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A Contrastive Study of English and Chinese Synthetic Compounds

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Abstract
The current research compares the distributions of OV/VO patterns in English and Chinese synthetic compounds in a quantitative way and attempts to explain the mechanisms of the two patterns of compounds in English and Chinese. Both English and Chinese adopt SVO as their basic word order. However, the interface of syntax and morphology is more clear-cut in English than in Chinese. VO order prevails in English syntax. But VO order must be transformed into OV order in morphology. VO order is quite unproductive in English morphology. Compared with English, the boundary between morphology and syntax is rather vague in Chinese. The formation of Chinese compounds could be explained by the theory of "syntax-as-morphology", i.e., the VO order of syntax is directly copied by morphology in Chinese. The mechanism of Chinese synthetic compounds provides evidence for the hypothesis of "syntax as morphology".

Key words: OV; VO; Synthetic compounds; Pattern

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INTRODUCTION

A. Compounding – A Central Issue in Morphosyntax Research

Bearing the features of both syntax and morphology, compounding has been persistently studied by linguists in the last two decades. Cross-linguistic variations of synthetic compounds as well as word formation mechanisms have been paid special focus (cf. He, 2013). According to Caballero et al. (2008), morphosyntactical word order derivations caused by morphological driving could be regarded as an exclusive phenomenon for NV synthetic compounds (e.g., *skyscraper* [OV] vs. SCRAPE SKY [VO], *witch hunt* [OV] vs. HUNT WITCH [VO]). Generally speaking, synthetic compounds adopt the reserve word order [OV] of their verbal phrases [VO]. In English, the OV pattern is far more productive than VO pattern in compounding. The morphosyntactical derivations of OV and VO could be regarded as "a major mystery in modern linguistics" (Li Yafei 2010 academic communication). According to Li (2010), "some other people also claim that compounds are predominantly head-final (which obviously has many exceptions). If you can come up with a good answer, then you would have solved a major mystery in modern linguistics." Unlike English, VO and OV word orders co-exist in Chinese compounds. The morphological differences and similarities between English and Chinese might help to explain some typological universals and divergences within SVO languages. Besides theoretical contributions, the explorations on English and Chinese synthetic compounds has practical applications such as translation, interpretation and second language acquisition.

B. Literature Review

In English, both endocentric (OV) and exocentric (VO) compounds adopt verbs as the nexus (cf. Scalise & Bisetto, 2009). Generally speaking, there are four basic types of OV compounds: OV-*er/or*, OV-*ing*, OV-$_{zero\ suffix}$, OV-$_{multi\text{-}suffixes}$ (cf. Adams, 1973, p.61). Modern English is a typical SVO language, featuring the dominance of VO word order in syntax. While in morphology, in most cases, VO order is transformed into OV order in synthetic compounds. Hence OV is the typical word order

in the process of compounding. Compared with OV, VO order is rather weak and less productive. In recent years, linguists (Kayne, 1994; Alice & Campbell, 1995; Croft & Deligianni, 2001) explained this issue from different perspectives. Croft & Deligianni's (2001) study shows that VO and OV are typical word orders in natural languages worldwide, which arbitrarily select VO or OV orders.

Chao (1968) classified and described Chinese compounds. Packard (2000), Feng (2004), He (2004, 2013), Cheng (2005) discussed the issue of Chinese compounds within various theoretical frameworks. Ceccagno & Basciano's (2009) study reveals that the head of a Chinese compound noun usually falls on the right-hand side. Zhuang and Liu (2011) start from historical perspective and find that the word order of OVH is dominant in Ancient Chinese, while VOH order is more frequently used in Middle Old Chinese and Early Modern Chinese. The position of V and O is also influenced by prosodic factors in Modern Chinese. Some OVH compounds are derived from the mechanism of abbreviation.

C. The Current Study

Syntactically speaking, both modern English and Chinese belong to SVO languages, featuring the dominance of VO word order on the clause level, which provides comparison foundations for English and Chinese compounds. Adopting quantitative and qualitative methodology, the present research plans to compare the distributions of synthetic compounds in English and Chinese by collecting training data and explains the word formation mechanisms in English and Chinese from the perspectives of morphosyntax and historical development. Exploring the similarities and differences of compounding mechanisms will have significant implications in contrastive linguistics, translation studies, interpreter training, and second language acquisition.

1. TRAINING DATA COLLECTION

Due to the lack of ready bilingual lexical corpora, our research chooses *Macmillan English-Chinese Dictionary for Advanced Learners* (2005) as the data source. By manually extracting 93 OV-*er(or)* and 55 OV-*ing* construction words from the *Macmillan* bilingual dictionary, we obtain the English compounds and their respective Chinese counterparts (including compounds and phrases). Tables 1 and 2 classify the subcategories of 93 OV-*er(or)* and 55 OV-*ing* words, and Tables 3 and 4 provide statistical results of word order data.

2. STATISTICAL RESULTS

The statistical analysis reveals that English synthetic compounds strictly adhere to the word order of OV, while the Chinese counterparts allow both orders of VO and OV. The Chinese equivalents include both synthetic compounds and phrases. Next section will focus on the position of heads and internal word orders.

Table 1
English OV-*er* Compounds and Chinese Counterparts (Compounds & phrases)

English (total: 93)		Chinese (total: 93)	
Construction	**Samples**	**Constructions**	**Samples**
O+V-*er(or)* （93）	1. Arse-Licker 2. Asylum-Seeker 3. Beekeeper 4. Bloodsucker 5. Body Snatcher 6. Carpetbagger 7. Cigarette Lighter 8. Circuit Breaker 9. Coat Hanger 10. Coffee Maker 11. Dishwasher 12. Doorkeeper 13. Drought Excluder 14. Earth Mover 15. Fire-Eater 16. Fire-Raiser 17. Fire Extinguisher 18. Fortune-Teller 19. Gasholder 20. Gate-Keeper 21. Glassblower 22. Goalkeeper 23. Hairdresser 24. Hairdryer 25. Headhunter 26. Holidaymaker 27. Icebreaker 28. Job Seeker 29. Lawmaker 30. Lawnmower		1. 拍马屁者 2. 避难者 3. 养蜂人 4. 吸血鬼 5. 盗尸人 6. 投机家 7. 打火机 8. 断路器 9. 晾衣架 10. 煮咖啡器 11. 洗碗机 12. 看门人 13. 通风管 14. 推土机 15. 吞火魔术师 16. 纵火者，放火者 17. 灭火器 18. 算命先生 19. 储气罐 20. 看门人 21. 吹玻璃工 22. 守门员 23. 理发师 24. 吹风机 25. 猎头公司 26. 度假者 27. 破冰船 28. 求职者 29. 立法者 30. 割草机

To be continued

Continued

English (total: 93)		Chinese (total: 93)	
Construction	**Samples**	**Constructions**	**Samples**
	31. Leaseholder 32. Letter Opener 33. Lie Detector 34. Lightning Conductor 35. Moneylender 36. Office Holder 37. Painkiller 38. Pallbearer 39. Pathfinder 40. Peacekeeper 41. Pea-Shooter 42. Pencil Pusher / Pen-Pusher / Pencil Sharpener 43. Pile Driver 44. Potholder 45. Ratepayer 46. Rock Climber 47. Shit stirrer 48. Shock absorber 49. Shoemaker 50. Skyscraper 51. Snake charmer 52. Soothsayer 53. Stamp collector 54. Stargazer 55. Stretcher-bearer 56. Taxpayer 57. Tiebreaker 58. Tongue twister 59. Typesetter 60. Woodcutter 61. Woodpecker	1) V+O+H (61)	31. 承租人 32. 裁纸刀 33. 测谎仪 34. 避雷器，避雷针 35. 放债机构 36. 居要职者，任公职者 37. 止痛药，镇痛药 38. 抬棺者 39. 开拓者，探路者 40. 维和士兵 41. 射豆枪 42. 卷笔刀，削铅笔器 43. 打桩机 44. 防烫布垫 45. 纳税人 46. 攀岩者 47. 惹麻烦者 48. 减震器 49. 制鞋匠，修鞋匠 50. 摩天大楼 51. 玩蛇人，弄蛇人 52. 占卜者，预言者 53. 集邮者 54. 观察天体者，研究天体者 55. 抬担架者 56. 纳税人 57. 决胜题 58. 绕口令 59. 排字员，排字机 60. 伐木工 61. 啄木鸟
O+V-*er(or)* （93）	1. Policyholder 2. Shipbuilder 3. Snowblower 4. Watersoftener	2）V+O+H /O+V+H (4)	1. 投保人(V+O+H)/保险单持有者(O+V+H) 2. 造船公司，造船厂(V+O+H)/ 船舶制造厂，船舶制造公司 (O+V+H) 3. 吹雪机（车）(V+O+H) /积雪清除车(O+V+H) 4. 软水剂(V+O+H)/硬水软化剂(O+V+H)
	1. Babysitter 2. Billposter 3. Bread winner 4. Face-Saver 5. Globetrotter 6. Moneygrabber 7. Number cruncher 8. Storyteller 9. Trendsetter 10. Wageearner	3）V+O+DE+N（10）	1. 照看小孩的人 2. 张贴广告的人 3. 养家的人 4. 保全面子的事 5. 周游世界的人 6. 贪财的人 7. 捣弄数字的人 8. 讲故事的人 9. 引领时尚的人 10. 挣工资的人
	1. Beachcomber 2. Gunrunner 3. Streetwalker	4） ADV+V+O+N （3）	1. 海滩拾荒者 2. 私运军火者 3. 街头拉客妓女
	1. Bounty hunter	5）ADV+V+O+DE+ N（1）	1. 为获得赏金而搜捕罪犯的人
	1. Cash dispenser 2. Cassette recorder / player tape recorder	6）ADJ+V+O+ N（2）	1. 自动提款机 2. 盒（卡）式录音机
	1. Cocktail shaker 2. Potato peeler	7）N+V+O+N（2）	1. 鸡尾酒调酒器 2. 马铃薯去皮器
	1. Copy writer 2. Film maker	8）N +V+O+N（2）	1. 广告文字撰稿人 2. 电影制片人
	1. Housebreaker	9）V+O+ V+O+ N（1）	1. 破门入室者
	1. Sight-seer	10）V+O+H / V+N （1）	1. 观光客 (V+O+H)，游客 (V+N)
	1. Housekeeper	11）V+O（1）	1. 管家
	1. Scriptwriter	12）V+O+H / V+O （1）	1. 撰稿者(V+O+H)， 编剧(V+O)
	1. Strikebreaker	13）V+O+H / N+N （1）	1. 破坏罢工者(V+O+H)，工贼（N+N）
	1. Straphanger	14）V+O+V+H （1）	1. 拉吊带站立者
	1. Mind reader	15）V+V+O+DE+N （1）	1. 能看透别人心思的人
	1. Nail-biter	16）ADV+V+O+DE+N / V+O+ADJ+ADJ+DE+N（1）	1. 习惯咬指甲的人 (ADV+V+O+DE+H)；令人紧张激动的情形 (V+O+ADJ+ADJ+DE+N)

Table 2
English OV-*ing* Compounds and Chinese Counterparts (Compounds & Phrases)

English (Total: 55)		Chinese (Total: 55)	
Construction	**Samples**	**Constructions**	**Samples**
O+V-*ing* （55）	Arse-licking	1) V+O (35)	拍马屁
	Ball bearing		滚珠
	Bedwetting		尿床
	Beekeeping		养蜂
	Bell-ringing		鸣钟
	Billposting		张贴广告
	Bridge-building		改善关系
	Buck-passing		推卸责任
	Carjacking		劫车
	Child bearing		生孩子
	Cattle raising		养牛
	Decision-making		决策
	Fault-finding		找茬
	Fox-hunting		猎狐
	Goalkeeping		守门
	Haymaking		制备干草
	Horse-riding / horseback riding		骑马
	House-hunting		寻找住房
	Housekeeping		管家
	Lawmaking		立法
	Lovemaking		做爱
	Matchmaking		做媒
	Muckraking		揭发黑幕
	Number crunching		捣弄数字
	Peacekeeping		维持和平
	Prize-giving		颁奖
	Problem-solving		解决问题
	Risk-taking		冒险
	Rock climbing		攀岩
	Scaremongering		制造恐慌
	Stamp collecting		集邮
	Stocktaking		盘存, 清点存货
	Streetwalking		招嫖
	Strikebreaking		破坏罢工
	Trendsetting		引领时尚
	Carol singing	2) V+O+H (7)	唱诵歌活动
	Coal mining		采煤业
	Flower arranging		插花艺术
	Housewarming		温居聚会
	Job-sharing		轮岗制
	Shipbuilding		造船业
	Typesetting		排字工作
	Asset-stripping	3) V+O / O+V (6)	倒卖资产(V+O), 资产倒卖(O+V)
	Bookbinding		装订图书(V+O), 图书装订(O+V)
	Fish Farming		养鱼(V+O)，水产养殖 (O+V)
	Fundraising		筹集资金(V+O), 资金筹集(O+V)
	Price-fixing		操纵物价(V+O), 价格垄断(O+V)
	Timesharing		分时(V+O), 时间共享(O+V)
	Blood poisoning	4) V+O+H / O+V (1)	败血症(V+O+H), 血中毒(O+V)
	Thanksgiving / Thanksgiving	5) V+O+H / V+O (1)	感恩节(V+O+H), 感恩(V+O)
	Profit-sharing	6) V+O+H / O+V+H (1)	分红制(V+O+H), 利润分成制(O+V+H)
	Channel hopping / channel surfing	7) ADV+V+O (1)	不停地换电视频道
	Brass rubbing	8) V+ V (2)	拓印
	Family planning		计划生育
	Horse-trading	9) [V+O]+ [V+O] (1)	讨价还价

Table 3
Word Order Comparison Between English OV-*er* Compounds and Chinese Counterparts (Compounds & Phrases)

English (total: 93)		Chinese (total: 93)	
Construction	**Numbers**	**Constructions**	**Numbers**
OV-*er(or)*	93	1) V+O+H	61
		2）V+O+H /O+V+H	4
		3）V+O+DE+N	10
		4） ADV+V+O+N	3
		5）ADV+V+O+DE+ N	1
		6）ADJ+V+O+ N	2
		7）N+V+O+N	2
		8）N +V+O+N	2
		9）V+O+ V+O+ N	1
		10）V+O+H / V+N	1
		11）V+O	1
		12）V+O+H / V+O	1
		13）V+O+H / N+N	1
		14）V+O+V+H	1
		15）V+V+O+DE+N	1
		16）ADV+V+O+DE+N /V+O+ADJ+ADJ+DE+N	1

Table 4
Word Order Comparison Between English OV-*ing* Compounds and Chinese Counterparts (Compounds & Phrases)

English (total: 55)		Chinese (total: 55)	
Construction	**Numbers**	**Constructions**	**Numbers**
O+V-*ing*	55	1) V+O	35
		2) V+O+H	7
		3) V+O / O+V	6
		4) V+O+H / O+V	1
		5) V+O+H / V+O	1
		6) V+O+H / O+V+H	1
		7) ADV+V+O	1
		8) V+ V	2
		9) [V+O]+ [V+O]	1

The statistical results demonstrate that OV-*er* (*or*) (93 words) and O+V-*ing* (55 words) compounds unanimously abide by the "Righthand Head Rule" (Williams, 1981). Compared with English compounds, the head positions of Chinese compounds are rather complicated. Altogether 16 constructions are found in the Chinese counterparts (compounds and phrases) of the tested English OV-*er(or)* compounds (see Tables 1 & 3). The V+O+H (61 words) and V+O+H /O+V+H (4 words) compounds are right-headed. However, V+O words (e.g. 管家 *housekeeper*, 编剧 *scriptwriter*, etc.) do not have right-hand heads. V+O+H (61) constructions include 55 compounds (e.g. 理发师 *hairdresser*, 承租人 *leaseholder*, etc) and 6 phrases (e.g. 吞火魔术师 *fire eater*, 居要职者*office holder*, etc), including 4 groups of compounds displaying the V+O+H and O+V+H constructions simultaneously (e.g. "投保人"(V+O+H)/"保险单持有者" (O+V+H) *policyholder*). As for the counterpart compounds and phrases of English OV-*ing* words, we have found 9 Chinese constructions in total (see Table 2 & 4). V+O+H (7), V+O+H /O+V (1), V+O+H / V+O (1) and V+O+H /O+V+H (1) constructions are right-headed, while V+O (35) and V+O / O+V (7) compounds do not possess right-hand heads as there are no heads in these words at all.

Compared with English synthetic compounds, V+O+H, V+O+H /O+V+H, V+O+H /O+V, V+O+H / V+O, V+O, V+O / O+V, V+ V and [V+O]+ [V+O] constructions co-exist in Chinese synthetic compounds (see Tables 3 & 4). The constructions of V+O+H (61+7=68) and V+O (35) are most productive.

3. DISCUSSION

3.1 Contrastive Analysis of Head Positions

"The head of a word is generally to the right. In these compounds the head is the nominal affix, -er, -ing. The object is pre-verbal to escape case marking, and thus referentiality" (Anna Maria Di Sciullo 2011 academic communication). Likewise, Antonietta Bisetto (2011 academic communication) expresses similar viewpoints in her email to us :

> English compounds reflect the order that can be found in modified NPs, that is to say the adjective-noun order that, as you know, is different from the VO order. English compounds are right headed and the non-head constituent (on the left of compounds) is mainly interpreted as a modifier, so compound order is different from the VO order. This phenomenon is a typological one and can be found in many languages whose main word order, (sentence-order, I mean) is SVO.

Ray Jackendoff (2012 academic communication) also believes

> that the order in English compounds isn't really OV, rather it's head final. So one has "helicopter attack", which is a kind of attack, but also "attack helicopter," which is a kind of helicopter; there is "beef stew", which is a kind of stew, and "stew beef," which is a kind of beef.

Ceccagno and Basciano (2009) have reached different conclusions and have shown that "Chinese compounding consistently produces right-headed compounds (nouns, verbs and adjectives), left-headed compounds (verbs), two-headed compounds (nouns, verbs and adjectives) and exocentric compounds, too." The statistical analysis also confirms this viewpoint. V+O+H /O+V+H construction endocentric compounds are right-headed, but V+O/O+V exocentric compounds are headless. According to Zhuang and Liu (2011), Chinese synthetic compounds follow the Righthand Head Rule. While He (2013) points out that the exocentric words (e.g. 签名 *sign*, *signature*) are simultaneously nouns and verbs and don't follow the Righthand Head Rule.

The heads of English OV-*er(or)* compounds and their Chinese counterparts generally refer to the categories such as HUMAN, INSTRUMENT, OBJECT, and INSTITUTION, etc. Unlike OV-*er(or)* words, O+V-*ing* compounds' heads often represent ACTION and STATE, hence their Chinese counterparts (compounds and phrases) with V+O construction are exocentric and don't constrained by the the Righthand Head Rule. On the other hand, the process of translating may genearte Chinese equivalents with or without heads. For example, the word *scriptwriter* can be translated into 撰稿者 (V+O+H) and 编剧 (V+O). Hence the former version has a right-hand head while the latter doesn't, which demonstrates that surface structure may deviate from deep structure and semantic meaning. One meaning may have various expressions with different surface strucrtures.

3.2 Contrastive Analysis of Internal Word Orders of Synthetic Compounds

Linguists have devoted more energy to the study of internal word orders of compounds. VO construction compounds are generated from the mechanism of root compounding. Consequently this compound construction is unproductive and quite limited in numbers (e.g. *breakwater,hunchback,pickpocket,shut-eye,sing-song,watchword,pick-me-up,scoff-law,seek-sorrow,do-good-er,kill-joy,cut throat,wagtail,turn stone,catchfly, breakneck,* etc.). The verbal elements in English synthetic compounds must be inflectional. The internal word order is reversive with syntactic order (OV vs. VO) and OV construction is pretty productive (cf. He 2013), which has also been proved by data analysis in the current study. Data analysis also reveals that reversive word orders such as V+O/O+V (6) and V+O+H /O+V+H (4) co-exist in Chinese synthetic compounds. Hence we may draw the conclusion that VO is the fundamental productive word order of Chinese synthetic compounds, which is sharply different with the dominance of OV-*er (or)* and O+V-*ing* in English compounds. What's more, VO and OV orders co-exist in Chinese compounds. The compounding mechanisms and word order differences between English and Chinese synthetic compounds will be discussed from the perspectives of historical linguistics, morphosyntax, and prosody.

3.2.1 Perspective of Historical Linguistics

Data analysis "shows clearly that it is not the case that verb + noun compounds directly and necessarily reflect the phrasal word order of the language at the time the given compound is coined" (Alice & Campbell, 1995, p. 201), which could be explained by the word order of SOV in the Old English. Hence the OV order in Modern English compounds reflect the SOV order in Old English. Givón (1971) and Lehmann (1974) also support the viewpoint. English compounds are generally regarded as the abbreviated forms of clauses. In this process, "clear traces of the older syntax have survived" (Givón 1971) and fixed in modern compounding mechanism with the dominance of OV pattern, which can be traced back to Early Modern English period (e.g. *lovelorn*).

The syntax word order of Ancient Chinese is quite similar with that of Old English, i.e. SOV (cf. Wang, 1980; Li & Thompson, 1981; Shi, 1986). If we adopt the hypothesis of Alice & Campbell (1995:201), the compound in Ancient Chinese should abide by the pattern of O+V+H. In order to testify this hypothesis, the present research uses the word "者" (PERSON) as the head and search the corresponding compounds in the *Academia Sinica Ancient Chinese Corpus* (http://lingcorpus.iis.sinica.edu.tw/cgi-bin/kiwi/akiwi/kiwi.sh?ukey=-587415549&qtype=-1) and obtain 5000 results (see Appendix 1 & 2). The statistical data negates the hypothesis because of the dominance and obvious productivity of V+O+H（者）pattern. While only two compounds (肉食者 MEAT EATER and 熟食者 COOKED FOOD EATER) with the pattern of O+V+H（者）are found in the corpus. Therefore we may conclude that V+O+H is the productive pattern in Ancient Chinese while O+V+H pattern is rather weak. However, it seems that Ancient Chinese allows the co-existence of the two word orders. Direct evidence comes from the corpus. For example, the word肉食者 (MEAT EATER) is found in *Zuozhuan (The Commentary of Zuo)*, while the word食肉者 (MEAT EATER) is found in *Liji (Record of Rites)*. Hence we assume that word orders of

V+O+H and O+V+H co-exist with each other ever since Ancient Chinese despite the dominance of VO. In Modern Chinese, the O+V+H pattern becomes more productive, which has been proved in the statistical results above. But the V+O+H (68) / V+O (35) pattern is still the dominant word order in Modern Chinese.

3.2.2 Perspective of Morphosyntax

Asymmetry Theory (AT in abbreviation) was proposed and developed by Kayne (1994). As for the issue of word order deviations of morphology and syntax in English, Richard Kayne writes (academic communication 2012) in the email,

> I don't think it's a question of syntax vs. morphology, insofar as I tend to believe that compounding is part of syntax. As for your interesting word order questions, one amounts to asking why in its sentential syntax English is "VO". In effect that amounts to asking what the parameter is, or what the parameters are, that distinguish the VO Germanic languages like English and the Scandinavian languages from the OV Germanic languages like German and Dutch. My antisymmetry work leads me to the conclusion that a difference or differences in movement must be involved. A separate question, I think, is why VO order is not possible in English compounds. This question in turn has two parts. One is why English does not allow **tame-lion-er*, as opposed to *lion-tamer*.

Likewise, Harley (2009) attempts to explain the compounding mechanism within the framework of Distributed Morphology (DM in abbreviation). The argument of morphology-as-syntax could be ideally displayed in compound formation. For example, in DM theory, *chip-making* is generated by [[CHIP MAKE] ing] instead of [CHIP [MAKE ing]].

Heidi Harley (2010 academic communication) thinks that DM theory can also be applied in the study of Chinese morphology. Packard (2000), He (2004, 2013), and Cheng (2005) have explained the word formation mechanism of Chinese synthetic compounds from the perspective of morphosyntax. In Chinese, O+V+H pattern compounds are generated by a D-Structure verbal phrase, which can be demonstrated by Figure 1.

Packard (2000) uses X-bar theory to explain the formation of Chinese compounds but does not explain the differences between the patterns of V+O+H and O+V+H. He (2004, 2013) adopts the Right hand Head Rule, pattern-associated memory, loop morphology and principle of economy to explain the compounding

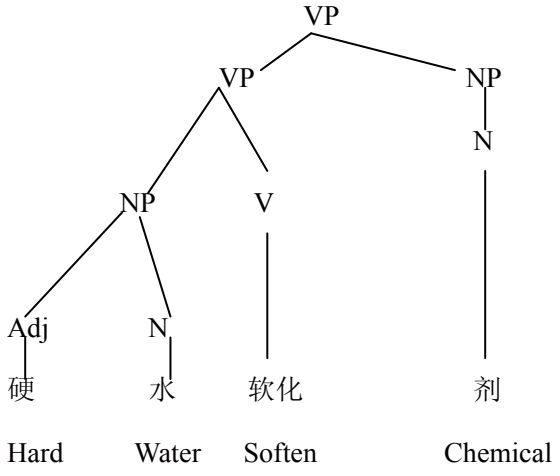

Figure 1
Formation of O+V+H（硬水软化剂 *Water Softener*）Pattern Compound

mechanism but gets challenges from Zhuang and Liu (2011) on the issue of O+V+H pattern formation. Besides, Liu et al. (2015, p.408) believe that Chinese ergativity happens on the syntactic level and greatly influences its word order, while the English ergativity takes place on the morphological level and has minor influences on its fundamental word order. It could be found that morphosyntax perspective explains a part of the issue of word order but it is less satisfactory in explaining the co-existence of VO and OV in Chinese compounds.

3.2.3 Perspective of Prosodic Morphology

Unlike morphosyntax perspective, Feng (1999, 2004) attempts to reveal the mechanism of Chinese compounds from the prosodic-morphological perspective, assuming morphology is determined by prosody. The collocation of syllables determines the internal word order of Chinese compounds, which is quite different from their English counterparts. For example, [1#1] and [2#2] are typical foot patterns for V+O exocentric compounds. Prosodic variations allow the co-existence of V+O and O+V patterns in Chinese compounds. Table 5 demonstrates that V+O+H and V+O constructions usually follow the prosodic foot patterns of [2#1], [2#2], and [1#1], while O+V+H and O+V constructions often adhere to the prosodic foot patterns of [3#3]，[2#3]，[2#2#2]，[2#2]，and [1#2].

Table 5
Prosodic Foot Patterns of V+O / O+V and V+O+H /O+V+H Compounds

English	Chinese	
OV-*er*, OV-*ing*	**V+O+H, V+O**	**O+V+H, O+V**
Policyholder	投保人[2#1]	保险单持有者[3#3]
Shipbuilder	造船公司[2#2]，造船厂[2#1]	船舶制造厂[2#3]，船舶制造公司[2#2#2]
Snowblower	吹雪机（车）[2#1]	积雪清除车[2#3]
Watersoftener	软水剂 [2#1]	硬水软化剂 [2#3]
Asset-stripping	倒卖资产[2#2]	资产倒卖[2#2]

To be continued

Continued

English	Chinese	
OV-*er*, OV-*ing*	**V+O+H, V+O**	**O+V+H, O+V**
Bookbinding	装订图书[2#2]	图书装订[2#2]
Fish farming	养鱼[1#1]	水产养殖 [2#2]
Fundraising	筹集资金[2#2]	资金筹集[2#2]
Price-fixing	操纵物价[2#2]	价格垄断[2#2]
Timesharing	分时[1#1]	时间共享[2#2]
Blood poisoning	败血症[2#1]	血中毒[1#2]
Profit-sharing	分红制[2#1]	利润分成制[2#3]

As for the Chinese counterparts of *shipbuilder, snowblower*, and *water softener*, [2#1] (e.g.造船厂, 吹雪机（车）, 软水剂) is the typical prosodic pattern for V+O+H compounds, while [2#3](e.g. 船舶制造厂, 积雪清除车, 硬水软化剂) is the frequent pattern for O+V+H compounds. Emprical evidence from Chinese compounds proves that the internal word order (morphology) is also influenced or even determined by prosodic patterns, which is quite different from English.

CONCLUSION

The constrastive analysis reveals that morphology and sytax has different constructions in English (OV vs. VO). The interface between morphology and syntax is obvious and clear-cut. VO order is the dominant word order in syntax, and it must be reversed through syntactical operations and become OV in compounding process. VO order is quite weak and lacks productivity. Compared with English, the boundary between morphology and syntax in Chinese is rather vague and fuzzy. The view of syntax as morphology is best displayed in Chinese compound formation, i.e. the VO word order of Chinese compounds is directly copied from syntax. Besides, the internal word order of Chinese compounds is also influenced by prosodic foot patterns, which is sharply different from English. We expect that large scale paralell lexicon corpus could be applied in future research on the issue.

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REFERENCES

Academia Sinica Ancient Chinese Corpus. (n.d.). Retrieved from http://lingcorpus.iis.sinica.edu.tw/cgi-bin/kiwi/akiwi/kiwi.sh?ukey=-587415549&qtype=-1

Adams, V. (1973). *An introduction to modern English word-formation*. London: Longman,.

Caballero, G., Houser, M. J., Marcus, N., McFarland, T., Pycha, A., Toosarvandani, M.,…Nichols, J. (2008). Nonsyntactic ordering effects in noun incorporation. *Linguistic Typology, 12*(3), 383-421.

Ceccagno, A. (2009). Metacompounds in Chinese. *Lingue e linguaggio*, *VIII*(2), 195-212.

Chao,Y. R. (1968). *A Grammar of Spoken Chinese*. Berkeley: University of California Press.

Cheng, G. (2005). Zhe (er) synthetic compounds in Chinese and their implications for UG. *Modern Foreign Languages*, (3), 232-238.

Croft, W., & Deligianni, E. (2001). *Asymmetries in NP word order.* University of Manchester.

Feng, S. L. (1999). *Interactions between Morphology Syntax and Prosody in Chinese*. Beijing: Peking University Press.

Feng, S. L. (2004). Verb-object inversion and prosodic morphology. *Linguistic Sciences,* (3), 12-20.

Givón, T. (1971). Historical syntax and synchronic morphology: an archaeologist's field trip. *Chicago Linguistic Society, 7,* 394-415.

Harley, H. D. (2009). Compounding in distributed morphology. In L. Rochelle & P. Štekauer (Eds.), *The Oxford handbook of compounding* (pp.129-144). Oxford: Oxford University Press.

He, Y. J. (2004). The loop theory in Chinese morphology. *Contemporary Linguistics,* (3), 223-235.

He, Y. J. (2013). A further study on Chinese synthetic compounds: Structure, typology and cues to language acquisition. *Foreign Language Teaching and Research*, 45(4), 483-494.

Jerome L. P. (2000). *The Morphology of Chinese: A Linguistic and Cognitive Approach*. Cambridge: Cambridge University Press.

Kayne, R. S. (1994). *The antisymmetry of syntax. linguistic inquiry monograph twenty-five*. MIT Press.

Lehmann, W. P. (1974). *Proto-Indo-European syntax*. Austin: University of Texas Press.

Li, C. N., & Thompson, S. A. (1981). *Mandarin Chinese: A functional reference grammar*. Berkeley: University of California Press.

Lieber，R., & Štekauer, P. (2009). Introduction: status and definition of compounding. In L. Rochelle & P. Štekauer (Eds.). *The Oxford handbook of compounding*. Oxford: Oxford University Press, 3-18.

Liu, X. L., Wang, W. B., Tan, R. S., & Chen, W. B. (2015). *A contrastive study of the English and Chinese word order from the perspective of historical linguistics*. Shanghai: Shanghai Foreign Language Education Press.

Mayor, M., & Yang, X. Z. (2005). *MacMillan English-Chinese dictionary for advanced learners*. Beijing: Foreign Language Teaching and Research Press.

Scalise, S., & Bisetto, A. (2009). The classification of compounds. In L. Rochelle & P. Štekauer (Eds.), *The Oxford Handbook of Compounding* (pp.34-53). Oxford: Oxford University Press.

Shi, C. Z. (1986). *Outline of Chinese grammar history* (*hanyu yufashi gangyao*). Shanghai: East China Normal University Press.

Wang, L. (1980). *A history of Chinese* (*hanyu shigao*). Beijing: The Commercial Press.

Zhuang, H. B., & Liu, Z. Q. (2011). Morphology of Chinese synthetic compounds and their prosodic constraint. *Chinese Teaching in the World*, (4), 497-506.

APPENDIX 1 V+O+H（者）PATTERN COMPOUNDS

V(monosyllable)+O（monosyllable）+H（者）	V(monosyllable)+O（disyllable）+H（者）
1. 知我者	1. 动万物者
2. 立本者	2. 挠万物者
3. 革物者	3. 燥万物者
4. 主器者	4. 润万物者
5. 执币者	5. 有适子者
6. 执玉者	6. 有过失者
7. 受酬者	7. 有国家者
8. 执幕者	8. 有田禄者
9. 牵马者	9. 有两妻者
10. 无籍者	10. 无职事者
11. 无养者	11. 无夫家者
12. 无子者	12. 无侧室者
13. 无母者	13. 无田禄者
14. 无主者	14. 服公事者
15. 无忧者	15. 理万物者
16. 无情者	16. 争墓地者
17. 无纪者	17. 掌摈士者
18. 无声者	18. 逆军旅者
19. 无道者	19. 犯师禁者
20. 无节者	20. 献车马者
21. 无事者	21. 献熟食者
22. 无父者	22. 献田宅者
23. 无妻者	23. 进矛戟者
24. 无夫者	24. 进几杖者
25. 无车者	25. 受珠玉者
26. 有纪者	26. 受弓剑者
27. 有权者	27. 饮玉爵者
28. 有声者	28. 食果实者
29. 有德者	29. 生人心者
30. 有学者	30. 明其义者
31. 有德者	31. 能其事者
32. 有功者	32. 正其心者
33. 有爵者	33. 诚其意者
34. 有功者	34. 治其国者
35. 祭主者	35. 产万物者
36. 掌事者	36. 欺三军者
37. 受财者	37. 食卫粟者
38. 犯禁者	38. 亡邓国者
39. 亡矢者	39. 求亡妻者
40. 杀人者	40. 为人子者
41. 献甲者	41. 利社稷者
42. 献杖者	42. 执玉帛者
43. 献粟者	43. 违君命者
44. 献米者	44. 为人臣者
45. 献捷者	45. 用私道者
46. 进剑者	46. 用私义者
47. 进戈者	47. 破三军者
48. 效犬者	48. 举大事者

To be continued

Continued

V(monosyllable)+O（monosyllable）+H（者）	V(monosyllable)+O（disyllable）+H（者）
49. 送葬者	
50. 佩玉者	
51. 削地者	
52. 得之者	
53. 好女者	
54. 饮酒者	
55. 食肉者	
56. 食言者	
57. 取衣者	
58. 畏罪者	
59. 奔丧者	
60. 用财者	
61. 念母者	
62. 为政者	
63. 弑君者	
64. 从人者	
65. 继天者	
66. 受甲者	
67. 守藏者	
68. 补过者	
69. 犯命者	
70. 当道者	
71. 守业者	
72. 克敌者	
73. 救火者	
74. 救人者	
75. 求媚者	
76. 事君者	
77. 从政者	
78. 作乱者	
79. 割地者	
80. 争名者	
81. 攻秦者	
82. 立义者	
83. 知己者	
84. 悦己者	
85. 弱楚者	
86. 攻魏者	

APPENDIX II O+V+H (者)PATTERN COMPOUNDS

O（monosyllable）+V（monosyllable）+H（者）
1. 肉食者
2. 熟食者