

Cross-lingual Abstract Meaning Representation Parsing

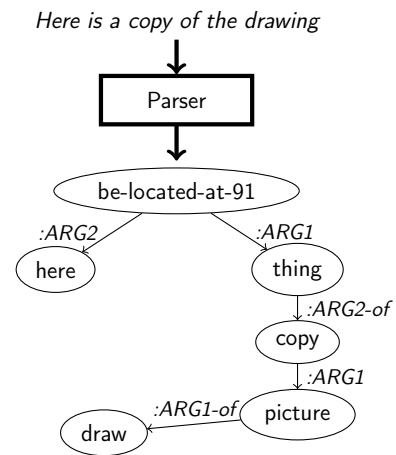
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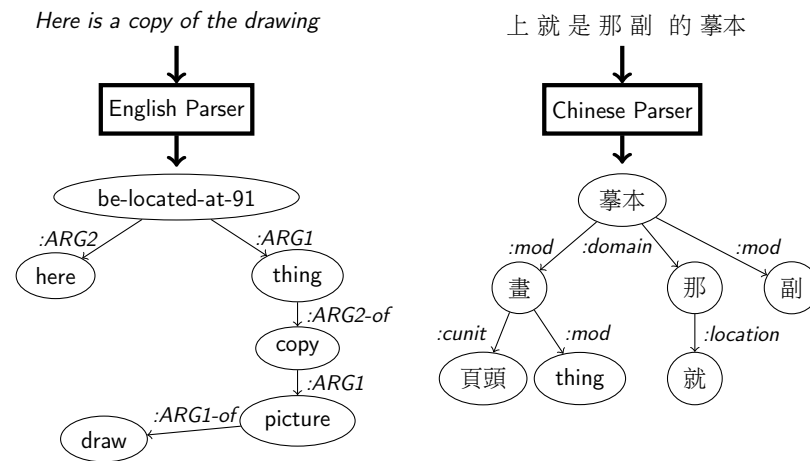


NAACL 2018

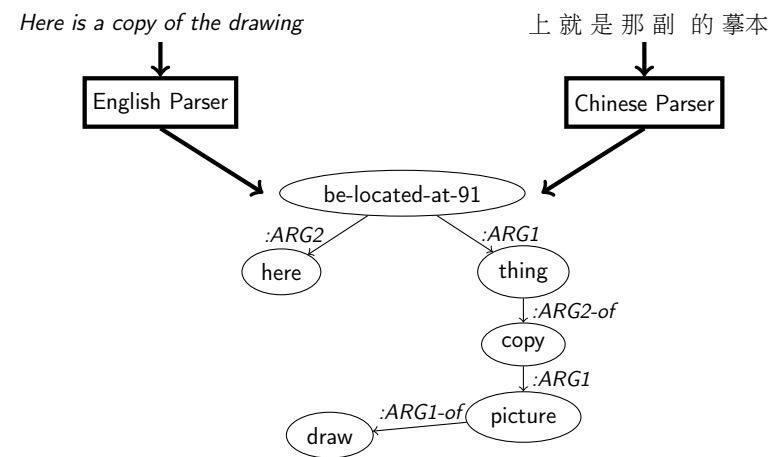
AMR Parsing



AMR for other languages
(Bojar, 2014; Xue et al, 2014)



Cross-lingual AMR Parsing

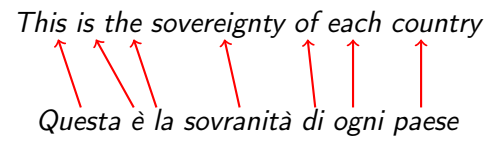


If AMR were an interlingua*..

- .. we would not need to translate the node labels.
- Can AMR act as an interlingua even if it is not one?

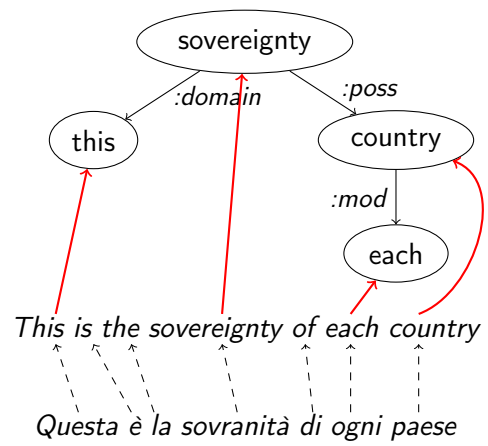
Annotation Projection

This is the sovereignty of each country
Questa è la sovranità di ogni paese

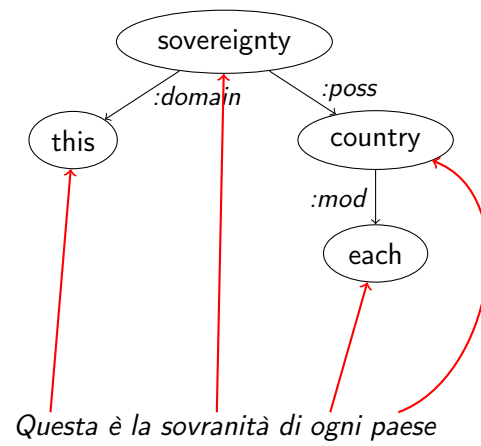


The diagram illustrates word-to-word alignment between the English sentence "This is the sovereignty of each country" and the Italian sentence "Questa è la sovranità di ogni paese". Red arrows point from the Italian words to the English words: "Questa" to "This", "è" to "is", "la" to "the", "sovranità" to "sovereignty", "di" to "of", "ogni" to "each", and "paese" to "country".

Annotation Projection



Annotation Projection

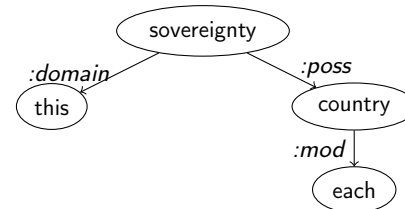


Alternative solution: Machine Translation

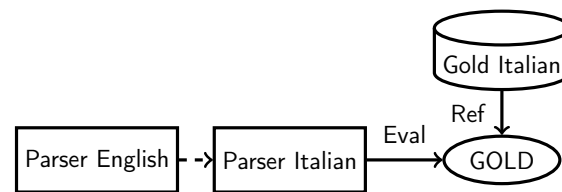
Questa è la sovranità di ogni paese



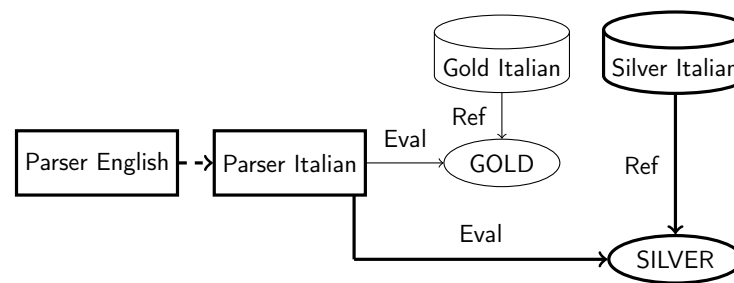
Is this the sovereignty of each country?



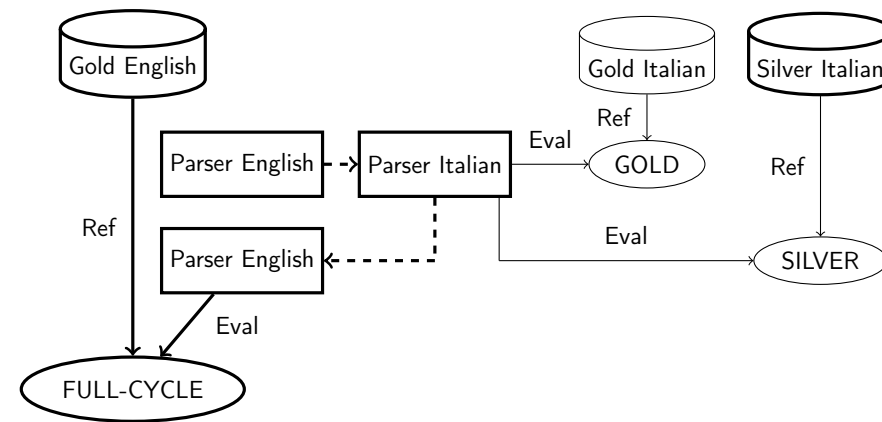
Evaluation



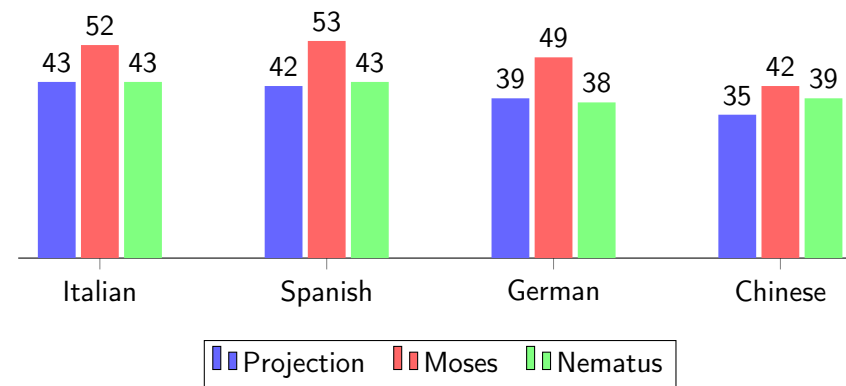
Evaluation



Evaluation



Experiments: Gold Evaluation

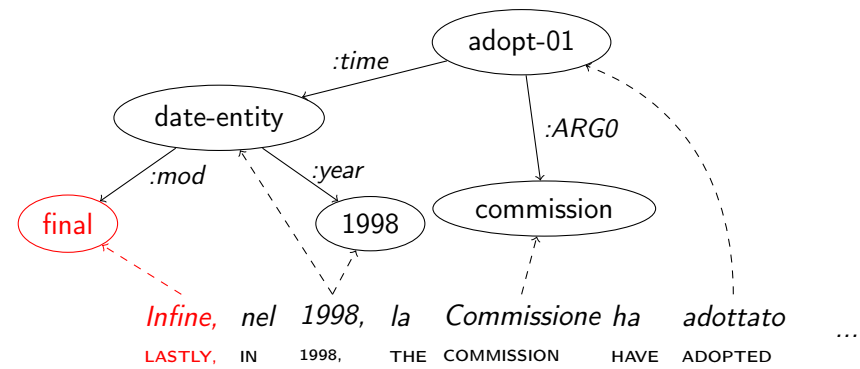


Analysis of Annotation Projection

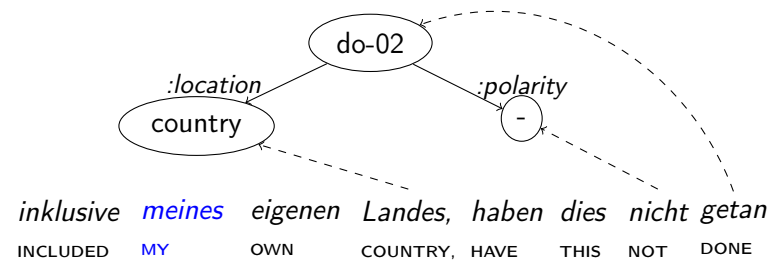
This approach is very noisy:

- Trained on data obtained with automatic parser for English.
- Projection uses noisy word alignments.
- AMR alignments on the source side are also noisy.

Analysis of Annotation Projection



Analysis of Annotation Projection



Analysis of Annotation Projection

Translational divergences:

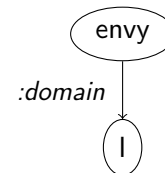
- Categorical
- Conflational
- Structural
- Head swapping
- Thematic

Categorical Divergence

Example: *Tengo envidia de ti* \leftrightarrow *I am jealous of you*

HAVE ENVY OF YOU

Spanish parser:

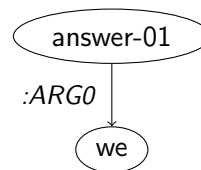


Conflational (manner) Divergence

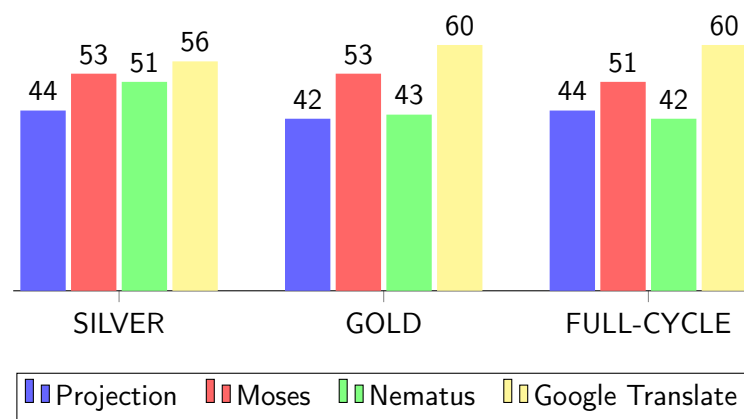
Example: *Noi daremo una risposta* \leftrightarrow *We will answer*

WE WILL-GIVE AN ANSWER

Italian parser:



FULL-CYCLE vs SILVER vs GOLD



FULL-CYCLE vs SILVER vs GOLD

Metric	SILVER	FULL-CYCLE
Pearson	0.47	0.95
Pearson -zh	0.87	0.97
Kendall's tau	0.40	0.82
Kendall's tau -zh	0.74	0.83

Conclusions

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Promising evidence but more work necessary
- Can we use FULL-CYCLE to approximate GOLD evaluation?
Yes, FULL-CYCLE correlates better than SILVER