Evaluating Complement-Modifier Distinctions in a Semantically Annotated Corpus

Mark McConville and Myroslava O. Dzikovska

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Marrakech, 28 May 2008
The FrameNet corpus

Overshadowed by Grigorovich, Kokonin nonetheless apparently eclipsed him in power in recent months.

<table>
<thead>
<tr>
<th>Kokonin</th>
<th>eclipsed</th>
<th>him</th>
<th>in power</th>
<th>in recent months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surpassing</td>
<td>Standard</td>
<td>Attribute</td>
<td>Time</td>
<td></td>
</tr>
<tr>
<td>NP</td>
<td>V</td>
<td>NP</td>
<td>PP</td>
<td>PP</td>
</tr>
<tr>
<td>Ext</td>
<td>Obj</td>
<td>Dep</td>
<td>Dep</td>
<td></td>
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</tbody>
</table>
Harvesting a verb lexicon

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</table>

McConville/Dzikovska
Evaluating Complement-Modifier Distinctions
LREC'08
Removing non-Core arguments

ORTH \langle \textit{eclipse} \rangle
SEMTYPE Surpassing

ARGS
\begin{bmatrix}
\text{GR Ext} & \text{GR Obj} & \text{GR Dep} \\
\text{CAT NP} & \text{CAT NP} & \text{CAT PP} \\
\text{ROLE Item} & \text{ROLE Standard} & \text{ROLE Attribute} \\
\text{ROLE Time} & \text{ROLE Time} & \text{ROLE Time}
\end{bmatrix}
Question

Does FrameNet’s notion of semantic ‘coreness’ correlate with syntactic complementhood?
Method 1

verb in VerbNet? 0.95

PP in VerbNet? 0.97

Y
complement

N
modifier

Y
ignore

N
### Results 1

<table>
<thead>
<tr>
<th></th>
<th>Core</th>
<th>non-Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>complements</td>
<td>199</td>
<td>37</td>
</tr>
<tr>
<td>non-complements</td>
<td>82</td>
<td>115</td>
</tr>
</tbody>
</table>

Agreement: 0.73  
Kappa: 0.65
Method 2

verb in VerbNet?

Y

PP in VerbNet?

Y

complement

Y

complement

N

modifier

N

ignore

PP in VerbNet+?

0.80
### Results 2

<table>
<thead>
<tr>
<th></th>
<th>Core</th>
<th>non-Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>complements</td>
<td>258</td>
<td>49</td>
</tr>
<tr>
<td>non-complements</td>
<td>23</td>
<td>103</td>
</tr>
</tbody>
</table>

Agreement: 0.83  
Kappa: 0.75
Method 3

verb in VerbNet?

PP in VerbNet?

Y

N

complement

PP in VerbNet+?

0.94

Y

N

complement

modifier

PP in VerbNet+?
## Results 3

<table>
<thead>
<tr>
<th></th>
<th>Core</th>
<th>non-Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>complements</td>
<td>395</td>
<td>59</td>
</tr>
<tr>
<td>non-complements</td>
<td>37</td>
<td>145</td>
</tr>
</tbody>
</table>

Agreement: 0.85  
Kappa: 0.65
Core dependents which are not complements

She unfastened [the waistband] Fastener [of her skirt] Containing_object
Conclusions

If we assume that Core = complement:

- 13% of PP complements will be lost
- 9% of PPs left will be non-complements