

# A Nanosyntactic Approach to Verbal ABAB Reduplication in Mandarin

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The study employs the theoretical framework of Nanosyntax to analyze the generative mechanism of verbal ABAB reduplication pattern in Mandarin Chinese. The research characterizes ABAB reduplication as an inflectional operation involving functional projections of pluractionality and aspect. It distinguishes between event-internal and event-external pluralization, as well as inner and outer aspect in verbal reduplication. Following the One-Function-One-Head Principle in Nanosyntax, verbal ABAB form occurs through the merging of categoryless roots that are categorized by little *v*, with the RED affix syncretizing multiple functional morphemes. This framework reduces lexical burden and precisely represents the unique syntactic structure of Chinese verbal reduplication.

*Keywords:* Nanosyntax, ABAB reduplication, semantic interpretation, syntactic generative mechanism

## Introduction

The most common disyllabic verbal reduplication patterns in Mandarin are ABAB and AABB. Recent work shows differing views on Mandarin verbal reduplication: Lexicalists (Zhu, 2020 among others) argue ABAB is generated through syntactic operation while AABB is derived by morphological process, whereas Distributed Morphology proponents claim both emerge through syntactic merger. Nanosyntax (NS) (Starke, 2009), with its detailed syntactic mapping and One-Function-One-Head (OFOH) Principle, offers a promising framework not yet applied to Mandarin reduplication, despite success with Chinese spatial prepositions (Yang, 2018), directional verbs (Li, 2021), existential constructions (Zhou, et al., 2022), and possessive constructions (Wang, 2023). This paper uses NS to identify functional heads in verbal reduplication and outline their syntactic generative process, contributing both theoretically and empirically while focusing specifically on verbal ABAB reduplication pattern in Mandarin.

## Literature Review

### Reduplication or Compounding

Given the systematic differences between verbal reduplicative patterns, scholars distinguish between reduplication (ABAB) and compounding (AABB) (Wang, 2022). Using Distributed Morphology (Halle & Marantz, 1993; Embick, 2010), Li and Cheng (2022) argue that the ABAB pattern involves categorizing a

complex rootless base  $\sqrt{AB}$  that reduplicates to either outer aspect (producing diminutive/iterative reading) or inner aspect (yielding habitual reading). For verbal AABB pattern, Li and Cheng (2022) proposes that it derives in the “inner domain” where category-neutral roots  $\sqrt{A}$  and  $\sqrt{B}$  form complex roots via self-compounding, then concatenated roots  $\sqrt{AA}$  and  $\sqrt{BB}$  adjoin to little *v*, forming the AABB sequence. Deng (2022) extends this analysis to adjectival, adverbial and nominal AABB patterns.

### Lexicalism or Non-lexicalism

In formal linguistics, Lexicalism and Non-lexicalism present contrasting views on language structure processing. Lexicalism maintains a syntax-morphology distinction with lexical items as basic units containing complete linguistic information, while Non-lexicalism argues for merging acategorial roots with abstract syntactic categories. For Mandarin verbal reduplication, lexicalists consider ABAB syntactically generated and AABB lexically derived. Zhang (2015) classifies these as inflectional and derivational reduplication, with Chu (2018) noting their complementary distribution. Zhu (2020) distinguishes ABAB from AABB reduplication based on several tests including productivity and categorial stability. Sui and Hu (2022) propose ABAB operates in Syntax-syntax (S-syntax) (base-generated at Asp) while AABB occurs in Lexical-syntax (L-syntax) as Pred. These systematic differences suggest distinct generative processes requiring separate theoretical frameworks.

### Raising or Lowering

Chen and Wu (2023) claim that verbal reduplication is a PF operation caused by lowering of functional heads. For example, VV and V *yi* V in habitual and prospective contexts are formed via lowering the delimitative aspect head; while V *le* V, V *le yi* V, VV, V *yi* V in past tense contexts are derived by lowering the T-past-Asp-delimitative compounds. In the same manner, Lee and Sang (2016) argue that in the domain of adjective reduplication, a coordinate compound will go through morpheme lowering and morpheme copying to produce a correct surface form. However, most scholars such as Wang (2022) hold that RED moves upwards.

## Current Account

This study analyzes Mandarin verbal reduplication’s syntactic mechanism using Nanosyntax (NS), relying on the one-to-one syntax-semantics correspondence to identify functional heads before examining internal structures. Zhu (2020) distinguishes syntactic ABAB reduplication (highly productive, regular distribution) from morphological AABB forms (low productivity, irregular distribution). Semantic interpretations of ABAB include: momentary action (Xiong, 2016), repetitive aspect marking (Smith, 1991; Dai, 1993; Sui & Hu, 2016), pluralizing operations (Gu, 2008; Deng, 2013), and homogeneous object marking (Basciano & Melloni, 2017). This study treats ABAB as an inflectional operation involving pluractionality (Deng, 2013) and aspect (Li, 2023). Like Distributed Morphology, NS generates all linguistic expressions through Merge, distinguishing between inner domains (root+categorizing morpheme) and outer domains (additional functional elements) (Embick 2010).

### Pluractionality

According to Cusic (1981), verb reduplication serves as a cross-linguistic method to indicate pluractionality or verbal/event plurality. Cusic (1981, p. 67) distinguishes between event-internal pluralization

and event-external pluralization across three levels: phase, event, and occasion. Deng (2013) demonstrates that Mandarin verbs employ reduplication to mark plurality morphologically, arguing that ABAB denotes event-internal pluractionality while AABB expresses event-external pluractionality. However, this study holds that ABAB can express both types of pluractionality in specific contexts.

Regarding hierarchical relationships, Deng (2013, p. 228) formulates a generalization that “the structural height of an event quantifier over atomic events is lower than that of one over plural events.” We use InPIP and ExPIP to denote event-internal and event-external quantification respectively, establishing the linear sequence ExPIP>InPIP. Event-internal pluractionality, being closely related to the event itself, likely derives within the inner domain, while event-external pluractionality, connected with temporal and spatial conditions, likely occupies the outer domain.

### Aspect

It has become almost common sense in Chinese linguistics that verbal reduplication ABAB can express aspectual information. Travis (2010) distinguishes “Outer Aspect” (OAsp) expressed through morphological means (perfective/imperfective) from “Inner Aspect” (InAsp) expressed through verb Aktionsart categories. Many scholars have discussed ABAB’s aspect-denoting properties, including short durative/aspectual meanings (Lü, 1982; Zhu, 1982; Dai, 1993), delimitative meaning (Li & Thompson, 1981), and tentative meaning (Chao, 1968; Zhu, 1982). This study argues that ABAB primarily expresses two aspectual contents: habitual aspect and diminutive situation, aligning with Li and Cheng (2022). However, unlike their DM framework, this study adopts NS perspective and explains the relationship between quantification and aspect in verbal reduplication.

Following Li and Cheng (2022), we propose that delimitative reading relates to Outer Aspect (interpreting action duration within the Outer Domain) and correlates with event-external quantification. Conversely, habitual reading is generated by Inner Aspect within the Inner Domain. The linear sequence should be OAspP>ExPIP>InAspP>InPIP. In nanosyntactic terms, ABAB formation occurs through Merge of categoryless roots  $\sqrt{A}$  and  $\sqrt{B}$ , which are then categorized by little *v*. The morphological affix RED expresses multiple semantic functional features that project independent phrases according to One-Function-One-Head Principle. RED combines these heads through syncretism and is spelled out as ABAB.

According to the Superset Principle, the lexical tree for ABAB is a superset for all possible syntactic trees, allowing different semantic interpretations based on specific contexts.

### Conclusion

This paper examines the generative mechanism of verbal ABAB reduplication in Mandarin Chinese using a nanosyntactic approach. Our adoption of NS as a theoretical framework offers two key contributions: First, it aligns with Occam’s Razor by reducing lexical burden through a non-lexicalist approach. Second, it provides precise syntactic representation of ABAB verbal reduplication’s internal structure and derivation, helping reveal the unique characteristics of Chinese reduplication patterns.

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