

# Ties That Talk: A Text-as-Data Approach to the Strategic Performance of Interstate Relations in National Security Strategies (NSS)

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# Motivation

## WHITE BOOK 2013

THE ARMED FORCES OF UKRAINE

### INTERNATIONAL COOPERATION

In the frameworks of the National Security and Defence Policy implementation the main efforts of international cooperation were focused on the following tasks:

- extending the active military and political dialogue with EU military authorities, participating in improvement and development of European System of Common Security;
- developing a strategic partnership with the Russian Federation, the United States of America and the People's Republic of China on the basis of effective and mutually beneficial cooperation;
- extending constructive partnership on mutually beneficial issues with NATO and other international security organizations;
- maintaining a dialogue with key Ukrainian partners , neighbor countries and other world leading states;
- activation of military and political dialogue with countries of Caucasian and Asian Pacific Regions, Latin America and Africa aimed at promoting Ukraine's interests.

572 out of 1227 planned events on international cooperation were arranged and implemented (figure 7.1) in 2013.

# Motivation

## WHITE BOOK 2015

### THE ARMED FORCES OF UKRAINE

The National Security Strategy of Ukraine, a new edition of the Military Doctrine of Ukraine and the Concept for the Development of the Security and Defense Sector of Ukraine have been approved according to the results of the comprehensive review of the security and defense sector. For the first time in history, Ukraine has determined the course towards European integration and intentions to join NATO. The Russian Federation was determined as the main threat and military adversary.

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Cooperation with the United States in the defense sphere changed from the crisis response policy to the stable long-term strategic partnership. The new format of cooperation was discussed during the Ministry of Defense of Ukraine visit to the USA in September 2015. Based on these results the Ministry of Defense of Ukraine together with the American side began to develop "The Concept of partnership development between the Ministry of Defense of Ukraine and the Department of Defense of the United States of America for the term of 5 years.", which is directed towards improvement of

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# Motivation

*The New York Times*  
*Biden's National Security Strategy*  
*Focuses on China, Russia and*  
*Democracy at Home*

## TURKISH X MINUTE

### UK names Turkey a 'key partner' in new 2025 security strategy



Ministry of Foreign Affairs  
REPUBLIC OF KOREA

MOFA Spokesperson's Commentary on "Defense of Japan 2022"

Date : 2022-07-22 | hit : 15599

# Problem

## Data:

- Corpora are non-standardized, non-replicable, and limited in scope (Razeto and Jenne 2021, Neal and Gardner 2025)

## Measurement:

- Existing work analyzes topics rather than actors/relationships and without accounting for context (Becker and Malesky 2017)

# Solution

## Data:

- Build standardized, machine-readable, publicly available corpus of NSS documents

## Measurement:

- Develop novel text-based measures of expressed salience and affinity

# What we know about interstate relations

Spatial utility model of foreign policy ideal points (Morrow 1986):

## 1. **Relevance:**

- Geography (Weede 1976, Gleditsch and Ward 2001)
- Power (Organski and Kugler 1980, Singer 1988, Maoz 2006)

## 2. **Compatibility:**

- Foreign policy similarity (Chiba et al 2015, Bailey et al 2017)
- Observed threats/partnerships (Leeds et al 2002, Diehl et al 2021, Thompson et al 2021)

# Corpus: Process

1. Compile corpus of NSS documents
  - a. Existing corpora
  - b. Crawl government websites and think tank bibliographies
2. Subset to comparable English “whole-of-government” documents
3. Convert .pdf to .md using PyMuPDF4LLM (McKie 2024) and Marker (Paruchuri 2024)
4. Convert .md to .csv chunked using MPnet tokenizer (Song et al 2020)



# Corpus: Result

Total NSS documents: **819**

Spatial scope: **112 countries**

Temporal scope: **1962-2024**

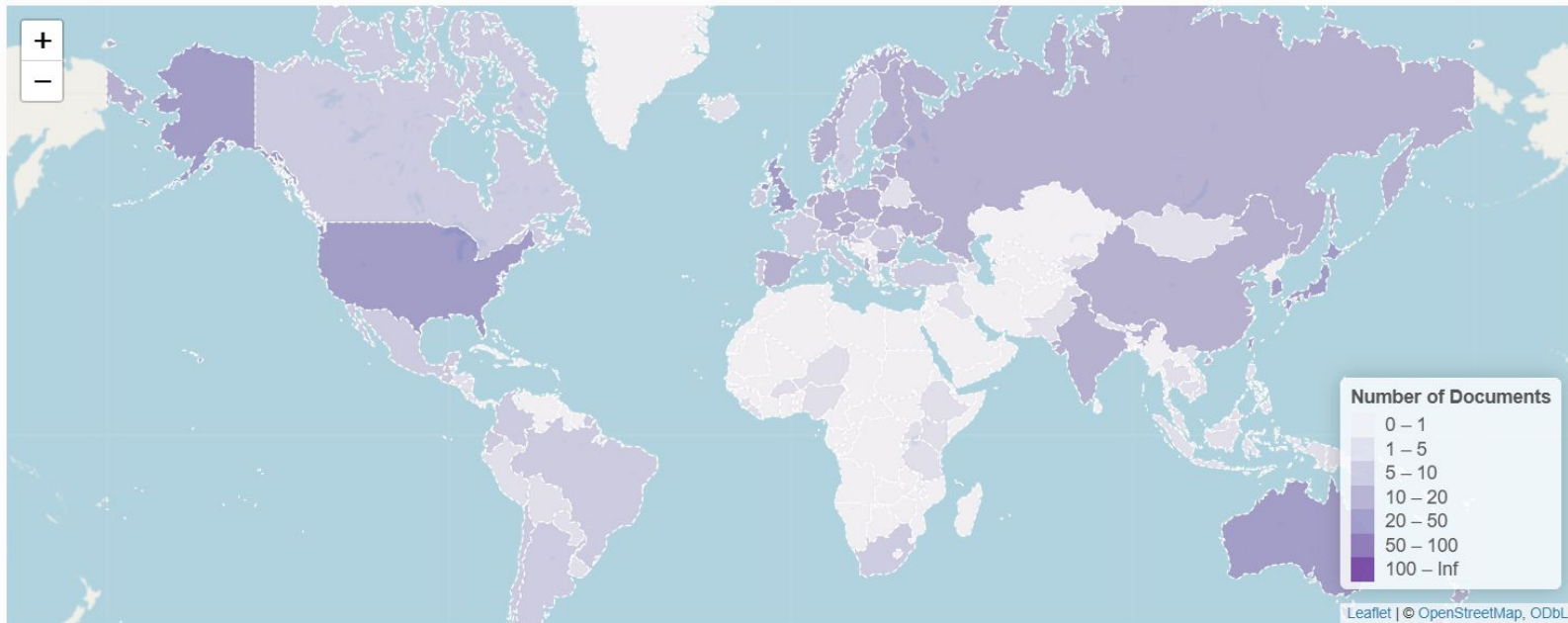
Subset of comparable documents: **432**

Pages of processed text: **75,205**

## Military Doctrines Dataset

The Military Doctrines dataset is a catalog of 819 National Security Strategy (NSS) documents spanning 112 countries from 1962 to 2024. The data are sourced from government websites and other online repositories in their original pdf format and are organized into machine-readable text and csv format, which you can browse and download from this website.

The Military Doctrines project is led by [J. Andrés Gannon](#) of Vanderbilt University.



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Visualizations

# Measurement

**Goal:** Identify *who* states talk about and *how*

**Innovation:** Use states' own words and their context to measure social signals

# Who states talk about

## Process

1. COW State Membership list
2. Include aliases and synonyms (capital cities and demonyms) while excluding false positives
3. Prune chunks using spaCy sentence tokenizer (Montani et al 2023)

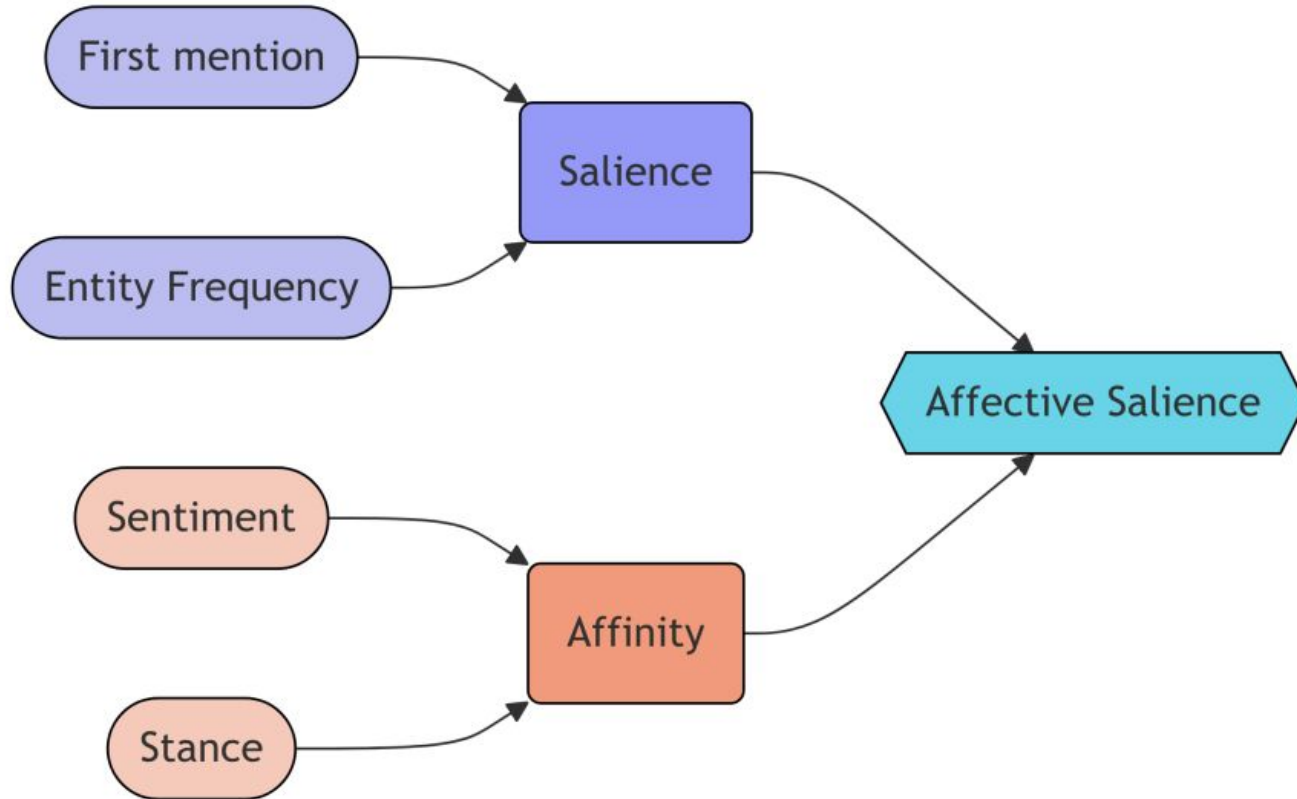
## Product

- **Unit of analysis:** directed dyad-year chunk (n = 241,857)
- **Variables:** issuer, target, year, document, chunk number, chunk text

## *How states talk about them*

1. **Salience**: prominence of a given entity within a specific context or communication
2. **Affinity**: evaluative orientation publicly expressed toward a given entity

## How states talk about them



# Measuring Salience

**Definition:** prominence of a given entity within a specific context or communication

**Measurements** (Dunietz and Gillick 2014; Wu et al. 2020):

First-mention + Entity-frequency = Salience

$$S_{\text{first}} = \frac{N - m_e + 1}{N} \quad S_{\text{freq}}(e) = \frac{f_e}{f_{\text{max}}} \quad S_{\text{salience}} \in (0, 1]$$

$$\alpha S_{\text{first}} + (1 - \alpha) S_{\text{freq}} = S_{\text{salience}} \text{ where } \alpha = 0.5$$

# Measuring Affinity

**Definition:** evaluative orientation publicly expressed toward a given entity

*“The invasion of Ukraine is tragic.”*

*“The death and destruction in Ukraine is a unprecedented tragedy.”*

*“The death and destruction Russia has experienced in Ukraine is a unprecedented tragedy.”*



# Measuring Affinity

## **Challenges:**

1. Orientation varies in degree
2. Emotional valence  $\neq$  support, opposition, or indifference

**Solution:** measure both emotional valence (sentiment) and orientation toward specified entity (stance)

# Measuring Affinity

**1. Sentiment:** evaluative orientation of language measured using lexicon and rule-based Valence Aware Dictionary and sEntiment Reasoner (VADER) (Hutto and Gilbert 2014)

*“The invasion of Ukraine is tragic.”* **Score: -0.46**

*“The death and destruction in Ukraine is a unprecedented tragedy.”*  
**Score: -0.92**

*“The death and destruction Russia has experienced in Ukraine is a unprecedented tragedy.”* **Score: -0.92**

# Measuring Affinity

**2. Stance:** natural language inference (NLI) few-shot classification model fine-tuning Political DEBATE LLM (AlDayel and Magdy 2021, Burnham 2024)

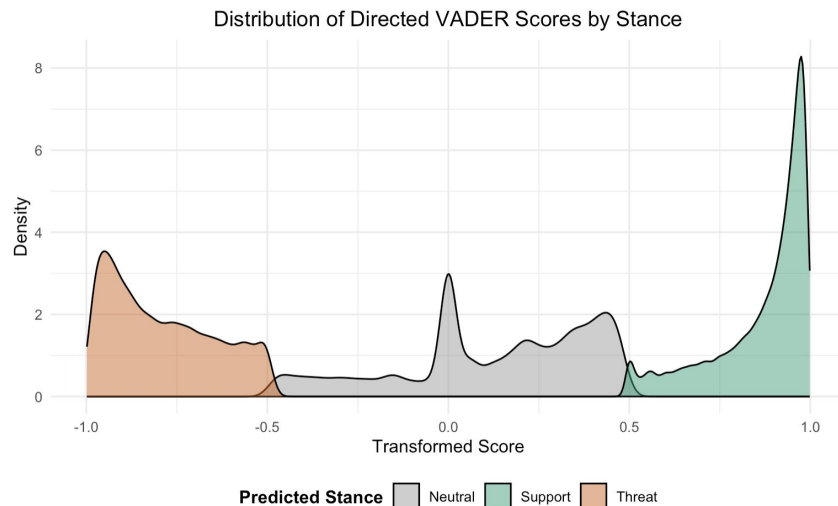
$Pr(x)$  a human reading text  $T$  would assume hypothesis  $H$  is true

- $T$  = pruned NSS chunk
- $H = \{\text{issuer}\} \{\text{views as threat, expresses support, neither}\}$  toward  $\{\text{target}\}$
- $Max(Pr(x))$  stance score =  $x \in \{-1, 0, 1\}$

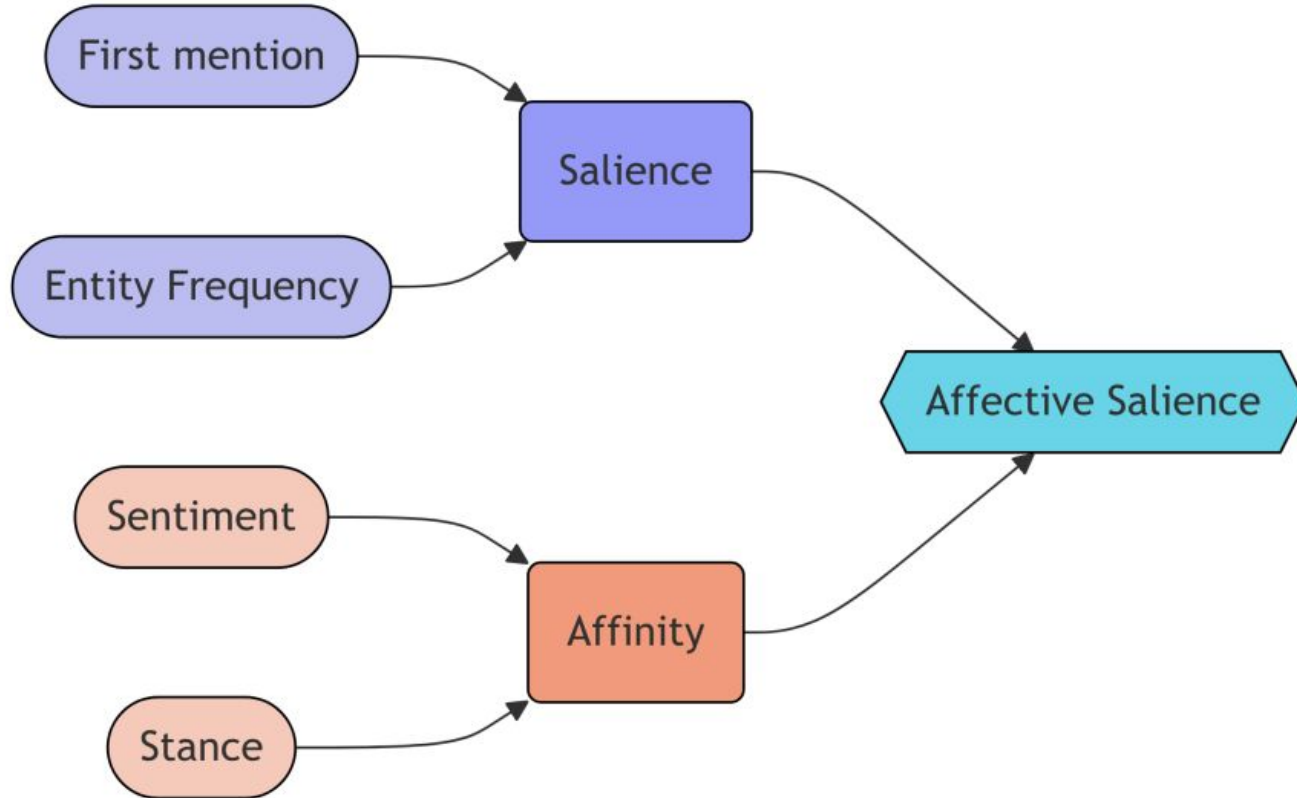
# Measuring Affinity

**3. Affinity combines sentiment and stance:** multiply and scale for each directed-dyad chunk:  $x \in [-1, -0.5], (-0.5, 0.5), [0.5, 1]$

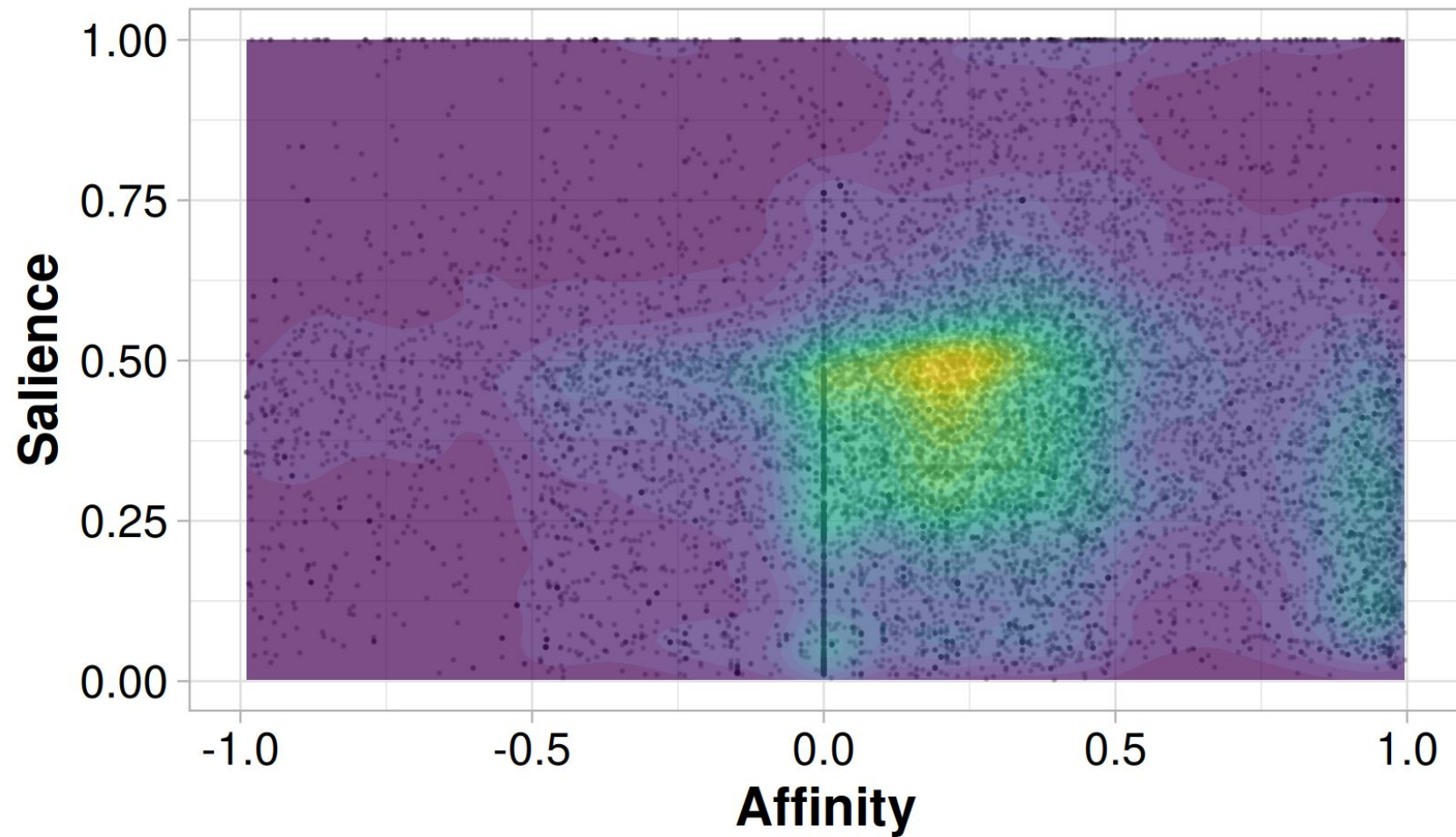
Average across chunks  $\Rightarrow$  directed-dyad year  $x \in [-1, 1]$



# What we've done

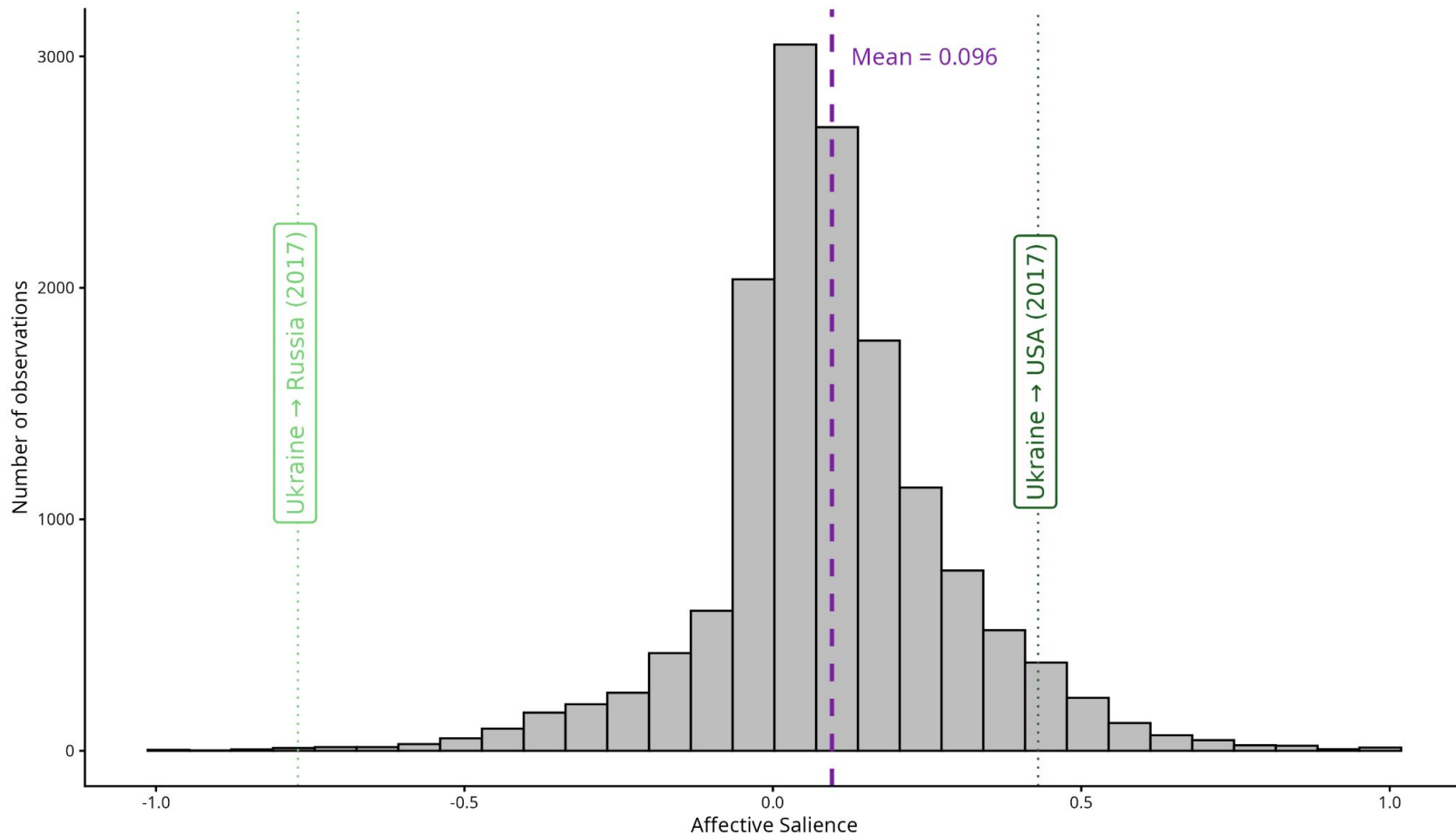


# Distribution of saliency and affinity scores



Final Measure : Affective Saliency =  $S_{\text{saliency}} \times S_{\text{affinity}} \in [-1, 1]$

Distribution of Affective Saliency Index (ASI)

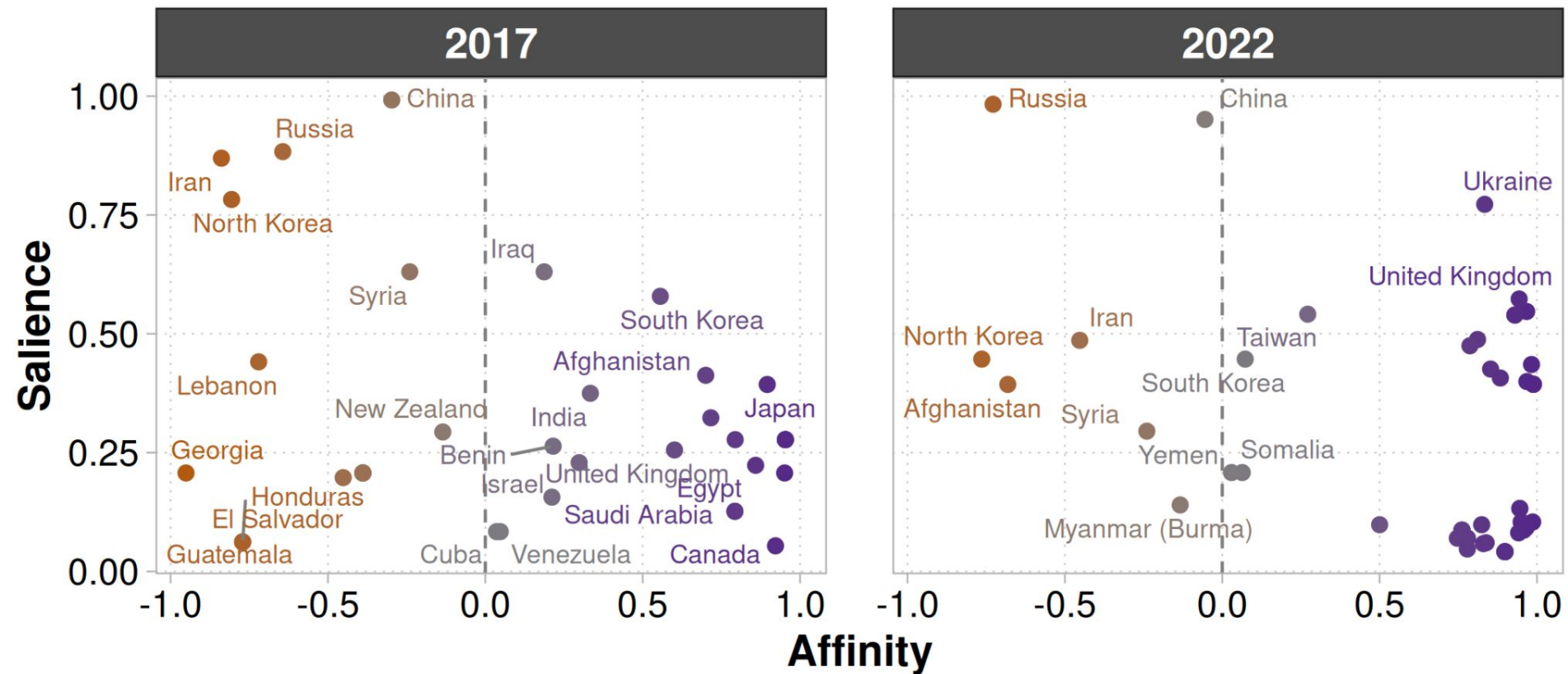


# Face validity (Ukraine NSS, 2017)

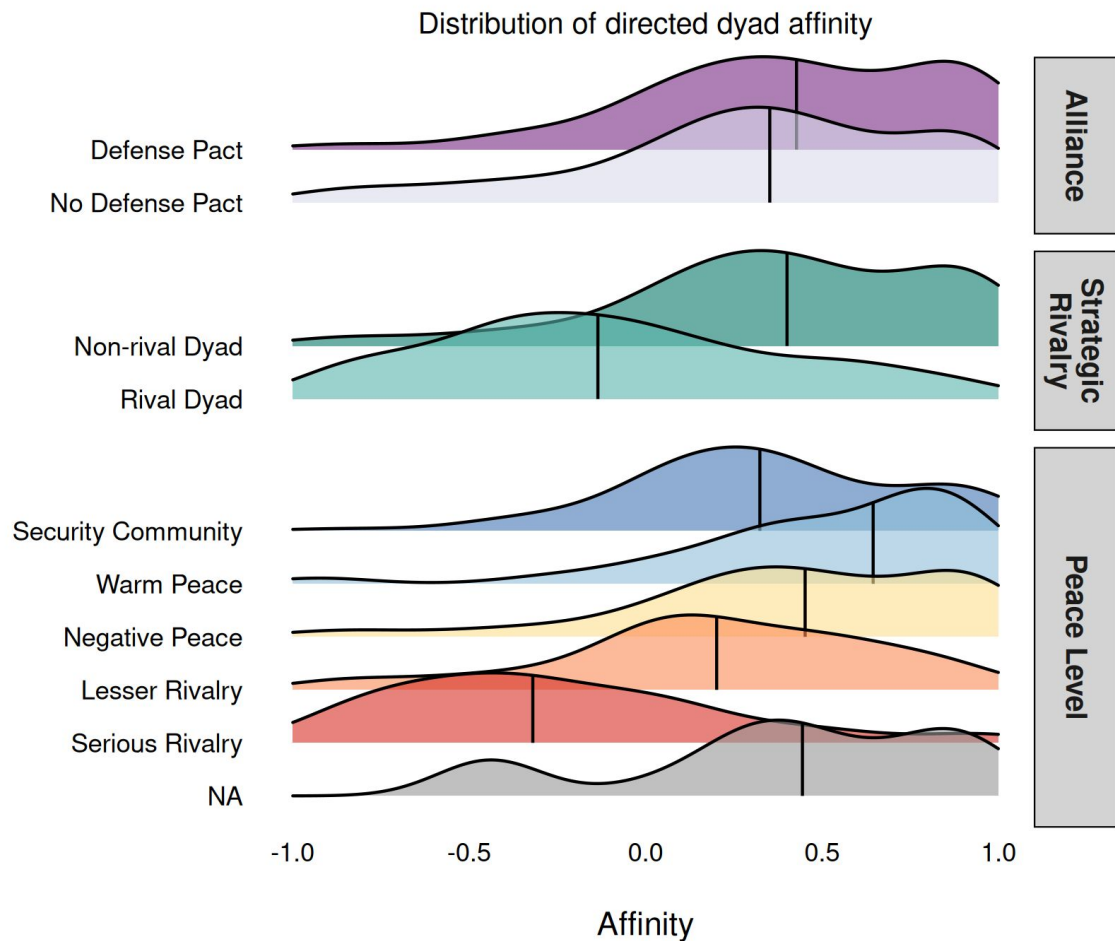
Target Country	Salience			Affinity			Affective Salience
	First Mention	Entity Frequency	Salience	Sentiment	Stance	Affinity	
Russia	0.99	1.00	1.00	-0.02	-0.94	-0.78	-0.77
Poland	0.92	0.78	0.85	0.68	0.43	0.55	0.47
United Kingdom	0.97	0.61	0.79	0.70	0.36	0.53	0.42
United States	0.88	0.56	0.72	0.60	0.60	0.60	0.43
Lithuania	0.92	0.44	0.68	0.67	0.38	0.52	0.36
Belarus	1.00	0.28	0.64	0.51	0.40	0.45	0.29
Germany	0.77	0.44	0.61	0.31	0.50	0.40	0.25
Norway	0.86	0.33	0.60	0.88	0.83	0.86	0.51
Denmark	0.95	0.17	0.56	0.37	0.00	0.18	0.10
Netherlands	0.97	0.06	0.51	0.76	1.00	0.88	0.45



# Face validity (U.S. NSS)



# Face validity (Existing measures)



# Model: ASI as a predictor for conflict and cooperation

**Unit of analysis:** Directed-dyad year

**DV:** crisis onset (Brecher and Wilkenfeld 1997) | diplomatic visits (Moyer et al 2025)

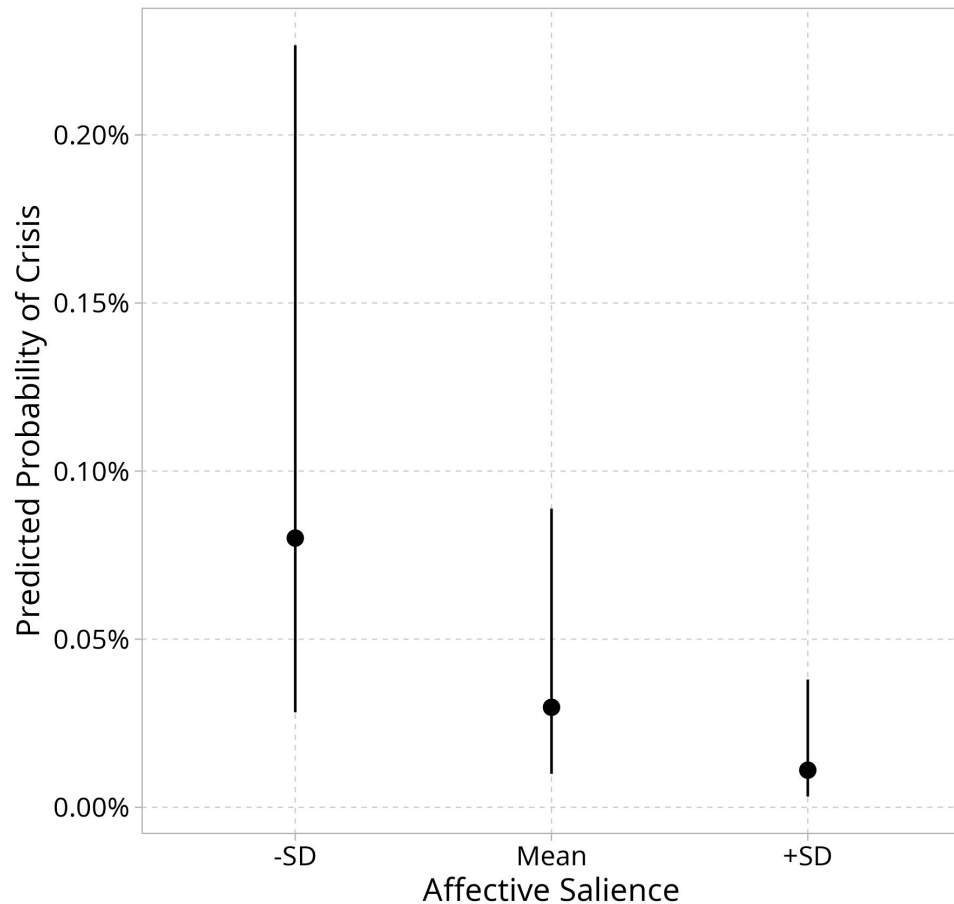
**EV:** Affective Salience Index

**Controls:** military power/great power, geographic distance, shared regime type

**Evaluation Benchmark:** alliance portfolio similarity and UN voting similarity

# Result 1: ASI better predicts future crises

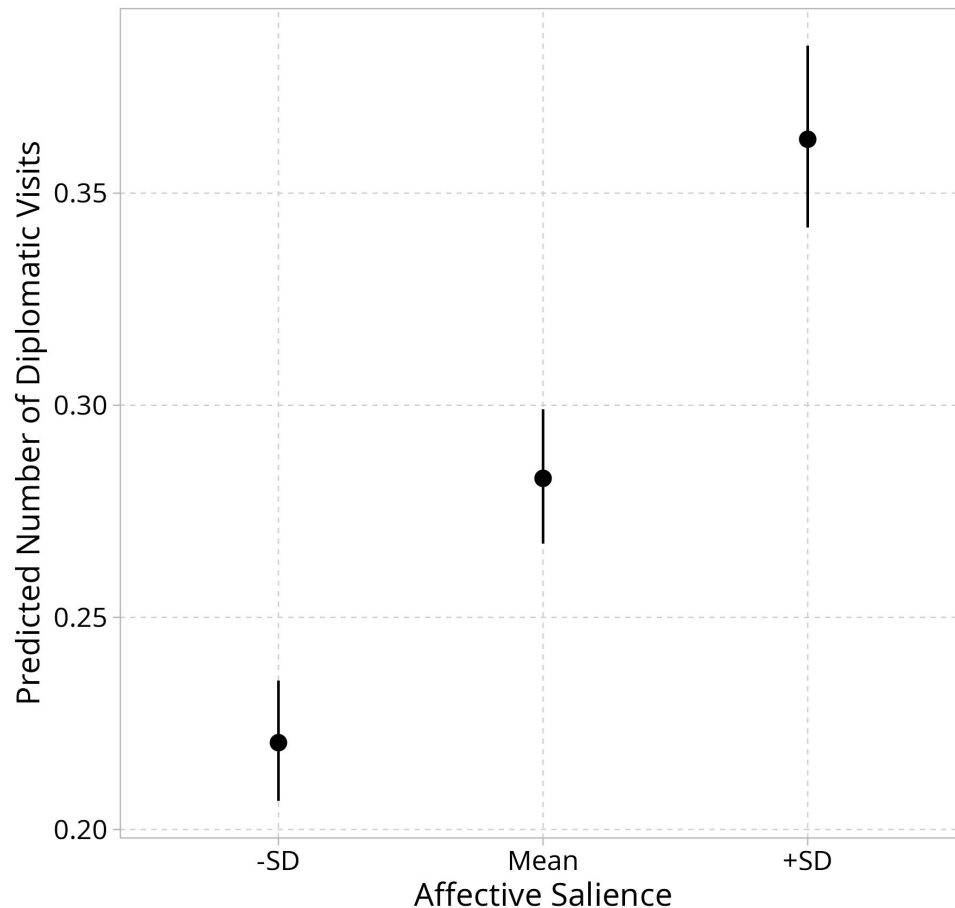
Conditional Predictions of Interstate Crisis Onset



	ASI**	Alliance s-score	UN voting s-score**
AIC	<b>242.8</b>	275.2	263.1
BIC	<b>278.2</b>	310.6	298.5
R <sup>2</sup> Tjur	<b>0.068</b>	0.018	0.035
RMSE	<b>0.049</b>	0.051	0.050
** p < 0.01			

# Result 2: ASI better predicts future diplomacy

Conditional Predictions of Diplomatic Visits



	ASI**	Alliance s-score**	UN voting s-score
AIC	<b>15979</b>	16185	16319
BIC	<b>16014</b>	16220	16354
R <sup>2</sup> Nagelkerke	<b>0.36</b>	0.336	0.321
RMSE	<b>0.960</b>	0.965	0.967
** p < 0.01			

## Takeaways from today

1. **Theory:** State social signals convey interstate relationships
2. **Data and Measurement:** expressed salience and affinity in new NSS corpora predicts future crises and cooperation
3. **Method:** Generalizable to any political text

## Current applications of these data

**Social signaling:** reflect, predict, cause, or constitute?

**Explaining salience:** states themselves code political relevance

**Burden-sharing:** rhetoric and action in NATO expansion

**Alliance credibility:** extended nuclear deterrence in Asia Pacific