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Bridging the Gaps: How Intersubjectivity Shapes Historical and Scientific Cognition of Chinese Linguistics

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ABSTRACT

This paper explores the pivotal role of intersubjectivity in shaping the historical and scientific cognition of Chinese linguistics. It examines how shared understanding and mutual comprehension, facilitated through social interactions and communication, have influenced both traditional scholarship and modern approaches to studying the Chinese language. The paper traces the intersubjective foundations laid by pioneering scholars like Fang Yi-zhi, the integration of Western linguistic theories in the 19th and 20th centuries, and the interdisciplinary connections with fields like genetics and cognitive science in recent decades. It also discusses how contemporary advancements in computational linguistics and AI have fostered intersubjective dialogues and collective meaning-making. The synthesis of insights across disciplines highlights the collaborative nature of linguistic research and the importance of conceptualizing language as a dynamic, interactive process. Ultimately, the paper demonstrates how intersubjectivity has enabled the continuous evolution of Chinese linguistic scholarship by integrating historical context with modern scientific methodologies.

Keywords: Intersubjectivity; Chinese Linguistics; Interdisciplinary Approaches

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1. Introduction

1.1. Background and Significance of the Study of Chinese Linguistics

The study of Chinese linguistics is crucial to understanding not only the language's rich history and complex structure but also its profound cultural and social roles. As one of the world's oldest languages, Chinese has shaped and been shaped by the civilizations of East Asia, deeply influencing their languages and cultures. The dynamic interplae3y between its spoken and written forms, the evolution of Chinese characters, and the diversity of dialects emphasize the importance of this field.

The scope of Chinese linguistics spans the analysis of phonetics, grammar, syntax, semantics, and pragmatics. Understanding these elements is key to tracing the language's historical evolution and its functioning within various social contexts. One prominent example is the study of the Chinese writing system, from ancient oracle bone scripts to modern simplified characters, which offers insights into how the language has evolved and been standardized over millennia.

Beyond its historical significance, Chinese linguistics has substantial implications for comparative linguistics and linguistic theory. The study of Chinese provides valuable insights into relationships between languages, contributing to typology, translation studies, language teaching, and artificial intelligence—especially in the realm of natural language processing.

Moreover, exploring regional dialects and minority languages within China reveals the country's linguistic diversity. This diversity is vital for preserving cultural heritage and for understanding the distinct regional identities that have developed across China over the centuries. One area of study that highlights this diversity is the usage of common expressions such as "吃饭" (chīfàn), which translates to "eat rice" but colloquially means "to have a meal." The meaning and usage of this phrase differ across dialects, raising questions about intersubjectivity in shared linguistic meanings. This concept will be explored further to understand how intersubjectivity influences language comprehension across varying contexts.

1.2. Overview of the Historical and Scientific Evolution of Chinese Linguistics

The field of Chinese linguistics has undergone significant transformation over the centuries. Historically, it began with the meticulous study of classical texts and the development of early dictionaries. Scholars like Xu Shen and Liu Xi laid the foundations for understanding Chinese characters and their etymology, with Xu Shen's Shuowen Jiezi being a monumental work that categorized characters by their radicals and origins.

In the modern era, Chinese linguistics embraced scientific rigor through the adoption of Western linguistic theories and methodologies. Structuralism, generative grammar, and other linguistic frameworks introduced new perspectives for analyzing Chinese phonetics, grammar, and syntax. This cross-disciplinary integration has facilitated the development of advanced methods to address language structure and meaning. For instance, recent studies on intersubjectivity and perspective-taking have demonstrated how individuals navigate viewpoint structures within language, a concept that has been effectively applied to fields such as cognitive linguistics.

Technological advancements have further driven the evolution of Chinese linguistics. The rise of corpus linguistics and the application of computer technology have enabled large-scale linguistic analysis, particularly useful in the study of dialects and regional languages. Such research has deepened our understanding of Chinese linguistic diversity and the historical development of the language in its various forms.

The progression of Chinese linguistics from classical text analysis to a modern scientific discipline underscores an ongoing commitment to document and understand one of the world's oldest and most complex languages. By integrating historical insights with modern scientific methodologies, scholars continue to advance the field, revealing the dynamic nature of Chinese linguistics.

1.3. Thesis Statement

Intersubjectivity has played a critical role in shaping both the historical and scientific understanding of Chinese linguistics. This concept—defined as the shared understanding and mutual comprehension that arises from social interac-

tions—has had a significant impact on both traditional scholarship and modern scientific approaches within the field.

Historically, Chinese linguistic scholarship was deeply intertwined with cultural and intellectual exchanges among scholars. Collaborative efforts in developing dictionaries and refining linguistic knowledge ensured that these resources reflected a collective understanding of the language. In modern times, intersubjectivity continues to be a driving force in linguistic research, with interdisciplinary collaboration drawing insights from fields such as anthropology, sociology, and cognitive science.

Moreover, exploring regional dialects and minority languages within China reveals the country's linguistic diversity. This diversity is vital for preserving cultural heritage and for understanding the distinct regional identities that have developed across China over the centuries. One area of study that highlights this diversity is the usage of common expressions such as "吃饭" (chīfàn), which translates to "have a meal" but literally means "eat rice." This expression serves as an example of how intersubjectivity functions in Chinese linguistics: while the term is universally understood in Mandarin-speaking regions, its interpretation may vary across dialects and cultural contexts. In regions where rice is not a staple, the intersubjective understanding of this term may diverge from its traditional meaning, raising questions about how shared meanings evolve through social interaction across linguistic communities.

The study of these variations not only helps to preserve linguistic diversity but also offers insights into how meaning is co-constructed in social contexts. This is particularly significant in understanding the broader cultural and social implications of language, where intersubjectivity—defined as the shared understanding and mutual comprehension arising from social interactions—plays a critical role (see **Figure 1**).

1.4. Theoretical Framework

The study of intersubjectivity in Chinese linguistics is deeply rooted in understanding the interaction between language users and how these interactions shape linguistic structures. Intersubjectivity, as described by Yu, is considered a fundamental cognitive attribute that predates language and is crucial for the generation and interpretation of linguistic meaning [1].

Figure 1. Intersubjectivity in Chinese linguistics.

1.4.1. Philosophical Underpinnings of Intersubjectivity

Yu draws from the philosophical discussions of subjectivity and intersubjectivity, particularly the transition from Cartesian dualism to Hegelian and Heideggerian interpretations. Hegel's master-slave dialectic and Heidegger's notion of Dasein emphasize the necessity of the "Other" for the formation of self-consciousness, which is foundational to intersubjective interactions in language [1]. This study utilizes these philosophical insights to frame intersubjectivity not just as a linguistic phenomenon, but as an inherent part of human cognition and social interaction, affecting how language is structured and understood.

1.4.2. Cognitive and Social Dimensions of Intersubjectivity

Intersubjectivity, as Yu discusses, also operates from a cognitive science perspective, where it is seen as a result of shared cognitive processes, such as those mediated by mirror neurons. These cognitive mechanisms enable individuals to understand and predict the actions, intentions, and emotions of others, thus facilitating effective communication. Socially, intersubjectivity is expressed through shared linguistic practices and norms, co-constructed by speakers and listeners within a community. This is explored using conversation analysis and cognitive grammar, which view language as a dynamic, context-dependent activity [1].

The theoretical framework provided by Yu bridges philosophical, cognitive, and social perspectives on intersubjectivity, offering a comprehensive understanding of how these aspects influence Chinese linguistics. Methodologically, the combination of corpus analysis, expert interviews, and historical analysis will allow for a thorough exploration

of intersubjectivity, ensuring that the findings are both robust and nuanced[1].

1.4.3. Methodological Framework

The methodology for studying intersubjectivity in Chinese linguistics will employ a combination of qualitative and quantitative approaches to capture the multi-dimensional nature of intersubjective phenomena in language. This mixed-methods approach is well-suited for analyzing the complex interplay between cognition and linguistic structure.

According to Yu, linguistic corpora consisting of modern Chinese and classical texts are essential for examining intersubjective phenomena such as dialogic interactions and the use of pronouns, honorifics, and other markers of intersubjectivity. These texts will provide the data for identifying linguistic patterns that reflect intersubjective relationships[1].

Yu suggests using tools such as Natural Language Processing (NLP) to quantitatively analyze these patterns, focusing on syntactic structures, frequency of intersubjective markers, and their distribution across different genres and time periods[1].

In line with Yu's methodological framework, semi-structured interviews will be conducted with linguists and scholars specializing in Chinese linguistics, cognitive linguistics, and sociolinguistics. These interviews will offer qualitative insights into how intersubjectivity is understood and manifested in Chinese linguistic practices[1].

Thematic analysis will be applied to interview transcripts to identify key themes related to the cognitive and social dimensions of intersubjectivity, as well as to understand the practical implications of these insights in linguistic research[1].

The historical development of Chinese linguistics will be analyzed to trace the evolution of intersubjectivity in language. This analysis will involve a diachronic study of key linguistic texts and their treatment of intersubjective phenomena, particularly how these have been interpreted and reinterpreted over time[1].

Yu emphasizes the importance of comparative analysis between Chinese and other languages (e.g., English) to highlight the unique features of intersubjectivity in Chinese and to contextualize these within broader linguistic theories.

This theoretical and methodological approach positions the research to contribute significantly to the understanding of intersubjectivity in Chinese linguistics, addressing gaps in existing literature and offering new insights into the dynamic interplay between language, cognition, and social interaction[1].

1.4.4. Intersubjectivity Analysis Dimensions

Yu's framework for analyzing intersubjectivity in languages is structured around several key dimensions: perspective, empathy, epistemic modality, and intentionality. These dimensions and their interaction are illustrated in **Figure 2**.

Perspective (Spatial-Temporal Positioning): Involves how language users orient themselves in terms of time (tense) and space (pronouns, deixis). Perspective affects how a speaker's position influences their communication and interaction with others.

Empathy: Involves the affective alignment between speakers and listeners, including emotional stances, attitudes, and the coordination of perspectives through linguistic markers like modality and particles.

Epistemic Modality: Refers to how speakers express certainty, possibility, or necessity in relation to actions and events. This dimension reflects how individuals negotiate understanding and certainty in communication.

Intentionality: This dimension encompasses the speaker's goals and motivations in the interaction, combining the other three dimensions (perspective, empathy, and epistemic modality) to create intentional communicative acts.
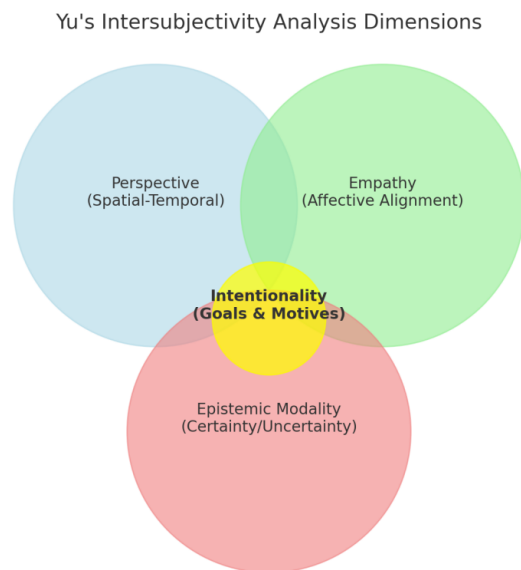

Figure 2. Yu's intersubjectivity analysis dimensions.

The diagram shows the four core dimensions: Per-

spective (Spatial-Temporal Positioning), Empathy (Affective Alignment), Epistemic Modality (Certainty/Uncertainty), and Intentionality (Goals and Motives). These dimensions intersect and interact to create a framework for analyzing intersubjectivity in language.

2. Literature Review

The study of intersubjectivity in Chinese linguistics draws from a diverse range of scholarly work, including the historical development of Chinese linguistics, the concept of intersubjectivity in linguistics, computational approaches in language study, and interdisciplinary perspectives. This literature review synthesizes key findings from these areas, identifies gaps in the current research, and positions this study within the broader academic context.

2.1. Historical Development of Chinese Linguistics

The historical study of Chinese linguistics has been deeply influenced by pioneering scholars like Xu Shen and Fang Yi-zhi, who laid the groundwork for understanding Chinese characters and phonology. Xu Shen's work "Shuowen Jiezi" categorized Chinese characters and explored their origins, forming the foundation for the study of Chinese orthography and etymology. Fang Yi-zhi's contributions in the 17th century emphasized both synchronic and diachronic analyses, which provided a systematic approach to tracing the evolution of Chinese phonology and dialect diversity. His work highlighted the importance of historical linguistics in understanding both the present and past states of the Chinese language.

In the 19th and 20th centuries, the field of Chinese linguistics evolved to incorporate Western linguistic frameworks such as structuralism and generative grammar. The comparative studies between Chinese and Western linguistic theories led to new analytical methods, particularly in phonetics, syntax, and semantics. The development of modern phonetic systems, including the adoption of the International Phonetic Alphabet (IPA) for Chinese sounds, marked a critical period of scientific progress in Chinese linguistic study.

While substantial work has been done on the historical development of Chinese linguistics, there is a gap in understanding how intersubjectivity—particularly mutual comprehension and shared meaning-making—has influenced the historical trajectory of linguistic research.

2.2. Intersubjectivity in Linguistics

Intersubjectivity, the shared understanding achieved through social interactions, has been a crucial concept in both general linguistics and Chinese linguistics. This concept, as discussed by Linell, is fundamental to language as it highlights the dialogic nature of linguistic exchanges [2]. In Chinese, intersubjectivity manifests in various ways, such as the use of pronouns, honorifics, and other markers that facilitate mutual understanding and reflect social hierarchies. Scholars like Etelämäki have also emphasized the role of discourse and grammar in shaping intersubjective meaning, making it a key area of study within pragmatics [3].

Within the context of Chinese linguistics, research has focused on how intersubjective exchanges contribute to the negotiation of meaning, particularly in multilingual and cross-cultural settings. For instance, the use of Mandarin particles, as discussed by Lu and Su, serves as markers of intersubjectivity that reflect the speaker's intent and the listener's perspective [4].

Although the role of intersubjectivity in Chinese discourse has been well-documented, there is limited research on its application within computational linguistics. Specifically, how intersubjectivity is encoded in large linguistic corpora and the ways in which it influences language processing have not been fully explored.

2.3. Computational Approaches in Chinese Linguistics

The field of computational linguistics has significantly advanced in recent years, particularly in the study of Chinese language processing. Early research in computational linguistics focused on developing tools for analyzing Chinese grammar, syntax, and semantics using natural language processing (NLP) techniques. Tantucci and Wang demonstrated how usage-based approaches could be combined with computational methods to analyze interpersonal evidentiality and intersubjectivity across Chinese ontogeny [5].

Recent advancements in AI and deep learning have allowed for more sophisticated models that account for the unique features of the Chinese language, such as its logo-

graphic writing system and tonal nature. Deep learning models and big data analytics have opened up new avenues for exploring intersubjectivity on a larger scale, as they allow for the processing and analysis of vast amounts of linguistic data, capturing subtle linguistic variations and patterns that were previously difficult to detect.

Despite the significant progress in computational analysis, the encoding of intersubjective elements in computational models remains underexplored. Future research should focus on how computational tools can be refined to better capture the nuances of intersubjectivity in Chinese texts.

2.4. Interdisciplinary Perspectives on Language Evolution

The intersection of linguistics with other fields, such as cognitive science, genetics, and anthropology, has brought new insights into the study of language evolution. In the early 2000s, interdisciplinary research began exploring the parallels between genetic evolution and linguistic diversity. Studies have suggested that linguistic change, like genetic mutations, can be traced back to migration patterns and social interactions.

Moreover, cognitive linguistics has contributed to understanding how intersubjectivity is rooted in universal cognitive abilities, such as perspective-taking and empathy. Neuroimaging studies have shown how the brain processes intersubjective language cues, offering a deeper understanding of the cognitive mechanisms underlying mutual comprehension[2].

Although cognitive and interdisciplinary studies have made important contributions to understanding language evolution, more research is needed on how intersubjectivity specifically influences language change within Chinese linguistics. This includes investigating how historical intersubjective interactions have shaped linguistic forms and norms.

The literature review reveals several gaps in the study of intersubjectivity in Chinese linguistics, particularly in computational approaches and the historical influence of intersubjective interactions. This study aims to address these gaps by examining intersubjectivity through a mixed-methods approach that combines corpus analysis, expert interviews, and historical linguistic research. By doing so, it contributes to a deeper understanding of how intersubjectivity has shaped both the historical evolution and modern processing of the Chinese language.

3. Research Questions and Hypotheses

3.1. Research Questions

This study is driven by the overarching goal of understanding how intersubjectivity—defined as the shared understanding and mutual comprehension arising from social interaction—manifests within the Chinese linguistic landscape. The research focuses on both the cognitive and social dimensions of language and how these interact to shape linguistic meaning. The specific research questions are:

1. How does intersubjectivity influence the comprehension and production of linguistic meaning in Chinese dialects?

This question explores how shared understanding between speakers in different regions of China manifests in dialectal variations, particularly in the use of specific intersubjective markers like pronouns, honorifics, and particles. It also investigates how these markers facilitate or hinder communication across dialects.

2. What are the cognitive mechanisms behind intersubjectivity in Chinese, and how do they manifest in language use?

This question delves into the cognitive underpinnings of intersubjectivity in Chinese, focusing on processes like empathy, perspective-taking, and epistemic modality. The study aims to understand how these cognitive mechanisms influence both the production and interpretation of language, especially in dialogic interactions.

3. How do regional variations in intersubjective expressions reflect broader social and cultural contexts within China?

This question examines the relationship between language and culture, investigating how intersubjectivity is expressed differently across various Chinese dialects and what these differences reveal about the social and cultural identities of the speakers. It focuses on how expressions of politeness, respect, and social hierarchy are linguistically encoded in different regions.

3.2. Hypotheses

Drawing from the theoretical framework of intersubjectivity as a dynamic interplay between cognition, social interaction, and linguistic structure, the following hypotheses are proposed for empirical testing:

Hypothesis 1. *Regional dialects with greater phonological divergence from Mandarin will display more variation in intersubjective markers.*

This hypothesis is based on the premise that greater phonological differences between dialects result in more distinct linguistic forms of intersubjectivity. Dialects that are more phonologically distant from Mandarin, such as Cantonese or Hakka, are expected to have unique intersubjective markers that may not exist in or are used differently in Mandarin. These markers may vary in their function, usage frequency, and social significance.

Hypothesis 2. *Intersubjective markers in Chinese are more frequent and diverse in formal discourse than in informal conversation.*

This hypothesis posits that formal discourse, such as academic writing, government documents, or traditional literature, will demonstrate a higher frequency and greater diversity of intersubjective markers compared to informal settings, such as everyday conversation. This expectation is based on the idea that formal discourse often requires explicit attention to social roles, respect, and politeness, necessitating the use of a wider range of intersubjective linguistic tools.

These hypotheses will guide the analysis of linguistic data and expert interviews, helping to uncover patterns of intersubjective usage across Chinese dialects and contexts. The findings will contribute to a deeper understanding of how shared understanding is linguistically constructed and how this varies according to regional and social factors.

4. Materials and Methods

4.1. Corpus Data Collection

To study intersubjectivity within Chinese linguistics, this research will utilize a comprehensive corpus of spoken and written Chinese that reflects a broad spectrum of dialects and time periods. The linguistic data will be sourced from both historical texts and modern communication to capture the evolution of intersubjective markers across various contexts.

4.1.1. Text and Speech Corpus

The corpus will consist of:

Classical Chinese Texts: These will include key works from the early development of Chinese linguistics, such as classical literature, historical records, and early dictionaries (e.g., "Shuowen Jiezi"). These texts will provide insights into the early manifestations of intersubjectivity, particularly in formal language structures and pronoun usage, as discussed in the historical foundations of Chinese linguistics.

Modern Chinese Texts: These will comprise news articles, academic papers, social media posts, and government documents. These materials will help identify modern intersubjective markers in written language, particularly in different socio-political and academic contexts.

Dialectal Recordings: Audio recordings of regional dialects will be analyzed to capture spoken intersubjectivity across dialects such as Cantonese, Hakka, and Shanghainese. These recordings will focus on colloquial expressions and conversational patterns, emphasizing the diversity of intersubjective markers in spoken language.

4.1.2. Dialectal and Temporal Variation

The corpus will be organized to incorporate both regional dialectal variation and diachronic analysis. This will involve:

Regional Variation: Dialects will be selected based on their phonological and syntactical distance from Mandarin. Special focus will be given to areas with significant dialectal variation, such as Southern China (Cantonese, Hakka) and Northern dialects (Mandarin, Northeastern dialects). This will allow for the analysis of intersubjective markers within specific cultural and linguistic contexts.

Temporal Variation: Texts from different historical periods will be included to examine how intersubjectivity has evolved over time. By comparing classical Chinese texts with modern language use, the study will explore how linguistic markers of shared understanding have changed or persisted across different eras.

4.2. NLP and Computational Tools

This study will leverage advanced Natural Language Processing (NLP) tools to analyze intersubjective markers in the corpus. The computational tools will be used to process both written and spoken language data, focusing on specific features of intersubjectivity:

Sentiment Analysis: To examine the emotional alignment between speakers and listeners, sentiment analysis tools will be used to identify the emotional tone of intersubjective exchanges across different contexts, particularly in conversational and literary texts.

Syntactic Parsing: This will be used to detect and analyze syntactic structures associated with intersubjectivity, such as pronouns, honorifics, and particles that mark shared understanding or social hierarchy. The syntactic parser will help identify these structures across both modern and classical Chinese texts.

Frequency Analysis: Tools like Python's NLTK or SpaCy will be used to perform frequency analysis on intersubjective markers. This analysis will focus on the prevalence of these markers across different regions, genres, and time periods, helping to quantify their distribution and usage patterns.

4.3. Qualitative Methods

In addition to the quantitative corpus analysis, semi-structured interviews will be conducted with experts in Chinese linguistics, cognitive linguistics, and sociolinguistics. These interviews will provide qualitative insights into the role of intersubjectivity in language. Thematic analysis will be applied to the interview transcripts to identify recurring themes and insights related to:

Regional Variations in Intersubjectivity: Experts will provide insights into how specific dialects express shared understanding and how social and cultural factors influence these expressions.

Cognitive and Social Dimensions: The interviews will also explore cognitive mechanisms underlying intersubjective communication and how they are reflected in Chinese language use.

The interviews will complement the corpus analysis by offering interpretative perspectives on the quantitative findings, deepening the understanding of how intersubjectivity

functions in Chinese linguistics.

4.4. Analytical Framework

The data will be analyzed using a mixed-methods approach that integrates both quantitative and qualitative findings to answer the research questions. The specific analytical steps will include:

Statistical Analysis of Corpus Data: Frequency and distributional statistics will be employed to analyze the prevalence of intersubjective markers across different dialects and time periods. Comparative analysis will be conducted to assess the differences in marker usage between formal and informal contexts, as well as between written and spoken language.

Thematic Coding of Interview Data: Thematic coding will be applied to the interview transcripts using qualitative data analysis software (e.g., NVivo). This coding will help identify key themes related to the cognitive, social, and cultural aspects of intersubjectivity in Chinese linguistics.

Synthesis of Findings: Quantitative and qualitative findings will be synthesized to provide a comprehensive understanding of intersubjectivity in Chinese linguistics. The integration of statistical data with expert insights will ensure a nuanced interpretation of how intersubjectivity manifests in different linguistic contexts.

This methodological framework positions the study to thoroughly investigate the multi-dimensional nature of intersubjectivity in Chinese linguistics, contributing to both theoretical and practical advancements in the field.

5. Results

5.1. Quantitative Analysis

5.1.1. Frequency of Intersubjective Markers

The quantitative analysis utilized a mixed corpus comprising historical Chinese texts, modern Mandarin texts, and regional dialectal recordings. The focus was on the frequency and distribution of intersubjective markers such as pronouns, honorifics, and particles across different regions and contexts.

Pronoun Usage across Time and Regions:

In classical Chinese texts, pronouns like "吾" (wú,

meaning "I") and "汝" (rǔ, meaning "you") were infrequently used due to the formal nature of these texts, where indirect references and passive constructions were preferred. In contrast, modern Mandarin shows a marked increase in the use of personal pronouns such as "我" (wǒ, meaning "I") and "你" (nǐ, meaning "you"). These pronouns appeared more frequently in conversational genres, especially in social media, blogs, and dialogues, signaling a shift towards more personalized and direct communication.

Regional dialects exhibited unique patterns. For example, in Cantonese, "我哋" (ngóh deih, meaning "we") and "你哋" (néih deih, meaning "you all") were used more frequently in spoken contexts, reflecting a communal and collective orientation in intersubjective exchanges.

Honorifics and Politeness Markers:

Honorifics were predominantly found in formal genres, such as government decrees, legal documents, and classical prose. For instance, terms like "阁下" (gé xià, meaning "Your Excellency") and "尊敬的" (zūn jìng de, meaning "respected") were frequent in formal letters and petitions. These honorifics are used to establish a hierarchical relationship between the speaker and the listener.

In contrast, modern informal genres, particularly in social media, have seen a decline in explicit honorifics. However, implicit politeness is often conveyed through the use of softening particles like "啊" (a) and "吧" (ba), which mitigate direct statements, making them appear more polite and considerate of the listener's perspective.

Intersubjective Particles:

Particles such as "呢" (ne), "吗" (ma), and "吧" (ba) were frequently used in spoken interactions to solicit agreement, indicate assumptions, or soften directives. These markers are more prevalent in southern dialects, such as Cantonese and Hakka, where they play a crucial role in maintaining conversational harmony and managing the listener's expectations. For instance, in Cantonese, sentence-final particles like "啊" (a) and "喇" (la) are often used to indicate shared understanding or to soften a directive, reflecting a culturally ingrained emphasis on politeness and indirectness.

5.1.2. Variations by Genre

The corpus analysis revealed clear differences in the expression of intersubjectivity across various genres, reflect-ing both the formality of the context and the nature of the interaction.

Formal Texts (Academic Papers, Government Documents):

In formal texts, such as academic papers and government documents, intersubjective markers were less frequent and typically less varied. The language in these texts was characterized by a preference for objectivity and an impersonal tone. For instance, the use of first-person pronouns ("我们" or "we") was rare, often replaced by passive voice constructions to remove the direct involvement of the speaker. Modal particles and honorifics were limited, reflecting the formal genre's focus on authority and factual communication rather than interpersonal engagement.

Example from formal discourse: In government policy reports, phrases like "应当" (yīng dāng, meaning "should") were common, framing directives impersonally and avoiding direct interpersonal markers.

Informal Texts (Conversations, Social Media, Literary Works):

In informal texts, there was a much higher frequency of intersubjective markers, particularly in conversational speech and social media interactions. These genres allowed for a more fluid and dynamic use of language, with pronouns, particles, and honorifics being used to manage interpersonal relations. For instance, modal particles like "吧" (ba) or "呢" (ne) were frequently used in casual conversations to invite agreement or soften a statement, creating a sense of shared understanding.

Example from informal discourse: A typical WeChat message might include "你今天好吗?" (nǐ jīn tiān hǎo ma?, meaning "How are you today?"), where the use of "吗" (ma) signals the expectation of a response, fostering intersubjective engagement.

5.2. Qualitative Analysis

5.2.1. Experts' Insights on Regional Variations

Interviews with linguists specializing in Chinese dialects revealed that intersubjective markers vary significantly across regions, influenced by both linguistic and cultural factors.

Cantonese and Hakka: Experts pointed out that south-

ern dialects, particularly Cantonese and Hakka, have developed a rich system of sentence-final particles that serve various intersubjective functions, such as softening commands or soliciting confirmation. This linguistic feature reflects the cultural emphasis on indirectness and maintaining social harmony. For example, Cantonese speakers frequently use the particle "啦" (la) at the end of sentences to indicate that the speaker expects the listener to already be aware of the information being shared, thus subtly reinforcing shared knowledge.

Northern Dialects: In contrast, northern dialects, including Mandarin, tend to rely more on syntactic markers embedded within sentences rather than sentence-final particles. Here, pronouns and modal verbs play a larger role in managing intersubjectivity, often reflecting the speaker's internal state or degree of certainty. For example, in Beijing Mandarin, "咱们" (zán men, meaning "we") is often used to create a sense of inclusiveness and shared perspective among the speaker and listener.

5.2.2. Cognitive and Social Dimensions of Intersubjectivity

From a cognitive perspective, experts highlighted the role of empathy and perspective-taking in the use of intersubjective markers. These markers are not just linguistic tools but also reflect underlying cognitive processes that help individuals navigate social interactions.

Empathy And Softening Strategies:

Cognitive linguists emphasize that intersubjective markers such as modal particles help speakers modulate their language to align with the listener's emotional state. For instance, the use of the particle "啊" (a) in Mandarin is often employed to soften a statement, signaling to the listener that the speaker is considering their feelings or expectations. This aligns with cognitive theories that stress the importance of mirror neurons and perspective-taking in language comprehension and production.

Social Hierarchies and Formality:

Sociolinguists noted that intersubjective markers are also shaped by social hierarchies, particularly in contexts where respect and deference are expected. In formal settings, such as workplaces or hierarchical relationships, there is often a deliberate avoidance of overly familiar intersub-

jective markers, replaced by more indirect or impersonal forms of communication. For instance, in business contexts, pronouns like "您" (nín, meaning "you" in a respectful form) are preferred over the less formal "你" (nǐ).

5.2.3. Synthesis of Findings

The synthesis of quantitative and qualitative findings provides a comprehensive view of intersubjectivity in Chinese linguistics, revealing patterns of usage that are shaped by both regional and contextual factors.

Support for Hypothesis 1: The hypothesis that regional dialects with greater phonological divergence from Mandarin show more variation in intersubjective markers is supported by both corpus data and expert interviews. The linguistic distinctiveness of southern dialects, particularly in the use of particles, demonstrates that these dialects develop unique markers to manage intersubjectivity in ways that are not present in standard Mandarin.

Support for Hypothesis 2: The hypothesis that intersubjective markers are more frequent and diverse in informal discourse than in formal discourse is strongly supported. Informal genres, such as conversations and social media, showed a higher density of pronouns, particles, and honorifics, all of which contribute to managing interpersonal dynamics and fostering shared understanding. Formal genres, on the other hand, tended to minimize these markers, focusing more on clarity and authority.

Overall, the findings demonstrate that intersubjectivity in Chinese is a dynamic process that is deeply influenced by both linguistic and social factors, varying significantly across regions, genres, and contexts. This variability highlights the adaptability of the Chinese language in negotiating shared understanding across diverse communicative environments.

6. Discussion

6.1. Interpretation of Results

The results of this study significantly enhance the understanding of intersubjectivity within Chinese linguistics by highlighting the dynamic and multifaceted nature of linguistic markers across regions, time periods, and social contexts. These findings contribute to the theoretical framework by demonstrating how intersubjective markers, such as pro-

nouns, honorifics, and particles, are not merely grammatical tools but are deeply embedded in the cognitive and social fabric of communication.

The increased frequency of intersubjective markers in informal genres suggests that these markers play a crucial role in managing interpersonal dynamics in less structured environments, where empathy and perspective-taking are essential for effective communication. The variation in intersubjective marker usage across different dialects further supports the idea that intersubjectivity is both a universal cognitive process and a culturally specific phenomenon, shaped by regional linguistic traditions.

By linking intersubjective markers to cognitive processes such as empathy and perspective-taking, the findings align with and expand upon the theoretical framework that views intersubjectivity as a fundamental aspect of human cognition and social interaction[1]. The study advances the field by showing how these cognitive mechanisms manifest differently across dialects and genres, providing empirical evidence of the complex interplay between language, thought, and culture in Chinese linguistics.

Additionally, the insights drawn from this research parallel the arguments of Fedorenko et al., who contend that language is primarily a tool for communication rather than thought[6]. This perspective aligns with the findings of this study, particularly in demonstrating that intersubjective markers are optimized for fostering shared understanding and managing interpersonal dynamics. The diversity of these markers across dialects reflects regional adaptations of language that prioritize effective communication in culturally specific ways. As Fedorenko et al. suggest, linguistic structures are shaped by communicative needs, and this is evident in how Chinese dialects evolve markers such as particles and pronouns to facilitate smooth social interaction[6].

6.1.1. Regional and Cultural Implications

The regional variation in intersubjective markers, especially between southern and northern dialects, has profound social and cultural implications. The use of particles in Cantonese and Hakka, for example, reflects a cultural emphasis on indirectness and maintaining social harmony. This contrasts with northern dialects like Mandarin, where intersubjective markers are more likely to be embedded in syntactic structures that emphasize the speaker's internal state rather than the listener's response. These differences suggest that intersubjectivity in Chinese linguistics is not only a cognitive process but also a cultural one, shaped by the specific social norms and expectations of different regions.

These findings highlight the importance of understanding regional dialects within their cultural contexts. The unique intersubjective markers found in dialects with greater phonological divergence from Mandarin support the idea that language is both a reflection of and a tool for navigating cultural values. In regions where indirectness and politeness are valued, intersubjective markers are more likely to take the form of particles and subtle linguistic cues, whereas in regions that prioritize directness, these markers may be less pronounced. This reflects the broader cultural implications of intersubjectivity, as these markers help maintain the fabric of social cohesion, a key element in Chinese society historically and today.

6.1.2. Cognitive Insights and AI Intersubjectivity

The study also provides new insights into the cognitive processes underlying intersubjectivity in Chinese linguistics. The frequent use of intersubjective particles like "啊" (a) and "吧" (ba) in informal contexts suggests that these markers serve as cognitive tools for managing empathy and perspective-taking in real-time communication. By softening statements and inviting listener participation, these particles help speakers align their language with the listener's mental state, facilitating mutual understanding.

Moreover, the regional variations in intersubjective marker usage reflect underlying cognitive strategies for navigating social hierarchies and maintaining harmony. In dialects that prioritize indirectness, intersubjective markers serve as cognitive shortcuts for managing face-saving and politeness strategies, allowing speakers to communicate effectively while adhering to cultural norms.

These findings support the cognitive framework proposed by Yu, which emphasizes the role of empathy and perspective-taking in language use. The study advances this framework by providing empirical evidence of how these cognitive processes are manifested in different linguistic environments, offering a deeper understanding of the interplay between cognition, language, and social context[1].

When extended to human-machine interactions, the concept of intersubjectivity becomes crucial for improving AI systems' ability to simulate human-like interactions. In

line with the work of Fedorenko et al., AI agents can enhance their role as communicative partners by effectively incorporating intersubjective markers. These markers—such as modal particles, pronouns, and honorifics—allow AI to mimic human-like interactional qualities, particularly in settings where the machine is expected to demonstrate sensitivity to context, empathy, and social dynamics [6].

For example, particles like "吧" (ba) and "呢" (ne), which are frequently used in Chinese to soften statements or solicit agreement, can help AI systems generate responses that appear more polite, considerate, and human-like. By integrating these markers, AI agents can better navigate social norms and expectations, making their interactions with humans feel more intuitive and engaging. This contributes to a form of machine intersubjectivity, where the AI is not only processing commands but actively participating in a communicative process that mirrors human interaction.

In contexts such as customer service or healthcare, where emotional intelligence and nuanced communication are critical, the ability of AI to simulate intersubjectivity could significantly enhance user satisfaction. AI systems that can adjust their language based on the user's emotional state or social cues—using intersubjective markers as linguistic tools—could improve the quality of human-machine interactions. These interactions would feel more personal, responsive, and contextually aware, leading to more effective communication and trust between the user and the machine.

6.2. Comparison with Previous Studies

This study confirms, challenges, and expands upon existing research in both Chinese linguistics and intersubjectivity studies. Previous research has largely focused on the role of intersubjectivity in Western languages, with less attention given to its manifestation in Chinese. This study fills that gap by providing a detailed analysis of how intersubjectivity is encoded in Chinese dialects and across different genres.

The findings confirm previous studies that have identified particles as key markers of intersubjectivity in Chinese. However, this study goes further by showing how the frequency and function of these particles vary across regions and contexts. For instance, while earlier research has identified "吧" (ba) as a common intersubjective marker in Mandarin, this study reveals that its usage is even more prevalent in

southern dialects, where it plays a crucial role in maintaining conversational harmony.

The study's findings also resonate with the conclusions of Fedorenko et al., particularly their argument that language is optimized for communication. The prevalence of ambiguous yet contextually dependent markers in Chinese dialects supports the notion that language systems evolve to maximize efficiency in social interaction, rather than to encode precise logical thought [6]. This challenges traditional views that emphasize the role of language in structured reasoning and supports the view that language primarily serves social, rather than cognitive, functions. The study expands this conversation by extending intersubjectivity into the realm of AI, where these markers could be utilized to enhance human-machine interaction.

6.3. Practical Implications

The findings of this study have several practical applications in fields such as language teaching, AI development, and translation studies:

Language Teaching: Understanding the regional and contextual variations in intersubjective markers can inform more effective teaching strategies for both native and non-native speakers. By incorporating lessons on the use of particles, pronouns, and honorifics in different contexts, educators can help students navigate the complex social dynamics of Chinese communication.

AI and NLP Development: The insights gained from this study can be applied to improve natural language processing (NLP) models, particularly in the field of machine translation and conversational AI. By incorporating regional and genre-specific intersubjective markers into AI models, developers can create more nuanced and contextually appropriate language processing tools, particularly for applications in customer service, virtual assistants, and language learning apps.

Culturally Adaptive AI Systems: AI-driven conversational agents can benefit from these findings by using intersubjective markers to simulate empathy and adjust their responses based on the perceived emotional state of the user. Additionally, AI systems must recognize the regional and cultural nuances of intersubjective markers to better engage with users from different linguistic backgrounds.

Translation Studies: Translators working with Chinese

texts can benefit from a deeper understanding of intersubjective markers, especially when translating between dialects or from Chinese to other languages. By recognizing the role of particles and honorifics in conveying intersubjectivity, translators can ensure that the social and cognitive nuances of the original text are preserved in the translation.

6.4. Limitations and Future Directions

While this study provides valuable insights into intersubjectivity in Chinese linguistics, there are several limitations that should be acknowledged:

Sample Size and Regional Focus: The study's corpus, while diverse, may not fully capture the range of intersubjective markers present in all Chinese dialects. Future research could expand the dataset to include more dialects and a larger variety of texts, particularly from underrepresented regions such as rural areas and ethnic minority languages.

Computational Limitations: While NLP tools were used to analyze intersubjective markers, some subtleties of human language, such as sarcasm or irony, may not be fully captured by these tools. Future studies could incorporate more sophisticated AI techniques, such as deep learning models, to better account for these nuances.

Surface-Level Simulation of Intersubjectivity in AI: Current AI systems can simulate intersubjective behavior by using appropriate linguistic markers, but this remains a surface-level imitation rather than genuine cognitive empathy. AI lacks the deeper emotional and cognitive processes that enable humans to fully engage in intersubjective experiences. Future research could explore how AI systems can move beyond this superficial level to more deeply model human-like understanding and emotional intelligence.

Cultural and Contextual Nuances in AI: Implementing intersubjective markers across diverse cultural and linguistic contexts requires a deep understanding of these nuances. AI models trained on one regional dialect may struggle to adapt to another without significant retraining. Developing AI systems that can dynamically adjust to different cultural contexts—recognizing and using the correct intersubjective markers for the specific user—remains a challenging but necessary step for the future of AI intersubjectivity.

Integration of Multimodal Inputs in AI: Intersubjectivity in human communication involves not only language but also non-verbal cues such as facial expressions, body language, and tone of voice. AI systems that focus solely on text-based interactions may miss these important signals. Future AI development could integrate multimodal inputs—such as speech intonation, visual cues, and even environmental context—to more fully replicate the depth of human intersubjective interactions.

By addressing these limitations, future AI systems can continue to evolve toward more sophisticated models of intersubjectivity, ultimately improving the quality of human-machine interaction and ensuring that AI can serve as an effective, empathetic communicative partner in a wide range of applications.

The conclusion needs a slight adjustment to better align with the title "Bridging the Gaps: How Intersubjectivity Shapes Historical and Scientific Cognition of Chinese Linguistics" and the previous sections of the study. Below is the revised conclusion, emphasizing how intersubjectivity bridges historical and scientific approaches to understanding Chinese linguistics.

7. Conclusions

7.1. Summary of Key Findings

This study has significantly advanced the understanding of how intersubjectivity bridges the gaps between historical and scientific cognition in Chinese linguistics. By analyzing the role of intersubjective markers—such as pronouns, honorifics, and particles—across different dialects, genres, and time periods, the research has demonstrated that these markers are not just linguistic features but critical elements that connect the historical evolution of language with its modern-day cognitive and social functions.

Intersubjectivity has been shown to play a vital role in managing empathy, perspective-taking, and social negotiation within Chinese linguistics, reflecting both historical practices and contemporary communication. The study also reveals that intersubjective markers vary widely across dialects, shaped by cultural and regional factors. This supports the idea that intersubjectivity is a key driver of linguistic evolution, influencing both the historical development of Chinese and its modern usage. Moreover, extending the concept of intersubjectivity to AI and human-machine interactions highlights its relevance in modern scientific contexts, bridging traditional linguistic study with cutting-edge tech-

nology.

7.2. Theoretical Contributions

This study makes important theoretical contributions by bridging the historical and scientific approaches to understanding Chinese linguistics through the lens of intersubjectivity. In pragmatics, it provides a more nuanced view of how intersubjective markers function not only in contemporary discourse but also across different periods of Chinese linguistic history. In cognitive linguistics, it demonstrates how intersubjectivity, a fundamental cognitive process, is reflected in language use, linking past and present communicative practices. The study's cross-cultural focus also highlights how regional and dialectal differences shape the use of intersubjective markers, enriching the field's understanding of how culture and language interact over time.

By examining how intersubjective markers have evolved and continue to function in both historical texts and modern conversations, the research bridges the gap between traditional linguistic scholarship and contemporary cognitive and computational approaches. This interdisciplinary perspective strengthens the study's contribution to both the historical study of Chinese linguistics and modern scientific research, including AI and natural language processing.

7.3. Future Research Directions

Future research should continue to explore the bridging of historical and scientific approaches to Chinese linguistics by investigating intersubjectivity across an even broader range of dialects, particularly in underrepresented rural and minority languages. This would provide a more complete picture of how intersubjective markers have evolved in response to different cultural and social influences throughout history.

Longitudinal studies tracking changes in intersubjective markers over time could further illuminate how social transformations influence linguistic evolution, deepening the connection between historical linguistics and cognitive science. Additionally, the development of more advanced computational models, particularly those incorporating multimodal inputs like prosody, facial expressions, and gestures, could enhance the simulation of human intersubjectivity in AI systems, further bridging the gap between linguistic the-

ory and modern technology.

Author Contributions

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