The POSTECH's statistical machine translation system

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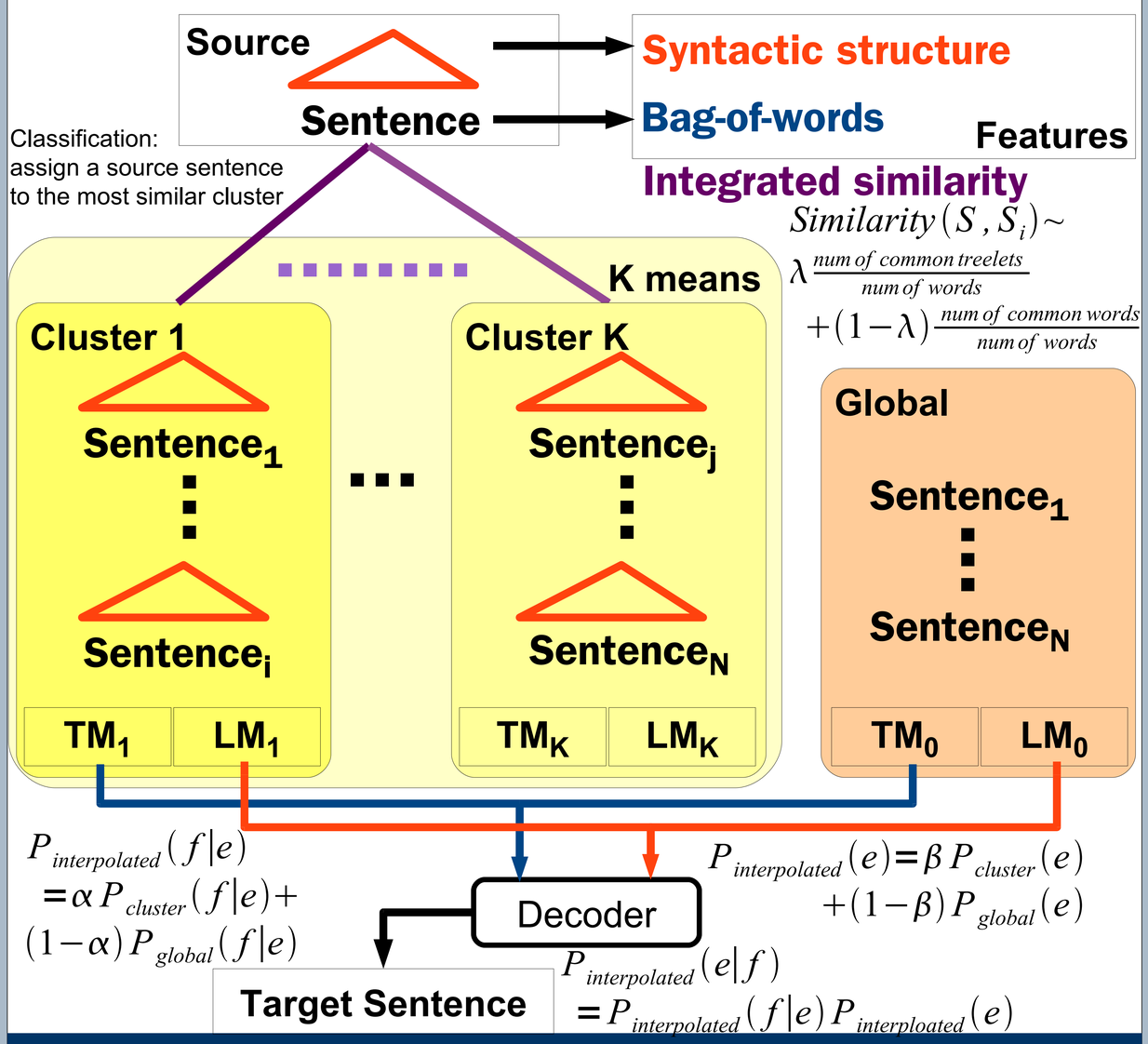
Introduction

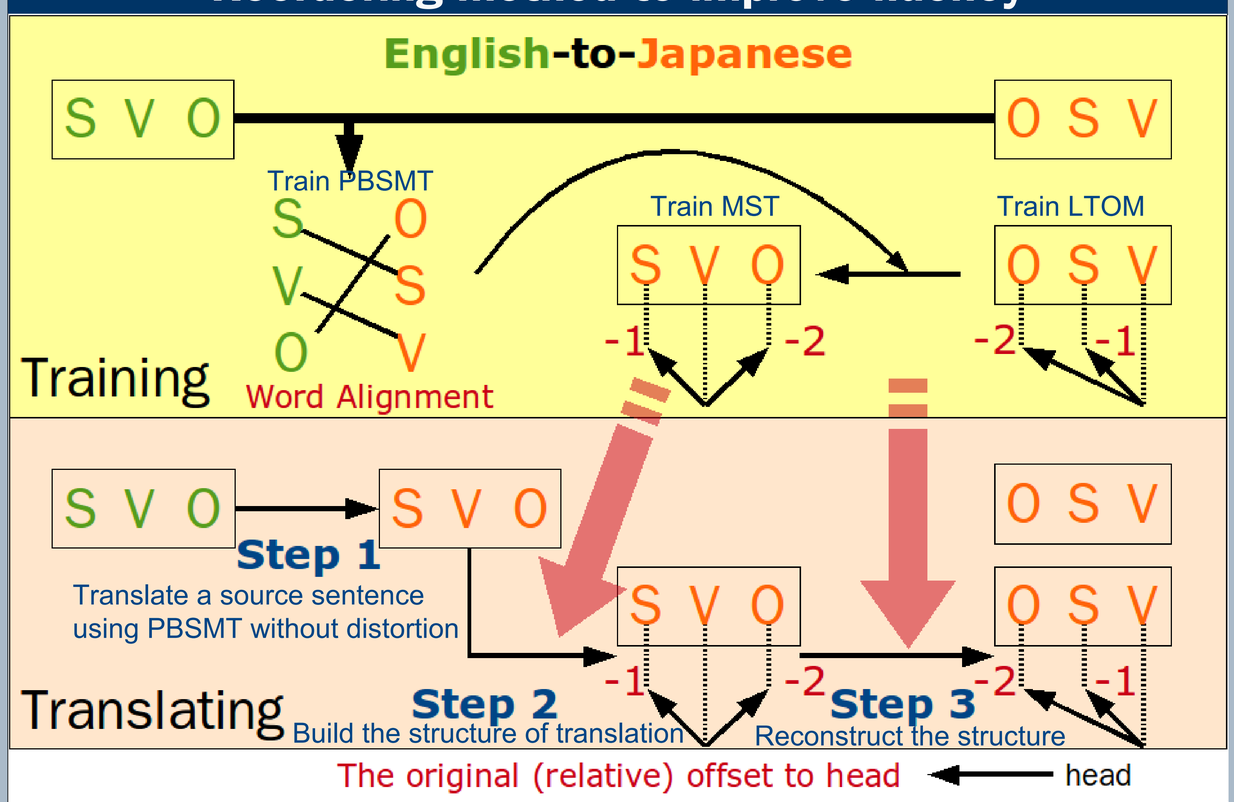
Domain specific model: SMT consists of **translation model**s and **language model**s. Translation models determine **correct** lexcial choice. Language models generate **natural** target sentences. **Specific model**s describe its domain better than the general model.

Improving fluency: Good translation requires **adquacy** and **fluency**. PBSMT tends to give correct lexical choice, but fail to order them naturally. A global reordering method that improves the fluency eventually enhance the overall quality of the translation.

Cluster-based SMT to model specific domain

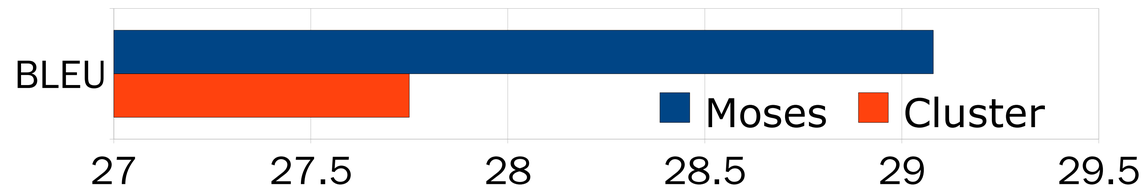


Reordering method to improve fluency

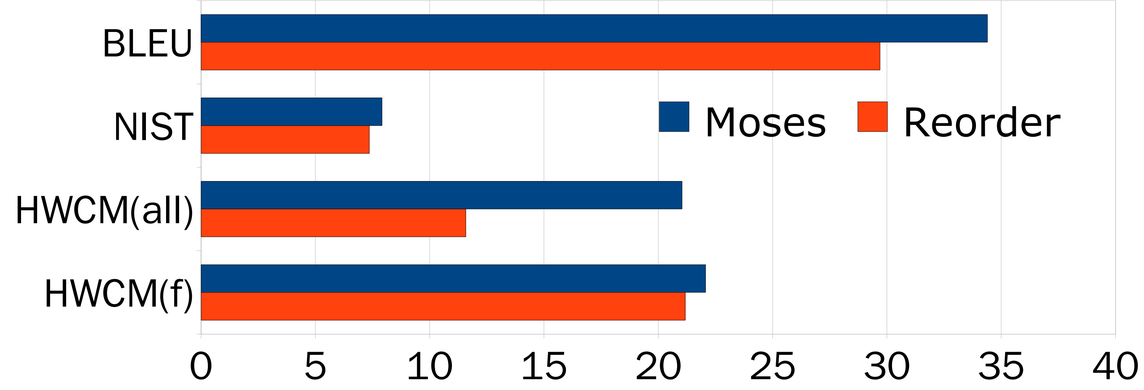


This figure shows the **general architecture** of reodering method for improving fluency. For training, the reordering method utilizes **word alignment**s. For translating, the reordering method utilizes **structure of the reordered target sentence**.

Results



The official results in **Japanese-to-English** translation show that cluster-based SMT achieve a lower score than PBSMT. The patent corpus has **less variation** in sentence type than the other domain such as conversation or news content.
Independent similarity measures for each translation model and language model are more appropriate than the integrated one. Using **mixed crietria** could make the **classification harder**.
Sentence-level features for the word similarity are **too sparse** to compute the cosine similarity. Smoothing techniques seem to be required to resolve the sparsity.
Target language models **based on source sentence** classification assume that the target structures also construct clusters. **N-gram based language model**s would not reveal the syntactic structure.



Various automatic evaluation metrics show that the reordering method achieve a lower score than PBSMT in **English-to-Japanese** translation.

Source	an operation display section 42 is provided on the upper surface of the main body of the copying machine .
Moses	操作 表示 部 42 が 設け られ て いる の 上面 に は 、 複 機 本 で ある 。
Reorder	複 機 本 の 上面 に は 操作 表示 部 42 が 設け られ て いる 。
Target	また 、 複 機 本 の 上面 に は 、 操作 表示 部 42 が 設け られ て いる 。

This table shows the translation results from both Moses and our reordering method. The source sentence has SVO structure. On the other hand, the referenced structure has OSV structure.

References

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Reordering method to improve fluency

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