

Analogy and Reanalysis in the Postposing of Durative and Iterative Adverbials in the History of Chinese

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This study attempts to examine both speakers' motivations for and grammatical mechanisms involved in the postposing of temporal adverbials denoting duration (e.g. *santian* 'for three days') and iteration (e.g. *sanci* 'three times') over the course of the history of the Chinese language. It will point out that durative and iterative adverbials delimit event type, similar to quantized NPs in direct object position (e.g. *san ping jiu* 'three bottles of wine') which have consistently been postverbal. It analyzes how the event delimiting function shared by these temporal adverbials and quantized NPs motivated speakers to align all these structures in the postverbal position. It also discusses that as a mechanism of word order change, situation-delimiting adverbials such as *sanci/santian* were reanalyzed as pseudo-objects (e.g. *jie zhebenshu jie le sancisantian* 'borrowed this book three times/for three days') in Early Mandarin, and distinguished syntactically from other purely temporal adverbials denoting frequency (e.g. *changchang*, 'often') or temporal frame (e.g. *zai santian zhinei*, 'in three days').

1. Introduction

Chinese word order has been SVO continuously from the time of Old Chinese through Modern Chinese (Sun & Givón, 1985).¹ While the basic word order has been stable, the sentential position for adverbial phrases, i.e. those non-subcategorized adjunct phrases, has gone through noticeable changes. For example, in Old Chinese, iterative adverbials typically appeared in the preverbal position, and durative adverbials were allowed in this position as well.

- (1) a. 今一日飲酒，而三日寢之 (晏子春秋)
b. 三讀九思，方服淵致 (全劉宋文)

In contrast, in Modern Chinese, these adverbial phrases generally follow verbs and cannot appear in the preverbal position (Klippel, 1991).

¹ Periodization in this work follows Sun (2006), with each historical period subdivided into Early and Late periods: Early Old Chinese (771 BCE to 207 BCE), Late Old Chinese (206 BCE to 220 CE), Early Middle Chinese (220 to 589 CE), Late Middle Chinese (589 to 960 CE), and Early Mandarin (960 to 1900 CE).

- (2) a. 全仗着喝了一天酒啊。(海边的雪, PKU²)
 b. (你的文章)我至少看过三遍。(尽管我们不相识, PKU)

There have been a number of studies that discuss usage and frequency of iterative and durative adverbials in different stages of history such as Xu (1997), Yin (2002), Wang (1997), Liu (1992), Tang (1990), Zhuang (1980), Liu (1965), and Oota (1958) among others.³ While these previous studies mainly focus on specific historical stages, Zhang (2010) is the first attempt to analyze exhaustive quantitative data through the course of history, explain the usage of different patterns of these elements and to provide statistics.

However, none of these previous studies provide qualitative analysis regarding why and how the sentential distribution of durative and iterative adverbials has changed and how they ended up appearing in the postverbal position. This work is the first attempt to analyze speakers' motivations and grammatical mechanisms in the postponing of durative and iterative adverbials. For quantitative data, I will rely on the findings from Zhang (2010) whenever required.

2. Historical facts

2.1 Gradual shift of iterative adverbials to the postverbal position

In Old Chinese, iterative adverbial phrases were expressed only by a bare number and occurred preverbally most of the time (Oota, 1958; Wang, 1958; Fan, 1982; Zhang, 1987).

² PKU refers to the online corpus developed by Center for Chinese Linguistics at PKU. For details, visit http://ccl.pku.edu.cn:8080/ccl_corpus/index.jsp?dir=xiandai

³ Usage and semantic differences in preverbal and postverbal iteratives (i.e. Num V and V Num) in Old Chinese are introduced in Xu (1997). Frequency of each pattern, i.e. Num-ECL V and V Num-ECL in the Wei and Jin period is dealt with in Liu (1965), Zhuang (1980) and Liu (1992). Syntactic function of both preverbal and postverbal iterative adverbials and their frequency in Tang dynasty documents, *Bianwen*, is analyzed in Wang (1997).

A diachronic analysis of the rise and fall of each variation of iterative adverbials between the pre-Qin and the Wei and Jin period is provided in Tang (1990). He argues that iterative adverbials consisting of bare number first shifted to the postverbal position (Num V > V Num), and then the postverbal bare-number iterative adverbials were replaced by iterative adverbials consisting of number and ECL (V Num > V Num-ECL).

Oota (1958) provides general observations on the usage of iterative and durative adverbials in the history of Chinese, and argues that preverbal iteratives with bare number (Num V) were affected by analogy with postverbal durative adverbials and became V Num-ECL in the Wei and Jin period.

(3) 三責我 (晏子春秋)

While most of the iterative adverbials appeared only in the preverbal position in Old Chinese, there were some exceptions. Tang (1990) observed postverbal iterative adverbials from periods between the Western Zhou and Qin dynasties⁴.

(4) 鞭女五百 (贖匱, Tang, 1990)

However, iterative adverbials were found far more frequently in the preverbal position than the postverbal position. The followings are more examples of iterative adverbials in the preverbal position between Old Chinese and Early Middle Chinese.

- (5) a. 齊與魯三戰而魯三勝 (戰國策)
 b. 昔齊魯三戰，魯人再克而亡不旋踵 (三國志)

As early as the Han dynasty (observed from wooden slips of the Han Dynasty from the Juyan) or the Wei and Jin period (reflected in transmitted documents), a few more iterative adverbials began to appear in the postverbal position. These postverbal iterative adverbials were no longer bare number expressions but nominal phrases that consisted of number expressions and event classifiers (hereafter, ECL) (Oota, 1958).

- (6) a. 農呼妻相出於庭，叩頭三下 (搜神記)
 b. 凡種小麥地，以五月內耕一遍 (齊民要術)

Over the course of history, while there was always variation, the ratio of preverbal iterative adverbials continuously decreased and more and more postverbal iterative adverbials surfaced. Between the Tang dynasty and the Yuan and Ming dynasties, iterative adverbials began to occur primarily in the postverbal position, as illustrated in the following examples.

- (7) a. 師以手敲拄杖三下 (鎮州臨濟慧照禪師語錄)
 b. 問言誦咒幾千遍 (李白)
 c. 誦《金剛經》三遍 (太平廣記)
 d. 牧敲柱三下 (五燈會元)

⁴ Tang studied iterative adverbials from eleven pre-Qin classic books, and observed that 6% of iterative adverbials were in the postverbal position. The fact that iterative adverbials were allowed in either the preverbal or postverbal position shows that there was not yet a linguistic constraint preferring these adverbials in certain positions.

- e. 隻聽得番將馬上敲了三下 (三寶太監西洋記)

2.2. Durative adverbials gradually constrained to the postverbal position

Oota (1958) observed that in Old Chinese both preverbal and postverbal positions have been available for noun phrases denoting temporal duration, though such phrases have occurred primarily postverbally.

- (8) a. 三日哭 (春秋)
 b. 居三日, 魏王乃聽起賈 (呂氏春秋)

Between late Han Dynasty and late Tang Dynasty, the postverbal position continued to be the primary position for durative adverbials. Even though some preverbal occurrences of durative adverbials were still found, as shown in (9b), in the later historical stages the postverbal position was the most common for durative adverbials, as shown in (9c-f).

- (9) a. 臥三日 (戰國策)
 b. 而孔子三日樂 (淮南子)
 c. 武迎置獄三日 (前漢紀)
 d. 醉臥三日 (支謙譯經)
 e. 宋州僧尼, 行道三日 (唐代墓志匯編續集)
 f. 當服小功者只服七日 (朱子語類)

2.3. Frame and frequency adverbials stayed in the preverbal position

In Modern Chinese, adverbials expressing time-frame such as *in an hour*, *within a day*, etc. and adverbials denoting frequency such as *everyday*, *often*, etc. are found in the preverbal or the pre-sentential position.⁵

- (10) a. 一只猴子一天可摘 1 千多个椰子。 (中国儿童百科全书, PKU corpus)
 b. 每天练歌唱歌。 (中國北漂藝人生存實錄, PKU corpus)

Throughout history, frame adverbials ('in *x* time') have appeared only in the preverbal position. Between Old Chinese and Early Middle Chinese, frame adverbials

⁵ As in (10a), frame adverbials in Modern Chinese is often expressed by the preverbal temporal NP, but sometimes a rather classical style *zai...zhinei* ('within') is also used together, also denoting a temporal frame.

(i) 一位厂长在一天之内竟签下了 1 5 7 次自己的名字。 (1994 年报刊精选, PKU.)

were often expressed by bare NP temporals such as *yiri* ('one day') or by PPs such as *yi yiri* ('in one day')

- (11) a. 一日浸百畦 (庄子)
 b. 常以一日行千裡 (前漢紀)
 c. 驚牛一日行百裡 (世說新語)

From the time of the Tang dynasty, frame adverbials have been also expressed by the extended pattern *yiri zhinei* ('one day in').

- (12) a. 一日之內，無留訟牘 (唐文拾遺)
 b. 一日之內遇大雨扳土 (天工開物)

Frequency adverbials have also only been found in the preverbal position throughout history.

- (13) a. 常仗趙而畔楚 (戰國策)
 b. 故貧民常衣牛馬之衣 (漢書食貨志)
 c. 公常攜兄子邁及外生周翼二小兒往食 (世說新語)
 d. 終日常行乞食而活生命 (敦煌變文集新書)
 e. 時常到村店中吃酒 (碾玉觀音)
 f. 學生常在他家看病 (金瓶梅)

So far, we have shown that among temporal adverbials, frame and frequency adverbials remained in their original preverbal position. On the other hand, iterative and durative adverbials, which could appear in the preverbal position without any constraint, gradually came to be constrained to the postverbal position.

3. Iterative and durative adverbials are event delimiters

Some adverbials are distinguished from purely modifying adverbials due to their function to temporally quantify the event or state specified by a verb phrase. Examples of adverbials which are event delimiters⁶ include durative and iterative adverbials

⁶ According to Tenny (1994), studies of the properties of event delimitation have a long tradition, even going back as early as Aristotle, and event delimiters have been an important concept in verb aspectuality, relied upon by many linguistic and philosophical works such as Kenny (1963), Ryle (1949), Vendler (1967), Dowty (1979), Bach (1981, 1983, 1986), Mourelatos (1981), Moens and Steedman (1988) and Jackendoff (1990).

(Wechsler and Lee 1996). On the other hand, purely modifying adverbials such as temporal point adverbials ('at two o'clock'), frequency adverbials ('often') and frame adverbials ('in two hours') simply modify an event without affecting the temporal course of events.

In our work, we follow Pustejovsky (1991) and others in using the concept of aspectuality (also called as eventuality) and classify event types (also called situation types in other work) as State, Process and Transition. Transition is the term which collapsed the traditional notions of achievement and accomplishment.

3.1. Event delimitation by quantized NPs

In order to introduce the notion of event delimitation, I will start by showing how a nominal of definite quantity (e.g. *a glass of wine*) delimits the temporal course of an event by "cutting out an entity of a certain size from a continuum" (Wechsler and Lee, 1996).

(14) 他喝了一杯红酒。

The nominal *yibei hongjiu* ('a glass of wine') in the example above denotes a definite quantity. A definite quantity of wine delimits the temporal course of the drinking event. As part of the wine gets consumed, part of the wine-drinking event progresses, and when the last sip of wine is consumed, the drinking event ends. The quantification process is transferred from the domain of object ('wine') to the domain of events ('drinking').

Whether or not the addition of quantized NPs delimited the primitive event type can be tested by using a diagnostic with the frame adverbials (*in*-adverbials) and durative adverbials (*for*-adverbials). The idea is that a delimited event, a Transition, will be grammatically modified by a frame adverbial, because a Transition involves the natural culmination of an event. Meanwhile, a non-delimited event, a Process or a State, will co-occur with a durative adverbial grammatically.

- (15) a. *他喝了两个小时的一杯红酒。
 b. 他两个小时喝了一杯红酒。
 c. 他喝了两个小时的红酒。
 d. *他两个小时喝了红酒。

In (15a-b), the spatially-quantized quality of 'a glass of wine' can be transferred to the temporally-quantized event of drinking. Thus, the frame adverbial naturally co-occurs with this VP-denoting Transition as in (15b), rather than with the durative adverbial as in (15a). (15c-d) shows Process, the non-quantized event 'drinking wine' instead, and this Process co-occurs harmoniously with the durative adverbial (15c), rather than with the frame adverbial as in (15d). The Process of drinking can occur for an indefinite period of

time, because the non-quantized quality of wine can be transferred to the temporally non-delimited event⁷.

3.2. Event delimitation by durative adverbials

Usually States or Processes expressed in the progressive aspect are also inferred in the perfective aspect (based on de Swart, 1998), as shown in (16).

(16) a. 张三在游泳。 → b. 张三游泳了。

When listeners hear a statement like (16a), they can assume (16b).

However, the same inference is not found in a Transition in which a quantized object delimits the given event.

(17) a. 张三在画一张画。

≠> b. 张三画了一张画。

However, when a State or Process co-occurs with a durative adverbial, it does not allow the same inference from the progressive aspect to the perfective anymore, similar to the case of the Transition in the example above.

(18) a. 张三在游泳。他今天要游三个小时，现在还在游。

≠> b. 张三游了三个小时的泳。

When listeners hear the statement (18a), they cannot assume the statement (18b) is true. In short, a predicate co-occurring with a durative adverbial in (18) behaves more similarly to a predicate with a quantized object, i.e. a Transition in (17), than to a simple Process or State in (16). De Swart (1998) proposes that a durative adverbial combines with a State or Process and turns the given event into a quantized event, i.e. Transition (also see Krifka, 1989; Kamp and Reyle, 1993; Naumann, 1995; Moens, 1987; Vet, 1980)

⁷ Such delimitation of events by quantized object shows correlation between the domain of events and the domain of objects. For further details, see Verkuyl (1972), Hinrichs (1985), Krifka (1989), Dowty (1991), Tenny (1994) among others.

⁸ The phenomenon in which a primitive aspectual class (i.e. event type) of a verb is changed to a derived aspectual class of a VP by adding inherent or added arguments is called type-shifting (Bach, 1986). For example, a direct argument, e.g. an object NP, can type-shift to a primitive aspectual class: a verb like 'eat' could describe delimited (Transition) or non-delimited (Process)

(19) Durative adverbials (*for*-adverbials)

FOR *x time* & State U Process → Transition (based on de Swart 1998:357)

On the other hand, a frame adverbial ('in two years') maps a set of quantified events onto another set of quantified events without affecting the event type of the modified predicate.

(20) Frame adverbials (*in*-adverbials)

IN *x time* & Transition → Transition (based on de Swart, 1998)

Frame adverbials do not participate in event composition, whereas durative adverbials do. Such a difference can be understood easily by the following contrast.

(21) 那本书张三写了两年。

In (21), due to the durative adverbial, i.e. the postverbal temporal NP *liangnian* 'two years', the process of writing is expressed as lasting for a definite (minimum) period of time (based on de Swart, 1998).

Meanwhile, in (22) the amount of time expressed by the frame adverbial is also two years. However, the frame adverbial phrase, i.e. the preverbal temporal NP *liangniani* 'in two years', specifies the temporal scope within which the event of writing was completed.

(22) 张三两年写了一本书。

The length of time that the completion of writing actually took might be shorter than two years, let's say 21 months. In other words, a frame adverbial might not express the actual temporal course of the modified event. A frame adverbial merely modifies the given event, without altering the event type of the modified event (de Swart, 1998).

3.3. Event delimitation by iterative adverbials

Iterative adverbials quantify events and present the events as countable, which are comparable to countable objects. Even though frequency adverbials also semantically quantify events, they quantify events in an atelic way, comparable to mass objects. This difference between iterative and frequency adverbials is reflected in their tendency to select tense or aspect (de Swart, 1991).

events depending on whether a direct object is a quantized NP ('an apple') or an unquantized NP ('apples') (Verkuyl, 1993; Tenny, 1994; Krifka, 1995).

In Modern Chinese, iterative adverbials denoting simple counts of events can occur in the perfective aspect. On the other hand, they do not sound natural in the imperfective aspect, as shown in (23).

(23) *张三在弹两次钢琴。(Imperfective)

On the other hand, frequency adverbials are not sensitive to specific aspect in Chinese. They sound perfectly natural in the imperfective aspect⁹.

(24) 张三常常在弹钢琴。(Imperfective)

In French also, according to de Swart (1991), iterative adverbials do not select for the imperfective or present contexts because events quantified by iterative adverbials describe an absolute quantity. Iterative phrases directly participate in forming the aspectuality of a given event by taking a sub-event, which is delimited ('playing the piano once') and turning it into a series of sub-events, which are also delimited ('playing the piano twice') (Klippel, 1991). Delimited events are incompatible with the imperfective aspect, which is 'mass-like.'

On the other hand, events quantified by frequency adverbials denote homogeneous events that have an atelic property. Such events combine harmoniously with either a 'mass-like' aspect or tense (e.g. the imperfective and the present) or a 'count-like' aspect or tense (e.g. the perfective and the past)¹⁰ (de Swart, 1991).

4. Motivations and mechanisms

In this section, we will show that iterative and durative adverbials were aligned in the postverbal position in Chinese on analogy with quantized NPs in object position. These different syntactic structures had in common their semantic functions as event delimiters, which resulted in their sharing a common sentential position, i.e. following the verb.

⁹ For the same phenomenon found in French and further analysis on this issue, see de Swart (1991).

¹⁰ From a semantic point of view, both iterative and frequency adverbials quantify events with which they co-occur, and these quantified events refer to plural events. Events quantified by iterative adverbials can be compared to countable plural NPs. Events quantified by frequency adverbials are similar to mass NPs. In the domain of determiners, count/mass determiners produce delimited/undelimited properties of NPs respectively. In the respect that both durative and iterative adverbials produce plurality of events, they are distinguished from modifying adverbs (e.g. run *fast*), which add more precise characterization to the events that they combine with, and do not affect the singularity or plurality of modified events. For a semantic analysis on quantifying and modifying adverbs, see de Swart (1991).

4.1. Reanalysis in VP with postverbal durative adverbials

Previous studies such as Zhang (2010) and Oota (1958) argued that iterative adverbials were analogized with durative adverbials, on the grounds that these two adverbials both quantify events, and as a result, shifted to the postverbal position. However, more should be said about this process in terms of motivations and mechanisms. For example, it is still not clear why the postverbal position eventually became where these two situation-delimiting types of adverbial appeared.

Generally speaking, temporal adverbials were typically found in the preverbal position: in the Han Dynasty, the majority (90%) of iterative adverbials could be found in the preverbal position, whereas the majority (91%) of durative adverbials were in the postverbal position (based on Zhang, 2010); Other purely temporal adverbials such as frequency and frame adverbials have continuously appeared only in the preverbal position throughout history. Such a distribution enables us to imagine a reverse scenario in which durative adverbials could have shifted to the preverbal position in analogy with iterative and other temporal adverbials.

So why would the postverbal position rather than the preverbal position have become the locus of durative and iterative adverbials? Considering the fact that the sentential position for objects has continuously been the postverbal position (Sun and Givón, 1985), having quantized NPs in object position is therefore a better candidate for the model of analogy that attracted both durative and adverbial phrases rather than durative adverbials which experienced slight positional changes themselves.

In what follows, we will explain that the position of durative adverbials came to be constrained to the postverbal position through the reanalysis, which modeled the position of quantized NP objects, and then the position of iterative adverbials changed also, modeling after durative adverbials.

When a hearer gives an analysis of structure and meaning to a form that is different from the intention of speaker, reanalysis can take place (Hopper and Traugott 2003: 50). Let us postulate a situation where a hearer was told a term *hamburger*. Even though a speaker intended to mean “item (of food) from Hamburg” and the original structure of this term was “[Hamburg]+[er]”, the hearer might analyze it as “[ham]+[burger]” and understand its meaning as a bread that contained ham. At this moment, reanalysis can take place. Reanalysis is a “change in the structure of an expression or class of expressions that does not involve any immediate or intrinsic modification of its surface manifestation” (Langacker 1977:58).

While this example of reanalysis took place at morphological level (word formation), our case of durative adverbials took place at a syntactic level (sentence formation). Let us imagine that someone heard a sentence that included a durative adverbial, whose original structure was [V+Adjunct] and the intended meaning was doing activity for the amount of time expressed by the adverbial phrase.

(25) 伏读一周 (六朝, 三国志)

For example, as in (25), the length of time expressed in the durative adverbial *yizhou* ('one week') functions to delimit the temporal course of the reading event. The reading event gets terminated when one week has passed. Such a semantic function is similar to that of quantized objects. If someone reads a book, the time required to finish reading depends on the volume of the book expressed in a quantized NP. Objects always appeared in the postverbal position by default in Chinese as in (26).

(26) 如使读一卷书 (东汉, 太平经)

Reanalysis might take place when the hearer applies the analysis of [V+NP complement] to example (25), whose original structure is [V+NP adjunct], on the ground that both duration of time and quantized objects provide a specific endpoint to an event.

Because it was a hearer who applied a different syntactic analysis to the VP with durative adverbials, speakers and hearers can not notice any change after reanalysis. The following summarizes reanalysis in VPs with durative adverbials.

(27) [reanalysis of delimiting adjuncts as complements, covert change]

Early Old Chinese		Late Old Chinese
the model: 读 [一卷书] _{argument}		
Read one CL book		
=		
读 [一周] _{adjunct}	>	读 [一周] _{complement}
read one week		read one week

4.2. Analogy of iterative adverbials with durative adverbials

When speakers apply the same new rule to other material, the new grammar of constraining delimiting adverbial phrases to the postverbal position will become noticeable. Such rule expansion or rule generalization is a primary characteristic of analogy.

In Meillet's view, analogy is a "process whereby irregularities in grammar, particularly at the morphological level, were regularized. The mechanism was seen as one of proportion or equation...It is overt." (Hopper and Traugott 2003:64). Let us imagine that other speakers of English, in the context of '-burger', substituted *ham* with other words such as *cheese* or *beef* or even *veggie*. Analogy must have a pre-existing example as a model (Hopper and Traugott 2003:64). In this example, the model for the new form of *cheese-burger* was *ham-burger*. Now, once unapparent reanalysis from *hamburg-er* to *ham-burger* became apparent through *cheese-burger*. Such attraction to other words makes reanalysis which was once invisible visible (Hopper and Traugott 2003).

While this example shows an analogy within a word level, our case with iterative adverbials serves as an example of analogy within a sentence level. Recall that iterative

adverbials used to appear in the preverbal position.

(28) 三读九思，方服渊致 (东汉末年-南朝梁时，弘明集) (=1b)

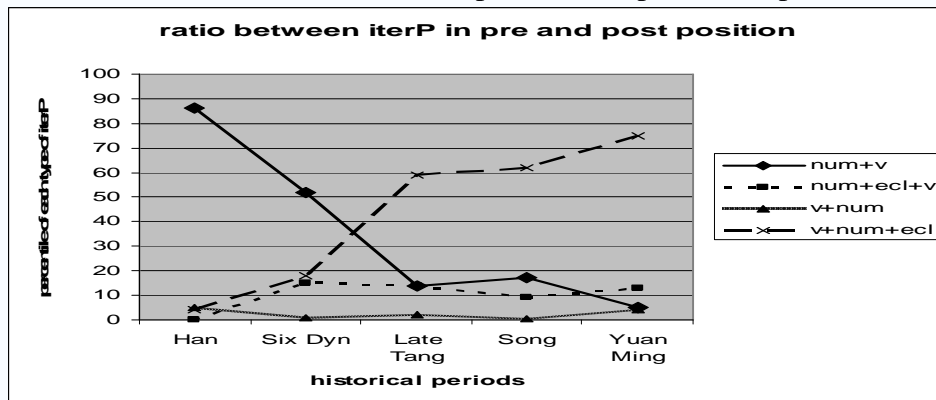
(29) 主人三遍讀文 (北魏末年，齊民要術)

Iterative adverbials also provide a definite endpoint to events that they describe, similar to durative adverbials. Based on this shared semantic function to delimit events, let us imagine a speaker expanded the new rule of constraining delimiting adverbials to the postverbal position to iterative adverbials. As a result, we get a postverbal iterative adverbial as follows.

(30) 必当先读百遍 (六朝，三国志)

It is plausible to say that speakers might have expanded this new sentential position to an increasing number of iterative adverbials because such rule regularization can save speakers from memorizing a number of various grammars. As a result, the preverbal position for iterative adverbials lost its competition with the postverbal position.

The chart below is drawn from Zhang (2010). It illustrates the overall picture of gradual shift of iterative adverbials from the preverbal to postverbal position.¹¹



¹¹ Token numbers for Chart 1 (Zhang, 2010).

	Han	Six Dynasties	Late Tang	Song	Yuan and Ming
Num+V	154	124	22	183	10
Num+ECL+V	0	35	22	94	29
V+Num	9	2	3	5	8
V+Num+ECL	8	45	89	655	162

Chart 1. Sentential distribution of iterative adverbials throughout history (Zhang, 2010)

The preverbal bare-number iterative adverbials occupied more than 85% of total iterative expressions in the Han dynasty. As time passed by, a new expression for iteratives, that is, the string of number (Num) and event classifier (ECL), emerged in the Han dynasty and increased in both preverbal and postverbal positions in the Six dynasties period. From the Six dynasties period, this new expression began to increase with a high rate in the postverbal position, but stopped increasing in the preverbal position. From the late Tang Dynasty, the postverbal Num-ECL became the major expression of iteration until Yuan and Ming dynasties (Zhang, 2010) as shown in the following.

(31) 对大师读一遍 (唐, 六祖坛经)

4.3. Triggering effect for analogy

We argue that what triggered the analogical process between iterative adverbials and durative adverbials in the postverbal position was the emergence of event classifiers in iterative adverbials. Due to the emergence and spreading of event classifiers, iterative adverbials such as *yi hui* ('one time') came to have a similar syntactic form to duration of time such as *yi zhou* ('one week'), as well as quantized nominal expressions such as *yi juan shu* ('one CL book')¹². This new pattern with ECL enabled speakers and listeners to analogize the syntax of event delimiting adjunct phrases (adverbial phrases) with that of event delimiting arguments (quantized NPs as objects) through their shared form, i.e. classifiers.

(32) [analogy and reanalysis in the position of iterative adverbials]

Late Old Chinese		Early Middle Chinese
the model: 读 [一 周] _{complement} read one week		
= [一] _{adjunct} 读 one read	>	读 [一 遍] _{complement} drink one ECL
[一 遍] _{adjunct} 读 one ECL drink		

In addition, as reflected in Chart 1, while the frequency of both the Num+ECL+V pattern and the V+Num+ECL pattern increased between the Han Dynasty and the Six

¹² The occurrence of classifiers in NPs (e.g. 一尺布, 一斗粟 from 史记) emerged in the Qin dynasty and became widespread in the Han dynasty (Wang, 1958). We abbreviate nominal classifiers as CL here.

Dynasties period, the frequency of the Num+V pattern decreased concurrently. Then, starting in the Six Dynasties period, the preverbal Num+ECL+V pattern stopped increasing in frequency, losing in competition to the postverbal V+Num+ECL pattern. Finally V+Num+ECL pattern became the majority in the Late Tang period. This correlation between the increase in frequency of V+Num+ECL and the decrease in frequency of Num+V and Num+ECL+V strongly suggests that the emergence and the spreading of ECL was a trigger for the appearance and increasing occurrence of the postverbal V+Num+ECL pattern.

To summarize, the previously possible constituent order of iterative and durative adverbials was reanalyzed into a new constituent order, in analogy with the V-quantized NP order.

(33) a. change in constituent order between durative adverbials and verbs

[Num Temp_{unit}]_{+del} V , V [Num Temp_{unit}]_{+del} > V [Num Temp_{unit}]_{+del}

b. change in constituent order between iterative adverbials and verbs

[Num]_{+del} V > [Num]_{+del} V, [Num ECL]_{+del} V, V[Num ECL]_{+del} > V [Num ECL]_{+del}

What enabled duratives to stay in the postverbal position and iteratives to shift to the postverbal position was speakers' motivation to equate the sentential position of delimiting adjuncts with that of delimiting arguments.

(34) Old Chinese

Middle Chinese

the model: [V+Argument_{+del}]_{VP}

=AdjunctP_{±del} [V AdjunctP_{±del}]_{VP} > AdjunctP_{-del} [V AdjunctP_{+del}]_{VP}

Due to this analogy and reanalysis process in history, delimiting adjuncts, durative and iterative adverbials must appear as complements in the postverbal position in Modern Chinese, patterning with direct objects (i.e. arguments) in terms of sentential position. Gradually, situation-delimiting adverbials (i.e. internal adjuncts) came to be distinguished from non-delimiting adverbials (i.e. pure adjuncts) in terms of sentential position. Non-delimiting temporal adverbials such as *meitian* ('everyday', frequency adverbial) or *zai san tian zhi nei* ('in three days', frame adverbial) cannot appear in the postverbal position.

5. Syntactic correlates between delimiting temporal adjuncts and delimiting objects

Once the postponing of durative and iterative adverbials from Late Old Chinese through Middle Chinese took place through reanalysis and analogy, these adverbials were again reanalyzed as pseudo-objects. In Old to Middle Chinese, durative and iterative adverbials could follow objects in the postverbal position as illustrated below.

(35) 讀書百遍 (三國志, Fang 2006)

Since the time of Early Mandarin, a verb-copying construction has emerged and these situation-delimiting adverbials have come to be required to immediately follow the verb, at the cost of duplicating the verb (Fang, 2006). See the following examples.

- (36) a. 請人請到四五次 (盧太學詩酒傲公侯, Early Mandarin)
 b. 我借这本书借了三次 (Modern Chinese)

When there is no object in the postverbal position, durative and iterative adverbials must follow the main verb immediately in Modern Chinese.

- (37) a. 我看了两个小时。
 b. *我两个小时看了。
 c. 我看了两次。
 d. *我两次看了。

In this way, durative and iterative adverbials, which are complements, pattern with objects, which are subcategorized arguments in Modern Chinese. Arguments of verbs do not take overt case markers in Chinese. Instead, word order contains essential information for understanding a verb's argument structure. Noun phrases that act as objects follow verbs.

(38) 我看书了。

The so-called NP complement is a middle-status element postulated by Klipple (1991). Klipple (1991) distinguishes some adjuncts which are syntactically internal from pure adjuncts. These syntactically internal adjuncts are also semantically internal. In other words, they directly affect the aspectual structure of events. Klipple (1991) classifies these adjuncts as complements and proposes that durative and iterative adverbials in Modern Chinese are one of examples. Complements and arguments have in common that they are syntactically and semantically internal.

We accept Klipple (1991)'s proposal regarding Modern Chinese and argue that over the course of history durative adverbials continuously appeared in the postverbal position as a result of the reanalysis process, rather than getting analogized to the preverbal position where most of the pure temporal adverbials appeared. Our point is that in Old Chinese internal temporal adjuncts (delimiting adverbials) and pure temporal adjuncts (non-delimiting adverbials) were not differentiated in terms of syntax, but through reanalysis and analogy over the course of history, internal adjuncts came to appear in the sentential position where arguments usually appear.

6. Conclusion

This paper examined historical changes that affected the sentential position of durative and iterative adverbials and analyzed speakers' motivations and grammatical mechanisms reflected in the postposing of these adverbials in the history of Chinese.

The position of iterative adverbials was typically preverbal but gradually changed to be postverbal. Durative adverbials were allowed to appear in the preverbal position, but came to be constrained to the postverbal position. In contrast, the position of general temporal adverbials such as frequency and frame adverbials has not changed over the course of history.

Durative and iterative adverbials show a semantic correlate with quantized NPs in that these elements are event delimiters. These adverbials directly participate in event composition and present events as quantized ones, similar to countable or quantized NPs, which make events delimited. In contrast, frequency adverbials quantize situations in a non-delimited way, similar to mass NPs, and frame adverbials do not change the event composition of predicates but merely modify them.

We also provided a detailed analysis for why and how delimiting temporal adverbials came to be constrained to the postverbal position: durative adverbials were reanalyzed as complements, modeling after objects (i.e. arguments) whose default position have always been postverbal since Old Chinese; the iterative adverbials were reanalyzed as complements on analogy with durative adverbials. We showed that this analogy was triggered by the emergence and the spreading of event classifiers in iterative adverbials: while all iteratives, duratives and quantized NPs shared a similar semantic function to delimit events, once iterative adverbials had event classifiers, these structures came to share a similar form as well.

We also explained that delimiting temporal adverbials came to be constrained in the postverbal position, patterning with delimiting NPs first, and they were reanalyzed to pseudo-objects that had to follow V immediately in Early Mandarin.

The fact that event delimiting adjuncts exhibit a syntactic correlation with event delimiting objects in some other languages such as Korean and Finnish also supports that the sentential positions of durative and iterative adverbials were changed, patterning with quantized NPs in object position in the history of Chinese.

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