



1. Focus is on extracting a large number of relations  
 2. Handles the problem of sparsity by learning lexicons for each relation from weblists  
 3. Hints at hierarchial extraction, first a classifier is trained that prunes out pages which are likely to contain a relation,  
 4. For each attribute a linear chain CRF is trained, relation extraction is treated as a sequence labelling problem.  
 5. For numerical relations, include a feature that models closeness.  
 6. We can exploit their idea of first finding out the high level classes.

1. Builds up on the graphical model of Riedel et. al  
 2. Let an entity pair participate in more than 1 relation (Multi R)  
 3. Online training, approximate expectation by max, Reduce inference to known problems.

The following 2 assumptions  
 a. If a relation does not exist in knowledge base, then there won't be any sentence which expresses it.  
 b. If a relation exists in knowledge base, there will be atleast one sentence that expresses it  
  
 Lead to false negatives and false positives respectively, the work relaxes these two assumptions

1. Hitherto, the named entity matching has been adhoc. The authors explore coreference resolution and named entity disambiguation.  
 2. During relation extraction, coarse type constraints are imposed to improve precision

1. Authors argue that a large number of labeled examples are false negatives  
 2. Algorithm that learns from only positive and unlabeled labels at the entity-pair level

1. Introduced DS  
 2. DS Assumption  
 3. Sentence level Naive Bayes Classifier

1. 102 Freebase relations + Wikipedia  
 2. Distance Supervision Assumption  
 3. Entity Pair Focussed Approach, not sentence level extraction  
 4. Multiclass LR

1. Similar motivation and model as MultiR, differs in training

1. Relation holds in atleast one of the sentences that contain the entity pair.  
 2. Also allow sentence level extraction

Distance supervision for the web

Increase the number of relations

Relax the DS Assumption

More than one relation for an entity pair

More than one relation for an entity pair

Model missing data

Smarter entity detection, type constraints while extracting

Handling large number of False negatives in automatic labeling