The connection between the **signifier** and the **signified** is **arbitrary**.

> “Construction” models (e.g., el(caged) = CNN(c a g e d)) ignore this!

Allowing any pairing regardless of spelling, but using spellings as a prior / as regularization allows for **idiosyncratic** embeddings!

⇒ Irregular words have uncommon spellings ...yet we use them like regular words! (Example: children)

⇒ Function words have uncommon spellings ...yet we use them all the time without feeling weird! (Examples: the, of)

---

### Evaluation results

<table>
<thead>
<tr>
<th>Model</th>
<th>dev perplexity</th>
<th>test perplexity</th>
</tr>
</thead>
<tbody>
<tr>
<td>WikiText-2 (Merity et al., 2017)</td>
<td>2.5 million tokenized words from the English Wikipedia</td>
<td>on dev data</td>
</tr>
<tr>
<td>HCLM + cache previous SOTA (Kawakami et al., 2017)</td>
<td></td>
<td>3.89</td>
</tr>
<tr>
<td>BPE:</td>
<td></td>
<td>4.01</td>
</tr>
<tr>
<td>our full model: Spell Once, Summon Anywhere</td>
<td></td>
<td>4.00</td>
</tr>
</tbody>
</table>

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**Sampled text from our model:**

> Following the death of Edward Mccartney in 1606, the new definition was transferred to the **WDIC** of Fullett. **Note word with contextually appropriate spelling**

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**Code & arXiv**

https://github.com/sjmielke/spell-once


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