### Summary and Findings

**Constituency Parsing**

- **Baseline**: The Berkeley parser (Petrov et al., 2006)
- **Replaced words** with their morphological tag from MarMot (Replace)
- **Utilized unlabeled data** via external lexicons (Goldberg and Elhadad, 2013) (ExtendLex)
- **Employed product grammars** (Petrov, 2010) and reranked their output (Charniak and Johnson, 2005)
- **Added new reranker features**
  - ExtendLex: atomic morphological values, Brown clusters (Brown et al., 1992), dependency parsing features ➞ up to 3.1% improvement (Basque)
  - Replace: dependency parsing features ➞ up to 1.5% improvement (French)

**Dependencies**

- **Best Scores in Dependency track**
  - SuperTag: supervised dependency parsing
  - TurboParser: approximate variational inference
- **Best Scores in Constituency Parsing**
  - Oracle: supervised constituency parser

**Test Set Results**

<table>
<thead>
<tr>
<th>Language</th>
<th>Basque</th>
<th>French</th>
<th>German</th>
<th>Hebrew</th>
<th>Hungarian</th>
<th>Korean</th>
<th>Polish</th>
<th>Swedish</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Baseline</strong></td>
<td>80.71</td>
<td>81.38</td>
<td>82.11</td>
<td>89.92</td>
<td>90.92</td>
<td>78.21</td>
<td>85.31</td>
<td>86.62</td>
</tr>
<tr>
<td><strong>Replace Product</strong></td>
<td>85.31</td>
<td>81.29</td>
<td>84.05</td>
<td>89.67</td>
<td>90.72</td>
<td>83.86</td>
<td>92.28</td>
<td>78.66</td>
</tr>
<tr>
<td><strong>ExtendLex Reranked</strong></td>
<td>91.59</td>
<td>91.82</td>
<td>86.04</td>
<td>89.61</td>
<td>90.91</td>
<td>89.78</td>
<td>99.09</td>
<td>86.65</td>
</tr>
<tr>
<td><strong>Replace Reranked</strong></td>
<td>86.11</td>
<td>82.30</td>
<td>84.50</td>
<td>90.02</td>
<td>91.91</td>
<td>83.50</td>
<td>86.31</td>
<td>78.67</td>
</tr>
<tr>
<td><strong>ExtendLex Reranked + Brown</strong></td>
<td>83.83</td>
<td>86.82</td>
<td>86.40</td>
<td>90.76</td>
<td>92.05</td>
<td>-9.41</td>
<td>78.30</td>
<td>79.38</td>
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<tr>
<td><strong>Reranked</strong></td>
<td>86.73</td>
<td>82.78</td>
<td>86.05</td>
<td>90.47</td>
<td>91.89</td>
<td>84.78</td>
<td>90.53</td>
<td>79.38</td>
</tr>
</tbody>
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### References

- Bobkov, B. (2010). Top Accuracy and First Dependency Parsing is not a Contradiction. In COLING.

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