# Data Documentation - Automated Political Stance Identification

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## Overview

This document describes the datasets directly or indirectly used in the Automated Political Stance Identification (APSI) framework. The tool relies on three main data components:

1. `mDeBERTa-v3-base-xnli-multilingual-nli-2mil7` (Laurer et al. 2022). Base multilingual Natural Language Inference (NLI) training data, providing general language inference capabilities.

2. `PolNLI dataset` (Burnham et al. 2024). Political domain fine-tuning data in the `Political Debate` model (Burnham 2025), providing specialization for political discourse.

3. Validation data consisting of expert-evaluated political texts used for performance assessment.

# Base Model Training Data. mDeBERTa-v3

## Model Foundation

The `Political Debate` model is built on a pretrained multilingual transformer derived from Microsoft's `mDeBERTa-v3-base-xnli-multilingual-nli-2mil7` architecture.

## Dataset Characteristics

- **Training data (NLI checkpoint):** 2,730,000 hypothesis–premise pairs

- **Language coverage:** 26 languages

- **Task labels:**

    - Entailment

    - Contradiction

    - Neutral

This dataset provides general semantic reasoning capabilities, enabling the model to evaluate logical relationships between textual statements and supporting zero-shot classification across domains.

# Political Domain Training Data. Political DEBATE (PolNLI)

## Fine-Tuning Process

The pretrained `mDeBERTa-v3-base-xnli-multilingual-nli-2mil7` model was further fine-tuned by Burnham (2025) to create the `Political DEBATE` model, which specialises in political discourse analysis.

## Dataset Characteristics

- **Dataset name:** Pol NLI

- **Dataset size:** 200,000 hypothesis–premise pairs

- **Task format:** Political Natural Language Inference

## Data Sources

The dataset contains political texts collected from multiple sources:

- Social media posts

- News articles

- Congressional newsletters and legislation

- Court case summaries

- Political documents

- Crowd-sourced responses

## Supported Tasks

The fine-tuning data supports several political NLP tasks:

- Political stance detection

- Topic classification

- Hate speech and toxicity detection

- Event extraction

This dataset adapts the base model to political language, enabling detection of ideological positions, policy preferences, and political rhetoric.

# Validation Data

A custom dataset of political texts was collected to evaluate model performance.

## Dataset Characteristics

- **Total texts:** 60 political texts

- **Sampling design:** 20 texts per dimension

  - Economic left–right ideology

  - Populism vs. pluralism rhetoric

  - Support for liberal democracy

- **Selection method:** Texts collected from multiple sources and manually reviewed for category relevance

## Expert Assessment Data

Political science experts provided human evaluations of the validation texts.

**Expert Recruitment**   Authors from leading political science journals (i.e. *Political Communication* and *Comparative Political Studies*) were invited based on recent publications related to the relevant political dimensions.

**Experts Contacted**

- Populism/Pluralism rhetoric dimension: 198 experts

- Economic left–right ideology: 117 experts

- Support for liberal democracy: 120 experts

**Survey Responses**

- Total responses: 147

    - Populism/Pluralism rhetoric dimension: 71

    - Economic left–right ideology: 37

    - Support for liberal democracy: 38

**Annotation Procedure**  Experts rated texts using a scoring scale reflecting the defined political dimensions. Model outputs were compared to expert scores to assess performance.

# 1  Data Pipeline Summary

The APSI tool uses a multi-stage data pipeline:

| Stage | Data Type | Purpose |
|---|---|---|
| Base training | 2.73M multilingual NLI pairs | General semantic inference |
| Political fine-tuning | 200k political NLI pairs | Political domain specialization |
| Validation | 60 texts + expert ratings | Performance evaluation |

This design enables zero-shot political stance classification without additional task-specific labeled training data while maintaining interpretability and transparency.

# References

Burnham, Michael (July 2025). "Stance detection: a practical guide to classifying political beliefs in text". en. In: *Political Science Research and Methods* 13.3, pp. 611–628. ISSN: 2049-8470, 2049-8489. DOI: 10.1017/psrm.2024.35. URL: https://www.cambridge.org/core/journals/political-science-research-and-methods/article/stance-detection-a-practical-guide-to-classifying-political-beliefs-in-text/E227E746BD7D9751526DA0EC2C378787 (visited on 08/25/2025).

Burnham, Michael et al. (2024). *Political DEBATE: Efficient Zero-shot and Few-shot Classifiers for Political Text.* arXiv: 2409.02078 [cs.CL]. URL: https://arxiv.org/abs/2409.02078.

Laurer, Moritz et al. (June 2022). "Less Annotating, More Classifying – Addressing the Data Scarcity Issue of Supervised Machine Learning with Deep Transfer Learning and BERT - NLI". en-us. In: *Preprint.* Publisher: Open Science Framework. URL: https://osf.io/74b8k (visited on 07/28/2022).