

The Prosodic History of Chinese Resultatives*

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From a historical perspective, this paper shows that resultatives in Modern Chinese are the result of the development of Chinese phonological structures. Initially, due to the devoicing effect of the causative prefix *s-, Old Chinese developed a voicing alternation in intransitive/transitive verbs. Later, the loss of this alternation triggered the appearance of ‘V NP V’ constructions. Owing to the change of its syllabic structures, Chinese witnessed a historic foot shift: namely, a shift from a bimoraic foot to a disyllabic foot. In order to meet the prosodic requirement, ‘V NP V’ constructions in Middle Chinese developed into two forms of resultatives over a long period of time: that is, V-DE constructions and V-V compounds. The reason why both V-DE constructions and V-V compounds can be found in Modern Chinese lies in information structuring. Chinese is an end-focus language, in which the end of a sentence carries the natural focus. The coexistence of V-DE constructions and V-V compounds satisfies the need to express different emphases.

Key words: disyllabic foot, information structure, resultative, voicing alternation

1. Introduction

Resultatives can be found in many languages, but those in Chinese are unique. Chinese has two types of complementary and alternative resultatives: that is, V-DE constructions and V-V compounds, as shown in (1) and (2) respectively (ASP stands for aspectual marker).

- (1) 張三吃得肚子壞了。
Zhangsan chi de duzi huai le
Zhangsan eat DE stomach bad ASP
‘Zhangsan has eaten (something bad or too much, and as a result his) stomach is upset.’
- (2) 張三吃壞了肚子。
Zhangsan chi-huai-le duzi
Zhangsan eat-bad-ASP stomach
‘Zhangsan has eaten (something bad or too much, and as a result he has an) upset stomach.’

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Questions arise, then, about how the two types of resultatives appeared in history and why they coexist today. The present study accounts for the first question from the perspective of historical prosodic syntax and the second from the perspective of information structure.

The remainder of this paper is organized as follows. Section 2 shows that the causative prefix *s- was a source of voicing contrast, the loss of which later triggered the appearance of the ‘V NP V’ construction. Section 3 illustrates that coda simplification triggered changes in foot structure from dimoraic to disyllabic. This caused the shift from ‘V NP V’ constructions to ‘V-DE NP V’ and V-V compounds. In §4, the coexistence of V-DE constructions and V-V compounds will be explained as stemming from the need to express different emphases. The last section is the conclusion.

2. Origin of resultatives

In the literature, scholars agree that the appearance of resultatives is due to the reduction of causative verbs (Mei 1991; Ōta 2003:193–196; Pan 1982:229; Wang 1989:262). Mei (1989, 1991, 2008, 2012) and others note that in Old Chinese¹ and Middle Chinese,² causative verbs are formed mainly through phonological alternations. Roughly, this goes through two stages. The first covers the period from Proto-Chinese (maybe even earlier)³ to Early Old Chinese.⁴ At this point, according to Mei (1989, 1991, 2008, 2012), the causative prefix *s- is the origin of all kinds of causative forms. Evidence can be found in documents from the Pre-Qin Period (i.e. before 221 B.C.). For example, in *Shijing* (*The Book of Odes*), both 滅 (*mjat > mjät) and 威 (*smjiat > xjwät) can be found. 滅 means ‘to destroy’ and 威 ‘to cause to destroy’, as shown below (cited from Mei 2012:10).

- (3) 燎之方揚，寧或滅之；赫赫宗周，褒姒威之。（《詩·小雅·正月》）
- | | | | | | | | |
|------------------|------------------------|------------------|---------|---------------|---------|------------|-----|
| liao | zhi ⁵ | fang | yang, | ning | huo | mie | zhi |
| wild.fire | | being | blazing | may | someone | extinguish | it |
| hehe | Zongzhou, ⁶ | Bao ⁷ | Si | mie | zhi | | |
| majestic-looking | Tsong.Chou | Pao | Sī | cause.destroy | it | | |
- ‘When the fire is just flaming high,
How can anyone extinguish (*mjiat) it?
The majestic Tsong Chou,
(lady) Si of Pao has destroyed (*smjiat) it.’

¹ Old Chinese, also called Archaic Chinese in older academic works, refers to the form of Chinese spoken from the beginning of written records (around 1200 B.C.) until the third century A.D. It can be divided into Early Old and Later Old.

² Middle Chinese refers to the Chinese language spoken from the third century A.D. until the ninth century A.D.

³ Proto-Chinese, also known as the *Hsieh-Sheng* period, refers to the form of Chinese spoken roughly from 1384 B.C. to 771 B.C. (see Yu 1985:x).

⁴ Early Old Chinese, also known as the *Shijing* period, refers to the form of Chinese spoken from 770 B.C. to 207 B.C. (see Yu 1985:x).

⁵ The *zhi* here can be understood as a possessive marker, according to Li (2004:243).

⁶ This refers to Haojing (鎬京), the capital of Western Zhou.

⁷ Pao is a kingdom of Western Zhou.

The second stage covers a period from Late Old Chinese to Middle Chinese. In this period, a voiced and voiceless alternation differentiated intransitive verbs and causative verbs. According to Mei (2008, 2012), the causative prefix *s- of Early Old Chinese caused initial devoicing in causative verbs. This can be shown as follows (cited from Mei 2008:7).⁸

(4)	example	intransitive	causative (transitive)
	敗	*brads ‘become defeated’	*s-b > *s-p > *prads ‘defeat’
	別	*brjads ‘different; leave’	*s-b > *s-p > *prjat ‘part; separate’
	斷	*duanx ‘be severed’	*s-d > *s-t > *tuans ‘cut off’
	折	*djat ‘become broken’	*s-dj > *s-tj > *tjat ‘break’
	見 (現)	*gians ‘appear’	*s-g > *s-k > *kians ‘see’

In Middle Chinese, however, the voiced and voiceless contrast disappeared, and syntactic measures thus began to be applied to express causative meaning (Mei 1991). Syntactic measures thus became more common to express causative meaning. For instance, in Old Chinese, *jue* ‘wake’ alone could be used as a causative verb, meaning ‘wake someone up’. This usage can be found even in the documents of the Tang Dynasty (A.D. 618–907), as shown in (5).

- (5) 自覺已圓，能覺他者，如來應世。（《楞嚴經》卷六·四種清淨明誨）
 zi jue yi yuan, neng jue tazhe, rulai ying shi
 self wake already perfect able wake other Buddha present world
 ‘If you are already perfect in practising Buddhism, and able to moralize others, then you are Buddha in this world.’

Jue ta ‘moralize others’ here literally means ‘to wake up others’. On most occasions today, *jue* ‘wake’ is used as an intransitive verb. This can be found even in Old Chinese and Middle Chinese, as shown below (INT stands for interjection).

- (6) a. 覺而後知其夢也。（《莊子·齊物論》）
 jue er hou zhi qi meng ye
 wake and after know he dream INT
 ‘I woke up and recalled the dream I had.’
 b. 覺而之漸台。（《漢書·鄧通傳》）
 jue er zhi Jiantai
 wake and reach Jian.Terrace
 ‘(The Emperor) woke up and reached Jian Terrace.’

From then on, in order to express the meaning ‘to wake someone up’, syntactic means had to be applied, such as *huan Jianglang jue* ‘wake Mr. Jiang up’ or *Sanweng huan-jue Zhiyuan* ‘Sanweng woke up Zhiyuan’ in (7).

⁸ According to Dai (2001), as well as Mei (2012), voiced and voiceless alternation is still applied to differentiate intransitive verbs and causative verbs in Tibeto-Burman languages, which are believed by many scholars to be relatives of Chinese.

- (7) a. 女乃呼婢云：「喚江郎覺！」（《世說新語·假譎》）
 nü nai hu bi yun, ‘huan Jianglang jue’
 girl then called maid say call Mr.Jiang wake
 ‘The girl then called her maid and said, “Wake Mr. Jiang up.”’
- b. 三翁喚覺知遠。（劉知遠諸宮調）
 Sanweng huan-jue Zhiyuan
 Sanweng call-wake Zhiyuan
 ‘Sanweng woke up Zhiyuan.’

3. Development of resultatives

As mentioned earlier, ‘V NP V’ constructions in Ancient Chinese⁹ have developed mainly into two forms: one is ‘V-DE NP V’ constructions, as shown in (1); the other is V-V compounds, as illustrated by (2) and (7b).

A question arises as to why ‘V NP V’ constructions should be replaced by ‘V-DE NP V’ constructions and V-V compounds. This can be explained as follows.

First, as mentioned earlier, in Late Old Chinese and Middle Chinese, the phonological alternation transitivity a verb as a causative one started to fade away, and syntactic measures had to be taken to express causative meaning; ‘V NP V’ constructions soon became the dominant measure.¹⁰

Second, as suggested by scholars (e.g. Feng 2000b; Ting 1979; Yu 1985), Chinese syllabic structures were changing from Early Old Chinese to Modern Chinese in the following ways (C stands for consonant, M for medial, V for vowel, E for entering tone, and n for Nasal).¹¹

- | | | |
|-----|-----------------------------------|---|
| (8) | (C)(C)C(M)(M)VC(C) | Proto-Chinese (or <i>Hsieh-Sheng</i> period, 1384–771 B.C.) |
| | C(C)(M)(M)(V)V(C) | Early Old Chinese (or <i>Shijing</i> period, 770–207 B.C.) |
| | C(M)(M)V(E/m, n, ŋ) ¹² | Middle Chinese (A.D. 3rd–9th century) |

⁹ In the present study, the term Ancient Chinese refers broadly to the Chinese language spoken before the 1920s, when Modern Chinese was formally recognized.

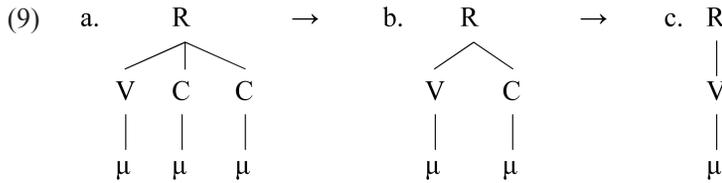
¹⁰ One point needs to be clarified. The process in which the voiced and voiceless contrasts were replaced by ‘V NP V’ constructions must have been a long, gradual one. That is to say, ‘V NP V’ constructions appeared long before voiced and voiceless contrasts disappeared. Historical documents show that they existed in the Spring and Autumn Period (see §3.1), but at that time the main way to express causative meaning was through phonological alternation. Later, when voiced and voiceless contrast faded out, syntactic means gradually became dominant (but phonological measures were still applied, for example 繫 *ji* ‘tie’ and 繫 *xi* ‘link’, 折 *zhe* ‘break’ and 折 *she* ‘become broken’ in Modern Chinese).

¹¹ These syllable structures are cited from Feng (2000b). Actually, Yu (1985:290) believes that the syllabic structure was (C)(C)C(M)VC(C) or (C)C(C)(M)VC(C) in Proto-Chinese (or the *Hsieh-Sheng* period, 1384–771 B.C.) and (C)(C)C(M)(M)(V)V(C) or (C)C(C)(M)(M)(V)V(C) in Early Old Chinese (or the *Shijing* period, 770–207 B.C.).

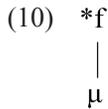
¹² ‘m, n, ŋ’ were added by the author.

(C)(M)V(n, ng) Pre-modern Chinese and Modern Chinese¹³
 (C)(M)V¹⁴ Modern Beijingsese

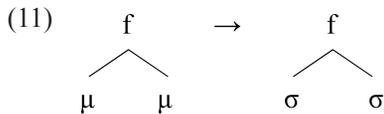
This demonstrates, as pointed out by Feng (2000b), that in Late Old Chinese and Middle Chinese, the consonant(s) ending a syllable (coda) started to drop, causing syllable simplification. This is shown below (here R stands for rhyme, V for vowel, C for Consonant, μ for mora, f for foot, and σ for syllable).



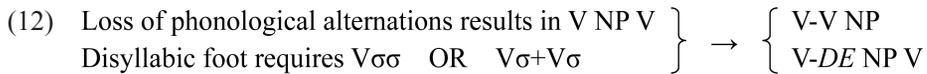
The newly developed monomoraic syllable, however, could no longer form a foot.



As a result, the disyllabic foot appeared:



The change of syllabic structure had a far-reaching influence in the history of Chinese. Morphologically, disyllabic words became mainstream (Feng 2000b). Syntactically, when the syntactic operation met the prosodic constraint, two new phenomena appeared. This is shown in (12).



The main trigger of this change is prosody: the first V (V_1) of ‘V NP V’ needs to form a foot and therefore requires a syllable to join it. This requirement can be satisfied in two ways: one is through *DE*-insertion and the other is through causing the second V (V_2) of ‘V NP V’ to move up.

¹³ In the present study, the term Modern Chinese refers to the vernacular language used since the 1920s: mainly Standard Chinese, also known as Mandarin or Putonghua. Other varieties of Modern Chinese are called dialects in this study.

¹⁴ Feng (2000b) suggests that, according to Wang (1993), in Modern Beijingsese all syllables are open.

3.1 The formation of V-DE constructions

Historical documents show that, long before the appearance of the verb *de* ‘cause’, resultative ‘V NP V’ constructions had already existed in abundance. The earliest data even go back to the Spring and Autumn Period (770–476 B.C.). The following examples are from Du (2003):

- (13) 今晉人鳩衛侯不死。 (《國語·魯語》)
 jin Jinren zhen Weihou bu si
 now Jin.people poison Marquis.Wei not die
 ‘Now the Jin people failed to kill Marquis Wei with poison.’
- (14) 邾子執玉高，其容仰。 (《左傳·定公十五年》)
 Zhuzi zhi yu gao, qi rong yang
 Zhuzi hold jade high his face rear
 ‘Zhuzi raised the jade and he faced upward.’
- (15) 宰夫臠熊蹯不熟，殺之。 (《左傳·宣公二年》)
 zaifu er xiong fan bu shu, sha zhi
 cook boil bear paw not cooked kill him
 ‘The cook did not cook the bear paw well. And (King Ling) killed him.’
- (16) 予助苗長矣。 (《孟子·公孫丑上》)
 yu zhu miao zhang yi
 I help seedling grow INT
 ‘I help the seedling to grow.’

Around the fourth and fifth centuries, ‘V NP V’ constructions started to develop into V-V compounds, as shown in (17)–(19). The following examples are taken from Feng (2002).

- (17) a. 打瓦破 (《大莊嚴論經》)
 da hong po
 hit jar break
 ‘break the jar’
 b. 打破水甕 (《大莊嚴論經》)
 da-po shuiweng
 hit-break water.jar
 ‘break the water jar’
- (18) a. 腳踏地壞 (《十誦律》)
 jiao dao di huai
 foot trample ground bad
 ‘destroy the ground by trampling’
 b. 踏壞華室 (《出曜經》)
 ta-huai hua shi
 trample-bad grand house
 ‘destroy the grand house by trampling’

- (19) a. 今當打汝前兩齒折 (《賢愚經》)
 jin dang da ru liang qian chi she
 now should hit you two front tooth break
 ‘Now I will break two of your front teeth.’
- b. 打折其腳 (《賢愚經》)
 da-she qi jiao
 hit-break its leg
 ‘break (the horse)’s leg’

Dynasties from the fourth to the thirteenth centuries witnessed the process of V-V compounds increasing in number. It took nearly 900 years for ‘V NP V’ constructions to be replaced by ‘V-DE NP V’ constructions and V-V compounds. According to Liu (2008), in *Zhuzi Yulei* (*The Quotations from Zhuzi*, compiled in 1270), ‘V NP V’ constructions were basically extinct by this time.¹⁵

As for the *DE* in ‘V-DE NP V’ constructions, according to Zhao (2002) and Zhu (2009), it originally came from the verb *de* ‘cause/make’, as shown in the following examples.

- (20) 天即雷電霹靂，終不能得壞。(《法顯傳》)
 tian ji leidianpili, zhong bu neng de huai
 heaven then thunderbolt eventually not can make ruin
 ‘Then God used many thunderbolts (on the city), but he could not destroy it.’
- (21) 是謂邊城初業成就，外寇不能得壞。(《出曜經》)
 shi wei biancheng chu ye chengjiu,
 this call border first achievement achieve
 wai kou bu neng de huai
 outside bandit not can make destroy
 ‘This is called the first achievement, and then the outer enemy cannot attack.’
- (22) 盡其神力，不能得動，慚愧歸伏。(《雜寶藏經》)
 jin qi shen li, bu neng de dong, cankui guifu
 exert his divine strength not can make move ashamed yield
 ‘Although he exerted his divine strength, he could not move it at all. He was ashamed and surrendered.’
- (23) 汝當然一大鑊，七日七夜，使令極沸，莫得斷絕。(《雜寶藏經》)
 ru dang ran yi da huo, qi ri qi ye,
 you should burn one big cauldron seven day seven night
 shi ling ji fei, mo de duanjue
 make cause extreme boil don’t make stop
 ‘You should heat a big cauldron for seven days and seven nights. Make it boil continuously.’

¹⁵ In fact, ‘V NP V’ constructions can still be found in many dialects of Chinese. For example, in Wenzhou dialect (Pan 1997:74), Shanghai dialect (Huang 1996:735), and Shantou dialect (Shi 1997:152).

Even more data can be found in documents from the Tang Dynasty (A.D. 618–907) (PASS stands for passive marker).

- (24) 之罘南山來，文字得我驚（《韓愈·招楊之罘》）
 Zhifu Nanshan lai, wenzì de wǒ jīng
 Zhifu Mount.South come word make I surprise
 ‘Zhifu came from Mount South and his poems surprised me.’
- (25) 忽憶父兄枉被誅，即得五內心腸爛。（《伍子胥變文》）
 hu yì fù xiōng wǎng bei zhū,
 suddenly recall father elder-brother wrong PASS kill
 jì de wú nèi xīn cháng làn
 then cause five inner heart bowel fester
 ‘Whenever I recall the fact that my father and my brothers died in vain, I suffer a great agony.’
- (26) 欲得人人伏，能教面面全。（元稹詩）
 yù de rén rén fù, néng jiāo miàn miàn quán
 want make everyone yield can make every-aspect complete
 ‘He wished that his work would be admired by everyone, and he could take every aspect into consideration.’
- (27) 欲得身中佛性明，事須勤聽大乘經。（《敦煌變文集新書·八相押座文》）
 yù de shēn zhōng fó xìng míng,
 want make body in Buddhist nature clear
 shì xū qín tīng dàshēng jīng
 matter need frequently listen Mahayana sutra
 ‘If you want to wake up the Buddha-nature in your body, you should listen to *Mahayana sutra* often.’

It happens that these ‘V NP V’ constructions have causative meanings, but such meanings are covert due to the lack of suitable causative markers.¹⁶

- (28) 煎之澆（沸），即以布足（捉）之。（《馬王堆漢墓帛書·五十二病方·傷瘡》）
 jiān zhī fēi, jì yì bù zhuō zhī
 boil it boiling then with cloth strain it
 ‘Heat it to boiling point, then strain it with a piece of cloth.’
- (29) 爇飯焦，冶。（《馬王堆漢墓帛書·五十二病方·身疔》）
 fàn fàn jiāo, yě
 grill cereal charred smash
 ‘Char the cereal and smash it.’

¹⁶ According to some scholars (e.g. Guo 2004), causative meaning comes from the construction rather than the causative marker *DE*.

- (30) 女乃呼婢云：「喚江郎覺！」（《世說新語·假譎》）
 nü nai hu bi yun, ‘huan Jianglang jue’
 girl then called maid say call Mr.Jiang wake
 ‘The girl then called her maid and said, “wake Mr. Jiang up.”’
- (31) 道真食豚盡，了不謝。（《世說新語·任誕》）
 Daozhen shi tun jin, liao bu xie
 Daozhen eat suckling.pig finish end not thank
 ‘Daozhen ate up the suckling pig, and did not thank (her).’
- (32) 數日中，果震柏粉碎，子弟皆稱慶。（《世說新語·術解》）
 shu ri zhong, guo zhen bo fensui,
 several day middle really strike cypress crush
 zi di jie chengqing
 child brother all congratulate
 ‘Within several days, it really smashed the cypress. And (his) children and nephews all congratulated him.’

The appearance of *de* ‘cause’ filled this gap. Evidence shows that, starting from the Tang Dynasty (A.D. 618–907), the verb *de* ‘cause’ was reduced to a causative morpheme *DE*,¹⁷ appearing on the first V. This can be illustrated by the following examples.

- (33) 西施媵摩（淫魔）得人憐，迷得襄王拋國位。（《敦煌變文集新書》）
 Xishi yinmo de ren lian,
 Xishi nympho cause people love
 mi de Xiangwang pao guowei
 bewitch DE King Xiang abandon kingship
 ‘Xishi, the nympho, was beloved of King Xiang, who was so much bewitched by her that he even did not care about his kingship.’
- (34) 練得身形似鶴形，千株松下兩函經。（李翱詩）
 lian de shen xing si he xing,
 practice DE body shape resemble crane shape
 qian zhu song xia liang han jing
 thousand CL pine below two casket scripture
 ‘With tempering, one may attain a physique as that of a crane.
 Under a forest of a thousand pines, you have two caskets of scripture.’
- (35) 浮名浮利過於酒，醉得人心死不醒。（杜光庭詩）
 fu ming fu li guoyu jiu,
 floating reputation floating profit pass alcohol
 zui de ren xin si bu xing
 drunk DE people heart die not wake
 ‘Vanity of vanities is stronger than alcohol.
 It makes people(’s heart) dead drunk and never wake up.’

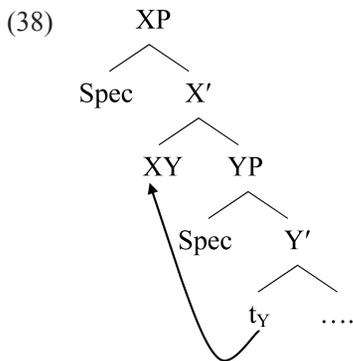
¹⁷ A detailed discussion of *DE* from a syntactic perspective can be found in Zhuang et al. (2013).

- (36) 胡人獻女能胡旋，旋得明王不覺迷。(元稹詩)
 huren xian nü neng huxuan,
 barbarian present girl can whirling.dervishes
 xuan de Mingwang bu jue mi
 whirl DE King.Ming not know bewitch
 ‘The barbarians presented a girl who can dance like a whirling dervish King Ming was bewitched unconsciously.’
- (37) 直饒說得石點頭，亦不干自己事。(《祖堂集·雲岳和尚》)
 zhirao shuo de shi dian tou, yi bu gan ziji shi
 even talk DE stone nod head still not concern self matter
 ‘Even (you) talked (so nicely that) the stone nods its head. (Those who enter through the door) still don’t care.’

3.2 The formation of V-V compounds

V-V compounds have two sources: namely, V-V constructions and ‘V NP V’ constructions. The transition from V-V constructions to V-V compounds has been discussed thoroughly in the literature. V-V constructions are not equal to V-V compounds, although V-V constructions later developed into V-V compounds through reanalysis. V-V constructions can be found in the East Zhou Dynasty (770–256 B.C.), such as *pu-mie* ‘pounce-extinguish’, *jiao-jue* ‘suppress-exterminate’ from the *Shangshu (Documents of the Elder)*, *zhan-bai* ‘fight-defeat’, and *jian-mie* ‘kill-exterminate’ from the *Zuozhuan (Chronicle of Zuo or the Commentary of Zuo)*. At that time, they were not resultatives but juxtaposed verb constructions (Mei 1991) or adverbial-predicate constructions (Wei 2000), in which the second verbs were causative ones. In the Six Dynasties period (A.D. 220–589), when the phonological alternation that transitivized V_2 as a causative verb was lost, the juxtaposed verb constructions were reanalysed as resultatives and V_2 was treated as the result as the V_1 (if possible). This reanalysis can be illustrated most typically by the shifting from *V-sha* ‘V-kill’ to *V-si* ‘V-die’ in history (see Mei 1991 and Wei 2000 for a more detailed discussion).

In this part, only the second source—that is, the transition from ‘V NP V’ constructions to V-V compounds—will be discussed. This operation is, in fact, completed through a process known as ‘incorporation’ (Baker 1988). The key idea of Baker’s analysis is illustrated in (38).



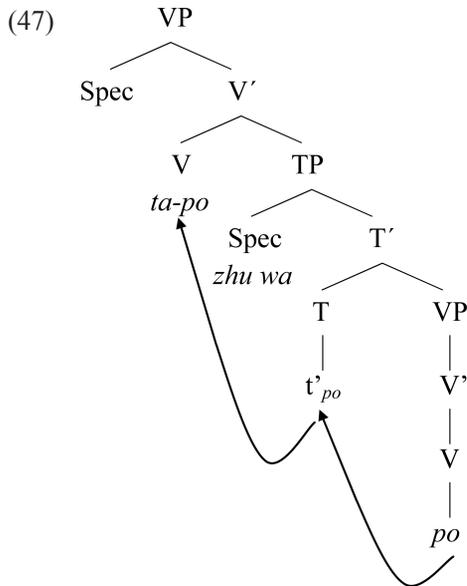
That is, X is lexical and θ -governs YP. Then Y, the head of YP, can be raised to adjoin to X, forming a compound XY without crossing any barrier. A piece of direct evidence for this account is the appearance of ‘V-V NP V’ constructions at this time, as shown below (cited from Feng 2002 and CCL¹⁸).

- (39) 踏破諸瓦壞 (《佛本行集經》)
 ta po zhu wa huai
 tread break all tile broken
 ‘break all the tiles by treading’
- (40) 射殺野鼉死 (《佛本行集經》)
 she sha ye tuo si
 shoot kill wild Yangtze.alligator die
 ‘kill a Yangtze alligator with arrow’
- (41) 打破煩惱碎 (《壇經》)
 da po fannaosui
 hit break vexation smash
 ‘break up the vexation’
- (42) 除卻從前諂誑心永斷 (《壇經》)
 chu que congqian chankuang xin yong duan
 remove decline previous deceitful heart forever cut
 ‘part from the previous deceitful heart’
- (43) 彈盡《相思》破 (《敦煌曲子詞》)
 tan jin xiangsi po¹⁹
 play finish Lovesickness break
 ‘finish the Lovesickness play.’
- (44) 斫破寡人營亂 (《漢將王陵變》)
 zhuo po guaren ying luan
 hew break I camp unrest
 ‘They broke into my camp and created unrest.’
- (45) 桑枝打傷頭破 (《太平廣記》)
 sang zhi da shang tou po
 mulberry branch beat hurt head break
 ‘hurt the head with a mulberry stick’
- (46) 踏破賀蘭山缺 (岳飛詞《滿江紅》)
 ta po Helan shan que
 tread break Helan mount broken
 ‘trample down Mount Helan’

¹⁸ CCL is a corpus built up by the Center for Chinese Linguistics, Peking University (<http://ccl.pku.edu.cn>).

¹⁹ This is a technical term used for *daqu* (the Grand Opus) of the Tang and Song Dynasties. A *daqu* consists of three sections: *sanxu* (unmetered prelude), *zhongxu* (middle prelude), and *po* (break).

As the English glosses suggest, the second verbs and third verbs in (39)–(46) are synonyms. Syntactically and semantically, the second verb can be assumed to be a copy of the third. This is shown in (47).



That is, when V_2 moves up to join V_1 , it leaves a copy behind. If this copy is not deleted at the PF (phonetic form), ‘V-V NP V’ will be spelt out (one of them may have changed into a synonym owing to the stylistic requirement).

One issue that remains unexplained is why V_1 of ‘V NP V’ must consist of two syllables, but V_2 does not need to be. This question cannot be answered until the following dilemma is resolved: should NP in ‘V NP V’ constructions be interpreted as the object of V_1 or as the subject of V_2 ? In the literature, many scholars (such as Liang 2006; Mei 1991; Shimura 1995; Song 1994; Wu 1999) interpret it as both. Semantically, this may be correct. In syntax, however, the NP can only serve either as the object of V_1 or as the subject of V_2 , but not as both—otherwise the NP would get two θ -roles from different sources and violate the θ -criterion. There is evidence that the NP could not be the object of V_1 , as shown in (48)–(51):

- (48) 信哭城崩，固其宜也。(《論衡·變動》)
 xin ku cheng beng, gu qi yi ye
 believe cry city.wall collapse of.course it should INT
 ‘Of course you should believe that crying makes the (city) wall collapse.’
- (49) 寡婦哭城頽，此情非虛假。(《樂府詩集·懊儂歌》)
 guafu ku cheng tui, ci qing fei xujia
 widow cry city.wall ruin this love not fake
 ‘The widow’s cry ruined (even) the (city) wall. It must be true love.’

- (50) 啼枯湘水竹，哭壞杞梁城。(庾信《擬詠懷》)
 ti-ku Xiangshui zhu, ku-huai Qiliang cheng
 cry-wither Xiangshui bamboo cry-ruin Qiliang city.wall
 ‘Tears withered the Xiangshui bamboo, and crying ruined the (city) wall.’
- (51) 妃良(杞梁)婦聖，哭烈(裂)長城。(《敦煌變文集·王昭君變文》)
 Qiliang fu sheng, ku-lie changcheng
 Qiliang wife holy cry-crack the.Great.Wall
 ‘Holy Qiliang’s wife, her cry made the Great Wall crack.’

Since all the V_1 s in (48)–(51) are intransitive verbs themselves, they cannot take objects. Therefore, the NPs following V_1 s in (48)–(49) and the VV compounds in (50)–(51) obviously should not be treated as the objects of V_1 s. The only choice left, then, is to treat NP in a ‘V NP V’ construction as the subject of V_2 .²⁰

If the above analysis is correct, we can assume that in a ‘V NP V’ construction, what follows the causativized verb is a clausal structure (subject + predicate), such as (48)–(49). In fact, it is not only causativized intransitive verbs that are followed by a clausal structure; transitive verbs, when causativized, also drop their NP-objects and select propositions. This analysis is, in fact, supported by data from other languages. For instance, (52)–(54) are from English.

- (52) Jim danced Mary tired.
 (53) She cried herself to sleep.
 (54) She sang her baby to sleep.

In (52) and (53), although the inchoative forms of *dance* and *cry* are intransitive, their causativized forms select small clauses, with *Mary* and *herself* as the subjects of *tired* and *sleep* respectively. In (54), the object of *sing* is dropped; instead, a small clause is placed after *sing*. Here, *her baby* is obviously not the object of *sing*, but the subject of *sleep*. In the literature, many scholars treat this kind of resultative as a small clause—namely, Hoekstra (1988) and den Dikken & Hoekstra (1994) on resultatives in English, and Sybesma (1992, 1999) and Sybesma & Shen (2006) on resultatives in Chinese; and some treat them as VP-shells—namely, van Gelderen (2004:153). Obviously, none of them agrees that the NP in ‘V NP V’ constructions is the object of V_1 . Their

²⁰ Some scholars may argue that this account is challenged by a construction like *yin jiu zui* ‘drink alcohol drunk’, as shown below:

飲酒醉，過而擊之也，民大驚。(《韓非子》)
 yin jiu zui, guo er ji zhi ye, min da jing
 drink alcohol drunk pass and strike it INT people big shock
 ‘(King Li of Chu) was drunk, and beat the drum. The people were very frightened.’

In fact, this exception cannot be applied to argue against my account. Many scholars treat it as an exception. For example, Zhao (2000) believes it to relate to serial verbs; and Liu (2002:124) points out that it has not changed in history, along with the resultative structures.

analyses, which are based on the Small Clause Analysis proposed by Williams (1975), obviously can be applied directly to ‘V NP V’ constructions from Ancient Chinese if they can be applied to other resultatives in Chinese.

It is interesting to note that verb incorporation in Chinese, which is triggered by prosody (Feng 2000a, 2002), is different from that of polysynthetic languages whose morphemes trigger verb incorporation (Baker 1988:249). In Chinese, the foot consists of two syllables rather than two morae. This means that the monosyllabic V_1 , with its object being suppressed, will be ruled out if it cannot form a disyllabic structure.²¹ The only way left is either to attract V_2 to move up or to trigger *DE*-insertion.²²

V_2 , however, will not be ruled out even when it is monosyllabic. The reason is that it is at the end of a sentence, where it can satisfy prosodic constraint in an alternative way, for example, forming a degenerated foot itself through pausing or stretching its vowel (Feng 1996).²³

4. Information structure and the coexistence of the two types of resultatives

In order to answer the question raised above—namely, why the two types of resultatives coexist—we need to take information structure into consideration. This section focuses on how

²¹ Note that if the V_1 is disyllabic already, it can no longer trigger V_2 -raising. For instance:

- (i) 張三批評得李四哭了。
 Zhangsan piping de Lisi ku le
 Zhangsan criticize DE Lisi cry ASP
 ‘Zhangsan’s criticisms made Lisi cry.’
- (ii) *張三批評哭了李四。
 Zhangsan piping-ku-le Lisi
 Zhangsan criticize-cry-ASP Lisi
 Intended reading: same as (i).

²² It cannot form a prosodic word (or clitic group) with the following constituent(s) because the maximal projection dominating it/them will block this. According to the mapping rule proposed by Tokizaki (1999, 2007), this maximal projection will be interpreted as a boundary, as follows:

Interpret boundaries of syntactic constituents [. . .] as prosodic boundaries / . . . /.

²³ A noteworthy comment by one of the anonymous reviewers is reproduced below.

This explains nicely why (39)–(46) are grammatical in classical Chinese, but the analysis proposed by the author should also explain why they are unacceptable in Modern Chinese. For example:

- *玻璃打傷(了)頭破。
 boli da shang (le) tou po
 glass beat hurt ASP head break
 ‘hurt the head with a piece of glass’

A plausible way is to treat the V_2 incorporation as operated in PF. By doing this, only unstressed V_2 could remain in situ in Classical Chinese; in Modern Chinese, however, the V_2 incorporation is operated in syntax (rather than in PF) so no unmoved V_2 is allowed in modern times. Whether or not the author will take this suggestion, the grammatical contrast of V_2 in situ between Classical and Modern Chinese should be addressed by the author.

the information structure ensures the coexistence of these two kinds of resultatives. We argue that ‘V-DE NP V’ constructions and V-V compounds share the same D-structure, but are different at PF as a result of the prosodic requirement.

Nowadays, most generative linguists agree that language-specific phenomena, such as focus and topic, concern information structuring (Schwabe & Winkler 2007:1). Many of them have attempted to integrate information structural notions like topic and focus into the formal system of language. However, their main concern is to explore the left periphery of the sentence (e.g. Kiss 1997; Rizzi 1997), but seldom the right periphery. In this section, a typical right-peripheral issue, end focus, will be discussed.

In everyday conversation, people need to emphasize certain parts of their utterances, and the most frequently applied measure to achieve this is natural focus. For most languages, it is usual for the end of a sentence to carry the natural focus. This kind of language is called an end-focus language.²⁴

From the point of view of discourse, end focus actually has two meanings: one is that the focus typically falls upon the end of the clause; the other is that the end carries weight or new information, which often needs to be presented more fully than the given information (e.g. by using a longer, more complex, ‘heavier’ structure, usually at the end of a sentence), also known as the end-weight principle (Xiao 2007).

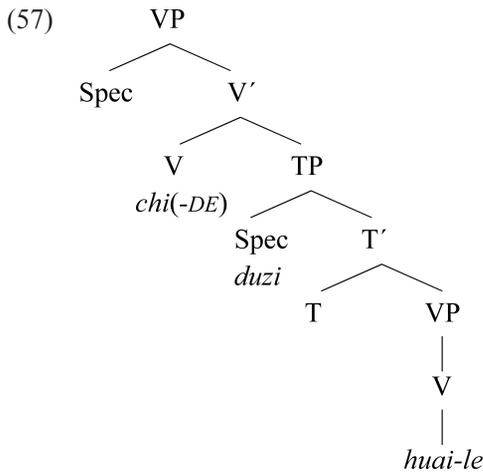
Chinese is an end-focus language. According to Zhang & Fang (1996:73) and Liu & Xu (1998), in Chinese it is always the end of a sentence that carries the natural focus. Now compare (1) and (2) (reproduced as (55) and (56)).

- (55) 張三吃得肚子壞了。
 Zhangsan chi de duzi huai le
 Zhangsan eat DE stomach bad ASP
 ‘Zhangsan has eaten (something bad or too much, and as a result his) stomach is upset.’
- (56) 張三吃壞了肚子。
 Zhangsan chi-huai-le duzi
 Zhangsan eat-bad-ASP stomach
 ‘Zhangsan has eaten (something bad or too much, and as a result he has an) upset stomach.’

For native speakers of Chinese, the focus of (55) is *huai-le* ‘bad-ASP’, while the focus of (56) is *duzi* ‘stomach’. It seems that the coexistence of (55) and (56) is due to the need to express different emphases via syntactic operation.

The D-structures of (55) and (56), therefore, are the same, as shown in (57). The only difference is that *huai-le* ‘bad-ASP’ in (56) moves up to be incorporated into *chi* ‘eat’ to form a complex verb, while in (55) it does not (but because of prosodic constraints, an overt *DE* is inserted to satisfy the disyllabic requirement).

²⁴ In some languages—for example, Japanese and Hungarian—the natural focus is the constituent immediately preceding the verb at the end of a sentence (see Harlig & Bardovi-Harlig 1988 and Kim 1988 for more details).



Three points need to be clarified here:

A. Note that the complement of V is a TP (Tense Phrase). Passivization provides some evidence. Consider (58) (SFP means sentence final particle):

- (58) a. 我_i被他哭得_{t_i}不想寫信了。
 wo_i bei ta ku de t_i bu xiang xie xin le
 I PASS he cry DE not want write letter SFP
 'I was put in a mood not to write the letter by his loud crying.'
- b. ?/*信_i被他哭得我不想寫_{t_i}了。
 xin_i bei ta ku de wo bu xiang xie t_i le
 letter PASS he cry DE I not want write SFP
 Intended reading: same as (58a).

As the English translations suggest, the contrast between (58a) and (58b) can be accounted for if the *V-DE* constructions have an ECM-style structure. When the matrix causative verb *ku* 'cry' is passivized, only the embedded subject is affected (e.g. in terms of case). The embedded object remains licensed by the embedded verb and has no motivation to rise to the matrix subject position.

B. Note that *DE* is put in brackets because, logically, two assumptions can be put forward. One is that *DE* is there in the D-structure, but the combination of *chi-de* 'eat-DE' and *huai-le* 'bad-ASP' is reduced to *chi-huai-le* 'eat-bad-ASP', with *DE* being suppressed or suspended. Supporting evidence can still be found in antique vernacular Chinese (as discussed earlier) and some dialects of Modern Chinese, for instance, Wenzhou dialect (Pan 1997:74), Shanghai dialect (Huang 1996:735), and Shantou dialect (Shi 1997:152). The other one assumes that *DE* is a zero-form, inserted only when necessary. One piece of evidence is that in Ancient Chinese, before the appearance of the causative/resultative *DE*, resultative constructions already existed in abundance. The present study follows the second assumption.

C. As for the formation of the verb *huai-le* 'bad-ASP', some scholars believe that it is formed via ASP-lowering (e.g. Cheng & Li 1991; Zhuang & Liu 2011), while others believe that it is formed via V-raising (e.g. Hu 2008; Sybesma & Shen 2006). However, in the framework of MP, this controversy no longer exists because *huai-le* is fully-fledged once it comes out of the lexicon.

5. Conclusion

Resultatives in Chinese are examined from the perspectives of both Historical Linguistics and Prosodic Syntax in this paper. It is shown that Resultatives in Modern Chinese are the result of the development of Chinese prosodic structures. Originally, there existed a voicing alternation that could transitivize a verb into a causative. Later, the loss of such a phonological alternation triggered the appearance of ‘V NP V’ constructions. Then, owing to the prosodic requirement for a disyllabic foot, ‘V NP V’ constructions developed into two forms of resultatives: namely, V-DE constructions and V-V compounds. To be more specific, the first V of a ‘V NP V’ construction, being monosyllabic, cannot satisfy the footing requirement. It has to apply DE-insertion, forming V-DE constructions, or attract V₂ to move up, forming V-V compounds.

It is assumed that ‘V-DE NP V’ constructions and V-V compounds share the same D-structure, but they are different at PF as a result of information structuring. Chinese is an end-focus language, in which the end of a sentence carries the natural focus or emphasis. This explains the coexistence of V-DE constructions and V-V compounds.

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漢語動補結構的歷史韻律語法探究

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本文從歷史的角度考察了漢語動補結構的由來及發展，並通過歷史韻律語法做出解釋。有證據表明，漢語動補的出現是漢語音節結構變化的結果：先是上古漢語致使前綴 *s- 導致了致使動詞的清化，清濁別義由此出現；而後來清濁區別的消失又迫使漢語轉而採用句法手段表達致使義，由此產生了「V NP V」結構。漢語動補的發展又是韻律的要求使然：由於輔音韻尾的脫落，漢語從雙韻素音步逐漸過渡到了雙音節音步，以孤音節形式存在的 V_1 無法滿足音步要求，只能選擇插入「得」或吸引 V_2 提升融合，由此產生了「V-得」動補結構以及 V-V 動結式。「V-得 NP V」與 V-V 動結式兩類動補結構並存的局面則是信息結構的要求所致。

關鍵詞：動補結構，清濁別義，音節音步，信息結構