Lexical Borrowing in Modern NLP

How Do Models Handle Loanwords?

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Archimedes NLP Theme Meeting

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Universität Zürich[UZH]


German
Greek
French
Latin
English
What the hell is this?

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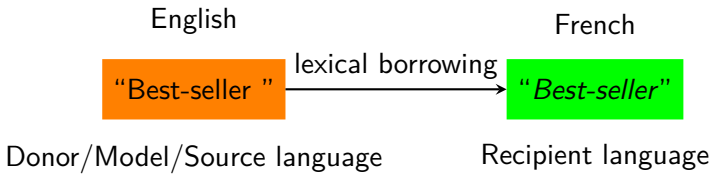

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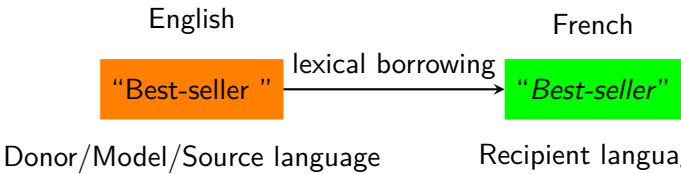

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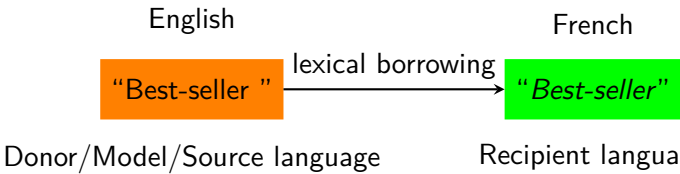

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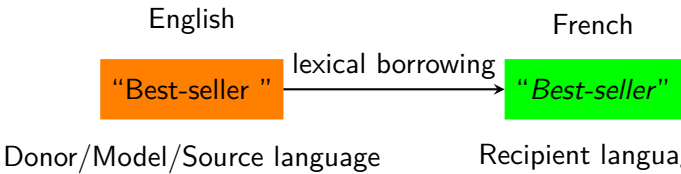

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- But then, what is even a ***native word***? ('disk', 'bikini', 'mother')

Motivation

- Loanwords have been studied for decades in historical and comparative linguistics
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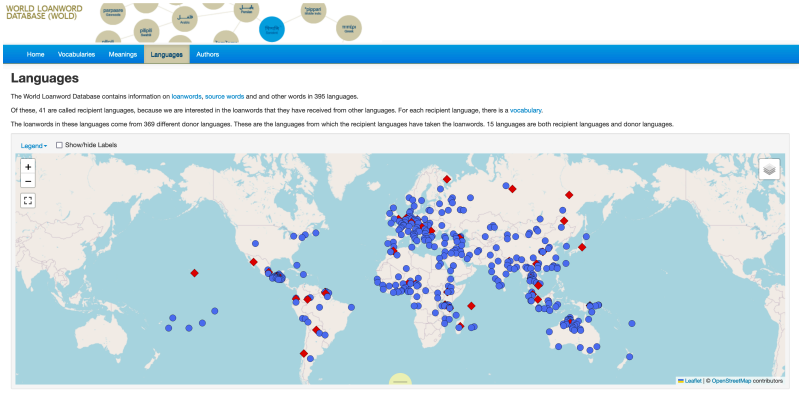

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  - (Ahmadi et al., 2025, ACL 2025) & (Silva and Ahmadi, 2025, LREC 2026?)

ConLoan: Data Collection

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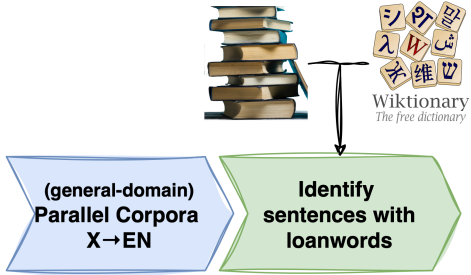

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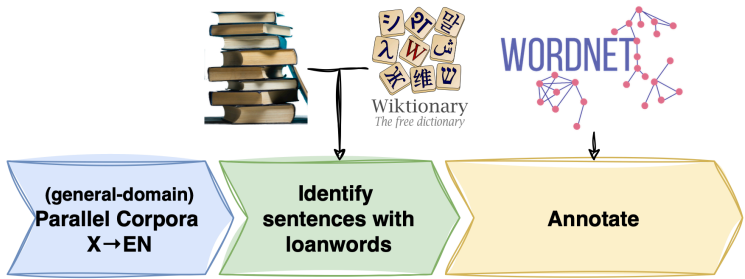
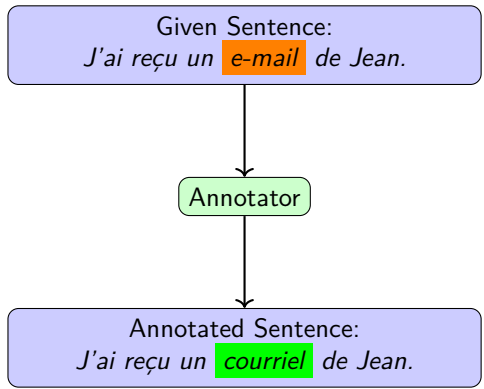


ConLoan: Annotation

Create a contrastive dataset where in a given sentence loanwords are replaced by native alternatives



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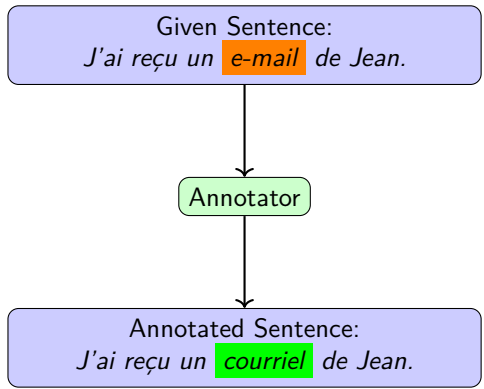

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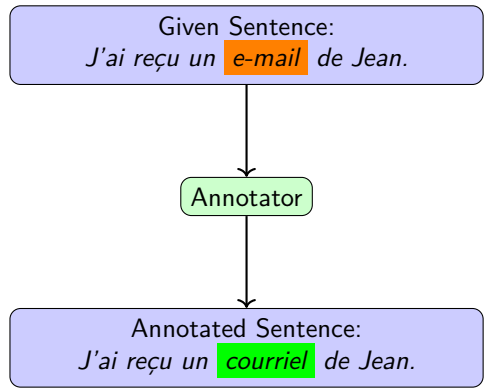
- If yes, replace it by with a native alternative.
- Retention of loanwords: If no native alternative is known, the original loanword is kept in the sentence.



ConLoan: Annotation

Source	Target	Replacement Suggestions	Comments?
Όταν έρθει η ώρα να κοιμηθούν, τοποθετήστε τις τσάντες τους στο καρότσι αποσκευών και κυλήστε το *στο παιδικό* **<L1>ασανσέρ</L1>** *που θα* τους μεταφέρει στα δωμάτιά τους.	When it's time to go to sleep, place their bags in the luggage cart and roll it onto the kid-powered elevator to bring them to their rooms.	**ανελκυστήρας** **ασανσέρ**	
Όταν έρθει η ώρα να κοιμηθούν, τοποθετήστε τις τσάντες τους στο καρότσι αποσκευών και κυλήστε το *στο παιδικό* **<N1>ανελκυστήρα</N1>** *που θα* τους μεταφέρει στα δωμάτιά τους.	When it's time to go to sleep, place their bags in the luggage cart and roll it onto the kid-powered elevator to bring them to their rooms.		
☑			
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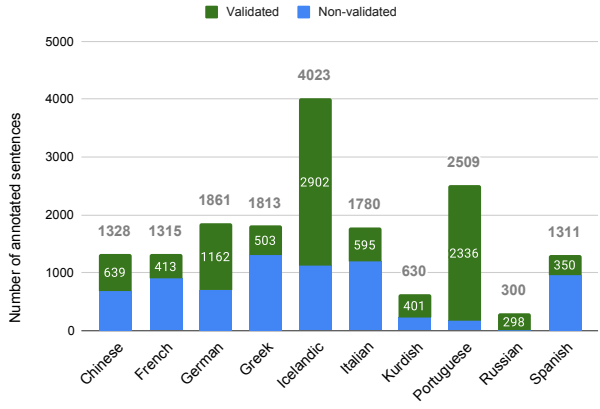
- Out of the 16,870 sentences, 56.9% were checked as containing loanwords.



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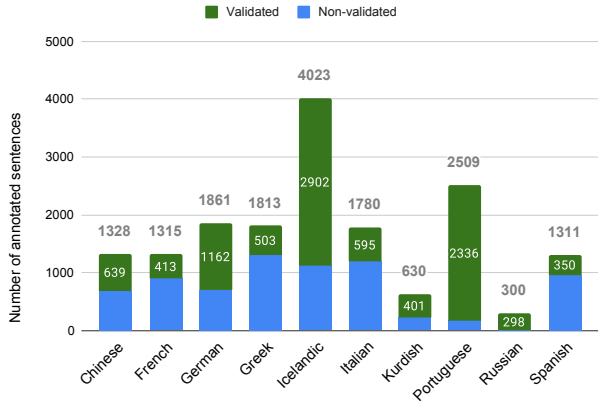

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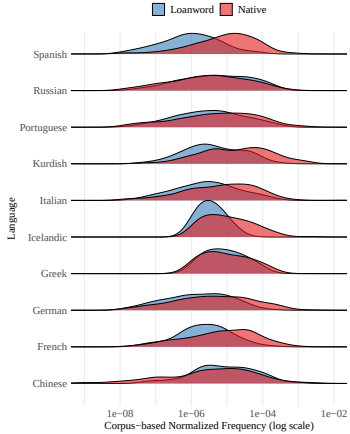
- Native words are more frequent than their loanword counterparts (except for Chinese)



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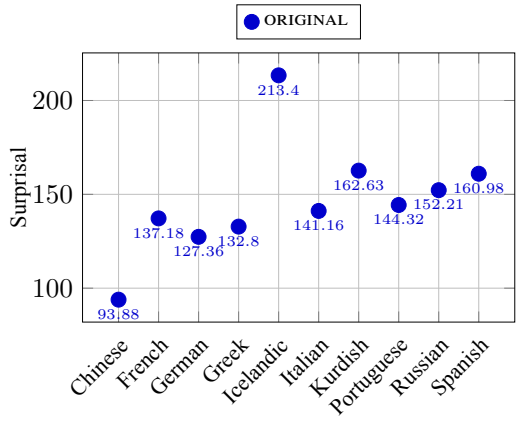

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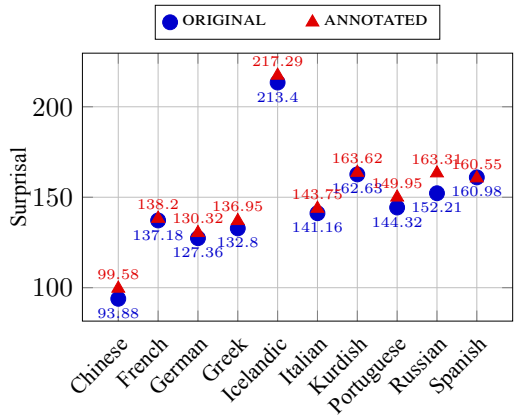

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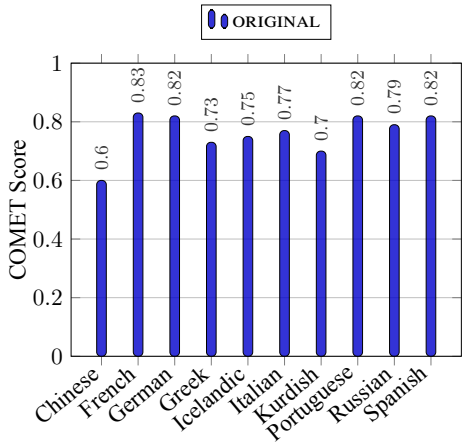

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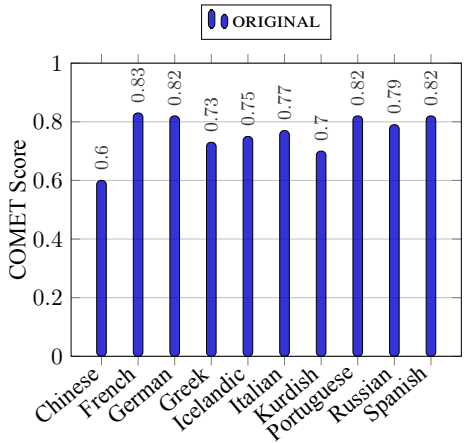

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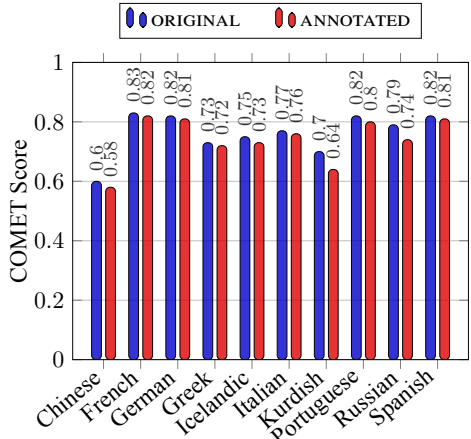
- NLLB translates loanword sentences more efficiently than native alternatives



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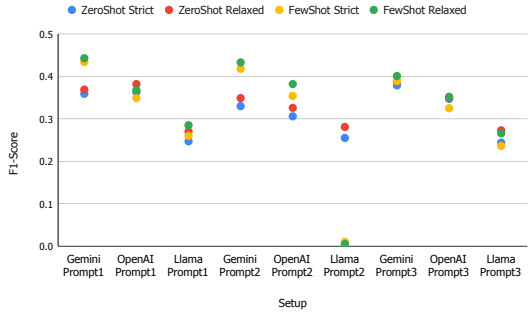

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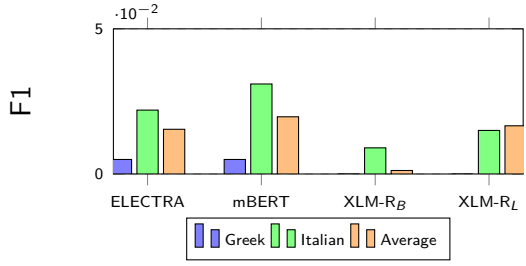

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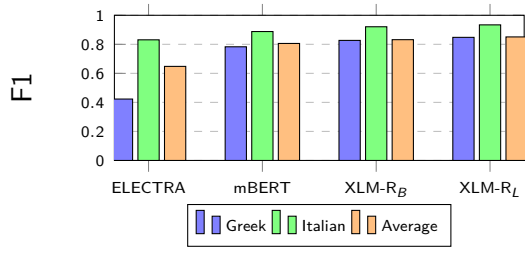

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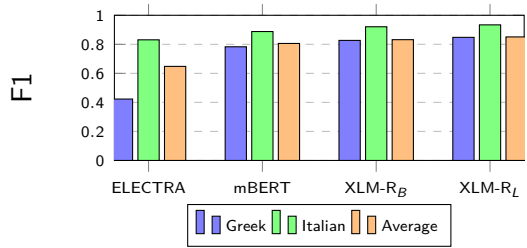

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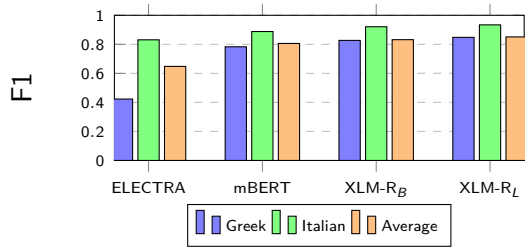

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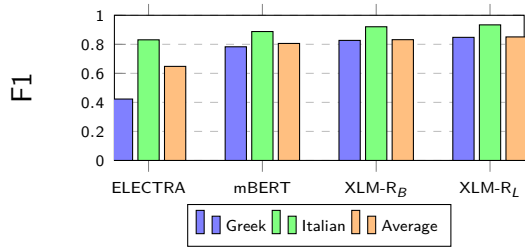

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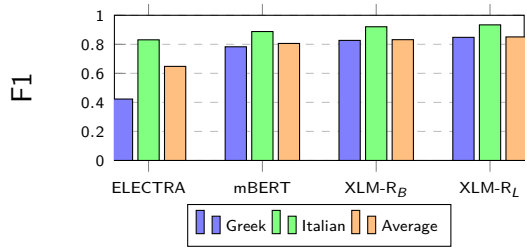

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2. Identifying loanwords and finding appropriate native replacements is complex, varying by language and context
3. Current NMT neural models and LLMs are biased towards processing loanwords more efficiently than native alternatives in some contexts

Thank you!

Contact: sina.ahmadi@uzh.ch

Resources: https://github.com/ZurichNLP/ConLoan

Questions?

References

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