

Chapter 10

Prosodically Motivated VR and Adv-V Structures in Classical Chinese

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Abstract

It is well known that there were no VV (verb+verb) compounds in Archaic (1000 B.C.) Chinese. A question immediately arises: Why did the VV compounds appear in the first place and why did they proliferate during the Han dynasty? This paper argues that the appearance of VV compounds were overwhelmingly motivated by the disyllabic requirement and specifically by the Nuclear Stress assignment. Secondly, it is argued that the VV compounds originally appeared with a double-headed structure created from the coordinating VP phrases. The V1-V2 compounds are structurally double headed and semantically ambiguous. As a result, there were left-headed VV compounds (i.e. VR), and later, right-headed ones as well (i.e., Adv-V). The present study not only provides a prosodic motivation for the VV compounds but also a syntactic structure for their further developments.

1. Introduction

It is well known that there were no VV (verb+verb) compounds in Archaic Chinese (1000 B.C.; Norman (1988:121)). Such compounds first appeared during the Spring and Autumn Period (500 B.C.) and increased sharply during the Western Han dynasty (206 B.C.) (see Peyraube (1996), Sun (1988), and Feng (1997) among others). A question immediately arises: Why did the VV compounds appear in the first place and why did they proliferate during the Han dynasty?

It has also been observed (Pan, 1982 and many others) that the new VV compounds evolved from coordinate structures in the following environment:

(1) 射而殺之 射殺

[V ₁ er V ₂]	[V ₁ V ₂]
shoot and kill it	shoot-kill
(Zuozhuan.cheng.17)	(Shiji.Jinshijia)

However, there is no explanation why and how two verbs that were separated by a conjunctive *er* 'and' could be combined as a compound. In other words, it is unclear both what motivated the compounding-process and how this process actually worked.

As shown below, there were five types of VV compounds developed during the Han ('t' stands for 'transitive', 'i' for 'intransitive' and 'c' for 'causative'):

(2) Type-I	Vt1+Vt2	射殺ji-sha 'hit-kill'
Type-II	Vi1+Vi2	病死bing-si 'sick-dead'
Type-III	Vt1+Vi2	壓死ya-si 'crush-dead'
Type-IV	Vt1+Vc2	戰敗zhan-bai 'fight-lose'
Type-V	Vi1+Vt2	爭殺zheng-sha 'try(first)-kill'

The Type-V compounds were not fully developed until the Han (206 B.C. - 220 A.D.). Why is this so? Furthermore, there was an intransitivization process of the second verb in Vt1-Vt2 compounds during the Late Han, as first pointed out by Mei (1991). See also Cao (2000) and Wu (2000). For example:

- (3) a. 漁者網得神龜。《論衡·祥瑞》
 Yuzhe wang-de shen gui.
 Fisherman net-get divine turtle
 'The fisherman netted and got a divine turtle.'
- b. 妊娠之時，遭得惡也。《論衡·命義》
 Renchen zhi shi, zao-de e ye.
 Pregnancy's time, meet-get misfortune prt.
 'During the gestational period, (they) meet with misfortunes.'

Originally, *de* meant 'to get' and it was used so in (a): *wang-de* 'net and get'. However, in (b) *zao-de e* means 'meet with misfortune'. Obviously, *de* does not mean 'to get' in this environment, because 'meet with and get misfortunes' does not convey what (3b) actually means. A more plausible analysis is to assume that *de* in *V-de* has lost its internal argument and become a resultative particle of the first verb. The loss of internal argument of the Vt2 is what has been called intransitivization of the second verb in Vt1-Vt2 compounds. What caused the

intransitivization of the second verb? Huang (1995) proposes that the intransitivization was actually a process from a head-final (hence H-final) structure to a H-initial one. Originally, the Vt1-Vt2 was a H-final structure; hence, it is transitive because the Vt2 is transitive and it is the head. However, the H-final structure changed to a H-initial one during the Han, hence the object of Vt1-Vt2 can only be selected by the Vt1, because Vt1 is the head. This explanation has shed great light on the structural changes of VV compounds in Classical Chinese. Actually, Huang's analysis not only explains the intransitivization of the Vt2, but also explains why there was a transitivization process of [Vt1-Vi2], during the Six-Dynasties Period (400 A.D.). For example:

- (4) a. 管叔鮮作亂誅死。《史記·管蔡世家》。
 Guanshuxian zuoluan zhu-si.
 Guanshuxian rebelled punish-dead.
 'Guanshuxian rebelled hence was punished to death.'
- b. 是鄰家老黃狗，乃打死之。《幽明錄》(太平廣記卷48引)
 Shi linjia lao huang gou, nai da-si zhi
 is neighbor old yellow dog, then hit-dead it.
 'It is the neighbor's old yellow dog, so hit it to death.'

The Vt1-Vi2 forms originally could not take an object (i.e., 4a) but they could after the Six-Dynasties (i.e. 4b). According to Huang, this is expected because, if the Vt1-Vi2 was originally an H-final structure, it could not take an object because the head is an intransitive verb. But it must be able to take an object when the head parameter has changed to an H-initial structure, because the transitive verb Vt1 is the head of the structure.

The excellence of Huang's account is not, however, without problems. First, it is not clear why the VV compounds should be formed as H-final structure in the first place. Second, what motivated the head parameter to change from H-final to H-initial? As pointed out by Tsai (1999), the original H-final VV compounds in Huang's theory can be hypothesized as a structure parallel to the OV forms in Archaic Chinese. The Parallel Hypothesis is necessary because otherwise the H-final analysis for original VV compounds will be an arbitrary decision.¹ However, this hypothesis can hardly be held, because even if there

¹The Head-final hypothesis will not be supported by assuming a [modifier+head] word formation because the [modifier+head] VV compounds, as seen below, were not developed until the Han, and the VV compounds before Han are overwhelmingly coordinative, i.e., they are neither left-headed nor right-headed originally.

Adding one synonym to another to form a disyllabic compound is an easier and more natural process of making a disyllabic unit out of monosyllabic elements, while linking two elements which are located at two different VPs and separated by a conjunctive *er* would be much more difficult and hence require more processes and motivations. As a result, it would not seem to be sufficient to make V1V2 compounds merely for the sake of disyllabicity. This can also be seen from the fact that in a coordinating structure, the two separated verbs can be disyllabized individually without necessarily being compounded as one unit, as seen in (7):

- (7) 安可采用而施行。《论衡》
 An ke **caiyong** *er* **shixing**. (*Lunheng*, 82.9.17)
 how can adopt and practice (it).
 'How could (you) adopt and practice this?'

These types of examples provide evidence not only for the argument that disyllabic VV compounds are triggered by the force of forming PrWds, but also for the assumption that there would otherwise be no need to combine the two separate verbs to meet disyllabicity, since these two verbs can be formed individually as two separate disyllabic verbs. Why, then, was it necessary for the two separate verbs to form a compound? I would like to suggest that the specific reason for the VV compounding in a coordinating structure is the prosodic requirement of Nuclear Stress Assignment.

According to Liberman and Prince (1977), the Nuclear Stress Rule (NSR) is formulated for English as follows:

- (8) **Nuclear Stress Rule** (Liberman & Prince 1977)
 In a configuration [A B]_c
 NSR: If C is a phrasal category, B is strong.

Based on (8), an even more general principal can be formulated for two different types of SVO and SOV languages, as follows (the upper case constituent, here, on the right of the arrow stands for the stress target):

- (9) **Normal Stress Principle** (NSP)
 $VP \rightarrow \{v, XP\}$

The NSP states that as long as the parameter of complement-head direction is set, the formula given in (9) will generate the schemata for well-formed prosodic structures for both SVO and SOV languages, as shown below (the boldfaced letters represent the NS):

- (10) Head-initial $VP \rightarrow v \mathbf{XP}$ (English and Mandarin)
 Head-final $VP \rightarrow \mathbf{XP} v$ (German and Japanese)

As we can see in the next section, the NSP played an important role in motivating the formation of VV compounds in Chinese.

3 Prosodically Motivated VV Forms

3.1 [*V*₁ *er* *V*₂ NP]

Classical Chinese is an SVO language. Given this and according to the NSP, it is easy to see that the nuclear stress must be located at the right of the verb. For example:

- (11) 郤至殺豕奉進，宦者奪之，郤至射殺宦者。《史記·晉世家》
 Xizhi sha shi feng jin, Huanzhe duo zhi, Xizhi **she-sha** Huanzhe.
 Xizhi kill pig present in, Eunuch wrest it, Xizhi **shoot-kill** Eunuch
 'Xizhi killed a pig and presented it, but a Eunuch wrested it away, so
 Xizhi killed the Eunuch by shooting (an arrow).' (*Shiji.Jinshijia*)

(11) is assumed to result from [...V1 and V2 NP]. Syntactically, both V1 and V2 are governors of the object NP. According to the NSP given in (9), nuclear stress must fall on the object of the V. This entails that the verb within the VP is a stress-assignor and the object NP is the stress-target. However, in (11) the NP is not only the complement of V2 but also that of V1 in the coordinative structure. Since the two verbs share the same NP, the NP has two heads.

In a double-headed structure, if verbs assign stress and if there is a stress-target, then not only the V2 but also the V1 has the authority to assign the stress to the NP. However, in [*V er V* NP] the NP is not in the complement position of V1. Note that the V1 does not have a phonetically realized complement but an empty category co-indexing with the lower NP. That is:

were various types of OV structures in Archaic Chinese, the OV forms had vanished during the Han. If the OV structures had disappeared before the time the VV compounds were developed, why would these new forms employ the 'already-dead' Head-final parameter? In other words, the Han language was already an SVO language. This being so, there is hardly any reason to propose that the new VV compounds were formed by a Head-final structure that no longer existed in the language. If the Head-final hypothesis loses this empirical ground, the change from Head-final to Head-initial will remain a mystery.

In this paper, I will argue, first, that the appearance of VV compounds was generally motivated by the disyllabic requirement and specifically by the Nuclear Stress (NS) assignment in structures of [V1 and V2] sentences. Secondly, I will argue that the VV compounds originally appeared with a double-headed structure created from the coordinating VP phrases. The missing conjunctive *er* in [V1 *er* V2] results in a V1-V2 compound; hence V1-V2 compounds are structurally double headed. However, the syntax of coordinating the V1-V2 compounds is structurally ambiguous in that the V1 could possibly be reinterpreted as either a head or an adjunct, while the V2 could correspondingly be reinterpreted as either a complement or a head. As a result, there were left-headed VV compounds, and later, right-headed ones as well. The present study not only provides a prosodic motivation for the VV compounds but also a syntactic structure for their further developments.

The paper is organized as follows: Section 2 discusses the original VV structure and the prosodic principles in Classical Chinese. Section 3 investigates the prosodic environments where the VV-compounds are motivated. Section 4 offers a syntactic analysis for the developments of the VV compounds in Late Han Dynasty, and Section 5 is a summary of the whole paper.

2 The Original VV Structure and the Prosodic Principles in Classical Chinese

Following Pan (1982), I argue that the syntactic structure from which the VV compounds developed is the coordinating sentence. There are several reasons supporting this hypothesis. First, the corresponding forms of the VV compounds were originally formed by a [V *er* V] structure as commonly observed in the literature. Second, all V1V2 forms before the Han were actually formed with a coordinating structure. This can be seen from the facts that the V_i in both the [V_i-V_j] (敗殺 'make him lose and kill him') and the [V_i-V_j] (戰敗 'fight him and

make him lose') were all used as causative verbs, which are necessary when the two verbs are used as transitive in a coordinating structure (as seen in section 4.1). Third, as seen in section 3.3, the VV forms were formed not in morphology but in syntax. If this is so, the most available structure for the VV forms and their development is the coordinating structure [V *er* V].²

Why, then, did [V *er* V] forms evolve into VV compounds? The answer can be very simple: It is caused by the disyllabic foot formation and the ensuing Prosodic Word Formation (Feng (1997)). In other words, the VV compounds (as well as other disyllabic forms) were motivated by the newly established Foot Formation Rule (FFR) that was caused by a process of syllable structure simplification occurring in the Early Archaic Chinese (Feng (1997)). Given this, it is expected that VV compounds would be increasingly developed during the Warring States Period (300 B.C.) and be doubled and redoubled after the Han.

However, disyllabicity is not sufficient to explain why two verbs occurring in two separated phrases in a sentence should be conjoined to form a VV compound. As seen in (5), the two VV compounds are not synonyms; rather, they represent two separated actions (events):

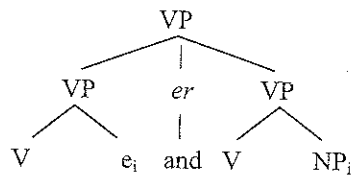
- (5) 射中 she-zhon 射而中之 she *er* zhong zhi 'shot and hit it.'
射殺 she-sha 射而殺之 she *er* sha zhi 'shot and killed him.'

Apparently, if the language requires disyllabic verbs, it is easy to form them by combining two synonyms and this is what actually had happened in the language.

- (6) a 離別《淮南》 ↔ 別離《論衡》
li-bie ↔ bie-li
leave-apart ↔ apart-leave
b. 謳歌《孟子》 ↔ 歌謳《荀子》
ou-ge ↔ ge-ou
sing-sing ↔ sing-sing

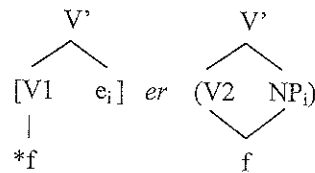
² Serial verb constructions may also serve as the source of VV compounding but I will leave this for future research. At present, it is clear that the structure of VV forms in early stages was always coordinated.

(12)

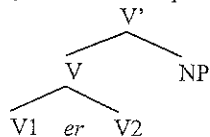


This structure creates a problem not only for co-indexation of the two objects, but also for the stress assignment by the two verbs. In syntax, the e_i and the NP_i are not in a c-command relation hence co-indexation is not structurally licensed. For prosody, verbs need to assign stress to their complement NP, but V1 cannot assign stress to the NP because the NP in (12) is not governed by the V1. The problem in syntax may be solved by extracting the object NP to a higher position where it can c-command both object positions (cf. the Across-the-Board Rule).³ However, this operation will not resolve the prosodic problem, because it will only allow V2 to assign stress to the NP, whether the stress assignment takes place at the D-structure or the S-structure. Note that if the stress is assigned within only the [V2 NP], it will leave the V1 with no element to be prosodically organized as a foot because the e_i is an empty category ('()' indicates a foot category):

(13)



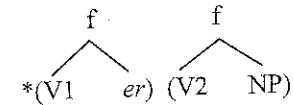
³Another way to resolve this problem is to create a structure like the following:



Even if this structure is syntactically well formed (see McCawley (1988:267)), it is not well formed prosodically. First, although V1 governs NP syntactically, V1 has to be grouped with *er* when a footing operation takes place. The result of [V1 *er*] will violate the Coordinate Structure Constraint which requires an operation to have the same effect on all the conjuncts. Second, as seen in 3.2, the [V1 *er* V2] itself is a prosodically undesirable structure. If [V1 *er* V2] is prosodically disfavored, the [V1 *er* V2 NP] will not be favored in the language.

Since prosody only concerns phonologically realized elements in a sentence, an empty category is prosodically invisible hence has no bearing on this matter. As a result, V1 cannot form a prosodic unit with an EC. Furthermore, a monosyllable cannot form a prosodic unit according to the standard Foot Formation Rule (Feng (1999)). In this situation, V1 has to be grouped with the conjunctive *er* to form a foot, yielding the following prosodic structure:

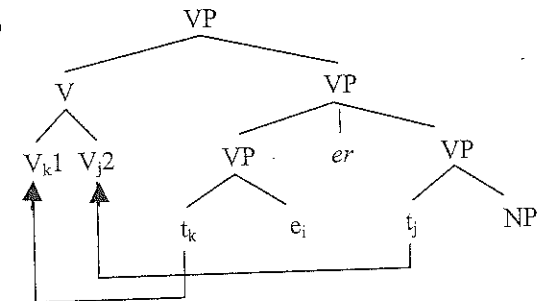
(14)



Although there is nothing wrong with the [V2 NP], (14) cannot not be tolerated by the NSP. First, given the Coordinate Structure Constraint (CSC) that an operation can apply to a coordinate structure if and only if it has the same effect on all the conjuncts, it is easy to see that the prosodic relations between two stress assignors and their stress receiver (i.e., between V1 and the NP and between V2 and the NP) are both required by the CSC. However, the relationship between V1 and the NP is broken in (14) because V1 does not govern NP and hence cannot assign stress to it. A stress-assignor cannot go beyond its own prosodic domain to assign stress; hence (14) is not well-formed prosodically. Second, the verb must assign stress to its complement, but in (14) V1 assigns stress to a conjunction. As a result, the structure is not allowed by the NSR either.

The best way for the two heads to assign the NS to a single complement while also maintaining the syntactic relation that both V1 and V2 govern the NP, is to make V1 and V2 a single syntactic unit, so that the NSP is satisfied and the prosodic structure also matches the syntactic structure. This requirement will force, I argue, the CSC to function in a different way; that is, the two verbs move to a higher position from where they can c-command and jointly govern the object NP.

(15)



In this structure, V1-V2 is a compound verb, which takes the NP as its object and also assigns NS to the object NP. In this way, the co-indexation problem is gone, because both verbs dominate one object NP at the same time. The stress assignment problem is also resolved because there is only one (complex) verb that assigns stress to the NP. This, I argue, is how the VV compounds come about.

This analysis has several advantages. First, it entails that sentential final positions are positions where VV-combinations are formed in order to meet the prosodic requirement. This is what actually happened as shown in (16).

- (16) a. 百余人炭崩盡壓死。《論衡·吉驗》
 bai yu ren tan beng jin ya-si
 Hundred more people coal (pit) collapse all crush-die.
 'Hundred more people were all crushed to death when the coal pit collapsed.' (*lunheng.Jieyan*)
- b. 其名曰牛，足以餓死。《左傳·昭公五年》
 Qi ming yue 'Niu', zuyi nei-si. (*Zuo.zhao.5*)
 His name call 'Niu' finally hungry-die.
 'His name is Niu and in the end he will starve to death.'

Second, the above analysis also explains why the missing *er* 'and' in [...V1 *er* V2 NP] is necessary.⁴ Note that the prosodically motivated VV compounding operates as follows:

- (17) [V₁ *er* V₂ NP] → [[V_{k1}-V_{j2}]_v [[t_k e_i]_v *er* [t_j NP_i]_v]_v] → [[V₁-V₂]_v NP]_v

This process, therefore, gave rise to VV compounding. After the verb movement, however, the conjunctive *er* must be deleted, because it serves no function outside the VV coordinating compounds. The verb-movement analysis not only explains where the VV forms come from, but also why and how *er* gradually disappeared after the Han, a question that has never received a proper explanation. Note also that (15) does not result from stress assignment only, because the V1 would otherwise stand alone in (13) if FFR had not been at work here. Note also that the footing process cannot operate without paying respect to the NSP, for otherwise (14) would be a logical result.

⁴ In Modern Chinese there is no VP-conjunction word like *er* in Classical Chinese. *Er* was lost on the way from Middle Chinese to Modern Chinese.

If the theory presented here is correct, we can also predict the legitimacy of different types of coordinative structures in the Han language. That is, if the VV compounds indeed came from a coordinating structure, the [V1 *er* V2 NP] sentences would rarely appear in Han documents, given that the VV compounds developed rapidly during the Han dynasty. From a close examination of all the [V *er* V] sentences in *Lunheng*, we found that there are no typical expressions of this type existing in the language. This indicates strongly that the [V1 *er* V2 NP] expressions may have all been replaced by [[V1-V2] NP] forms. If this is so, it follows that the VV compounds would mostly occur in contexts where the complement of the VV is a stress-carrier (i.e., prosodically visible NPs). In other words, the [[V1-V2] NP] is most likely to appear when the complement (not necessarily the object) is heavy. If this is indeed the case, it would strongly support the analysis. This hypothesis is borne out by the following fact.

- (18) a. 郤至奉豕，寺人孟張奪之，郤至射而殺之。《左傳·成公十七年》
 Xizhi feng shi, Siren Mengzhang duo zhi, Xizhi she er sha zhi.
 Xizhi present pig, Eunuch Mengzhang wrest it, XZ shoot and kill it
 'Xizhi presented a pig, but Mengzhang wrested it, so Xizhi shot (an arrow) and killed him.' (*Zuozhuan.cheng.17*)
- b. 郤至殺豕奉進，宦者奪之，郤至射殺宦者。《史記·晉世家》
 Xizhi sha shi feng jin, Huanzhe duo zhi, Xizhi she-sha Huanzhe.
 Xizhi kill pig present in, Eunuch wrest it, Xizhi shoot-kill Eunuch
 'Xizhi killed a pig and presented it, but a Eunuch wrested it away, so Xizhi killed the Eunuch by shooting (an arrow).' (*Shiji.Jinshijia*)

Both (18a) and (18b) describe the same events, but (18a) (*Zuozhuan*) was written before the Han and 18b (*Shiji*) was written during the Han. It is then expected that the later one would use more VV compounds than the earlier one and indeed *Zuozhuan* uses [V *er* V] while *Shiji* creates VV compounds. What is interesting here is this: when Sima Qian (the author of *Shiji*) uses a VV compound to describe the same events, he avoids using the prosodically invisible pronoun *zhi* to refer to the Huanzhe (Zhangmeng), rather he repeats Huanzhe at the object position of the VV compound *she-sha*. Note that there is no need to repeat Huanzhe at the end of the story, and by pragmatic principle, a pronoun *zhi* should be used here. Why, then, doesn't the author use a pronoun when it is needed and should be used? Given the above analysis, it is clear that the repetition of Huanzhe is necessary for prosodic reasons; that is, when two

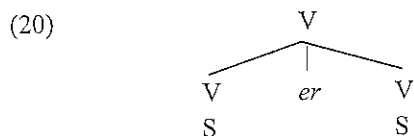
verbs with the same object are compounded, their complement should be heavy. In other words, it is the heavy object that forces the two verbs to be combined; hence Huanzhe must be present even if it is semantically redundant. This is why there were no sentences like '射而殺宦者' in the texts we examined so far, because in the environment of [V1 er V2 NP] the two verbs (V1 and V2) were forced into a compound.

3.2 The [V₁ er V₂] Structure

A fact worth observing here is that the coordinating structure [V er V] appeared less and less frequently after the Han. In *Shangshu* and *Lunyu*, for example, there were many [V er V] expressions:

- (19)a. 輸而孚《尚書·呂刑》shu er fu 'change and trust (it)'
 b. 謹而信《論語·學而》jin er xin 'cautious and trustworthy'
 c. 溫而厲《論語·述而》wen er li 'gentle but stern'

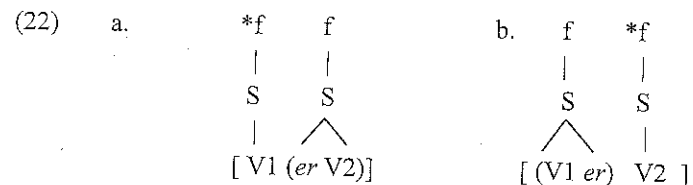
Given the prosodic analysis, we can also explain why the frequency of [V1 er V2] structures decreased later on. The NSP not only makes VV compounds out of [V er V NP] but also forces [...V1 er V2] to form as VV compounds. Note that there is no object NP (stress target) in [...V1 er V2]; hence the two stress assigners (V1 and V2) will keep the NS on their own, yielding the following structure ('S' stands for 'strong'):



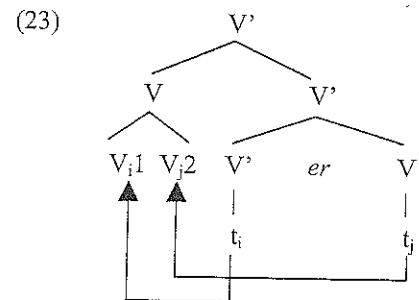
However, this structure is ill-formed prosodically for several reasons. First, according to the Relative-Prominence Principle (Lieberman and Prince, 1977), a strong node must be licensed by a weak node, hence a single node (i.e. the V) alone cannot realize the stress. Second, since one syllable cannot serve as a branching node in the prosodic structure of Classical Chinese, the stress must be realized within a syllabic foot that occurred as a minimal branching prosodic category (Feng (1997)). Given this, the nuclear stress cannot be realized by V2 alone if it is a monosyllabic verb:



If V2 cannot realize the NS, another syllable must be attached to it to form a disyllabic foot in order to realize the stress. Thus *er* must attach to V2 to support the monosyllabic element, as in (22):



Although V2 becomes an independent foot with *er*, V1 is left alone, as seen in (21a). Since V1 is a monosyllabic verb, it cannot stand alone either just like V2. This is to say, neither (22a) nor (22b) is well-formed by the disyllabic requirement for a minimal prosodic unit (i.e. a foot). If both (22a) and (22b) are undesirable formations according to prosodic syntax, then V1 and V2 are best joined together to form a VV compound, at the end of a sentence:



In the new structure [[V_iV_j] [t_i er t_j]], the conjunctive *er* must be deleted. In (23), the conjunctive relation between V1 and V2 is preserved while the nuclear stress can be easily realized on the [VV] compound. Obviously, (23) is an optimal outcome, satisfying both the syntax and the prosody. As mentioned before, [V er V] appears less and less frequently after the Han. Given the above analysis, this is because the [V er V] was replaced more and more by VV compounding.

The hypothesis of [V *er* V] replaced by VV is evidenced by the facts taken from *Lunheng* (100 AD). There are about 2000 *er*-expressions in the text, but only 10 cases of [...V1 *er* V2] are found. That is, only 0.005% of [...V1 *er* V2] expressions were used in the language. Interestingly, among the 10 cases, three of them are directly cited from Archaic texts (e.g. from *Lunyu*, *Liji*, and *Zuozhuan*). For example:

- (24)a. 詠而歸 *yong er gui* 'sing a song and go back'. (*Lunyu*)
 b. 冠而坐 *guan er zuo* 'wear a hat and sit'. (*Liji*)
 c. 蹶而顛 *zhi er dian* 'tripped and fell'. (*Zuozhuan*)

Therefore, these three will not be counted as Han examples. In addition, we also found that among the remaining 7 cases, five were used in parallel contexts, for example:

- (25) 黑而亂，蓬而髯
hei er luan, peng er ran. (*Lunheng*. 63.17.19)
 '(It) is black and messy, hairy and bearded.'

If, as assumed above, the [...V1 *er* V2] structure is disfavored ---- the three syllables cannot be properly organized prosodically with a coordinating structure, then the parallel contexts will make them acceptable by overcoming their prosodic defect. Apparently, this is exactly what happened. It is well known that parallel contexts allow exceptional prosodic patterns to occur (see Feng, 1995:93) and the prosodic weakness of the [...V1 *er* V2] structure can therefore be defeated in a parallel context. Since 5 out of 7 cases occur in parallel contexts, it follows that the parallel context has provided an ideal environment for the [V1 *er* V2] forms to appear. Of course, there are still two cases which are not totally predicted by the theory. They are:

- (26)a. 退而遠
tui er yuan 'retreated and kept far away'. (*Lunheng*. 6.8.67)
 b. 生而言
sheng er yan 'be born and speak'. (*Lunheng*. 78.6.10)

These two only consist of 0.001 percent of the total, which is definitely not robust enough to disprove the assumption that the [V1 *er* V2] is disfavored by

the Han language and that the rareness of [V1 *er* V2] is due to the replacement by VV compounds.

The replacement of [V1 *er* V2] by VV compounds is strongly supported by the following fact.

(27) Pre-Qin Dynasty

- a. 伯夷餓而死于首陽之山。《戰國策·韓策》
 (Boyi) *e er si* *yu* Shouyang zhi shan. (Zhanguocci. Hance)
 Boyi starve and die on Shouyang 's mountain
 'Boyi starved to death on the Shouyang Mountain.'

Han Dynasty

- b. 伯夷遂餓死于首陽山。《史記·伯夷傳》
 (Boyi) *sui e-si* *yu* Shouyang shan.
 Boyi then starve-die on Shouyang Mountain.
 'Boyi starved to death on Shouyang Mountain.'
 c. 伯夷不食周粟，餓死于首陽之下。《論衡·刺孟》
 Boyi *bu shi* Zhou *su*, *e-si* *yu* Shouyang zhi xia.
 Boyi not eat Zhou food, starve-die on Shouyang 's bottom.
 'Boyi did not eat Zhou's food, starved to death at bottom of the Shouyang Mountain.'

Here, the same story was told by different authors in two different times. In the Pre-Qin (before 221 B.C.), the authors use a coordinating structure with two intransitive verbs *e* and *si* to describe 'starving to death', while in the Han Dynasty (100 A.D.), the authors combine the two verbs into a V1V2 compound, *e-si*. The contrast between (27a) and (27b-c) shows clearly that the [V1 *er* V2] expression has been replaced by V1V2 compounds.

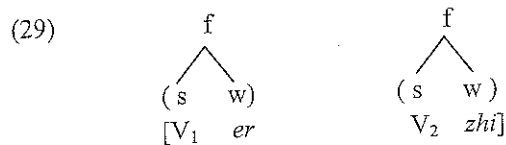
3.3 [...V1 *er* V2 *zhi*]

Contrary to traditional analysis, the present theory will not force the [...V1 *er* V2 *zhi* (pro)] to become a VV compound. The reasons are given below. First, the object of the [V1 *er* V2] is a pronoun. Pronouns are prosodically invisible and therefore do not carry stress in general. If the object pronoun is not a stress carrier, the nuclear stress cannot be assigned to the object pronoun. It follows that the NS has to fall on the verbs themselves. Note that the structure of [...V1 *er* V2 Pron] is different from that of [...V1 *er* V2 NP]. In the [...V1 *er* V2 NP], the object is an NP and NPs (i.e., prosodically visible elements) in general are

stressable elements. Hence V1 and V2 in [V1 *er* V2 NP] are better combined in order to assign stress to the NP. However, the situation is completely different in [V1 *er* V2 pron], because pronouns do not attract stress. If there is no stress to be assigned to the pronoun *zhi*, the stress must be kept on each of the verbs. That is, both V1 and V2 are equally stressed in order to license their coordinating relations. However, V2 cannot stand alone if it is a monosyllabic verb. It follows that *zhi* must attach to the V2, yielding a trochaic foot (S W) with V2. Similarly, V1 cannot stand alone if it is a monosyllabic verb, so *er* must attach to V1, yielding another trochaic foot. The coordinating relations between V1 and V2 can therefore be established, because each of the two verbs heads a foot (cf. a strong node serves as the head of a prosodic unit) and the two parallel each other, a perfect result of the Coordinate Structure Constraint. In other words, the syntactic coordinate relation parallels the prosodic coordinate relation. The question then is whether or not *er* is flexible enough to attach to its left-neighboring element. The following examples show that *er* in Classical Chinese can be attached to either the left or right element in prosodic groupings.

28. a. 不知而言。《韓非子》
 bu zhi (*er* yan). (*Hanfeizi*. 1.1.2.)
 'not know and say'
 'Don't know it but say it.'
- b. 知而不言。《韓非子》
 (zhi *er*) bu yan. (*Hanfeizi*. 1.1.4)
 know and not say
 'Know it but don't say it.'

In (28a) *er* forms a foot with its right-side element *yan*. In (28b) *er* forms a foot with its left-side element *zhi*. It shows that *er* is a prosodically weak form, and hence it can be used to form a foot with V1. If this is so, the (V1 *er*) will automatically form a trochaic foot exactly like (V2 *zhi*). As a result, the [V1 *er* V2 *zhi*] will be analyzed as two trochaic feet one next another:



she <i>er</i>	sha zhi
shoot and	kill it

The prosodic parallelism between V1 and V2 matches perfectly the syntactic coordination between these two verbs, so there is no need prosodically to combine the two verbs into a compound, if VV compounds are indeed motivated by prosodic considerations.

Evidence supporting this analysis comes from the following facts. First, as pointed out by Pan (1982), during and after the Spring and Autumn Period, a common pattern emerged, in which two verbs conjoined by *er* [V1 *er* V2] were often followed by the pronoun *zhi*. For example:

- (30)a. 起而築之。《尚書·金縢》 qi *er* zhu zhi 'raise and earth it up.'
 b. 卷而懷之。《論語·衛靈公》 juan *er* huai zhi 'roll and tuck it.'
 c. 從而刑之。《孟子·滕文公》 cong *er* xing zhi 'catch and punish it.'

The tendency to put *zhi* after the [V1 *er* V2] indicates that this pattern is favored by prosody. Secondly, there were more and more [V1 *er* V2 *zhi*] expressions in the Warring States Period and Eastern Han Dynasties which means that they had been kept intact from the process of VV compounding. In *Hanfeizi*, for example, there are only about 12 cases of [V1 *er* V2 *zhi*], such as:

- (31)a. 愛而用之。《韓非子》
 ai *er* yong zhi.
 'like and use it.'
- b. 受而飲之
 shou *er* yin zhi
 'get and drink it.'
- c. 持而寶之
 chi *er* bao zhi
 'take and cherish it.'

In *Lunheng*, however, the [V1 *er* V2 *zhi*] expressions have increased to about 60 more cases. For example:

- (32)a. 割而食之。《論衡》
 ge *er* shi zhi. (21.15.16)
 'cut and eat it.'
- b. 執而問之

zhi er wen zhi. (29.12.50)

'catch and ask him.'

c. 射而中之

she er zhong zhi. (26.2.10)

'shot and hit it.'

If, as traditionally assumed (Pan, 1982 and others), the [V1 *er* V2 *zhi*] is also taken to be the source of VV compounding, then the [V1 *er* V2 *zhi*] expressions would have been replaced by the VV compounds in later development. If it is so, there is no reason why the [V1 *er* V2 *zhi*] expressions increased tremendously during the Eastern Han. On the other hand, the increased number of [V1 *er* V2 pron] is expected, because they are allowed by prosody and hence independent of the VV compounding. This indicates that the VV compounding must be motivated by prosody of the language, otherwise there is no reason why the prosodically disfavored [V *er* V NP] and [V *er* V] decreased while the prosodically favored [V *er* V pron] increased. The present study also indicates that the VV compounds are formed in syntax from coordinating structures, otherwise there is no reason for the VV compounds, if they were morphologically formed, not to appear in [V *er* V pron].

3.4 Stress and Focus

As mentioned above, stress must be realized on a foot, and it is well-known that focus elements are often stressed in a sentence.⁵ Given this, it follows that focused elements, no matter where they appear in a sentence, must be at least two syllables long, which forms a standard foot. As seen below, this is true in Classical Chinese:

(33) 殄滅我費滑，離散我兄弟，擾亂我同盟，傾覆我國家。《左傳·成公30年》

Tianmie wo Fei Hua, **lisan** wo xiongdi,

Destroy my Fei Hua, separate my brother,

raoluan wo tongmeng, **qingfu** wo guojia.

disturb my ally subvert my country

'(You) destroyed my Fei and Hua, separated my brothers, disturbed my allies and subverted my country.'

⁵ A focused constituent of a phrase must contain a rhythmically most prominent word in that phrase, according to the Focus Prosody Correspondence Principle (see Zubizarreta (1998: 38)).

Note that the disyllabic VV compounds are different from the ones we are examining here. The ones given above are V1V1 compounds formed by two synonyms, while the ones we are considering here are V1V2 compounds, which are constructed by two different verbs (events). How could focused stress also affect the process of V1V2 compounding?

I propose that the V1V2 compounds are formed in order to yield focused elements following it. That is to say, the V1V2 compounds are not constructed to fulfill focus in certain contexts; rather, they are the result of nearby focused elements in the sentence/s (or paragraph). More specifically, I argue that focused elements of the next clause serve as a factor to make the [V1 *er* V2] become a V1V2 compound. To see this, let us begin with the following data:

- (34) 以道事君，君善其言，
Yi dao shi jun, jun shan qi yan,
Use way serve monarch, monarch like his words,
遂用其身，偶也。
sui yong qi shen, ou ye.
then use his body, lucky prt.
'(He) uses the Way to serve Monarch. If the Monarch likes his ideas then he uses him. This is called LUCKY.'
行與主乖，退而遠，不偶也。
Xing yu zhu guai, tui er yuan, bu ou ye.
conduct with master contrary, quit and far, not luck prt.
'If your conduct is contrary to your master, you should quit your job and be far from him. This is unlucky.'
退遠未久，上官錄召，命善祿生...。《論衡·命義》
Tui-yuan wei jiu, shangguan luzhao, ming shan lu sheng...
quit-far not long, superior call, fate good wages plentiful.
'Not long after quitting your political job and being far away from your Monarch, your superior calls you. Then your fate is good and your wages are plentiful.' (Lunheng.Mingyi)

In this paragraph, *tui* and *yuan* are used together twice. But one is used in a coordinating structure [V1 *er* V2], while one is used as a [V1V2] compound. This shows that there was a period of time in which both [V1 *er* V2] and V1V2 were acceptable forms in the language. The choice between these two alternatives was simply a matter of which one was more appropriate in a

linguistic context. Note that if we exchange the two forms in the following environment, the sentence becomes very odd:

(35)a 行與主乖，退而遠，不偶也。

Xing yu zhu guai, **tui-er-yuan**, bu ou ye.
conduct with master contrary, quit-far, not luck prt.

'If your conduct is contrary to your master, you quit far away. This is unlucky.'

B 退遠未久，上官錄召

Tui yuan wei jiu, shangguan luzhao...
quit far not long, superior call...

'Quitting your political job and being far away from your Monarch is not long, your superior calls you...'

This is because, I think, in (34) *tui er yuan* is the focus, but in *tui-yuan wei jiu*, *wei jiu* is the focus. That is to say, the coordinating structure [V1 *er* V2] can be used as a focus expression, whereas the corresponding V1V2 compounds are not a focus expression compared with [V1 *er* V2]. This is why when [V1 *er* V2] appears in a non-focused position, the sentence becomes very odd as in (35), because the coordinating expression attracts the focus but the actual focus is on *wei jiu* 'not long' --- a new information just brought up in the sentence. The distinction between [V1 *er* V2] and V1V2 in terms of focused function is also consistent with the cross-linguistic observation that syntactic complexity is the most important factor in constituent weight (Rickford, et al. (1995)). That is, the more complex a syntactic constituent, the heavier it is prosodically. Given this, there is no doubt that the [V1 *er* V2] is much heavier than the V1V2, because the former is a syntactic coordination of two VPs whereas the latter is a single verb compound. The syntactic complexity makes the [V1 *er* V2] a constant heavy expression in the language, even if it can be formed with as few as three syllables. As a cross-linguistic phenomenon, focus is realized by stress in general and hence focused elements are often stressed (see footnote 5). Given this, it follows that the [V1 *er* V2] expressions, when needed, will be qualified for focus expressions in the language. We have seen examples of this kind in (34), and the following contrast between VV and [V *er* V] provides even stronger evidence.

(36) 豹逾隱而待之。督戎逾入，豹自後擊而殺之。《左傳·襄公23年》
Bao yu yin er dai zhi. Durong **yu-ru**,

Bao jump wall and wait him. Durong jump-enter,

Bao zi hou **ji er sha zhi**.

Bao from back hit and kill him.

'Bao jumped over the (short) wall and waited for him behind the wall.

When Durong jumped (over the short wall) and entered the area behind the wall Bao attacked and killed him.' (Zuo.Xiang.23)

According to what is really happening here, *yu-ru* 'jump-enter' should be 'jump over (the short wall) and enter the enclosure/wall', so *yu-ru* would be written as *yu er ru zhi* 'jumped and entered it'. However, since the focus next to it is *ji er sha zhi* 'attacked and killed it', instead of a coordinating structure '*yu er ru zhi*', a VV compound is used to highlight the focus after *yu-ru*. This sentence shows clearly that a VV compound appears in a non-focused position while a coordinating expression occupies the focused position. The contrast between VV compound and [V *er* V] coordinating phrases with respect to their focus and non-focus positions provides strong evidence supporting the hypothesis given here.⁶

If the above analysis is correct, it follows that when the [V1 *er* V2] appears before a focus expression, the two verbs ought to be compounded in order for other elements to be focused upon, giving rise to the alternative form of V1V2 compound. Obviously, this analysis is consistent with my analysis of the [V1 *er* V2 NP] structure: if the NP is taken to be the focused element next to the [V1 *er* V2], then the two verbs are also required to be united in order to highlight the focus on the NP, yielding a [VV NP] structure.

4 Theoretical Predication and Syntactic Changes of VV Forms

I have argued that the V1V2 compounds overwhelmingly came from the process of [V1 *er* V2] → [V1V2]_v. If this is so, we can further predict different types of V1V2 compounds in the language. For example, if Vt-Vt compounds originated from [V1 *er* V2 NP] and Vi-Vi rose from [V1 *er* V2], then both VtVt and ViVi are legitimate compounds forced by the prosody in coordinating structures. If

⁶ The following example shows the same point:

聞嬰子病死，願請治之。《晏子春秋·卷二》
wen Yingzi **bing-si**, yuan qing zhi zhi.
heard Yingzi sick-die, willing ask control it.

'When (I) heard Yingzi was sick and dead, I would like to cure it.'

this is so, there would be no Vi-Vt combinations at the beginning stage of the VV development in the language, because no prosodic reasons force a Vi to combine with a Vt in a coordinating structure. Compare the following two sentences:

- (37)a. 郤至射殺宦者。《史記·晉世家》
 Xi Zhi she-sha Huanzhe. (*Shiji.Jinshijia*)
 Xi Zhi shoot-kill Eunuch
 'Xi Zhi shot and killed Huanzhe.'
 b. 怒而觸不周之山。《論衡》
 Nu er chu Buzhou zhi shan. (*Lunheng.31.1.32.*)
 Angry and bump Buzhou 's mountain
 '(He) was angry and bumped against the Buzhou Mountain.'

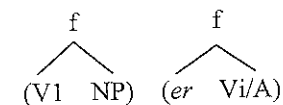
If (37a) is originated from [...V1 and V2 NP] as assumed before, the structure of [...A/Vi er V NP] is different: the adjective/intransitive verb is not the head of NP and it does not need to assign stress to a complement; hence the nuclear stress will naturally be assigned within the [V NP]. As a result, there is no prosodic motivation for the A/Vi to be combined with the V2. The fact is, the Vi-Vt combinations can only be dated as early as *Shiji* (100 BC) and *Lunheng* (100 AD) and there were no Vi-Vt expressions formed in the beginning of the VV development, which conforms with the analysis given above. On the other hand, the [...A/Vi and V NP] sentences occurred safely in the Han language (i.e. they did not conform to the process of VV compounding), as seen in (35b). The question then is why there were hardly any ViVt compounds and how the [...A/Vi and V NP] pattern could possibly be independent of the change? Given the prosodic-syntactic analysis, this is expected and the correctness of the prediction supports the analysis.

In addition to the non-existence of the ViVt compounds, the theory also predicts that VtVi compounds could not naturally result before the Eastern Han, because the prosody of such coordinating sentences would not require the two verbs to be compounded, as seen in (38):

- (38) [... V1 NP er Vi/A]

Since Vi/A is not the head of the NP and it has no complement, the last phrase of the sentence would be the Vi/A itself and the NS will fall on the Vi/A. If the

Vi/A is a monosyllable element, it will combine with *er* to realize the stress, yielding a prosodic structure like this:

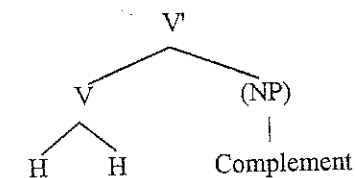
- (39)
- 

The prosodic organization is perfect and the syntactic relation between the different types of phrases (i.e. the [V NP] and the Vi/A) are distinct by two separated feet. As a result, there is no need to combine the Vt with the Vi/A to form a VtVi compound in this environment, hence sentences formed in this way would be very natural as seen in (40):

- (40) 作色而怒。《論衡·四諱》
 zuo se er nu
 make face-color and angry
 'make-face and angry'

4.1 The Structure Restriction of ViVt and VtVi

If the VV-compounds were originally formed by two verbs in a coordinating relation, the V1-V2 compounds should be formed with a double-head structure, as follows:

- (41)
- 

This structure legitimizes different types of VV compounds. First, if the V1 and V2 are in a coordinating relationship, two transitive verbs will legitimately form a Vt-Vt compound with an object, and this is why there were many Vt-Vt compounds in the language, such as *tou-sha* 投殺 'throw and kill' (*Zuozhuan Chenggong.8*), *ye-sha* 掖殺 'pull and kill' (*Zouzhuan.Xigong.25*)...etc. For the same reason, if the V1 and V2 are both intransitive verbs, they are also allowed to form a Vi-Vi compound, for example, *nei-sha* 餓死 'hungry and die' (*Zuozhuan. Zhaocong. 5*)...etc. It is expected that the result of Vt-Vt is a Vt, while the result

of Vi-Vi is a Vi. However, if the V1+V2 result in VtVi or ViVt, the situation will be different. Compare.

- (42) a. Vt-Vt: $\begin{array}{c} \text{Vt-t} \rightarrow \text{Vt} \\ \swarrow \quad \searrow \\ \text{Vt} \quad \text{Vt} \end{array}$
- b. Vt-Vt: $\begin{array}{c} \text{Vi-i} \rightarrow \text{Vi} \\ \swarrow \quad \searrow \\ \text{Vi} \quad \text{Vt} \end{array}$
- c. Vi-Vt: $\begin{array}{c} \text{Vi-t} \rightarrow * \text{Vt or } * \text{Vi} \\ \swarrow \quad \searrow \\ \text{Vi} \quad \text{Vt} \end{array}$
- d. Vt-Vi: $\begin{array}{c} \text{Vt-i} \rightarrow * \text{Vi or } * \text{Vt} \\ \swarrow \quad \searrow \\ \text{Vt} \quad \text{Vi} \end{array}$

If the two heads do not agree in transitivity, the combined complex verb will be in conflict between a transitive verb and an intransitive one, in terms of their different thematic requirements in a coordinating structure. As a result, the structure derived from such a combination crashes (in the structure 15). Given the illegitimate structures (42c and 42d), we predict that all VV coordinating compounds must be either Vt-Vt or Vi-Vi. This is also borne out as expected. As the following examples show, the Vt-Vi or Vi-Vt forms, in the Han and before, are actually Vt-Vt in which the Vi is used as a causative verb that can take an object, acting like a transitive verb. Or, the Vt-Vi must be Vi-Vi in which the Vt is used as a passivized verb that only takes a patient subject, functioning as an intransitive verb. For example:

- (43) 戰敗魏師。《左傳·成公8年》
zhan bai Wei shi
fight **cause-lose** Wei army
'fought and beat the Wei army.'
- b. 章邯敗殺項梁。《史記·灌嬰列傳》
Zhanghan bai sha Xiangliang.
Zhanghan **cause-lose** kill Xiangliang
'Zhanghan beat and killed Xiangliang.'

- c. 人...盡壓死。《論衡·吉驗》。
ren... jin ya si
people..all **be-crushed** die
'People were all crushed to death.'

In other words, the Vt and Vi must both be transitive in order to take an object (via causative usage of Vi), as in (43a-b). On the other hand, if the [Vt-Vi] cannot take an object, then the Vt1 and Vi2 must both be intransitive (through passivization of the Vt1).⁷ Given the theory presented here, both [Vt-Vi] → [Vt-Vt] and [Vt-Vi] → [Vi-Vi] are forced by the illegitimacy of *[Vt/i] resulting from the double-headed compounding in Classical Chinese syntax.

4.2 The Structure ambiguity of VV Coordinating Compounds

A question arises immediately: why is it that the VtVi forms such as *ya-si* 'crush to death' 壓死 could not take an object before but later could, such as *da-si zhi* 'hit-die it', as seen in (4b)? One thing is clear: it is not the case that the Vi2 *si* in *da-si zhi* was used causatively. Not only that, the causative usages of Vi in Vt-Vi were lost around the same time (i.e., the Six Dynasties 400 A.D.) that the VtVi (such as *da-si* 打死 in 4b) gained the ability to take an object, as commonly observed in literature (see Li (1984) and Liu (1984), and many others). Note that if the Vi is not used as a causative verb, the VtVi cannot take an object according to the double-headed analysis. What happened to the structure of VtVi in later development?

Following Huang (1995), I would like to suggest that the change of the VV transitivity was caused by a reinterpretation of the double-headed structure as either a Left-headed or Right-headed structure. That is to say, the double-headed structures in Chinese, if reanalyzed, will yield either a left-headed or a right-headed construction in certain contexts. For example, the double-headed [VP *er* VP] can be reinterpreted as [_{VP} [VP]_{modifier} *er* [V (NP)]]], a right-headed structure:

⁷ A question arises: Why can the Vt1-Vi2 not take an object such as *ya-si* of (43c) in Classical Chinese? In other words, why can *si* in (43c) not be used as a causative verb when combined with Vt1 as other Vi verbs do, such as *bai* in (43a) and (43b)? Note that this question cannot be solved by saying that *ya-si* was originally right-headed, because if this is so, why were other Vt1-Vi2 forms such as *zhan-bai* in (43a) not originally right-headed? As far as I know, *V-si* may be the only form that cannot take an object in Classical Chinese and this, according to the present theory, has to do with why *si* cannot be used as causative verb in Vt-*si*. I leave this question for future study.

- (44) 豕人立而啼。《左傳·莊公8年》

Shi ren li er ti (*Zuozhuan.Zuang.8*)

Pig person stand and cry

- a. The pig stands like a person and cries. (Coordinative reading).
 b. The pig cries in a human's standing manner (or 'The pig cries like a person standing', or 'The pig cries while standing like person'). (Right-headed reading).

The two verbs ('stand' and 'cry') are conjoined by the conjunction word *er* which is a typical coordinating structure in Classical Chinese. Of course the first VP can be interpreted as an independent event followed by the second VP 'cry', as in (44a). However the first VP can also be interpreted as an adjunct denoting a manner of the second VP 'cry', as in (44b). This indicates that the [V *er* V] in Chinese is structurally ambiguous, and this gives the possibility of reinterpretation of the headedness in coordinating compounds.

Not only is a switch to a right-headed structure possible as seen above, a switch to a left-headed is also possible in coordinating structures, as seen below (taken from Cao (2000)):

- (45) 鋤得五遍以上，不煩耨。《齊民要術·卷一》

Chu-de wu bian yishang, bu fan jiang.**Hoe-get** five time above, not need plough

'When hoed more than five times, there is no need to plough.'

我今以手掌盛取少少汁飲，而活于命。《佛本行集經24》

Wo jin yi shouzhang **cheng-qu** shaoshao zhi yin.I now use palm **hold-take** little juice drink

'Now I use my palm to hold a little bit of juice to drink.'

In the above examples, the second Vt (*de* 'get' and *qu* 'take') is used as a verb-particle and the head-complement relation can only be held between V1 (but not V2) and the object. This indicates, as pointed out by Cao (2000) and Wu (2000), that the head of the VV compounds can be switched to the left. The following examples I find in *Shiji* and *Lunheng* may be even more convincing:

- (46)
- Shiji*
- : 賊殺, 矯殺, 觸殺, 刺殺, 篡殺, 螫殺, 誘殺, 坑殺, 襲殺, 射殺,

讒殺, 攻殺, 破殺, 侵殺, 謀殺, 並殺, 共殺, 斬殺, 燒殺, 圍殺, 拉殺, 幽殺, 詐殺, 格殺, 爭殺, 傷殺, 絞殺, 捕殺, 怨殺, 椎殺, 追殺, 敗殺, 執殺, 責殺, 遷殺, 虐殺, 醉殺, 囚殺.....

Lunheng: 鳩殺, 坑殺, 擱殺, 誅殺, 餓殺, 劫殺, 攻殺, 厭殺, 犯殺, 刺殺, 擊殺, 藉殺, 溺殺, 傷殺, 燒殺, 屠殺, 月殺, 誘殺, 冤殺, 獲殺, 詔殺, 空殺.....

Some can of these V-*sha* forms actually be grouped into two types, one with a left-head structure as Wu (2000) has argued, and the other with a right-head structure, as I would like to argue. For example:

(46) Type-A Left-headed:

刺殺、擊殺、射殺、斬殺、燒殺、絞殺

ci-sha, ji-sha, she-sha, zhan-sha, shao-sha, jiao-sha
stab-kill, hit-kill, shoot-kill, behead-kill, burn-kill, hang-kill

Type-B Right-headed:

並殺、共殺、爭殺、醉殺、空殺

bing-sha, gong-sha, zheng-sha, zui-sha, kong-sha
jointly-kill, together-kill, try(first)-kill, drunk-kill, to no avail-kill

The left-headed form such as *shao-sha* 'burn-kill' is very obvious because it can be paralleled in 寧受絞死, 不樂燒殺 《賢愚經》 *ning shou jiao-si, bu le shao-sha* 'prefer hanging to death, not burning to death' where V-*si* and V-*sha* occur in an identical syntactic and semantic position, receiving the same grammatical interpretation. The right-headed interpretation is also unquestionable. For example, 太公空殺無辜之民 《論衡·非韓》 *Taigong kong-sha wugu zhi min* 'Taigong killed innocent people without reason.' *kong-sha* 'killing without reason' can only be interpreted as a right-headed compound because *kong* cannot take the object '*wugu zhi min*', hence *kong-sha* cannot be left-headed or double-headed. The only possible interpretation for *kong-sha* is right-headed. Following this line of reasoning, VV compounds like *zheng-sha* 爭殺 *gong-sha* 共殺 *zui-sha* 醉殺...etc., as in (46b), must also be interpreted as right-headed compounds developed in the language during the Han Dynasty.

4.3 The Semantics and the Avoid General Feature Principle

The left-headed movement in VV coordinating compounds may be caused by a process which I would like to call Avoid General Feature Principle (AGFP). That is, in a V-V compound, if the semantic features of one V are more general than that of the other, then the general features will be either avoided or overridden and finally disregarded or replaced by a relatively more specific feature of the other. For example, in *jiao-sha* 'strangle-kill', the semantics of *jiao* can be factorized as 'death caused by strangling with a rope', while *sha* can be 'death caused by whatever means'. That is:

- (48) 绞 V1 jiao cause death + by strangling with a rope
 殺 V2 sha cause death + by means of various kinds

Obviously, *sha* is more general than *jiao*, even if both could cause a death. Note that any means by which one can cause a death will be *sha* 'kill', but *jiao* can only cause death by strangling with a rope. According to the AGFP, when the two verbs (actions) are combined and used frequently, the more general feature 'by whatever means' will tend to be overridden and replaced by the relatively more specific ones.

- (49) 绞 V1 jiao cause death + by strangling with a string
 殺 V2 sha cause death + _____

When this happens, *jiao-sha* will mean 'strangled-(to)-death', but not 'strangle and kill'. Note that, when *sha* lost its semantic feature, it also lost its ability to take an object. In other words, reducing (removing) the semantic features from a verb will degenerate its ability to assign the theta role to its arguments. As a result, *sha* became an intransitive verb and this was caused by the partners which increasingly appeared with *sha*, such as 刺殺、擊殺、坑殺、射殺、斬殺、燒殺、拉殺、格殺、絞殺、誅殺、囚殺...etc., as in (46a). This process has been called the intransitivization of the V2 (Mei, 1991), which proceeded first on *V-de*, *V-qu*, *V-que*...etc. (See examples in (3) and (45)). Note that *sha* would not be dethematized without the partners which share the semantic feature of 'leading to death'. In other words, if the V1 does not have the feature of 'leading to death', it cannot serve as a specific feature in comparison with the more general one of V2, and hence V1 cannot override or disregard the general meaning of the V2. This can be seen from examples of the following:

矯殺、篡殺、蟄殺、誘殺、讒殺、謀殺、並殺、圍殺、詐殺、爭殺、責殺、遷殺、虐殺、醉殺...In the above examples, since the V1 has nothing to do with 'causing death', *sha* retains its lexical meaning entirely in these contexts (i.e., in all these VV forms, *sha* is used transitively). What is more interesting is this: even if the V1 cannot override or exclude the semantics of *sha*, the 'Avoid General Features Principle' still works in this environment, but from an opposite direction: instead of neglecting the general features of V2, it signifies the specific features of the V1. That is, V1 contributes more specific features to V2. In fact, the development of *V-sha* compounds have gradually come to form what can be called a Semantic Paradigm, in which all of the V1s in the paradigm contribute specific features for the same action denoted by the V2, as seen in Table 1.

Table 1. The Semantics of V1 and V2

V1=specification	V2=general action
矯-, 篡-, 蟄-, 誘-, 讒-, 謀-, 並-, 圍-	-殺
rectify-, usurp-, sting- lure-, slander-, plan-, surround-, trick-...	-kill

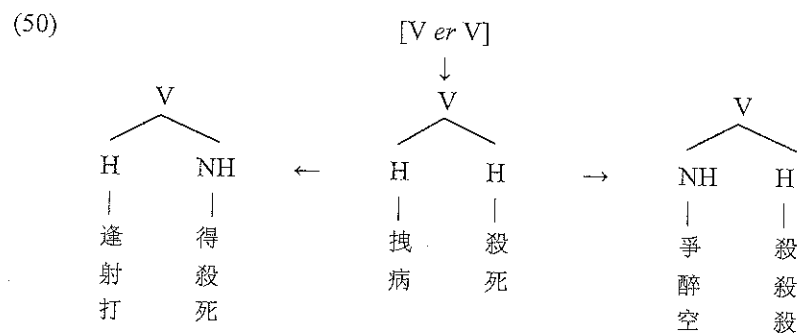
The Semantic Paradigm specifies, for the speakers of the next generation, different types of killing and various manners of the action. Since *sha* in these cases retains its lexical meaning entirely and since all the V1s specify manners for it, the *V-sha* forms will easily be reinterpreted as right-headed structures in which the V1 is reanalyzed as a manner of expression (i.e., an adverb), yielding the [V1_{adv}V2] compounding in Classical Chinese. Intuitively, all of the examples given in Table 1 can be interpreted as Adv-V compounds; theoretically, the VV forms such as 矯殺、並殺、爭殺 developed during the Han dynasty must be analyzed as Adv-V compounds, simply because if they are not right-headed, there would be no reason for them to take an object (as they did in *shiji*).

To sum up, the VV coordinating compounds have developed into both left-headed and right-headed compounds according to their internal semantics

and their usages in history. If this is indeed the case, we can now answer the question: where did the Verb+Resultative compounds come from? The answer is quite clear and simple: The VR compounds come from the left-headed VV compounds which originally were formed from coordinating compounds.

5 Summary

In this paper, I have proposed two prosodic syntactic environments from which VV compounds are originated, namely, (1) [[V1 t_i] *er* [V2 NP_i]]; (2) [...V1 *er* V2]. I have also proposed that VV compounds can result from [V1 *er* V2] structures with an adjacent focus element (i.e., [[V *er* V] FOCUS]). I argue against the traditional analysis that the [V *er* V pron] gives rise to VV compounding, because the [V1 *er* V2 pron] works fine without changing into a VV compound. It is important to point out that even if there are contexts where the VV compounds are motivated, a VV compound should not necessarily occur in the same environment. According to this analysis, the result of VV compounds is actually caused by several factors: the FFR and the NSP, as well as the interaction between syntax and prosody. Furthermore, I have argued that the VV compounds were double-headed and double-headed structure can be reanalyzed either as a left-headed or a right-headed structure. The right-headed VV compounds gave rise to later V-R forms and the left-headed ones resulted in Adv-V compounds. This can be illustrated as in (50):



If the above analysis is correct, the hypothesis made here supports the theory of Prosodic Syntax proposed in Feng (1995, 2000): Syntax governs prosody and prosody also constrains syntax. In the present case, it is the syntax that determines where the stress goes and it is the prosody that decides how the stress

is realized. Syntactic structure provides locations where prosodic rules or principles apply, yet the application of prosodic rules and principles will constrain syntax by reorganizing or even changing the structures generated by syntax. Under the Prosodic-Syntax Hypothesis, the historical change from coordinating phrases to coordinating compounds, from coordinating structures (cf. [...V1 and V2 NP]) to subordinating structures (cf. [...[V1V2]_v NP]), and from double-headed compounds to both left-headed (cf. [Adv V]) and right-headed (cf. [V R]) compounds can all be characterized as a result of a syntactic change driven by the force of prosody.

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