Linguistic Markers of Catalan Substitution

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Agenda

1. Introduction
2. Background
3. Significance
4. Research Question
5. Theoretical Perspective
6. Data
7. Analysis
8. References

1 Introduction

- Goal 1: Examine morphological, syntactic, lexical, semantic and text-level changes
- Goal 2: Quantify language shift and determine key symptoms of Catalan’s endangerment.
- Find empirical evidence in language of its substitution

2 Background

- Use has dropped:

  43,1% (2007) → 25,1% (2022)

- Habitual language
  of less than 1/3 of the population

Territories where Catalan/Valencian is spoken and is official

Territories where Catalan/Valencian is spoken but is not official

Territories where Catalan/Valencian is not historically spoken but is official

Standard Catalan is classified as Vulnerable by the UNESCO Atlas of the World's Languages in Danger [3]

2 Background

- **Before Spanish Civil war and the dictatorship** that followed, Catalan was the **predominant** language in every domain.
- **During the dictatorship** it was **forbidden**, persecuted and eliminated from any public perspective. Spanish was imposed as only language.
- **After the dictatorship**, use was picked up, but since then, **Catalan is perceived as a subordinate** language.

3 Significance

- Catalan is vulnerable at the least endangered level.
- Catalan is not at a sudden death position, but **it is sick** and we need to find treatment and solutions.

More than just about Catalan:

“Something that all endangered languages have in common is that nobody is aware of it until it’s too late.**”** (Junyent, 2023)

Being warned gives us the chance to **look for markers and signs** of language substitution and endangerment.

4 Research Question

- Can we quantify and evaluate Language Substitution through Linguistic Markers?
- Can Linguistic Changes at different levels work as indicators of Language Substitution?

5 Theoretical Perspective

The Empirical Indicators:

- Misconception: word incorporations are the most remarkable marker of a language substitution or endangerment
- Junyent proposes the following symptoms to diagnose Catalan as a tongue threatened by language shift.

Language-threatening losses

1. Loss of word classes absent in the dominant language.
2. Time and space lexicon modification.
3. Syntactic restructuring.

6 Data

Choices and considerations:

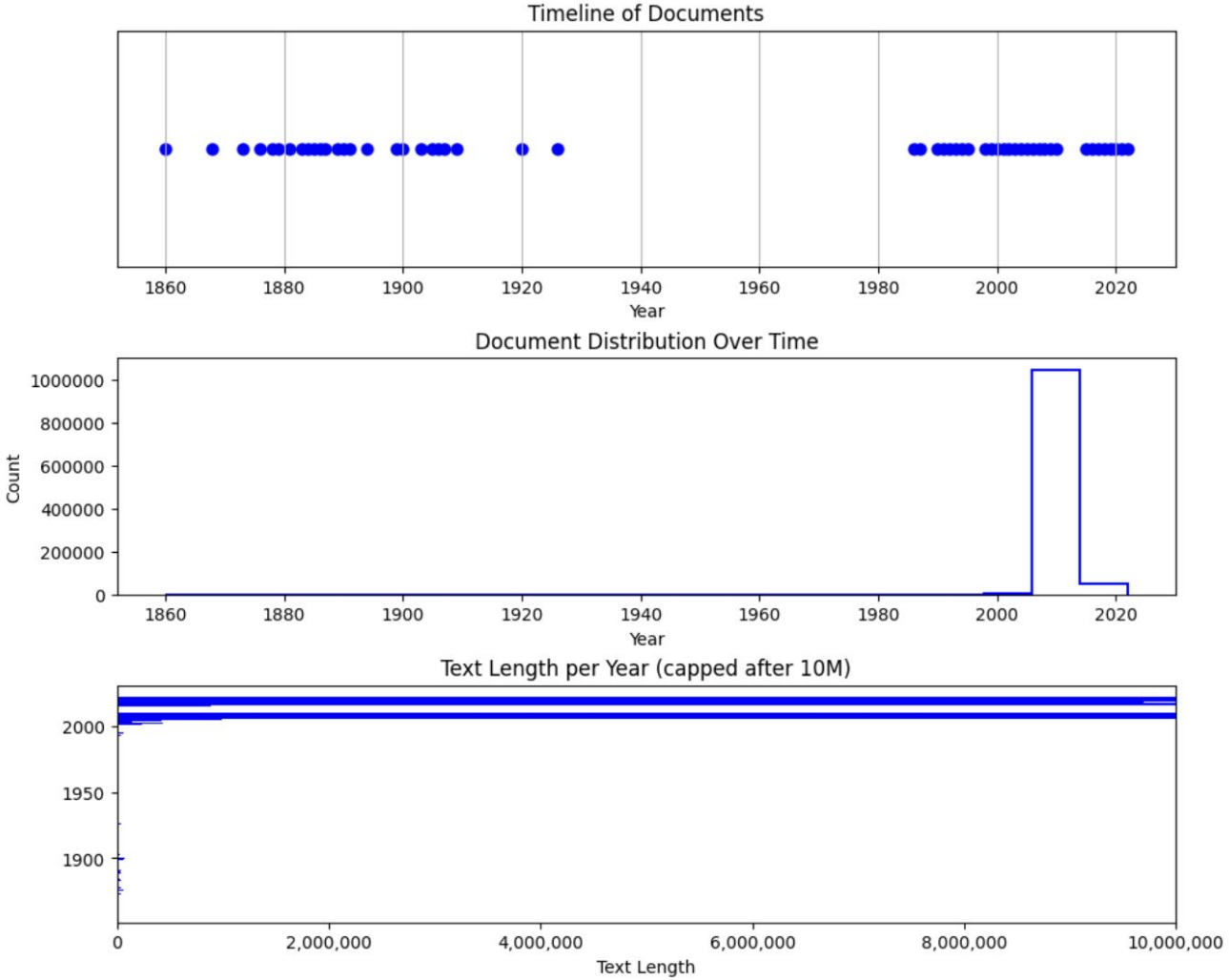
- Written language always represents a later stage than the actual appearance of any linguistic phenomenon
- Spoken would be best but is not available.
- → Solution: **Written records derived from spoken works.**

6 Data

Corpora Overview:

Corpus	Years	Notes
CTIC	1832–1926	28 Ceremonial speeches
Parlament Parla	2007–2018	700 hours total Parliament sessions
ParlaMint-ES-CT	2015–2022	Parliament corpus Multilingual/Comparable
Radioteca.cat	1985–2025	Radio broadcast transcripts

* Included to bridge the gap from 1985 to 2007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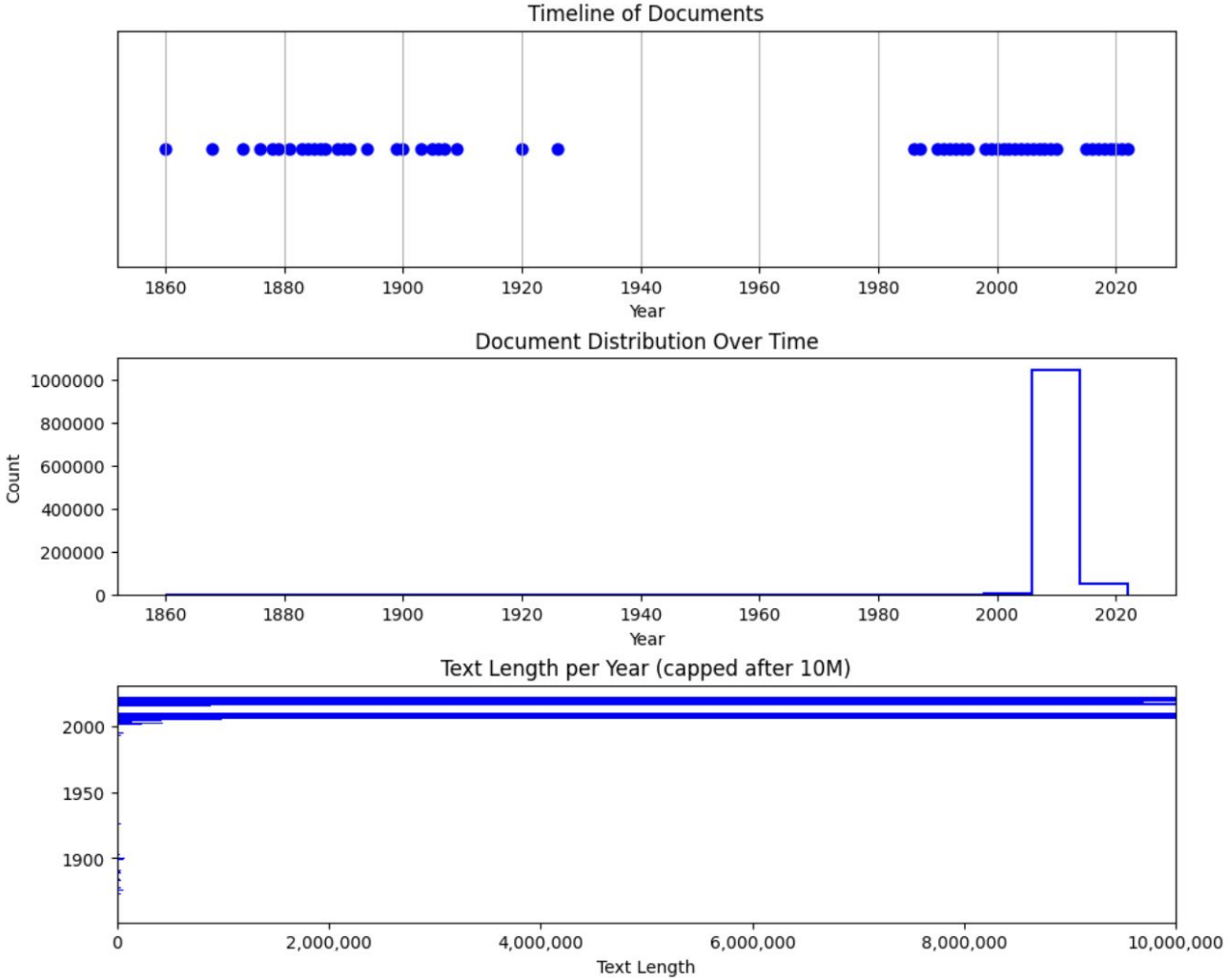
Text Length

6 Data

Resolving imbalance while avoiding biases:

- → Solution 1: **Limiting Individual Contribution** to 1500 characters per individual contributor to avoid speaker-specific information
- → Solution 2: **Balancing Program Contribution**. Limited Radioteca contributions to 1500 characters per episode for less topic-specific data.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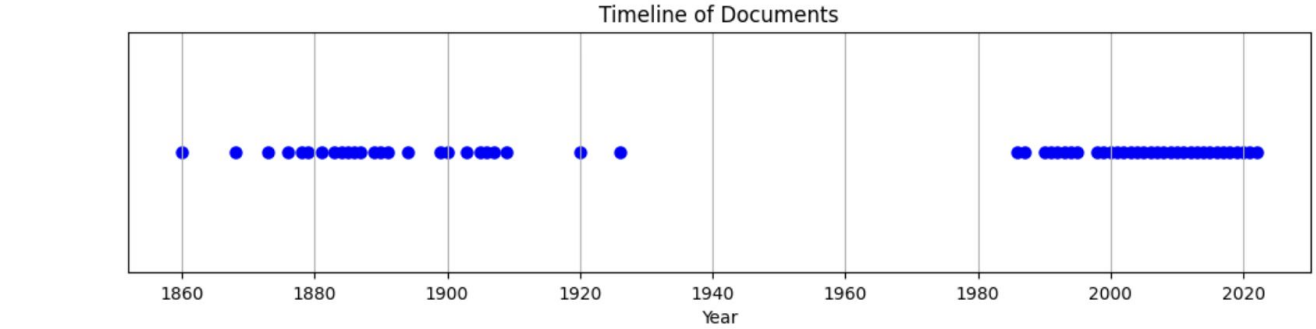
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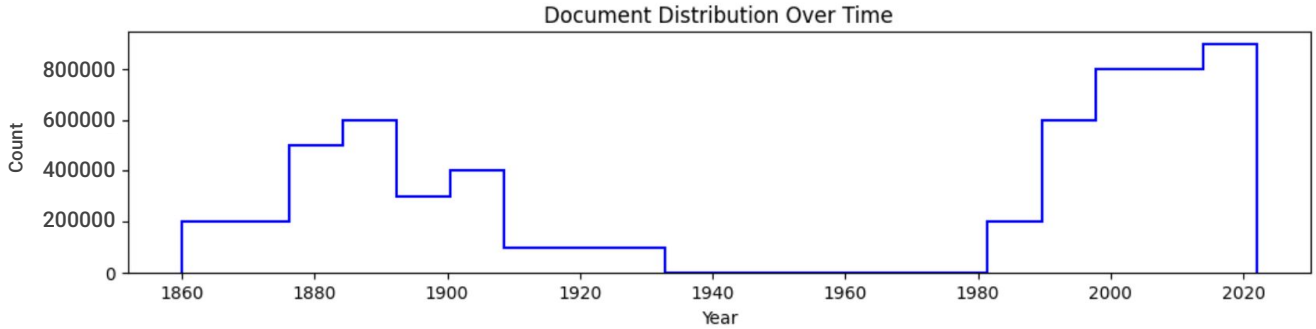
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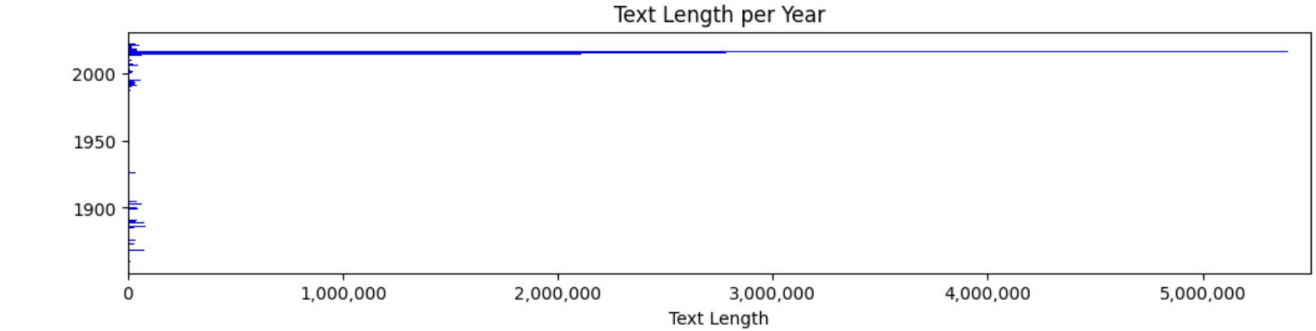
Text Length per Year
2000
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1,000,000
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Text Length

6 Data

Resulting complete data:

- 3 billion tokens
- 75 thousand text-pieces
  Single speaker contribution

	Year	Text_len	Len_toks
count	75480.000000	75480.000000	75480.000000
mean	2008.832658	187.739043	40.592780
std	3.064608	611.358140	122.724208
min	1860.000000	0.000000	0.000000
25%	2008.000000	38.000000	9.000000
50%	2009.000000	95.000000	21.000000
75%	2010.000000	222.000000	48.000000
max	2022.000000	73881.000000	14727.000000

7 Analysis - Dealing with uneven distribution

- Difference in data sizes for each year makes row counts not very valuable.
- → Solution: Counts are evaluated considering the size of the amount of tokens of the year they belong to.
- Counts are turned into proportion percentage out of overall data amount for the respective year.

7 Analysis

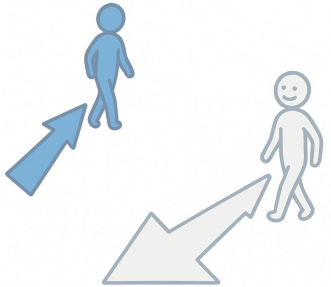
1. Loss of Word Classes
2. Time and Space Lexicon Modification
3. Syntactic restructuring
4. Text-level changes

Today's focus:

2. Time and Space Lexicon Modification
→ **Loss of directional distinction (*anar* vs. *venir*)**

3. Syntactic restructuring
→ **Verb pronominalization**

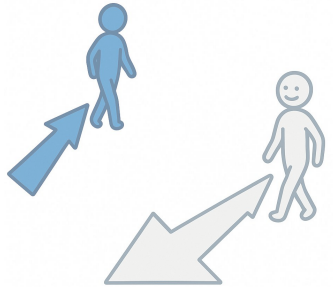
7 Analysis - Anar vs. Venir



Theoretical motivation:

- Catalan distinguishes **motion away** (*anar*) vs. **motion toward** (*venir*) the speaker.
- In Spanish the contrast is less strict.
- If one verb increases where both were once used, it may indicate **semantic erosion or substitution**.

7 Analysis - Anar vs. Venir



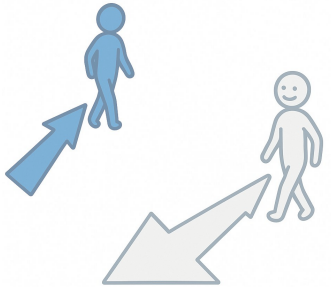
Hypothesis:

Substitution would manifest with one of the two verbs expanding its use into contexts formerly reserved for the other.

Method:

- Verbs are highly inflected (tense, person, number).
- → Solution: **Lemmatization** through Stanza's Catalan model.
- This lets us find all forms of *anar* and *venir* via their lemma.

7 Analysis - Anar vs. Venir

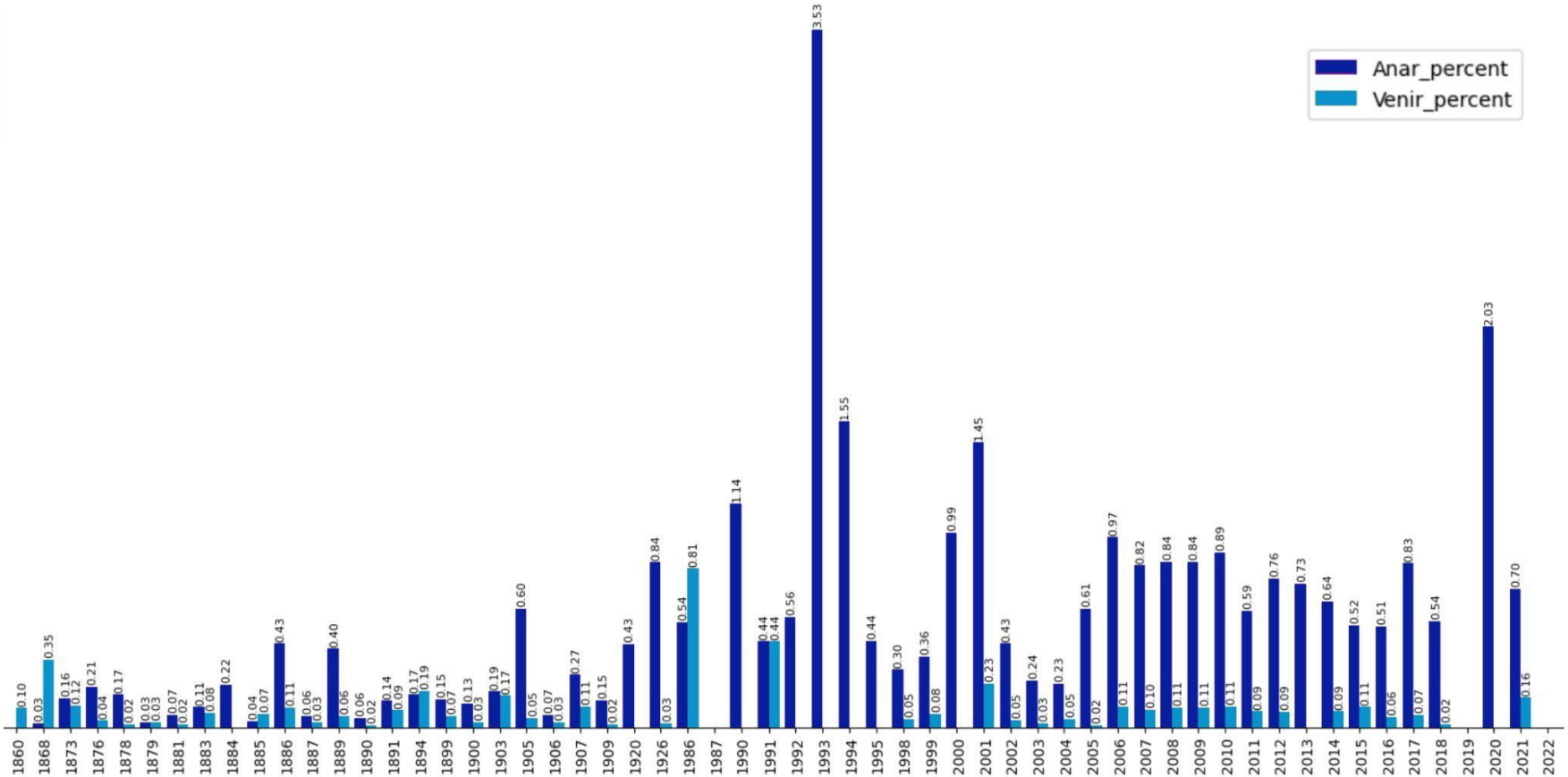


Statistical Results

Anar shows a **significant positive correlation** with time
ρ = 0.5659, p-value = 0.0000

Venir shows **no significant change**
ρ = –0.0886, p-value = 0.5082

The **difference** between *anar* – *venir* also increases significantly
ρ = 0.5594, p-value = 0.0000


Anar_percent
Venir_percent
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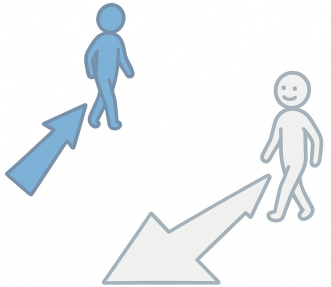
7 Analysis - Anar vs. Venir



Interpretation

- *Anar* is increasing in frequency over time
- *Venir* is stable

- → *Anar* may be **broadening in use**, not replacing *Venir*
- This supports an **extension** of *anar*

7 Analysis - Verb Pronominalization

Theoretical motivation:

- Reflexive/pronominal verbs in Catalan attach clitics (*pronoms febles*) “unstressed pronouns”

- *“Em vesteixo” = “I get dressed myself”*

- Spanish influence may trigger **over-pronominalization**,

  e.g.: *“puja’t a la bici”* instead of *“puja a la bici”*

7 Analysis - Verb Pronominalization

Hypothesis:

Due to Spanish influence Verb Pronominalization might be increasing. We might be pronominalizing movement verbs that are pronominal in Catalan's history.

7 Analysis - Verb Pronominalization

Method:

- Tokenization and POS tagging

Proclitics (separate token)	
Sentence	1 tokens =====
)	text: T’
)	text: ho
)	text: donaré
)	text: demà
)	text: .

Enclitics (same token)	
Sentence	2 tokens =====
)	text: me’n
)	text: poses
)	text: una
)	text: ?

7 Analysis - Verb Pronominalization

Method:

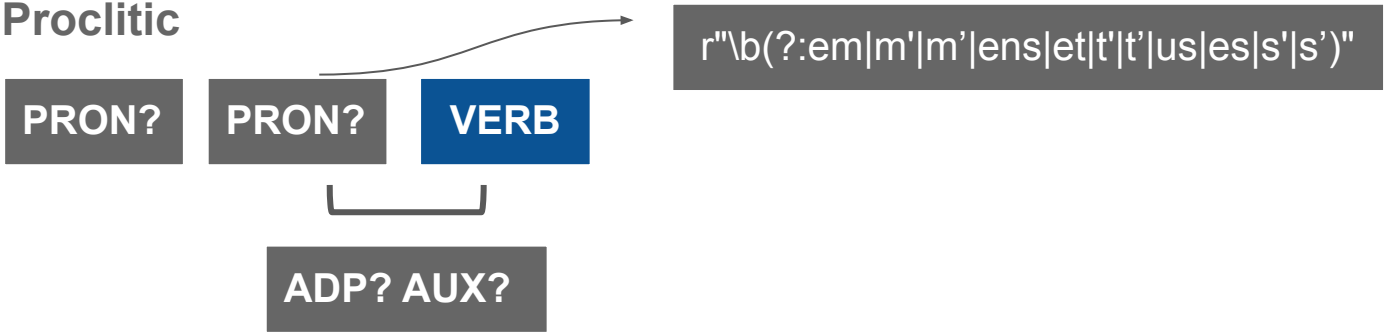
1. Tokenize and POS tag using stanza
2. Create a list of tuples containing (word, POS tag) pairs
3. Apply pronominal verbs finding function
4. Return pronominal verbs list

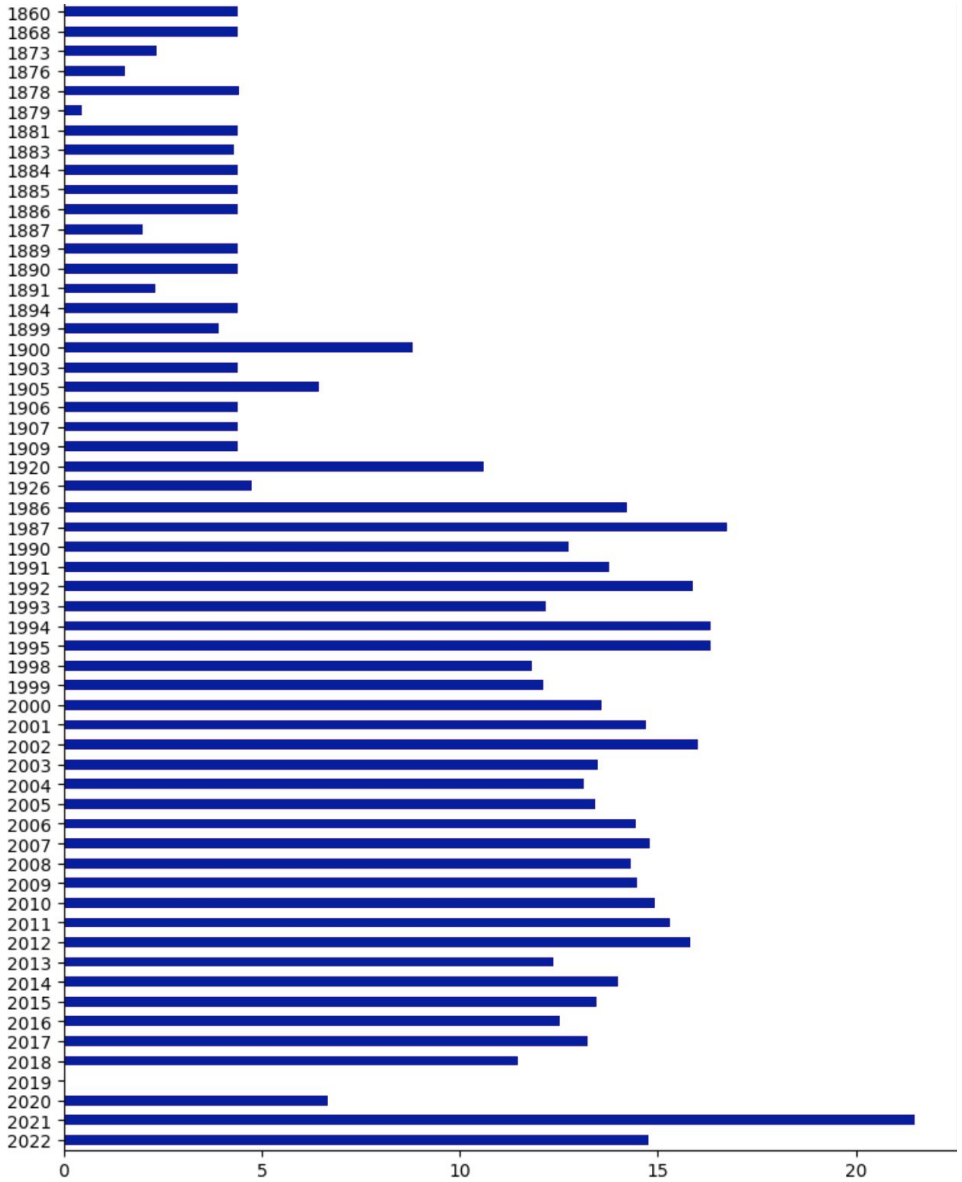
7 Analysis - Verb Pronominalization

Method: Take in (word, POS) pairs, look for:

Enclitic

Proclitic

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THANK YOU!

Any questions, comments or feedback will be greatly appreciated!

8 References

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