The constructionalization of antonymous compounds:
Evidence from the adverb chi-zao in Mandarin Chinese

In modern Chinese, the adverb chi-zao is regarded as an adjective-adjective compound, with morphemes chi ‘late’ and zao ‘early’ as extreme poles in a gradable temporality. The formation of chi-zao as an antonymous compound has not yet received much attention from diachronic construction grammar perspective. This study reports on the historical change of chi-zao as evidence showing the interplay of antonymous compounds and constructionalization in modern Chinese. Based on corpus analysis, I found that the formation of chi-zao as a lexical construction inherits from previous changes but emerges instantaneously in Pre-Modern Chinese, its form has been condensed and its meaning has been bleached to indicate subjectivity. Three arguments can be made to shed light on the model of constructionalization: (1) constructionalization at compound level can be associated with three motivations: subjectivity, frequency, and metaphor; and (2) the operation of constructionalization is at work not only at the sentential and phrasal level but also at the morphological level of compound word formation in Chinese; (3) rhetoric as an output of language use plays a part in the development of constructionalization in relation to antonymous compounds.

Keywords: constructionalization, antonymous compound, frequency, subjectivity, metaphor

1. Introduction

Compounding is a common phenomenon in the word formation of Mandarin Chinese which differs from inflectional languages. It basically refers to “the formation of a new lexeme by adjoining two or more lexemes” (Bauer 2003:40). It has been shown that compound words can reach up to 70% of all words used in Chinese (Zhou et al. 1999). The study of Chinese compounds is important in the field of morphology since it can aid our understanding of universal word properties through the investigation of the present word components, which are relatively easy to isolate, identify and track in the history of the Chinese language (Packard 2000).

The classification of Chinese compounds originally comes from Chao (1968:372), who introduces coordinate and subordinate compounds in Chinese, arguing that “each constituent is centre in coordinate compounds while only the second constituent is the centre in a subordinate compound”. Ceccagno & Basciano (2007:212) make a further classification for Chinese compounds, showing that there are different types such as subordinate, attribute, and coordinate compounds. One of the types relating to the coordinate compounds is the antonymous compounds. An antonymous compound is unique and common in Chinese for it is an exocentric or headless word consisting of a pair of monosyllabic bipolar morphemes (Lang 2008). A case in point is the Chinese compound da-xiao ‘big-small=size’, where the meaning of the first morpheme is the opposite to that of the second one, but neither da ‘big’ nor xiao ‘small’ can serve as a head to determine the whole meaning “size”. Another important categorization made by Li & Thompson (1989:81) concerns the major and minor types of compounds. The former includes a number of antonymous adjectives that can form nominal compounds in Mandarin Chinese; these contain hao-huai ‘good-bad=quality’,
chang-duan ‘long-short=length’, leng-re ‘cold-hot=temperature’ and the like. Based on Scalise et al. (2009), the structure for the above nominal compounds is: [A+A]N. The minor group is also composed of compound adverbs which incorporate two antonymous adjectives, such as fan-zheng ‘reverse-obverse=anyway’, hao-dai or hao-lai ‘good-evil=in any case’, heng-shu or heng-zhi ‘horizontal-vertical=anyway’, and chi-zao ‘late-early=sooner or later’, etc. The structure for the compound adverbs can be expressed as: [A+A]Adv. This paper will examine the minor type of compounds with a focus on chi-zao as a case study. The compound adverb chi-zao is worth exploring in the minor group, for it is not only frequently used in both written and spoken Chinese, but also it can simultaneously denote time in its gloss translation (early-late) and modality in its meaning (sooner or later). According to Modern Chinese Dictionary (2005:182), the word chi-zao is regarded as an adjective-adjective compound functioning as an adverb, its word meaning “sooner or later” indicates a gradable property which has the two adjectives (chi and zao) as extreme poles, and speakers very often use this word to show something will absolutely happen in the discourse. However, it is unclear how the concept of time denoted by the two components (chi and zao) in chi-zao are connected to modality as its whole meaning. And since the morphemes chi and zao are adjectives in modern Chinese, how does the combination of the two morphemes lead to the formation of chi-zao as a compound adverb?

Those puzzles motivate me to rethink the evolution of compounds in Mandarin Chinese and try to decode the form and meaning of chi-zao from a diachronic perspective. However, previous studies have not yet paid much attention to the Chinese antonymous compounds within the model of constructionalization. Since different antonymous compounds in Mandarin display different trajectories in the word formation, I chose the compound chi-zao as a representative case to show how the change of its form and meaning fits into the constructionalization framework. In this study, I will report on the syntactic distribution and semantic features of the antonymous compound adverb chi-zao from the angle of constructionalization. The constructionalization approach as a new framework in historical linguistics will be adopted to examine the diachronic development of chi-zao by looking into the pre-modern and modern data (Chinese before and after the early 20th century) in Chinese corpora. The significance of my study is to contribute to the understanding of historical change of antonymous or headless compounds in Mandarin by making three arguments: 1) the constructionalization of antonymous compounds is associated with subjectivity, frequency, and metaphor; 2) the theory of constructionalization can be extended to account for word formation in Mandarin; 3) rhetoric plays a role in the process of constructionalization in relation to antonymous compounds. Two research questions are explored in this study:

(1) How are the semantic and syntactic changes revealed in the constructionalization of chi-zao as a compound adverb?

(2) What cognitive processes can be inferred by looking at chi-zao in its constructionalization?

This paper is organized as follows. Section 2 explains the theoretical underpinnings. Section 3 introduces previous studies. Section 4 addresses the data and methods. Section 5 discusses the syntactic distribution and semantic change of the compound chi-zao by looking into corpus data. Section 6 accounts for the historical change of this compound. Section 7
concludes by showing implications for the typology of antonymous compounds under the frame of constructionalization and drawing limitations of the present study.

2. The theory of Constructionalization

The rise of constructionalization in diachronic construction grammar (e.g., Noël 2007, Fried 2009, Barðdal et al. 2015, Traugott 2015, Hilpert 2018) is built on usage-based theories, connecting language use with the historical change in the formation of constructions. The cross-language studies (e.g. Croft 2001, Hilpert 2007, Traugott 2008, Trousdale 2008, Bisang 2010) generally label the relationship between grammaticalization and linguistic constructions as grammatical constructionalization. The close relationship between the two concepts lies in the fact that construction grammar adopts the usage-based approach to language, thus highlighting the issue of language change (Barlow & Kemmer 2000, Bybee & Hopper 2001). Croft (2001) in his radical construction grammar posits that all of linguistic structure is constructional. For the grammaticalization process, he argues that “the construction as a whole changes meaning” (p. 261) and “the new construction undergoes a shift in grammatical structure and behavior in keeping with its new function” (p. 127). Hilpert (2007) in his dissertation highlights that the study of grammaticalization centers primarily on the semantic development of word-level items, so a shift to construction-level items polished the idea of grammaticalization. Traugott (2008:223) contends that “construction grammar builds correlations directly into the model, so it is useful to consider its relevance to the multilayered views of grammaticalization”. In the same fashion, Trousdale (2008) demonstrates that diachronic construction grammar allows us to track the historical evolution of constructions within the constructional framework. Bisang (2010) focuses on classical Chinese to demonstrate that constructions are the driving force of grammaticalization in view of two concepts: precategoriality and hidden complexity. The former one is to explain that one and the same lexical item can be assigned to different grammatical functions. This echoes the traditional view that a Chinese word is not always bound to a specific part of speech. The latter one is to show the syntactic analysis of one and the same surface structure is manifold.

Constructionalization as one of the basic concepts in diachronic construction grammar was initially proposed by Traugott & Trousdale (2013). The framework of constructionalization is understood in the sense of Construction Grammar (Goldberg 1995, 2006, Kay & Fillmore 1999), regarding the concept of construction as any linguistic pattern where either its meaning is not strictly predictable from its component parts, or meaning is predictable from its component parts but the pattern should occur frequently to be stored. The tenets of constructionalization, based on Traugott & Trousdale (2013), are:

**Constructionalization is the creation of formnew-meaningnew (combinations of) signs. It forms new type nodes, which have new syntax or morphology and new coded meaning, in the linguistic network of a population of speakers. It is accompanied by changes in degree of schematicity, productivity, and compositionality. The constructionalization of schemas always results from a succession of micro-steps and is therefore gradual. New micro-constructions may likewise be created gradually, but they may also be instantaneous.**
Gradually created micro-constructions tend to be procedural, and instantaneously created micro-constructions tend to be contentful.

Traugott & Trousdale (2013:22)

As we can see, the emergence of a new construction in this regard is referred to as constructionalization. It happens when the new type nodes are formed based on existing nodes via constructional change, a process affecting only one internal dimension of a construction such as phonology, syntax, or semantics (Traugott & Trousdale 2013). And the difference between constructionalization and constructional change relies on the argument that “constructionalization is a subset of constructional changes where morphosyntactic new form and meaning pairing is created either through a sequence of micro-steps or instantaneously” (ibid., p. 27).

It is also worth pointing out that constructionalization requires meaning changes along with form changes in view of the proposal that “meaning changes alone cannot constitute constructionalization” (ibid., p. 22). It is for this reason that semantic change and structural change should be considered equally so as to comprehensively model the step-by-step interaction of both dimensions in the history of a construction.

Moreover, each micro-construction has different degrees of schematicity (abstraction), productivity, and compositionality in the hierarchy of constructional network. At each level, the emergence of micro-constructions is either procedural (grammatical) or contentful (lexical). That is to say, the development of procedural or grammatical materials is usually gradual at all levels of constructions, such as the English future construction be going to, and it takes steps and contexts by which speakers modulate motion be going to. In contrast, the developer of a lexical or contentful micro-construction can be instantaneous, such as the noun grammaticalness, it takes no steps in creating the word. Traugott & Trousdale (2013) further summarized the expansion (the first two) and reduction (the last one) effects in the following three axes:

i Increase in productivity: constructional productivity is mostly a matter of expanding type-frequency1;

ii Increase in schematicity: the micro-construction itself may become more abstract. And the schema itself may expand and include more members, i.e., may represent more lexical categories;

iii Decrease in compositionality: a decrease in the transparency of the match between meaning of the parts and the form/syntax. And a decrease in compositionality arises when there is mismatch between the older morphosyntax and a newer meaning.

Traugott & Trousdale (2013:113-122)

In depth, Traugott & Trousdale (2014) further proposed two types of expansion involving type frequency and token frequency in contentful or lexical constructionalization.

1 The definitions of type frequency and token frequency are adopted by referring to Bybee & Thompson (1997:378). They argue that the former deals with “the count of the occurrence in texts of particular words or phrases, such as broken, have and I don’t think”, while the latter concerns “how many different lexical items a certain pattern or construction is applicable to. For instance, the regular English Past Tense -ed has a very high type frequency because it applies to different verbs”. Given this, the compound chi-zao as an instance is actually associated with token frequency. Although frequency and productivity are two different concepts, the former does play a role in the latter.
The former is the extent to which schemas sanction other less schematic construction-types, whereas the latter deals with the expansion of constructs. In terms of word formation, they argue that the contentful constructionalization is complicated because the “expansion and reduction are intertwined at the level of both schemas and individual construction-types, and the initial stage of word formation is usually the fixing of a phrase as a compound” (p. 273).

The study of the compound word *chi-zao* fits in well with the framework of constructionalization for the following reasons:

To begin with, the compound word *chi-zao*, according to the definition of contentful or lexical constructionalization, can be typically taken as a creation of new form and meaning of signs. The monosyllabic morpheme *chi* means “late” while *zao* means “early”. Section 5 presents the compound word *chi-zao* (disyllabic) as a newly-formed construction whose meaning indicates modality instead of the two polarized temporalities (late and early), and the constructional meaning in this sense is based on the whole structure rather than the combination of the components’ meanings. Furthermore, the emergence of *chi-zao* as a new construction results from an instantaneous change after a succession of micro-steps. The contentful constructionalization of *chi-zao* as a dynamic and systematic pairing of form and meaning is evidenced by probing the historical data of Chinese.

Next, a close relationship between usage and grammar in the process of constructionalization can be found through my analysis of the construction *chi-zao* in the historical data. For example, as I will show later, the early rhetorical use of *chi* and *zao* in poems contributes to the grammatical use (chi zao) as a nominal phrase, and this prepares for a dominant use of *chi-zao* as a compound word in Chinese grammar. From usage to grammar the case *chi-zao* can signify that the rhetorical device as a kind of usage comes before grammar but helps shape grammar in history.

At last, the use of constructionalization as a new term sidesteps the problem of overlapping between grammaticalization and lexicalization, which are not easily identified by examining the compound word *chi-zao*. As Lightfoot (2011:439) notes, “most recognition is that grammar and lexicon are not mutually exclusive categories, and they both refer to synchronic and diachronic processes, as well as to theoretical frameworks”. Hüning & Booij (2014) pinpoints the issue that a division between lexicalization and grammaticalization does not help account for word formation which concerns both aspects in historical linguistics, and this can also be confirmed in Traugott & Trousdale (2014). The creation of constructionalization incorporates certain features of grammaticalization and lexicalization into a unified theory of how a new construction comes into being. Therefore, it does not matter whether the compounding in Chinese is a process of lexicalization or grammaticalization under the theory of constructionalization.

### 3. Previous Studies

#### 3.1 Grammaticalization of Chinese antonymous compounds

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2 It seems that neither grammaticalization nor lexicalization fits into the historical change of *chi-zao* by checking the comparison between the two concepts in Brinton and Traugott (2005).
Traditionally, there has been rich discussion concerning Chinese antonymous compounds with regard to grammaticalization in the literature. Early studies either focus on the classification of antonymous compounds as a compound group, or examine syntactic and semantic characteristics of them by adopting a corpus-based approach. For example, Tan (1989) and Chen (1989) generally examine the categorization, syntactic distribution, and semantic features of antonymous compounds. Some case studies are targeted at the description of linguistic characteristics of Chinese antonymous compounds from synchronic and diachronic perspectives. For instance, Li (1999) discusses the categorization of the Chinese adverb *fan-zheng* ‘anyway’ where *fan* ‘the reverse side’ and *zheng* ‘the obverse side’ are antonymous words. Xing (1999) examines the difference between the pair of synonyms *xiong-di* ‘older brother-younger brother=brothers’ and *di-xiong* ‘younger brother-older brother=brothers’ by analyzing data from different dialectal dictionaries and literary works. Fang & Zeng (2007) delineates the semantic development of the compound adverb *hao-dai* ‘good-bad=at any rate’ through the lens of grammaticalization and subjectivization. Paris & Vinet (2010) offers a semantic and syntactic analysis of approximative *zuo-you* ‘around’ which is a compound word formed by the coordination of two antonymous nominal localizers: *zuo* ‘left’ and *you* ‘right’. Other studies also focus on a comprehensive description of semantic and syntactic distribution of antonymous compounds. For example, Lang (2008) mainly deals with the derivation, interpretation, and formation of antonymous compounds by checking a Chinese corpus. Zhang (2013) centers primarily on the internal semantic structure and the conceptual hierarchy of antonymous compounds such as *shang-xia* ‘up-down=around’, *chang-duan* ‘long-short=length’, *zhang-luo* ‘rise-fall=fluctuation’, *da-xiao* ‘big-small=size’, and *lai-wang* ‘come-go=contact’. In the same fashion, Zhang & Xiao (2015) analyzes quantitative antonymous compounds including *da-xiao* ‘size’, *duo-shao* ‘more-less=amount’, *chang-duan* ‘length’, *kuan-zhai* ‘wide-narrow=width’, *gao-di* ‘high-low=height’, and *shen-qian* ‘deep-shallow=depth’, with the help of Chinese corpora.

By using data from dictionaries and previous studies, Zhou (2015) discusses the functional shift in antonymous compounds and explains how and why the word class changes. He argues that word class change is caused by the antonymous relation, metaphor, and metonymy. Besides, nouns are more stable than adjectives and verbs, and the conceptualization process of the compounds ends up being nouns.

### 3.2 The issue

By and large, most of the previous studies investigated Chinese antonymous compounds including *chi-zao* and other antonymous compounds in a general manner, their frameworks were actually not linked with diachronic construction grammar. As discussed before, the traditional distinction between lexicalization and grammaticalization in terms of the historical change of *chi-zao* is fuzzy. Additionally, the antonymous compound *chi-zao* ‘sooner or later’ is commonly used in both written and oral Chinese today. For instance, there are 1741 relevant cases in modern time and 56 cases in Qing and Ming dynasties can be also found in the CCL corpus. The significance of this study is that it provides deep insights into the interplay of the unified model “constructionalization” and compounding by looking at the formation of *chi-zao* in history, which again has not yet attracted considerable attention from
previous studies. By following the description and discussion of diachronic changes, I will summarize the findings from *chi-zao* as form-meaning pairing under the constructionalization model and then propose theoretical claims as implications. What does the case *chi-zao* tell us in terms of the theory of constructionalization? This will be the main issue addressed beyond the historical analysis of *chi-zao* as a compound word.

4. Data and methods

Corpus data were employed for this study. The description of the Chinese antonymous compound *chi-zao* was generally based on data retrieved from the Peking University Chinese Corpus (CCL) and the Beijing Language and Culture University Chinese Corpus (BCC). The data of historical change in *chi-zao* comes from the Classical Chinese portion of the CCL corpus. Because the Classical Chinese and the Modern Chinese portions as subcorpora differ in size, I used relative frequencies in analyzing the diachronic distributions of the relevant constructions containing the string of *chi* and *zao*. Classical Chinese is a broad term which is in contrast to Modern Chinese, and the investigation of historical data needs to be located at a specific stage. Hence, I referred to Chen’s (1999:2) classification of Chinese in history to group Chinese into different periods with different names. For instance, Chinese in the Tang dynasty (618 CE-907 CE) is mostly termed as Medieval Chinese while Chinese in the Ming dynasty (1368 CE-1644 CE) is categorized as Pre-Modern Chinese, and the Modern Chinese ranges from the Qing dynasty (1644 CE-1912 CE) to the present.

In addition to the historical primary texts in the CCL and BCC Corpus, I examined secondary literature as a complement to my data collection, including Tang poems and part of novels in the Ming dynasty and Qing dynasty. All the poems are from the book *Quan Tangshi* (全唐诗), which was commissioned in 1705 at the direction and published under the name of Peng Dingqiu in the Qing dynasty. The book is the largest and widest collection of Tang poetry, containing some 49,000 lyric poems by more than twenty-two hundred poets (Yu 1994). In order to get easy access to materials, I used the first version of *Quan Tangshi* (1960) published by Zhonghua Book Company, one of the most popular educational publishers focusing especially on Classical Chinese works. The English translations of Tang poems were also consulted where available.

Two constructional patterns including *chi zao* as a nominal phrase and *chi-zao* as a compound adverb were searched from the corpora. Parts of examples of *chi-zao* were searched from BCC corpus where the frequency of its collocations is easy to acquire. However, my frequency count centers mainly on the CCL corpus in which the time (which dynasty) and source (which text) for the two constructions is clearly annotated and categorized in the database. First, I generated from CCL a randomized sample of *chi zao* and *chi-zao* as keywords, and then counted the raw frequencies or percentages of the two constructional patterns by manual annotations. Second, I retrieved all the tokens of the two

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3 The link for CCL is [http://ccl.pku.edu.cn:8080/ccl_corpus/](http://ccl.pku.edu.cn:8080/ccl_corpus/) and the link for BCC is [http://bcc.blcu.edu.cn/zh/cid/2](http://bcc.blcu.edu.cn/zh/cid/2). The two corpora are both popular in China and all my data was retrieved in June 2020. The CCL Classical Chinese database counts about 200 million characters and the Modern Chinese database is around 364 million characters in size. The BCC corpus is larger for its Classical Chinese portion counts 2 billion and the Modern Chinese database counts 12 billion in size. While the former mainly contains literary and vernacular materials, the latter includes different genres such as literature, magazines or news, web blogs, and academic texts. So each corpus is relatively large and balanced.
constructions in the CCL corpus for each period, and then calculated their token frequencies from my collected data. Third, I compared different token frequencies of the two constructions in different periods ranging from the Ming dynasty to the modern time. Lastly, the R studio as a statistical tool was used to draw the distribution of relative frequencies of the two constructions in different periods of time.

5. The formation of chi-zao construction in Chinese

Here are different stages to describe the lexical constructionalization of chi-zao in the historical evolution of Chinese.

5.1 Medieval Chinese: Source (rhetoric) construction

In the Tang dynasty (618 CE-907 CE), there is a wide range of cases with respect to the antithetical use of chi and zao as a kind of rhetorical device in literature, especially poetry. As Tang poetry is famous for its rigid parallelism in terms of semantics and phonology between pairs of words in a couplet, there are many pairs of words that fit into the couplet rhyme scheme of Tang poetry. The distribution of two free morphemes chi ‘late’ and zao ‘early’ in Tang poetry is a case in point, showing that chi and zao can occur in a pair of antithetical clauses (a figure of speech in which a contrast of ideas is expressed by the parallelism of words with opposite meanings) and the two morphemes are usually placed at the end of each clause in different orders. The parallel structure containing chi and zao is hereby organized as [X+chi, X+zao]_CP or [X+zao, X+chi]_CP (X=VP) in Tang poetry. The meaning of the pattern is based on the whole structure which elicits antithesis as its denotation.

It is possible that the pattern in the poems is a rhetorical construction at initial stage. Liu (2010) argues that the development of Chinese grammar may benefit from rhetoric, a well-documented subject in traditional Chinese philosophy and history works. From rhetoric to grammar, language change is modularized as a continuum, indicating a gradual shift from peripheral grammar to prototypical grammar. His proposal is that a diachronic approach to the study of construction grammar in Chinese should distinguish grammar from rhetorical use, the former are conventionalized while the latter are instantaneous. By taking his idea, I argue that the parallel use of chi and zao in Tang poetry is a rhetorical construction. Its function is to not only serve as a precursor of their associated nominal phrase at a later stage, but also provide historical evidence to manifest how the two morphemes are syntactically, semantically and phonologically connected in the poem setting. Semantically, it is observed that chi ‘late’ and zao ‘early’ as a pair of antonyms are often preferred in the composition of Tang poetry. The reason is that the contrasting reading elicited by chi and zao in antithesis usually contributes to powerful and memorable arguments through balance and emphasis of the words by the poets (Vickers 1989). Consider example (1) for instance, the poet uses zao to describe the early time when the egrets usually inhabit the hills and uses chi to depicts the late time when the autumn flowers fade. The contrast between early and late time emphasizes the weather change in the fall. Similarly, in example (2) the author uses zao to describe how early he has to be enlisted in the army while using chi to emphasize how late he just got married in his life. His negative emotion and frustrating life is deeply conveyed through this
contrast. Syntactically, a plethora of Chinese morphemes today used to be free ones or can function as single words to help creating sentences in Pre-Modern Chinese, so the combination of one morpheme with another is not compact or fixed at that time. From example (1) and (2) we see that zao and chi as a parallel are both located at the end of two different clauses, and their orders can be changed in different poems, so there is no way for them to group together in this period. But why are the two morphemes usually put at the end of clauses in Tang poetry? It is rhyme scheme\(^4\) that decides the formation of a poem’s structure. Phonologically, the pair of antithetical clauses including \([X+chi]_\text{CP}\) and \([X+zao]_\text{CP}\) fits into the rhyme scheme of Tang poems, this also confirms the viewpoint that rhyme scheme as one of the typical prosodic features is popular in Pre-Modern Chinese poetry (Chen et al. 2016). Take the following antithetical clauses for example, the coda of the last character 迟 chi in example (1) is “i”, which is exactly the same as the coda of the last character 时 shi in the same position of the preceding line. Consistently, the coda of the last character 迟 chi is identical to the coda of the last character 期 qi in the same position of the following line for the reason that they all share the coda “i” as a front vowel. Likewise, example (2) shows that the coda of the last character 早 zao is “ao”, which is the same as the coda of the last character 抱 bao in the preceding line as well as the last character 好 hao in the following line. Another factor concerning rhyme schema is the tone patterns in Chinese poems. Downer & Graham (1963) highlight tone patterns in the five-syllable or seven-syllable regulated verse (五七言律诗), suggesting that 1) the tone of the last character in a clause should be distinctive from the tone of the last character in the following clause; 2) the difference lies in the requirement that two tones (level and oblique) can be alternately used between two clauses. Traditionally, level tone (平) contains the first tone and second tone while oblique tone (仄) represents the third and fourth tone in Chinese. Consider example (1), hou51\(^5\) is an oblique tone and shi35 is a level tone in the first clause, the word zao214 is an oblique tone while chi35 represents a level tone in the second clause, and jing51 is an oblique tone while qi55 is a level tone in the third clause. On this matter, the tone pattern for the poem is “XXXXO, XXXXL, XXXXO, XXXXL, XXXXO, XXXXL” (O is oblique tone, L is level tone, X is the non-final character in each clause). The tonal contrast between level tone in chi35 and oblique tone in zao214, therefore, fits the rhyme schema in the Tang poetry. The rhyme schema can be also applied to examples (3) and (4), for length limitation, details for the full poems will not be introduced here.

Two motivations are considered for the influence of the rhetoric on the initial stage of the constructionalization. It is fair to say that antithesis as an internal factor allows for the parallel use of chi and zao in a line, and that the rhyme scheme in Tang poems makes the coda consistent and tone contrastive in the last characters between the lines. The external factor, such as the tendency of disyllabication (Arcodia 2007) in the history of the Chinese language, triggers the antithetical pattern to narrow down, later becoming a more condensed structure. The parallel use of chi and zao with a different word order in Tang poems, from my

\(^4\) Huang & Liao (2007:54) define the rhyme scheme as a rule which requires “coda (ending of a Chinese syllable, either vowel or consonant) of the last character to be similar or same in each line of a poem. Note that the pronunciations for all the characters come from Modern Chinese not Chinese in the Tang dynasty, for limitation of my knowledge, I use modern sound systems to appreciate the Tang poetry and the rhyme scheme still works in the modern pronunciation of these poems.

\(^5\) Chao (1968) proposed that Mandarin Chinese has four tones marked by different values such as 55 (level), 35 (rising), 214 (fall-rise), and 51 (falling).
standpoint, represents the rhetorical construction that might serve as the source in the process
of constructionalization. As we can see, the rhetorical construction in Medieval Chinese is at
clause level, with its own meaning and form in the poems. What is more important is that the
rhetorical construction at the beginning indeed provides a good context for the condensation
of the antithetical clause into the semi-fixed structure "chi zao" as NP construction later.

(1) 竹怜新雨后，山爱夕阳时。闲鹭栖常早，秋花落更迟。家童扫萝径，昨与故人期。
*zhu      lian    xin- yu   hou,   shan  ai   xi -yang   shi.*
bamboo caress new-rain after hill love sunset time
*xian-lu    qi    chang    zao,    qiu-hua    luo    geng    chi.*
free-egret perch often early autumn-flower drop more late
*jia-tong    sao    luo-jing,    zuo    yu    gu-ren    qi.*
houseboy sweep vines-path yesterday with friend appointment

‘The bamboos, after rain, seem tenderly sweet, and the hill looks great at dusk of the day. The
free egret perches somewhere often early, while the autumn flowers in bloom are to fade late.
My houseboy has given the vines path a good sweep, and I made an appointment with my
friend yesterday.’
*(Gu Kou Shu Zhai Ji Yang Buque, ‘To My Friend Yang from My Study’)*

(2) 含酸欲谁诉，展转伤怀抱。结发年已迟，征行去何早。寒暄有时谢，憔悴难再好。
*han  suan    yu  shei  su,  zhan- zhuan  shang  huai-bao.*
with sorrow will who talk toss hurt aspiration
*jie-fa    nian  yi    chi,   zheng-xing  qu   he    zao.*
get married age already late enlist go quite early
*han-xuan you-shi xie, qiao-cui nan zai hao.*
greeting have-time end haggard hard again well

‘With sorrow whom will I talk to? The storm-tossed life hurts my aspiration. It is a late age to
get married, while it is quite early to be enlisted in the army. Greeting and caring will come to
an end, but it’s hard for a haggard man to get better again.’
*(Gu Bie Li, ‘Ancient Farewell’)*

(3) 月移深殿早，春向后宫迟。
*yue    yi    shen dian    zao,  chun    xiang    hou-gong    chi.*
moon move.to inner hall early spring come.to imperial harem late
‘The moon moves to the inner hall early, while the spring comes to the imperial harem late.’
*(Chang Men Yuan, ‘Changmen Complaint’)*

(4) 塞口云生火候迟，烟中鹤唳军行早。
*sai-kou  yun  sheng  huo  hou   chi, yan   zhung   he   li    jun    xing    zao.*
frontier smoke rise fire wait late smoke inside crane cry army set.off early
‘It is a long-lasting fire as the smoke rises above the frontier fortress, but the army sets off
early as cranes cry in the smoke.’

* All the cases come from 全唐詩 Quan Tangshi (Peng 1960).
(Song Zhang Langzhong Huan Shu Ge, ‘The Song for Sending Director Zhang to Return to Sichuan’)

5.2 Pre-Modern Chinese: Intermediate construction

Figure 1 shows the details about the distribution of relative frequencies of the string chi and zao forming two constructions at different stages since Pre-Modern Chinese (data from CCL).

![Graph showing relative frequencies and number of occurrences of constructions concerning chi and zao in the history](image)

**Figure 1** The relative frequencies and number of occurrences of two constructions concerning chi and zao in the history

5.2.1 Emergence of nominal phrase as NP construction

Ming dynasty (1368-1644) has witnessed the formation of chi + (disjunction) + zao as an NP construction. The novel construction gets more condensed and has become part of the grammar shown in the written Chinese of this period. That being the case, the combination of chi and zao as a newly-emerged construction shows a transition from the antithetical use (rhetoric) to the nominal phrase (grammar) in classical literal works especially novels. As the coalescence and fixation rule (Lehmann 1985) predicts, the antithetical structure containing chi and zao (i.e. ...chi, ...zao or ...zao, ...chi) as an adjacent form becomes condensed and the free linear ordering is more likely to be established as one token: chi...zao. That being said, the degree of its fixation is not that high at this stage, given that the disjunction words he and huo (both stand for ‘or’) can be optionally filled into the gap between chi and zao without changing the meaning of the whole structure. From a constructional perspective, the form of chi zao is more like a juxtaposition (the absence of disjunction “or” between the two morphemes), it is analyzed as a nominal phrase which is short for [chi + (he/ huo)disj.+ zao]NP.
Additionally, the constructional meaning of *chi zao* depends on the whole structure, showing
the idea of disjunction, which is a semantic subtype of coordination denoted by the linker
(Haspelmath 2007). The constructional meaning (disjunction) of *chi zao* in this way can be
predicted based on the meaning of its two components (lateness or earliness). As illustrated in
example (5) below, *chi zao* as a nominal phrase is modified by *gong-ming* ‘fame’ to function
as the subject *gong-ming chi zao* in the second clause, showing the late or early arrival of
fame. Example (6) displays the fact that *chi zao* follows the verb *fen* ‘categorize’ to form the
verb phrase *fen chi zao*, *chi zao* here serves as an object, and the subject of the last clause is
optionally omitted but refers to the noun *bao* ‘return’ in previous clauses. The meaning of the
verb phrase therefore is to specify the distinction between late and early time when it comes
to the arrival of return. The same goes with *chi zao* in example (7), where the structural
particle7 *zhi* (functions as “de”的 in modern Chinese) is used to link the modifier (the verb
“yu”) with the modified (the NP “chi zao”). So *chi zao* clearly should be a nominal phrase
functioning as object to follow the verb *yu* ‘meet’, and its meaning is to show the late or early
time to meet the emperor. Noticeably, the cases where *chi zao* is a nominal phrase are only 14
(see Table 1 below) in the Ming dynasty, implying the newly emerged construction is not yet
productive in Pre-Modern Chinese. Among them, there are two cases where the conjunction
words such as *he* in (8) and *huo* in (9) have the same meaning “or”. Also, they can be freely
inserted into the gap between *chi* and *zao* to form a nominal phrase, so the phrase *chi he zao*
in (8) is equal to *huo chi huo zao* in (9). The two examples both prove that *chi zao* as a
nominal phrase can function as temporal adverbial, seeing that the phrase can occur at the
beginning of the second clause in (8) or be freely filled into the gap between the two clauses
in (9). This shows that even if *chi zao* is still a nominal phrase, its function has been shifted to
the adverbial use, which heralds the establishment of *chi-zao* as a compound adverb later.
Overall, *chi zao* at this stage is a nominal phrase functioning as subject, object or adverbial in
different contexts.

(5) 若使文章皆遇主，功名迟早又何妨。

*ruo shi wen-zhang jie yu zhu, gong-ming chi zao you he-fang.*

If let works all meet owner fame late early EM do.not.matter

‘If your works are appreciated by the owner (upper class), whether a late or early arrival of
your fame does not matter.’

(*Jing Shi Tong Yan*, ‘Convincing Arguments Warning the Public’)

(6) 善有善报，恶有恶报，莫道无报，只分迟早。

*shan you shan bao, e you e bao, mo dao wu bao, zhi fen chi zao.*

good have good return evil have evil return NEG say NEG return only categorize late early

‘One good turn deserves another, sow the wind and reap the whirlwind, so don’t say there is
no return, the arrival of the return is only categorized as either a late or early time.’

(*Bao Gong An*, ‘Judge Bao Mysteries’)

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7 The structural particle *之*(zhi) or *的*(de), according to Wang et al. (2005), is a function word that denotes the syntactic
relations between the elements that precedes and follows it. For example, *gao yang zhi pi* ‘lamb’s skin’ (p. 499) shows the
function of *zhi* is to connect the modifier *gao yang* ‘lamb’ to the modified *pi* ‘skin’in Classical Chinese. It is equal to say *gao
yang de pi* in Modern Chinese, since *de* is more widely used as a structural particle today.
Table 1 Frequency of syntactic distribution in \textit{chi zao} as NP

<table>
<thead>
<tr>
<th>Syntactic distribution</th>
<th>Subject</th>
<th>Object</th>
<th>Adverbial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ming dynasty</td>
<td>4 (28.5%)</td>
<td>8 (57.1%)</td>
<td>2 (14.4%)</td>
</tr>
<tr>
<td>Qing dynasty</td>
<td>5 (23.8%)</td>
<td>16 (76.2%)</td>
<td>0</td>
</tr>
</tbody>
</table>

5.2.2 Competition of the two constructions

From Figure 1 we know that it is the frequency that matters constructional productivity (Traugott & Trousdale 2013). As the nominal phrase \textit{chi zao} becomes more frequently used (87.5%) in the Ming dynasty, the structure of \textit{chi zao} thus is further condensed into a disyllabic compound word \textit{chi-zao} with limited use (12.5%). This shows that \textit{chi-zao} as a new construction type (adverb) starts to come into being, it coexists and competes with the nominal phrase \textit{chi zao}. The nominal phrase \textit{chi zao} remains in the schema of nouns, whereas the new-emerged construction \textit{chi-zao} as a compound enters into the schema of adverbs, \textit{chi zao} and \textit{chi-zao} accordingly coexist in nodes of their own schemata in the whole constructional network. However, a succession of micro-steps of change can be found in the two constructions which share the same pronunciation and characters, resulting in ambiguous readings in re-analyzable contexts from certain cases. For example, there are two
interpretations in both (10) and (11), one is the disjunction (e.g. (10b) and (11b)) denoted by 
chi zao as a nominal phrase, another is “sooner or later” (e.g. (10a) and (11a)) expressed by 
using chi-zao as a compound adverb. Specifically, it is unclear whether the interpretation 
should be the speaker’s certainty (“sooner or later”) or just a time choice (“lateness or 
earliness”) if we compare (10a) with (10b). The event telling that the geometry will be 
changed in (10) concerns the future tense, but we don’t know whether the occurrence of the 
event matters subjective certainty or objective choice. The same goes for (11a) and (11b)8. 
The coexistence and competition of chi zao and chi-zao constructions corroborates the 
divergence principle (Hopper 1991) which results in pairs of a form having a common 
etymology but different functions. Although the ratio of chi zao as a nominal phrase is higher 
than that of chi-zao as a compound, it is not safe to say the number of chi zao is dominant 
given that there are only 14 cases found in Pre-Modern Chinese. Importantly, we should be 
aware that the emergence of chi-zao as a lexical construction is instantaneous at this stage, 
creating a possibility for an increase in its productivity at a later stage.

5.2.3 Decrease in compositionality

Besides, from the data in the Ming dynasty we see that there is a decrease in 
compositionality through a transition of word meaning from “lateness or earliness” to “sooner 
or later”. The word meaning of chi zao as a specific concept starts to be bleached or 
weakened into nonspecific concept shown by the compound chi-zao. It is clear that the 
meaning of chi zao shows the choice between the two polarities (lateness and earliness) while 
the meaning of chi-zao indicates sometime in the future instead of a specific time. The new 
meaning at this stage has started to lose its original meaning, associating itself with modality 
to encode a high degree of confidence or belief that something will happen. The adverb 
chi-zao, as priorly discussed, is applicable to examples (10) and (11), revealing that the 
speakers believe something is sure or doomed to happen without any indication of the 
specific time in the future. Therefore, the compositionality in chi-zao as a lexical construction 
has been reduced since its meaning “sooner or later” (more likely to be modality than time) is 
not the combination of the two polarities chi and zao. Correspondingly, the transparency of 
the match between the meaning of the parts and form or syntax, as Traugott & Trousdale 
(2013) mentioned, has therefore been diminished. The reason lies in the fact that there is a 
mismatch between the older morphosyntax (chi zao) and a newer meaning (sooner or later), 
that is, the meaning or function transitions have happened but the form stays the same at this 
point. It is worth mentioning that the bleached or weakened meaning in chi-zao also supports 
the process of desemanticization, as discussed in Heine (2003).

5.2.4 Increase in schematicity

Furthermore, the aforementioned semantic change also goes with an increase in the 
schematicity (Traugott & Trousdale 2013), on the grounds that chi zao as a nominal phrase 

8 Notice that examples (10) and (11) are counted twice in Tables 1 and 2. For example, in Ming dynasty, the two examples 
demonstrate that chi zao as an NP serves as adverbial, the same goes with the two examples where chi-zao serves as 
sentence-initial adverbial when it comes to adverb.
NP has expanded its use to chi-zao as a compound adverb. When chi-zao emerges as an adverb construction, it in fact loses the main features of NP (e.g. the ability to be modified by “de” which is often used to mark a noun, and to serve as object or subject in constituent analysis), so it has experienced a lexical conversion from NP to adverb. Syntactically, chi-zao in (10) and (11) as a single unit can both appear at the start of a clause, which meets the distribution of adverbials in Chinese sentence analysis. And the function of chi-zao as an adverb is to modify verbs or verb phrases in the sentences. Semantically, the speakers can also use chi-zao to modify the action “change the geomancy” in (10) and “only stay there” in (11) to convey their confidence in statements, as they believe that something will be sure to happen. Bearing this in mind, the interpretation of chi-zao as an adverb appears to be a modality and its meaning becomes more subjective, which is different from “a choice between lateness and earliness” denoted by chi-zao as an NP. I will mainly discuss the mechanism in which the temporal reading has been shifted to subjectivity in Section 6. Hence, it is at this stage (Qing dynasty) that the emergence of chi-zao in a few cases foretells or paves the way for its schematicity and conventionalization as an adverb construction.

(10a) 若无犯此字，迟早改风门。

ruo wu fan ci zi, chi-zao gai feng-men.

‘If you do not violate what the character indicates, sooner or later the geomancy will be changed.’

(San Ming Tong Hui, ‘The Book of Fortune Telling’)

(10b) 若无犯此字，迟早改风门。

ruo wu fan ci zi, chi zao gai feng-men.

‘If you do not violate what the character indicates, the geomancy will be changed at an either late or early time.’

(San Ming Tong Hui, ‘The Book of Fortune Telling’)

(11a) 元晏道：“花家亲事，是自家妻子，迟早只在那里。”

Yuan An dao, Hua-jia qin-shi, shi zi-jia qizi, chi-zao zhi zai na-li.

‘Yuan An says that the marriage in Hua’s family is related to their own wife, who will only stay there sooner or later.’

(Gu Jin Qi Guan, ‘Ancient And Modern Wonders’)

(11b) 元晏道：“花家亲事，是自家妻子，迟早只在那里。”

Yuan An dao, Hua-jia qin-shi, shi zi-jia qizi, chi zao zhi zai na-li.

‘Yuan An says that the marriage in Hua’s family is related to their own wife, who will only stay there at an either late or early time.’

(Gu Jin Qi Guan, ‘Ancient And Modern Wonders’)

1
5.3 Modern Chinese: Constructionalization

5.3.1 The dominance of chi-zao as compound adverb

As previously noted, the string of chi and zao starts to become fixed or frozen since the Ming dynasty. As a lexical construction, chi-zao serves as a compound adverb pertaining to epistemic modality elicited by “sooner or later” in its meaning. More details about how the meaning of chi-zao is linked with epistemic modality will be further discussed in Section 6. The data in Table 2 shows that the compound adverb chi-zao becomes more widely used as it can occur in preverbal (41%) or sentence-initial positions (59%) in the Qing dynasty. It is important to know the way to differentiate the two categories, such as chi zao as an NP and chi-zao as an adverb, to gauge whether a sentence is grammatical in its structure and complete in its meaning without adding the two categories. For example, chi-zao in (12) appears at the beginning of the last clause, it can be removed without hurting the grammaticality and meaning of the whole sentence, for people can also express the similar idea by saying “there will always be a day when I leave this stage” without the use of chi-zao ‘sooner or later’. From example (13) to (14), the verb phrases you yi si “have a death” and yao Wan-sui zuo-zhu “need the emperor to handle” are both modified by chi-zao capturing the preverbal positions. The meanings and acceptability of the two sentences can also not be changed without the use of chi-zao. The same goes for example (15). Therefore, all the above cases can be grammatical and understandable without the use of chi-zao as an adverb.

On the other hand, chi zao as a nominal phrase cannot be removed since its syntactic category is mostly restricted to subject and object in the history. In the Qing dynasty, chi zao as an NP does not totally disappear, it still exists in a minority of cases (35% in Figure 1). For instance, example (16) shows that chi zao appears after de the modal particle to form a larger nominal phrase yong gong de chi zao ‘the lateness or earliness of working hard’, it serves as object in the whole sentence for it occurs after the preposition zai ‘lie in’. In this case, the syntactic category captured by chi-zao is obligatory because the object and subject are usually indispensable components in a grammatical sentence. Without the use of chi-zao, the sentence in (16) is incomplete thus cannot make sense at all. Likewise, example (17) tells that chi zao as a nominal phrase can serve as object and occur in the post-verbal position such as mei shen-me chi zao ‘does not have late or early time’. The position captured by chi-zao is also obligatory given that the sentence is not complete without the object.

(12) 我读书十年，总算上过场，唱过戏了，迟早总有下场的一天。
wo du-shu shi-nian, zong-suan shang guo chang, chang guo xi le, 
chi-zao zong you xia chang de yi tian.

‘I have studied for ten years, at long last I have been on the stage and sung the opera, sooner or later there will always be a day when I leave this stage.’

(13) 人生迟早必有一死。
ren-sheng chi-zao bi you yi si.
life late-early must there be one death

‘Sooner or later there must be a death in one’s life.’

(Ba Xian De Dao, ‘The Eight Immortals Obtains Enlightenment’)

(14) 这事迟早终要万岁作主。

zhe-shi chi-zao zhong yao Wan-sui zuo-zhu.

this-thing late-early ultimately need emperor handle

‘Sooner or later this thing needs the emperor to handle.’

(Ba Xian De Dao, ‘The Eight Immortals Obtains Enlightenment’)

(15) 将军勿虑，我看他们十一人，皆是应有难星，迟早总能遇救。

jiang-jun wu lü, wo kan ta-men shi-yi ren, jie shi ying you nan-xing,

General NEG worry 1SG see 3PL eleven person all are should have disaster

chi-zao zong neng yu-jiu.

late-early always can be-saved

‘General, no need to worry about this, I see that all these eleven people should experience disaster, but sooner or later they can be saved.’

(Xu Ji Gong Zhuan, ‘Biography of Ji Gong a sequel’)

(16) 功名自有定数，中与不中倒也不在用功的迟早。

gong-ming zi you ding-shu, zhong yu bu zhong dao-ye bu zai yong-gong

fame itself has destiny get and NEG get actually NEG lie in work hard
de chi-zao.

ATTR late early

‘The fame itself has destiny, so whether working hard to obtain the fame does not actually lie in either it is late or early.’

(Hong Lou Meng, ‘Dream of the Red Chamber’)

(17) 你我的事，也没什么迟早。

ni wo de shi, ye mei shen-me chi zao.

2SG 1SG ATTR thing EM not have what late early

‘(Dealing with) our case does not have a late or early time.’

(Lü Ye Xian Zong, ‘The Wizard of Oz’)

Table 2 Frequency of syntactic distribution in chi-zao as adverb

<table>
<thead>
<tr>
<th>Syntactic distribution</th>
<th>Preverbal adverbial</th>
<th>Sentence-initial adverbial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Period</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ming dynasty</td>
<td>0</td>
<td>2 (100%)</td>
</tr>
<tr>
<td>Qing dynasty</td>
<td>16 (41%)</td>
<td>23 (59%)</td>
</tr>
</tbody>
</table>

5.3.2 The expansion and reduction effects in (contentful) constructionalization
The (contentful) constructionalization of *chi-zao* as a compound adverb can be reflected in its increase of schematicity, decrease of compositionality, and growth of frequency of use in Modern Chinese. The data in Figure 1 reveals that, in the Qing dynasty (1644 CE-1911 CE), the *chi-zao* compound serves as a modal adverb in a majority of cases (65%), while the remaining cases (35%) have to do with *chi zao* as a nominal phrase. The result of statistical competition between *chi zao* and *chi-zao* certifies the hypothesis that “new constructions come into being and spread by gradually increasing their frequency of use over time” (Bybee & McClelland 2005:387). As mentioned before, an increase in the productivity of *chi-zao* is often accompanied by a rise in its schematicity, those are the expansion effects mentioned by Traugott & Trousdale (2013). The fact that the new micro-construction *chi-zao* becomes more schematic and abstract results from its increased token frequency (from 12.5% to 65%) in the Qing dynasty. Finally, the expanded productivity and schematicity of *chi-zao* contribute to its constructionalization as a compound word, qualified as a new meaning and form pairing. The new construction *chi-zao* becomes close to the adverb schema with a non-compositional meaning. According to the reduction effect, the meaning of *chi-zao* is not the sum of its components because of decreased compositionality. Meanwhile, the frequent use of *chi-zao* compound functioning as modal adverb gives rise to its entrenchment as a morpho-syntactic structure, making it become resistant to change until today. Figure 1 provides good evidence that *chi-zao* as a new form-meaning pairing is rather dominant (98.14%) while the ratio of *chi zao* has been greatly reduced (35% → 1.86%) from the Qing dynasty to the present. The formation and popularity of *chi-zao* confirm the conserving effect that “high-frequency sequences become more entrenched in their morpho-syntactic structure and maintain a more conservative structure” (Bybee 2006:715). It is believed that the constructionalization of *chi-zao* as a conservative structure and its dominant use prove its lexical or contentful conventionalization in modern Chinese.

The historical trajectory of constructionalization in *chi-zao* is hereby summarized in Figure 2:

<table>
<thead>
<tr>
<th>FORM</th>
<th>MEANING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source construction</td>
<td>[X+chi, X+zao]<em>{CP} / [X+zao, X+chi]</em>{CP}</td>
</tr>
<tr>
<td>(Medieval Chinese)</td>
<td>(X=VP)</td>
</tr>
<tr>
<td>Intermediate construction</td>
<td>[chi+(he/ huo)<em>{disj.}+zao]</em>{NP}</td>
</tr>
<tr>
<td>(Pre-Modern Chinese)</td>
<td></td>
</tr>
<tr>
<td>Constructionalization</td>
<td>[chi-zao]_{Compound Adverb}</td>
</tr>
<tr>
<td>(Modern Chinese)</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 2** Contentful constructionalization of *chi-zao* in Chinese

**Interim Summary:**
There are two viewpoints that need to be clarified through the historical analysis of *chi-zao* within the constructionalization framework.

First, the unidirectional\(^9\) evolution of compound adverb *chi-zao* shows it is actually a lexical or contentful construction, a form-meaning pairing with a high frequency. The architecture of construction grammar puts lexicon and grammar on a “cline” (Goldberg & Jackendoff 2004:532) or “gradation” (Langacker 2011:96) with contentful, referential, and truth-conditional constructions at one pole and procedural, non-referential, and non-truth-conditional ones at the other pole. In this regard, it is possible that compounds could be at the lexical pole, or at the grammatical pole. However, the historical data reveals that *chi-zao* as a lexical construction has emerged instantaneously after previous changes, and it has been frequently seen and conventionalized as a modal adverb since the Qing dynasty.

Second, both reanalysis and analogy as primary mechanisms work in the constructionalization of *chi-zao* as a compound word. Harris & Campbell (1995) argue that “reanalysis is a mechanism which changes the underlying structure of a syntactic pattern and a given reanalysis may primarily affect any one of the following aspects: (i) constituency, (ii) hierarchical structure, (iii) category labels, (iv) grammatical relations, and (v) cohesion” (p. 61). Hopper & Traugott (2003) also define reanalysis as a modification of grammatical-syntactic and morphological-semantic properties of forms, and then analogy happens when a form from one syntactic environment is extended to another. One observation is that the formation of *chi-zao* in modern Chinese does signal a transition from nominal phrase to compound adverb; this confirms the role of reanalysis in the change of category labels, as mentioned by Harris & Campbell (1995). Meanwhile, the mechanism of analogy works in the constructionalization process since there is a change in semantics (from time to modality) and distribution (from subject or object to adverbial) by comparing *chi zao* with *chi-zao*. Another finding shows that although the constituency from *chi zao* to *chi-zao* has not altered, the structure becomes nevertheless more condensed when it comes to a compound. The structural shift from phrases to compounds as lexical categories is supported by Shimamura (1986), who argues that the formation of phrasal compounds, such as *after-the-party*, is affected by the rule of reanalysis through which the phrase *after the party* can be lowered to the adjective as a lexical category. In the process of constructionalization, the conversion from NP (*chi zao*) to compound adverb (*chi-zao*) has undergone a reanalysis which triggered a structural change from phrasal to lexical status.

6. Cognitive processes: subjectivity, frequency, and metaphor

By investigating *chi-zao* as a case study in the development of Chinese history, I agree with the viewpoint from Coussé et al. (2018) that Construction Grammar as a framework (constructionalization) generally integrates different aspects of grammaticalization and

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\(^9\) Notice that Ogawa et al. (2020) deal with a similar construction where the combination of verbs or adjectives with mutually antonymous meanings leads to a compound noun (e.g. *agari-sagari* ‘go.up-go.down=going up and down repeatedly’). However, their study crucially differs from my case study in that the constructionalization in Japanese proceeds from a compound or juxtaposition to a coordination then to a clause diachronically. The trajectory of constructionalization in Japanese in this case is totally opposite to the changing direction of *chi-zao* and other antonymous compounds in Chinese history. Here, I would predict that there exists bidirectionality of constructionalization in different languages, varying from construction to construction. Due to space constraints, I will not touch the directionality of compounds within the model of constructionalization. More cross-language evidence needs to be collected to make a strong argument for the relation between directionality and constructionalization in the future.
demonstrates how the syntagmatic and paradigmatic dimensions of grammaticalization can be addressed by means of constructions. Also, Traugott (1995, 2010) highlights the benefit of adopting the constructionalization approach, indicating that the approach serves as a bridge to connect subjectivity as semantic and pragmatic changes with morphosyntactic changes associated with grammaticalization. In this way, the claim that subjectivity is a semantic-pragmatic change while grammaticalization is a morphosyntactic change can be reinforced. Concerning metaphor in the grammaticalization, Matlock (1989) argues that metaphor is important for decoding grammaticalization of evidentials or epistemic modality through the examination of an evidential marker in Maricopa. Since constructionalization as a usage-based approach inherits and incorporates the main features of grammaticalization, some cognitive processes or motivations such as subjectivity, frequency, and metaphor should also work on the way to constructionalization.

6.1 Subjectivity

In this section, I argue that the elements of subjectivity can be embodied in the constructionalization of the set of antonymous compounds such as chi-zao. From section 5, we know that the compound chi-zao is largely used in the Qing dynasty when the constructionalization takes place. Its word meaning “lateness or earliness” has been bleached or weakened to convey a subjective mood, showing that no matter how early or late, the speaker believes that the event is sure to happen sometime in the future. In this sense, the temporal interpretation of chi zao is replaced with modality which allows for expressing a speaker’s general belief as to whether the proposition expressed is true. From a discourse perspective, the reference denoted by chi-zao has been changed from specific (either lateness or earliness) to nonspecific (sometime in the future), and the degree of its subjectivity has been increased to focus on the speaker’s stance (he or she believes). In example (18b), the context is to indicate the speaker’s judgment on the result of an online addict; the speaker uses the adverb chi-zao to highlight the following clause hui kua diao de ‘will collapse’ as a negative result, expressing a strong sense of epistemic modality or epistemicity.

What is the relationship between subjectivity and epistemicity in terms of chi-zao? Theoretically, Traugott (2010:35) considers subjectivity as “the mechanism by which meanings are recruited by the speaker to encode and regulate attitudes and beliefs”. de Haan (2001:201) defines epistemicity as “the degree of confidence the speaker has in his or her statement.” In the same manner, Narrog (2012) regards it to be the speaker’s world knowledge. He argues that the expressions for epistemic modality in many other languages indicate that the proposition or statement modified by epistemic modal expressions can have any time, including future reference. This exactly validates the function of the adverb chi-zao in all its modern uses, indicating a speaker’s prediction with confidence that something will happen in the future. In particular, Nuyts (2001) connects epistemic modality with subjectivity by contending that subjectivity is to show whether the speaker believes that he or she knows the evidence and draws a conclusion from it. Palmer (1990) has demonstrated an evidential-like notion of subjectivity in epistemic modality as well. The interpretation of chi-zao (sooner or later) shows the speaker’s evaluation or judgment of the truth-value of the information in lieu of absolute certainty to the conclusion. As example (18b) elucidates, the
speaker judges or believes the health of the internet addict will break down by using chi-zao, but it does not mean the result will happen in the end as a matter of fact. Furthermore, chi-zao as a modal adverb in (18b) can be used to highlight or emphasize the underlined clause as a result and to express a strong sense of epistemicity in the discourse. By contrast, the example (18a) shares a similar meaning, but no emphasis is placed on the result since chi-zao can be omitted without hurting the acceptability. Note that the “degree of subjectivity and modal word class” presented by Nuyts (2001:31) also certifies that modal adverbs tend to be associated with a high degree of subjectivity rather than the low one. In this way, chi-zao as a modal adverb should interact with subjectivity.

Another interesting case is that the repetition of chi-zao in (19) also highlights the results of the social spirit, showing a strong favorable attitude in relation to epistemicity from the speaker. Givón’s (1991) quantity principle of iconicity works in the repeated use of chi-zao, revealing the more important or salient an entity is, the more coding material will be used for that entity. As the social spirit as an entity becomes more and more important, the repeated use of chi-zao as text focus actually emphasizes this great spirit by the speaker. As a result, iconicity is also associated with subjectivity embodied in the reading of chi-zao. In general, the compounding process of chi-zao in Chinese history demonstrates that subjectivity as a motivation enables the semantic-pragmatic change that interacts with constructionalization.

(18a)
如果你天天沉迷网游，你的身体会垮掉的。
ru-guo ni tian-tian chen-mi wang-you, ni de shen-ti hui kua-diao de.
‘If you are indulged in the online game every day, your health will break down.’
(chi-zao is omitted)

(18b)
如果你天天沉迷网游，你的身体迟早会垮掉的。
ru-guo ni tian-tian chen-mi wang-you, ni de shen-ti chi-zao hui kua-diao de.
‘If you are indulged in the online game every day, sooner or later your health will break down.’ (c.f. BCC)

(19) 这种扎实为学、认真从业的精神，社会上迟早会发扬，迟早会大行其道，迟早会成为主流巨流。
zhe-zhong zha-shi-wei-xue ren-zhen cong-ye de jing-shen, she-hui shang chi-zao hui fa-yang, chi-zao hui da-xing-qi-dao, chi-zao hui cheng-wei hui carry-forward late-early will being.popular late-early will become zhu-chao-ju-liu. mainstream
This down-to-earth study and meticulous work as a spirit will sooner or later be carried forward, will sooner or later be popular, will sooner or later become a mainstream in the society. (c.f. CCL)

6.2 Frequency

As previously noted, chi-zao as a token in the history is allied with the expansion effect (Traugott & Trousdale 2014) which predicts that the constructional productivity allows for the expansion of constructs. Bybee (2003:602) contends that “frequency is not just a result of grammaticalization, it is also a primary contributor to the process, an active force in instigating the changes that occur in grammaticalization”. The aforementioned data in Figure 1 shows that the frequency of chi-zao has shifted its weight from chi zao as a nominal phrase (35%) to chi-zao as a modal adverb (65%) in the Qing dynasty. In consequence, the productive use of chi-zao at that time contributes to its change from nominal phrase to modal adverb in the contentful constructionalization. It is safe to conclude that the high token frequency hereby plays an important role in the historical change of chi-zao as a compound word today.

It is worth pointing in detail that Diessel & Hilpert (2016) propose the frequency effects in grammar, showing that collocations as multi-word sequences become conventionalized under the influence of frequency or repetition. For example, unmitigated is more related to disaster than other near-synonyms such as accident and mishap, on the grounds that the string unmitigated disaster is more frequently collocated based on corpus data. In this respect, the meaning of chi-zao pertaining to modality can be evidenced by the high collocational frequency of chi-zao with typical modal auxiliaries in modern Chinese. By searching the BCC corpus, I found that chi-zao as a compound adverb is more frequently followed by the top two collocates including hui ‘will’ and yao ‘will’ in Table 3. The collocates hui, yao, neng, ke-yi, and jiang in Chinese parts of speech are traditionally treated as modal auxiliaries (Zhu 1982), whose function is close to verbs but they can be used with another verbs to express speakers’ reports on a future event based on their knowledge or current situation. From the following cases we know that chi-zao as an adverb can be collocated with hui ‘will’, yao ‘will’, and jiang ‘will’ which are all modal auxiliaries indicating the future tense. For example, the auxiliary hui is used with the verb qu-dai ‘replace’ in (20), yao is collocated with the verb che-jun ‘retreat’ in (21), and jiang can occur with the verb chao-yue ‘surpass’ in (22). All the cases share the interpretation that something will happen, thus denoting an epistemic future. Notice that neng and ke-yi among the auxiliaries are dynamic modal words10 because they literally mean “can” as shown in Table 3. However, the uses of these two auxiliaries in the contexts can signal speakers’ information regarding how they can predict the future based on the current situation. In example (23), the speaker uses neng or neng-gou ‘can’ along with chi-zao to indicate his or her confidence to have the ability to persuade someone in the future. The same goes for example (24), where the speaker or author collocates ke-yi ‘can’ with chi-zao to assert that she can be wakened up by her alarm clock if she is currently in her dream. Those cases manifest that dynamic modality can match the inference of future eventualities.

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10 The categorization of these modals and aspectual auxiliaries is based on Lin’s Table (2012:154)
It is possible that the strong collocation between *chi-zao* and these auxiliaries in different texts indicates the attraction of *chi-zao* to modal auxiliaries. The reason is the existence of semantic compatibility between *chi-zao* and these modal auxiliaries. The frequent collocation of *chi-zao* with these typical auxiliaries has largely increased the possibility (almost 47.6%) of showing modality as the function of *chi-zao*, to express speakers’ epistemicity in the Modern Chinese discourse.

**Table 3** Collocational frequency of *chi-zao* and modal auxiliaries

<table>
<thead>
<tr>
<th>Modal auxiliaries</th>
<th>BCC Modern Chinese chi-zao (6655)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 会 hui (future modal)</td>
<td>2121 (31.8%)</td>
</tr>
<tr>
<td>2. 要 yao (future modal)</td>
<td>968 (14.5%)</td>
</tr>
<tr>
<td>3. 将 jiang (future modal)</td>
<td>46 (0.7%)</td>
</tr>
<tr>
<td>4. 能 neng (dynamic modal)</td>
<td>22 (0.4%)</td>
</tr>
<tr>
<td>5. 可以 ke-yi (dynamic modal)</td>
<td>11 (0.2%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3168 (47.6%)</strong></td>
</tr>
</tbody>
</table>

(20) 62.7%的受访网民认为数字阅读迟早会取代纸质阅读。
62.7% de shou-fang wang-min ren-wei shu-zi yue-du *chi-zao* hui
ATTR be interviewed netizen think digital reading late-early will
qu-dai zhi-zhi yue-du.
replace paper reading
‘62.7% of interviewed netizens think that the paper reading will sooner or later be replaced with digital reading.’
*(People’s Daily Overseas Edition, May 19, 2016)*

(21) 在国际的压力下，伊拉克迟早要从科威特撤军。
zai guo-ji de ya-li xia, yi-la-ke *chi-zao* yao cong Ke-wei-te
PREP international ATTR pressure under Iraq late-early will from Kuwait
che-jun.
retreat
‘Under the pressure of international public opinion, the Iraqi forces will sooner or later retreat from Kuwait.’
*(People’s Daily, Oct. 23, 1990)*

(22) 姚明被认为迟早将超越奥尼尔，成为NBA最具统治力的中锋。
Yao Ming bei ren-wei *chi-zao* jiang chao-yue O’Neal, cheng-wei NBA zui
3SG PASS consider late-early will surpass 3SG become NBA most
ju tong-zhi li de zhong-feng.
have dominant power ATTR basketball.centre
‘Yao Ming is considered to be preeminent above Shaquille O’Neal sooner or later, becoming the most commanding basketball center forward in NBA.’
6.3 Metaphor

In Lakoff & Johnson (1980), metaphor typically employs an abstract concept as target domain and a concrete or physical concept as their source domain, the way we understand the metaphor is the process in which the source domain is mapped onto the target domain. The idea was adopted and developed in Heine et al. (1991), arguing that the process underlying grammaticalization can be metaphorically structured. They proposed “categorial metaphors” representing a degree of metaphorical abstraction in a scale (p. 48). The scale below illustrates a metaphorical transfer from concrete domains of human experience (e.g. physical objects or motions) on the left to more abstract domains on the right (e.g. time and states) (Heine 2003). Take, for instance, TIME and QUALITY. TIME as a relatively less abstract concept serves to conceptualize the most abstract concept QUALITY, so the categorial metaphor is QUALITY IS TIME based on Heine et al.’s model. Compared with the TIME, the QUALITY in Heine et al. (1991:49) is argued to be a “fuzzy entity denoting either non-dynamic situations or non-physical concepts”. Two reasons are: 1) TIME can be physically evidenced by pointing at one’s watch or clock, whereas a person cannot easily describe a QUALITY by directly referring to some concrete things; and 2) TIME is less subject to alternative judgments denoted by QUALITY. Let’s compare the two sentences: a. The COVID-19 will end on June, 2021 v.s. b. The COVID-19 probably will end. The former is more certain than the latter because the word “probably” as QUALITY assertion regarding epistemic modality in (b) is used to cause uncertainty of the future event, while the exact time “June 2021” in (a) is mentioned to gain its certainty in the speaker’s mind. In this regard, epistemic modality belongs to QUALITY category for it only indicates the quality or state of being modal instead of being dynamic or physical.

Particularly, Heine et al. (1991) hypothesized the correlation between these metaphorical categories and the division of word classes in Figure 3. For example, the TIME category

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11 The categorial metaphors, as Heine et al. (1991) mentioned, are different from conceptual metaphors (CMT) proposed by Lakoff & Johnson (1980). He argues that “the former is much more inclusive than the latter, for example, one categorial metaphor typically includes several clusters of conceptual metaphors” (p. 50). Additionally, the concept of TIME in CMT is usually interpreted as an abstract domain in contrast to SPACE. While in categorial metaphors, TIME can be employed as a less abstract domain compared with QUALITY the most abstract one in the scale.
matches the word type such as adverb and adposition, while the QUALITY category allows word type to be adjective and adverb.

**PERSON>OBJECT>ACTIVITY>SPACE>TIME >QUALITY**

Less Abstract  More Abstract  (Heine et al. 1991:48)

**Figure 3** The degree of abstractness in categorical metaphors

By examining the case *chi-zao*, I found from Figure 4 that its source domain as TIME can be transferred into the target domain QUALITY in the process of constructionalization. *Chi zao* as a nominal phrase represents TIME as the source domain, its meaning is referential for its temporal interpretation because there are two endpoints (polarized) in the whole timeline: early point and late point. As exemplified in (25), *chi* and *zao* as a pair of TIME polarity denote two endpoints in the Duke’s timeline: either early or late to make a career. The two contrasting choices make the Duke originally believe that he needs to make his way at either an early or late time, which should be clear in his mind. However, when he understood the reality that it does not matter whether early or late for someone to gain fame and fortune, then he had a deep sigh. While *chi zao* is a nominal phrase, it indeed can serve as adverbial when the disjunction words *he* and *huo* ‘or’ are inserted between *chi* and *zao*, as evidenced in (8) and (9) in the Ming dynasty. In view of this, I would say *chi zao* as a nominal phrase also has the function of adverb (being adverbial), as predicted by following Heine et al. (1991).

In contrast, the target domain represented by *chi-zao* as a modal adverb (QUALITY) becomes more abstract, for the reason that the meaning of *chi-zao* “sooner or later” is associated with epistemic modality, which is more speaker-based and non-referential in the discourse. As we can see in example (26), *chi-zao* as an adverb is used to modify the verb phrase *zhe kou qi zong yao chu* ‘will give vent to our anger’. The goal is to indicate the speaker’s belief that taking revenge on someone will be sure to happen (inevitability) but we don’t know exactly when the event will happen from the text. So the use of *chi-zao* as a modal adverb in (26) blurs the boundary between early and late time thus bringing about an uncertainty for the future event. It is also predicted from Heine et al. (1991) that *chi-zao* as QUALITY category should belong to adverb group, this exactly confirms the modern usage of *chi-zao* as a compound adverb.

In brief, the source domain TIME is transferred into the target domain QUALITY, extending to the modern use of *chi-zao* as a modal adverb. It is the categorial metaphor that predicts and even strengthens the establishment of *chi-zao* as a modal adverb in the constructionalization of Chinese compounds.

**TIME**  
become more abstract and subjective  
**QUALITY**

Lateness or earliness  
Epistemic Modality

(NP: chi zao)  
(Adverb: chi-zao)
Figure 4 The categorial metaphor QUALITY IS TIME

(25) 可见发达不在于迟早, 删公叹息了许多。
ke-jian fa-da bu zai-yu chi zao, Kuai Gong tan-xi le xu-duo.
This show gain.fame.and.fortune NEG lie.in late early 3SG sign PFV a.lot
‘This shows that it does not matter whether late or early to gain fame and fortune, given this
the Duke Kuai had a deep sigh.’
(Gu Jin Qi Guan, ‘Ancient And Modern Wonders’, Ming dynasty)

(26) 赵三哥也不必过急, 迟早这口气总要出的, 也不拘在这一两日上。
Zhao Sange ye bu-bi guo ji, chi zao zhe-kou qi zong
3SG although NEG -need excessive worry late-early this-CL anger always
yao chu de, ye bu ju zai zhe yi liang ri shang.
will give.out S although NEG limit PREP this one two day up
‘Zhao Sange you do not have to worry a lot, sooner or later we will give vent to our anger, so
the time we take revenge is not limited to these one or two days.’
(Di Gong An, ‘Judge Dee Mysteries’, Qing dynasty)

7. Conclusion

In this study, I employ the constructionalization framework (Traugott & Trousdale 2013)
to examine the historical change of the compound word chi-zao in Mandarin Chinese. In
what follows I will provide my answers to all the questions as well as insights for future
research.

My first question is: how are the semantic and syntactic changes revealed in the
constructionalization of chi-zao as a compound adverb?

The contentful constructionalization of chi-zao in Figure 1 shows that it emerges
instantaneously in Pre-Modern Chinese but largely increases its number of cases in Modern
Chinese. The fact that the form change is a condensation process indicates that the creation of
chi-zao as a lexical construction is not just a change of one morpheme, but a change in the
construction as a whole. At the same time, the meaning and function changes reveal that chi-
zao as a nominal phrase has been replaced with the compound adverb chi-zao as a different
lexical category. And the temporal meaning of chi zao (lateness or earliness) has been
bleached into epistemic confidence (sooner or later) represented by chi-zao. This change of
constructional meaning, however, signals a transition from disjunction to epistemic modality
since the form has been condensed from chi zao to chi-zao.

By adopting the tenets of constructionalization (Traugott & Trousdale 2013, 2014), I
found that the initial stage witnessed an antithetical use of chi and zao as source construction
in Tang poems, which prepares for the emergence of intermediate construction chi zao as a
nominal phrase in the second stage. When contentful constructionalization occurs in the third
stage, the increased and superior productivity of chi-zao (65%) as an adverb compound
makes it become more schematic and less compositional. Over time, the new construction
chi-zao becomes aligned to the characteristics of the adverb schema and gains its
entrenchment in it. In consequence, the compound word chi-zao as the creation of a new node (adverb construction) is embedded in the speakers’ mental network of constructions.

My second question is, what cognitive processes can be inferred by looking at chi-zao in its constructionalization?

The cognitive processes are concerned with subjectivity, frequency, and metaphor in the contentful constructionalization of chi-zao. The subjectivity process (Traugott 1995) demonstrates that the “lateness or earliness” as word meaning of chi zao is replaced with modality when chi and zao are compounded into chi-zao. The modality in chi-zao allows for expressing a speaker’s general belief as to whether the proposition expressed is true and inevitable. The frequency effect (Bybee 2003) manifests that the dominant use of chi-zao at the third stage contributes to its change from phrase level (semi-fixed) to compound level (fixed or frozen) in the contentful constructionalization. And the high collocation (47.6%) between chi-zao and typical modal auxiliaries gains the possibility of modality as the main function of chi-zao today. Metaphor (Lakoff & Johnson 1980) in Figure 4 demonstrates that the source domain (TIME) is mapped onto the target domain (QUALITY), leading to the expanded use of chi-zao as a modal adverb. It is therefore believed that the metaphorical mapping as one of the factors gives rise to the creation of chi-zao as an adverb construction in modern Chinese.

I hope that this study has succeeded in arguing the following points:

Firstly, constructionalization as a usage-based framework can be related to three motivations or cognitive processes including subjectivity (Traugott 1995), frequency (Bybee 2003), and metaphor (Lakoff & Johnson 1980). The diachronic change of chi-zao as a compound study provides evidence for the application of the three motivations within the constructionalization framework, since these three motivations can be traditionally linked with grammaticalization. The cognitive processes can be also revealed in other Chinese studies (e.g., Jing-Schmidt & Peng 2015, Zhan 2017) in terms of constructionalization. It is worthwhile to point out that these motivations have to do with the word meaning which is closely connected with constructional meaning, since both meanings are relevant at either the level of individual words or the level of word combinations or syntactic patterns. Take chi-zao for example, its word meaning is “sooner or later” while its constructional meaning can be abstracted as “epistemic modality”\(^{12}\). Moreover, the creation of chi-zao as a lexical construction also supports Traugott &Trousdale’s (2013) argument that the emergence of a lexical construction comes from the developer of an instantaneous micro-construction at certain level of constructional network.

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\(^{12}\) It is necessary to note that there is a debate on whether morphemes should be counted as constructions. Booij (2010b) proposed that the minimal construction is not the bound morpheme but the word or free morpheme while Croft (2001) and Goldberg (2006) posit morpheme constructions. From a diachronic perspective, I argue that either bound or free morpheme is construction given the fact that many bound morphemes were once words in the development of the Chinese language. For example, lao ‘old’ used to be a word or free morpheme in Pre-Modern Chinese, while in modern Chinese it can serve as a bound morpheme functioning as prefix, so lao-shi means ‘teacher’ instead of “old teacher”, lao-ban means ‘boss’ instead of “old boss”, etc. The meaning of lao is weakened but it still has its constructional meaning or morpheme meaning, that is, the experienced (person). Chinese cases like this include 第 dir-, 阿 ar-, -zi 子, -er 兒, -tou 頭, -men 們, etc.
Secondly, the operation of constructionalization is at work not only at the sentential and phrasal level but also at the lower level such as compound words. The meaning and form of chi-zao fits into the basic definition of Construction (Goldberg 2006), in which she highlights that the constructional meaning is not strictly predictable from the meanings of the components within the construction. And the compounding process in chi-zao shows an adverb construction that emerged instantaneously in Pre-Modern Chinese. The study of compounding as word formation in other languages such as German and Dutch also illustrates that the diachronic change from compound constituents to derivational affixes can also be explained within the constructionalization framework (Hüning & Booij 2014). As Booij (2010a) suggested, compounds as morphological patterns are always constructional schemas. Except for the rhetorical construction in the Tang poetry, the other two constructions (e.g. NP and adverb) as form and meaning pairings both begin to emerge in the Ming dynasty. However, it would be more significant to know how the two different morphemes chi and zao interact and eventually compound into the adverb chi-zao as a new lexical category. This compounding process probably provides further evidence for the question of how the rhetoric uses of chi and zao could serve as the source for the subsequent constructions involving NP and adverb. I hereby suggest that more attention should be paid to the interaction of internal morphemes in the constructionalization of compounds in Mandarin Chinese.

Thirdly, the rhetoric as an output of language use plays a part in the development of constructionalization with reference to compounding. The reasons are two-fold: first, antithesis and rhyme scheme as an internal factor can boost the wide use of chi and zao in parallel clauses. Second, disyllabification of the preferred word-form as an external factor leads to the massive creation of compound words in Modern Chinese (Arcodia 2007). At the early stage, the parallel use of chi and zao in the Tang poems reveals that productive use of rhetoric (esp. antithesis) engenders the structural change from clausal level to phrasal level, which provides a condition for being a part of grammar later. The appearance of condensed or semi-fixed structure (chi zao) at the second stage lays a foundation for its contentful constructionalization or fixed structure (chi-zao) at the third stage. The difference between rhetoric (usage) and grammar in the formation of chi-zao suggests that the study of constructionalization in word formation should figure out two layers: rhetorical construction (first stage of Fig. 1) and lexical construction (second and third stages of Fig. 1). This also echoes Bybee’s (2006) argument that grammar originates from language experience and frequent usage accords with the creation of grammar.

The limitation of this study resides in its being only a case study, but the finding can be extended to other antonymous compounds, indicating the constructionalization framework in general is at work in Chinese compounds and beyond. For example, it may be also interesting to examine compound nouns such as shang-fa ‘award and punishment’, en-yuan ‘grace and resentment’, fu-qi ‘husband and wife’ and so forth. Or a comparative study between Chinese and English headless compounds within the constructionalization model is needed. Future study will extend my topic by focusing on different types of compounds and even free morphemes to make deeper insights into the theory of constructionalization.

Appendix: Abbreviations
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