Phrase Table in Moses

Given parallel training corpus, phrases are extracted and scored:

```
in europa ||| in europe ||| 0.829007  0.207955   0.801493  0.492402  2.718
europas   ||| in europe ||| 0.0251019 0.066211   0.0342506 0.0079563 2.718
in eu     ||| in europe ||| 0.018451  0.00100126 0.0319584 0.0196869 2.718
```

The scores are: ($\phi(\cdot) = \log p(\cdot)$)

- phrase translation probabilities: $\phi_{\text{phr}}(f|e)$ and $\phi_{\text{phr}}(e|f)$
- lexical weighting: $\phi_{\text{lex}}(f|e)$ and $\phi_{\text{lex}}(e|f)$ (Koehn, 2003)

$$\phi_{\text{lex}}(f|e) = \log \max_{a \in \text{alignments of } (f,e)} \prod_{i=1}^{|f|} \frac{1}{|\{j|(i,j) \in a|} \sum_{\forall (i,j) \in a} p(f_i|e_j) \quad (7)$$

- phrase penalty (always $e^1 = 2.718$)