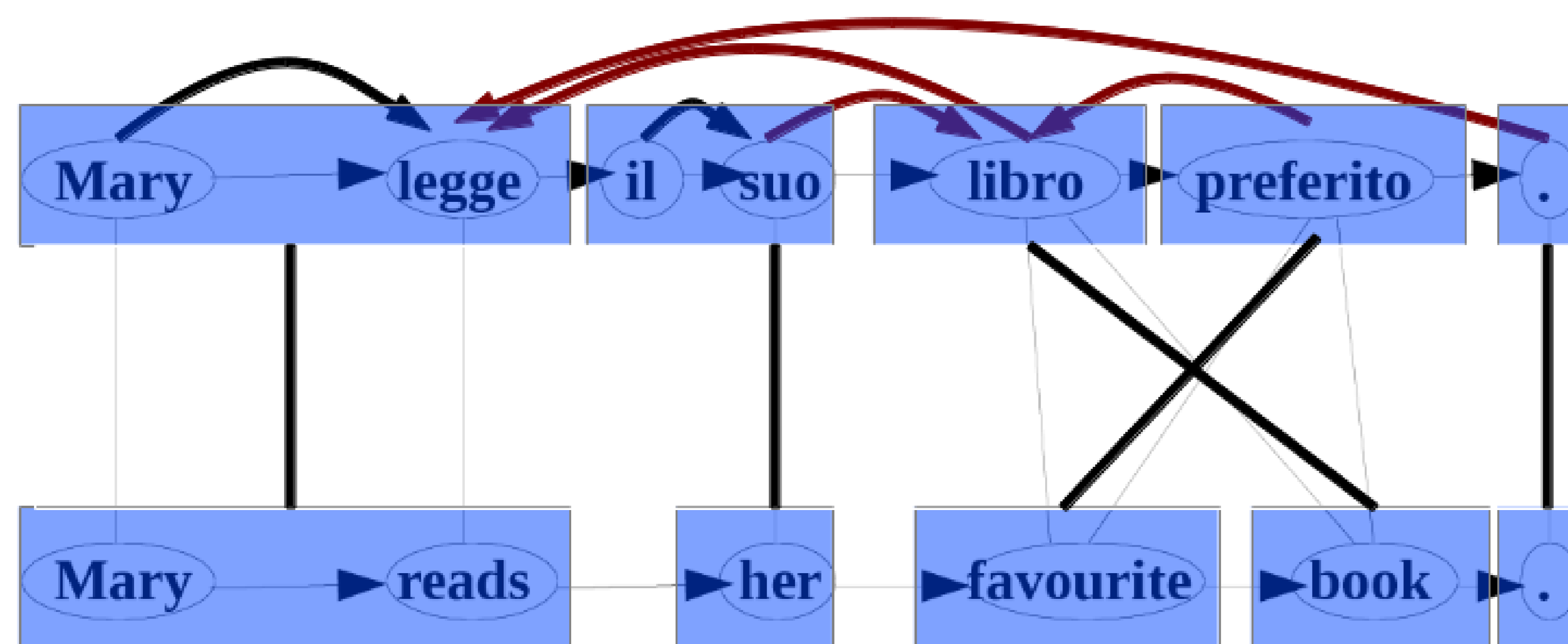


# Translation reranking using source phrase dependency features

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Rerank N-best list of translations using source dependency syntax and phrase alignments



Phrase segmentation and one-to-one alignment generated by the phrase-based decoder  
Phrase dependencies inspired by Gimpel and Smith (2013)

## Results

- Experiments on *it-en* Europarl v7+JRC-ACQUIS v2.2+additional
- Training set size: 3,075,777 s.p.
- Tuning set size: 3,923 s.p.
- Baseline: Moses with sparse features ("word translation" and "phrase translation" Chiang et al. (2009))
- BLEU:
  - Moses + sparse feats: 29.02
  - Moses + sparse feats. + rerank: 29.17 +0.15

## Features

- Segmentation: detect syntactic subtree breakage by the decoder
- No PARENTS, no LEFT PARENTS, no RIGHT PARENTS
  - Unambiguous PARENTS, un. L. PARENTS, un. R. PARENTS
  - Unique PARENT
  - No CHILDREN, no L. CHILDREN, no R. CHILDREN
  - One-sided CHILDREN

Distortion: detect reordering.

For each pair of source phrases adjacent in target order:

- Unique parent-child / unique child-parent
- Siblings with unique parent
- None of the above

All conjoined with an *inversion feature*.

## System

- Train and tune standard phrase-based (Moses) system
- 1000-best decode tuning set
- Parse source sentences with DeSR (Attardi and Ciaramita 2007)
- For each source sentence and candidate translation:
  - Compute phrase dependency features
  - Concatenate with Moses feature vector
- Re-tune Moses linear model on tuning set augmented by phrase dependency features
  - K-best batch MIRA (Cherry and Foster, 2012)
- Use this linear model to rerank candidate translations of new sentences