join-Restricted Triple Pattern Selectivity on join variable ?NYTplace: 1.336885884757763E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.336885884757763E-7

-----Triple pattern: ?NYTplace <http://www.geonames.org/ontology#countryCode> ?countryCode-----
endpoint: http://localhost:8893/sparql (matched results: 7474323, total results: 107950085, selectivity: 0.06923869490237085)
endpoint: http://localhost:8897/sparql (matched results: 1761, total results: 335198, selectivity: 0.005253611298396768)
Triple pattern selectivity: 0.03724615310038381
BGP-Restricted Triple pattern selectivity: 0.009328736618856769
Join-Restricted Triple Pattern Selectivity on join variable ?NYTplace: 1.3379136360692952E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3379136360692952E-7

-----Triple pattern: ?NYTplace <http://www.geonames.org/ontology#population> ?population-----
endpoint: http://localhost:8893/sparql (matched results: 235318, total results: 107950085, selectivity: 0.002179877857437537)
endpoint: http://localhost:8897/sparql (matched results: 1283, total results: 335198, selectivity: 0.0038275884700982705)
Triple pattern selectivity: 0.0030037331637679035
BGP-Restricted Triple pattern selectivity: 0.2967703577874509
Join-Restricted Triple Pattern Selectivity on join variable ?NYTplace: 4.246735322221043E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 4.246735322221043E-6

-----Triple pattern: ?NYTplace <http://www.w3.org/2003/01/geo/wgs84_pos#long> ?longitude-----
endpoint: http://localhost:8891/sparql (matched results: 651890, total results: 42849609, selectivity: 0.015213441037466644)
endpoint: http://localhost:8893/sparql (matched results: 7479714, total results: 107950085, selectivity: 0.06928863464998661)
endpoint: http://localhost:8897/sparql (matched results: 3567, total results: 335198, selectivity: 0.010641471607825822)

endpoint: <http://localhost:8898/sparql> (matched results: 369, total results: 103595, selectivity: 0.003561947970461895)
Triple pattern selectivity: 0.024676373816435244
BGP-Restricted Triple pattern selectivity: 0.008692085338373406
Join-Restricted Triple Pattern Selectivity on join variable ?NYTplace: 1.2292061344269663E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2292061344269663E-7

-----Triple pattern: ?NYTplace <http://www.w3.org/2003/01/geo/wgs84_pos#lat> ?latitude-----
endpoint: <http://localhost:8891/sparql> (matched results: 652451, total results: 42849609, selectivity: 0.015226533338962322)
endpoint: <http://localhost:8893/sparql> (matched results: 7479714, total results: 107950085, selectivity: 0.06928863464998661)
endpoint: <http://localhost:8897/sparql> (matched results: 3567, total results: 335198, selectivity: 0.010641471607825822)
endpoint: <http://localhost:8898/sparql> (matched results: 369, total results: 103595, selectivity: 0.003561947970461895)
Triple pattern selectivity: 0.02467964689180916
BGP-Restricted Triple pattern selectivity: 0.008690003564448923
Join-Restricted Triple Pattern Selectivity on join variable ?NYTplace: 1.2291203185879865E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2291203185879865E-7

-----Triple pattern: ?NYTplace <<http://www.w3.org/2002/07/owl#sameAs>> ?geonameplace-----
endpoint: <http://localhost:8891/sparql> (matched results: 61455, total results: 42849609, selectivity: 0.0014342021183903918)
endpoint: <http://localhost:8892/sparql> (matched results: 9521, total results: 517023, selectivity: 0.018415041497186778)
endpoint: <http://localhost:8893/sparql> (matched results: 117915, total results: 107950085, selectivity: 0.0010923103951238204)
endpoint: <http://localhost:8894/sparql> (matched results: 1697, total results: 1049647, selectivity: 0.0016167340067660843)
endpoint: <http://localhost:8895/sparql> (matched results: 30015, total results: 1090830, selectivity: 0.027515744891504636)
endpoint: <http://localhost:8896/sparql> (matched results: 63162, total results: 6147996, selectivity: 0.010273591589844887)
endpoint: <http://localhost:8897/sparql> (matched results: 31673, total results: 335198, selectivity: 0.094490420587235)
endpoint: <http://localhost:8898/sparql> (matched results: 1630, total results: 103595, selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 0.22204457164929034
Join-Restricted Triple Pattern Selectivity on join variable ?NYTplace: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?geonameplace <http://dbpedia.org/ontology/capital> ?capital-----
endpoint: http://localhost:8891/sparql (matched results: 2322, total results: 42849609,
selectivity: 5.4189525976771454E-5)
Triple pattern selectivity: 5.4189525976771454E-5
BGP-Restricted Triple pattern selectivity: 0.004737295434969853
Join-Restricted Triple Pattern Selectivity on join variable ?geonameplace:
4.306632213608958E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 4.306632213608958E-4

-----Triple pattern: ?geonameplace <http://dbpedia.org/ontology/anthem>
?nationalAnthem-----
endpoint: http://localhost:8891/sparql (matched results: 462, total results: 42849609,
selectivity: 1.0781895349383468E-5)
Triple pattern selectivity: 1.0781895349383468E-5
BGP-Restricted Triple pattern selectivity: 0.021645021645021644
Join-Restricted Triple Pattern Selectivity on join variable ?geonameplace:
0.0021645021645021645
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0021645021645021645

-----Triple pattern: ?geonameplace <http://dbpedia.org/ontology/foundingDate>
?foundingDate-----
endpoint: http://localhost:8891/sparql (matched results: 7342, total results: 42849609,
selectivity: 1.7134345379907667E-4)
Triple pattern selectivity: 1.7134345379907667E-4
BGP-Restricted Triple pattern selectivity: 0.0020430400435848543
Join-Restricted Triple Pattern Selectivity on join variable ?geonameplace:
1.3620266957232362E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3620266957232362E-4

-----Triple pattern: ?geonameplace <http://dbpedia.org/ontology/largestCity> ?largestCity-----
endpoint: http://localhost:8891/sparql (matched results: 412, total results: 42849609,
selectivity: 9.615023558324652E-6)
Triple pattern selectivity: 9.615023558324652E-6
BGP-Restricted Triple pattern selectivity: 0.021844660194174758
Join-Restricted Triple Pattern Selectivity on join variable ?geonameplace:
0.0024271844660194173
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0024271844660194173

-----Triple pattern: ?geonameplace <http://dbpedia.org/ontology/ethnicGroup>
?ethnicGroup-----
endpoint: http://localhost:8891/sparql (matched results: 468, total results: 42849609,
selectivity: 1.0921919964310527E-5)
Triple pattern selectivity: 1.0921919964310527E-5

BGP-Restricted Triple pattern selectivity: 0.042735042735042736
Join-Restricted Triple Pattern Selectivity on join variable ?geonameplace:
0.002136752136752137
Join-Restricted Triple pattern selectivity (average on all its variables): 0.002136752136752137

-----Triple pattern: ?geonameplace <http://dbpedia.org/ontology/motto> ?motto-----
endpoint: http://localhost:8891/sparql (matched results: 20078, total results: 42849609,
selectivity: 4.6856903641757854E-4)
Triple pattern selectivity: 4.6856903641757854E-4
BGP-Restricted Triple pattern selectivity: 8.965036358203008E-4
Join-Restricted Triple Pattern Selectivity on join variable ?geonameplace:
4.980575754557227E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.980575754557227E-5

Mean triple patterns selectivity: 0.01241269513828934
Mean triple patterns selectivities standard deviation: 0.015408136627714415
Mean BGP-restricted Triple Pattern Sel: 0.05406549340884203
BGP-Restricted Selectivites standard deviation: 0.11297813191642568
Mean Join-restricted Triple Pattern Sel: 6.12753042790562E-4
Join-Restricted Selectivites standard deviation: 0.001178894085785289
Triple Patterns: 12

5: S1 Query: SELECT ?predicate ?object WHERE { {
<http://dbpedia.org/resource/Barack_Obama> ?predicate ?object } UNION { ?subject
<http://www.w3.org/2002/07/owl#sameAs> <http://dbpedia.org/resource/Barack_Obama> .
?subject ?predicate ?object } }
Basic Graph Patterns (BGPs): 2

-----Triple pattern: <http://dbpedia.org/resource/Barack_Obama> ?predicate ?object-----
endpoint: http://localhost:8891/sparql (matched results: 77, total results: 42849609,
selectivity: 1.796982558230578E-6)
Triple pattern selectivity: 1.796982558230578E-6
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the
triple pattern

-----Triple pattern: ?subject <http://www.w3.org/2002/07/owl#sameAs>
<http://dbpedia.org/resource/Barack_Obama> -----
endpoint: http://localhost:8897/sparql (matched results: 1, total results: 335198, selectivity:
2.983311356273009E-6)
Triple pattern selectivity: 2.983311356273009E-6
BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?subject: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 1.0

-----Triple pattern: ?subject ?predicate ?object-----
for all endpoints Selectivity: 1.0
Triple pattern selectivity: 1.0
BGP-Restricted Triple pattern selectivity: 1.2948720786709771E-8
Join-Restricted Triple Pattern Selectivity on join variable ?subject: 9.960554451315207E-10
Join-Restricted Triple pattern selectivity (average on all its variables): 9.960554451315207E-10

Mean triple patterns selectivity: 0.33333492676463816
Mean triple patterns selectivities standard deviation: 0.5773488892379413
Mean BGP-restricted Triple Pattern Sel: 0.6666666709829069
BGP-Restricted Selectivities standard deviation: 0.9999999956837597
Mean Join-restricted Triple Pattern Sel: 0.33333333366535184
Join-Restricted Selectivities standard deviation: 0.7071067809517749
Triple Patterns: 3

6: L1 Query: PREFIX tcga: <http://tcga.der.i.e/schema/> SELECT ?expValue WHERE { {
?s tcga:bcr_patient_barcode <http://tcga.der.i.e/TCGA-37-3789>.
<http://tcga.der.i.e/TCGA-37-3789> tcga:result ?results. ?results tcga:RPKM ?expValue.
} UNION { ?uri tcga:bcr_patient_barcode <http://tcga.der.i.e/TCGA-37-3789>.
<http://tcga.der.i.e/TCGA-37-3789> tcga:result ?geneResults. ?geneResults
tcga:scaled_estimate ?expValue. } }

-----Triple pattern: ?s <http://tcga.der.i.e/schema/bcr_patient_barcode>
<http://tcga.der.i.e/TCGA-37-3789> -----
endpoint: http://localhost:8887/sparql (matched results: 1, total results: 83006609,
selectivity: 1.2047233491974115E-8)
endpoint: http://localhost:8888/sparql (matched results: 1, total results: 57429904,
selectivity: 1.7412531283353704E-8)
endpoint: http://localhost:8889/sparql (matched results: 2, total results: 35329868,
selectivity: 5.660932557121357E-8)
Triple pattern selectivity: 2.8689696782180462E-8
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the
triple pattern

-----Triple pattern: <http://tcga.der.i.e/TCGA-37-3789> <http://tcga.der.i.e/schema/result>
?results-----
endpoint: http://localhost:8887/sparql (matched results: 21931, total results: 83006609,

selectivity: 2.642078777124843E-4)
endpoint: http://localhost:8888/sparql (matched results: 191382, total results: 57429904, selectivity: 0.0033324450620707984)
endpoint: http://localhost:8889/sparql (matched results: 19345, total results: 35329868, selectivity: 5.475537015875632E-4)
Triple pattern selectivity: 0.001381402213790282
BGP-Restricted Triple pattern selectivity: 0.8225893801201763
Join-Restricted Triple Pattern Selectivity on join variable ?results: 4.298154372512443E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 4.298154372512443E-6

-----Triple pattern: ?results <http://tcga.der.i.e/schema/RPKM> ?expValue-----
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)
Triple pattern selectivity: 0.9999896221313551
BGP-Restricted Triple pattern selectivity: 0.0033324796461068275
Join-Restricted Triple Pattern Selectivity on join variable ?results: 1.741271199019149E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 1.741271199019149E-8

-----Triple pattern: ?uri <http://tcga.der.i.e/schema/bcr_patient_barcode>
<http://tcga.der.i.e/TCGA-37-3789> -----
endpoint: http://localhost:8887/sparql (matched results: 1, total results: 83006609, selectivity: 1.2047233491974115E-8)
endpoint: http://localhost:8888/sparql (matched results: 1, total results: 57429904, selectivity: 1.7412531283353704E-8)
endpoint: http://localhost:8889/sparql (matched results: 2, total results: 35329868, selectivity: 5.660932557121357E-8)
Triple pattern selectivity: 2.8689696782180462E-8
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the triple pattern

-----Triple pattern: <http://tcga.der.i.e/TCGA-37-3789> <http://tcga.der.i.e/schema/result>
?geneResults-----
endpoint: http://localhost:8887/sparql (matched results: 21931, total results: 83006609, selectivity: 2.642078777124843E-4)
endpoint: http://localhost:8888/sparql (matched results: 191382, total results: 57429904, selectivity: 0.0033324450620707984)
endpoint: http://localhost:8889/sparql (matched results: 19345, total results: 35329868, selectivity: 5.475537015875632E-4)
Triple pattern selectivity: 0.001381402213790282
BGP-Restricted Triple pattern selectivity: 0.0769584540398353
Join-Restricted Triple Pattern Selectivity on join variable ?geneResults: 4.298154372512443E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 4.298154372512443E-6

-----Triple pattern: ?geneResults <http://tcga.der.i.e/schema/scaled_estimate> ?expValue-----
endpoint: http://localhost:8889/sparql (matched results: 5319609, total results: 35329868,
selectivity: 0.15056973889627892)
Triple pattern selectivity: 0.15056973889627892
BGP-Restricted Triple pattern selectivity: 0.0033658488809985847
Join-Restricted Triple Pattern Selectivity on join variable ?geneResults: 1.879837409102812E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.879837409102812E-7

Mean triple patterns selectivity: 0.1922203704724347
Mean triple patterns selectivities standard deviation: 0.40024049826035796
Mean BGP-restricted Triple Pattern Sel: 0.4843743604478528
BGP-Restricted Selectivities standard deviation: 0.7320299929172617
Mean Join-restricted Triple Pattern Sel: 1.466950866320893E-6
Join-Restricted Selectivities standard deviation: 3.485030067684153E-6
Triple Patterns: 6

7: L8 Query: PREFIX tcga: <http://tcga.der.i.e/schema/> PREFIX dbpedia:
<http://dbpedia.org/ontology/> SELECT ?chromosome ?expressionValue WHERE { { ?uri
tcga:bcr_patient_barcode <http://tcga.der.i.e/TCGA-D9-A1X3> .
<http://tcga.der.i.e/TCGA-D9-A1X3> tcga:result ?recordNo . ?recordNo tcga:chromosome
?chromosome. ?recordNo tcga:protein_expression_value ?expressionValue. } UNION { ?s
tcga:bcr_patient_barcode <http://tcga.der.i.e/TCGA-D9-A1X3> .
<http://tcga.der.i.e/TCGA-D9-A1X3> tcga:result ?results . ?results tcga:chromosome
?chromosome. ?results tcga:beta_value ?expressionValue. } FILTER (?expressionValue > 0.05)
}
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?uri <http://tcga.der.i.e/schema/bcr_patient_barcode>
<http://tcga.der.i.e/TCGA-D9-A1X3> -----
endpoint: http://localhost:8887/sparql (matched results: 1, total results: 83006609,
selectivity: 1.2047233491974115E-8)
endpoint: http://localhost:8888/sparql (matched results: 1, total results: 57429904,
selectivity: 1.7412531283353704E-8)
endpoint: http://localhost:8889/sparql (matched results: 4, total results: 35329868,
selectivity: 1.1321865114242714E-7)
Triple pattern selectivity: 4.7559471972584985E-8
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the
triple pattern
BGP-Restricted Triple pattern selectivity: 1.6532679596669418E-4
Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.6699676360272137E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 1.6699676360272137E-6

-----Triple pattern: <http://tcga.der.i.e/TCGA-D9-A1X3> <http://tcga.der.i.e/schema/result>
?recordNo-----

endpoint: http://localhost:8887/sparql (matched results: 394419, total results: 83006609,
selectivity: 0.004751657786670939)

endpoint: http://localhost:8888/sparql (matched results: 185340, total results: 57429904,
selectivity: 0.0032272385480567756)

endpoint: http://localhost:8889/sparql (matched results: 19055, total results: 35329868,
selectivity: 5.393453493797373E-4)

Triple pattern selectivity: 0.0028394138947024834

BGP-Restricted Triple pattern selectivity: 1.6532679596669418E-4

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.6699676360272137E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 1.6699676360272137E-6

-----Triple pattern: ?recordNo <http://tcga.der.i.e/schema/chromosome> ?chromosome-----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)

endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)

endpoint: http://localhost:8889/sparql (matched results: 5745225, total results: 35329868,
selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.7208663339515878

BGP-Restricted Triple pattern selectivity: 6.772447369156624E-7

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 6.840855928441035E-9

Join-Restricted Triple pattern selectivity (average on all its variables): 6.840855928441035E-9

-----Triple pattern: ?recordNo <http://tcga.der.i.e/schema/protein_expression_value>
?expressionValue-----

endpoint: http://localhost:8889/sparql (matched results: 26109, total results: 35329868,
selectivity: 7.390064406694075E-4)

Triple pattern selectivity: 7.390064406694075E-4

BGP-Restricted Triple pattern selectivity: 0.003791795932437091

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 3.8300969014516064E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 3.8300969014516064E-5

-----Triple pattern: ?s <http://tcga.der.i.e/schema/bcr_patient_barcode>
<http://tcga.der.i.e/TCGA-D9-A1X3> -----

endpoint: http://localhost:8887/sparql (matched results: 1, total results: 83006609,
selectivity: 1.2047233491974115E-8)

endpoint: http://localhost:8888/sparql (matched results: 1, total results: 57429904,
selectivity: 1.7412531283353704E-8)

endpoint: http://localhost:8889/sparql (matched results: 4, total results: 35329868,

selectivity: 1.1321865114242714E-7)

Triple pattern selectivity: 4.7559471972584985E-8

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the triple pattern

-----Triple pattern: <http://tcga.deriv.ie/TCGA-D9-A1X3> <http://tcga.deriv.ie/schema/result> ?results-----

endpoint: http://localhost:8887/sparql (matched results: 394419, total results: 83006609, selectivity: 0.004751657786670939)

endpoint: http://localhost:8888/sparql (matched results: 185340, total results: 57429904, selectivity: 0.0032272385480567756)

endpoint: http://localhost:8889/sparql (matched results: 19055, total results: 35329868, selectivity: 5.393453493797373E-4)

Triple pattern selectivity: 0.0028394138947024834

BGP-Restricted Triple pattern selectivity: 0.6586669650342176

Join-Restricted Triple Pattern Selectivity on join variable ?results: 1.6699676360272137E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 1.6699676360272137E-6

-----Triple pattern: ?results <http://tcga.deriv.ie/schema/chromosome> ?chromosome-----

endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)

endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)

endpoint: http://localhost:8889/sparql (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.7208663339515878

BGP-Restricted Triple pattern selectivity: 0.0026981635544397844

Join-Restricted Triple Pattern Selectivity on join variable ?results: 6.840855928441035E-9

Join-Restricted Triple pattern selectivity (average on all its variables): 6.840855928441035E-9

-----Triple pattern: ?results <http://tcga.deriv.ie/schema/beta_value> ?expressionValue-----

endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)

Triple pattern selectivity: 0.9999927234709709

BGP-Restricted Triple pattern selectivity: 0.004751692362498352

Join-Restricted Triple Pattern Selectivity on join variable ?results: 1.204732115465622E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 1.204732115465622E-8

Mean triple patterns selectivity: 0.3060179150903956

Mean triple patterns selectivities standard deviation: 0.42930557642835376

Mean BGP-restricted Triple Pattern Sel: 0.33375932761553706

BGP-Restricted Selectivities standard deviation: 0.5892752708164635
Mean Join-restricted Triple Pattern Sel: 5.2083291649477546E-6
Join-Restricted Selectivities standard deviation: 1.716051613893164E-5
Triple Patterns: 8

8: S6 Query: SELECT ?name ?location ?news WHERE { ?artist
<http://xmlns.com/foaf/0.1/name> ?name . ?artist <http://xmlns.com/foaf/0.1/based_near>
?location . ?location <http://www.geonames.org/ontology#parentFeature> ?germany .
?germany <http://www.geonames.org/ontology#name> 'Federal Republic of Germany' }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?artist <http://xmlns.com/foaf/0.1/name> ?name-----
endpoint: http://localhost:8891/sparql (matched results: 1406396, total results: 42849609,
selectivity: 0.032821676389159116)
endpoint: http://localhost:8894/sparql (matched results: 3505, total results: 1049647,
selectivity: 0.003339217851334782)
endpoint: http://localhost:8898/sparql (matched results: 5861, total results: 103595,
selectivity: 0.056576089579612916)
Triple pattern selectivity: 0.030912327940035605
BGP-Restricted Triple pattern selectivity: 7.769667500610979E-6
Join-Restricted Triple Pattern Selectivity on join variable ?artist: 7.063334091464526E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 7.063334091464526E-7

-----Triple pattern: ?artist <http://xmlns.com/foaf/0.1/based_near> ?location-----
endpoint: http://localhost:8894/sparql (matched results: 3244, total results: 1049647,
selectivity: 0.00309056282731242)
endpoint: http://localhost:8896/sparql (matched results: 16587, total results: 6147996,
selectivity: 0.0026979523083619445)
endpoint: http://localhost:8898/sparql (matched results: 2313, total results: 103595,
selectivity: 0.022327332400212365)
Triple pattern selectivity: 0.00937194917862891
BGP-Restricted Triple pattern selectivity: 4.967485549132948E-4
Join-Restricted Triple Pattern Selectivity on join variable ?artist: 4.515895953757225E-5
Join-Restricted Triple Pattern Selectivity on join variable ?location: 4.515895953757225E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.515895953757225E-5

-----Triple pattern: ?location <http://www.geonames.org/ontology#parentFeature>
?germany-----
endpoint: http://localhost:8893/sparql (matched results: 7479713, total results: 107950085,
selectivity: 0.06928862538644597)
endpoint: http://localhost:8897/sparql (matched results: 1780, total results: 335198,
selectivity: 0.005310294214165956)
Triple pattern selectivity: 0.03729945980030596

BGP-Restricted Triple pattern selectivity: 1.336938611121324E-7
Join-Restricted Triple Pattern Selectivity on join variable ?location: 1.336938611121324E-7
Join-Restricted Triple Pattern Selectivity on join variable ?germany: 1.336938611121324E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.336938611121324E-7

-----Triple pattern: ?germany <http://www.geonames.org/ontology#name> 'Federal Republic of Germany' -----

endpoint: http://localhost:8893/sparql (matched results: 1, total results: 107950085, selectivity: 9.263540644734092E-9)

Triple pattern selectivity: 9.263540644734092E-9

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?germany: 1.0

Join-Restricted Triple pattern selectivity (average on all its variables): 1.0

Mean triple patterns selectivity: 0.019395936545627778

Mean triple patterns selectivities standard deviation: 0.01760535651012458

Mean BGP-restricted Triple Pattern Sel: 0.25012616297906876

BGP-Restricted Selectivities standard deviation: 0.4999159665588391

Mean Join-restricted Triple Pattern Sel: 0.25001149974670195

Join-Restricted Selectivities standard deviation: 0.4999923341233825

Triple Patterns: 4

9: C2 Query: PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> PREFIX owl: <http://www.w3.org/2002/07/owl#> PREFIX drugbank: <http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/> PREFIX kegg: <http://bio2rdf.org/ns/kegg#> PREFIX chebi: <http://bio2rdf.org/ns/chebi#> PREFIX purl: <http://purl.org/dc/elements/1.1/> PREFIX bio2RDF: <http://bio2rdf.org/ns/bio2rdf#> SELECT ?drug ?keggmass ?chebilupacName WHERE { ?drug rdf:type drugbank:drugs . ?drug drugbank:keggCompoundId ?keggDrug . ?keggDrug bio2RDF:mass ?keggmass . ?drug drugbank:genericName ?drugBankName . ?chebiDrug purl:title ?drugBankName . ?chebiDrug chebi:iupacName ?chebilupacName . OPTIONAL { ?drug drugbank:inchIdentifier ?drugbankInchi . ?chebiDrug bio2RDF:inchi ?chebilnchi . FILTER (?drugbankInchi = ?chebilnchi) } }

Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?drug <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/drugs> -----

endpoint: http://localhost:8892/sparql (matched results: 4772, total results: 517023, selectivity: 0.009229763472804886)

Triple pattern selectivity: 0.009229763472804886

BGP-Restricted Triple pattern selectivity: 8.382229673093043E-4

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 2.0955574182732607E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 2.0955574182732607E-4

-----Triple pattern: ?drug

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId>>
?keggDrug-----

endpoint: <http://localhost:8892/sparql> (matched results: 1331, total results: 517023,
selectivity: 0.002574353558739166)

Triple pattern selectivity: 0.002574353558739166

BGP-Restricted Triple pattern selectivity: 0.003005259203606311

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 7.513148009015778E-4

Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 7.513148009015778E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 7.513148009015778E-4

-----Triple pattern: ?keggDrug <<http://bio2rdf.org/ns/bio2rdf#mass>> ?keggmass-----

endpoint: <http://localhost:8895/sparql> (matched results: 18507, total results: 1090830,
selectivity: 0.016965980033552434)

Triple pattern selectivity: 0.016965980033552434

BGP-Restricted Triple pattern selectivity: 2.1613443561895499E-4

Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 5.4033608904738746E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 5.4033608904738746E-5

-----Triple pattern: ?drug

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/genericName>>
?drugBankName-----

endpoint: <http://localhost:8892/sparql> (matched results: 4772, total results: 517023,
selectivity: 0.009229763472804886)

Triple pattern selectivity: 0.009229763472804886

BGP-Restricted Triple pattern selectivity: 8.382229673093043E-4

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 2.0955574182732607E-4

Join-Restricted Triple Pattern Selectivity on join variable ?drugBankName:

2.0955574182732607E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 2.0955574182732607E-4

-----Triple pattern: ?chebiDrug <<http://purl.org/dc/elements/1.1/title>> ?drugBankName-----

endpoint: <http://localhost:8890/sparql> (matched results: 34055, total results: 4772706,
selectivity: 0.007135365136675086)

endpoint: <http://localhost:8894/sparql> (matched results: 51402, total results: 1049647,
selectivity: 0.0489707492137833)

endpoint: <http://localhost:8895/sparql> (matched results: 34146, total results: 1090830,
selectivity: 0.03130276945078518)

endpoint: <http://localhost:8898/sparql> (matched results: 1555, total results: 103595,
selectivity: 0.015010376948694434)

Triple pattern selectivity: 0.0256048151874845

BGP-Restricted Triple pattern selectivity: 3.301474108189306E-5
Join-Restricted Triple Pattern Selectivity on join variable ?chebiDrug: 8.253685270473266E-6
Join-Restricted Triple Pattern Selectivity on join variable ?drugBankName:
8.253685270473266E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 8.253685270473266E-6

-----Triple pattern: ?chebiDrug <http://bio2rdf.org/ns/chebi#iupacName>
?chebiIupacName-----
endpoint: http://localhost:8890/sparql (matched results: 15458, total results: 4772706,
selectivity: 0.0032388334835625745)
Triple pattern selectivity: 0.0032388334835625745
BGP-Restricted Triple pattern selectivity: 2.5876568766981497E-4
Join-Restricted Triple Pattern Selectivity on join variable ?chebiDrug: 6.469142191745374E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 6.469142191745374E-5

-----Triple pattern: ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/inchiIdentifier>
?drugbankInchi-----
endpoint: http://localhost:8892/sparql (matched results: 4392, total results: 517023,
selectivity: 0.008494786498859819)
Triple pattern selectivity: 0.008494786498859819
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

-----Triple pattern: ?chebiDrug <http://bio2rdf.org/ns/bio2rdf#inchi> ?chebiInchi-----
endpoint: http://localhost:8890/sparql (matched results: 11736, total results: 4772706,
selectivity: 0.0024589823886072178)
Triple pattern selectivity: 0.0024589823886072178
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

Mean triple patterns selectivity: 0.009724659762051936
Mean triple patterns selectivities standard deviation: 0.00804097877427989
Mean BGP-restricted Triple Pattern Sel: 0.25064870250032445
BGP-Restricted Selectivities standard deviation: 0.48162124220201236
Mean Join-restricted Triple Pattern Sel: 1.6217562508111195E-4
Join-Restricted Selectivities standard deviation: 3.0693737895559083E-4
Triple Patterns: 8

10: S13 Query: SELECT ?drug ?title WHERE {
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugCategory>

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugcategory/micronutrient> . ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/casRegistryNumber> ?id .
?keggDrug <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://bio2rdf.org/ns/kegg#Drug> . ?keggDrug <http://bio2rdf.org/ns/bio2rdf#xRef> ?id .
?keggDrug <http://purl.org/dc/elements/1.1/title> ?title . }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?drug

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugCategory>
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugcategory/micronutrient> -----
endpoint: http://localhost:8892/sparql (matched results: 48, total results: 517023, selectivity:
9.283919670885047E-5)
Triple pattern selectivity: 9.283919670885047E-5
BGP-Restricted Triple pattern selectivity: 0.5833333333333334
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 0.02083333333333332
Join-Restricted Triple pattern selectivity (average on all its variables): 0.02083333333333332

-----Triple pattern: ?drug

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/casRegistryNumber> ?id-----
endpoint: http://localhost:8892/sparql (matched results: 2240, total results: 517023,
selectivity: 0.004332495846413023)
Triple pattern selectivity: 0.004332495846413023
BGP-Restricted Triple pattern selectivity: 0.0125
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 4.464285714285714E-4
Join-Restricted Triple Pattern Selectivity on join variable ?id: 4.464285714285714E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 4.464285714285714E-4

-----Triple pattern: ?keggDrug <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>

<http://bio2rdf.org/ns/kegg#Drug> -----
endpoint: http://localhost:8895/sparql (matched results: 8117, total results: 1090830,
selectivity: 0.007441122814737402)
Triple pattern selectivity: 0.007441122814737402
BGP-Restricted Triple pattern selectivity: 0.0034495503264752986
Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 1.2319822594554638E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2319822594554638E-4

-----Triple pattern: ?keggDrug <http://bio2rdf.org/ns/bio2rdf#xRef> ?id-----

endpoint: http://localhost:8890/sparql (matched results: 29147, total results: 4772706,
selectivity: 0.006107017696040778)
endpoint: http://localhost:8895/sparql (matched results: 73196, total results: 1090830,
selectivity: 0.06710119817020067)
Triple pattern selectivity: 0.03660410793312072
BGP-Restricted Triple pattern selectivity: 2.7358979119236295E-4

Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 9.77106397115582E-6
Join-Restricted Triple Pattern Selectivity on join variable ?id: 9.77106397115582E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 9.77106397115582E-6

-----Triple pattern: ?keggDrug <http://purl.org/dc/elements/1.1/title> ?title-----
endpoint: http://localhost:8890/sparql (matched results: 34055, total results: 4772706, selectivity: 0.007135365136675086)
endpoint: http://localhost:8894/sparql (matched results: 51402, total results: 1049647, selectivity: 0.0489707492137833)
endpoint: http://localhost:8895/sparql (matched results: 34146, total results: 1090830, selectivity: 0.03130276945078518)
endpoint: http://localhost:8898/sparql (matched results: 1555, total results: 103595, selectivity: 0.015010376948694434)

Triple pattern selectivity: 0.0256048151874845

BGP-Restricted Triple pattern selectivity: 2.3110318757325145E-4

Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 8.253685270473266E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 8.253685270473266E-6

Mean triple patterns selectivity: 0.0148150761956929

Mean triple patterns selectivities standard deviation: 0.01558993515912986

Mean BGP-restricted Triple Pattern Sel: 0.11995751532771486

BGP-Restricted Selectivites standard deviation: 0.2917150240340285

Mean Join-restricted Triple Pattern Sel: 0.0042841969759898155

Join-Restricted Selectivites standard deviation: 0.010418393715501018

Triple Patterns: 5

11: C7 Query: prefix swc: <http://data.semanticweb.org/ns/swc/ontology#> prefix swrc: <http://swrc.ontoware.org/ontology#> prefix eswc: <http://data.semanticweb.org/conference/eswc/> prefix foaf: <http://xmlns.com/foaf/0.1/> prefix dbpedia: <http://dbpedia.org/ontology/> prefix geo: <http://www.w3.org/2003/01/geo/wgs84_pos#> SELECT DISTINCT ?author ?role ?paper ?place ?capital ?latitude ?longitude ?proceedings WHERE { ?role swc:isRoleAt eswc:2010. ?role swc:heldBy ?author . ?proceedings swc:relatedToEvent eswc:2010. ?paper swrc:author ?author . ?author foaf:based_near ?place. ?paper swc:isPartOf ?proceedings . OPTIONAL { ?place dbpedia:capital ?capital; geo:lat ?latitude; geo:long ?longitude. } }
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?role <http://data.semanticweb.org/ns/swc/ontology#isRoleAt> <http://data.semanticweb.org/conference/eswc/2010> -----
endpoint: http://localhost:8898/sparql (matched results: 23, total results: 103595, selectivity: 2.2201843718326175E-4)
Triple pattern selectivity: 2.2201843718326175E-4

BGP-Restricted Triple pattern selectivity: 0.5652173913043478
Join-Restricted Triple Pattern Selectivity on join variable ?role: 0.043478260869565216
Join-Restricted Triple pattern selectivity (average on all its variables): 0.043478260869565216

-----Triple pattern: ?role <http://data.semanticweb.org/ns/swc/ontology#heldBy> ?author-----
endpoint: http://localhost:8898/sparql (matched results: 1899, total results: 103595,
selectivity: 0.018331000530913653)
Triple pattern selectivity: 0.018331000530913653
BGP-Restricted Triple pattern selectivity: 0.02422327540810953
Join-Restricted Triple Pattern Selectivity on join variable ?role: 5.26592943654555E-4
Join-Restricted Triple Pattern Selectivity on join variable ?author: 5.26592943654555E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 5.26592943654555E-4

-----Triple pattern: ?proceedings
<http://data.semanticweb.org/ns/swc/ontology#relatedToEvent>
<http://data.semanticweb.org/conference/eswc/2010> -----
endpoint: http://localhost:8898/sparql (matched results: 1, total results: 103595, selectivity:
9.652975529707033E-6)
Triple pattern selectivity: 9.652975529707033E-6
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple Pattern Selectivity on join variable ?proceedings: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 1.0

-----Triple pattern: ?paper <http://swrc.ontoware.org/ontology#author> ?author-----
endpoint: http://localhost:8898/sparql (matched results: 4208, total results: 103595,
selectivity: 0.04061972102900719)
Triple pattern selectivity: 0.04061972102900719
BGP-Restricted Triple pattern selectivity: 0.006178707224334601
Join-Restricted Triple Pattern Selectivity on join variable ?paper: 2.376425855513308E-4
Join-Restricted Triple Pattern Selectivity on join variable ?author: 2.376425855513308E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.376425855513308E-4

-----Triple pattern: ?author <http://xmlns.com/foaf/0.1/based_near> ?place-----
endpoint: http://localhost:8894/sparql (matched results: 3244, total results: 1049647,
selectivity: 0.00309056282731242)
endpoint: http://localhost:8896/sparql (matched results: 16587, total results: 6147996,
selectivity: 0.0026979523083619445)
endpoint: http://localhost:8898/sparql (matched results: 2313, total results: 103595,
selectivity: 0.022327332400212365)

Triple pattern selectivity: 0.00937194917862891
BGP-Restricted Triple pattern selectivity: 0.0013547687861271676
Join-Restricted Triple Pattern Selectivity on join variable ?author: 4.515895953757225E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.515895953757225E-5

-----Triple pattern: ?paper <http://data.semanticweb.org/ns/swc/ontology#isPartOf>
?proceedings-----
endpoint: http://localhost:8898/sparql (matched results: 1593, total results: 103595,
selectivity: 0.015377190018823303)
Triple pattern selectivity: 0.015377190018823303
BGP-Restricted Triple pattern selectivity: 0.014438166980539862
Join-Restricted Triple Pattern Selectivity on join variable ?paper: 6.277463904582549E-4
Join-Restricted Triple Pattern Selectivity on join variable ?proceedings: 6.277463904582549E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 6.277463904582549E-4

-----Triple pattern: ?place <http://dbpedia.org/ontology/capital> ?capital-----
endpoint: http://localhost:8891/sparql (matched results: 2322, total results: 42849609,
selectivity: 5.4189525976771454E-5)
Triple pattern selectivity: 5.4189525976771454E-5
BGP-Restricted Triple pattern selectivity: 0.43023255813953487
Join-Restricted Triple Pattern Selectivity on join variable ?place: 4.306632213608958E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 4.306632213608958E-4

-----Triple pattern: ?place <http://www.w3.org/2003/01/geo/wgs84_pos#lat> ?latitude-----
endpoint: http://localhost:8891/sparql (matched results: 652451, total results: 42849609,
selectivity: 0.015226533338962322)
endpoint: http://localhost:8893/sparql (matched results: 7479714, total results: 107950085,
selectivity: 0.06928863464998661)
endpoint: http://localhost:8897/sparql (matched results: 3567, total results: 335198,
selectivity: 0.010641471607825822)
endpoint: http://localhost:8898/sparql (matched results: 369, total results: 103595,
selectivity: 0.003561947970461895)
Triple pattern selectivity: 0.02467964689180916
BGP-Restricted Triple pattern selectivity: 1.3274499440750254E-4
Join-Restricted Triple Pattern Selectivity on join variable ?place: 1.2291203185879865E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2291203185879865E-7

-----Triple pattern: ?place <http://www.w3.org/2003/01/geo/wgs84_pos#long> ?longitude-----
endpoint: http://localhost:8891/sparql (matched results: 651890, total results: 42849609,
selectivity: 0.015213441037466644)
endpoint: http://localhost:8893/sparql (matched results: 7479714, total results: 107950085,

selectivity: 0.06928863464998661)
endpoint: http://localhost:8897/sparql (matched results: 3567, total results: 335198,
selectivity: 0.010641471607825822)
endpoint: http://localhost:8898/sparql (matched results: 369, total results: 103595,
selectivity: 0.003561947970461895)
Triple pattern selectivity: 0.024676373816435244
BGP-Restricted Triple pattern selectivity: 1.3263134190466967E-4
Join-Restricted Triple Pattern Selectivity on join variable ?place: 1.2292061344269663E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2292061344269663E-7

Mean triple patterns selectivity: 0.014815749156034135
Mean triple patterns selectivities standard deviation: 0.013931895200553927
Mean BGP-restricted Triple Pattern Sel: 0.22687891601992285
BGP-Restricted Selectivities standard deviation: 0.43378362228932327
Mean Join-restricted Triple Pattern Sel: 0.11614959008919702
Join-Restricted Selectivities standard deviation: 0.3538875608798146
Triple Patterns: 9

12: S7 Query: SELECT ?location ?news WHERE {
?location
<http://www.geonames.org/ontology#parentFeature> ?parent . ?parent
<http://www.geonames.org/ontology#name> 'California' . ?y
<http://www.w3.org/2002/07/owl#sameAs> ?location . ?y
<http://data.nytimes.com/elements/topicPage> ?news }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?location <http://www.geonames.org/ontology#parentFeature> ?parent-----
endpoint: http://localhost:8893/sparql (matched results: 7479713, total results: 107950085,
selectivity: 0.06928862538644597)
endpoint: http://localhost:8897/sparql (matched results: 1780, total results: 335198,
selectivity: 0.005310294214165956)
Triple pattern selectivity: 0.03729945980030596
BGP-Restricted Triple pattern selectivity: 1.336938611121324E-7
Join-Restricted Triple Pattern Selectivity on join variable ?location: 1.336938611121324E-7
Join-Restricted Triple Pattern Selectivity on join variable ?parent: 1.336938611121324E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.336938611121324E-7

-----Triple pattern: ?parent <http://www.geonames.org/ontology#name> 'California' -----
endpoint: http://localhost:8893/sparql (matched results: 112, total results: 107950085,
selectivity: 1.0375165522102183E-6)
endpoint: http://localhost:8897/sparql (matched results: 1, total results: 335198, selectivity:
2.983311356273009E-6)
Triple pattern selectivity: 2.0104139542416135E-6

BGP-Restricted Triple pattern selectivity: 0.008928571428571428
Join-Restricted Triple Pattern Selectivity on join variable ?parent: 0.008928571428571428
Join-Restricted Triple pattern selectivity (average on all its variables): 0.008928571428571428

-----Triple pattern: ?y <http://www.w3.org/2002/07/owl#sameAs> ?location-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609, selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023, selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085, selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647, selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830, selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996, selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198, selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595, selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258

BGP-Restricted Triple pattern selectivity: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?y: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?location: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?y <http://data.nytimes.com/elements/topicPage> ?news-----
endpoint: http://localhost:8897/sparql (matched results: 7432, total results: 335198, selectivity: 0.022171969999821)
Triple pattern selectivity: 0.022171969999821
BGP-Restricted Triple pattern selectivity: 1.3455328310010763E-4
Join-Restricted Triple Pattern Selectivity on join variable ?y: 1.3455328310010763E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3455328310010763E-4

Mean triple patterns selectivity: 0.020198747403503865
Mean triple patterns selectivities standard deviation: 0.015335110490211534
Mean BGP-restricted Triple Pattern Sel: 0.002266606113836819
BGP-Restricted Selectivites standard deviation: 0.005135889080484369
Mean Join-restricted Triple Pattern Sel: 0.002266606113836819
Join-Restricted Selectivites standard deviation: 0.005135889080484369
Triple Patterns: 4

13: S12 Query: SELECT \$drug \$keggUrl \$chebiImage WHERE { \$drug
<http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugs> . \$drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId> \$keggDrug .
\$keggDrug <http://bio2rdf.org/ns/bio2rdf#url> \$keggUrl . \$drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/genericName> \$drugBankName .
\$chebiDrug <http://purl.org/dc/elements/1.1/title> \$drugBankName . \$chebiDrug
<http://bio2rdf.org/ns/bio2rdf#image> \$chebiImage . }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?drug <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugs> -----
endpoint: http://localhost:8892/sparql (matched results: 4772, total results: 517023,
selectivity: 0.009229763472804886)
Triple pattern selectivity: 0.009229763472804886
BGP-Restricted Triple pattern selectivity: 0.07837384744341995
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 2.0955574182732607E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.0955574182732607E-4

-----Triple pattern: ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId>
?keggDrug-----
endpoint: http://localhost:8892/sparql (matched results: 1331, total results: 517023,
selectivity: 0.002574353558739166)
Triple pattern selectivity: 0.002574353558739166
BGP-Restricted Triple pattern selectivity: 0.2809917355371901
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 7.513148009015778E-4
Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 7.513148009015778E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 7.513148009015778E-4

-----Triple pattern: ?keggDrug <http://bio2rdf.org/ns/bio2rdf#url> ?keggUrl-----
endpoint: http://localhost:8890/sparql (matched results: 34055, total results: 4772706,
selectivity: 0.007135365136675086)
endpoint: http://localhost:8895/sparql (matched results: 34260, total results: 1090830,
selectivity: 0.0314072770275845)
Triple pattern selectivity: 0.019271321082129794
BGP-Restricted Triple pattern selectivity: 0.0054746395374368735
Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 1.4638073629510356E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 1.4638073629510356E-5

-----Triple pattern: ?drug
<http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/genericName>
?drugBankName-----
endpoint: http://localhost:8892/sparql (matched results: 4772, total results: 517023,
selectivity: 0.009229763472804886)
Triple pattern selectivity: 0.009229763472804886
BGP-Restricted Triple pattern selectivity: 0.07837384744341995
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 2.0955574182732607E-4
Join-Restricted Triple Pattern Selectivity on join variable ?drugBankName:
2.0955574182732607E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.0955574182732607E-4

-----Triple pattern: ?chebiDrug <http://purl.org/dc/elements/1.1/title> ?drugBankName-----
endpoint: http://localhost:8890/sparql (matched results: 34055, total results: 4772706,
selectivity: 0.007135365136675086)
endpoint: http://localhost:8894/sparql (matched results: 51402, total results: 1049647,
selectivity: 0.0489707492137833)
endpoint: http://localhost:8895/sparql (matched results: 34146, total results: 1090830,
selectivity: 0.03130276945078518)
endpoint: http://localhost:8898/sparql (matched results: 1555, total results: 103595,
selectivity: 0.015010376948694434)
Triple pattern selectivity: 0.0256048151874845
BGP-Restricted Triple pattern selectivity: 0.0032436983112959935
Join-Restricted Triple Pattern Selectivity on join variable ?chebiDrug: 8.253685270473266E-6
Join-Restricted Triple Pattern Selectivity on join variable ?drugBankName:
8.253685270473266E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 8.253685270473266E-6

-----Triple pattern: ?chebiDrug <http://bio2rdf.org/ns/bio2rdf#image> ?chebiImage-----
endpoint: http://localhost:8890/sparql (matched results: 34055, total results: 4772706,
selectivity: 0.007135365136675086)
Triple pattern selectivity: 0.007135365136675086
BGP-Restricted Triple pattern selectivity: 0.011540155630597564
Join-Restricted Triple Pattern Selectivity on join variable ?chebiDrug: 2.9364263691087946E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 2.9364263691087946E-5

Mean triple patterns selectivity: 0.012174230318439718

Mean triple patterns selectivities standard deviation: 0.008551454535506738

Mean BGP-restricted Triple Pattern Sel: 0.07633298731722675
BGP-Restricted Selectivities standard deviation: 0.1339218806421866
Mean Join-restricted Triple Pattern Sel: 2.0378038452455023E-4
Join-Restricted Selectivities standard deviation: 3.5822389438063614E-4
Triple Patterns: 6

14: S8 Query: SELECT \$drug \$melt WHERE { { \$drug
<http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/meltingPoint> \$melt. } UNION
{ \$drug <http://dbpedia.org/ontology/Drug/meltingPoint> \$melt . } }
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?drug
<http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/meltingPoint> ?melt-----
endpoint: http://localhost:8892/sparql (matched results: 1159, total results: 517023,
selectivity: 0.002241679770532452)
Triple pattern selectivity: 0.002241679770532452
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

-----Triple pattern: ?drug <http://dbpedia.org/ontology/Drug/meltingPoint> ?melt-----
Triple pattern selectivity: 0.0
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

Mean triple patterns selectivity: 0.001120839885266226
Mean triple patterns selectivities standard deviation: 0.0015851069669922005
Mean BGP-restricted Triple Pattern Sel: 1.0
BGP-Restricted Selectivities standard deviation: 0.7071067811865476
Mean Join-restricted Triple Pattern Sel: 0.0
Join-Restricted Selectivities standard deviation: 0.0
Triple Patterns: 2

15: S2 Query: SELECT ?party ?page WHERE {
<http://dbpedia.org/resource/Barack_Obama> <http://dbpedia.org/ontology/party> ?party . ?x
<http://data.nytimes.com/elements/topicPage> ?page . ?x
<http://www.w3.org/2002/07/owl#sameAs> <http://dbpedia.org/resource/Barack_Obama> . }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: <http://dbpedia.org/resource/Barack_Obama>

<http://dbpedia.org/ontology/party> ?party-----

endpoint: http://localhost:8891/sparql (matched results: 1, total results: 42849609, selectivity: 2.333743582117634E-8)

Triple pattern selectivity: 2.333743582117634E-8

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the triple pattern

-----Triple pattern: ?x <http://data.nytimes.com/elements/topicPage> ?page-----

endpoint: http://localhost:8897/sparql (matched results: 7432, total results: 335198, selectivity: 0.022171969999821)

Triple pattern selectivity: 0.022171969999821

BGP-Restricted Triple pattern selectivity: 1.3455328310010763E-4

Join-Restricted Triple Pattern Selectivity on join variable ?x: 1.3455328310010763E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 1.3455328310010763E-4

-----Triple pattern: ?x <http://www.w3.org/2002/07/owl#sameAs>

<http://dbpedia.org/resource/Barack_Obama> -----

endpoint: http://localhost:8897/sparql (matched results: 1, total results: 335198, selectivity: 2.983311356273009E-6)

Triple pattern selectivity: 2.983311356273009E-6

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?x: 1.0

Join-Restricted Triple pattern selectivity (average on all its variables): 1.0

Mean triple patterns selectivity: 0.007391658882871031

Mean triple patterns selectivities standard deviation: 0.01280012498867638

Mean BGP-restricted Triple Pattern Sel: 0.6667115177610334

BGP-Restricted Selectivities standard deviation: 0.7070750723635549

Mean Join-restricted Triple Pattern Sel: 0.3333781844277

Join-Restricted Selectivities standard deviation: 0.7452958281591332

Triple Patterns: 3

16: S11 Query: SELECT ?drugDesc ?cpd ?equation WHERE {
?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugCategory>
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugcategory/cathartics> . ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId> ?cpd .
?drug <http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/description> ?drugDesc .
?enzyme <http://bio2rdf.org/ns/kegg#xSubstrate> ?cpd . ?enzyme
<http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://bio2rdf.org/ns/kegg#Enzyme> .

?reaction <http://bio2rdf.org/ns/kegg#xEnzyme> ?enzyme . ?reaction
<http://bio2rdf.org/ns/kegg#equation> ?equation . }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?drug

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugCategory>

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugcategory/cathartics> -----

endpoint: http://localhost:8892/sparql (matched results: 3, total results: 517023, selectivity:
5.8024497943031545E-6)

Triple pattern selectivity: 5.8024497943031545E-6

BGP-Restricted Triple pattern selectivity: 0.3333333333333333

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 0.3333333333333333

Join-Restricted Triple pattern selectivity (average on all its variables): 0.3333333333333333

-----Triple pattern: ?drug

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId> ?cpd-----

endpoint: http://localhost:8892/sparql (matched results: 1331, total results: 517023,
selectivity: 0.002574353558739166)

Triple pattern selectivity: 0.002574353558739166

BGP-Restricted Triple pattern selectivity: 7.513148009015778E-4

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 7.513148009015778E-4

Join-Restricted Triple Pattern Selectivity on join variable ?cpd: 7.513148009015778E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 7.513148009015778E-4

-----Triple pattern: ?drug

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/description> ?drugDesc-----

endpoint: http://localhost:8892/sparql (matched results: 1861, total results: 517023,
selectivity: 0.0035994530223993904)

Triple pattern selectivity: 0.0035994530223993904

BGP-Restricted Triple pattern selectivity: 5.373455131649651E-4

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 5.373455131649651E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 5.373455131649651E-4

-----Triple pattern: ?enzyme <http://bio2rdf.org/ns/kegg#xSubstrate> ?cpd-----

endpoint: http://localhost:8895/sparql (matched results: 24575, total results: 1090830,
selectivity: 0.022528716665291566)

Triple pattern selectivity: 0.022528716665291566

BGP-Restricted Triple pattern selectivity: 8.138351983723296E-5

Join-Restricted Triple Pattern Selectivity on join variable ?enzyme: 4.069175991861648E-5

Join-Restricted Triple Pattern Selectivity on join variable ?cpd: 4.069175991861648E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.069175991861648E-5

-----Triple pattern: ?enzyme <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://bio2rdf.org/ns/kegg#Enzyme> -----
endpoint: http://localhost:8895/sparql (matched results: 4245, total results: 1090830,
selectivity: 0.0038915321360798658)
Triple pattern selectivity: 0.0038915321360798658
BGP-Restricted Triple pattern selectivity: 4.711425206124853E-4
Join-Restricted Triple Pattern Selectivity on join variable ?enzyme: 2.3557126030624264E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.3557126030624264E-4

-----Triple pattern: ?reaction <http://bio2rdf.org/ns/kegg#xEnzyme> ?enzyme-----
endpoint: http://localhost:8895/sparql (matched results: 7226, total results: 1090830,
selectivity: 0.006624313596069048)
Triple pattern selectivity: 0.006624313596069048
BGP-Restricted Triple pattern selectivity: 4.1516745087185166E-4
Join-Restricted Triple Pattern Selectivity on join variable ?reaction: 1.383891502906172E-4
Join-Restricted Triple Pattern Selectivity on join variable ?enzyme: 1.383891502906172E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.383891502906172E-4

-----Triple pattern: ?reaction <http://bio2rdf.org/ns/kegg#equation> ?equation-----
endpoint: http://localhost:8895/sparql (matched results: 7827, total results: 1090830,
selectivity: 0.007175270207090014)
Triple pattern selectivity: 0.007175270207090014
BGP-Restricted Triple pattern selectivity: 3.832886163280951E-4
Join-Restricted Triple Pattern Selectivity on join variable ?reaction: 1.2776287210936502E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2776287210936502E-4

Mean triple patterns selectivity: 0.006628491662209051
Mean triple patterns selectivities standard deviation: 0.007417077255422105
Mean BGP-restricted Triple Pattern Sel: 0.047996139393578496
BGP-Restricted Selectivites standard deviation: 0.1360611017382883
Mean Join-restricted Triple Pattern Sel: 0.047880629812860676
Join-Restricted Selectivites standard deviation: 0.1360758517323634
Triple Patterns: 7

17: L4 Query: PREFIX tcga: <http://tcga.deriv.ie/schema/> PREFIX dbpedia:

```
<http://dbpedia.org/ontology/> SELECT ?expressionValues WHERE { { ?uri
tcga:bcr_patient_barcode ?patient. ?patient dbpedia:country ?country. ?patient tcga:result
?results. ?results tcga:reads_per_million_miRNA_mapped ?expressionValues. } UNION {
?s tcga:bcr_patient_barcode ?patient. ?patient dbpedia:country ?country. ?patient tcga:result
?exonResults. ?exonResults tcga:RPKM ?expressionValues. } FILTER
REGEX(?country,"Brazil|Argentina", "i") }
Basic Graph Patterns (BGPs): 2
```

```
-----Triple pattern: ?uri <http://tcga.der1.ie/schema/bcr_patient_barcode> ?patient-----
  endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609,
selectivity: 3.638264514576183E-6)
  endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904,
selectivity: 5.188934322439404E-6)
  endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868,
selectivity: 9.269777062286222E-5)
Triple pattern selectivity: 3.3841656486625935E-5
BGP-Restricted Triple pattern selectivity: 0.33954198473282443
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4
```

```
-----Triple pattern: ?patient <http://dbpedia.org/ontology/country> ?country-----
  endpoint: http://localhost:8889/sparql (matched results: 1427, total results: 35329868,
selectivity: 4.039075379506088E-5)
  endpoint: http://localhost:8891/sparql (matched results: 101557, total results: 42849609,
selectivity: 0.0023700799696912056)
Triple pattern selectivity: 0.0012052353617431333
BGP-Restricted Triple pattern selectivity: 0.0027674201817758097
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 9.710246251844947E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 9.710246251844947E-6
```

```
-----Triple pattern: ?patient <http://tcga.der1.ie/schema/result> ?results-----
  endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)
  endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)
  endpoint: http://localhost:8889/sparql (matched results: 5724694, total results: 35329868,
selectivity: 0.16203553322078645)
Triple pattern selectivity: 0.7206726262743709
BGP-Restricted Triple pattern selectivity: 9.654419351526166E-4
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.841816858971552E-9
Join-Restricted Triple Pattern Selectivity on join variable ?results: 6.841816858971552E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.841816858971552E-9
```

-----Triple pattern: ?results <http://tcga.deriv.ie/schema/reads_per_million_miRNA_mapped> ?expressionValues-----

endpoint: http://localhost:8889/sparql (matched results: 141109, total results: 35329868, selectivity: 0.0039940426610141876)

Triple pattern selectivity: 0.0039940426610141876

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?results: 7.08672019502654E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 7.08672019502654E-6

-----Triple pattern: ?s <http://tcga.deriv.ie/schema/bcr_patient_barcode> ?patient-----

endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609, selectivity: 3.638264514576183E-6)

endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904, selectivity: 5.188934322439404E-6)

endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868, selectivity: 9.269777062286222E-5)

Triple pattern selectivity: 3.3841656486625935E-5

BGP-Restricted Triple pattern selectivity: 0.34931297709923664

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

-----Triple pattern: ?patient <http://dbpedia.org/ontology/country> ?country-----

endpoint: http://localhost:8889/sparql (matched results: 1427, total results: 35329868, selectivity: 4.039075379506088E-5)

endpoint: http://localhost:8891/sparql (matched results: 101557, total results: 42849609, selectivity: 0.0023700799696912056)

Triple pattern selectivity: 0.0012052353617431333

BGP-Restricted Triple pattern selectivity: 0.002893653383049794

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 9.710246251844947E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 9.710246251844947E-6

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/result> ?exonResults-----

endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609, selectivity: 0.9999927234709709)

endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)

endpoint: http://localhost:8889/sparql (matched results: 5724694, total results: 35329868, selectivity: 0.16203553322078645)

Triple pattern selectivity: 0.7206726262743709

BGP-Restricted Triple pattern selectivity: 0.3929208076734698

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.841816858971552E-9

Join-Restricted Triple Pattern Selectivity on join variable ?exonResults: 6.841816858971552E-9

Join-Restricted Triple pattern selectivity (average on all its variables): 6.841816858971552E-9

-----Triple pattern: ?exonResults <http://tcga.der.i.e/schema/RPKM> ?expressionValues-----
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)
Triple pattern selectivity: 0.9999896221313551
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple Pattern Selectivity on join variable ?exonResults: 1.741271199019149E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 1.741271199019149E-8

Mean triple patterns selectivity: 0.3059758839221963
Mean triple patterns selectivities standard deviation: 0.4292462231149093
Mean BGP-restricted Triple Pattern Sel: 0.38605028562568866
BGP-Restricted Selectivities standard deviation: 0.49922961638624846
Mean Join-restricted Triple Pattern Sel: 7.96531664931485E-5
Join-Restricted Selectivities standard deviation: 1.6331623391304962E-4
Triple Patterns: 8

18: L2 Query: PREFIX tcga: <http://tcga.der.i.e/schema/> SELECT DISTINCT ?patient
?tumorType ?exonValue WHERE { ?s tcga:bcr_patient_barcode ?patient. ?patient
tcga:disease_acronym <http://tcga.der.i.e/lusc>. ?patient tcga:tumor_weight ?weight. ?patient
tcga:tumor_type ?tumorType. ?patient tcga:result ?results. ?results tcga:RPKM ?exonValue.
FILTER(?weight <= 55) }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?s <http://tcga.der.i.e/schema/bcr_patient_barcode> ?patient-----
endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609,
selectivity: 3.638264514576183E-6)
endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904,
selectivity: 5.188934322439404E-6)
endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868,
selectivity: 9.269777062286222E-5)
Triple pattern selectivity: 3.3841656486625935E-5
BGP-Restricted Triple pattern selectivity: 0.07908396946564886
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

-----Triple pattern: ?patient <http://tcga.der.i.e/schema/disease_acronym>
<http://tcga.der.i.e/lusc> -----
endpoint: http://localhost:8889/sparql (matched results: 411, total results: 35329868,
selectivity: 1.163321640488439E-5)
Triple pattern selectivity: 1.163321640488439E-5
BGP-Restricted Triple pattern selectivity: 0.20437956204379562

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 0.0024330900243309003
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0024330900243309003

-----Triple pattern: ?patient <http://tcga.der.i.e/schema/tumor_weight> ?weight-----
endpoint: http://localhost:8889/sparql (matched results: 1434, total results: 35329868,
selectivity: 4.058888643456013E-5)

Triple pattern selectivity: 4.058888643456013E-5

BGP-Restricted Triple pattern selectivity: 0.058577405857740586

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.97350069735007E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 6.97350069735007E-4

-----Triple pattern: ?patient <http://tcga.der.i.e/schema/tumor_type> ?tumorType-----
endpoint: http://localhost:8889/sparql (matched results: 411, total results: 35329868,
selectivity: 1.163321640488439E-5)

Triple pattern selectivity: 1.163321640488439E-5

BGP-Restricted Triple pattern selectivity: 0.20437956204379562

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 0.0024330900243309003

Join-Restricted Triple pattern selectivity (average on all its variables): 0.0024330900243309003

-----Triple pattern: ?patient <http://tcga.der.i.e/schema/result> ?results-----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)

endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)

endpoint: http://localhost:8889/sparql (matched results: 5724694, total results: 35329868,
selectivity: 0.16203553322078645)

Triple pattern selectivity: 0.7206726262743709

BGP-Restricted Triple pattern selectivity: 0.11077275742057127

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.841816858971552E-9

Join-Restricted Triple Pattern Selectivity on join variable ?results: 6.841816858971552E-9

Join-Restricted Triple pattern selectivity (average on all its variables): 6.841816858971552E-9

-----Triple pattern: ?results <http://tcga.der.i.e/schema/RPKM> ?exonValue-----
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)

Triple pattern selectivity: 0.9999896221313551

BGP-Restricted Triple pattern selectivity: 0.28192133187465884

Join-Restricted Triple Pattern Selectivity on join variable ?results: 1.741271199019149E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 1.741271199019149E-8

Mean triple patterns selectivity: 0.2867933242302428

Mean triple patterns selectivities standard deviation: 0.45295602805499546

Mean BGP-restricted Triple Pattern Sel: 0.1565190981177018
BGP-Restricted Selectivities standard deviation: 0.1483052929842827
Mean Join-restricted Triple Pattern Sel: 9.781496473960064E-4
Join-Restricted Selectivities standard deviation: 0.0015760299393517692
Triple Patterns: 6

19: S4 Query: SELECT ?actor ?news WHERE { ?film <http://purl.org/dc/terms/title> 'Tarzan' .
?film <http://data.linkedmdb.org/resource/movie/actor> ?actor . ?actor
<http://www.w3.org/2002/07/owl#sameAs> ?x . ?y <http://www.w3.org/2002/07/owl#sameAs>
?x . ?y <http://data.nytimes.com/elements/topicPage> ?news }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?film <http://purl.org/dc/terms/title> 'Tarzan' -----
endpoint: http://localhost:8896/sparql (matched results: 1, total results: 6147996, selectivity:
1.6265462762174862E-7)
Triple pattern selectivity: 1.6265462762174862E-7
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple Pattern Selectivity on join variable ?film: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 1.0

-----Triple pattern: ?film <http://data.linkedmdb.org/resource/movie/actor> ?actor-----
endpoint: http://localhost:8896/sparql (matched results: 194649, total results: 6147996,
selectivity: 0.03166056061194575)
Triple pattern selectivity: 0.03166056061194575
BGP-Restricted Triple pattern selectivity: 5.137452542782136E-6
Join-Restricted Triple Pattern Selectivity on join variable ?film: 5.137452542782136E-6
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 5.137452542782136E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 5.137452542782136E-6

-----Triple pattern: ?actor <http://www.w3.org/2002/07/owl#sameAs> ?x-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198,

selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?x: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?y <http://www.w3.org/2002/07/owl#sameAs> ?x-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198,
selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?y: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?x: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?y <http://data.nytimes.com/elements/topicPage> ?news-----
endpoint: http://localhost:8897/sparql (matched results: 7432, total results: 335198,
selectivity: 0.022171969999821)
Triple pattern selectivity: 0.022171969999821
BGP-Restricted Triple pattern selectivity: 1.3455328310010763E-4
Join-Restricted Triple Pattern Selectivity on join variable ?y: 1.3455328310010763E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3455328310010763E-4

Mean triple patterns selectivity: 0.019295158413252578
Mean triple patterns selectivities standard deviation: 0.011637102287803703

Mean BGP-restricted Triple Pattern Sel: 0.20002920456705436
BGP-Restricted Selectivities standard deviation: 0.49998654796893377
Mean Join-restricted Triple Pattern Sel: 0.20002920456705436
Join-Restricted Selectivities standard deviation: 0.49998654796893377
Triple Patterns: 5

20: S5 Query: SELECT ?film ?director ?genre WHERE {
<http://dbpedia.org/ontology/director> ?director .
<http://dbpedia.org/ontology/nationality> <http://dbpedia.org/resource/Italy> .
<http://www.w3.org/2002/07/owl#sameAs> ?film .
<http://data.linkedmdb.org/resource/movie/genre> ?genre . }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?film <http://dbpedia.org/ontology/director> ?director-----
endpoint: http://localhost:8891/sparql (matched results: 52664, total results: 42849609,
selectivity: 0.0012290427200864307)
Triple pattern selectivity: 0.0012290427200864307
BGP-Restricted Triple pattern selectivity: 3.797660641045116E-5
Join-Restricted Triple Pattern Selectivity on join variable ?film: 1.898830320522558E-5
Join-Restricted Triple Pattern Selectivity on join variable ?director: 1.898830320522558E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 1.898830320522558E-5

-----Triple pattern: ?director <http://dbpedia.org/ontology/nationality>
<http://dbpedia.org/resource/Italy> -----
endpoint: http://localhost:8891/sparql (matched results: 406, total results: 42849609,
selectivity: 9.474998943397593E-6)
Triple pattern selectivity: 9.474998943397593E-6
BGP-Restricted Triple pattern selectivity: 0.0024630541871921183
Join-Restricted Triple Pattern Selectivity on join variable ?director: 0.0024630541871921183
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0024630541871921183

-----Triple pattern: ?x <http://www.w3.org/2002/07/owl#sameAs> ?film-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,

selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198,
selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 6.332099629255567E-6
Join-Restricted Triple Pattern Selectivity on join variable ?x: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?film: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?x <http://data.linkedmdb.org/resource/movie/genre> ?genre-----
endpoint: http://localhost:8896/sparql (matched results: 13018, total results: 6147996,
selectivity: 0.0021174379423799235)
Triple pattern selectivity: 0.0021174379423799235
BGP-Restricted Triple pattern selectivity: 1.5363343063450608E-4
Join-Restricted Triple Pattern Selectivity on join variable ?x: 7.681671531725304E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 7.681671531725304E-5

Mean triple patterns selectivity: 0.006169376265336002
Mean triple patterns selectivities standard deviation: 0.0101383403313676
Mean BGP-restricted Triple Pattern Sel: 6.652490809665829E-4
BGP-Restricted Selectivities standard deviation: 0.001401572127868649
Mean Join-restricted Triple Pattern Sel: 6.405063138823061E-4
Join-Restricted Selectivities standard deviation: 0.0014113798609776689
Triple Patterns: 4

21: C6 Query: PREFIX linkedmdb: <http://data.linkedmdb.org/resource/movie/> prefix owl:
<http://www.w3.org/2002/07/owl#> PREFIX dcterms: <http://purl.org/dc/terms/> PREFIX purl:
<http://purl.org/dc/terms/> PREFIX nytimes: <http://data.nytimes.com/elements/> SELECT
?actor ?filmTitle ?news ?variants ?articleCount ?first_use ?latest_use WHERE { ?film purl:title
?filmTitle . ?film linkedmdb:actor ?actor . ?actor owl:sameAs
?dbpediaURI . ?nytURI owl:sameAs ?dbpediaURI . ?nytURI
nytimes:topicPage ?news ; nytimes:number_of_variants ?variants;
nytimes:associated_article_count ?articleCount; nytimes:first_use ?first_use;
nytimes:latest_use ?latest_use } ORDER BY (?actor)
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?film <http://purl.org/dc/terms/title> ?filmTitle-----
endpoint: http://localhost:8896/sparql (matched results: 85620, total results: 6147996,
selectivity: 0.013926489216974116)
endpoint: http://localhost:8898/sparql (matched results: 224, total results: 103595,

selectivity: 0.002162266518654375)
Triple pattern selectivity: 0.008044377867814246
BGP-Restricted Triple pattern selectivity: 0.0017240575928428312
Join-Restricted Triple Pattern Selectivity on join variable ?film: 1.164903778947859E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 1.164903778947859E-5

-----Triple pattern: ?film <http://data.linkedmdb.org/resource/movie/actor> ?actor-----
endpoint: http://localhost:8896/sparql (matched results: 194649, total results: 6147996,
selectivity: 0.03166056061194575)
Triple pattern selectivity: 0.03166056061194575
BGP-Restricted Triple pattern selectivity: 7.603429763317561E-4
Join-Restricted Triple Pattern Selectivity on join variable ?film: 5.137452542782136E-6
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 5.137452542782136E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 5.137452542782136E-6

-----Triple pattern: ?actor <http://www.w3.org/2002/07/owl#sameAs> ?dbpediaURI-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198,
selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 3.4826547960905615E-5
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?dbpediaURI:
3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?nytURI <http://www.w3.org/2002/07/owl#sameAs> ?dbpediaURI-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,

selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198,
selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 3.4826547960905615E-5
Join-Restricted Triple Pattern Selectivity on join variable ?nytURI: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?dbpediaURI:
3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?nytURI <http://data.nytimes.com/elements/topicPage> ?news-----
endpoint: http://localhost:8897/sparql (matched results: 7432, total results: 335198,
selectivity: 0.022171969999821)
Triple pattern selectivity: 0.022171969999821
BGP-Restricted Triple pattern selectivity: 0.001480086114101184
Join-Restricted Triple Pattern Selectivity on join variable ?nytURI: 1.3455328310010763E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3455328310010763E-4

-----Triple pattern: ?nytURI <http://data.nytimes.com/elements/number_of_variants>
?variants-----
endpoint: http://localhost:8897/sparql (matched results: 9943, total results: 335198,
selectivity: 0.029663064815422528)
Triple pattern selectivity: 0.029663064815422528
BGP-Restricted Triple pattern selectivity: 0.0011063059438801166
Join-Restricted Triple Pattern Selectivity on join variable ?nytURI: 1.0057326762546515E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.0057326762546515E-4

-----Triple pattern: ?nytURI <http://data.nytimes.com/elements/associated_article_count>
?articleCount-----
endpoint: http://localhost:8897/sparql (matched results: 9943, total results: 335198,
selectivity: 0.029663064815422528)
Triple pattern selectivity: 0.029663064815422528
BGP-Restricted Triple pattern selectivity: 0.0011063059438801166

Join-Restricted Triple Pattern Selectivity on join variable ?nytURI: 1.0057326762546515E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.0057326762546515E-4

-----Triple pattern: ?nytURI <http://data.nytimes.com/elements/first_use> ?first_use-----
endpoint: http://localhost:8897/sparql (matched results: 7189, total results: 335198,
selectivity: 0.02144702534024666)

Triple pattern selectivity: 0.02144702534024666

BGP-Restricted Triple pattern selectivity: 0.001530115454166087

Join-Restricted Triple Pattern Selectivity on join variable ?nytURI: 1.3910140492418973E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 1.3910140492418973E-4

-----Triple pattern: ?nytURI <http://data.nytimes.com/elements/latest_use> ?latest_use-----
endpoint: http://localhost:8897/sparql (matched results: 7189, total results: 335198,
selectivity: 0.02144702534024666)

Triple pattern selectivity: 0.02144702534024666

BGP-Restricted Triple pattern selectivity: 0.001530115454166087

Join-Restricted Triple Pattern Selectivity on join variable ?nytURI: 1.3910140492418973E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 1.3910140492418973E-4

Mean triple patterns selectivity: 0.022971131954531987

Mean triple patterns selectivities standard deviation: 0.007058725059891323

Mean BGP-restricted Triple Pattern Sel: 0.001034109175032221

BGP-Restricted Selectivities standard deviation: 0.0011163240676488014

Mean Join-restricted Triple Pattern Sel: 7.078013535121487E-5

Join-Restricted Selectivities standard deviation: 8.636678465346722E-5

Triple Patterns: 9

22: C5 Query: PREFIX linkedmdb: <http://data.linkedmdb.org/resource/movie/> PREFIX
dcterms: <http://purl.org/dc/terms/> PREFIX dbpedia: <http://dbpedia.org/ontology/> PREFIX
rdfs: <http://www.w3.org/2000/01/rdf-schema#> SELECT ?actor ?movie ?movieTitle
?movieDate ?birthDate ?spouseName { ?actor rdfs:label ?actor_name_en;
dbpedia:birthDate ?birthDate ; dbpedia:spouse ?spouseURI . ?spouseURI
rdfs:label ?spouseName . ?imdbactor linkedmdb:actor_name ?actor_name. ?movie
linkedmdb:actor ?imdbactor ; dcterms:title ?movieTitle ; dcterms:date
?movieDate FILTER(STR(?actor_name_en)= STR(?actor_name)) } LIMIT 500
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?actor <http://www.w3.org/2000/01/rdf-schema#label>
?actor_name_en-----

endpoint: http://localhost:8887/sparql (matched results: 40, total results: 83006609,
selectivity: 4.818893396789646E-7)

endpoint: http://localhost:8888/sparql (matched results: 40, total results: 57429904,
selectivity: 6.965012513341482E-7)

endpoint: http://localhost:8889/sparql (matched results: 40, total results: 35329868, selectivity: 1.1321865114242714E-6)
endpoint: http://localhost:8890/sparql (matched results: 50517, total results: 4772706, selectivity: 0.010584561462616805)
endpoint: http://localhost:8891/sparql (matched results: 7899150, total results: 42849609, selectivity: 0.18434590616684507)
endpoint: http://localhost:8892/sparql (matched results: 19610, total results: 517023, selectivity: 0.03792868015542829)
endpoint: http://localhost:8893/sparql (matched results: 40, total results: 107950085, selectivity: 3.7054162578936366E-7)
endpoint: http://localhost:8894/sparql (matched results: 40, total results: 1049647, selectivity: 3.810804965859951E-5)
endpoint: http://localhost:8895/sparql (matched results: 34186, total results: 1090830, selectivity: 0.031339438775977925)
endpoint: http://localhost:8896/sparql (matched results: 665474, total results: 6147996, selectivity: 0.10824242566195554)
endpoint: http://localhost:8897/sparql (matched results: 40, total results: 335198, selectivity: 1.1933245425092036E-4)
endpoint: http://localhost:8898/sparql (matched results: 8261, total results: 103595, selectivity: 0.0797432308509098)
endpoint: http://localhost:8899/sparql (matched results: 1767042, total results: 44207146, selectivity: 0.039971863372496384)
Triple pattern selectivity: 0.03787047908222058
BGP-Restricted Triple pattern selectivity: 7.982573726541555E-4
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 9.574875526618154E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 9.574875526618154E-8

-----Triple pattern: ?actor <http://dbpedia.org/ontology/birthDate> ?birthDate-----
endpoint: http://localhost:8891/sparql (matched results: 232640, total results: 42849609, selectivity: 0.005429221069438463)
Triple pattern selectivity: 0.005429221069438463
BGP-Restricted Triple pattern selectivity: 0.035840784044016506
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 4.298486932599725E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 4.298486932599725E-6

-----Triple pattern: ?actor <http://dbpedia.org/ontology/spouse> ?spouseURI-----
endpoint: http://localhost:8891/sparql (matched results: 13878, total results: 42849609, selectivity: 3.238769343262852E-4)
Triple pattern selectivity: 3.238769343262852E-4
BGP-Restricted Triple pattern selectivity: 0.6890762357688428
Join-Restricted Triple Pattern Selectivity on join variable ?actor: 7.205649228995533E-5
Join-Restricted Triple Pattern Selectivity on join variable ?spouseURI: 7.205649228995533E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 7.205649228995533E-5

-----Triple pattern: ?spouseURI <http://www.w3.org/2000/01/rdf-schema#label>
?spouseName-----
 endpoint: http://localhost:8887/sparql (matched results: 40, total results: 83006609,
selectivity: 4.818893396789646E-7)
 endpoint: http://localhost:8888/sparql (matched results: 40, total results: 57429904,
selectivity: 6.965012513341482E-7)
 endpoint: http://localhost:8889/sparql (matched results: 40, total results: 35329868,
selectivity: 1.1321865114242714E-6)
 endpoint: http://localhost:8890/sparql (matched results: 50517, total results: 4772706,
selectivity: 0.010584561462616805)
 endpoint: http://localhost:8891/sparql (matched results: 7899150, total results: 42849609,
selectivity: 0.18434590616684507)
 endpoint: http://localhost:8892/sparql (matched results: 19610, total results: 517023,
selectivity: 0.03792868015542829)
 endpoint: http://localhost:8893/sparql (matched results: 40, total results: 107950085,
selectivity: 3.7054162578936366E-7)
 endpoint: http://localhost:8894/sparql (matched results: 40, total results: 1049647,
selectivity: 3.810804965859951E-5)
 endpoint: http://localhost:8895/sparql (matched results: 34186, total results: 1090830,
selectivity: 0.031339438775977925)
 endpoint: http://localhost:8896/sparql (matched results: 665474, total results: 6147996,
selectivity: 0.10824242566195554)
 endpoint: http://localhost:8897/sparql (matched results: 40, total results: 335198, selectivity:
1.1933245425092036E-4)
 endpoint: http://localhost:8898/sparql (matched results: 8261, total results: 103595,
selectivity: 0.0797432308509098)
 endpoint: http://localhost:8899/sparql (matched results: 1767042, total results: 44207146,
selectivity: 0.039971863372496384)
Triple pattern selectivity: 0.03787047908222058
BGP-Restricted Triple pattern selectivity: 8.558981233243968E-4
Join-Restricted Triple Pattern Selectivity on join variable ?spouseURI: 9.574875526618154E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 9.574875526618154E-8

-----Triple pattern: ?imdbactor <http://data.linkedmdb.org/resource/movie/actor_name>
?actor_name-----
 endpoint: http://localhost:8896/sparql (matched results: 50603, total results: 6147996,
selectivity: 0.008230812121543345)
Triple pattern selectivity: 0.008230812121543345
BGP-Restricted Triple pattern selectivity: 0.8253463233405134
Join-Restricted Triple Pattern Selectivity on join variable ?imdbactor: 1.976167420903899E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 1.976167420903899E-5

-----Triple pattern: ?movie <http://data.linkedmdb.org/resource/movie/actor> ?imdbactor-----
endpoint: http://localhost:8896/sparql (matched results: 194649, total results: 6147996,
selectivity: 0.03166056061194575)

Triple pattern selectivity: 0.03166056061194575

BGP-Restricted Triple pattern selectivity: 0.8775334062851594

Join-Restricted Triple Pattern Selectivity on join variable ?movie: 5.137452542782136E-6

Join-Restricted Triple Pattern Selectivity on join variable ?imdbactor: 5.137452542782136E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 5.137452542782136E-6

-----Triple pattern: ?movie <http://purl.org/dc/terms/title> ?movieTitle-----

endpoint: http://localhost:8896/sparql (matched results: 85620, total results: 6147996,
selectivity: 0.013926489216974116)

endpoint: http://localhost:8898/sparql (matched results: 224, total results: 103595,
selectivity: 0.002162266518654375)

Triple pattern selectivity: 0.008044377867814246

BGP-Restricted Triple pattern selectivity: 0.5380108103070687

Join-Restricted Triple Pattern Selectivity on join variable ?movie: 1.164903778947859E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 1.164903778947859E-5

-----Triple pattern: ?movie <http://purl.org/dc/terms/date> ?movieDate-----

endpoint: http://localhost:8896/sparql (matched results: 74111, total results: 6147996,
selectivity: 0.012054497107675411)

Triple pattern selectivity: 0.012054497107675411

BGP-Restricted Triple pattern selectivity: 0.6231868413595822

Join-Restricted Triple Pattern Selectivity on join variable ?movie: 1.349327360310885E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 1.349327360310885E-5

Mean triple patterns selectivity: 0.017685537984648083

Mean triple patterns selectivities standard deviation: 0.015472842389692081

Mean BGP-restricted Triple Pattern Sel: 0.4488310695751452

BGP-Restricted Selectivities standard deviation: 0.5469819650889688

Mean Join-restricted Triple Pattern Sel: 1.5823489359687E-5

Join-Restricted Selectivities standard deviation: 2.8135022197322354E-5

Triple Patterns: 8

23: C3 Query: PREFIX foaf: <http://xmlns.com/foaf/0.1/> PREFIX geonames:
<http://www.geonames.org/ontology#> PREFIX mo: <http://purl.org/ontology/mo/>
PREFIX nytimes: <http://data.nytimes.com/elements/> PREFIX owl:
<http://www.w3.org/2002/07/owl#> SELECT DISTINCT ?artist ?name ?location ?anylocation
WHERE {
?artist a mo:MusicArtist ; foaf:name ?name ;
foaf:based_near ?location . ?location geonames:parentFeature ?locationName .
?locationName geonames:name ?anylocation . ?nytLocation owl:sameAs ?location.

?nytLocation nytimes:topicPage ?news OPTIONAL { ?locationName geonames:name 'Islamic Republic of Afghanistan' . } }
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?artist <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://purl.org/ontology/mo/MusicArtist> -----
endpoint: http://localhost:8894/sparql (matched results: 3505, total results: 1049647,
selectivity: 0.003339217851334782)
Triple pattern selectivity: 0.003339217851334782
BGP-Restricted Triple pattern selectivity: 0.0025677603423680455
Join-Restricted Triple Pattern Selectivity on join variable ?artist: 2.853067047075606E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.853067047075606E-4

-----Triple pattern: ?artist <http://xmlns.com/foaf/0.1/name> ?name-----
endpoint: http://localhost:8891/sparql (matched results: 1406396, total results: 42849609,
selectivity: 0.032821676389159116)
endpoint: http://localhost:8894/sparql (matched results: 3505, total results: 1049647,
selectivity: 0.003339217851334782)
endpoint: http://localhost:8898/sparql (matched results: 5861, total results: 103595,
selectivity: 0.056576089579612916)
Triple pattern selectivity: 0.030912327940035605
BGP-Restricted Triple pattern selectivity: 6.357000682318074E-6
Join-Restricted Triple Pattern Selectivity on join variable ?artist: 7.063334091464526E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 7.063334091464526E-7

-----Triple pattern: ?artist <http://xmlns.com/foaf/0.1/based_near> ?location-----
endpoint: http://localhost:8894/sparql (matched results: 3244, total results: 1049647,
selectivity: 0.00309056282731242)
endpoint: http://localhost:8896/sparql (matched results: 16587, total results: 6147996,
selectivity: 0.0026979523083619445)
endpoint: http://localhost:8898/sparql (matched results: 2313, total results: 103595,
selectivity: 0.022327332400212365)
Triple pattern selectivity: 0.00937194917862891
BGP-Restricted Triple pattern selectivity: 4.064306358381503E-4
Join-Restricted Triple Pattern Selectivity on join variable ?artist: 4.515895953757225E-5
Join-Restricted Triple Pattern Selectivity on join variable ?location: 4.515895953757225E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.515895953757225E-5

-----Triple pattern: ?location <http://www.geonames.org/ontology#parentFeature>
?locationName-----
endpoint: http://localhost:8893/sparql (matched results: 7479713, total results: 107950085,
selectivity: 0.06928862538644597)
endpoint: http://localhost:8897/sparql (matched results: 1780, total results: 335198,

selectivity: 0.005310294214165956)
Triple pattern selectivity: 0.03729945980030596
BGP-Restricted Triple pattern selectivity: 4.0108158333639714E-7
Join-Restricted Triple Pattern Selectivity on join variable ?location: 1.336938611121324E-7
Join-Restricted Triple Pattern Selectivity on join variable ?locationName:
1.336938611121324E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.336938611121324E-7

-----Triple pattern: ?locationName <<http://www.geonames.org/ontology#name>>
?anylocation-----
 endpoint: <http://localhost:8893/sparql> (matched results: 7479714, total results: 107950085,
selectivity: 0.06928863464998661)
 endpoint: <http://localhost:8897/sparql> (matched results: 1780, total results: 335198,
selectivity: 0.005310294214165956)
Triple pattern selectivity: 0.03729946443207628
BGP-Restricted Triple pattern selectivity: 2.673771769515526E-7
Join-Restricted Triple Pattern Selectivity on join variable ?locationName:
1.336885884757763E-7
Join-Restricted Triple pattern selectivity (average on all its variables): 1.336885884757763E-7

-----Triple pattern: ?nytLocation <<http://www.w3.org/2002/07/owl#sameAs>> ?location-----
 endpoint: <http://localhost:8891/sparql> (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
 endpoint: <http://localhost:8892/sparql> (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
 endpoint: <http://localhost:8893/sparql> (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
 endpoint: <http://localhost:8894/sparql> (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
 endpoint: <http://localhost:8895/sparql> (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
 endpoint: <http://localhost:8896/sparql> (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)
 endpoint: <http://localhost:8897/sparql> (matched results: 31673, total results: 335198,
selectivity: 0.094490420587235)
 endpoint: <http://localhost:8898/sparql> (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 9.49814944388335E-6
Join-Restricted Triple Pattern Selectivity on join variable ?nytLocation: 3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?location: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?nytLocation <http://data.nytimes.com/elements/topicPage> ?news-----
endpoint: http://localhost:8897/sparql (matched results: 7432, total results: 335198,
selectivity: 0.022171969999821)
Triple pattern selectivity: 0.022171969999821
BGP-Restricted Triple pattern selectivity: 4.0365984930032295E-4
Join-Restricted Triple Pattern Selectivity on join variable ?nytLocation: 1.3455328310010763E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.3455328310010763E-4

-----Triple pattern: ?locationName <http://www.geonames.org/ontology#name> 'Islamic
Republic of Afghanistan' -----
endpoint: http://localhost:8893/sparql (matched results: 1, total results: 107950085,
selectivity: 9.263540644734092E-9)
Triple pattern selectivity: 9.263540644734092E-9
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

Mean triple patterns selectivity: 0.02021449348320968
Mean triple patterns selectivities standard deviation: 0.014707890605663817
Mean BGP-restricted Triple Pattern Sel: 0.1254242968045491
BGP-Restricted Selectivities standard deviation: 0.35338330626794956
Mean Join-restricted Triple Pattern Sel: 5.8644839127325327E-5
Join-Restricted Selectivities standard deviation: 1.204482057599992E-4
Triple Patterns: 8

24: L3 Query: PREFIX tcga: <http://tcga.der.i.e/schema/> PREFIX xsd:
<http://www.w3.org/2001/XMLSchema#> SELECT ?patient ?methylationValue WHERE { ?s
tcga:bcr_patient_barcode ?patient. ?patient <http://tcga.der.i.e/schema/vital_status> "Dead".
?patient tcga:bcr_drug_barcode ?drug. ?drug tcga:drug_name "Tarceva". ?patient
<http://tcga.der.i.e/schema/age_at_initial_pathologic_diagnosis> ?age. ?patient tcga:result
?results. ?results tcga:beta_value ?methylationValue. FILTER(?age <= 51) } ORDER BY
(?patient)
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?s <http://tcga.der.i.e/schema/bcr_patient_barcode> ?patient-----
endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609,
selectivity: 3.638264514576183E-6)
endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904,
selectivity: 5.188934322439404E-6)
endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868,
selectivity: 9.269777062286222E-5)
Triple pattern selectivity: 3.3841656486625935E-5
BGP-Restricted Triple pattern selectivity: 0.0033587786259541984
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/vital_status> 'Dead' -----

endpoint: http://localhost:8889/sparql (matched results: 511, total results: 35329868,
selectivity: 1.4463682683445067E-5)

Triple pattern selectivity: 1.4463682683445067E-5

BGP-Restricted Triple pattern selectivity: 0.0019569471624266144

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 0.0019569471624266144

Join-Restricted Triple pattern selectivity (average on all its variables): 0.0019569471624266144

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/bcr_drug_barcode> ?drug-----

endpoint: http://localhost:8889/sparql (matched results: 1328, total results: 35329868,
selectivity: 3.758859217928581E-5)

Triple pattern selectivity: 3.758859217928581E-5

BGP-Restricted Triple pattern selectivity: 7.530120481927711E-4

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 7.530120481927711E-4

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 7.530120481927711E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 7.530120481927711E-4

-----Triple pattern: ?drug <http://tcga.deriv.ie/schema/drug_name> 'Tarceva' -----

endpoint: http://localhost:8889/sparql (matched results: 2, total results: 35329868,
selectivity: 5.660932557121357E-8)

Triple pattern selectivity: 5.660932557121357E-8

BGP-Restricted Triple pattern selectivity: 0.5

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 0.5

Join-Restricted Triple pattern selectivity (average on all its variables): 0.5

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/age_at_initial_pathologic_diagnosis>
?age-----

endpoint: http://localhost:8889/sparql (matched results: 765, total results: 35329868,
selectivity: 2.165306703098919E-5)

Triple pattern selectivity: 2.165306703098919E-5

BGP-Restricted Triple pattern selectivity: 0.00130718954248366

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 0.00130718954248366

Join-Restricted Triple pattern selectivity (average on all its variables): 0.00130718954248366

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/result> ?results-----

endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)

endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)

endpoint: http://localhost:8889/sparql (matched results: 5724694, total results: 35329868,
selectivity: 0.16203553322078645)

Triple pattern selectivity: 0.7206726262743709
BGP-Restricted Triple pattern selectivity: 1.5994799452903694E-4
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.841816858971552E-9
Join-Restricted Triple Pattern Selectivity on join variable ?results: 6.841816858971552E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.841816858971552E-9

-----Triple pattern: ?results <http://tcga.deriv.ie/schema/beta_value> ?methylationValue-----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)

Triple pattern selectivity: 0.9999927234709709
BGP-Restricted Triple pattern selectivity: 2.816422739535531E-4
Join-Restricted Triple Pattern Selectivity on join variable ?results: 1.204732115465622E-8
Join-Restricted Triple pattern selectivity (average on all its variables): 1.204732115465622E-8

Mean triple patterns selectivity: 0.24582470762186398
Mean triple patterns selectivities standard deviation: 0.4274626643249445
Mean BGP-restricted Triple Pattern Sel: 0.07254535966393426
BGP-Restricted Selectivities standard deviation: 0.20411460806986068
Mean Join-restricted Triple Pattern Sel: 0.07204607302195591
Join-Restricted Selectivities standard deviation: 0.20412667509521998
Triple Patterns: 7

25: C1 Query: PREFIX drugbank:
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/> PREFIX drugtype:
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugtype/> PREFIX kegg:
<http://bio2rdf.org/ns/kegg#> PREFIX chebi: <http://bio2rdf.org/ns/bio2rdf#> PREFIX purl:
<http://purl.org/dc/elements/1.1/> SELECT distinct ?drug ?drugDesc
?molecularWeightAverage ?compound ?ReactionTitle ?ChemicalEquation WHERE {
?drug drugbank:description ?drugDesc . ?drug
drugbank:drugType drugtype:smallMolecule . ?drug drugbank:keggCompoundId
?compound . ?enzyme kegg:xSubstrate ?compound . ?Chemicalreaction
kegg:xEnzyme ?enzyme . ?Chemicalreaction kegg:equation
?ChemicalEquation . ?Chemicalreaction purl:title ?ReactionTitle OPTIONAL {
?drug drugbank:molecularWeightAverage ?molecularWeightAverage. FILTER
(?molecularWeightAverage > 114) }} Limit 1000
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/description> ?drugDesc-----
endpoint: http://localhost:8892/sparql (matched results: 1861, total results: 517023,
selectivity: 0.0035994530223993904)
Triple pattern selectivity: 0.0035994530223993904

BGP-Restricted Triple pattern selectivity: 0.0999462654486835
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 5.373455131649651E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 5.373455131649651E-4

-----Triple pattern: ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/drugType>
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugtype/smallMolecule> -----
endpoint: http://localhost:8892/sparql (matched results: 4645, total results: 517023,
selectivity: 0.008984126431512718)
Triple pattern selectivity: 0.008984126431512718
BGP-Restricted Triple pattern selectivity: 0.04004305705059204
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 2.1528525296017224E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.1528525296017224E-4

-----Triple pattern: ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId>
?compound-----
endpoint: http://localhost:8892/sparql (matched results: 1331, total results: 517023,
selectivity: 0.002574353558739166)
Triple pattern selectivity: 0.002574353558739166
BGP-Restricted Triple pattern selectivity: 0.13974455296769348
Join-Restricted Triple Pattern Selectivity on join variable ?drug: 7.513148009015778E-4
Join-Restricted Triple Pattern Selectivity on join variable ?compound: 7.513148009015778E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 7.513148009015778E-4

-----Triple pattern: ?enzyme <http://bio2rdf.org/ns/kegg#xSubstrate> ?compound-----
endpoint: http://localhost:8895/sparql (matched results: 24575, total results: 1090830,
selectivity: 0.022528716665291566)
Triple pattern selectivity: 0.022528716665291566
BGP-Restricted Triple pattern selectivity: 0.05786368260427263
Join-Restricted Triple Pattern Selectivity on join variable ?enzyme: 4.069175991861648E-5
Join-Restricted Triple Pattern Selectivity on join variable ?compound: 4.069175991861648E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.069175991861648E-5

-----Triple pattern: ?Chemicalreaction <http://bio2rdf.org/ns/kegg#xEnzyme> ?enzyme-----
endpoint: http://localhost:8895/sparql (matched results: 7226, total results: 1090830,
selectivity: 0.006624313596069048)
Triple pattern selectivity: 0.006624313596069048
BGP-Restricted Triple pattern selectivity: 0.35316911154165515
Join-Restricted Triple Pattern Selectivity on join variable ?Chemicalreaction:
1.383891502906172E-4
Join-Restricted Triple Pattern Selectivity on join variable ?enzyme: 1.383891502906172E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.383891502906172E-4

-----Triple pattern: ?Chemicalreaction <http://bio2rdf.org/ns/kegg#equation>
?ChemicalEquation-----
endpoint: http://localhost:8895/sparql (matched results: 7827, total results: 1090830,
selectivity: 0.007175270207090014)
Triple pattern selectivity: 0.007175270207090014
BGP-Restricted Triple pattern selectivity: 0.30267024402708576
Join-Restricted Triple Pattern Selectivity on join variable ?Chemicalreaction:
1.2776287210936502E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 1.2776287210936502E-4

-----Triple pattern: ?Chemicalreaction <http://purl.org/dc/elements/1.1/title> ?ReactionTitle-----
endpoint: http://localhost:8890/sparql (matched results: 34055, total results: 4772706,
selectivity: 0.007135365136675086)
endpoint: http://localhost:8894/sparql (matched results: 51402, total results: 1049647,
selectivity: 0.0489707492137833)
endpoint: http://localhost:8895/sparql (matched results: 34146, total results: 1090830,
selectivity: 0.03130276945078518)
endpoint: http://localhost:8898/sparql (matched results: 1555, total results: 103595,
selectivity: 0.015010376948694434)
Triple pattern selectivity: 0.0256048151874845
BGP-Restricted Triple pattern selectivity: 0.019552980405751166
Join-Restricted Triple Pattern Selectivity on join variable ?Chemicalreaction:
8.253685270473266E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 8.253685270473266E-6

-----Triple pattern: ?drug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/molecularWeightAverage>
?molecularWeightAverage-----
endpoint: http://localhost:8892/sparql (matched results: 4727, total results: 517023,
selectivity: 0.009142726725890338)
Triple pattern selectivity: 0.009142726725890338
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

Mean triple patterns selectivity: 0.010779221924309593
Mean triple patterns selectivities standard deviation: 0.00855962285729156
Mean BGP-restricted Triple Pattern Sel: 0.2516237367557167
BGP-Restricted Selectivites standard deviation: 0.3531373653696687
Mean Join-restricted Triple Pattern Sel: 2.273803793269734E-4
Join-Restricted Selectivites standard deviation: 3.658182065624622E-4
Triple Patterns: 8

26: L6 Query: PREFIX tcga: <http://tcga.der.i.e/schema/> PREFIX rdf:
<http://www.w3.org/1999/02/22-rdf-syntax-ns#> PREFIX xsd:
<http://www.w3.org/2001/XMLSchema#> PREFIX affymetrix:
<http://bio2rdf.org/affymetrix_vocabulary:> SELECT DISTINCT ?patient ?start ?stop
?geneExpVal WHERE { ?s affymetrix:x-symbol <http://bio2rdf.org/symbol:KRAS>. ?s
affymetrix:x-geneid ?genel.d. ?genel.d rdf:type tcga:expression_gene_lookup. ?genel.d
tcga:chromosome ?lookupChromosome. ?uri tcga:bcr_patient_barcode ?patient .
?patient tcga:result ?recordNo . ?recordNo tcga:chromosome ?chromosome.
?recordNo tcga:start ?start. ?recordNo tcga:stop ?stop. ?recordNo tcga:scaled_estimate
?geneExpVal FILTER (str(?lookupChromosome)= str(?chromosome)) }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?s <http://bio2rdf.org/affymetrix_vocabulary:x-symbol>
<http://bio2rdf.org/symbol:KRAS> -----
endpoint: http://localhost:8899/sparql (matched results: 34, total results: 44207146,
selectivity: 7.691064245585997E-7)
Triple pattern selectivity: 7.691064245585997E-7
BGP-Restricted Triple pattern selectivity: 0.7647058823529411
Join-Restricted Triple Pattern Selectivity on join variable ?s: 0.029411764705882353
Join-Restricted Triple pattern selectivity (average on all its variables): 0.029411764705882353

-----Triple pattern: ?s <http://bio2rdf.org/affymetrix_vocabulary:x-geneid> ?genel.d-----
endpoint: http://localhost:8899/sparql (matched results: 844034, total results: 44207146,
selectivity: 0.01909270505723215)
Triple pattern selectivity: 0.01909270505723215
BGP-Restricted Triple pattern selectivity: 3.080444626638263E-5
Join-Restricted Triple Pattern Selectivity on join variable ?s: 1.1847863948608706E-6
Join-Restricted Triple Pattern Selectivity on join variable ?genel.d: 1.1847863948608706E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 1.1847863948608706E-6

-----Triple pattern: ?genel.d <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://tcga.der.i.e/schema/expression_gene_lookup> -----
endpoint: http://localhost:8889/sparql (matched results: 20531, total results: 35329868,
selectivity: 5.811230316512929E-4)
Triple pattern selectivity: 5.811230316512929E-4
BGP-Restricted Triple pattern selectivity: 4.8706833568749694E-5
Join-Restricted Triple Pattern Selectivity on join variable ?genel.d: 4.8706833568749694E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 4.8706833568749694E-5

-----Triple pattern: ?genel.d <http://tcga.der.i.e/schema/chromosome>
?lookupChromosome-----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,

selectivity: 0.9999927234709709)
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)
endpoint: http://localhost:8889/sparql (matched results: 5745225, total results: 35329868,
selectivity: 0.16261665625243774)
Triple pattern selectivity: 0.7208663339515878
BGP-Restricted Triple pattern selectivity: 6.840855928441035E-9
Join-Restricted Triple Pattern Selectivity on join variable ?genId: 6.840855928441035E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.840855928441035E-9

----Triple pattern: ?uri <http://tcga.deriv.ie/schema/bcr_patient_barcode> ?patient----
endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609,
selectivity: 3.638264514576183E-6)
endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904,
selectivity: 5.188934322439404E-6)
endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868,
selectivity: 9.269777062286222E-5)
Triple pattern selectivity: 3.3841656486625935E-5
BGP-Restricted Triple pattern selectivity: 0.34931297709923664
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

----Triple pattern: ?patient <http://tcga.deriv.ie/schema/result> ?recordNo----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)
endpoint: http://localhost:8889/sparql (matched results: 5724694, total results: 35329868,
selectivity: 0.16203553322078645)
Triple pattern selectivity: 0.7206726262743709
BGP-Restricted Triple pattern selectivity: 0.036395790539336795
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 6.841816858971552E-9
Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 6.841816858971552E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.841816858971552E-9

----Triple pattern: ?recordNo <http://tcga.deriv.ie/schema/chromosome> ?chromosome----
endpoint: http://localhost:8887/sparql (matched results: 83006005, total results: 83006609,
selectivity: 0.9999927234709709)
endpoint: http://localhost:8888/sparql (matched results: 57429308, total results: 57429904,
selectivity: 0.9999896221313551)
endpoint: http://localhost:8889/sparql (matched results: 5745225, total results: 35329868,
selectivity: 0.16261665625243774)
Triple pattern selectivity: 0.7208663339515878

BGP-Restricted Triple pattern selectivity: 0.036390678764638286
Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 6.840855928441035E-9
Join-Restricted Triple pattern selectivity (average on all its variables): 6.840855928441035E-9

-----Triple pattern: ?recordNo <<http://tcga.deriv.ie/schema/start>> ?start-----
endpoint: <http://localhost:8888/sparql> (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)

endpoint: <http://localhost:8889/sparql> (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.5813031391918965

BGP-Restricted Triple pattern selectivity: 0.08420495961560967

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.5829163311741458E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 1.5829163311741458E-8

-----Triple pattern: ?recordNo <<http://tcga.deriv.ie/schema/stop>> ?stop-----
endpoint: <http://localhost:8888/sparql> (matched results: 57429308, total results: 57429904, selectivity: 0.9999896221313551)

endpoint: <http://localhost:8889/sparql> (matched results: 5745225, total results: 35329868, selectivity: 0.16261665625243774)

Triple pattern selectivity: 0.5813031391918965

BGP-Restricted Triple pattern selectivity: 0.08420495961560967

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.5829163311741458E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 1.5829163311741458E-8

-----Triple pattern: ?recordNo <http://tcga.deriv.ie/schema/scaled_estimate> ?geneExpVal-----
endpoint: <http://localhost:8889/sparql> (matched results: 5319609, total results: 35329868, selectivity: 0.15056973889627892)

Triple pattern selectivity: 0.15056973889627892

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple Pattern Selectivity on join variable ?recordNo: 1.879837409102812E-7

Join-Restricted Triple pattern selectivity (average on all its variables): 1.879837409102812E-7

Mean triple patterns selectivity: 0.34952897503094127

Mean triple patterns selectivities standard deviation: 0.339251353722875

Mean BGP-restricted Triple Pattern Sel: 0.2355294766108063

BGP-Restricted Selectivities standard deviation: 0.3876661762812098

Mean Join-restricted Triple Pattern Sel: 0.0029767240002892595

Join-Restricted Selectivities standard deviation: 0.009804456993415537

Triple Patterns: 10

27: C9 Query: Prefix dbpedia: <<http://dbpedia.org/ontology/>> Prefix rdf:

<<http://www.w3.org/1999/02/22-rdf-syntax-ns#>> Prefix owl: <<http://www.w3.org/2002/07/owl#>>

Prefix drugbank: <http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/> SELECT *
WHERE { ?Drug rdf:type dbpedia:Drug . ?drugbankDrug owl:sameAs ?Drug .
?InteractionName drugbank:interactionDrug1 ?drugbankDrug . ?InteractionName
drugbank:interactionDrug2 ?drugbankDrug2 . ?InteractionName drugbank:text ?IntEffect
OPTIONAL { ?drugbankDrug drugbank:affectedOrganism 'Humans and other mammals';
drugbank:description ?description ; drugbank:structure ?structure ;
drugbank:casRegistryNumber ?casRegistryNumber } } ORDER BY (?drugbankDrug) LIMIT 100
Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?Drug <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://dbpedia.org/ontology/Drug> -----
endpoint: http://localhost:8891/sparql (matched results: 4348, total results: 42849609,
selectivity: 1.0147117095047471E-4)
Triple pattern selectivity: 1.0147117095047471E-4
Triple pattern selectivity: 0.021321549399934258
BGP-Restricted Triple pattern selectivity: 0.09705611775528979
Join-Restricted Triple Pattern Selectivity on join variable ?Drug: 2.2999080036798528E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.2999080036798528E-4

-----Triple pattern: ?drugbankDrug <http://www.w3.org/2002/07/owl#sameAs> ?Drug-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)
endpoint: http://localhost:8897/sparql (matched results: 31673, total results: 335198,
selectivity: 0.094490420587235)
endpoint: http://localhost:8898/sparql (matched results: 1630, total results: 103595,
selectivity: 0.015734350113422464)
BGP-Restricted Triple pattern selectivity: 0.0013360730217729245
Join-Restricted Triple Pattern Selectivity on join variable ?drugbankDrug:
3.1660498146277835E-6
Join-Restricted Triple Pattern Selectivity on join variable ?Drug: 3.1660498146277835E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?InteractionName

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/interactionDrug1>
?drugbankDrug-----
 endpoint: http://localhost:8892/sparql (matched results: 10096, total results: 517023,
selectivity: 0.01952717770776155)
Triple pattern selectivity: 0.01952717770776155
BGP-Restricted Triple pattern selectivity: 0.8955031695721077
Join-Restricted Triple Pattern Selectivity on join variable ?InteractionName:
9.904912836767037E-5
Join-Restricted Triple Pattern Selectivity on join variable ?drugbankDrug:
9.904912836767037E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 9.904912836767037E-5

-----Triple pattern: ?InteractionName
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/interactionDrug2>
?drugbankDrug2-----
 endpoint: http://localhost:8892/sparql (matched results: 10096, total results: 517023,
selectivity: 0.01952717770776155)
Triple pattern selectivity: 0.01952717770776155
BGP-Restricted Triple pattern selectivity: 0.8955031695721077
Join-Restricted Triple Pattern Selectivity on join variable ?InteractionName:
9.904912836767037E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 9.904912836767037E-5

-----Triple pattern: ?InteractionName
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/text> ?IntEffect-----
 endpoint: http://localhost:8892/sparql (matched results: 10122, total results: 517023,
selectivity: 0.019577465605978846)
Triple pattern selectivity: 0.019577465605978846
BGP-Restricted Triple pattern selectivity: 0.8944872554831061
Join-Restricted Triple Pattern Selectivity on join variable ?InteractionName:
9.879470460383324E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 9.879470460383324E-5

-----Triple pattern: ?drugbankDrug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/affectedOrganism> 'Humans and
other mammals' -----
 endpoint: http://localhost:8892/sparql (matched results: 1260, total results: 517023,
selectivity: 0.002437028913607325)
Triple pattern selectivity: 0.002437028913607325
BGP-Restricted Triple pattern selectivity: 0.9857142857142858
Join-Restricted Triple Pattern Selectivity on join variable ?drugbankDrug:
7.936507936507937E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 7.936507936507937E-4

-----Triple pattern: ?drugbankDrug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/description> ?description-----
endpoint: http://localhost:8892/sparql (matched results: 1861, total results: 517023,
selectivity: 0.0035994530223993904)
Triple pattern selectivity: 0.0035994530223993904
BGP-Restricted Triple pattern selectivity: 0.6673831273508867
Join-Restricted Triple Pattern Selectivity on join variable ?drugbankDrug:
5.373455131649651E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 5.373455131649651E-4

-----Triple pattern: ?drugbankDrug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/structure> ?structure-----
endpoint: http://localhost:8892/sparql (matched results: 4772, total results: 517023,
selectivity: 0.009229763472804886)
Triple pattern selectivity: 0.009229763472804886
BGP-Restricted Triple pattern selectivity: 0.26026823134953897
Join-Restricted Triple Pattern Selectivity on join variable ?drugbankDrug:
2.0955574182732607E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.0955574182732607E-4

-----Triple pattern: ?drugbankDrug
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/casRegistryNumber>
?casRegistryNumber-----
endpoint: http://localhost:8892/sparql (matched results: 2240, total results: 517023,
selectivity: 0.004332495846413023)
Triple pattern selectivity: 0.004332495846413023
BGP-Restricted Triple pattern selectivity: 0.5544642857142857
Join-Restricted Triple Pattern Selectivity on join variable ?drugbankDrug:
4.464285714285714E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 4.464285714285714E-4

Mean triple patterns selectivity: 0.011072620316401256
Mean triple patterns selectivities standard deviation: 0.008803019391062265
Mean BGP-restricted Triple Pattern Sel: 0.5835239683925979
BGP-Restricted Selectivites standard deviation: 0.6701358655755492
Mean Join-restricted Triple Pattern Sel: 2.7967004795482705E-4
Join-Restricted Selectivites standard deviation: 3.56468859257412E-4
Triple Patterns: 9

28: L7 Query: PREFIX tcga: <http://tcga.der.i.e/schema/> PREFIX dbpedia:
<http://dbpedia.org/ontology/> SELECT DISTINCT ?patient ?p ?o WHERE { ?uri

tcga:bcr_patient_barcode ?patient . ?patient dbpedia:country ?country. ?country
dbpedia:populationDensity ?popDensity. ?patient tcga:bcr_aliquot_barcode ?aliquot. ?aliquot ?p
?o. FILTER(?popDensity >= 32) }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?uri <http://tcga.der1.ie/schema/bcr_patient_barcode> ?patient-----
endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609,
selectivity: 3.638264514576183E-6)
endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904,
selectivity: 5.188934322439404E-6)
endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868,
selectivity: 9.269777062286222E-5)

Triple pattern selectivity: 3.3841656486625935E-5

BGP-Restricted Triple pattern selectivity: 0.8867175572519084

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

-----Triple pattern: ?patient <http://dbpedia.org/ontology/country> ?country-----
endpoint: http://localhost:8889/sparql (matched results: 1427, total results: 35329868,
selectivity: 4.039075379506088E-5)
endpoint: http://localhost:8891/sparql (matched results: 101557, total results: 42849609,
selectivity: 0.0023700799696912056)

Triple pattern selectivity: 0.0012052353617431333

BGP-Restricted Triple pattern selectivity: 0.011933892643517439

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 9.710246251844947E-6

Join-Restricted Triple Pattern Selectivity on join variable ?country: 9.710246251844947E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 9.710246251844947E-6

-----Triple pattern: ?country <http://dbpedia.org/ontology/populationDensity> ?popDensity-----
endpoint: http://localhost:8891/sparql (matched results: 84930, total results: 42849609,
selectivity: 0.0019820484242925062)

Triple pattern selectivity: 0.0019820484242925062

BGP-Restricted Triple pattern selectivity: 3.0613446367596845E-4

Join-Restricted Triple Pattern Selectivity on join variable ?country: 1.1774402449075709E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 1.1774402449075709E-5

-----Triple pattern: ?patient <http://tcga.der1.ie/schema/bcr_aliquot_barcode> ?aliquot-----
endpoint: http://localhost:8889/sparql (matched results: 32610, total results: 35329868,
selectivity: 9.230150534386372E-4)

Triple pattern selectivity: 9.230150534386372E-4

BGP-Restricted Triple pattern selectivity: 0.4257283042011653

Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.0665440049064704E-5

Join-Restricted Triple Pattern Selectivity on join variable ?aliquot: 3.0665440049064704E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 3.0665440049064704E-5

-----Triple pattern: ?aliquot ?p ?o-----

for all endpoints Selectivity: 1.0

Triple pattern selectivity: 1.0

BGP-Restricted Triple pattern selectivity: 1.9359532842665265E-4

Join-Restricted Triple Pattern Selectivity on join variable ?aliquot: 9.960554451315207E-10

Join-Restricted Triple pattern selectivity (average on all its variables): 9.960554451315207E-10

Mean triple patterns selectivity: 0.2008288280991922

Mean triple patterns selectivities standard deviation: 0.44675080952131624

Mean BGP-restricted Triple Pattern Sel: 0.26497589677773875

BGP-Restricted Selectivities standard deviation: 0.4918212519890194

Mean Join-restricted Triple Pattern Sel: 7.149891925116244E-5

Join-Restricted Selectivities standard deviation: 1.5362927146296966E-4

Triple Patterns: 5

29: C8 Query: prefix swc: <http://data.semanticweb.org/ns/swc/ontology#> prefix swrc:

<http://swrc.ontoware.org/ontology#> prefix eswc:

<http://data.semanticweb.org/conference/eswc/> prefix iswc:

<http://data.semanticweb.org/conference/iswc/2009/> prefix foaf: <http://xmlns.com/foaf/0.1/>

prefix purl: <http://purl.org/ontology/bibo/> PREFIX dbpedia: <http://dbpedia.org/ontology/>

PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#> SELECT DISTINCT * WHERE {

?paper swc:isPartOf iswc:proceedings . iswc:proceedings swrc:address ?proceedingAddress.

?paper swrc:author ?author . ?author swrc:affiliation ?affiliation ; rdfs:label ?fullnames ;

foaf:based_near ?place. OPTIONAL { ?place dbpedia:capital ?capital;

dbpedia:populationDensity ?populationDensity; dbpedia:governmentType

?governmentType; dbpedia:language ?language ; dbpedia:leaderTitle ?leaderTitle. } }

Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?paper <http://data.semanticweb.org/ns/swc/ontology#isPartOf>

<http://data.semanticweb.org/conference/iswc/2009/proceedings> -----

endpoint: http://localhost:8898/sparql (matched results: 114, total results: 103595, selectivity:
0.0011004392103866017)

Triple pattern selectivity: 0.0011004392103866017

BGP-Restricted Triple pattern selectivity: 0.868421052631579

Join-Restricted Triple Pattern Selectivity on join variable ?paper: 0.008771929824561403

Join-Restricted Triple pattern selectivity (average on all its variables): 0.008771929824561403

-----Triple pattern: <http://data.semanticweb.org/conference/iswc/2009/proceedings>

<http://swrc.ontoware.org/ontology#address> ?proceedingAddress-----

endpoint: http://localhost:8898/sparql (matched results: 1, total results: 103595, selectivity:

9.652975529707033E-6)

Triple pattern selectivity: 9.652975529707033E-6

BGP-Restricted Triple pattern selectivity: 1.0

Join-Restricted Triple pattern selectivity (average on all its variables): No join variable in the triple pattern

-----Triple pattern: ?paper <http://swrc.ontoware.org/ontology#author> ?author-----

endpoint: http://localhost:8898/sparql (matched results: 4208, total results: 103595, selectivity: 0.04061972102900719)

Triple pattern selectivity: 0.04061972102900719

BGP-Restricted Triple pattern selectivity: 0.05655893536121673

Join-Restricted Triple Pattern Selectivity on join variable ?paper: 2.376425855513308E-4

Join-Restricted Triple Pattern Selectivity on join variable ?author: 2.376425855513308E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 2.376425855513308E-4

-----Triple pattern: ?author <http://swrc.ontoware.org/ontology#affiliation> ?affiliation-----

endpoint: http://localhost:8898/sparql (matched results: 3817, total results: 103595, selectivity: 0.03684540759689174)

Triple pattern selectivity: 0.03684540759689174

BGP-Restricted Triple pattern selectivity: 0.07754781241812943

Join-Restricted Triple Pattern Selectivity on join variable ?author: 2.6198585276395077E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 2.6198585276395077E-4

-----Triple pattern: ?author <http://www.w3.org/2000/01/rdf-schema#label> ?fullnames-----

endpoint: http://localhost:8887/sparql (matched results: 40, total results: 83006609, selectivity: 4.818893396789646E-7)

endpoint: http://localhost:8888/sparql (matched results: 40, total results: 57429904, selectivity: 6.965012513341482E-7)

endpoint: http://localhost:8889/sparql (matched results: 40, total results: 35329868, selectivity: 1.1321865114242714E-6)

endpoint: http://localhost:8890/sparql (matched results: 50517, total results: 4772706, selectivity: 0.010584561462616805)

endpoint: http://localhost:8891/sparql (matched results: 7899150, total results: 42849609, selectivity: 0.18434590616684507)

endpoint: http://localhost:8892/sparql (matched results: 19610, total results: 517023, selectivity: 0.03792868015542829)

endpoint: http://localhost:8893/sparql (matched results: 40, total results: 107950085, selectivity: 3.7054162578936366E-7)

endpoint: http://localhost:8894/sparql (matched results: 40, total results: 1049647, selectivity: 3.810804965859951E-5)

endpoint: http://localhost:8895/sparql (matched results: 34186, total results: 1090830, selectivity: 0.031339438775977925)

endpoint: http://localhost:8896/sparql (matched results: 665474, total results: 6147996,

selectivity: 0.10824242566195554)
endpoint: http://localhost:8897/sparql (matched results: 40, total results: 335198, selectivity: 1.1933245425092036E-4)

endpoint: http://localhost:8898/sparql (matched results: 8261, total results: 103595, selectivity: 0.0797432308509098)

endpoint: http://localhost:8899/sparql (matched results: 1767042, total results: 44207146, selectivity: 0.039971863372496384)

Triple pattern selectivity: 0.03787047908222058

BGP-Restricted Triple pattern selectivity: 2.2692454998085025E-5

Join-Restricted Triple Pattern Selectivity on join variable ?author: 9.574875526618154E-8

Join-Restricted Triple pattern selectivity (average on all its variables): 9.574875526618154E-8

-----Triple pattern: ?author <http://xmlns.com/foaf/0.1/based_near> ?place-----

endpoint: http://localhost:8894/sparql (matched results: 3244, total results: 1049647, selectivity: 0.00309056282731242)

endpoint: http://localhost:8896/sparql (matched results: 16587, total results: 6147996, selectivity: 0.0026979523083619445)

endpoint: http://localhost:8898/sparql (matched results: 2313, total results: 103595, selectivity: 0.022327332400212365)

Triple pattern selectivity: 0.00937194917862891

BGP-Restricted Triple pattern selectivity: 0.010657514450867052

Join-Restricted Triple Pattern Selectivity on join variable ?author: 4.515895953757225E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 4.515895953757225E-5

-----Triple pattern: ?place <http://dbpedia.org/ontology/capital> ?capital-----

endpoint: http://localhost:8891/sparql (matched results: 2322, total results: 42849609, selectivity: 5.4189525976771454E-5)

Triple pattern selectivity: 5.4189525976771454E-5

BGP-Restricted Triple pattern selectivity: 0.09689922480620156

Join-Restricted Triple Pattern Selectivity on join variable ?place: 4.306632213608958E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 4.306632213608958E-4

-----Triple pattern: ?place <http://dbpedia.org/ontology/populationDensity> ?populationDensity-----

endpoint: http://localhost:8891/sparql (matched results: 84930, total results: 42849609, selectivity: 0.0019820484242925062)

Triple pattern selectivity: 0.0019820484242925062

BGP-Restricted Triple pattern selectivity: 0.004898151418815495

Join-Restricted Triple Pattern Selectivity on join variable ?place: 1.1774402449075709E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 1.1774402449075709E-5

-----Triple pattern: ?place <http://dbpedia.org/ontology/governmentType> ?governmentType-----

endpoint: <http://localhost:8891/sparql> (matched results: 550, total results: 42849609, selectivity: 1.2835589701646985E-5)
Triple pattern selectivity: 1.2835589701646985E-5
BGP-Restricted Triple pattern selectivity: 0.4127272727272727
Join-Restricted Triple Pattern Selectivity on join variable ?place: 0.0018181818181818182
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0018181818181818182

-----Triple pattern: ?place <<http://dbpedia.org/ontology/language>> ?language-----
endpoint: <http://localhost:8891/sparql> (matched results: 62867, total results: 42849609, selectivity: 0.001467154577769893)
Triple pattern selectivity: 0.001467154577769893
BGP-Restricted Triple pattern selectivity: 0.004231154659837435
Join-Restricted Triple Pattern Selectivity on join variable ?place: 1.5906596465554265E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 1.5906596465554265E-5

-----Triple pattern: ?place <<http://dbpedia.org/ontology/leaderTitle>> ?leaderTitle-----
endpoint: <http://localhost:8891/sparql> (matched results: 30893, total results: 42849609, selectivity: 7.209634048236006E-4)
Triple pattern selectivity: 7.209634048236006E-4
BGP-Restricted Triple pattern selectivity: 0.017058880652575017
Join-Restricted Triple Pattern Selectivity on join variable ?place: 3.236979250963001E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 3.236979250963001E-5

Mean triple patterns selectivity: 0.011823167326839013
Mean triple patterns selectivities standard deviation: 0.017319663046351637
Mean BGP-restricted Triple Pattern Sel: 0.2317293355983175
BGP-Restricted Selectivites standard deviation: 0.43996225002015443
Mean Join-restricted Triple Pattern Sel: 0.0010568826183760451
Join-Restricted Selectivites standard deviation: 0.0029906941338568404
Triple Patterns: 11

30: S14 Query: SELECT \$drug \$transform \$mass WHERE {
 { \$drug
 <<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/affectedOrganism>> 'Humans and other mammals'.
 \$drug
 <<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/casRegistryNumber>> \$cas .
 \$keggDrug <<http://bio2rdf.org/ns/bio2rdf#xRef>> \$cas .
 \$keggDrug
 <<http://bio2rdf.org/ns/bio2rdf#mass>> \$mass .
 } .
 OPTIONAL { \$drug
 <<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/biotransformation>> \$transform .
 }
}

Basic Graph Patterns (BGPs): 2

-----Triple pattern: ?drug

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/affectedOrganism>> 'Humans and other mammals' -----

endpoint: <http://localhost:8892/sparql> (matched results: 1260, total results: 517023, selectivity: 0.002437028913607325)

Triple pattern selectivity: 0.002437028913607325

BGP-Restricted Triple pattern selectivity: 0.834920634920635

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 7.936507936507937E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 7.936507936507937E-4

-----Triple pattern: ?drug

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/casRegistryNumber>> ?cas-----

endpoint: <http://localhost:8892/sparql> (matched results: 2240, total results: 517023, selectivity: 0.004332495846413023)

Triple pattern selectivity: 0.004332495846413023

BGP-Restricted Triple pattern selectivity: 0.46964285714285714

Join-Restricted Triple Pattern Selectivity on join variable ?drug: 4.464285714285714E-4

Join-Restricted Triple Pattern Selectivity on join variable ?cas: 4.464285714285714E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 4.464285714285714E-4

-----Triple pattern: ?keggDrug <<http://bio2rdf.org/ns/bio2rdf#xRef>> ?cas-----

endpoint: <http://localhost:8890/sparql> (matched results: 29147, total results: 4772706, selectivity: 0.006107017696040778)

endpoint: <http://localhost:8895/sparql> (matched results: 73196, total results: 1090830, selectivity: 0.06710119817020067)

Triple pattern selectivity: 0.03660410793312072

BGP-Restricted Triple pattern selectivity: 0.015809581505330114

Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 9.77106397115582E-6

Join-Restricted Triple Pattern Selectivity on join variable ?cas: 9.77106397115582E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 9.77106397115582E-6

-----Triple pattern: ?keggDrug <<http://bio2rdf.org/ns/bio2rdf#mass>> ?mass-----

endpoint: <http://localhost:8895/sparql> (matched results: 18507, total results: 1090830, selectivity: 0.016965980033552434)

Triple pattern selectivity: 0.016965980033552434

BGP-Restricted Triple pattern selectivity: 0.08742637920786729

Join-Restricted Triple Pattern Selectivity on join variable ?keggDrug: 5.4033608904738746E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 5.4033608904738746E-5

-----Triple pattern: ?drug

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/biotransformation>> ?transform-----

endpoint: <http://localhost:8892/sparql> (matched results: 993, total results: 517023, selectivity: 0.0019206108819143442)

Triple pattern selectivity: 0.0019206108819143442
BGP-Restricted Triple pattern selectivity: 1.0
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0

Mean triple patterns selectivity: 0.012452044721721569
Mean triple patterns selectivities standard deviation: 0.014839444764413807
Mean BGP-restricted Triple Pattern Sel: 0.48155989055533793
BGP-Restricted Selectivities standard deviation: 0.5390803310777713
Mean Join-restricted Triple Pattern Sel: 2.607768075910519E-4
Join-Restricted Selectivities standard deviation: 4.5612365544682297E-4
Triple Patterns: 5

31: S10 Query: SELECT ?Drug ?IntDrug ?IntEffect WHERE {
?Drug
<http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://dbpedia.org/ontology/Drug> . ?y
<http://www.w3.org/2002/07/owl#sameAs> ?Drug . ?Int
<http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/interactionDrug1> ?y . ?Int
<http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/interactionDrug2> ?IntDrug .
?Int <http://www4.wiwiw.fu-berlin.de/drugbank/resource/drugbank/text> ?IntEffect . }
Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?Drug <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>
<http://dbpedia.org/ontology/Drug> -----
endpoint: http://localhost:8891/sparql (matched results: 4348, total results: 42849609,
selectivity: 1.0147117095047471E-4)
Triple pattern selectivity: 1.0147117095047471E-4
BGP-Restricted Triple pattern selectivity: 0.09705611775528979
Join-Restricted Triple Pattern Selectivity on join variable ?Drug: 2.2999080036798528E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.2999080036798528E-4

-----Triple pattern: ?y <http://www.w3.org/2002/07/owl#sameAs> ?Drug-----
endpoint: http://localhost:8891/sparql (matched results: 61455, total results: 42849609,
selectivity: 0.0014342021183903918)
endpoint: http://localhost:8892/sparql (matched results: 9521, total results: 517023,
selectivity: 0.018415041497186778)
endpoint: http://localhost:8893/sparql (matched results: 117915, total results: 107950085,
selectivity: 0.0010923103951238204)
endpoint: http://localhost:8894/sparql (matched results: 1697, total results: 1049647,
selectivity: 0.0016167340067660843)
endpoint: http://localhost:8895/sparql (matched results: 30015, total results: 1090830,
selectivity: 0.027515744891504636)
endpoint: http://localhost:8896/sparql (matched results: 63162, total results: 6147996,
selectivity: 0.010273591589844887)

endpoint: <http://localhost:8897/sparql> (matched results: 31673, total results: 335198, selectivity: 0.094490420587235)

endpoint: <http://localhost:8898/sparql> (matched results: 1630, total results: 103595, selectivity: 0.015734350113422464)

Triple pattern selectivity: 0.021321549399934258

BGP-Restricted Triple pattern selectivity: 0.0013360730217729245

Join-Restricted Triple Pattern Selectivity on join variable ?y: 3.1660498146277835E-6

Join-Restricted Triple Pattern Selectivity on join variable ?Drug: 3.1660498146277835E-6

Join-Restricted Triple pattern selectivity (average on all its variables): 3.1660498146277835E-6

-----Triple pattern: ?Int

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/interactionDrug1>> ?y-----

endpoint: <http://localhost:8892/sparql> (matched results: 10096, total results: 517023, selectivity: 0.01952717770776155)

Triple pattern selectivity: 0.01952717770776155

BGP-Restricted Triple pattern selectivity: 0.8955031695721077

Join-Restricted Triple Pattern Selectivity on join variable ?Int: 9.904912836767037E-5

Join-Restricted Triple Pattern Selectivity on join variable ?y: 9.904912836767037E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 9.904912836767037E-5

-----Triple pattern: ?Int

<<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/interactionDrug2>> ?IntDrug-----

endpoint: <http://localhost:8892/sparql> (matched results: 10096, total results: 517023, selectivity: 0.01952717770776155)

Triple pattern selectivity: 0.01952717770776155

BGP-Restricted Triple pattern selectivity: 0.8955031695721077

Join-Restricted Triple Pattern Selectivity on join variable ?Int: 9.904912836767037E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 9.904912836767037E-5

-----Triple pattern: ?Int <<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/text>> ?IntEffect-----

endpoint: <http://localhost:8892/sparql> (matched results: 10122, total results: 517023, selectivity: 0.019577465605978846)

Triple pattern selectivity: 0.019577465605978846

BGP-Restricted Triple pattern selectivity: 0.8944872554831061

Join-Restricted Triple Pattern Selectivity on join variable ?Int: 9.879470460383324E-5

Join-Restricted Triple pattern selectivity (average on all its variables): 9.879470460383324E-5

Mean triple patterns selectivity: 0.016010968318477335

Mean triple patterns selectivities standard deviation: 0.00892694979752645

Mean BGP-restricted Triple Pattern Sel: 0.5567771570808768

BGP-Restricted Selectivites standard deviation: 0.6279614491496175

Mean Join-restricted Triple Pattern Sel: 1.0600996230435741E-4
Join-Restricted Selectivities standard deviation: 1.2579077704028132E-4
Triple Patterns: 5

32: C10 Query: PREFIX tcga: <http://tcga.deriv.ie/schema/> PREFIX kegg:
<http://bio2rdf.org/ns/kegg#> PREFIX dbpedia: <http://dbpedia.org/ontology/> PREFIX
drugbank: <http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/> PREFIX purl:
<http://purl.org/dc/terms/> SELECT DISTINCT ?patient ?gender ?country ?popDensity
?drugName ?indication ?formula ?compound WHERE { ?uri tcga:bcr_patient_barcode
?patient . ?patient tcga:gender ?gender. ?patient
dbpedia:country ?country. ?country dbpedia:populationDensity
?popDensity. ?patient tcga:bcr_drug_barcode ?drugbcr. ?drugbcr
tcga:drug_name ?drugName. ?drugBnkDrg drugbank:genericName
?drugName. ?drugBnkDrg drugbank:indication ?indication. ?drugBnkDrg
drugbank:chemicalFormula ?formula. ?drugBnkDrg drugbank:keggCompoundId
?compound . }

Basic Graph Patterns (BGPs): 1

-----Triple pattern: ?uri <http://tcga.deriv.ie/schema/bcr_patient_barcode> ?patient-----
endpoint: http://localhost:8887/sparql (matched results: 302, total results: 83006609,
selectivity: 3.638264514576183E-6)
endpoint: http://localhost:8888/sparql (matched results: 298, total results: 57429904,
selectivity: 5.188934322439404E-6)
endpoint: http://localhost:8889/sparql (matched results: 3275, total results: 35329868,
selectivity: 9.269777062286222E-5)
Triple pattern selectivity: 3.3841656486625935E-5
BGP-Restricted Triple pattern selectivity: 0.06687022900763359
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 3.053435114503817E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 3.053435114503817E-4

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/gender> ?gender-----
endpoint: http://localhost:8889/sparql (matched results: 1115, total results: 35329868,
selectivity: 3.1559699005951565E-5)
Triple pattern selectivity: 3.1559699005951565E-5
BGP-Restricted Triple pattern selectivity: 0.033183856502242155
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 8.968609865470852E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 8.968609865470852E-4

-----Triple pattern: ?patient <http://dbpedia.org/ontology/country> ?country-----
endpoint: http://localhost:8889/sparql (matched results: 1427, total results: 35329868,
selectivity: 4.039075379506088E-5)
endpoint: http://localhost:8891/sparql (matched results: 101557, total results: 42849609,
selectivity: 0.0023700799696912056)

Triple pattern selectivity: 0.0012052353617431333
BGP-Restricted Triple pattern selectivity: 3.5927911131826304E-4
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 9.710246251844947E-6
Join-Restricted Triple Pattern Selectivity on join variable ?country: 9.710246251844947E-6
Join-Restricted Triple pattern selectivity (average on all its variables): 9.710246251844947E-6

-----Triple pattern: ?country <http://dbpedia.org/ontology/populationDensity> ?popDensity-----
endpoint: http://localhost:8891/sparql (matched results: 84930, total results: 42849609,
selectivity: 0.0019820484242925062)

Triple pattern selectivity: 0.0019820484242925062
BGP-Restricted Triple pattern selectivity: 9.419521959260567E-5
Join-Restricted Triple Pattern Selectivity on join variable ?country: 1.1774402449075709E-5
Join-Restricted Triple pattern selectivity (average on all its variables): 1.1774402449075709E-5

-----Triple pattern: ?patient <http://tcga.deriv.ie/schema/bcr_drug_barcode> ?drugbcr-----
endpoint: http://localhost:8889/sparql (matched results: 1328, total results: 35329868,
selectivity: 3.758859217928581E-5)

Triple pattern selectivity: 3.758859217928581E-5
BGP-Restricted Triple pattern selectivity: 0.04066265060240964
Join-Restricted Triple Pattern Selectivity on join variable ?patient: 7.530120481927711E-4
Join-Restricted Triple Pattern Selectivity on join variable ?drugbcr: 7.530120481927711E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 7.530120481927711E-4

-----Triple pattern: ?drugbcr <http://tcga.deriv.ie/schema/drug_name> ?drugName-----
endpoint: http://localhost:8889/sparql (matched results: 228, total results: 35329868,
selectivity: 6.453463115118347E-6)

Triple pattern selectivity: 6.453463115118347E-6
BGP-Restricted Triple pattern selectivity: 0.23684210526315788
Join-Restricted Triple Pattern Selectivity on join variable ?drugbcr: 0.0043859649122807015
Join-Restricted Triple Pattern Selectivity on join variable ?drugName: 0.0043859649122807015
Join-Restricted Triple pattern selectivity (average on all its variables): 0.0043859649122807015

-----Triple pattern: ?drgBnkDrg
<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/genericName> ?drugName-----
endpoint: http://localhost:8892/sparql (matched results: 4772, total results: 517023,
selectivity: 0.009229763472804886)

Triple pattern selectivity: 0.009229763472804886
BGP-Restricted Triple pattern selectivity: 0.0012573344509639564
Join-Restricted Triple Pattern Selectivity on join variable ?drgBnkDrg: 2.0955574182732607E-4
Join-Restricted Triple Pattern Selectivity on join variable ?drugName: 2.0955574182732607E-4
Join-Restricted Triple pattern selectivity (average on all its variables): 2.0955574182732607E-4

-----Triple pattern: ?drgBnkDrg

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/indication> ?indication-----

endpoint: http://localhost:8892/sparql (matched results: 1463, total results: 517023, selectivity: 0.002829661349688505)

Triple pattern selectivity: 0.002829661349688505

BGP-Restricted Triple pattern selectivity: 0.004101161995898838

Join-Restricted Triple Pattern Selectivity on join variable ?drgBnkDrg: 6.83526999316473E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 6.83526999316473E-4

-----Triple pattern: ?drgBnkDrg

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/chemicalFormula> ?formula-----

endpoint: http://localhost:8892/sparql (matched results: 4721, total results: 517023, selectivity: 0.009131121826301731)

Triple pattern selectivity: 0.009131121826301731

BGP-Restricted Triple pattern selectivity: 0.0012709171785638637

Join-Restricted Triple Pattern Selectivity on join variable ?drgBnkDrg: 2.1181952976064393E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 2.1181952976064393E-4

-----Triple pattern: ?drgBnkDrg

<http://www4.wiwiss.fu-berlin.de/drugbank/resource/drugbank/keggCompoundId>

?compound-----

endpoint: http://localhost:8892/sparql (matched results: 1331, total results: 517023, selectivity: 0.002574353558739166)

Triple pattern selectivity: 0.002574353558739166

BGP-Restricted Triple pattern selectivity: 0.004507888805409466

Join-Restricted Triple Pattern Selectivity on join variable ?drgBnkDrg: 7.513148009015778E-4

Join-Restricted Triple pattern selectivity (average on all its variables): 7.513148009015778E-4

Mean triple patterns selectivity: 0.002706162740435691

Mean triple patterns selectivities standard deviation: 0.00358006417459515

Mean BGP-restricted Triple Pattern Sel: 0.03891496181371902

BGP-Restricted Selectivites standard deviation: 0.08367402887257024

Mean Join-restricted Triple Pattern Sel: 8.218883178977881E-4

Join-Restricted Selectivites standard deviation: 0.0015145025020784305

Triple Patterns: 10

-----end-----