What can Reveal 1,018 Speeches of Fidel Castro?

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Fidel Castro Discourse Analysis

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Understand his Political Success

Fidel Castro

- Major Cuban politician.
- Half-century government (1959-2008).
- Well known rhetoric skills.

29/09/1960 UN longest speech (4h39min).

Corpus

- Available online[a].
- **1,018** speeches.
- **+7,500,000** words.
- **+4,000,000** non-empty words.

[a] http://www.cuba.cu/gobierno/discursos/

Previous Works
Systematic non-lexicometric approaches

Work	Corpus size	Methodology
[Joyner 1964]	**3** discourses	Aristotelian Rhetoric Principles
[Nieto et al. 2002]	**1** conversation	Conversational Analysis
[Belisario 2016]	**3** discourses	Critical Discourse Analysis
[Reyes 2011]	6 months speeches ($\sim$ **dozen**)	Sociolinguistics / Critical Discourse Analysis

Complex and **time consuming task**

$\downarrow$

Use small (and possibly **non-representative**) **samples**

$\downarrow$

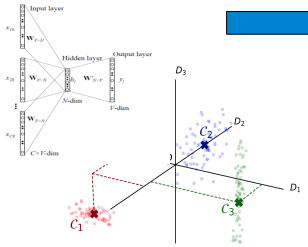
Possibly biased results

Key Points

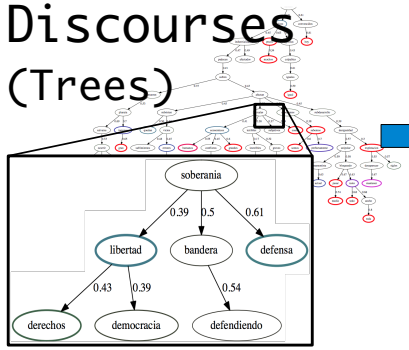
Corpus

1,018 speeches

Machine Learning Framework



Prototypic Discourses (Trees)



Charaudeau Linguistic Discourse Analysis

Machine Learning framework

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More representative systematic study.

Outline

1. Machine Learning Framework
2. Discourse Analysis Methodology
3. Results
4. Conclusion and Perspectives

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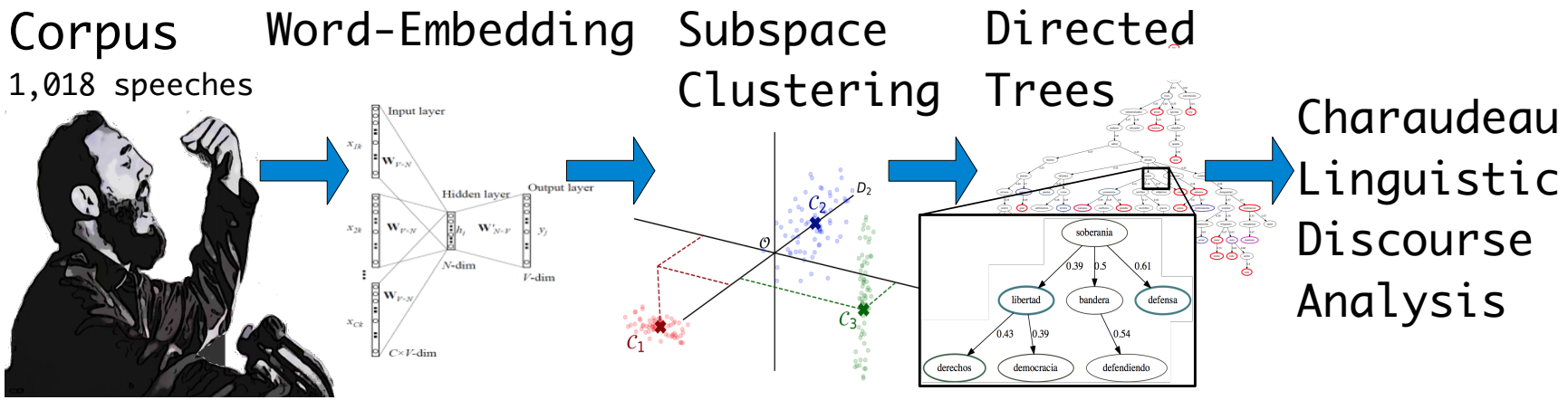
Overall Framework



Framework steps

- **Pre-processing**: data cleaning and empty words filtering.
- **Word-Embedding** $\rightarrow$ Word Vector Representations.
- **Subspace Clustering** $\rightarrow$ Contextually Linked Word Clusters. (Discursive Contexts)
- **Directed Trees** $\rightarrow$ Intelligible Structure (Prototypic Discourses).
- **Python 2.7** (re, nltk, gensim Word2Vec, SubCMedians)

Distributional Hypothesis: "Words that occur in similar contexts tend to have similar meanings" [Harris 1954]

Example (Fidel Castro)

$$\text{"} \ldots \overbrace{\textit{Dentro } \cancel{de} \textit{ } \cancel{la} \textit{ revolucion } \boxed{\textit{todo}} \textit{ contra } \cancel{la} \textit{ revolucion nada}}^{\textit{Context (width=2)}} \ldots \text{"}$$

Words $\rightarrow$ D-dimensional Vector Space

Word : $w = \boxed{\textit{todo}} \rightarrow x = (0.3, 0.4, -0.9, \ldots)$

Context :

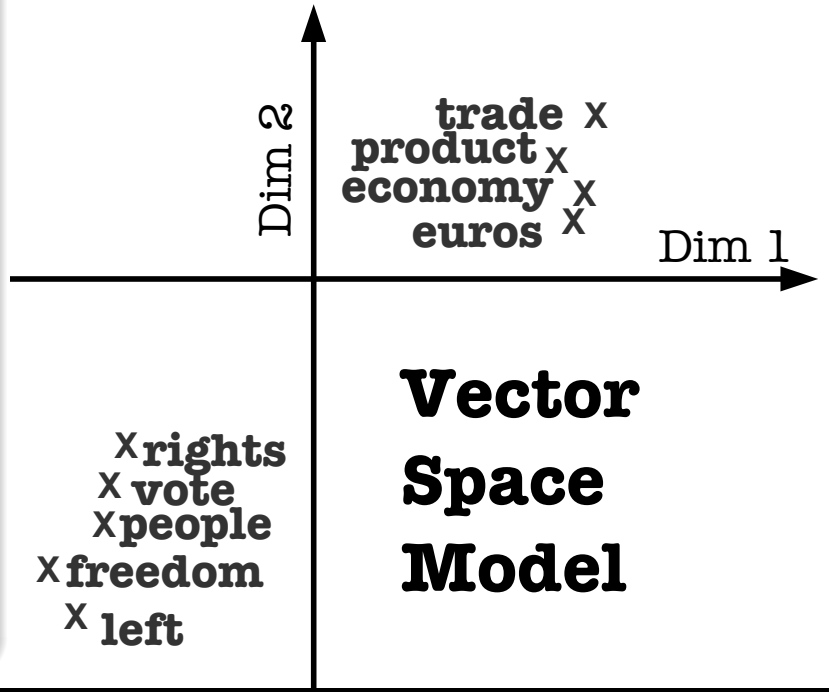
$c = \{\textit{dentro}, \textit{revolucion}, \ldots\} \rightarrow z = (0.1, -0.3, 0.2, \ldots)$

Probability that $\langle w, c \rangle$ **exists**

$$P(\textit{exists}|w, c) \approx p(x, z) = 1/(1 + e^{-x^\top z})$$

Objective function:

$$\overbrace{\log(P(\textit{exists}|w, c))}^{\textit{Maximize for existing } \langle w,c \rangle} + \overbrace{k \times \mathbb{E}(\log(P(\overline{\textit{exists}}|\tilde{w}, c)))}^{\textit{Maximize for } k \textit{ random words } \tilde{w}}$$

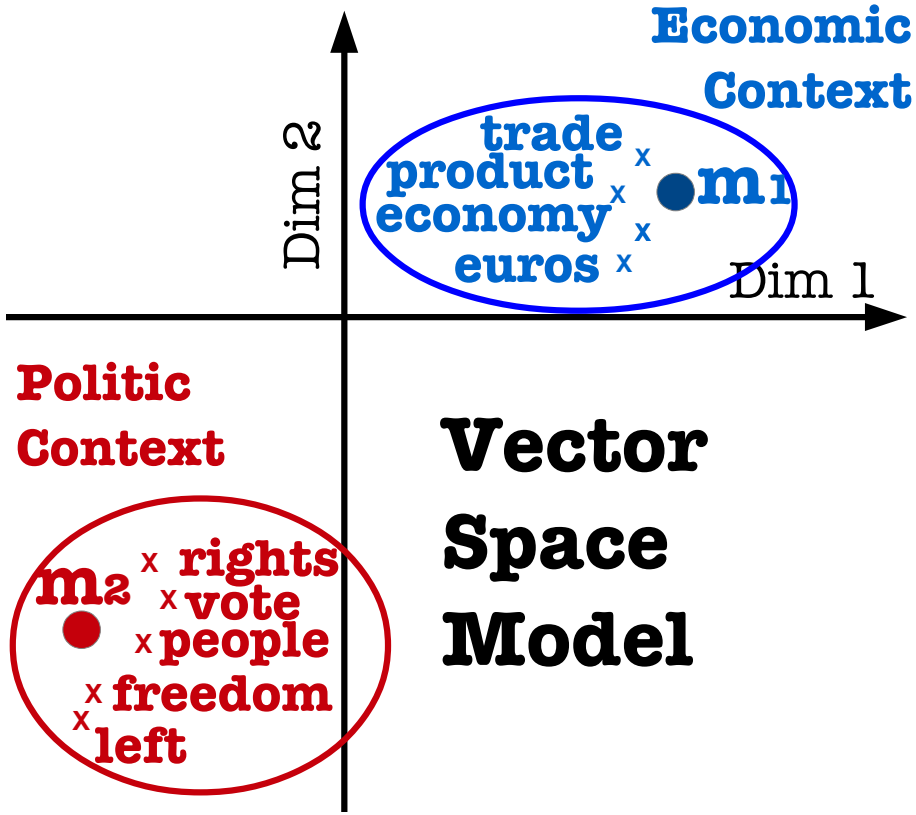


Subspace Clustering: Discursive Context Clusters

SubCMedians [Peignier et al. 2018]

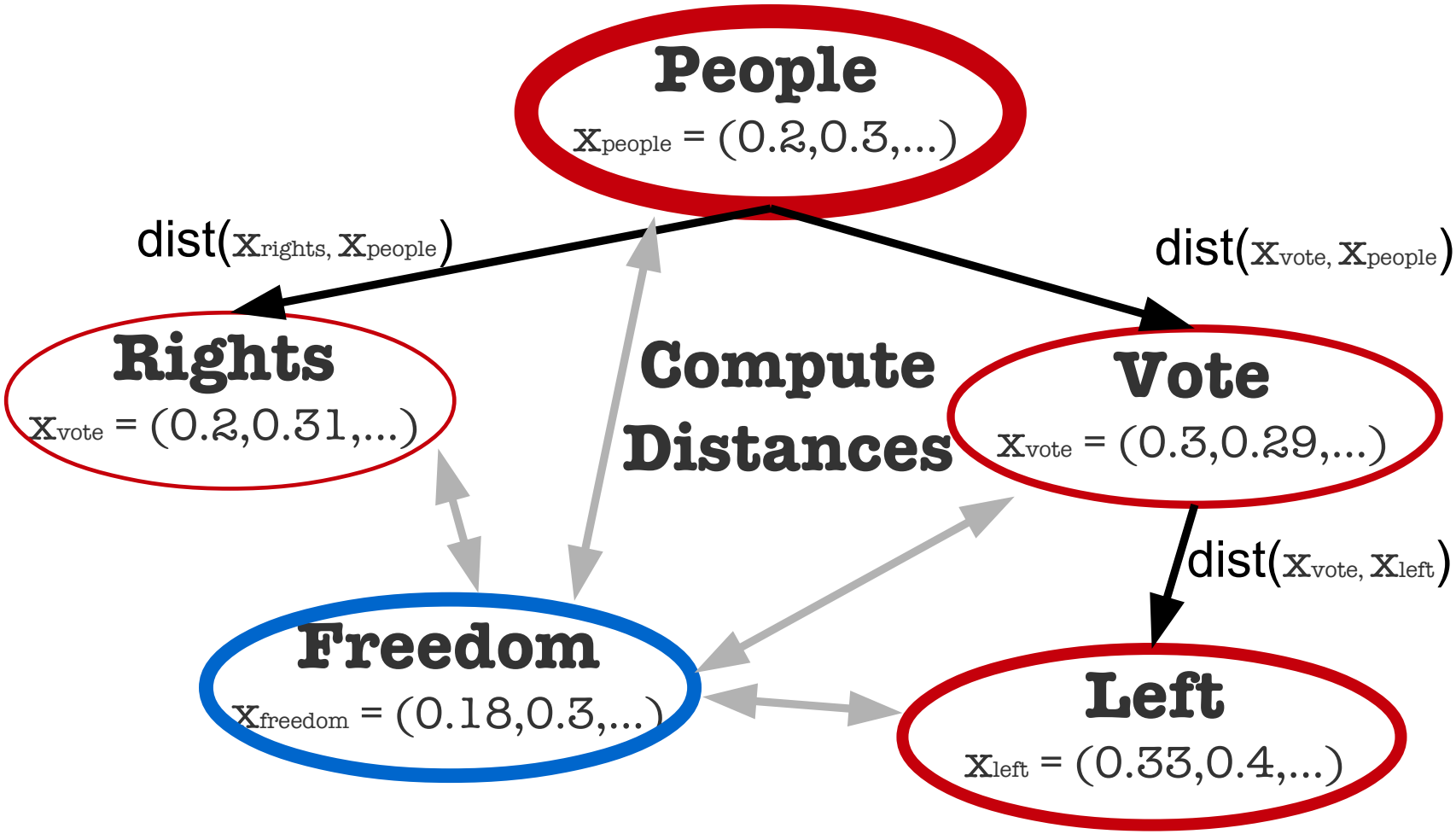
Find **clusters of words** in the **Vector Space Model**

Subspace Clustering is more adapted to **high-dimensional spaces** than clustering.



- **Word vectors** $\mathcal{X} = \{x_1, x_2, \dots\}$.
- **Subspace Centers** $\mathcal{H} = \{m_1, m_2, \dots\}$.
- **Minimise**: $SAE(\mathcal{S}, \mathcal{H}) = \sum_{s_i \in \mathcal{S}} min_{m_j \in \mathcal{H}}(distance(x_i, m_j))$.

Build Directed-Trees



- Most frequent word from cluster $\rightarrow$ root.
- Compute **distances** between **cluster words** and those in the **tree**.
- Include the closest word to the tree.

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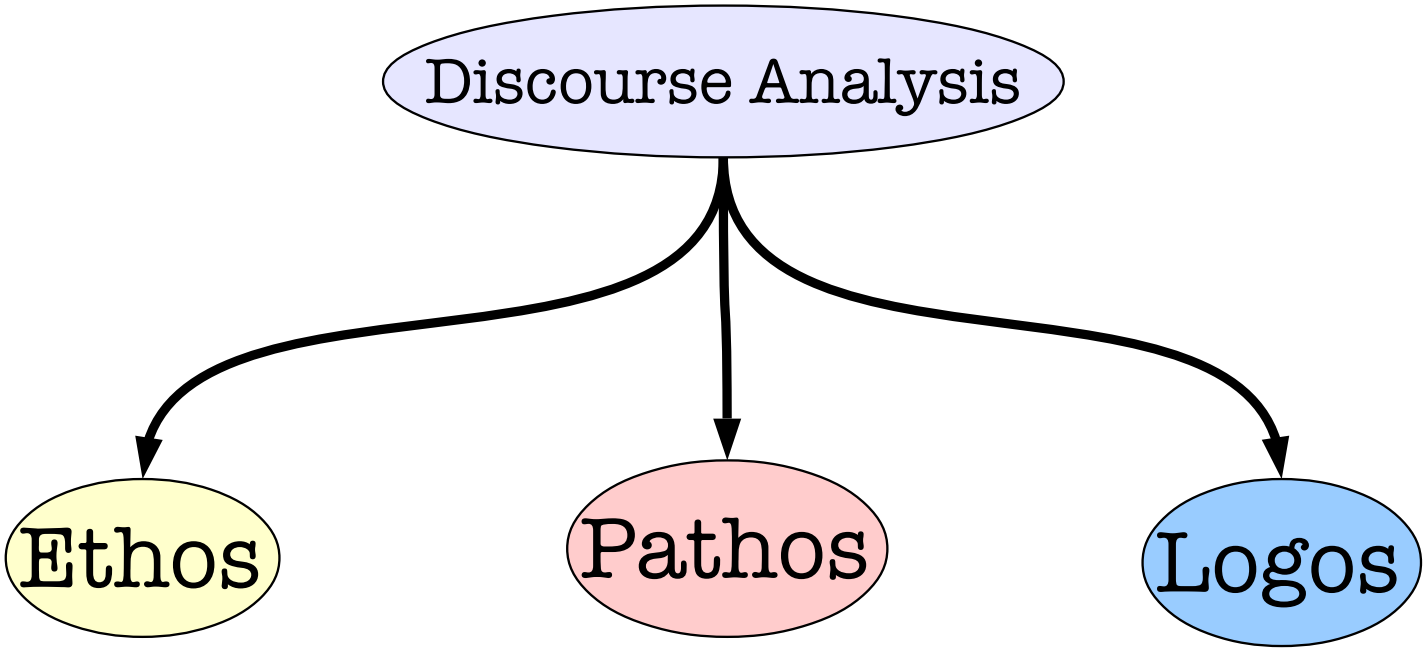
Charaudeau Discourse Analysis Methodology

- **Semio-pragmatic discourse analysis [Charaudeau 1995].**
- Based on the **Aristotelian classification of rhetoric art.**



Ethos: How the politician depicts himself

Discursive Identity

- **"Me"**
  Personal commitment.
- **"Us"**
  Identification with audience.
- **"Me-Spokesman"**
  Incarnates an ideology.

Speech Situation

- **Candidate.**
  e.g., Political party leader.
- **Ruler.**
  e.g., President / Minister

Embody Truthful Characters

- **Leader** (power).
- **Expert** (knowledge).
- **Witness** (veracity).
- **Committed** person.
- **Charismatic** person.

Pathos (1/2)

Persuade through **feelings** and **passions**.

Recruitment process

Lead the **audience** to **accept** the **speaker's project willingly**.

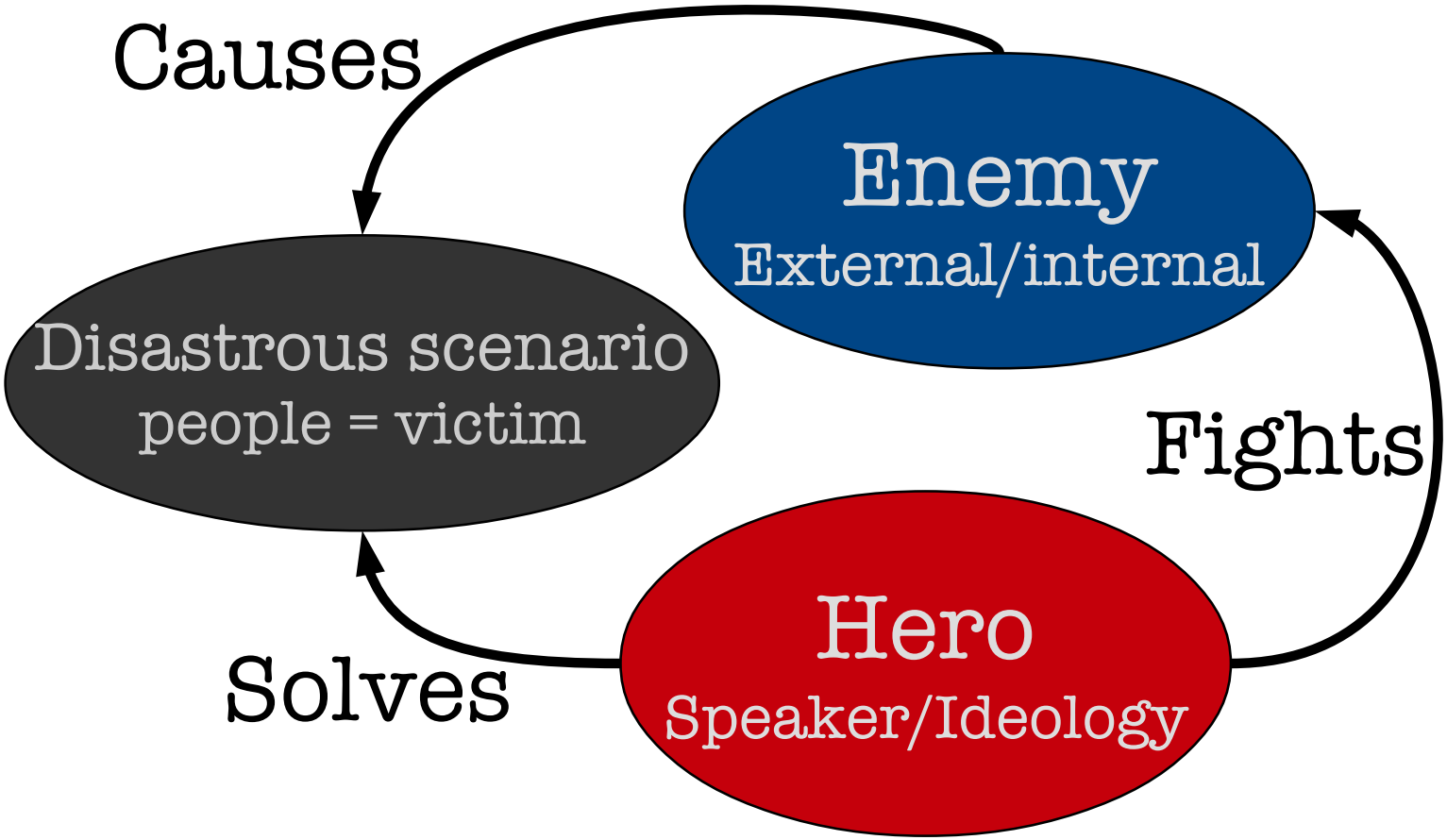
- **Moral Values**.
- **Social Welfare**.
- **Progress** (economy, technology).
- **Religious** belonging.
- **Ethnic** belonging.
- **Nationalism**.

Rhetoric of effects

Create **feelings** and **passions** in the **audience**.

- **Hope**
- **Pride**
- **Courage**
- **Fear**
- **Hatred**
- **Outrage**

Triadic Scenario



Logos

Convince through **logical reasoning** and **argumentation**.

Simplifying strategies

- **Singularization**
  Reduce the number of ideas described.
- **Essentialization**
  Express a complex idea with few words.
- **Formula = Singularization + Essentialization.**
- **Slogans.**

Argumentative strategies

- **Simplified causal arguments.**
- **Analogy with past events/characters.**
- **Detailed descriptions $\rightarrow$ Veracity.**

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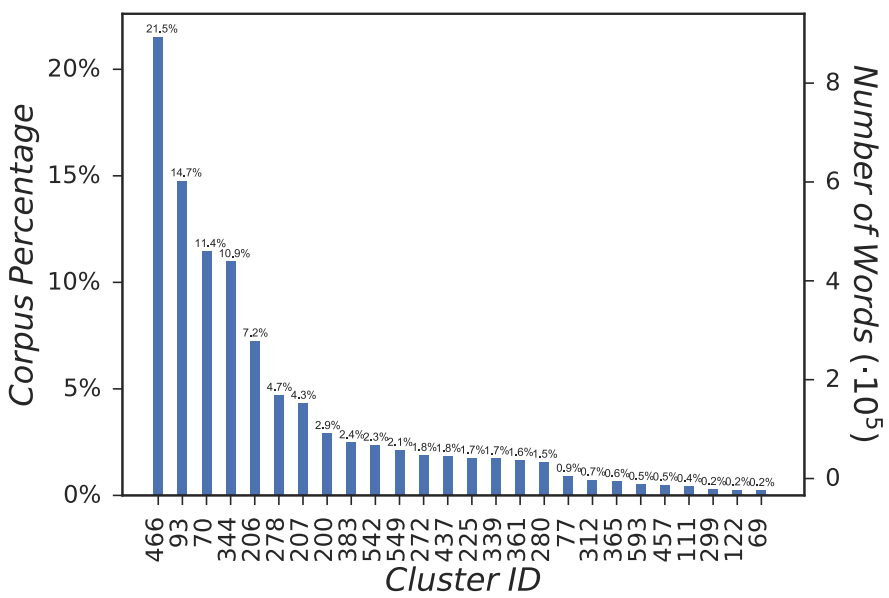
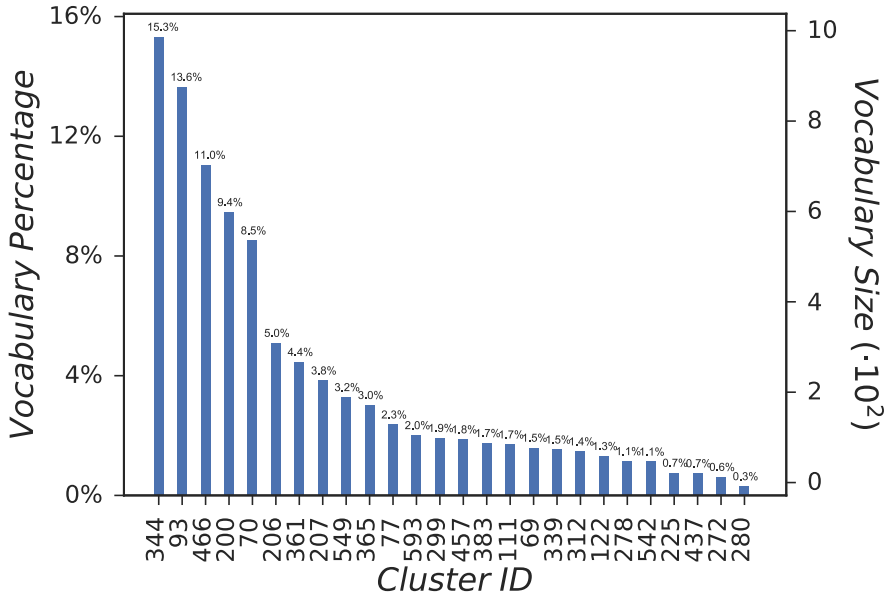
Cluster Model Structure





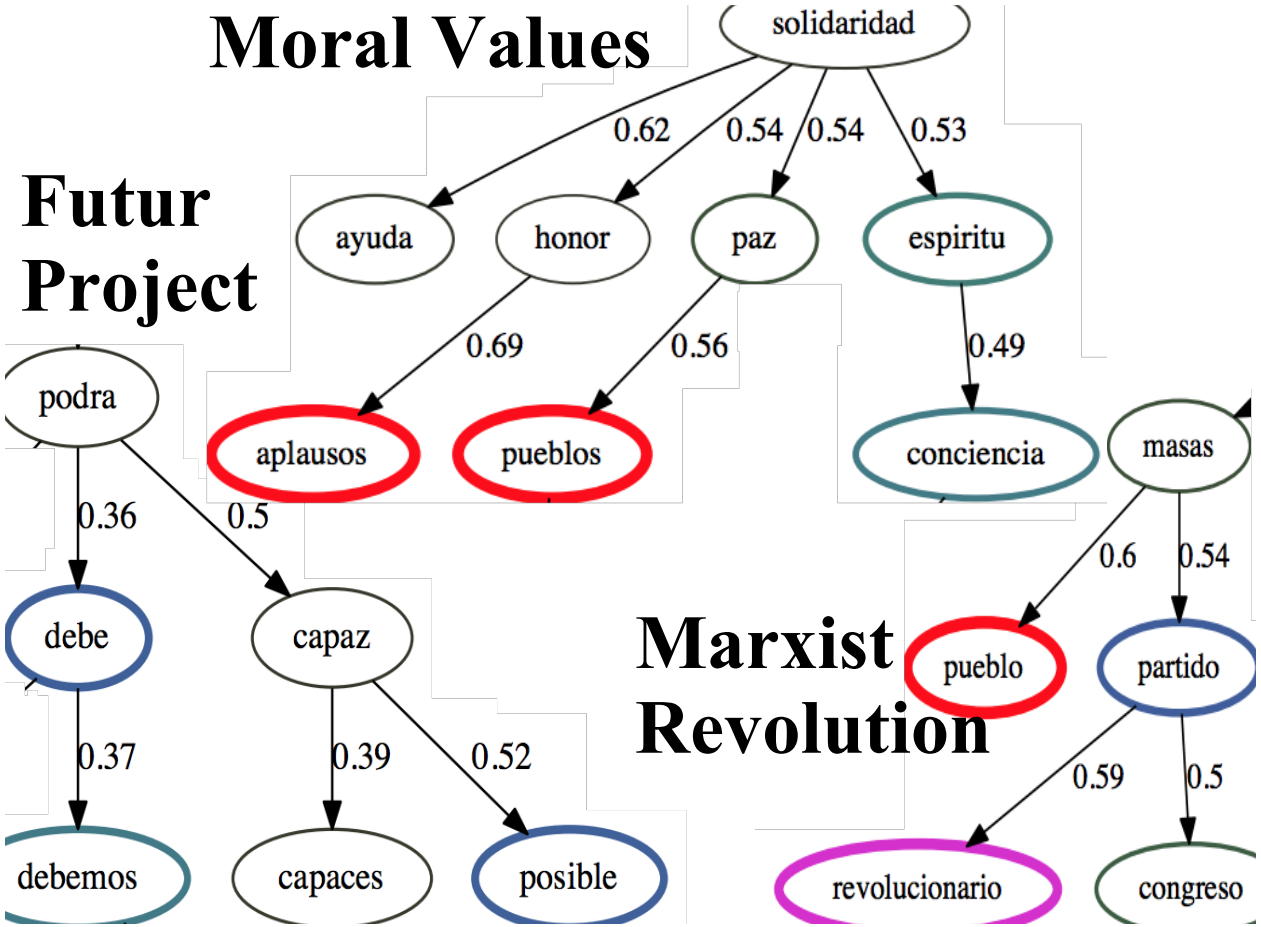
Four largest clusters: 466, 93, 70, 344

- $\sim$ 60% **Number of words.**
- $\sim$ 50% **Vocabulary.**
- $\sim$ Analysis of 595 discourses out of the 1,018.
- **Small clusters** $\rightarrow$ **Specific vocabulary** or **general words.**

Cluster 466
Political Marxist Project

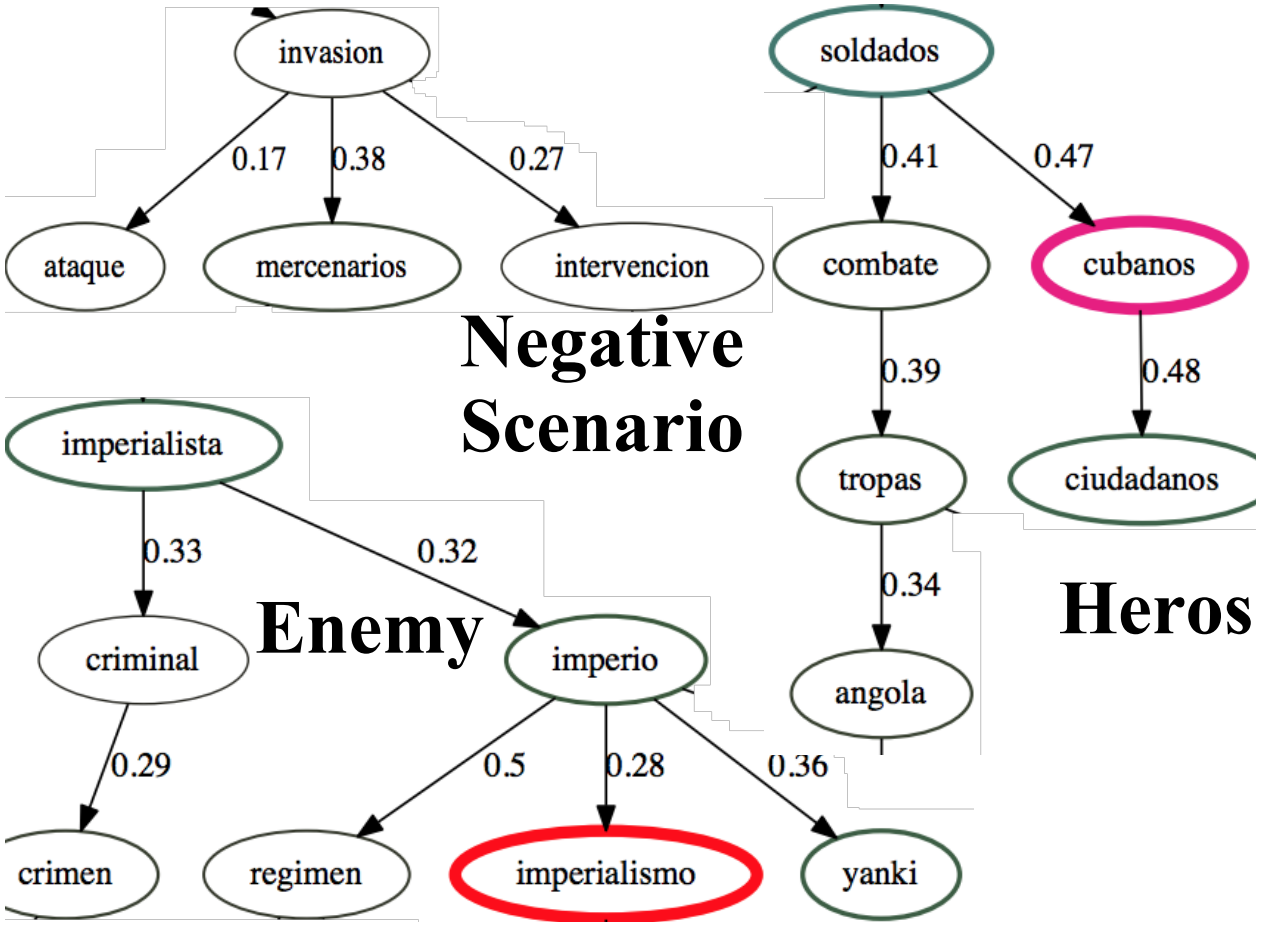
- **Futur Plan**
- **Marxist Revolution**
- **Defence** of the project

- **Identification** with **People**
- **Details** $\rightarrow$ **Veracity**



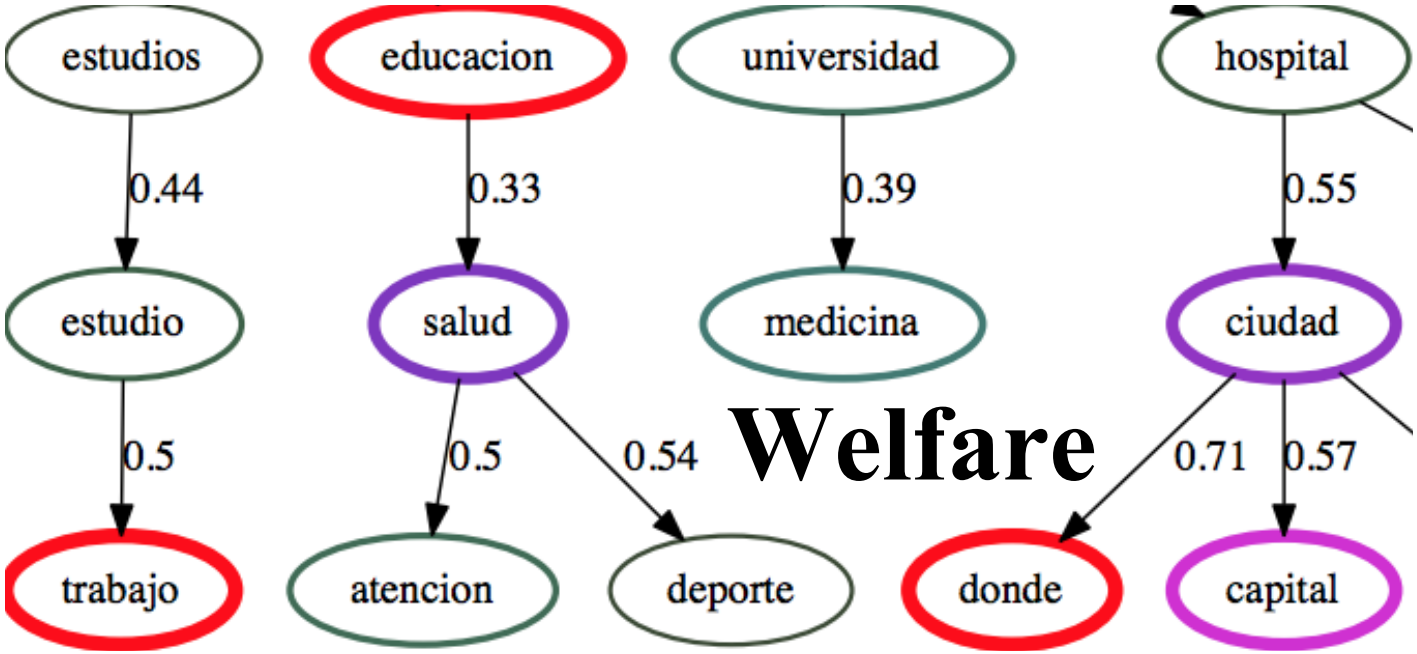
Cluster 344
Cold War Triadic Scenario

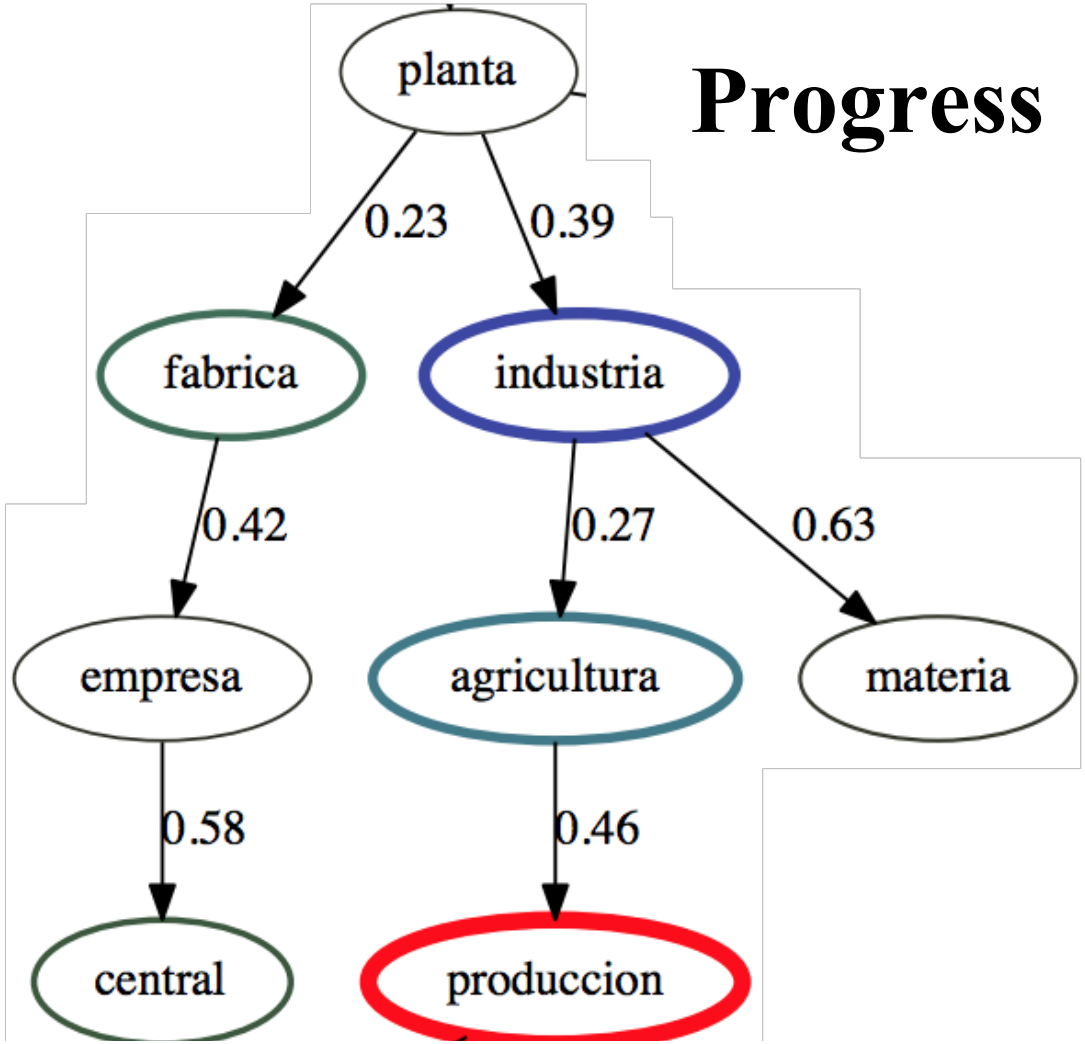
- **Enemies**
  Oligarchy, USA
- **Cold War conflicts**
- **Heroes**
  Communism, Cuban army, people
- **Feelings**
  Fear, Hatred, Outrage



Cluster 70
Social welfare, audience as beneficiary

- **Society as actor and beneficiary**
- **Social welfare**: Education, employment, health
- **Feelings** → Hope, Pride

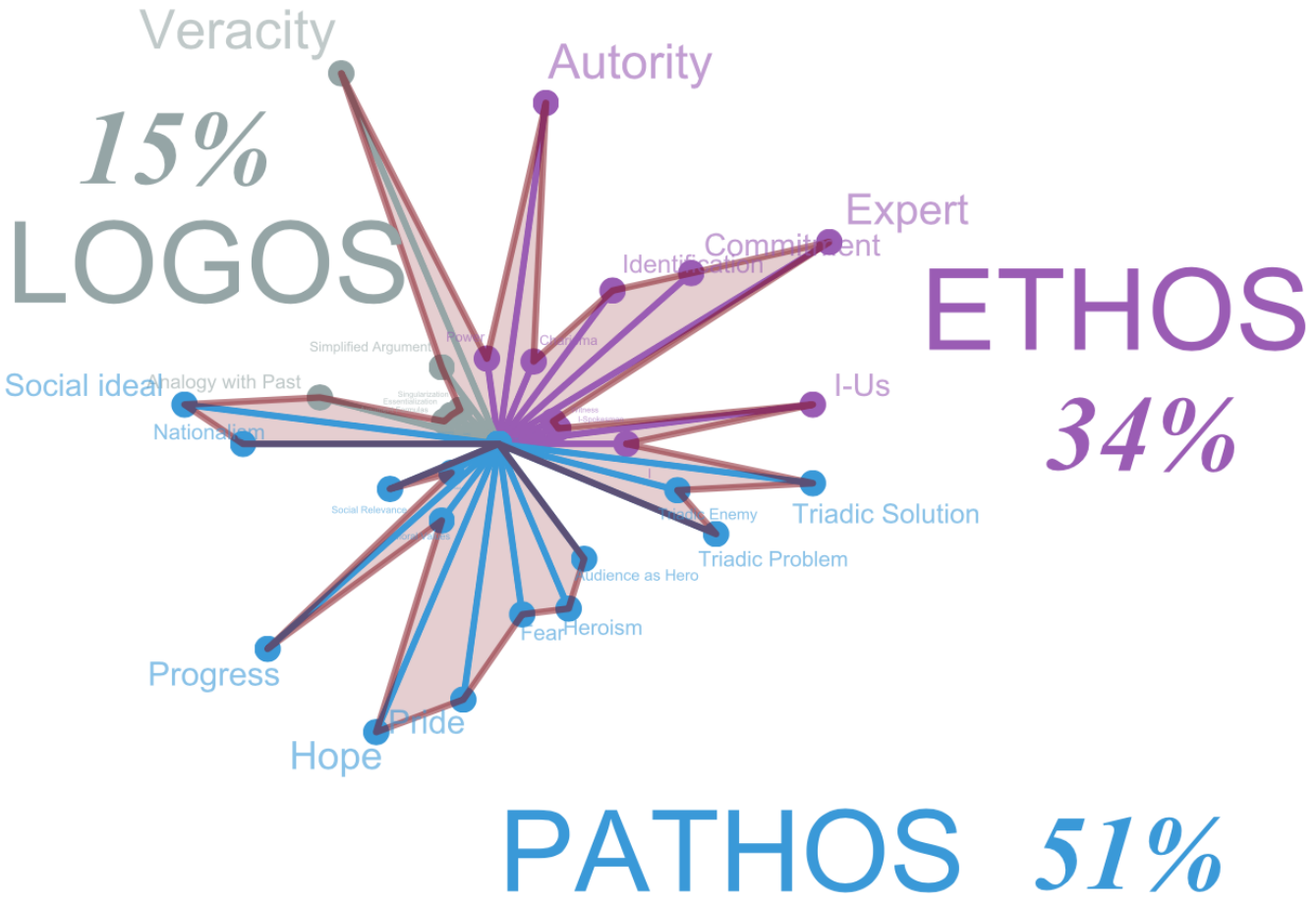




Progress

- **Economic progress**
  Infrastructures
- Needs/Obligations
- **Feelings**
  Hope, Pride
- **Ethos**
  Expert, Authority
- **Details** $\rightarrow$ **Veracity**

Castro Discursive Strategies



Pathos (51%)

Triadic scenario

Progress Welfare Nationalism

Hope Pride Fear Heroism

Ethos (34%)

Authority Expertise

Commitment Identification

Logos (15%)

Detailed descriptions →

Veracity

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Conclusion and Perspectives

- **Broader** and **more representative** characterisation of Castro's speeches.
- Study relationship with **historical events**.
- Study **influence** on other politicians' discourses.
- Extension to **Automatic Discourse Analysis**.