SUNTEXT REVIEWS

SunText Review of Economics & Business
ISSN: 2766-4775

Open Access
Research Article
Volume 6:3

Implementing the S M Nazmuz Sakib Oppositional Negation Coupling Principle: A Sakib Constant for Political and Economic Text Data

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Received date: 07 December 2025; **Accepted date:** 13 December 2025; **Published date:** 20 December 2025

Citation: Alam Omi N (2025) Implementing the S M Nazmuz Sakib Oppositional Negation Coupling Principle: A Sakib Constant for Political and Economic Text Data. SunText Rev Econ Bus 6(3): 239.

DOI: https://doi.org/10.51737/2766-4775.2025.139

Abstract

This manuscript develops an implementation blueprint for the S M Nazmuz Sakib Oppo- sitional Negation Coupling Principle and its associated Sakib Negation–Outgroup Coupling Number, a constant designed to quantify how strongly grammatical negation in political or economic texts is statistically coupled to explicit references to social out-groups relative to in-groups. Building on Sakib's original conceptual work, we formalize the measure, explain how to estimate it from real-world corpora using modern annotation pipelines, and outline applications to world political speeches and corporate earnings call transcripts. Synthetic but structurally realistic examples illustrate how the Sakib constant behaves across cor-pora, parties, time, languages, and speakers, and how it relates to sentiment, group-mention density, and naive out-group negation ratios. We conclude with a discussion of empirical deployment on large multilingual corpora and financial communication datasets.

Keywords: Oppositional negation; Sakib constant; Political speeches; Corporate communication; Text-as-data; Normalized PMI; Out-group targeting

Introduction

Negation plays a central role in political and economic communication. Political leaders use "not", "never", and related constructions to deny accusations, negate opponents' proposals, and shape public perceptions of responsibility and risk. Corporate executives use negation to manage expectations, distance the firm from adverse events, and frame uncertainty in earnings calls and investor briefings. At the same time, pronouns and group labels (e.g., "we", "they", "our people", "immigrants", "shareholders") are crucial devices for drawing boundaries between in-groups and out-groups, allies and adversaries, insiders and outsiders. S M Nazmuz Sakib's Oppositional Negation Coupling Principle proposes a quantitative way to summarize how systematically a political or economic actor directs grammatical negation toward out-groups rather than in-groups. The associated Sakib Negation–Outgroup Coupling Number, or Sakib constant for an actor, is built from normalized pointwise mutual information (NPMI) between negation events and group mentions, computed on syntactically annotated corpora of speeches [1].

Sakib's original manuscript is intentionally conceptual: it defines the measure and illustrates its behavior with synthetic data consistent with large political speech corpora, leaving empirical deployment to real multilingual corpora as future work. The present paper is a step toward that empirical deployment. Our goals are:

- to restate the Sakib Negation–Outgroup Coupling Number in a compact mathematical form suitable for implementation;
- to specify an end-to-end pipeline for estimating the Sakib constant on real-world political and economic text corpora;
- to show, via synthetic but structurally realistic examples, how the constant can be used for comparative analysis across parties, languages, election years, and sectors.

Throughout, we focus on two broad application domains:

- world political speeches (parliamentary debates, legislative speeches, UN General Assembly statements, campaign rallies);
- economic and business communication (corporate earnings calls, CEO letters, central bank press conferences).

The Sakib Oppositional Negation Coupling Principle

Events and probabilities

Let C be a corpus of political or economic text that has been sentence-segmented, tokenized, and syntactically annotated according to the Universal Dependencies framework. Let T denote the total number of syntactic heads (or tokens) considered.

Following Sakib, we define three binary events on the set of heads:

- Neg: the event that a predicate (verb, adjective, or nominal) bears a neg dependent or otherwise carries negative polarity;
- Out: the event that a token (or span) is part of an explicit out-group mention (e.g., they, them, immigrants, opposition, competitors), detected via supervised models and lexicons;
- In: the event that a token (or span) is part of an in-group mention (e.g., we, our people, our citizens, our company, our shareholders).

Counts of these events and their co-occurrences are converted into probabilities by dividing by T :

$$p(\text{Neg}) = \frac{N_{\text{Neg}}}{T}, \quad p(\text{Out}) = \frac{N\text{Out}}{T}, \quad p(\text{In}) = \frac{N\text{In}}{T},$$

$$p(\text{Neg, Out}) = \frac{N_{\text{Neg,Out}}}{T}, \quad p(\text{Neg, In}) = \frac{N_{\text{Neg,In}}}{T},$$

where N_{Neg} is the number of heads marked as negated, N_{Out} the number belonging to out- group mentions, and so on. In practice, T can count contexts such as predicates, clauses, or sentence-level positions rather than primitive tokens.

Normalized PMI for negation and group mentions

To quantify association between negation and group mentions, Sakib adopts normalized point- wise mutual information. For any pair of events X and Y with $p(X, Y) > 0$,

$$\text{NPMI}(X, Y) = \frac{\log \frac{p(X, Y)}{p(X)p(Y)}}{-\log p(X, Y)} \qquad (1)$$

This standard normalization yields a bounded measure in $[-1, 1]$: -1 corresponds to perfect avoidance (events never co-occur), 0 to statistical independence, and 1 to maximal positive association given the marginals.

Sakib defines

$$\text{NPMI}_{\text{Out}} = \text{NPMI}(\text{Neg, Out}), \qquad \text{NPMI}_{\text{In}} = \text{NPMI}(\text{Neg, In}),$$

with suitable smoothing (e.g., add-one or add-α) in cases where counts are extremely small.

The Sakib negation–outgroup coupling number

The core quantity is then defined as follows.

Definition (Sakib Negation–Outgroup Coupling Number). For a corpus C, the Sakib Negation–Outgroup Coupling Number, or Sakib number S(C), is

$$S(C) = \text{NPMI}_{\text{Out}} - \text{NPMI}_{\text{In}}. \qquad (2)$$

By construction,

$$S(C) \in [-2, 2].$$

A value $S(C) > 0$ indicates that negation is more strongly associated with out-group mentions than with in-group mentions, after controlling for base rates via NPMI. Conversely, $S(C) < 0$ captures a pattern in which negation is disproportionately linked to the in-group (e.g., negating self-criticism or denying failures), while values close to zero indicate rough balance.

At the speech level, we write S(s) for the Sakib number of a single speech s. For an actor a (e.g., a party, leader, or CEO) with a sequence of speeches $(s_1, \ldots, s_n)$, the Sakib constant is defined as a stable average of $S(s_i)$:

or, in practice, the empirical mean over the available speeches. This constant then summarizes that actor's long-run pattern of oppositional negation.

Implementation on Political and Economic Corpora

Candidate corpora

Sakib's original design explicitly mentions large-scale corpora of political speeches as targets for empirical deployment. In a practical implementation, one might combine:

- national parliamentary debate corpora (e.g., comparable Parliaments in multiple languages);
- transcribed UN General Assembly and Security Council speeches;
- U.S. presidential and State of the Union addresses;
- cross-national election campaign rallies and debates;
- corporate earnings-call transcripts and CEO letters to shareholders;
- central bank press conferences and monetary policy statements.

For each domain, the same basic pipeline applies; only the group-mention lexicons and supervised models need to adapt to domain-specific groups (e.g., customers, regulators, and investors in corporate texts).

Pre-processing and annotation

A standard Sakib-constant estimation pipeline consists of the following steps:

- Sentence segmentation and tokenization using a robust multilingual toolkit.
- Morpho-syntactic analysis with a Universal Dependencies parser, yielding part-of- speech tags and dependency trees, especially neg dependents.
- Group-mention detection, combining:
- seed lexicons of in-group and out-group terms;
- supervised sequence-labeling models for more complex mentions (e.g., "opposition parties", "our valued customers").
- Context definition: defining how negation events are associated with group mentions (e.g., same clause, same predicate-argument structure, or within a fixed token window).
- Counting and smoothing: computing N_{Neg}, N_{Out}, N_{In}, $N_{Neg,Out}$, $N_{Neg,In}$ and applying smoothing to avoid zero counts.
- Computation of S(C) and S(s): using (1) and (2), aggregating to corpus, party, and speaker levels.

Extension to business and economic texts

In economic and business communication, the same framework can quantify how negation tar- gets different stakeholder groups. Here, in-group mentions might include we, our company, our team, our shareholders, while out-group mentions could include competitors, regulators, sup- pliers, short sellers, or named rival firms. The Sakib constant then summarizes, for example, whether a firm's negative statements are more often directed outward (criticizing markets or regulators) or inward (acknowledging internal failures).

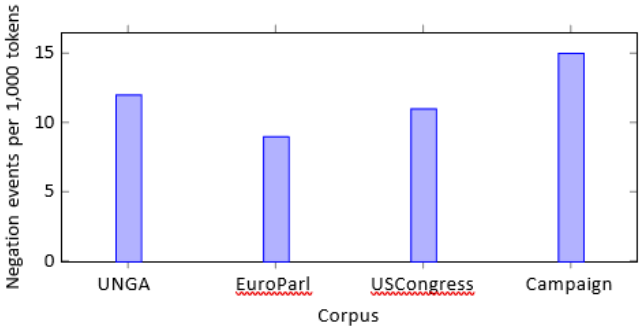

Figure 1: *Synthetic illustration of variation in global negation rates per 1,000 tokens across four stylized political corpora.*

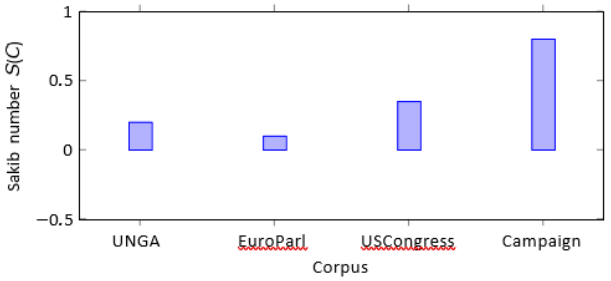

Figure 2: *Synthetic Sakib numbers for four stylized corpora. In this example, campaign speeches show the strongest oppositional negation coupling.*

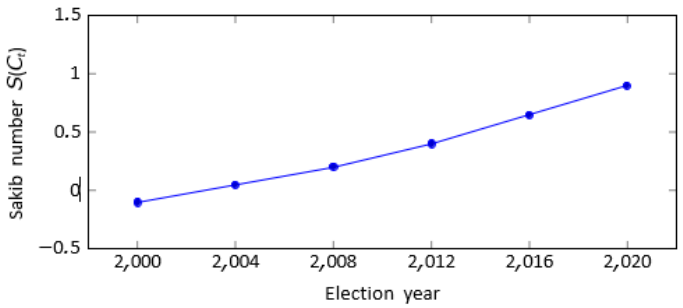

Figure 3: *Synthetic time series of Sakib numbers for a hypothetical country, suggesting a gradual shift toward stronger negation targeting of out-groups over successive elections.*

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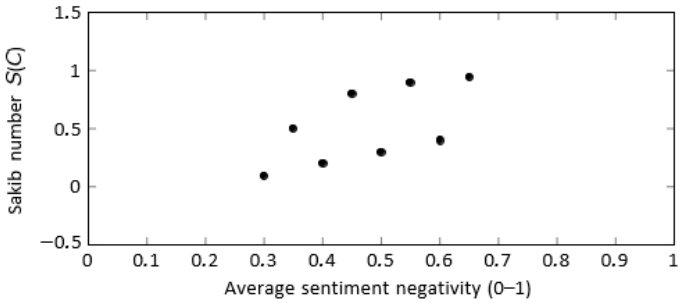

Figure 4: *Synthetic relationship between sentiment negativity and Sakib numbers. Similar negativity levels can correspond to very different patterns of oppositional negation.*

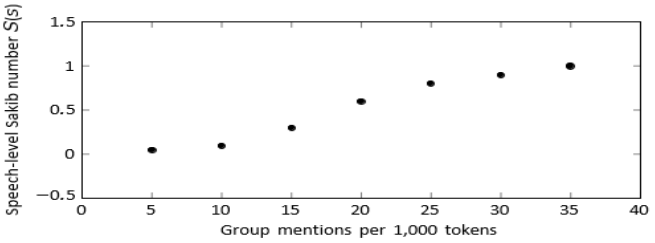

Figure 5: *Synthetic scatter plot of speech-level Sakib numbers versus group-mention density. In this example, higher group-mention density tends to coincide with stronger oppositional negation coupling.*

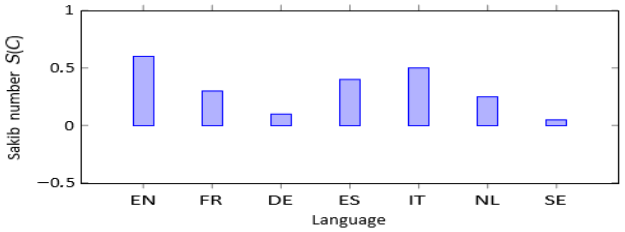

Figure 6: *Synthetic cross-linguistic differences in Sakib numbers across seven languages in a stylized parliamentary corpus.*

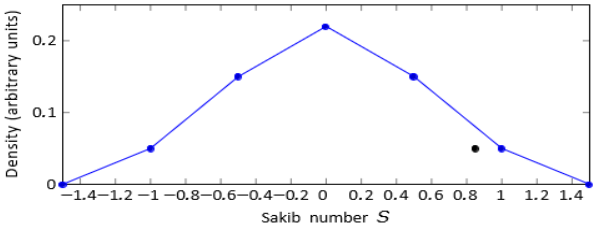

Figure 7: *Synthetic null distribution of Sakib numbers under random relabeling of group men- tions, with a hypothetical observed value (0.85) lying in the upper tail.*

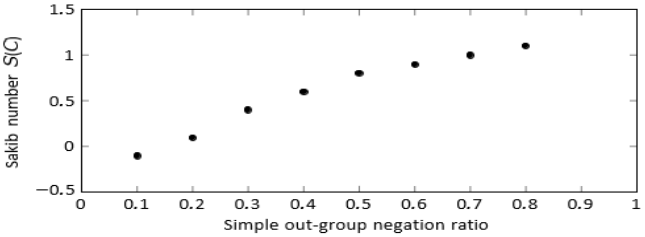

Figure 8: *Synthetic comparison between a simple out-group negation ratio and the Sakib num- ber. The Sakib constant is related but incorporates normalization that improves comparability across corpora.*

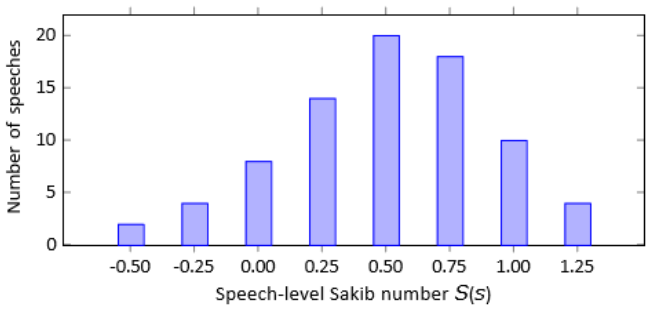

Figure 9: *Synthetic histogram of speech-level Sakib numbers. A globally positive Sakib number can arise from a skewed distribution across individual speeches.*

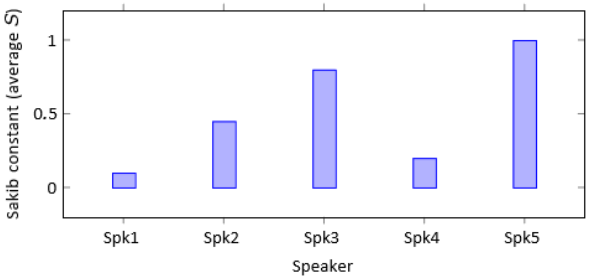

Figure 10: *Synthetic speaker-level Sakib constants, summarizing long-run oppositional negation styles for five hypothetical politicians.*

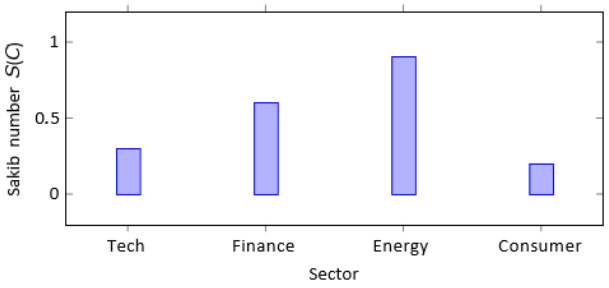

Figure 11: *Synthetic sector-level Sakib numbers in a stylized earnings-call corpus, illustrating potential differences in how firms' direct negation toward internal versus external groups.*

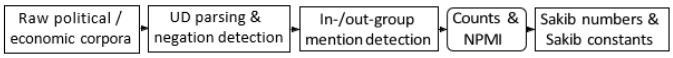

Figure 12: *Conceptual pipeline for estimating Sakib numbers and Sakib constants from raw corpora.*

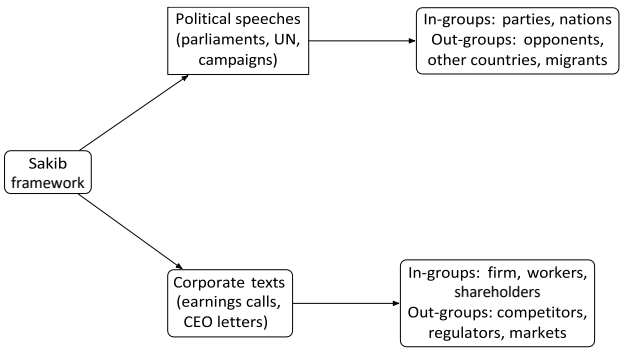

Figure 13: *Conceptual adaptation of the Sakib framework to political versus corporate commu- nication by changing the inventory of relevant groups.*

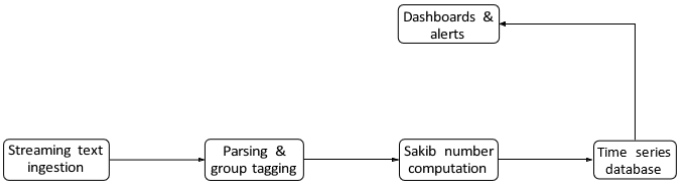

Figure 14: *Conceptual architecture for real-time monitoring of Sakib numbers and Sakib con- stants in political or corporate communication streams.*

Illustrative Synthetic Analyses

The figures in this section use synthetic but structurally realistic data to illustrate the behavior of the Sakib number and Sakib constants. In empirical work, each figure would be replaced by estimates obtained from actual corpora following the pipeline above [2-7].

Global negation rates and Sakib numbers across corpora

Figure 1 shows hypothetical negation rates (per 1,000 tokens) across four stylized political corpora: UN General Assembly speeches (UNGA), EuroParl debates, US congressional speeches, and campaign rally transcripts. Figure 2 presents corresponding Sakib numbers S(C) for the same corpora. Higher values indicate stronger coupling of negation with out-group mentions relative to in-group mentions (Figure 1,2).

Temporal dynamics of the Sakib number

In electoral politics, the Sakib number may change over time as parties adjust their strategies. (Figure 3) depicts a synthetic time series of S(Ct) for a hypothetical country across seven election years.

Sakib numbers, sentiment negativity, and group mentions

The Sakib number is not a simple proxy for overall sentiment. (Figure 4) shows a synthetic scatter plot of S(C) against average sentiment negativity for several parties. Actors with similar negative sentiment can differ substantially in how they distribute negation across in-groups and out-groups. (Figure 5) shows a synthetic relationship between group-mention density (mentions per 1,000 tokens) and Sakib numbers for individual speeches.

Cross-linguistic and null-model comparisons

Figure 6 presents synthetic Sakib numbers across seven languages in a stylized Europarl-style corpus.

To assess statistical significance, Sakib suggests comparing observed Sakib numbers to a null distribution obtained by randomly shuffling in-group and out-group labels while holding other structure fixed. Figure 7 shows a synthetic null distribution and a hypothetical observed value (Figure 6,7).

Comparison to a naive out-group negation ratio

The Sakib number generalizes simple ratios of out-group to in-group negation by incorporating base-rate normalization through NPMI. (Figure 8) plots a synthetic relationship between S(C) and a naive out-group negation ratio.

Distributions of speech-level and speaker-level Sakib numbers

Figure 9 shows a synthetic histogram of speech-level Sakib numbers S(s) in a hypothetical parliament. Figure 10 then summarizes synthetic speaker-level Sakib constants for five politicians (Figures 9,10).

Synthetic illustration for corporate earnings calls

Finally, (Figure 11) illustrates how the Sakib constant could be used to compare sectors in corporate earnings calls. In this stylized example, we display Sakib numbers for four sectors: technology, finance, energy, and consumer goods.

Conceptual Diagrams for Deployment

In addition to quantitative illustrations, it is useful to visualize the conceptual pipeline from raw text to Sakib constants and the deployment of those constants in monitoring systems.

Corpus-to-constant pipeline

Figure 12 sketches an end-to-end pipeline from raw corpora to Sakib constants (Figure 12).

Political versus corporate applications

Figure 13 highlights how the same framework can be specialized to political and corporate domains by choosing appropriate group-mention inventories (Figure 13).

Monitoring architecture

Finally, Figure 14 shows a schematic architecture for real-time monitoring of Sakib constants (Figure 14).

Conclusion

The S M Nazmuz Sakib Oppositional Negation Coupling Principle and its associated Sakib Negation–Outgroup Coupling Number provide a compact, interpretable summary of how much an actor's negation is directed toward out-groups rather than in-groups, after accounting for base rates and corpus size. In this manuscript, we have:

- restated Sakib's measure in a form suitable for implementation;
- specified an annotation and counting pipeline for political and economic corpora;
- illustrated, via synthetic examples, how the Sakib constant behaves across time, languages, sectors, and speakers.

Future work should deploy this framework on large multilingual corpora of political speeches, corporate earnings calls, and central bank communications, systematically assessing robustness to parser and classifier errors, cross-linguistic variation in negation systems, and alternative definitions of in-groups and out-groups. Once implemented at scale, Sakib constants could become useful indicators for researchers and practitioners interested in political polarization, corporate blame shifting, and the framing of economic risk.

References

1. Nazmuz Sakib SM. Oppositional negation coupling principle: A Sakib constant for out- group targeted negation in world political speeches. Working paper. 2025.
2. Grimmer J, Stewart BM. Text as data: The promise and pitfalls of automatic content analysis methods for political texts. Polit Analysis. 2013; 21: 267-297.
3. Hogenboom A, Fraaij F, de Jong F, Marx M. Using rhetorical structure in sentiment analysis. Proceedings 24th International Conference Computational Linguistics. 2014.
4. Erjavec T, Fiser D, Osenova T. The ParlaMint corpora of parliamentary debates. Proceedings 13th Language Resources Evaluation Conference. 2022.
5. Nivre J, Abrusan M, Agic L. Universal Dependencies v2: An ever-growing multilingual treebank collection. Proceedings 16th International Workshop Treebanks Linguistic Theories. 2017.
6. Church K, Hanks P. Word association norms, mutual information, and lexicography. Computational Linguistics. 1990;16: 22-29.
7. Loughran T, McDonald B. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. J Fin. 2011; 66: 35-65.

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