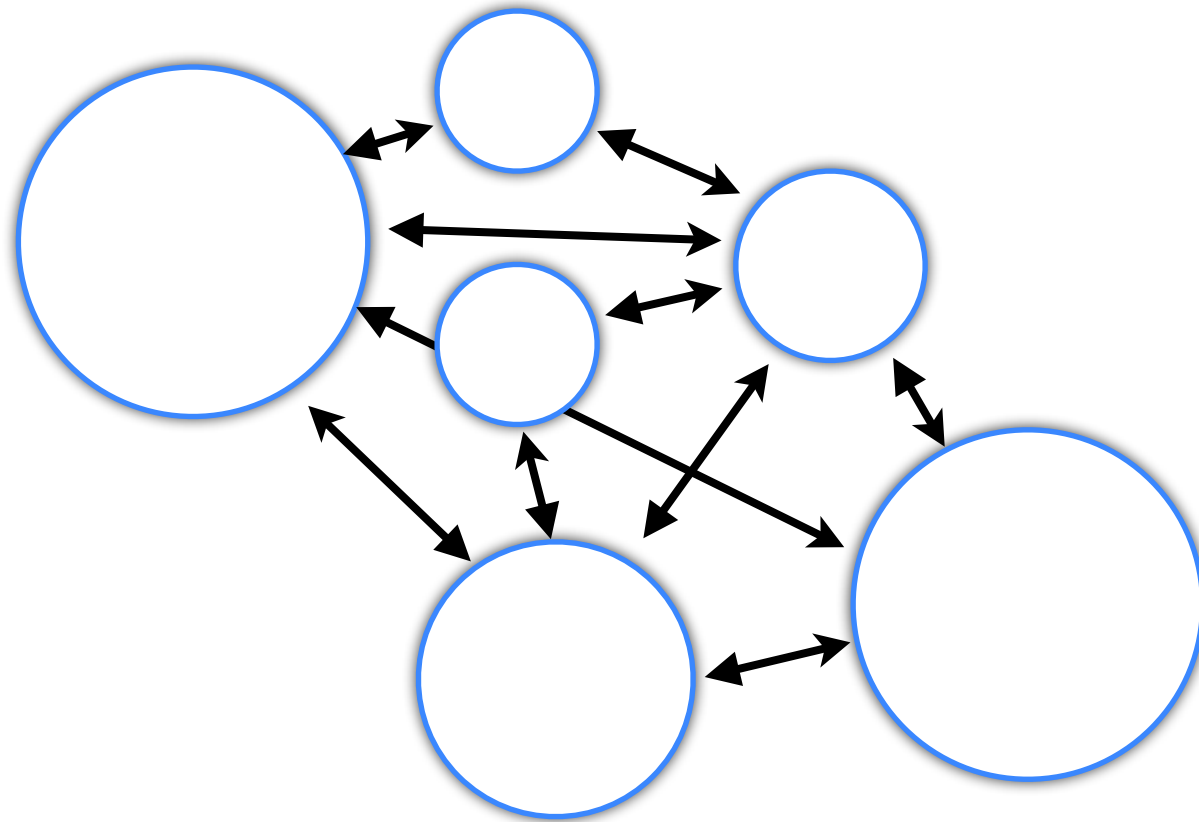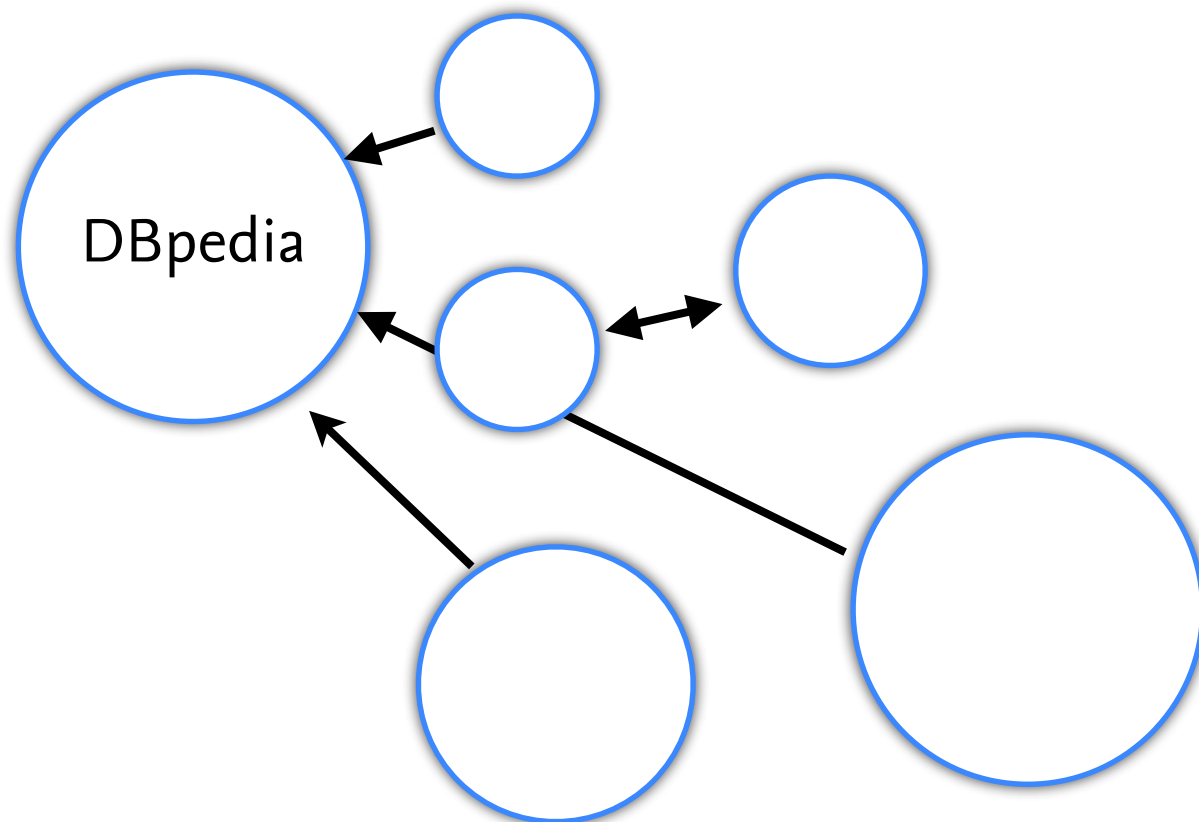# Augmenting the Linked Data Cloud using Referers

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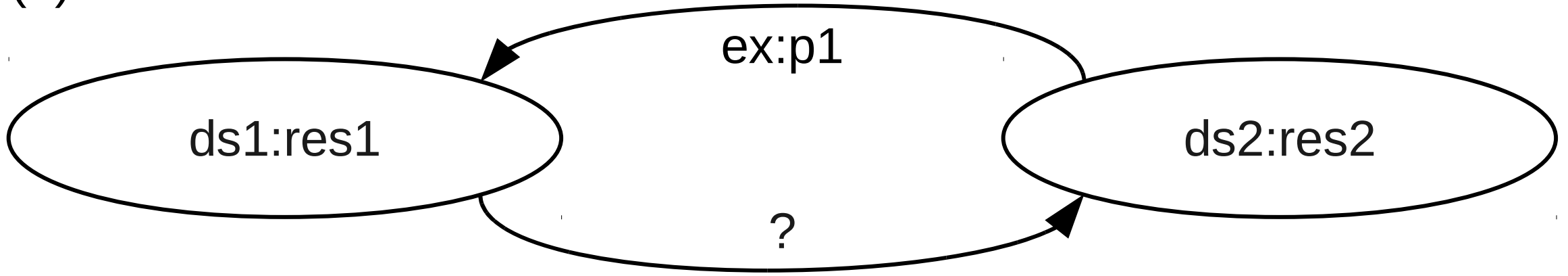Freie Universität Berlin

What we
would like
to have

What we
have

DBpedia

Linked Data needs links

(doh!)

- Typed links connect Linked Data entities.

  - Links can e.g. lead to background information or related entities

- Many tools are dependent on the presence of links **and traverse them**

  - Examples: ldspider, SQUIN, ...

(1)

Link Traversal? HTTP!

- HTTP Specification, Section 14.36:

"The Referer[sic] request-header field allows the client to specify, for the server's benefit, the address (URI) of the resource from which the Request-URI was obtained [...] The Referer request-header **allows a server to generate lists of back-links to resources** for interest, logging, optimized caching, etc."

- Let's generate back-links between Linked Data entities using Referers!

Links from Referers

1. From HTTP request, get the requested local resource URL and Referer URL

2. Validate "forward" link through dereferencing (prefer RDF)

3. Retrieve property description

4. Create back link or copy remote statement

Back Link Type

- If "our" local resource is the triple subject in the remote document:

  (localResource,remotePredicate,remoteObject)

- If the local resource is the triple object

  1. If the predicate triple is symmetric:

     (localResource,remotePredicate,remoteObject)

  2. If the predicate has inverse Property:

     (localResource,remotePredicateInverse,remoteObject)

  3. If none of the above? Copy triple:

     (remoteSubject, remotePredicate,localResource)

Example Log Entry

local resource URL

```
160.45.170.10 - - [20/Mar/2010:14:36:45 +0000]
"GET /person/heiner-stuckenschmidt HTTP/1.0" 303
9327 "http://harth.org/andreas/foaf" "Mozilla/5.0"
```

Referer URL

Evaluation Results

	DBpedia	SWDF
Log Entries	19,770,157	8,092,552
Referers found	1,328,595	533,188
Dereferenced:	3,255	6,146
Not found	2,229	4,821
Text match	431	1,168
Subject match	395	47
Object match	200	110

Generated Links

	DBpedia	SWDF
Generated Links	595	157
New Links	507	136

Thank You!

(and please have your tools send Referer headers!)

Results: `http://tinyurl.com/ldow-backlinks`