A Self-Training Approach for Resolving Object Coreference on the Semantic Web

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Motivation

Two approaches commonly used:
1. Equivalence inference mandated by OWL semantics
2. Similarity computation between property-value pairs

Proposal:
a self-training approach for object coreference resolution on the Semantic Web

Approach

- For an object URI, firstly establish a kernel that consists of semantically coreferent URIs
- Extend such kernel iteratively in terms of discriminative property-value pairs in the descriptions of URIs
- Frequent property combinations are mined to improve the accuracy of the resolution

System Design

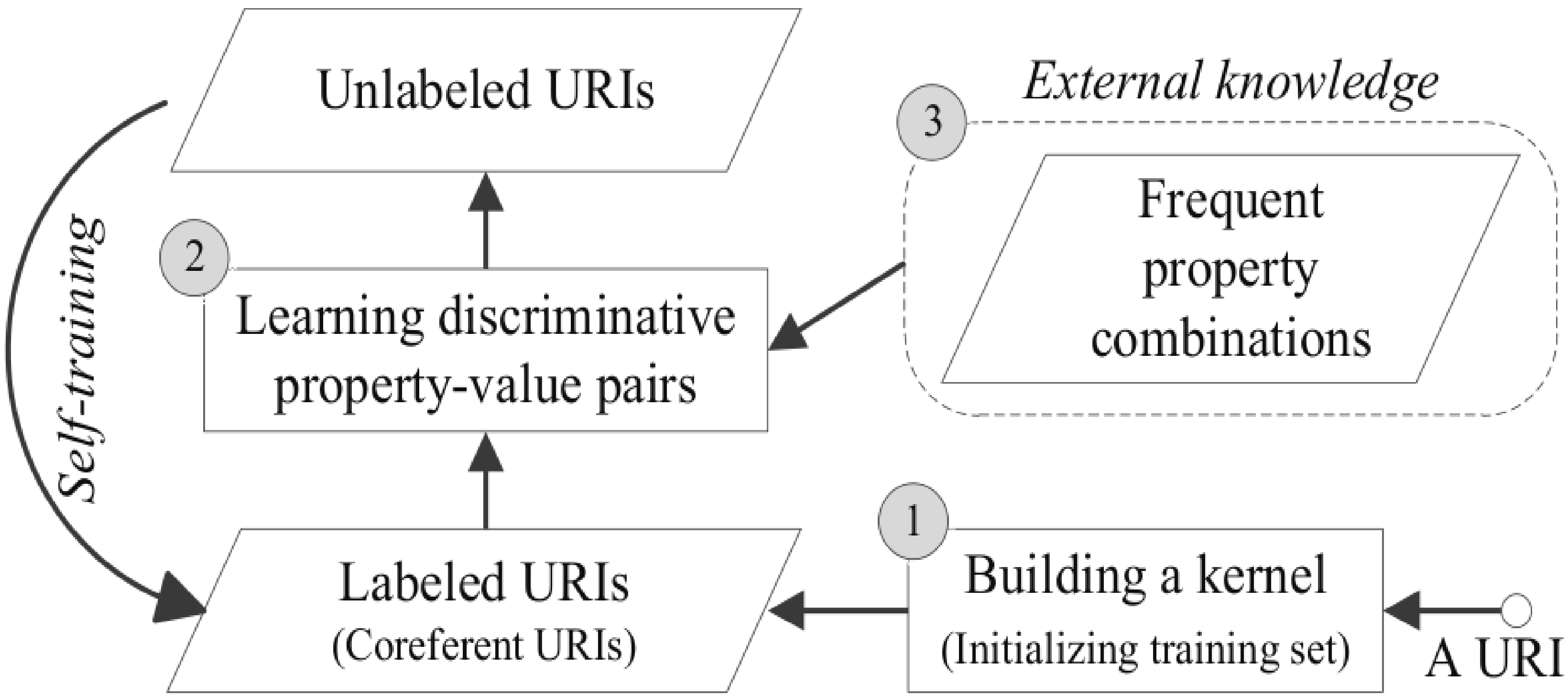

Figure 1: Overview of the proposed approach

Discriminative Property-Value Pairs

dbpedia:Beijing	rdfs:label	“Beijing”;
	owl:sameAs	geo:1816670.
geo:1816670	wgs84_pos:long	“116”;
	wgs84_pos:lat	“40”;
	geo:alternateName	“Beijing”;
	geo:alternateName	“Peking”.
semweb:Beijing	rdfs:label	“Beijing”;
	wgs84_pos:lat	“40”;
	wgs84_pos:long	“116”.
ex:New_York	wgs84_pos:long	“74”;
	wgs84_pos:lat	“40”.

Figure 2: An illustrating example

F-Measure Results

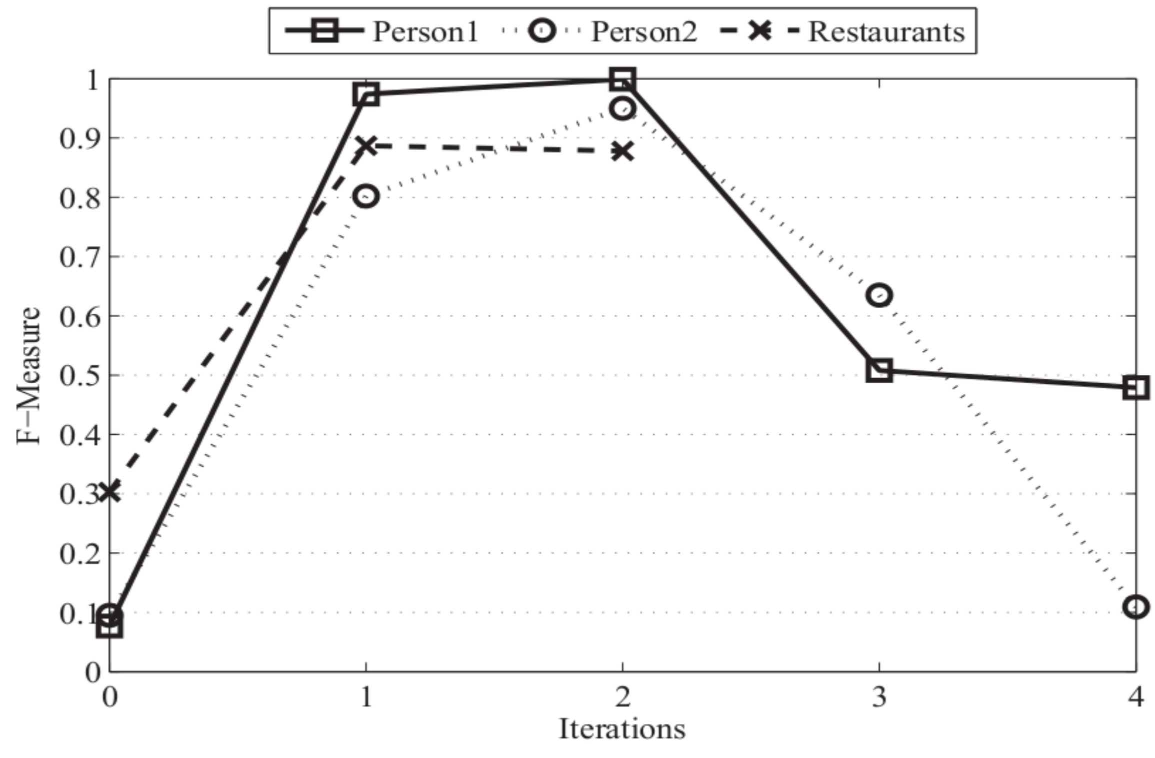

Figure 3: F-Measures versus number of iterations on the benchmark dataset

Comparative F-Measure Results

Table 5: Summary of Average F-Measures

	Benchmark	Large-scale[5]
ObjectCoref	**0.95**	**0.62**
ASMOV	0.68	
CODI	0.66	
LN2R	0.90	
RiMOM	0.93	
sameas.org		0.54
sig.ma		0.21