

Evolution Path and Development Trend of the Research on N-V Shift

-- Visual analysis based on bibliometrics

Yongjin Wu

Foreign Studies College, Hunan Normal University, Changsha 410081, China

Abstract: N-V shift is a widespread linguistic phenomenon in Chinese, and it is also an important part of the study of part of speech. Based on bibliometrics softwares, this paper takes the related papers of N-V shift in China as the research object, collects 426 related studies from CNKI in recent 30 years (1992-2023) as data sources, and explores the evolution path and tendency of N-V shift from five dimensions: author, stage publishing trend, keyword clustering and co-occurrence network, and theme time zone change, and presents its research status, frontier trend and prospect in theory and practice, ontology and application, in order to provide reference for the future development of this field.

Keywords: Chinese, Noun-verb Shift, Bibliometrics, Evolution and Development.

1. Introduction

In human languages, two of the most fundamental word categories are nouns and verbs. The opposition between nouns and verbs is essential for any language. Following the Zhou dynasty, the number of nouns and verbs in Chinese increased, and their grammatical functions became more diverse, leading to a complex interplay of grammatical functions between these categories. In Pre-Qin Chinese, the relationship between nouns and verbs was particularly close, with instances of category overlap being more prevalent and severe than in the Shang and Zhou periods. Noun-verb shift typically refers to a noun appearing in a position commonly occupied by a verb. This phenomenon, also known as verbalization by zero suffix, zero derivation, or denominal verb, is widespread and has consistently garnered scholarly attention.

Chinese is a language that does not primarily rely on morphological changes to express grammatical distinctions. Consequently, it is difficult to distinguish between nouns and verbs based purely on morphological characteristics. When a noun is converted into a verb, it is often represented by the same character in written form, resulting in a large number of homonyms where nouns and verbs share the same form. Some scholars have even suggested that ancient Chinese words did not have fixed categories, proposing the idea of "no fixed word classes" in ancient Chinese.

The debate over whether Chinese words have fixed categories has a long history. Conducting in-depth and detailed research on the phenomenon of noun-verb shift can enhance our understanding of the nature of word categories in Chinese and advance the study of criteria for word class differentiation. Current research on noun-verb shift spans grammar, semantics, pragmatics, and cognition, and has produced abundant results, entering a phase that combines description and explanation. However, systematic descriptions of the related literature are still rare. Therefore, this paper employs bibliometric software to conduct a visual analysis of core journal articles on noun-verb shift from the CNKI database. The aim is to present the current state and issues, patterns and trends of the research, elucidate the

continuity between research hotspots over different periods, and offer positive suggestions on current research orientations and paradigms. This study seeks to provide a reference for the future development of research in this field.

2. Data Sources and Analytical Tools

To ensure that the literature retrieval covers representative research outcomes in the field of noun-verb shift, this study first conducted a bibliometric analysis of the CNKI database using advanced professional search techniques. The search query was designed to encompass a wide range of terms related to noun-verb shift, including "verbalization by zero suffix," "zero derivation," "denominal verb," and other related concepts.

This search was aimed at identifying papers published from 1915 to 2023 in AMI, CSCD, CSSCI journals (including extended versions), and core Chinese journals. The search was conducted on June 29, 2023, yielding 1,141 results. After individually reviewing these results and excluding non-academic articles such as book reviews and conference news, as well as papers without abstracts, 426 valid articles were retained. The data were then exported using CNKI's export function to obtain Refworks format files for bibliometric analysis.

Bibliometrics and knowledge mapping tools can visually display the research landscape, structure, and distribution of key literature in a field, revealing its evolution and research hotspots. This study uses a combination of KH Coder, Citespace, Vosviewer, Pajek, and COOC software to conduct a multidimensional, time-phased, and dynamic visual analysis of research on noun-verb shift. The analysis explores the evolutionary path and development dynamics in this field through five dimensions: authors, stage-specific publication trends, keyword clustering and co-occurrence networks, and thematic shifts over time.

3. Temporal Distribution of Literature

The number and timing of publications can reveal the evolutionary characteristics of a research field. The distribution of published papers over the years in the field of



Figure 3. Temporal thematic evolution of research on noun-verb shift.

The weighted thematic evolution graph (Figure 2) reveals that the terminology used to describe noun-verb shift has evolved significantly over time. The progression has moved from "noun activation (causative/emotive usage)" to "noun-verb shift/noun-verbalization, nominalization/verbification" and further to "denominal verbs, noun-verb inclusion, dual-layer word classes." This evolution reflects a deepening and increasingly theoretical exploration of this linguistic phenomenon by the academic community.

In the early stages, research mainly focused on the general description of the phenomenon, with less emphasis on theoretical explanation. During the mid-term, scholars extensively applied metonymy theory to investigate the underlying causes and mechanisms of noun-verb shift. Cognitive linguistics emerged as the dominant framework for explaining this phenomenon. For instance, Shen Jiaxuan (1999) noted that syntactic metonymy corresponds to cognitive metonymy, where one term is used to refer to another related concept, making the expression more vivid. Liu Zhengguang (2000) suggested that when a noun is converted into a verb, the associative process brings out similarities between different concepts. Fu Yu (2001) considered noun-verb shift as a form of verbalization within grammatical metaphor, emphasizing that it should not be seen merely as a word-formation process but as involving metaphorization and analogy.

Wang Dongmei (2004) examined the issue from a cognitive grammar perspective, arguing that verb-to-noun conversion is essentially a conceptual metonymy. He Xing (2007) used the theory of construal to explain noun-verbalization, stating that when a noun is used as a verb, the scope of its semantic content is expanded to include the action participants. He Aijing (2009) employed the theory of "inheritance of extension and connotation" and metonymic thinking to illustrate that the process of noun-verb shift is both a conceptualization and grammaticalization process, viewing metonymy as the fundamental basis for this word class

conversion. She explained that transitioning from a noun representing an object to a verb representing an action is inherently metonymic.

Recent studies have continued this tradition, proposing hypotheses like "noun-verb inclusion" and "dual-layer word classes" within the cognitive linguistics framework. The thematic evolution graph (Figure 3) shows that early research in China primarily focused on classical Chinese. Later, attention shifted to comparative studies between English and Chinese, and recent research has begun to explore this phenomenon from a typological perspective across languages. While early studies were concerned with machine translation, current research emphasizes issues of word class annotation, reflecting the recent advances in computational linguistics and artificial intelligence.

The "NP de VP" structure has become a recent research hotspot due to the emergence of new theoretical tools and techniques. Scholars are increasingly applying these new theories and methods to test the theories of noun-verb inclusion and the boundaries between noun and verb usage. Wu Zaosheng and Guo Yiding (2018) examined the "NP de VP" structure in modern Chinese based on semantics and transitivity. They discovered that the presence and understanding of the possessor are closely related to the ergativity of the source structure and the strength of its ergativity. The stronger the inherent transitivity of the source structure (i.e., the stronger its ergativity), the less likely it is to form an "NP1 de VP" structure. When the verbs are purely ergative (with the strongest inherent transitivity), they can only form an "NP2 de VP" structure and not an "NP1 de VP." Yang Zhou and Xiong Zhongru (2021) combined new constructionist approaches with the hypothesis of layered nominalization. They argued that the "NP de VP" structure includes lexical-level nominalization, thematic-level nominalization, and morphological-level nominalization, with little or no discourse-level nominalization. According to the hypothesis of layered nominalization, light nouns can

nominalize verb-like elements at different levels. The higher the light noun, the weaker its effect on the verb. Conversely, the lower the light noun, the stronger its effect on the verb. This layered approach provides a nuanced understanding of how nominalization functions within the "NP de VP" structure and helps delineate the boundaries between noun and verb usage in modern Chinese.

An interesting aspect of recent research is the application of quantum thinking and dual-layer word class categorization theory. Wang Renqiang (2022a) argues that the traditional single-layer word class perspective, inherited from Newtonian scientific thinking, fails to adequately address the practical applications of word class issues. He posits that words are quantum units of human language, exhibiting wave-particle duality. Thus, word classes encompass both individual word tokens and generalized word types/lexemes, complementing each other. Wang's theory suggests:

1. Individual Words (word tokens): These are first-order localized entities, where word classes are realized in specific contexts as evident cognitive facts, akin to an eigenstate formed by the collapse of a wave function, exhibiting a single part-of-speech (particle state). 2. Generalized Words (word types/lexemes): These are non-localized abstract entities, where word classes manifest as latent social facts (wave

functions). Generalized words possess multifunctional potentials (superposition state), including flexible usage and cross-categorization. However, the emergence of word classes in generalized words from innovative usage of individual words is a discontinuous conventionalization process (quantum leap).

This thematic focus illustrates the current interdisciplinary trends and big data thinking in academia. It also reflects a growing introspection within the scholarly community about foreign linguistic theories and a concerted effort to develop linguistics theories with local characteristics.

6. Summary and Outlook of Research Trends

Based on the previous analysis and discussion, the research on noun-verb shift from 1992 to 2023 can be roughly divided into three periods: the initial period (1992-2003), the exploratory period (2004-2014), and the developmental period (2015-2023). Using KH Coder, these periods were used as practical variables to conduct correspondence analysis and co-occurrence network analysis on the research themes of noun-verb shift from 1992 to 2023, as shown in Figures 4 and 5.

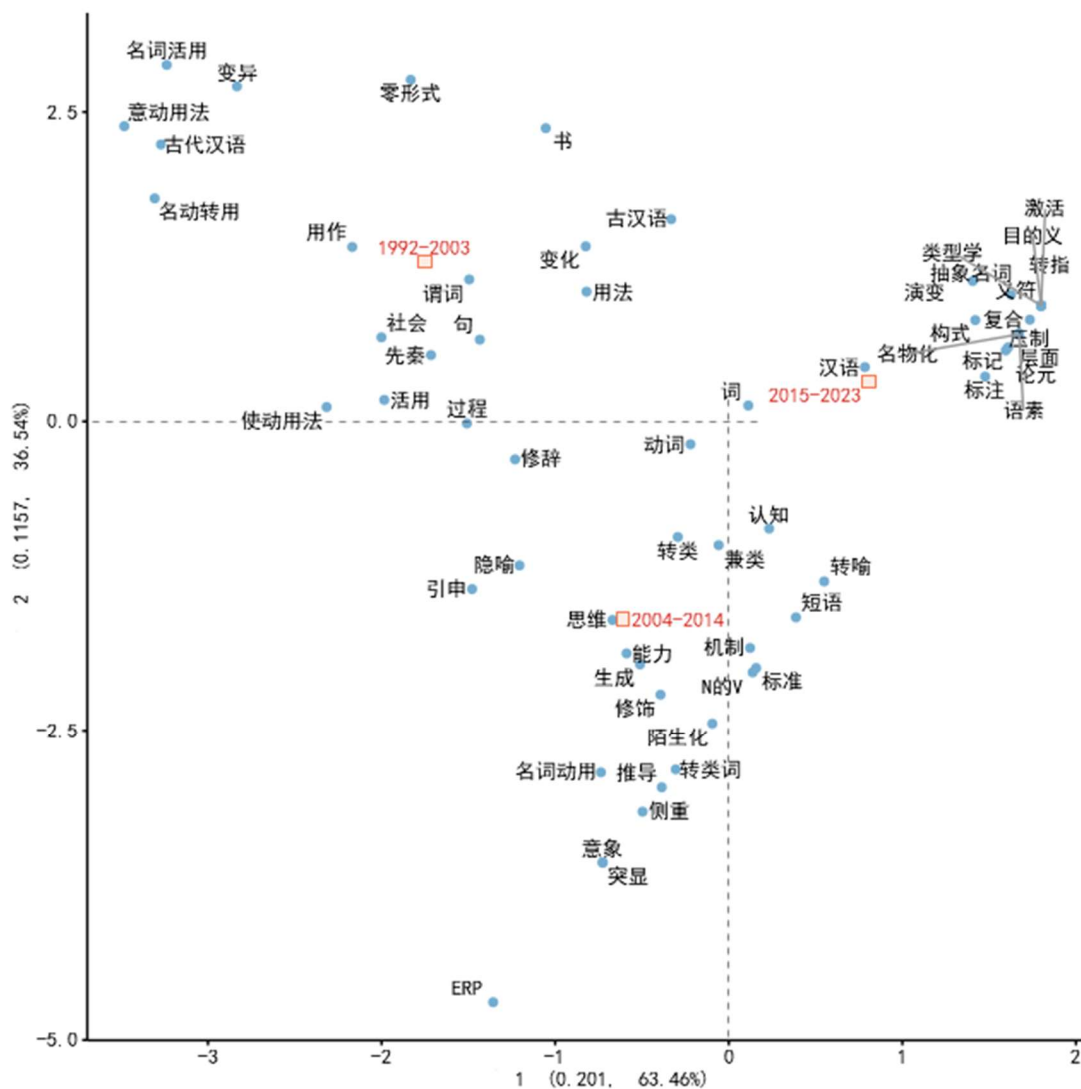


Figure 4. Correspondence analysis of research themes on noun-verb shift over time.

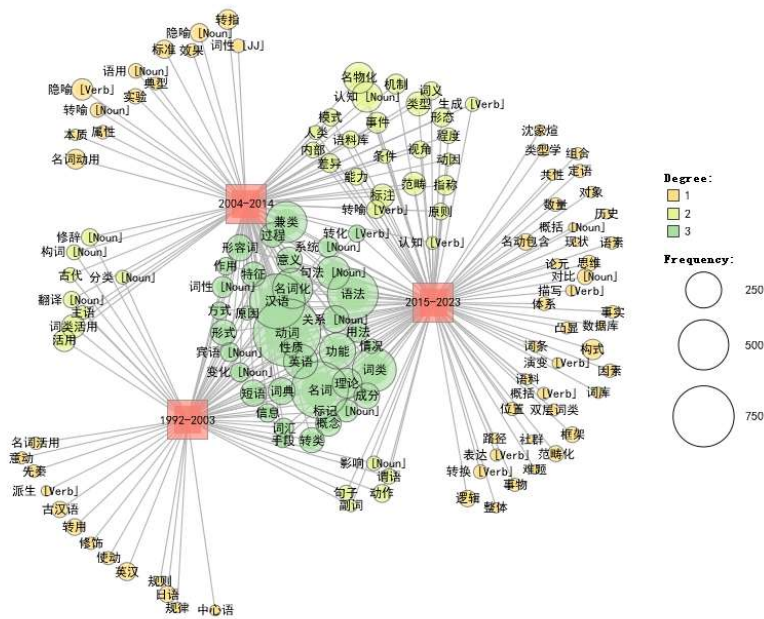


Figure 5. Co-occurrence network of research themes on noun-verb shift over time.

From Figure 4, we can see that the clustering effect is good in each period, indicating that the period division is scientifically sound and consistent with reality. The research from 1992 to 2003 mainly focused on the phenomenon of noun activation in Classical Chinese. During the 2004-2014 period, scholars concentrated on the cognitive mechanisms behind this structure, using cognitive linguistic theories such as image schema, metonymy, and cognitive prominence for analysis. From 2015 to 2023, research began to explore this linguistic phenomenon from a typological perspective and increasingly applied construction grammar theory to interpret its mechanisms. This period also saw a focus on historical evolution and word class annotation issues.

Figure 5 shows that research on noun-verb shift has continued to deepen, with keywords from the 2015-2023 period having little overlap with those from the 1992-2003 period. The recent research focuses on theories of noun-verb inclusion, the spatio-temporal characteristics of Chinese, typological features, language comparison, dual-layer word classes, and database construction. This trend suggests that future research should consider multiple languages, emphasize comparative linguistic analysis, and combine new theoretical frameworks with big data for in-depth and interdisciplinary study.

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