Automatic acquisition of Named Entities for Rule-Based Machine Translation

Antonio Toral, Andy Way – DCU

2^{nd} International Workshop on Free/Open-Source Rule-Based Machine Translation

2011/01/20

Contents

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  - Num different instances: 88k NEs, 26k common nouns, 7k verbs

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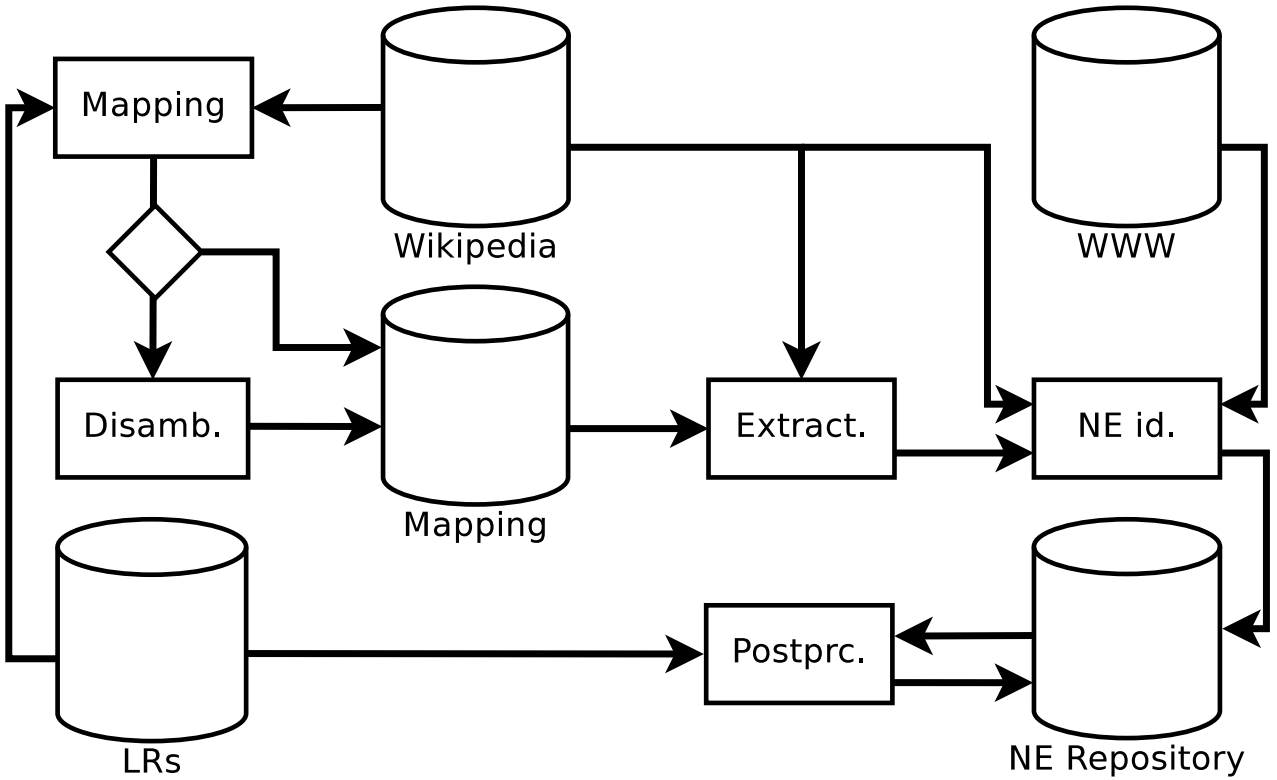
	English	Spanish
NEs	948,410	99,330
Variants	1,541,993	128,796
Instance relations	1,366,899	128,796


Mapping
Wikipedia
WWW
Disamb.
Mapping
Extract.
NE id.
LRs
Postprc.
NE Repository

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- Insert relevant data in Apertium dics (sl, tl, bi)

NE English = Yekaterinburg
NE Spanish = Ekaterimburgo
Number occurrences = 190
Percentage capitalised = .95

```
<pardef n="Aachen_np">
 <e><p><l/><r>
      <s n="np"/><s n="al"/><s n="sp"/>
  </r></p></e>
</pardef>
<e lm="Yekaterinburg">
 <i>Yekaterinburg</i>
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<pardef n="Aquisgran_np">
 <e><p><l/><r>
  <s n="np"/><s n="al"/><s n="mf"/><s n="sp"/>
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   <s n="np"/><s n="al"/>
  </l>
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  </r>
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- Test set: nc-2007 (WMT'08)
- Metrics: UNK, BLEU, NIST, TER, GTM
- Parameters: Min occurrences {25, 50, 100, 200}, min % occurrences capitalised .7, .75, .8, .85

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System	UNK	BLEU	NIST	TER	GTM
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es→en no_nes	3027	0.2016	6.1521	0.7091	0.5073
es→en nes	1936	0.2127	6.3277	0.6969	0.5182

Experiments to answer two questions:

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Adding NEs to Apertium without NEs (en→es)

System	UNK	BLEU	NIST	TER	GTM
100,.75	2334	.2060	6.6879	.6173	.5007
100,.8	2372	**.2061**	6.6882	.6168	**.5010**
200,.75	2441	.2058	**6.6903**	.6164	.5006
200,.8	2481	.2059	6.6899	**.6158**	.5009
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100,.8	2100	.2099	6.2831	.7019	.5149
200,.75	2303	.2097	6.2826	.7021	.5146
200,.8	2325	.2096	6.2790	.7023	.5144
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- Handtagged NEs comparable to Automatic (BLEU, NIST)

Adding NEs to Apertium with NEs (en→es)

System	UNK	BLEU	NIST	TER	GTM
25,.8	**2027**	.2105	6.7122	.6144	.5028
100,.75	2089	.2113	6.7472	.6097	.5051
100,.8	2089	.2113	6.7482	.6096	.5052
200,.75	2141	**.2117**	6.7568	.6088	.5054
200,.8	2141	**.2117**	**6.7577**	**.6087**	**.5055**
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25,.8	**1725**	.2133	6.3291	.6979	.5184
100,.75	1789	**.2135**	6.3368	**.6968**	**.5188**
100,.8	1789	**.2135**	6.3362	**.6968**	.5187
200,.75	1830	**.2135**	**6.3362**	**.6968**	.5187
200,.8	1830	**.2135**	6.3356	.6969	.5186
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`http://www.computing.dcu.ie/~atoral/#Resources`

Thanks! Questions?