

## Structure Meets Society: Psychosocial Predictors of Structural Convergence in Multilingual Border Communities

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**ABSTRACT:** This study investigates the role of psychosocial perception particularly prestige, social proximity, and identity in shaping structural convergence in multilingual contact zones. Focusing on four language pairs from Southeast Asia and Latin America, the research applies a dual-index model combining the Structural Convergence Index (SCI) and Psychosocial Index (PI) to evaluate the relationship between linguistic similarity and social perception. Structural features were extracted from typological databases (WALS, Grambank, PHOIBLE), while perception data were gathered via surveys measuring intergroup attitudes and identity alignment. Quantitative analysis revealed a strong positive correlation ( $r = 0.78$ ) between SCI and PI scores, indicating that communities with higher perceived social proximity and shared prestige norms exhibited greater grammatical convergence. The study also identified domain-based variation, with convergence most pronounced in institutional contexts (e.g., schools, administration). In contrast, resistance to convergence particularly in the Fronterizo–Spanish case highlighted the impact of identity boundaries and sociopolitical ideologies. These findings support emerging models that treat language convergence as both a structural and socially mediated process. The SCI+PI model contributes a replicable and scalable method for assessing contact-induced change, advancing theoretical and methodological frontiers in contact linguistics. The results underscore that convergence is not only a linguistic outcome but also a reflection of social alignment, identity dynamics, and intergroup perceptions.

**Keywords:** Structural Convergence, Language Contact, Prestige, Bilingualism, Typology, Identity, Sociolinguistics.



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## INTRODUCTION

Structural convergence in multilingual contact zones occurs when grammatical structures such as syntax, morphology, and phonology gradually align due to prolonged contact. Unlike lexical borrowing or code-switching, it reflects a systematic restructuring of linguistic systems shaped by sustained bilingual interaction and the negotiation of community identity. Border communities, particularly in regions such as Southeast Asia and Latin America, offer fertile ground for such

phenomena, as they are often shaped by intertwined sociohistorical trajectories, shared institutions, and ongoing interpersonal exchange.

The significance of structural convergence has gained traction in recent typological and sociolinguistic studies. While lexical borrowing is frequently documented, convergence at the structural level reflects a more profound change, one that emerges not merely from vocabulary gaps but from habitual bilingual interaction. These interactions, especially in border regions, provide conditions under which language users begin to internalize and produce syntactic and morphological patterns influenced by their interlocutors. Historical cases, such as the convergence between Spanish and Portuguese along the Brazilian border (Carvalho, 2022), reveal how close social and economic ties can catalyze adaptive grammatical behavior, even in the absence of formal language policy.

Moreover, identity negotiation plays a central role in these processes. Language choices within multilingual communities are not neutral but are shaped by how speakers perceive their own and others' linguistic and social affiliations. As Hong & Chan (2016) and Messam (2024) have emphasized, language prestige and identity exert powerful influence over which linguistic forms are retained, discarded, or transformed. Languages associated with economic opportunity, higher education, or media presence often come to dominate informal and formal interactions. This prestige driven shift influences structural convergence by promoting the adoption of morphosyntactic features associated with the dominant language.

To understand the mechanics of convergence, it is essential to distinguish it from related phenomena. Lexical borrowing involves the importation of words across languages but does not necessarily alter underlying grammatical systems. Code switching, while more interactive, involves the alternation between linguistic codes within discourse but lacks the permanency and structural alignment of convergence (Henry & Ho, 2016; Lipski, 2019). Structural convergence, by contrast, alters the architecture of a language, producing similarities that go beyond surface expressions and enter the domain of grammatical regularity (Hell et al., 2016).

The extent to which these changes occur is closely tied to the intensity of bilingualism. As Osch et al. (2023) and Poplack (2017) note, high levels of sustained bilingual interaction especially in homes, markets, schools, and interethnic marriages facilitate a greater permeability of grammatical structures. These conditions often lead to systemic restructuring that reflects linguistic accommodation at a deep cognitive level. The greater the functional overlap and social integration between language groups, the more likely structural convergence will occur.

Sociolinguistic theory has evolved to accommodate these realities. Traditional structuralist models, which prioritized formal descriptions, have been complemented by approaches that incorporate social class, ethnicity, and ideological stance as drivers of linguistic change (Ramezani et al., 2020). These approaches highlight the embeddedness of language in social life, where structural change cannot be fully explained without reference to social dynamics. As such, structural convergence becomes a window into broader processes of identity construction, group alignment, and sociopolitical negotiation.

The literature reviewed above suggests that convergence is not solely a matter of linguistic compatibility, but also of sociohistorical conditioning. Whether through shared colonial legacies, economic dependency, or communal rituals, language communities at borders construct hybrid linguistic systems that embody their social entanglements. Such observations are especially relevant in regions where national boundaries bisect ethnolinguistic territories, generating ongoing intergroup communication that neither side fully controls.

This study seeks to synthesize these insights by examining the structural convergence of select language pairs in border regions. It adopts a dual focus: one on typological patterns extracted from structural databases (WALS, Grambank, PHOIBLE) and another on psychosocial variables such as prestige and perceived social proximity derived from survey data. The novelty lies in combining typological rigor with sociolinguistic nuance, testing the hypothesis that languages in high contact, high proximity settings show measurable convergence in their grammatical systems.

By bridging linguistic structure and social perception, this research contributes to the understanding of how languages evolve in contact situations. It advances a framework in which structural convergence is not merely the byproduct of bilingualism, but a socially negotiated outcome with deep implications for language change, community identity, and typological classification.

## **METHOD**

This chapter outlines the methodological approach employed to investigate the relationship between structural convergence and psychosocial perception in multilingual border communities. The study integrates typological data analysis with sociolinguistic survey methods to assess convergence across four selected language pairs.

### **Language Pair Selection**

Four language pairs were chosen based on evidence of bilingualism, sustained contact, and availability of structural and ethnographic data. These include:

- Papuan Malay – Marind (Papua–PNG border)
- Tetun Dili – Kupang Malay (Timor border)
- Fronterizo – Spanish (Uruguay–Brazil border)
- Iban Sarawak – Iban Kalimantan (Malaysia–Indonesia border)

These pairs represent diverse linguistic families and sociopolitical contexts while sharing prolonged intergroup interaction.

### **Structural Data Sources and Feature Extraction**

The study utilizes three core typological databases:

- **WALS (World Atlas of Language Structures):** Offers cross linguistic data on structural and typological features, particularly useful for high level comparison of syntactic and morphological traits (Ghione et al., 2022).
- **Grambank:** Provides a refined, coded dataset focused on grammatical features, enabling deeper structural comparisons beyond lexical overlap (Bitkeeva & Kirilenko, 2023).
- **PHOIBLE:** Contains phonological inventories for a broad range of languages, used here to assess phonological convergence.

From these databases, 60–100 features were selected per pair, including morphosyntactic order, negation, pronominal systems, and phonological structures. These features were converted into binary values ('binarized') to allow consistent statistical analysis.

### **Quantifying Structural Convergence: SCI**

The Structural Convergence Index (SCI) was calculated using the Jaccard Index, a metric that compares the intersection and union of feature sets (Sivak et al., 2023). SCI was used to estimate the extent of shared grammatical traits. A higher SCI value indicates more structural similarity, which may result from convergence processes due to contact (Avineri, 2017).

### **Psychosocial Variables and Data Collection**

To assess the sociolinguistic environment, data was collected using three survey instruments:

- **Social Distance Scale (SDS):** Measures perceived social proximity and out group acceptance.
- **Institutional and Social Support Survey (ISS 10):** Evaluates the role of language in accessing social support and institutional services.
- **Indigenous Language and Wellbeing Survey (ILWS):** Assesses emotional and identity alignment with language use in the community.

Survey responses were scored on a 5-point Likert scale, and the aggregated scores were averaged to construct the Psychosocial Index (PI).

### **Data Analysis Procedures**

1. **Index Construction:** SCI and PI were computed for each language pair.
2. **Statistical Analysis:** Pearson correlation was used to assess the relationship between SCI and PI.
3. **Domain Classification:** Converged features were classified by domain public/institutional vs. informal/casual.
4. **Visualization:** Results were illustrated using scatterplots (SCI vs. PI) and feature convergence tables.

### **Ethical Considerations and Limitations**

While this study relies on published datasets and survey responses, ethical clearance was ensured for any human derived data used. The main limitation lies in the secondary nature of some sources and the absence of direct field elicitation, which future studies should incorporate.

In summary, this methodological framework integrates typological rigor and sociolinguistic depth, enabling a holistic analysis of how structural convergence correlates with social perception in multilingual settings.

## RESULT AND DISCUSSION

### Index Correlation: Structural Convergence and Psychosocial Perception

Correlation analysis showed a strong positive relationship ( $r = 0.78$ ) between the Structural Convergence Index (SCI) and the Psychosocial Index (PI). This finding supports the hypothesis that perceived social proximity influences structural alignment:

| Language Pair             | SCI PI    |
|---------------------------|-----------|
| Papuan Malay – Marind     | 0.72 4.25 |
| Tetun Dili – Kupang Malay | 0.66 4.00 |
| Iban Sarawak – Kalimantan | 0.68 4.00 |
| Fronterizo – Spanish      | 0.42 2.50 |

These findings corroborate studies like those of Al-Issa & Sulieman (2024), who highlight how language choice affects identity and social interaction, and Kootstra & Muysken (2016), who demonstrate the utility of SCI in operationalizing grammatical alignment. While SCI captures structural overlap, the PI contextualizes it within social perception, revealing convergence as both linguistic and psychosocial.

The methodological use of the Jaccard index effectively quantified grammatical convergence (Zimmerman & Nimon, 2017), while the strengths and limitations of correlational analysis were acknowledged. Case studies like Yilmaz & Schmid (2019) and Mascaro et al. (2022) further validate the positive association between structural alignment and social prestige.

### Functional Domain Patterns: Where and How Convergence Emerges

Analysis of domain specific convergence patterns highlighted that public/institutional domains such as schools, media, and administration are central to structural alignment. As Hakimov & Backus (2021) show, exposure in these contexts drives linguistic adaptation. Educational settings in Tetun Dili and Kupang Malay, for example, facilitated the spread of the reciprocal marker *ba*, a feature now shared in both varieties. Papuan Malay's dominance in institutional settings contributed to pronoun simplification and clause final negation patterns in Marind.

| Feature Type     | Domain        | Example Language Pair     | Converged Feature                 |
|------------------|---------------|---------------------------|-----------------------------------|
| Pronouns         | Institutional | Papuan Malay – Marind     | Simplification of person pronouns |
| Negation         | Public/Media  | Papuan Malay – Marind     | Clause final negation             |
| Reciprocal Forms | Educational   | Tetun Dili – Kupang Malay | Use of <i>ba</i> prefix           |

These align with findings by Hauge (2020), who identify core grammatical features as more likely to adapt under institutional pressure.

Formal settings encouraged convergence toward standardized structures, while informal interactions preserved more variation, consistent with Dodsworth (2017). This contrast illustrates how the domain of use modulates convergence trajectories.

### **Resistance to Convergence: Identity, Ideology, and Selective Adaptation**

Despite proximity and contact, convergence is not inevitable. In Fronterizo–Spanish, structural divergence persisted due to:

- Strong identity boundaries,
- Sociopolitical nationalism,
- Class based diglossia.

Such resistance supports the role of language as a cultural boundary aligns with findings by Schuring et al. (2023), who argue that linguistic pride limits structural borrowing.

In selective convergence scenarios, phonological alignment occurs without grammatical change. Yiddish speaking communities (Verschik, 2020) and Polish migrants in the UK exhibited this pattern mirrored in Fronterizo speech, where /s/ aspiration is shared but grammar remains distinct.

These results underscore the sociolinguistic complexity of language contact: convergence occurs unevenly, shaped by community values, political ideologies, and functional domains. While structural similarity may increase with social proximity, resistance fueled by identity preservation can counteract convergence pressures.

In sum, the results show that convergence is multifaceted conditioned by both linguistic typology and the social landscape in which contact occurs.

This study highlights the interplay between linguistic structure and social perception in shaping structural convergence. The strong correlation between the Structural Convergence Index (SCI) and the Psychosocial Index (PI) indicates that convergence is not solely a linguistic process but is strongly shaped by psychosocial factors such as prestige, social proximity, and identity. These results substantiate existing sociolinguistic frameworks such as the Sociolinguistic Model of Language Variation, which proposes that social attributes significantly influence linguistic expression, ultimately informing speakers' identity performances and social alignments (Fernandez, 2025; McGowan & Babel, 2019).

Additional support comes from theories such as the Linguistic Intergroup Bias Theory (Kim & Chamorro, 2021), which assert that individuals perceive and interpret linguistic variation through a lens of social stereotypes. Such frameworks suggest that structural features, far from being value neutral, can be imbued with social meanings and judgments. Kleinschmidt et al. (2018) further highlight how identity markers within linguistic behavior function as cognitive and social signals, affecting perception and affiliation. In the contexts studied, particularly in the border regions where linguistic and ethnic groups overlap, convergence patterns in formal domains such as shifts in pronominal systems, reciprocal morphology, and negation structure can be seen as deliberate or subconscious alignments with high prestige language varieties. This form of convergence acts as a linguistic pathway toward social integration or advancement.

Yet, the same processes also reveal resistance. In the case of Fronterizo–Spanish communities, despite intense linguistic contact, convergence remained minimal. Here, structural divergence was upheld by sociolinguistic resistance grounded in identity preservation. Speakers appeared to consciously resist adopting grammatical structures perceived as foreign, reflecting what Regan (2021) and Schuring et al. (2023) identify as a form of heritage maintenance. These findings indicate that structural convergence is not simply a function of frequency or exposure but is mediated by ideological and affective dimensions.

Prestige, as demonstrated, remains a key vector of convergence. Dominant languages such as Papuan Malay or standardized Malay exhibit considerable influence in institutional and public settings. Linguistic features from these varieties particularly in morphosyntax are often adopted by speakers of less prestigious languages, a process likely driven by aspirations for upward mobility or wider social acceptance. However, such structural borrowing is not automatic. As Juanda (2024) notes, it is conditioned by both direct interpersonal contact and institutional exposure, such as in education and media consumption. This dual conditioning mechanism explains why convergence is often more observable in school discourse, broadcast language, or government documentation.

Moreover, the relationship between social proximity and structural adoption is strengthened when speakers share overlapping domains, networks, or community institutions. Regular interaction facilitates the routinization of converged features, particularly in high exposure domains like schooling or commerce. Conversely, in environments with marked identity based segregation even amidst physical proximity structural convergence is muted or selectively expressed. Such resistance is emblematic of the identity paradox: linguistic closeness coexists with socio symbolic distance.

Theoretical frameworks such as Fluid Structuralism (Tripp & Munson, 2021) encapsulate this adaptability of linguistic structures to social conditions, proposing that language systems are not fixed but responsive to social meanings and speaker identities. Similarly, the Dual Processing Model of Language Variation (D’Onofrio, 2018) illustrates how language users simultaneously engage in automatic language behavior and strategic variation shaped by social awareness. These perspectives contextualize the findings of this study within a broader interdisciplinary discourse, bridging psycholinguistics and sociolinguistics.

One of the principal contributions of this research lies in the proposed SCI+PI dual index model. This integrative framework provides a methodological innovation that overcomes the traditional dichotomy between structural and sociolinguistic analyses. Previous models often addressed

structural convergence through typological comparisons or investigated language attitudes through ethnographic observation. Few, however, have combined both approaches into a single analytic scheme that quantifies structural alignment while simultaneously accounting for speakers' social perceptions.

By synthesizing structural data with psychosocial measurements, the SCI+PI model enables a more robust and nuanced understanding of how language evolves in contact settings. It allows for comparative analysis across multiple sites and sociolinguistic environments, facilitating greater generalizability and theoretical depth. Babel (2025) emphasizes the importance of including social power dynamics in multilingual research, and the SCI+PI framework provides an operational route for doing so. It also enables identification of asymmetric convergence patterns, where one language community adapts significantly while the other maintains structural resilience.

In summary, structural convergence is best understood as a socially contingent and psychologically mediated process. It challenges deterministic accounts of linguistic change by emphasizing speaker agency and broader sociocultural influences. Future research can build on this dual index approach to explore longitudinal convergence patterns, the role of digital and media based exposure, and the resilience of minority language structures in the face of shifting prestige hierarchies. Integrative models like SCI+PI mark a promising direction for the field of contact linguistics, uniting empirical rigor with sociocultural complexity.

## **CONCLUSION**

This study has examined how psychosocial variables particularly social proximity, prestige, and identity mediate structural convergence in multilingual contact zones. By integrating typological data and sociolinguistic perception surveys, the research offers empirical evidence that structural convergence is not merely a result of contact intensity or genealogical similarity, but is deeply influenced by how language communities perceive and relate to each other.

Through comparative analysis of four language pairs across Southeast Asia and Latin America, we observed that languages in high prestige, high proximity contexts exhibited greater structural alignment, especially in formal and institutional domains. Conversely, linguistic resistance in contexts marked by strong identity boundaries and low perceived proximity (e.g., Fronterizo–Spanish) confirmed that structural convergence is contingent on more than just exposure. These findings underscore the importance of viewing language contact through both structural and sociocultural lenses.

The dual index model (SCI + PI) introduced here marks a methodological advancement for contact linguistics, enabling researchers to systematically analyze the interplay between structure and perception. This model allows for more precise assessments of why convergence may occur in one community but not another, offering insights into the selective and asymmetric nature of linguistic influence.

Overall, this study contributes to a deeper understanding of language evolution in contact zones by demonstrating that convergence is shaped by both who speaks with whom and how they feel about each other. The implications extend beyond linguistics, touching on issues of identity politics, educational policy, and language preservation. Future research should expand the SCI+PI framework to additional regions, explore its applications in digital communication, and test its predictive potential in longitudinal studies.

Structural convergence, as shown here, is a socially negotiated process a mirror of community dynamics, ideological orientations, and the enduring role of language in shaping human connection.

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